East 11th Street Works

NEW YORK COUNTY

NEW YORK, NEW YORK

Interim Site Management Plan For Jacob Riis Houses

NYSDEC Site Number: V00543

Prepared for:

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Revisions to Final Approved Interim Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

MAY 2017

CERTIFICATION STATEMENT

I ___________________certify that I am currently a Qualified Environmental Professional as in defined in 6 NYCRR Part 375 and that this Interim Site Management Plan 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).

____

_________________________DATE

TABLE OF CONTENTS

East 11th Street Works
New York, New York

INTERIM SITE MANAGEMENT PLAN

List of Tables

List of Figures

List of Appendices

List of Acronyms

ASP	Analytical Services Protocol
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, toluene
Con Edison	Consolidated Edison Company of New York, Inc.
CAMP	Community Air Monitoring Plan
DNAPL	Dense non-aqueous phase liquid
EWP	Excavation Work Plan
GHASP	Generic Health and Safety Plan
HHEA	Human Health Exposure Assessment
ISMP	Interim Site Management Plan
NAPL	Non-aqueous Phase Liquid
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCHA	New York City Housing Authority
NYCDEP	New York City Department of Environmental Protection
OU	Operable Unit
PAH	Polycyclic aromatic hydrocarbon
PID	Photoionization Detector
PPE	Personal Protective Equipment
SCO	Soil Cleanup Objective
SVOC	Semivolatile organic compound
ug/kg	micrograms per kilogram
ug/l	micrograms per liter
VCA	Voluntary Cleanup Agreement
VOC	volatile organic compound

1.0 INTRODUCTION

1.1 General

This Interim Site Management Plan for Jacob Riis Housing (ISMP) was prepared for intrusive activities that may be conducted within certain areas of the New York City Housing Authority (NYCHA) property located at Block 367, Lot 1 (Jacob Riis Houses), located in Manhattan, New York (Figure 1). This document is a required element of the remedial program for the East 11th Street Works site located in Manhattan, New York (hereinafter referred to as the "former Works site"). The former Works site is currently in the New York State (NYS) Voluntary Cleanup Program (VCP)], VCA Index 02-0003-02-08, Site No. V00543 that is administered by New York State Department of Environmental Conservation (NYSDEC). A figure showing the former Works site location of this approximate 8-acre site is provided in Figure 2. Once approved by the NYSDEC, this ISMP will serve as the working protocol for personnel conducting intrusive work within select areas of NYCHA's Jacob Riis Houses Complex (Jacob Riis Houses Complex). The requirements presented in this plan must be followed for intrusive activities conducted within the ISMP area by maintenance, contractors, and/or other utilities workers, and/or NYCHA employees or their contractors, collectively referred to as "ISMP Entities". Intrusive activities may include, but are not limited to: excavation, fence post installation, re-grading of the property, and installation or maintenance of subsurface utilities or conduits at any depth below grade. Normal lawn care or other aboveground landscaping are not considered intrusive activities that require implementation of this ISMP. In addition, shallow (less than 2 feet below ground surface [bgs]) seasonal plantings of shrubs or flowers, which occur at a frequency of less than three days per planting season (per year), also will not trigger the requirements set forth in this ISMP. Revisions to this ISMP may be proposed based on future changes to site conditions, additional information collected, or regulatory changes.

During completion of the remedial investigation described in the *Remedial Investigation Report, East 11th Street Works Site* (Arcadis 2007) (RI Report), some contamination was identified in the subsurface at this site, which is hereafter referred to as "remaining contamination". This ISMP was prepared to manage remaining contamination at portions of the Jacob Riis Housing complex until the final remedy is selected and subsequently implemented. This ISMP may only be revised with the approval of the NYSDEC.

It is important to note that failure to comply with this ISMP is a violation of Environmental Conservation Law, 6NYCRR Part 375 and the VCA (Index #D2-0003-02-08; Site #V00534) for the site, and thereby subject to applicable penalties.

All NYSDEC reviewed and approved reports associated with the former Works Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State, or by visiting the document repositories. A list of contacts for persons involved with the site is provided in Table 1a (Notifications) and Table 1b (Emergency Contact Numbers), below.

This ISMP was prepared by Arcadis of New York, Inc. (Arcadis), on behalf of Con Edison, in accordance with the requirements of the NYSDEC's DER-10 ("*Technical Guidance for Site Investigation and Remediation*"), dated May 2010, and the guidelines provided by the NYSDEC.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC will provide a notice of any approved changes to the ISMP, and append these notices to the ISMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner and/or ISMP entity to Con Edison and the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the VCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 30-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan (EWP).

This 30-day notification period does not apply to emergency situations where advance notification is not practicable (e.g., power/utility outages, emergency repairs, etc.).

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

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the VCA, and all approved work plans and reports, including this ISMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1a below includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information.

Table 1a: Notifications*

Name	**Contact Information**
NYSDEC Ms. Elizabeth Lukowski Project Manager	Phone: 518.402.9662 Email: derweb@dec.ny.gov
Remedial Party Con Edison	Phone: 877.602.6633

* Note: Notifications are subject to change and will be updated as necessary.

1.4 Emergency Telephone Numbers

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

Table 1b: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility mark-out)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The East 11th Street Former Works Site is located on the Lower East Side of the Borough of Manhattan, New York City. Figure 2 presents the location of former structures associated with the former MGP operation.

The Jacob Riis Houses complex was completed in 1949. The Jacob Riis Housing complex consists of 19 multi-story buildings extending from East 6th Street to East 13th Street between Avenue D and the FDR Drive. The portion of the Jacob Riis Houses complex that is located on the grounds of the former MGP and is included in the ISMP area includes six multi-story brick apartment buildings known as Building Nos. 2, 3, 4, 5, 6 and 8 and portions of two additional buildings known as Building Nos. 1 and 7 (Figure 2). The ISMP area is approximately 5.5-acres in area and is located on Block 367 and Lot 1 on the Manhattan Tax Map. The ISMP area is generally bounded by E. 13th Street to the north, E. 10th Street to the south, FDR Drive to the east, and Avenue D to the west (Figure 3).

The owner of the ISMP parcel at the time of issuance of this ISMP is the NYCHA.

2.2 Physical Setting

2.2.1 Land Use

The Jacob Riis Houses complex consists of 19 multi-story buildings zoned as a residential district (R7-2) by the New York City Planning Commission and includes land uses designated as multi-level elevator residential buildings, transportation and utility use, and public facilities and institutions.

The properties adjoining the ISMP area and in the surrounding neighborhood primarily include residential and commercial properties. Additional multi-story residential buildings part of the Jacob Riis Housing Complex are located immediately south of the ISMP area; the property immediately north of the ISMP area is an industrial property; immediately east of the ISMP area is FDR Drive; the property east of FDR Drive is a public park; and the properties to the west of the ISMP area include commercial and residential properties and a public school.

2.2.2 Geology

Three stratigraphic units were encountered during site investigations; a Fill Unit, a Sand-Silt Unit, and a Silty-Clay Unit. The Fill Unit, with a thickness ranging from 7 to 30 feet, was the uppermost unit encountered. The top of this unit represents the present-day surface of the site. The Fill Unit is underlain by the Sand-Silt Unit, which varies in thickness from 10 feet to 35 feet. The Sand-Silt Unit is underlain by the Silty-Clay Unit. The thickness of the Silty-Clay Unit beneath the site is unknown. These units are depicted on two cross-sections (**Figures 4** and **5**); cross section A-A’ trends east to west, while cross section B-B’ trends north to south. The inferred shallow water table surface, location of former MGP structures, and visual observations of impacts are also depicted on each of the cross-sections.

Based on lithologic properties the Fill Unit and Sand-Silt Unit appear to be permeable units, whereas the Silt-Clay Unit appears to be a semi-confining unit. In most soil borings completed during the site investigations, saturated soil conditions were first encountered in the Fill Unit, and as such the Fill Unit along with the Sand-Silt Unit represents a shallow unconfined aquifer (i.e., water table aquifer). Site specific boring logs are provided on compact disc as Appendix A.

2.2.3 Hydrogeology

Depth to groundwater is approximately 6 to 8 feet bgs across the ISMP area. Groundwater elevations of the water table aquifer are illustrated on Figure 6. Groundwater contours were developed using depth to groundwater measurements collected on March 5, 2007 (the most recent gauging event) in each of the shallow wells installed during the remedial investigation. Shallow groundwater appears to flow in a radial pattern from a groundwater mound centered in the vicinity of MW-115A and MW-121A. Groundwater elevation data is provided in Table 2. Groundwater monitoring well construction logs are also provided in Appendix A.

2.3 Investigation and Remedial History

Based on information provided in previous reports, the East 11th Street Works began operations between 1859 and 1868 and was shut down in approximately 1933. Over its operational period, the former gas works consisted of 17 gas holders ranging in capacity from approximately 50,000 cubic feet to 5,000,000 cubic feet. Several of the gas holders were converted from gas storage to liquid storage of naphtha, tar, or gas oil. The original gas holders built in the late 1800's were most likely constructed with below grade bottoms. Many of these were replaced by large gas holders built on grade with storage capacities greater than 1,000,000 cubic feet of gas. Other production and storage facilities that were present during the operational life of the former gas works included retorts, fuel/gas oil tanks, tar separators, purifying houses, and condensers/scrubbers. Figure 2 presents the location of former structures associated with the former MGP operation.

As stated above, the Jacob Riis Houses Complex was completed in 1949.

The following are the available project records to document investigative milestones for the ISMP area:

- *MGP Research Report for East 11th Street Works* prepared by Langan Engineering, 2002
- *Site Characterization Study Report for the Former East 11th Street Works Site* prepared by TRC, 2005
- *Remedial Investigation Report for the East 11th Street Works Site* prepared by Arcadis, 2007
- *Interim Site Management Plan – Annual Indoor Air Monitoring Report* prepared by Arcadis 2010, 2011, and 2013.

Full titles for each of the reports referenced below are also provided in Section 3 - References.

No remediation has been performed within the ISMP area.

2.4 Remedial Action Objectives

Not applicable; a remedy for this site has not been selected and a Decision Document has not been issued.

2.5 Summary of Existing Environmental Conditions

Investigations conducted to date determined that the MGP-related by-product responsible for impacts within the ISMP area is primarily a dark colored, somewhat viscous, oil-like material, which is a non-aqueous phase liquid (NAPL). Dense NAPLs (DNAPLs) are heavier than water and tend to sink below the water table if released in sufficient quantities. Subsurface DNAPL slowly dissolves, creating a plume of impacted groundwater. The oil-like material contains many organic compounds that are regulated by the NYSDEC. Chief among these are volatile organic compounds (VOCs), primarily benzene, ethylbenzene, toluene, and xylenes (BTEX), and a general class of organic compounds called semivolatile organic compounds (SVOCs), which primarily include a subgroup of polycyclic aromatic hydrocarbons (PAHs). A summary of the nature and approximate extent of impacted media within the ISMP area is presented below.

2.5.1 Surface Soil

Results obtained for the analysis of surface soil samples collected within the ISMP area as part of the site characterization and remedial investigation for VOCs, SVOCs, and inorganics are depicted on Figure 8 and presented in Tables 3, 4, and 5, respectively. As indicated in the tables and shown on Figure 8, VOCs were not detected in surface soil. SVOCs (primarily benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, and indeno[1,2,3-cd]pyrene) are present in surface soil throughout the ISMP area at concentrations greater than Part 365 Unrestricted Use Soil Cleanup Objectives (SCOs). Total SVOC concentrations, which consist primarily of PAHs, ranged from 1,900 micrograms per kilogram (ug/kg) at SS-12A to 469,000 ug/kg at SS-3 (located in the northeast portion of the Jacob Riis property). Each of the inorganic metals were detected in surface soil samples; however, chromium, lead, and mercury were detected at each of the sampling locations above unrestricted use SCOs. Arsenic was also detected above its unrestricted use SCO in 14 of the 20 locations sampled.

The RI Report reported that the presence of SVOCs and inorganics in the surface soil at concentrations above their respective SCOs is likely associated with historical fill and is consistent with urban background concentrations; the inorganics are not attributed to former gas works operations within the ISMP area.

As part of the remedial investigation, a Human Health Exposure Evaluation (HHEA) was conducted. The HHEA found that for the ISMP area within the Jacob Riis Houses Complex, surface soil represents a potentially complete exposure pathway for the general population (e.g., residents, recreational users, students, workers). However, the presence of vegetation (e.g., grass) likely mitigates the potential for exposure. Further, when there are no ongoing intrusive activities at exposed areas on the properties, there is likely little potential for dust generation. The highest potential for exposure would be for children playing in exposed areas, however the exposed areas at the Jacob Riis houses are primarily fenced and not accessible to children. Construction or maintenance workers may also be exposed to surface soil during intrusive activities; however, potential exposures could be mitigated by use of personal protective equipment (PPE).

2.5.2 Subsurface Soil

Analytical results for VOCs, SVOCs, and inorganics from subsurface soil samples collected within the ISMP area during the site characterization and remedial investigation are presented in Tables 6 through 9. Analytical results are shown on Figures 9, 10, and 11.

Several non-MGP related VOCs were detected in subsurface soil within the ISMP area during the remedial investigation at concentrations greater than their respective unrestricted use SCOs, primarily 1,3 dichlorobenzene, bromodichloromethane, isopropylbenzene, tetrachloroethene, and vinyl chloride. In addition, acetone and BTEX were detected at several locations above unrestricted use SCOs during the Site Characterization field work conducted in 2004. Impacts exceeding unrestricted use SCOs were generally located from 10 to 39 feet bgs; however, at four locations (B-5, B-6, SB-119, and SB-122) exceedances were detected at intervals from 3 to 10 feet bgs.

SVOCs, primarily PAHs were also present in subsurface soil at concentrations greater than their respective unrestricted use SCOs. Impacts exceeding unrestricted use SCOs were generally located between 6 to 35 feet bgs. Where detected during the remedial investigation, total SVOCs ranged from 71 ug/kg to 33,500,000 ug/kg (SB-111B). the highest concentrations of total SVOCs were located between approximately 15 to 31 feet bgs and mainly on the northern and eastern sections of the ISMP area.

Similar to the surface soil results, chromium, lead, and mercury were detected at most of the sampling locations above unrestricted use SCOs, and are likely associated with historical fill. Therefore, the inorganics were not attributed to former gas works operations within the ISMP area.

The HHEA concluded that the potential for exposure to MGP-related impacts in subsurface soil is most likely limited to construction workers engaged in intrusive activities, although these potential exposures could be mitigated using PPE. Potential exposures of other human receptors to existing impacts in subsurface soil are unlikely because these receptors would not be involved in intrusive activities.

2.5.3 DNAPL

Based previous investigations, DNAPL was observed in the overburden (Fill and Sand-Silt Units) within the ISMP area, primarily in the eastern and northern portions of the former MGP. The source of the DNAPL within the ISMP area originates from the historical gas works operations and storage facilities. The majority of DNAPL is located deeper than seven feet bgs, and within the footprint of the former gas works production area. DNAPL was observed at depths to 30 feet bgs within this area. On the northeast portion of the Jacob Riis Houses Complex (within the ISMP area), DNAPL was present at depths greater than 30 feet bgs. Sampling locations where DNAPL was historically identified within the ISMP area are shown on Figure 7.

2.5.4 Groundwater

Groundwater impacted with MGP-related residuals is also present beneath the ISMP area. Investigation results collected in 2004 and 2006 indicated the presence of dissolved-phase impacts that were generally located in the areas within or downgradient from where NAPL and/or impacted soil were identified. Results from the remedial investigation for groundwater collected from select wells within the ISMP area indicated the presence of dissolved-phase VOCs and SVOCs at concentrations greater than New York State

Technical and Operational Guidance Class Series class GA groundwater cleanup standards or guidance values. Results for the analysis of groundwater samples collected in October 2004 and August 2006 are presented in Tables 10 through 14 and displayed on Figure 12.

Benzene was the VOC analyte detected in the highest relative concentrations and at the highest frequency during both sampling events, followed by ethylbenzene and xylenes. The highest concentrations of benzene were detected at MW-2 and MW-107B. where detected benzene concentrations ranged from 1.1 micrograms per liter (ug/l) to 440 ug/l (MW-2). During the most recent sampling event (2006), benzene exceeded its groundwater standard at 6 of the 12 sampling locations; xylene exceeded at 3 of the 12 locations; and both ethylbenzene and toluene exceeded their respective standards at 2 locations.

Only four SVOC analytes exceeded their respective groundwater standard or guidance value during the most recent sampling event (1,1-biphenyl at 2 locations, acenaphthene at 1 location, naphthalene at 2 locations, and p-cresol at 1 location). 1,1-biphenyl and p-cresol are not associated with MGP sites.

The HHEA concluded that groundwater beneath the ISMP area within the Jacob Riis Houses Complex is not used as a potable source and therefore exposure via ingestion of groundwater is unlikely. Likewise, there is relatively little potential for direct contact to groundwater for residents, recreational users and workers given the depth to groundwater and because these receptors would not be involved in intrusive activities. Construction workers may be exposed to groundwater during future intrusive activities, although these exposures could be mitigated by using PPE, as described in this ISMP.

2.5.5 Soil Vapor

Indoor air sampling within the Jacob Riis housing development was most recently conducted in March 2013. Indoor air sampling was conducted consistent with NYSDOH guidance and in accordance with the NYSDEC-approved *Site Management Plan for Indoor Air Monitoring* (ARCADIS 2009). Annual indoor air monitoring is a component of the comprehensive monitoring plan developed to document that the public and environment are protected until a remedy for the site is implemented.

Indoor air sampling results from the 2013 sampling event along with the previous 2010 and 2011 sampling events are presented in Tables 15, 16, and 17, and summarized in the discussions below.

While VOC analytes were detected in indoor air samples collected throughout the Jacob Riis housing development during the 2010, 2011, and 2013 sampling events:

- Approximately 70% of the detected analytes were also detected in the outdoor ambient air (i.e., not site related) during the 2013 sampling event; approximately 80% during the 2011 event, and approximately 53% during the 2010 event
- Approximately 60% of the analytes were chlorinated compounds during all the sampling events (i.e., not MGP related)
- “gasoline indicators” were detected in each of the indoor air samples collected during each of the sampling events (i.e., not MGP related)
- “MGP indicators” were not detected in any of the indoor air samples collected during each of the sampling events

Based on the types of analytes detected, along with the documented presence of solvents, cleaning supplies, petroleum, oils, and maintenance-related chemical products stored within the ground-level areas/basements, along with the absence of MGP indicator compounds, no evidence of MGP-related indoor air impacts exist in the areas monitored at the Jacob Riis facility.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

Not applicable; a remedy for this site has not been selected and a Decision Document has not been issued.

4.0 MONITORING AND SAMPLING PLAN

Not applicable; a remedy for this site has not been selected and a Decision Document has not been issued.

5.0 OPERATION AND MAINTENANCE PLAN

Not applicable; a remedy for this site has not been selected and a Decision Document has not been issued.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

Not applicable; a remedy for this site has not been selected and a Decision Document has not been issued.

7.0 REPORTING REQUIREMENTS

Not applicable; a remedy for this site has not been selected and a Decision Document has not been issued.

8.0 REFERENCES

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).\

Arcadis, 2010. *Interim Site Management Plan – Annual Indoor Air Monitoring Report, Former East 11th Street Works, Manhattan, New York*. May 2010.

Arcadis, 2011. *Interim Site Management Plan – Annual Indoor Air Monitoring Report, Former East 11th Street Works, Manhattan, New York*. October 2011.

Arcadis, 2013. *Interim Site Management Plan – Annual Indoor Air Monitoring Report, Former East 11th Street Works, Manhattan, New York*. July 2013.

Langan Engineering and Environmental Services, P.C., 2002. *MGP Research Report, East 11th Street Works*. September 2002.

TRC, 2005. *Site Characterization Study Report for the Former East 11th Street Works Site*. March 2005.

Arcadis, 20007. *Remedial Investigation Report for the East 11th Street Works Site*. November 2007.

Tables

Table 2. Water Level and NAPL Measurement Summary, Remedial Investigation, Former East 11th Street Works, Manhattan, New York

Location ID	Measuring Point Elev. feet (MVD)	Depth to Water			Water Elevation - feet (MVD)			Measured NAPL - feet
		10/12/04	08/28/06	03/05/07	10/12/04	08/28/06	03/05/07	08/28/06
MW-1	8.12	8.61	9.65	9.34	-0.49	-1.53	-1.22	0.0
MW-2	6.14	5.37	5.76	5.35	0.77	0.38	0.79	0.0
MW-3	6.30	6.02	7.39	5.66	0.28	-1.09	0.64	**0.6**
MW-4	6.01	6.82	6.70	6.75	-0.81	-0.69	-0.74	0.0
MW-5	5.44	6.48	6.85	6.34	-1.04	-1.41	-0.90	**1.6**
MW-6	7.22	7.72	8.33	NG	-0.50	-1.11	NC	0.0
MW-103A	8.20	--	9.43	8.77	--	-1.23	-0.57	0.0
MW-104B	8.06	--	9.27	8.72	--	-1.21	-0.66	0.0
MW-105A	7.61	--	8.55	7.80	--	-0.94	-0.19	0.0
MW-106A	8.24	--	9.35	8.65	--	-1.11	-0.41	0.0
MW-107A	6.71	--	7.85	7.54	--	-1.14	-0.83	0.0
MW-107B	6.64	--	7.91	7.81	--	-1.27	-1.17	0.0
MW-111A	6.03	--	7.52	7.82	--	-1.49	-1.79	0.0
MW-111B	6.14	--	8.55	7.96	--	-2.41	-1.82	**0.3**
MW-115A	7.53	--	7.70	6.62	--	-0.17	0.91	0.0
MW-121A	6.76	--	7.01	6.25	--	-0.25	0.51	0.0
MW-121B	6.65	--	7.51	7.52	--	-0.86	-0.87	0.0
MW-122A	6.37	--	6.95	6.16	--	-0.58	0.21	0.0
MW-122B	6.39	--	7.00	6.81	--	-0.61	-0.42	0.0
MW-125A	5.49	--	6.38	5.79	--	-0.89	-0.30	0.0
MW-125B	5.48	--	6.46	6.49	--	-0.98	-1.01	0.0
MW-127A	6.36	--	--	8.30	--	--	-1.94	0.0
MW-127B	6.47	--	--	7.96	--	--	-1.49	0.0
MW-128A	5.83	--	--	7.67	--	--	-1.84	0.0
MW-128B	5.75	--	--	7.02	--	--	-1.27	0.0
MW-130A	4.44	--	--	6.75	--	--	-2.31	0.0
MW-130B	4.57	--	--	5.59	--	--	-1.02	0.0

Notes:

NG = not gauged.

NC = not calculated.

-- = well installed after gauging event.

MVD = Manhattan Vertical Datum

All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Table 3
Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Surface Soil Analytical Results - VOCs

Sample ID:	Unrestricted Use SCOs	Units	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	SS-19
Sample Depth (feet bgs):			0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2
Date Collected:			06/11/04	06/11/04	06/11/04	06/11/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04	06/09/04
1,1,1-Trichloroethane	680	ug/kg	0.33 UJ	0.32 UJ	0.31 U	0.31 UJ	0.3 U	0.31 U	0.29 U	0.3 U	0.32 U	0.32 U [0.3 U]	0.3 U	0.31 UJ	0.31 U	0.32 U	0.31 U	0.3 U	0.3 U	0.3 U	0.29 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	0.64 UJ	0.62 UJ	0.6 U	0.6 UJ	0.59 U	0.61 U	0.57 U	0.58 U	0.63 U	0.62 U [0.59 U]	0.59 U	0.61 UJ	0.6 U	0.63 U	0.61 U	0.59 U	0.59 U	0.58 U	0.56 U
1,1,2-Trichloroethane	- -	ug/kg	0.61 UJ	0.6 UJ	0.57 U	0.57 UJ	0.56 U	0.58 U	0.54 U	0.56 U	0.6 U	0.59 U [0.57 U]	0.57 U	0.58 UJ	0.57 U	0.6 U	0.58 U	0.56 U	0.56 U	0.56 U	0.54 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	0.55 UJ	0.54 UJ	0.52 U	0.52 UJ	0.51 U	0.53 U	0.49 U	0.5 U	0.55 U	0.53 U [0.52 U]	0.52 U	0.53 UJ	0.52 U	0.55 U	0.53 U	0.51 U	0.51 U	0.5 U	0.49 U
1,1-Dichloroethane	270	ug/kg	0.43 UJ	0.42 UJ	0.4 U	0.4 UJ	0.39 U	0.41 U	0.38 U	0.39 U	0.42 U	0.41 U [0.4 U]	0.4 U	0.41 UJ	0.4 U	0.42 U	0.41 U	0.39 U	0.39 U	0.39 U	0.38 U
1,1-Dichloroethene	330	ug/kg	0.26 UJ	0.25 UJ	0.24 U	0.24 UJ	0.24 U	0.25 U	0.23 U	0.24 U	0.26 U	0.25 U [0.24 U]	0.24 U	0.25 UJ	0.24 U	0.26 U	0.25 U	0.24 U	0.24 U	0.24 U	0.23 U
1,2,4-Trichlorobenzene	- -	ug/kg	0.3 UJ	0.29 UJ	0.28 U	0.28 UJ	0.28 U	0.29 U	0.27 U	0.27 U	0.3 U	0.29 U [0.28 U]	0.28 U	0.29 UJ	0.28 U	0.3 U	0.29 U	0.28 U	0.28 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	0.82 UJ	0.8 UJ	0.77 U	0.77 UJ	0.75 U	0.78 U	0.73 U	0.74 U	0.81 U	0.79 U [0.76 U]	0.76 U	0.78 UJ	0.77 U	0.81 U	0.78 U	0.75 U	0.75 U	0.74 U	0.72 U
1,2-Dibromoethane	- -	ug/kg	0.5 UJ	0.49 UJ	0.47 U	0.47 UJ	0.46 U	0.48 U	0.45 U	0.46 U	0.5 U	0.48 U [0.47 U]	0.47 U	0.48 UJ	0.47 U	0.5 U	0.48 U	0.46 U	0.46 U	0.46 U	0.44 U
1,2-Dichlorobenzene	1,100	ug/kg	0.49 UJ	0.48 UJ	0.46 U	0.46 UJ	0.45 U	0.47 U	0.44 U	0.45 U	0.49 U	0.48 U [0.46 U]	0.46 U	0.47 UJ	0.46 U	0.49 U	0.47 U	0.45 U	0.45 U	0.45 U	0.44 U
1,2-Dichloroethane	20	ug/kg	3.7 UJ	3.6 UJ	3.5 U	3.5 UJ	3.4 U	3.5 U	3.3 U	3.4 U	3.7 U	3.6 U [3.5 U]	3.5 U	3.5 UJ	3.5 U	3.7 U	3.5 U	3.4 U	3.4 U	3.4 U	3.3 U
1,2-Dichloropropane	- -	ug/kg	0.4 UJ	0.39 UJ	0.38 U	0.38 UJ	0.37 U	0.39 U	0.36 U	0.37 U	0.4 U	0.39 U [0.38 U]	0.38 U	0.39 UJ	0.38 U	0.4 U	0.39 U	0.37 U	0.37 U	0.37 U	0.36 U
1,3-Dichlorobenzene	2,400	ug/kg	0.25 UJ	0.25 UJ	0.24 U	0.24 UJ	0.23 U	0.24 U	0.23 U	0.23 U	0.25 U	0.25 U [0.24 U]	0.24 U	0.24 UJ	0.24 U	0.25 U	0.24 U	0.23 U	0.23 U	0.23 U	0.22 U
1,4-Dichlorobenzene	1,800	ug/kg	0.42 UJ	0.41 UJ	0.4 U	0.4 UJ	0.39 U	0.4 U	0.38 U	0.39 U	0.42 U	0.41 U [0.39 U]	0.39 U	0.4 UJ	0.4 U	0.42 U	0.4 U	0.39 U	0.39 U	0.39 U	0.37 U
2-Butanone	120	ug/kg	2.7 UJ	2.7 UJ	2.6 U	2.6 UJ	2.5 U	2.6 U	2.4 U	2.5 U	2.7 U	2.6 U [2.6 U]	2.6 U	2.6 UJ	2.6 U	2.7 U	2.6 U	2.5 U	2.5 U	2.5 U	2.4 U
2-Hexanone	- -	ug/kg	3.9 UJ	3.8 UJ	3.6 U	3.6 UJ	3.6 U	3.7 U	3.4 U	3.5 U	3.8 U	3.7 U [3.6 U]	3.6 U	3.7 UJ	3.6 U	3.8 U	3.7 U	3.6 U	3.6 U	3.5 U	3.4 U
4-Methyl-2-Pentanone	- -	ug/kg	2.9 UJ	2.8 UJ	2.7 U	2.7 UJ	2.7 U	2.8 U	2.6 U	2.6 U	2.9 U	2.8 U [2.7 U]	2.7 U	2.8 UJ	2.7 U	2.9 U	2.8 U	2.7 U	2.7 U	2.6 U	2.6 U
Acetone	50	ug/kg	9 UJ	8.8 UJ	8.5 U	8.5 UJ	8.3 U	8.6 U	8 U	8.2 U	8.9 U	8.7 U [8.4 U]	8.4 U	8.6 UJ	8.5 U	8.9 U	8.6 U	8.3 U	8.3 U	8.2 U	7.9 U
Benzene	60	ug/kg	0.24 UJ	0.24 UJ	0.23 U	0.23 UJ	0.22 U	0.23 U	0.22 U	0.22 U	0.24 U	0.23 U [0.23 U]	0.23 U	0.23 UJ	0.23 U	0.24 U	0.23 U	0.22 U	0.22 U	0.22 U	0.21 U
Bromodichloromethane	- -	ug/kg	0.4 UJ	0.39 UJ	0.38 U	0.38 UJ	0.37 U	0.38 U	0.36 U	0.37 U	0.4 U	0.39 U [0.37 U]	0.37 U	0.38 UJ	0.38 U	0.4 U	0.38 U	0.37 U	0.37 U	0.37 U	0.35 U
Bromoform	- -	ug/kg	0.36 UJ	0.35 UJ	0.34 U	0.34 UJ	0.33 U	0.34 U	0.32 U	0.33 U	0.36 U	0.35 U [0.34 U]	0.34 U	0.34 UJ	0.34 U	0.36 U	0.34 U	0.33 U	0.33 U	0.33 U	0.32 U
Bromomethane	- -	ug/kg	0.85 UJ	0.83 UJ	0.8 U	0.8 UJ	0.79 U	0.81 U	0.76 U	0.78 U	0.84 U	0.82 U [0.8 U]	0.8 U	0.81 UJ	0.8 U	0.84 U	0.81 U	0.79 U	0.79 U	0.78 U	0.75 U
Carbon Disulfide	- -	ug/kg	0.12 UJ	0.12 UJ	0.11 U	0.11 UJ	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U [0.11 U]	0.11 U	0.12 UJ	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U
Carbon Tetrachloride	760	ug/kg	0.36 UJ	0.35 UJ	0.34 U	0.34 UJ	0.33 U	0.34 U	0.32 U	0.33 U	0.35 U	0.35 U [0.33 U]	0.33 U	0.34 UJ	0.34 U	0.35 U	0.34 U	0.33 U	0.33 U	0.33 U	0.32 U
Chlorobenzene	1,100	ug/kg	0.42 UJ	0.41 UJ	0.4 U	0.4 UJ	0.39 U	0.4 U	0.38 U	0.39 U	0.42 U	0.41 U [0.4 U]	0.4 U	0.4 UJ	0.4 U	0.42 U	0.4 U	0.39 U	0.39 U	0.39 U	0.37 U
Chloroethane	- -	ug/kg	0.63 UJ	0.62 UJ	0.6 U	0.6 UJ	0.58 U	0.6 U	0.56 U	0.58 U	0.62 U	0.61 U [0.59 U]	0.59 U	0.6 UJ	0.6 U	0.62 U	0.6 U	0.58 U	0.58 U	0.58 U	0.56 U
Chloroform	370	ug/kg	0.29 UJ	0.28 UJ	0.27 U	0.27 UJ	0.26 U	0.27 U	0.25 U	0.26 U	0.28 U	0.28 U [0.27 U]	0.27 U	0.27 UJ	0.27 U	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	0.25 U
Chloromethane	- -	ug/kg	0.4 UJ	0.39 UJ	0.38 U	0.38 UJ	0.37 U	0.38 U	0.36 U	0.36 U	0.39 U	0.38 U [0.37 U]	0.37 U	0.38 UJ	0.38 U	0.39 U	0.38 U	0.37 U	0.37 U	0.36 U	0.35 U
cis-1,2-Dichloroethene	250	ug/kg	0.42 UJ	0.41 UJ	0.4 U	0.4 UJ	0.39 U	0.4 U	0.38 U	0.39 U	0.42 U	0.41 U [0.4 U]	0.4 U	0.4 UJ	0.4 U	0.42 U	0.4 U	0.39 U	0.39 U	0.39 U	0.37 U
cis-1,3-Dichloropropene	- -	ug/kg	0.23 UJ	0.23 UJ	0.22 U	0.22 UJ	0.22 U	0.22 U	0.21 U	0.21 U	0.23 U	0.23 U [0.22 U]	0.22 U	0.22 UJ	0.22 U	0.23 U	0.22 U	0.22 U	0.22 U	0.21 U	0.21 U
Cyclohexane	- -	ug/kg	0.37 UJ	0.36 UJ	0.35 U	0.35 UJ	0.34 U	0.35 U	0.33 U	0.34 U	0.36 U	0.35 U [0.34 U]	0.34 U	0.35 UJ	0.35 U	2.2 J	0.35 U	0.34 U	0.34 U	0.34 U	0.32 U
Dibromochloromethane	- -	ug/kg	0.35 UJ	0.34 UJ	0.33 U	0.33 UJ	0.32 U	0.33 U	0.31 U	0.32 U	0.35 U	0.34 U [0.33 U]	0.33 U	0.33 UJ	0.33 U	0.35 U	0.33 U	0.32 U	0.32 U	0.32 U	0.31 U
Dichlorodifluoromethane	- -	ug/kg	1.5 UJ	1.5 UJ	1.4 U	1.4 UJ	1.4 U	1.4 U	1.3 U	1.4 U	1.5 U	1.4 U [1.4 U]	1.4 U	1.4 UJ	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.3 U
Ethyl Benzene	1,000	ug/kg	0.3 UJ	0.29 UJ	0.28 U	0.28 UJ	0.28 U	0.29 U	0.27 U	0.27 U	0.3 U	0.29 U [0.28 U]	0.28 U	0.29 UJ	0.28 U	0.3 U	0.29 U	0.28 U	0.28 U	0.27 U	0.26 U
Isopropylbenzene	- -	ug/kg	0.45 UJ	0.44 UJ	0.42 U	0.42 UJ	0.41 U	0.43 U	0.4 U	0.41 U	0.44 U	0.43 U [0.42 U]	0.42 U	0.43 UJ	0.42 U	0.44 U	0.43 U	0.41 U	0.41 U	0.41 U	0.39 U
m/p-Xylenes	- -	ug/kg	0.62 UJ	0.6 UJ	0.58 U	0.58 UJ	0.57 U	0.59 U	0.55 U	0.56 U	0.61 U	0.6 U [0.58 U]	0.58 U	0.59 UJ	0.58 U	0.61 U	0.59 U	0.57 U	0.57 U	0.56 U	0.55 U
Methyl Acetate	- -	ug/kg	1.5 UJ	1.5 UJ	1.4 U	1.4 UJ	1.4 U	1.5 U	1.4 U	1.4 U	1.5 U	1.5 U [1.4 U]	1.4 U	1.5 UJ	1.4 U	1.5 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U
Methyl Tertiary-Butyl Ether	930	ug/kg	0.28 UJ	0.27 UJ	0.26 U	0.26 UJ	0.25 U	0.26 U	0.25 U	0.25 U	0.27 U	0.27 U [0.26 U]	0.26 U	0.26 UJ	0.26 U	0.27 U	0.26 U	0.25 U	0.25 U	0.25 U	0.24 U
Methylcyclohexane	- -	ug/kg	0.43 UJ	0.42 UJ	0.4 U	0.4 UJ	0.39 U	0.41 U	0.38 U	0.39 U	0.42 U	0.41 U [0.4 U]	0.4 U	0.41 UJ	0.4 U	0.42 U	0.41 U	0.39 U	0.39 U	0.39 U	0.38 U
Methylene Chloride	50	ug/kg	0.82 UJ	0.8 UJ	0.77 U	0.77 UJ	0.76 U	0.78 U	0.73 U	0.75 U	0.81 U	0.79 U [0.76 U]	0.76 U	0.78 UJ	0.77 U	0.81 U	0.78 U	0.76 U	0.76 U	0.75 U	0.72 U
o-Xylene	- -	ug/kg	0.52 UJ	0.51 UJ	0.49 U	0.49 UJ	0.48 U	0.5 U	0.46 U	0.47 U	0.51 U	0.5 U [0.49 U]	0.49 U	0.5 UJ	0.49 U	0.51 U	0.5 U	0.48 U	0.48 U	0.47 U	0.46 U
Styrene	- -	ug/kg	0.38 UJ	0.37 UJ	0.36 U	0.36 UJ	0.35 U	0.36 U	0.34 U	0.34 U	0.37 U	0.36 U [0.35 U]	0.35 U	0.36 UJ	0.36 U	0.37 U	0.36 U	0.35 U	0.35 U	0.34 U	0.33 U
t-1,3-Dichloropropene	- -	ug/kg	0.31 UJ	0.3 UJ	0.29 U	0.29 UJ	0.28 U	0.29 U	0.28 U	0.28 U	0.3 U	0.3 U [0.29 U]	0.29 U	0.29 UJ	0.29 U	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	0.27 U
Tetrachloroethene	1,300	ug/kg	0.77 UJ	0.75 UJ	0.72 U	0.72 UJ	0.71 U	0.73 U	0.68 U	0.7 U	0.76 U	0.74 U [0.71 U]	0.71 U	0.73 UJ	0.72 U	0.76 U	0.73 U	0.71 U	0.71 U	0.7 U	0.68 U
Toluene	700	ug/kg	0.31 UJ	2.4 J	0.29 U	0.29 UJ	0.29 U	0.3 U	0.28 U	0.28 U	0.31 U	0.3 U [0.29 U]	0.29 U	0.3 UJ	0.29 U	0.31 U	0.3 U	0.29 U	0.29 U	0.28 U	0.28 U
trans-1,2-Dichloroethene	190	ug/kg	0.45 UJ	0.44 UJ	0.42 U	0.42 UJ	0.41 U	0.43 U	0.4 U	0.41 U	0.44 U	0.43 U [0.42 U]	0.42 U	0.43 UJ	0.42 U	0.44 U	0.43 U	0.41 U	0.41 U	0.41 U	0.39 U
Trichloroethene	470	ug/kg	0.39 UJ	0.38 UJ	0.36 U	0.36 UJ	0.36 U	0.37 U	0.34 U	0.35 U	0.38 U	0.37 U [0.36 U]	0.36 U	0.37 UJ	0.36 U	0.38 U	0.37 U	0.36 U	0.36 U	0.35 U	0.34 U
Trichlorofluoromethane	- -	ug/kg	3 UJ	2.9 UJ	2.8 U	2.8 UJ	2.7 U	2.8 U	2.6 U	2.7 U	2.9 U	2.9 U [2.8 U]	2.8 U	2.8 UJ	2.8 U	2.9 U	2.8 U	2.7 U	2.7 U	2.7 U	2.6 U
Vinyl Chloride	20	ug/kg	0.28 UJ	0.28 UJ	0.27 U	0.27 UJ	0.26 U	0.27 U	0.25 U	0.26 U	0.28 U	0.27 U [0.26 U]	0.26 U	0.27 UJ	0.27 U	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	0.25 U
Total VOCs	- -	ug/kg	ND	2.4 J	ND	ND	ND	ND	ND	ND	ND	ND [ND]	ND	ND	ND	2.2 J	ND	ND	ND	ND	ND

See Notes on Page 2.

Table 3
Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Surface Soil Analytical Results - VOCs

Sample ID:	Unrestricted Use SCOs		SS-20
Sample Depth (feet bgs):			0 - 0.2
Date Collected:		Units	06/09/04
1,1,1-Trichloroethane	680	ug/kg	0.3 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	0.59 U
1,1,2-Trichloroethane	- -	ug/kg	0.57 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	0.52 U
1,1-Dichloroethane	270	ug/kg	0.4 U
1,1-Dichloroethene	330	ug/kg	0.24 U
1,2,4-Trichlorobenzene	- -	ug/kg	0.28 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	0.76 U
1,2-Dibromoethane	- -	ug/kg	0.47 U
1,2-Dichlorobenzene	1,100	ug/kg	0.46 U
1,2-Dichloroethane	20	ug/kg	3.5 U
1,2-Dichloropropane	- -	ug/kg	0.38 U
1,3-Dichlorobenzene	2,400	ug/kg	0.24 U
1,4-Dichlorobenzene	1,800	ug/kg	0.39 U
2-Butanone	120	ug/kg	2.6 U
2-Hexanone	- -	ug/kg	3.6 U
4-Methyl-2-Pentanone	- -	ug/kg	2.7 U
Acetone	50	ug/kg	8.4 U
Benzene	60	ug/kg	0.23 U
Bromodichloromethane	- -	ug/kg	0.37 U
Bromoform	- -	ug/kg	0.34 U
Bromomethane	- -	ug/kg	0.8 U
Carbon Disulfide	- -	ug/kg	0.11 U
Carbon Tetrachloride	760	ug/kg	0.33 U
Chlorobenzene	1,100	ug/kg	0.4 U
Chloroethane	- -	ug/kg	0.59 U
Chloroform	370	ug/kg	0.27 U
Chloromethane	- -	ug/kg	0.37 U
cis-1,2-Dichloroethene	250	ug/kg	0.4 U
cis-1,3-Dichloropropene	- -	ug/kg	0.22 U
Cyclohexane	- -	ug/kg	0.34 U
Dibromochloromethane	- -	ug/kg	0.33 U
Dichlorodifluoromethane	- -	ug/kg	1.4 U
Ethyl Benzene	1,000	ug/kg	0.28 U
Isopropylbenzene	- -	ug/kg	0.42 U
m/p-Xylenes	- -	ug/kg	0.58 U
Methyl Acetate	- -	ug/kg	1.4 U
Methyl Tertiary-Butyl Ether	930	ug/kg	0.26 U
Methylcyclohexane	- -	ug/kg	0.4 U
Methylene Chloride	50	ug/kg	0.76 U
o-Xylene	- -	ug/kg	0.49 U
Styrene	- -	ug/kg	0.35 U
t-1,3-Dichloropropene	- -	ug/kg	0.29 U
Tetrachloroethene	1,300	ug/kg	0.71 U
Toluene	700	ug/kg	0.29 U
trans-1,2-Dichloroethene	190	ug/kg	0.42 U
Trichloroethene	470	ug/kg	0.36 U
Trichlorofluoromethane	- -	ug/kg	2.8 U
Vinyl Chloride	20	ug/kg	0.26 U
Total VOCs	- -	ug/kg	ND

See Notes on Page 2.

Table 4
Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Surface Soil Analytical Results - SVOCs

Sample ID:	Unrestricted Use SCOs	Units	SS-1	SS-1A	SS-2	SS-2A	SS-3	SS-3A	SS-4	SS-4A	SS-5	SS-5A	SS-6	SS-6A	SS-7	SS-7A	SS-8	SS-8A	SS-9	SS-9A	SS-10	SS-10A	SS-11	SS-11A	SS-12
Sample Depth (feet bgs):			0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2
Date Collected:			06/11/04	12/09/04	06/11/04	12/09/04	06/11/04	12/09/04	06/11/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04
1,1-Biphenyl	- -	ug/kg	23 U	24 U	46 U	110 U	220 U	12 U	220 U	23 U	11 U	24 U	45 U	120 U	11 U	24 U	54 U	120 U	23 U	23 U	57 U [11 U]	23 U	11 U	22 U	11 U
2,2-oxybis(1-Chloropropane)	- -	ug/kg	42 U	44 U	83 U	210 U	400 U	21 U	400 U	43 U	20 U	44 U	81 U	210 U	19 U	44 U	98 U	210 U	42 U	43 U	100 U [20 U]	42 U	20 U	41 U	20 U
2,4,5-Trichlorophenol	- -	ug/kg	52 U	54 U	100 U	260 U	490 U	26 U	490 U	52 U	24 U	53 U	100 U	260 U	23 U	54 U	120 U	260 U	52 U	52 U	130 U [24 U]	51 U	24 U	50 U	25 U
2,4,6-Trichlorophenol	- -	ug/kg	28 U	29 U	56 U	140 U	270 U	14 U	270 U	29 U	13 U	29 U	55 U	140 U	13 U	30 U	66 U	140 U	28 U	29 U	70 U [13 U]	28 U	13 U	27 U	14 U
2,4-Dichlorophenol	- -	ug/kg	27 U	28 U	54 U	140 U	260 U	14 U	260 U	28 U	13 U	28 U	53 U	140 U	12 U	29 U	63 U	140 U	27 U	28 U	67 U [13 U]	27 U	13 U	27 U	13 U
2,4-Dimethylphenol	- -	ug/kg	42 U	44 U	83 U	210 U	400 U	21 U	400 U	43 U	20 U	44 U	81 U	210 U	19 U	44 U	98 U	210 U	42 U	43 U	100 U [20 U]	42 U	20 U	41 U	20 U
2,4-Dinitrophenol	- -	ug/kg	R	36 U	R	170 U	R	17 U	R	35 U	16 U	35 U	66 U	170 U	16 U	36 U	80 U	170 U	34 U	35 U	85 U [16 U]	34 U	16 U	33 U	17 U
2,4-Dinitrotoluene	- -	ug/kg	16 U	16 U	31 U	77 U	150 U	7.8 U	150 U	16 U	7.2 U	16 U	30 U	78 U	7.1 U	16 U	36 U	79 U	16 U	16 U	38 U [7.3 U]	15 U	7.3 U	15 U	7.5 U
2,6-Dinitrotoluene	- -	ug/kg	33 U	34 U	66 U	160 U	320 U	17 U	320 U	34 U	15 U	34 U	64 U	170 U	15 U	35 U	77 U	170 U	33 U	34 U	82 U [16 U]	33 U	16 U	32 U	16 U
2-Chloronaphthalene	- -	ug/kg	16 U	17 U	32 U	81 U	150 U	8.2 U	150 U	17 U	7.6 U	17 U	31 U	81 U	7.4 U	17 U	38 U	82 U	16 U	16 U	40 U [7.6 U]	16 U	7.7 U	16 U	7.8 U
2-Chlorophenol	- -	ug/kg	34 U	35 U	67 U	170 U	320 U	17 U	320 U	34 U	16 U	35 U	65 U	170 U	15 U	35 U	78 U	170 U	34 U	34 U	83 U [16 U]	33 U	16 U	33 U	16 U
2-Methylnaphthalene	- -	ug/kg	140 J	150 J	170 J	67 U	900 J	6.8 U	2,300 J	14 U	150 J	14 U	26 U	67 U	51 J	150 J	31 U	68 U	340 J	82 J	33 U [80 J]	120 J	88 J	78 J	120 J
2-Methylphenol	330	ug/kg	49 U	51 U	97 U	240 U	470 U	25 U	470 U	50 U	23 U	51 U	95 U	250 U	22 U	52 U	110 U	250 U	49 U	50 U	120 U [23 U]	49 U	23 U	48 U	24 U
2-Nitroaniline	- -	ug/kg	28 U	29 U	56 U	140 U	270 U	14 U	270 U	29 U	13 U	29 U	55 U	140 U	13 U	30 U	66 U	140 U	28 U	29 U	70 U [13 U]	28 U	13 U	27 U	14 U
2-Nitrophenol	- -	ug/kg	31 U	33 U	62 U	160 U	300 U	16 U	300 U	32 U	15 U	32 U	60 U	160 U	14 U	33 U	73 U	160 U	31 U	32 U	77 U [15 U]	31 U	15 U	30 U	15 U
3,3-Dichlorobenzidine	- -	ug/kg	130 U	130 U	250 U	620 U	1,200 U	63 U	1,200 U	130 U	58 U	130 U	240 U	630 U	57 U	130 U	290 U	630 U	130 U	130 U	310 U [59 U]	120 U	59 U	120 U	60 U
3+4-Methylphenols	- -	ug/kg	36 U	37 U	71 U	180 U	340 U	18 U	340 U	36 U	17 U	37 U	69 U	180 U	16 U	38 U	83 U	180 U	36 U	36 U	88 U [17 U]	36 U	17 U	35 U	17 U
3-Nitroaniline	- -	ug/kg	130 U	130 U	250 U	620 U	1,200 U	63 U	1,200 U	130 U	59 U	130 U	240 U	630 U	57 U	130 U	290 U	640 U	130 U	130 U	310 U [59 U]	120 U	59 U	120 U	60 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	R	47 U	R	220 U	R	23 U	R	46 U	21 UJ	47 U	87 UJ	230 U	21 UJ	48 U	110 UJ	230 U	45 UJ	46 U	110 UJ [21 UJ]	45 U	21 UJ	44 U	22 UJ
4-Bromophenyl-phenylether	- -	ug/kg	21 U	21 U	41 U	100 U	200 U	10 U	200 U	21 U	9.5 U	21 U	40 U	100 U	9.3 U	22 U	48 U	100 U	21 U	21 U	50 U [9.6 U]	20 U	9.7 U	20 U	9.8 U
4-Chloro-3-methylphenol	- -	ug/kg	23 U	24 U	46 U	110 U	220 U	12 U	220 U	23 U	11 U	24 U	45 U	120 U	11 U	24 U	54 U	120 U	23 U	23 U	57 U [11 U]	23 U	11 U	22 U	11 U
4-Chloroaniline	- -	ug/kg	290 U	300 U	570 U	1,400 U	2,700 U	150 U	2,700 U	290 U	130 U	300 U	560 U	1,400 U	130 U	300 U	670 U	1,500 U	290 U	290 U	710 U [140 U]	290 U	140 U	280 U	140 U
4-Chlorophenyl-phenylether	- -	ug/kg	19 U	20 U	38 U	96 U	180 U	9.7 U	180 U	20 U	9 U	20 U	37 U	97 U	8.8 U	20 U	45 U	98 U	19 U	20 U	48 U [9.1 U]	19 U	9.1 U	19 U	9.3 U
4-Nitroaniline	- -	ug/kg	61 U	63 U	120 U	300 U	580 U	31 U	580 U	62 U	28 U	63 U	120 U	310 U	28 U	64 U	140 U	310 U	61 U	62 U	150 U [29 U]	61 U	29 U	59 U	29 U
4-Nitrophenol	- -	ug/kg	76 U	79 U	150 U	380 U	720 U	38 U	730 U	77 U	35 U	79 U	150 U	380 U	35 U	80 U	180 U	380 U	76 U	77 U	190 U [36 U]	75 U	36 U	74 U	37 U
Acenaphthene	20,000	ug/kg	300 J	800 J	34 U	85 U	2,000 J	83 J	160 U	170 J	150 J	220 J	170 J	86 U	250 J	310 J	40 U	550 J	650 J	350 J	42 U [8.1 U]	330 J	37 J	230 J	40 J
Acenaphthylene	100,000	ug/kg	95 J	88 J	46 U	120 U	220 U	57 J	7,600	24 U	93 J	85 J	45 UJ	120 U	11 UJ	340 J	310 J	120 U	180 J	110 J	430 J [110 J]	140 J	150 J	130 J	58 J
Acetophenone	- -	ug/kg	41 U	42 U	81 U	200 U	390 U	21 U	390 U	41 U	19 U	42 U	79 U	200 U	19 U	43 U	95 U	210 U	41 U	41 U	100 U [19 U]	40 U	19 U	40 U	20 U
Anthracene	100,000	ug/kg	880	3,700	220 J	1,300 J	19,000	360 J	3,300 J	710 J	520	1,000	630 J	1,600 J	530	1,300	390 J	1,600 J	2,500 D	1,200	350 J [81 J]	1,300	130 J	800	96 J
Atrazine	- -	ug/kg	24 U	25 U	47 U	120 U	230 U	12 U	230 U	24 U	11 U	25 U	46 U	120 U	11 U	25 U	55 U	120 U	24 U	24 U	59 U [11 U]	24 U	11 U	23 U	11 U
Benzaldehyde	- -	ug/kg	77 U	79 U	150 U	380 U	730 U	39 U	730 U	78 U	36 U	79 U	150 U	380 U	35 U	80 U	180 U	390 U	76 U	77 U	190 U [36 U]	76 U	36 U	74 U	37 U
Benzo(a)anthracene	1,000	ug/kg	**2,800**	**7,100 D**	**1,100 J**	**4,700**	**44,000**	**1,200**	**13,000**	**2,200**	**1,800**	**3,400**	**2,700**	**5,500**	**1,500**	**4,200**	**2,100**	**4,700**	**6,800 D**	**2,800**	**2,100 [560]**	**3,400**	750	**2,600**	500
Benzo(a)pyrene	1,000	ug/kg	**2,100**	**5,200 D**	930 J	**3,900**	**35,000**	**1,200**	**14,000**	**2,000**	**1,400**	**3,200**	**1,200 J**	**4,200**	**1,200**	**5,200**	**2,400**	**4,700**	**5,700**	**2,800**	**1,800 J [480]**	**3,300**	610	**2,600**	390
Benzo(b)fluoranthene	1,000	ug/kg	**2,700**	**6,900 D**	**1,300 J**	**4,700**	**48,000**	**1,800**	**16,000**	**2,900**	**2,000**	**4,900**	**2,100**	**5,600**	**1,500**	**4,700 D**	**2,400**	**7,100**	**6,500 D**	**4,100**	**1,400 J [490]**	**4,900**	850	**3,600**	510
Benzo(g,h,i)perylene	100,000	ug/kg	680 J	1,900	350 J	2,300 J	9,000	370 J	5,500 J	610 J	440 J	910	1,000 J	2,300 J	320 J	1,600	1,400 J	1,700 J	1,600 J	900	890 J [330 J]	970	230 J	820	170 J
Benzo(k)fluoranthene	800	ug/kg	**1,200**	**3,400**	540 J	**1,900 J**	**22,000**	690	**6,700 J**	**1,000**	**850**	**1,800**	**1,100 J**	**1,700 J**	780	**2,700**	**1,100 J**	**2,300 J**	**3,200**	**1,400**	**1,200 J [240 J]**	**1,800**	350 J	**1,200**	230 J
bis(2-Chloroethoxy)methane	- -	ug/kg	36 U	37 U	70 U	180 U	340 U	18 U	340 U	36 U	17 U	37 U	69 U	180 U	16 U	37 U	83 U	180 U	36 U	36 U	88 U [17 U]	35 U	17 U	35 U	17 U
bis(2-Chloroethyl)ether	- -	ug/kg	39 U	40 U	76 U	190 U	370 U	19 U	370 U	39 U	18 U	40 U	74 U	190 U	17 U	40 U	89 U	190 U	38 U	39 U	95 U [18 U]	38 U	18 U	37 U	18 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	510 J	140 J	570 J	89 U	170 U	160 J	1,200 J	160 J	250 J	160 J	680 J	90 U	820 J	19 U	280 J	91 U	650 J	250 J	380 J [200 J]	190 J	290 J	350 J	510 J
Butylbenzylphthalate	- -	ug/kg	26 U	27 U	52 U	130 U	250 U	13 U	250 U	27 U	12 U	27 U	50 U	130 U	12 U	28 U	61 U	130 U	26 U	27 U	64 U [12 U]	26 U	12 U	25 U	13 U
Caprolatam	- -	ug/kg	29 U	30 U	57 U	140 U	270 U	15 U	270 U	29 U	13 U	30 U	55 U	140 U	13 U	30 U	67 U	150 U	29 U	29 U	71 U [14 U]	29 U	14 U	28 U	14 U
Carbazole	- -	ug/kg	550 J	2,300	34 U	85 U	7,300 J	200 J	1,100 J	400 J	250 J	530 J	320 J	86 U	250 J	620 J	40 U	700 J	1,400	560 J	42 U [8.1 U]	800	63 J	400 J	50 J
Chrysene	1,000	ug/kg	**2,600**	**6,200 D**	**1,100 J**	**4,500**	**42,000**	**1,200**	**13,000**	**2,200**	**1,700**	**3,400**	**2,300**	**4,900**	**1,300**	**4,200**	**1,900**	**4,600**	**6,300**	**2,900**	**2,100 [550]**	**3,200**	760	**2,600**	490
Dibenz(a,h)anthracene	330	ug/kg	23 U	210 J	45 U	110 U	**840 J**	41 J	220 U	23 U	49 J	82 J	44 UJ	110 U	36 J	150 J	53 UJ	120 U	170 J	84 J	56 UJ [11 UJ]	99 J	11 UJ	22 U	11 UJ
Dibenzofuran	7,000	ug/kg	140 J	290 J	51 U	130 U	900 J	13 U	240 U	26 U	120 J	26 U	50 U	130 U	97 J	150 J	60 U	130 U	370 J	140 J	63 U [12 U]	130 J	12 U	89 J	12 U
Diethylphthalate	- -	ug/kg	25 U	25 U	48 U	120 U	230 U	12 U	230 U	25 U	11 U	25 U	47 U	120 U	11 U	26 U	57 U	120 U	25 U	25 U	60 U [12 U]	24 U	12 U	24 U	12 U
Dimethylphthalate	- -	ug/kg	19 U	19 U	37 U	92 U	180 U	9.4 U	180 U	19 U	8.7 U	19 U	36 U	93 U	8.5 U	20 U	43 U	94 U	19 U	19 U	46 U [8.7 U]	18 U	8.8 U	18 U	8.9 U
Di-n-butylphthalate	- -	ug/kg	130 J	11 U	21 U	51 U	99 U	5.2 U	99 U	11 U	62 J	11 U	20 U	52 U	98 J	94 J	24 U	52 U	10 U	11 U	26 U [4.9 U]	10 U	38 J	10 U	53 J
Di-n-octyl phthalate	- -	ug/kg	19 U	19 U	37 U	92 U	180 U	9.4 U	180 U	19 U	8.7 U	19 U	36 U	93 U	8.5 U	20 U	43 U	94 U	19 U	19 U	46 U [8.7 U]	18 U	8.8 U	18 U	8.9 U
Fluoranthene	100,000	ug/kg	4,900 D	16,000 D	1,900 J	11,000	**110,000 D**	2,700	23,000 J	5,100	2,900	6,200 D	5,800	13,000	2,700	7,600 D	2,900	11,000	11,000	6,200	3,200 [840]	6,900 D	1,200	5,700	920
Fluorene	30,000	ug/kg	330 J	730 J	44 U	110 U	2,900 J	81 J	1,000 J	140 J	170 J	210 J	180 J	110 U	210 J	350 J	51 U	490 J	780 J	350 J	55 U [10 U]	320 J	57 J	210 J	40 J
Hexachlorobenzene	330	ug/kg	15 U	15 U	29 U	72 U	140 U	7.4 U	140 U	15 U	6.8 U	15 U	28 U	73 U	6.6 U	15 U	34 U	74 U	15 U	15 U	36 U [6.9 U]	14 U	6.9 U	14 U	7 U
Hexachlorobutadiene	- -	ug/kg	27 U	28 U	54 U	140 U	260 U	14 U	260 U	28 U	13 U	28 U	53 U	140 U	12 U	29 U	63 U	140 U	27 U	28 U	67 U [13 U]	27 U	13 U	27 U	13 U
Hexachlorocyclopentadiene	- -	ug/kg	R	20 U	R	97 U	R	9.9 U	R	20 U	9.1 UJ	20 U	38 UJ	98 U	8.9 UJ	21 U	45 UJ	99 U	20 UJ	20 U	48 UJ [9.2 UJ]	19 U	9.2 UJ	19 U	9.4 UJ
Hexachloroethane	- -	ug/kg	37 U	39 U	74 U	180 U	350 U	19 U	350 U	38 U	17 U	38 U	72 U	190 U	17 U	39 U	86 U	190 U	37 U	38 U	92 U [17 U]	37 U	18 U	36 U	18 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	**550 J**	**1,400**	190 J	**1,800 J**	**6,400 J**	150 J	**3,000 J**	370 J	260 J	390 J	**970 J**	**1,900 J**	210 J	**710 J**	**1,500 J**	**720 J**	**1,100 J**	500 J	**810 J [300 J]**	460 J	160 J	**520 J**	150 J
Isophorone	- -	ug/kg	29 U	30 U	57 U	140 U	280 U	15 U	280 U	29 U	13 U	30 U	56 U	140 U	13 U	31 U	67 U	150 U	29 U	29 U	71 U [14 U]	29 U	14 U	28 U	14 U
Naphthalene	12,000	ug/kg	350 J	420 J	170 J	84 U	850 J	57 J	4,400 J	100 J	470	120 J	530 J	85 U	110 J	270 J	430 J	86 U	610 J	200 J	250 J [130 J]	170 J	140 J	130 J	260 J
Nitrobenzene	- -	ug/kg	40 U	41 U	78 U	200 U	380 U	20 U	380 U	40 U	18 U	41 U	76 U	200 U	18 U	42 U	92 U	200 U	40 U	40 U	97 U [19 U]	39 U	19 U	38 U	19 U
N-Nitroso-di-n-propylamine	- -	ug/kg	35 U	36 U	68 U	170 U	330 U	17 U	330 U	35 U	16 U	35 U	66 U	170 U	16 U	36 U	80 U	170 U	34 U	35 U	85 U [16 U]	34 U	16 U	33 U	17 U
N-Nitrosodiphenylamine	- -	ug/kg	20 U	21 U	39 U	98 U	190 U	10 U	190 U	20 U	9.2 U	20 U	38 U	99 U	9 U	21 U	46 U	100 U	20 U	20 U	49 U [9.3 U]	20 U	9.3 U	19 U	9.5 U
Pentachlorophenol	800	ug/kg	24 U	25 U	48 U	120 U	230 U	12 U	230 U	25 U	11 U	25 U	47 U	120 U	11 U	26 U	56 U	120 U	24 U	25 U	60 U [11 U]	24 U	11 U	24 U	12 U
Phenanthrene	100,000	ug/kg	4,800	10,000 D	730 J	5,100	46,000	1,400	9,300	2,800	2,700	3,800	3,200	6,200	2,200	4,200	1,500 J	6,400	16,000 D	4,000	1,300 J [440]	4,300	700	3,200	590
Phenol	330	ug/kg	33 U	34 U	64 U	160 U	310 U	16 U	310 U	33 U	15 U	34 U	63 U	160 U	15 U	34 U	76 U	160 U	33 U	33 U	80 U [15 U]	32 U	15 U	32 U	16 U
Pyrene	100,000	ug/kg	4,800	15,000 D	1,600	8,900	72,000 D	2,500	24,000	4,000	3,700 D	6,100	4,300	10,000	2,700	7,100 D	2,900	11,000	12,000	5,100	3,800 [970]	6,000	1,300	4,700	870
Total SVOCs	- -	ug/kg	30,600 J	81,900 J	10,900 J	50,100 J	469,000 J	14,200 J	148,000 J	24,900 J	20,000 J	36,500 J	27,200 J	56,900 J	16,900 J	45,900 J	21,500 J	57,600 J	77,900 J	34,000 J	20,000 J [5,800 J]	38,800 J	7,900 J	30,000 J	6,050 J
NYS DOH BAP	- -	ug/kg	2750	7050	1230	5140	46300	1570	17500	2590	1880	4200	1830	5620	1580	6380	3060	6080	7410	3670	2290	4330	803	3320	519

See Notes on Page 9.

Table 4
Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Surface Soil Analytical Results - SVOCs

Sample ID:			SS-12A	SS-13	SS-13A	SS-14	SS-14A	SS-15	SS-15A	SS-16	SS-16A	SS-17	SS-17A	SS-18	SS-18A	SS-19	SS-19A	SS-20	SS-27	SS-28	SS-30	SS-31	SS-32	SS-33	SS-34	SS-35	SS-36	SS-37
Sample Depth (feet bgs):	Unrestricted		0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2
Date Collected:	Use SCOs	Units	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	12/09/04	06/09/04	08/24/04	08/24/04	08/24/04	08/24/04	08/24/04	08/24/04	08/24/04	08/24/04	08/24/04	08/24/04
1,1-Biphenyl	- -	ug/kg	9.9 U	11 U	510 U	11 U	200 U	11 U	100 U	22 U	110 U	790 J	120 U	21 U	45 U	20 U	24 U	22 U	12 U	23 U	23 U	14 U	11 U	12 U	12 U	23 U	12 U	23 U
2,2-oxybis(1-Chloropropane)	- -	ug/kg	18 U	20 U	940 U	21 U	370 U	20 U	190 U	40 U	200 U	200 U	210 U	39 U	83 U	37 U	44 U	40 U	22 U	42 U	42 U	26 U	21 U	22 U	21 U	42 U	22 U	42 U
2,4,5-Trichlorophenol	- -	ug/kg	22 U	25 U	1,100 U	26 U	450 U	25 U	230 U	48 U	250 U	240 U	260 U	48 U	100 U	46 U	54 U	48 U	27 U	51 U	51 U	32 U	26 U	26 U	26 U	52 U	26 U	51 U
2,4,6-Trichlorophenol	- -	ug/kg	12 U	13 U	630 U	14 U	250 U	14 U	130 U	27 U	140 U	130 U	140 U	26 U	56 U	25 U	30 U	27 U	15 U	28 U	28 U	18 U	14 U	14 U	14 U	28 U	14 U	28 U
2,4-Dichlorophenol	- -	ug/kg	12 U	13 U	610 U	14 U	240 U	13 U	120 U	26 U	130 U	130 U	140 U	25 U	54 U	24 U	29 U	26 U	14 U	27 U	27 U	17 U	14 U	14 U	14 U	27 U	14 U	27 U
2,4-Dimethylphenol	- -	ug/kg	18 U	20 U	940 U	21 U	370 U	20 U	190 U	40 U	200 U	200 U	210 U	39 U	83 U	37 U	44 U	40 U	22 U	42 U	42 U	26 U	21 U	22 U	21 U	42 U	22 U	42 U
2,4-Dinitrophenol	- -	ug/kg	15 U	16 U	760 U	17 U	300 U	17 U	150 U	32 U	170 U	160 U	170 U	32 U	68 U	30 U	36 U	32 U	18 U	34 U	34 U	21 U	17 U	18 U	17 U	35 U	18 U	34 U
2,4-Dinitrotoluene	- -	ug/kg	6.6 U	7.4 U	350 U	7.7 U	140 U	7.5 U	69 U	15 U	75 U	73 U	78 U	14 U	31 U	14 U	16 U	15 U	8 U	15 U	15 U	9.7 U	7.7 U	7.9 U	7.8 U	16 U	7.9 U	15 U
2,6-Dinitrotoluene	- -	ug/kg	14 U	16 U	740 U	17 U	290 U	16 U	150 U	31 U	160 U	160 U	170 U	31 U	65 U	29 U	35 U	31 U	17 U	33 U	33 U	21 U	16 U	17 U	17 U	33 U	17 U	33 U
2-Chloronaphthalene	- -	ug/kg	6.9 U	7.7 U	360 U	8.1 U	140 U	7.9 U	72 U	15 U	78 U	76 U	81 U	15 U	32 U	14 U	17 U	15 U	8.4 U	16 U	16 U	10 U	8.1 U	8.3 U	8.2 U	16 U	8.3 U	16 U
2-Chlorophenol	- -	ug/kg	14 U	16 U	750 U	17 U	290 U	16 U	150 U	32 U	160 U	160 U	170 U	31 U	66 U	30 U	35 U	32 U	17 U	33 U	33 U	21 U	17 U	17 U	17 U	34 U	17 U	33 U
2-Methylnaphthalene	- -	ug/kg	5.7 U	6.4 U	300 U	57 J	120 U	6.5 U	1,200 J	13 U	900 J	4,600	1,900 J	280 J	190 J	12 U	14 U	100 J	6.9 U	180 J	320 J	8.4 U	100 J	6.9 U	61 J	180 J	150 J	91 J
2-Methylphenol	330	ug/kg	21 U	23 U	1,100 U	25 U	430 U	24 U	220 U	46 U	240 U	230 U	250 U	45 U	97 U	44 U	52 U	46 U	25 U	49 U	49 U	31 U	24 U	25 U	25 U	49 U	25 U	48 U
2-Nitroaniline	- -	ug/kg	12 U	13 U	630 U	14 U	250 U	14 U	130 U	27 U	140 U	130 U	140 U	26 U	56 U	25 U	30 U	27 U	15 U	28 U	28 U	18 U	14 U	14 U	14 U	28 U	14 U	28 U
2-Nitrophenol	- -	ug/kg	13 U	15 U	700 U	16 U	270 U	15 U	140 U	29 U	150 U	150 U	160 U	29 U	62 U	28 U	33 U	29 U	16 U	31 U	31 U	19 U	16 U	16 U	16 U	31 U	16 U	31 U
3,3-Dichlorobenzidine	- -	ug/kg	53 U	60 U	2,800 U	62 U	1,100 U	61 U	560 U	120 U	600 U	590 U	630 U	120 U	250 U	110 U	130 U	120 U	64 U	120 U	120 U	78 U	62 U	64 U	63 U	130 U	64 U	120 U
3+4-Methylphenols	- -	ug/kg	15 U	17 U	800 U	18 U	310 U	17 U	160 U	34 U	170 U	170 U	180 U	33 U	70 U	32 U	38 U	34 U	18 U	35 U	35 U	22 U	18 U	18 U	18 U	36 U	18 U	35 U
3-Nitroaniline	- -	ug/kg	54 U	60 U	2,800 U	63 U	1,100 U	61 U	560 U	120 U	610 U	590 U	630 U	120 U	250 U	110 U	130 U	120 U	65 U	120 U	120 U	78 U	62 U	64 U	63 U	130 U	64 U	120 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	19 U	22 UJ	1,000 U	23 UJ	400 U	22 UJ	200 U	42 UJ	220 U	210 UJ	230 U	42 UJ	89 U	40 UJ	47 U	42 UJ	23 U	45 U	45 U	28 U	22 U	23 U	23 U	45 U	23 U	45 U
4-Bromophenyl-phenylether	- -	ug/kg	8.7 U	9.8 U	460 U	10 U	180 U	9.9 U	91 U	19 U	99 U	96 U	100 U	19 U	40 U	18 U	22 U	19 U	11 U	20 U	20 U	13 U	10 U	10 U	10 U	21 U	10 U	20 U
4-Chloro-3-methylphenol	- -	ug/kg	9.9 U	11 U	510 U	11 U	200 U	11 U	100 U	22 U	110 U	110 U	120 U	21 U	45 U	20 U	24 U	22 U	12 U	23 U	23 U	14 U	11 U	12 U	12 U	23 U	12 U	23 U
4-Chloroaniline	- -	ug/kg	120 U	140 U	6,400 U	140 U	2,500 U	140 U	1,300 U	270 U	1,400 U	1,300 U	1,400 U	270 U	570 U	260 U	300 U	270 U	150 U	290 U	280 U	180 U	140 U	150 U	150 U	290 U	150 U	280 U
4-Chlorophenyl-phenylether	- -	ug/kg	8.2 U	9.2 U	430 U	9.6 U	170 U	9.3 U	86 U	18 U	93 U	90 U	97 U	18 U	38 U	17 U	20 U	18 U	9.9 U	19 U	19 U	12 U	9.6 U	9.9 U	9.7 U	19 U	9.9 U	19 U
4-Nitroaniline	- -	ug/kg	26 U	29 U	1,400 U	30 U	530 U	30 U	270 U	57 U	290 U	290 U	310 U	56 U	120 U	54 U	64 U	57 U	31 U	60 U	60 U	38 U	30 U	31 U	31 U	61 U	31 U	60 U
4-Nitrophenol	- -	ug/kg	32 U	36 U	1,700 U	38 U	670 U	37 U	340 U	71 U	370 U	360 U	380 U	70 U	150 U	67 U	80 U	200 J	39 U	75 U	75 U	47 U	38 U	39 U	38 U	76 U	39 U	75 U
Acenaphthene	20,000	ug/kg	7.3 U	8.2 U	380 U	90 J	150 U	100 J	77 U	84 J	2,300 J	890 J	2,600 J	310 J	790 J	88 J	150 J	80 J	8.9 U	610 J	250 J	11 U	100 J	41 J	59 J	100 J	100 J	110 J
Acenaphthylene	100,000	ug/kg	10 U	46 J	520 U	12 UJ	200 U	11 UJ	5,200	1,200 UJ	2,400 J	5,900 J	2,600 J	130 J	260 J	84 J	100 J	380 J	12 U	110 J	1,400	15 U	140 J	42 J	41 J	280 J	260 J	300 J
Acetophenone	- -	ug/kg	17 U	19 U	910 U	20 U	360 U	20 U	180 U	38 U	200 U	190 U	200 U	38 U	80 U	36 U	43 U	38 U	21 U	40 U	40 U	25 U	20 U	21 U	21 U	41 U	21 U	40 U
Anthracene	100,000	ug/kg	7.9 U	78 J	410 U	230 J	1,200 J	270 J	1,800 J	510 J	8,700	4,500	8,300	2,100	3,000	540 J	460 J	440 J	59 J	1,800	700 J	54 J	320 J	120 J	140 J	310 J	260 J	300 J
Atrazine	- -	ug/kg	10 U	11 U	530 U	12 U	210 U	12 U	110 U	22 U	110 U	110 U	120 U	22 U	47 U	21 U	25 U	22 U	12 U	24 U	23 U	15 U	12 U	12 U	12 U	24 U	12 U	23 U
Benzaldehyde	- -	ug/kg	33 U	36 U	1,700 U	38 U	670 U	37 U	340 U	72 U	370 U	360 U	380 U	71 U	150 U	68 U	80 U	72 U	39 U	76 U	75 U	47 U	38 U	39 U	38 U	77 U	39 U	75 U
Benzo(a)anthracene	1,000	ug/kg	150 J	350 J	**2,800 J**	**1,100**	**4,000 J**	**1,100**	**5,700**	**7,600 D**	**18,000**	**20,000**	**15,000**	**7,900 D**	**4,600**	**3,900**	**1,600**	**2,400**	260 J	**3,400**	**2,300**	300 J	**1,100**	530	550	970	1,000	**1,400**
Benzo(a)pyrene	1,000	ug/kg	130 J	290 J	**2,700 J**	760	**4,200 J**	790	**8,100**	**8,000 J**	**15,000**	**9,800 J**	**12,000**	**4,800**	**3,600**	**3,400**	**1,600**	**2,000**	250 J	**2,500**	**2,800**	280 J	1,000	470	500	960	910	**1,500**
Benzo(b)fluoranthene	1,000	ug/kg	180 J	280 J	**3,900 J**	940	**6,000 J**	960	**10,000**	**11,000 J**	**26,000**	**19,000 J**	**16,000**	**5,800 D**	**4,800**	**4,100**	**2,300**	**2,900**	340 J	**2,400**	**2,000**	380 J	930	480	680	860	**1,100**	**1,300**
Benzo(g,h,i)perylene	100,000	ug/kg	110 J	170 J	750 U	350 J	1,800 J	350 J	3,700	2,000 J	4,500	4,000 J	3,200 J	1,200 J	1,000 J	990 J	540 J	690 J	160 J	1,400	1,400	140 J	490	210 J	210 J	410 J	400	710 J
Benzo(k)fluoranthene	800	ug/kg	67 J	160 J	590 U	420	**2,300 J**	430	**3,100 J**	**4,400 J**	**7,700**	**6,400 J**	**6,700**	**2,700**	**2,000**	**1,900**	750 J	**1,200**	120 J	**2,100**	**1,900**	160 J	**860**	450	260 J	**820**	560	**1,400**
bis(2-Chloroethoxy)methane	- -	ug/kg	15 U	17 U	790 U	18 U	310 U	17 U	160 U	33 U	170 U	170 U	180 U	33 U	70 U	32 U	37 U	33 U	18 U	35 U	35 U	22 U	18 U	18 U	18 U	36 U	18 U	35 U
bis(2-Chloroethyl)ether	- -	ug/kg	16 U	18 U	850 U	19 U	340 U	19 U	170 U	36 U	190 U	180 U	190 U	35 U	76 U	34 U	40 U	36 U	20 U	38 U	38 U	24 U	19 U	20 U	19 U	39 U	20 U	38 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	370	350 J	2,000 J	340 J	160 U	400 J	470 J	190 J	86 U	950 J	2,100 J	770 J	210 J	200 J	350 J	17 U	150 J	330 J	150 J	11 U	300 J	810	380 J	520 J	300 J	1,400
Butylbenzylphthalate	- -	ug/kg	11 U	12 U	580 U	13 U	230 U	13 U	120 U	25 U	130 U	120 U	130 U	100 J	51 U	23 U	27 U	25 U	13 U	26 U	26 U	16 U	13 U	60 J	40 J	26 U	13 U	89 J
Caprolatam	- -	ug/kg	12 U	14 U	640 U	14 U	250 U	14 U	130 U	27 U	140 U	130 U	140 U	27 U	57 U	25 U	30 U	27 U	15 U	28 U	28 U	18 U	14 U	15 U	14 U	29 U	15 U	28 U
Carbazole	- -	ug/kg	7.3 U	8.2 U	380 U	180 J	150 U	190 J	77 U	140 J	4,400	970 J	1,900 J	1,800	530 J	80 J	170 J	150 J	8.9 U	580 J	220 J	11 U	190 J	57 J	74 J	130 J	110 J	130 J
Chrysene	1,000	ug/kg	150 J	310 J	**2,600 J**	1,000	**3,800 J**	950	**6,300**	**6,200 D**	**18,000**	**19,000**	**14,000**	**5,700**	**4,000**	**3,600**	**1,500**	**2,300**	270 J	**3,100**	**2,400**	280 J	990	560	520	930	970	**1,300**
Dibenz(a,h)anthracene	330	ug/kg	9.8 U	11 UJ	510 U	11 UJ	200 U	11 UJ	100 U	190 J	**410 J**	**430 J**	110 U	140 J	45 U	110 J	24 U	83 J	12 U	190 J	180 J	14 U	62 J	12 U	12 U	23 U	50 J	94 J
Dibenzofuran	7,000	ug/kg	11 U	12 U	570 U	55 J	220 U	61 J	110 U	24 U	1,200 J	870 J	1,400 J	110 J	520 J	23 U	27 U	24 U	13 U	370 J	25 U	16 U	66 J	13 U	13 U	26 U	60 J	25 U
Diethylphthalate	- -	ug/kg	10 U	12 U	540 U	12 U	210 U	12 U	110 U	23 U	120 U	110 U	120 U	23 U	48 U	22 U	26 U	23 U	13 U	24 U	24 U	15 U	12 U	13 U	12 U	25 U	12 U	24 U
Dimethylphthalate	- -	ug/kg	7.9 U	8.9 U	410 U	9.3 U	160 U	9 U	83 U	17 U	90 U	87 U	93 U	17 U	37 U	16 U	20 U	17 U	9.6 U	18 U	18 U	12 U	9.2 U	9.5 U	9.4 U	19 U	9.5 U	18 U
Di-n-butylphthalate	- -	ug/kg	34 J	38 J	230 U	54 J	91 U	5 U	46 U	9.7 U	50 U	49 U	52 U	73 J	20 U	9.2 U	11 U	9.7 U	5.3 U	10 U	10 U	6.4 U	5.1 U	45 J	180 J	10 U	53 J	10 U
Di-n-octyl phthalate	- -	ug/kg	7.9 U	8.9 U	410 U	9.3 U	160 U	9 U	83 U	17 U	90 U	87 U	93 U	17 U	37 U	16 U	20 U	17 U	9.6 U	18 U	18 U	12 U	9.2 U	9.5 U	9.4 U	19 U	9.5 U	18 U
Fluoranthene	100,000	ug/kg	280 J	580	5,900 J	2,100	8,100	2,100	8,000	16,000 D	43,000 D	29,000	26,000	18,000 D	11,000	5,100	3,700	4,100	490	5,900	3,100	440 J	1,800	890	970	1,600	1,500	2,200
Fluorene	30,000	ug/kg	9.5 U	11 U	490 U	100 J	190 U	130 J	770 J	74 J	2,500 J	4,600	3,900 J	240 J	1,100 J	81 J	150 J	130 J	11 U	920	400 J	14 U	140 J	41 J	61 J	120 J	130 J	130 J
Hexachlorobenzene	330	ug/kg	6.2 U	7 U	320 U	7.3 U	130 U	7.1 U	65 U	14 U	71 U	68 U	73 U	13 U	29 U	13 U	15 U	14 U	7.5 U	14 U	14 U	9.1 U	7.2 U	7.5 U	7.4 U	15 U	7.5 U	14 U
Hexachlorobutadiene	- -	ug/kg	12 U	13 U	610 U	14 U	240 U	13 U	120 U	26 U	130 U	130 U	140 U	25 U	54 U	24 U	29 U	26 U	14 U	27 U	27 U	17 U	14 U	14 U	14 U	27 U	14 U	27 U
Hexachlorocyclopentadiene	- -	ug/kg	8.3 U	9.3 UJ	430 U	9.7 UJ	170 U	9.5 UJ	87 U	18 UJ	94 U	91 UJ	98 U	18 UJ	38 U	17 UJ	21 U	18 UJ	10 U	19 U	19 U	12 U	9.7 U	10 U	9.8 U	20 U	10 U	19 U
Hexachloroethane	- -	ug/kg	16 U	18 U	830 U	19 U	330 U	18 U	170 U	35 U	180 U	170 U	190 U	34 U	73 U	33 U	39 U	35 U	19 U	37 U	37 U	23 U	18 U	19 U	19 U	37 U	19 U	37 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	78 J	170 J	420 U	360 J	**710 J**	340 J	**1,300 J**	**1,200 J**	**1,800 J**	**2,000 J**	**1,300 J**	**1,100 J**	**680 J**	**770 J**	220 J	500 J	130 J	**1,400**	**1,100**	130 J	450	160 J	170 J	300 J	300 J	**540 J**
Isophorone	- -	ug/kg	12 U	14 U	640 U	14 U	250 U	14 U	130 U	27 U	140 U	140 U	150 U	27 U	57 U	26 U	30 U	27 U	15 U	29 U	29 U	18 U	14 U	15 U	15 U	29 U	15 U	29 U
Naphthalene	12,000	ug/kg	7.2 U	8.1 U	380 U	96 J	840 J	67 J	2,200 J	87 J	1,800 J	4,500	2,100 J	220 J	240 J	75 J	100 J	210 J	8.7 U	150 J	670 J	11 U	280 J	8.7 U	130 J	280 J	240 J	140 J
Nitrobenzene	- -	ug/kg	17 U	19 U	880 U	20 U	350 U	19 U	180 U	37 U	190 U	190 U	200 U	37 U	78 U	35 U	42 U	37 U	20 U	39 U	39 U	25 U	20 U	20 U	20 U	40 U	20 U	39 U
N-Nitroso-di-n-propylamine	- -	ug/kg	15 U	16 U	760 U	17 U	300 U	17 U	150 U	32 U	170 U	160 U	170 U	32 U	68 U	30 U	36 U	32 U	18 U	34 U	34 U	21 U	17 U	18 U	17 U	35 U	18 U	34 U
N-Nitrosodiphenylamine	- -	ug/kg	8.4 U	9.4 U	440 U	9.9 U	170 U	9.6 U	88 U	19 U	96 U	93 U	99 U	18 U	39 U	18 U	21 U	19 U	10 U	20 U	20 U	12 U	9.8 U	10 U	10 U	20 U	10 U	19 U
Pentachlorophenol	800	ug/kg	10 U	12 U	540 U	12 U	210 U	12 U	110 U	23 U	120 U	110 U	120 U	22 U	48 U	21 U	25 U	23 U	12 U	24 U	24 U	15 U	12 U	12 U	12 U	24 U	12 U	24 U
Phenanthrene	100,000	ug/kg	100 J	380	3,800 J	1,300	4,600 J	1,600	5,500	1,400	24,000	32,000 D	25,000	8,900 D	8,600	2,400	2,100	2,400	190 J	4,900	1,600	190 J	1,000	460	550	930	850	920
Phenol	330	ug/kg	14 U	15 U	720 U	16 U	280 U	16 U	140 U	31 U	160 U	150 U	160 U	30 U	64 U	29 U	34 U	31 U	17 U	32 U	32 U	20 U	16 U	17 U	16 U	33 U	17 U	32 U
Pyrene	100,000	ug/kg	260 J	570	6,500 J	1,700	9,600	1,800	15,000	11,000 D	41,000 D	33,000 D	30,000	13,000 D	8,400	5,400	3,600	3,500	510	5,500	4,600	450 J	1,800	940	1,100	1,800	1,800	2,300
Total SVOCs	- -	ug/kg	1,910 J	3,770 J	30,200 J	11,200 J	47,200 J	11,600 J	78,300 J	70,100 J	224,000 J	203,000 J	176,000 J	75,400 J	55,500 J	32,800 J	19,400 J	23,800 J	2,930 J	37,800 J	27,500 J	2,800 J	12,100 J	6,370 J	6,680 J	11,500 J	11,100 J	16,400 J
NYS DOH BAP	- -	ug/kg	178	380	3670	1020	5430	1050	9940	10300	20200	14600	15500	6500	4690	4440	2050	2700	333	3460	3560	372	1330	603	654	1200	1220	1950

See Notes on Page 9.

Table 5

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Surface Soil Analytical Results - Inorganics and PCBs

Sample ID:	**Unrestricted Use SCOs**	**Units**	**SS-1**	**SS-2**	**SS-3**	**SS-4**	**SS-5**	**SS-6**	**SS-7**	**SS-8**	**SS-9**
Sample Depth (feet bgs):			**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**
Date Collected:			**06/11/04**	**06/11/04**	**06/11/04**	**06/11/04**	**06/09/04**	**06/09/04**	**06/09/04**	**06/09/04**	**06/09/04**
Metals											
Arsenic	13	mg/kg	**13.3**	8.8	6.5	10.6	**24.1**	**23.4**	**32.8**	**16**	**25.8**
Barium	350	mg/kg	262	155	183	186	142	129	84.6	215	135
Cadmium	2.5	mg/kg	2	2.49	1.52	2.09	1.82	1.58	1.2	1.12	1.66
Chromium	1*	mg/kg	**28.5**	**50.3**	**19.6**	**32.6**	**20.7**	**23.7**	**18.3**	**12.9**	**23.4**
Chromium	30^	mg/kg	28.5	**50.3**	19.6	**32.6**	20.7	23.7	18.3	12.9	23.4
Lead	63	mg/kg	**252**	**656**	**2,640**	**408**	**906**	**188**	**133**	**257**	**135**
Mercury	0.18	mg/kg	**0.89**	**0.82**	**0.86**	**0.86**	**0.75 J**	**0.44 J**	**0.58 J**	**0.58 J**	**0.93 J**
Selenium	3.9	mg/kg	0.833 J	0.968 J	0.357 U	0.803 J	0.342 U	0.461 J	0.335 U	0.343 U	0.471 J
Silver	2	mg/kg	0.755 J	1.56	0.925 J	1.41	**3.63 J**	0.341 J	0.476 J	0.282 J	0.786 J
Cyanide											
Cyanide	27	mg/kg	0.605 U	0.589 U	0.571 U	0.571 U	0.557 U	0.572 U	0.54 U	0.548 U	0.598 U
PCBs											
Aroclor-1016	- -	mg/kg	0.0063 U	0.0061 U	0.0059 U	0.0058 U	0.0057 U	0.0059 U	0.0056 U	0.0057 U	0.0061 U
Aroclor-1221	- -	mg/kg	0.0043 U	0.0042 U	0.004 U	0.004 U	0.0039 U	0.004 U	0.0038 U	0.0039 U	0.0041 U
Aroclor-1232	- -	mg/kg	0.0029 U	0.0028 U	0.0027 U	0.0027 U	0.0026 U	0.0027 U	0.0026 U	0.0026 U	0.0028 U
Aroclor-1242	- -	mg/kg	0.0037 U	0.0036 U	0.0035 U	0.0034 U	0.0034 U	0.0035 U	0.0033 U	0.0034 U	0.0036 U
Aroclor-1248	- -	mg/kg	0.0044 U	0.0043 U	0.0041 U	0.0041 U	0.004 U	0.0042 U	0.0039 U	0.004 U	0.0043 U
Aroclor-1254	- -	mg/kg	0.0016 U	0.0016 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0014 U	0.0015 U	0.0016 U
Aroclor-1260	- -	mg/kg	0.0035 U	0.0035 U	0.0033 U	0.0033 U	0.0032 U	0.0034 U	0.0031 U	0.0032 U	0.0034 U

See Notes on Page 4.

Table 5

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Surface Soil Analytical Results - Inorganics and PCBs

Sample ID:	**Unrestricted Use SCOs**	**Units**	**SS-10**	**SS-11**	**SS-12**	**SS-13**	**SS-14**	**SS-15**	**SS-16**
Sample Depth (feet bgs):			**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**
Date Collected:			**06/09/04**	**06/09/04**	**06/09/04**	**06/09/04**	**06/09/04**	**06/09/04**	**06/09/04**
Metals									
Arsenic	13	mg/kg	**15 [12.3]**	**32.1**	**13.2**	**54.4**	**33.1**	**46.8**	**32.3**
Barium	350	mg/kg	102 [90.7]	94.9	215	61.5	84.1	50.4	137
Cadmium	2.5	mg/kg	1.61 [1.25]	1.59	1.96	1.13	1.38	0.769	1.53
Chromium	1*	mg/kg	**23.1 [18.7]**	**21.6**	**30.8**	**16.7**	**16.3**	**14.5**	**19.2**
Chromium	30^	mg/kg	23.1 [18.7]	21.6	**30.8**	16.7	16.3	14.5	19.2
Lead	63	mg/kg	**129 [83.2]**	**158**	**255**	**98.8**	**101**	**78.8**	**97.7**
Mercury	0.18	mg/kg	**0.42 J [0.48 J]**	**0.47 J**	**0.59 J**	**0.5 J**	**0.36 J**	**0.54 J**	**0.52 J**
Selenium	3.9	mg/kg	0.364 U [0.344 U]	0.351 U	0.359 U	0.355 U	0.583 J	1.69	0.35 U
Silver	2	mg/kg	**2.26 J [0.722 J]**	0.895 J	0.908 J	0.344 J	0.397 J	0.119 J	0.33 J
Cyanide									
Cyanide	27	mg/kg	0.582 U [0.561 U]	0.56 U	0.573 U	0.568 U	0.597 U	0.577 U	0.559 U
PCBs									
Aroclor-1016	- -	mg/kg	0.006 U [0.0057 U]	0.0058 U	0.0059 U	0.0059 U	0.0061 U	0.0059 U	0.0057 U
Aroclor-1221	- -	mg/kg	0.0041 U [0.0039 U]	0.0039 U	0.004 U	0.004 U	0.0042 U	0.004 U	0.0039 U
Aroclor-1232	- -	mg/kg	0.0028 U [0.0027 U]	0.0027 U	0.0027 U	0.0027 U	0.0028 U	0.0027 U	0.0026 U
Aroclor-1242	- -	mg/kg	0.0036 U [0.0034 U]	0.0034 U	0.0035 U	0.0035 U	0.0036 U	0.0035 U	0.0034 U
Aroclor-1248	- -	mg/kg	0.0042 U [0.004 U]	0.004 U	0.0041 U	0.0041 U	0.0043 U	0.0041 U	0.004 U
Aroclor-1254	- -	mg/kg	0.0016 U [0.0015 U]	0.0015 U	0.0015 U	0.0015 U	0.0016 U	0.0015 U	0.0015 U
Aroclor-1260	- -	mg/kg	0.0034 U [0.0032 U]	0.0033 U	0.0033 U	0.0033 U	0.0035 U	0.0033 U	0.0032 U

See Notes on Page 4.

Table 5

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Surface Soil Analytical Results - Inorganics and PCBs

Sample ID:			**SS-17**	**SS-18**	**SS-19**	**SS-20**
Sample Depth (feet bgs):	**Unrestricted**		**0 - 0.2**	**0 - 0.2**	**0 - 0.2**	**0 - 0.2**
Date Collected:	**Use SCOs**	**Units**	**06/09/04**	**06/09/04**	**06/09/04**	**06/09/04**
Metals						
Arsenic	13	mg/kg	**14.3**	7.21	7.98	5.63
Barium	350	mg/kg	246	121	99.7	253
Cadmium	2.5	mg/kg	1.96	1.64	1.04	1.37
Chromium	1*	mg/kg	**17.9**	**19.9**	**22.5**	**17.6**
Chromium	30^	mg/kg	17.9	19.9	22.5	17.6
Lead	63	mg/kg	**578**	**123**	**238**	**265**
Mercury	0.18	mg/kg	**1.2 J**	**0.53 J**	**0.46 J**	**0.48 J**
Selenium	3.9	mg/kg	0.344 U	0.564 J	0.554 J	0.864 J
Silver	2	mg/kg	**3.1 J**	0.611 J	0.624 J	0.661 J
Cyanide						
Cyanide	27	mg/kg	0.556 U	0.551 U	0.529 U	0.561 U
PCBs						
Aroclor-1016	- -	mg/kg	0.0058 U	0.0057 U	0.0055 U	0.0058 U
Aroclor-1221	- -	mg/kg	0.0039 U	0.0039 U	0.0037 U	0.0039 U
Aroclor-1232	- -	mg/kg	0.0027 U	0.0026 U	0.0025 U	0.0027 U
Aroclor-1242	- -	mg/kg	0.0034 U	0.0034 U	0.0033 U	0.0034 U
Aroclor-1248	- -	mg/kg	0.004 U	0.004 U	0.0038 U	0.004 U
Aroclor-1254	- -	mg/kg	0.0015 U	0.0015 U	0.0014 U	0.0015 U
Aroclor-1260	- -	mg/kg	0.0033 U	0.0032 U	0.0031 U	0.036

See Notes on Page 4.

Table 5

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Surface Soil Analytical Results - Inorganics and PCBs

Notes:

J = indicates an estimated value.
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
mg/kg = milligrams per kilogram.
bgs = below ground surface.
PQL = practical quantitation limit.
NYCRR = New York State Codes Rules and Regulations.
SCOs = Soil Cleanup Objectives according to 6 NYCRR Subpart 375-6 *Remedial Program Soil Cleanup Objectives*.
- - = no SCO exists for the specified compound.
PCBs = polychlorinated biphenyls.
* = criterion for hexavalent chromium
^ = criterion for trivalent chromium
▨ Bolded and shaded values exceed the Unrestricted Use SCOs.

Table 6

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - VOCs

Sample ID:			B-4	B-4	B-5	B-5	B-5	B-6	B-7	B-7	B-8	B-8	B-10	B-10	B-11	B-11	B-11	B-11	B-12	B-12	B-12
Sample Depth (feet bgs):	Unrestricted		5 - 7	9 - 11	3 - 5	7 - 9	17 - 19	3 - 4	5 - 7	15 - 17	5 - 7	12 - 14	4 - 5	9 - 11	2 - 3	8 - 10	18 - 20	26 - 28	3 - 4	7 - 9	21 - 23
Date Collected:	Use SCOs	Units	04/21/04	04/21/04	04/15/04	04/15/04	04/15/04	03/23/04	05/20/04	05/20/04	05/18/04	05/18/04	03/26/04	04/14/04	03/17/04	04/22/04	04/22/04	04/22/04	03/17/04	04/09/04	04/15/04
1,1,1-Trichloroethane	680	ug/kg	0.3 U	1.5 U	3.4 U	3.6 U	0.34 U	0.31 U	0.29 U	0.38 UJ	0.33 U	4.4 U	0.32 U	88 U	0.32 UJ	0.67 UJ [63 UJ]	77 UJ	0.41 UJ	0.3 U	68 U	4,600 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	0.58 U	2.9 U	6.6 U	7 U	0.67 U	0.6 U	0.57 U	0.73 UJ	0.65 U	8.5 U	R	110 U	0.62 UJ	1.3 UJ [76 UJ]	94 UJ	0.8 UJ	0.59 U	83 U	5,500 U
1,1,2-Trichloroethane	- -	ug/kg	0.56 U	2.8 U	6.3 U	6.7 U	0.64 U	0.57 U	0.54 U	0.7 UJ	0.62 U	8.2 U	0.6 U	110 U	0.6 UJ	1.2 UJ [80 UJ]	98 UJ	0.77 UJ	0.57 U	86 U	5,800 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	0.5 U	2.6 U	5.7 U	6 U	0.58 U	0.52 U	0.49 U	0.64 UJ	0.56 U	7.4 U	0.54 U	150 U	0.54 UJ	1.1 UJ [110 UJ]	130 UJ	0.7 UJ	0.52 U	120 U	7,700 U
1,1-Dichloroethane	270	ug/kg	0.39 U	2 U	4.4 U	4.6 U	0.45 U	0.4 U	0.38 U	0.49 UJ	0.43 U	5.7 U	0.42 U	46 U	0.42 UJ	0.87 UJ [33 UJ]	41 UJ	0.53 UJ	0.4 U	36 U	2,400 U
1,1-Dichloroethene	330	ug/kg	0.24 U	1.2 U	2.7 U	2.8 U	0.27 U	0.24 U	0.23 U	0.3 UJ	0.26 U	3.5 U	0.25 U	69 U	0.25 UJ	0.53 UJ [50 UJ]	61 UJ	0.33 UJ	0.24 U	54 U	3,600 U
1,2,4-Trichlorobenzene	- -	ug/kg	0.27 U	1.4 U	3.1 U	3.3 U	0.32 U	0.28 U	0.27 U	0.35 UJ	0.3 U	4 U	R	62 U	0.29 UJ	0.62 UJ [44 UJ]	54 UJ	0.38 UJ	0.28 U	48 U	3,200 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	0.74 U	3.8 U	8.5 U	8.9 U	0.86 U	0.77 U	0.73 U	0.94 UJ	0.83 U	11 U	R	200 U	0.8 UJ	R [140 UJ]	180 UJ	R	0.76 U	160 U	10,000 U
1,2-Dibromoethane	- -	ug/kg	0.46 U	2.3 U	5.2 U	5.5 U	0.53 U	0.47 U	0.45 U	0.58 UJ	0.51 U	6.7 U	0.49 U	140 U	0.49 UJ	1 UJ [98 UJ]	120 UJ	0.63 UJ	0.47 U	110 U	7,100 U
1,2-Dichlorobenzene	1,100	ug/kg	0.45 U	2.3 U	5.1 U	5.4 U	0.52 U	0.46 U	0.44 U	0.57 UJ	0.5 U	6.6 U	R	79 U	0.48 UJ	1 UJ [56 UJ]	69 UJ	0.62 UJ	0.46 U	61 U	4,100 U
1,2-Dichloroethane	20	ug/kg	3.4 U	17 U	38 U	41 U	3.9 U	3.5 U	3.3 U	4.3 UJ	3.8 U	50 U	3.6 U	69 U	3.6 UJ	7.6 UJ [49 UJ]	61 UJ	4.7 UJ	3.5 U	53 U	3,600 U
1,2-Dichloropropane	- -	ug/kg	0.37 U	1.9 U	4.2 U	4.4 U	0.42 U	0.38 U	0.36 U	0.47 UJ	0.41 U	5.4 U	0.39 U	68 U	0.39 UJ	0.83 UJ [49 UJ]	60 UJ	0.51 UJ	0.38 U	53 U	3,500 U
1,3-Dichlorobenzene	2,400	ug/kg	0.23 U	1.2 U	2.6 U	2.8 U	0.27 U	0.24 U	0.23 U	0.29 UJ	0.26 U	3.4 U	R	80 U	0.25 UJ	0.52 UJ [57 UJ]	70 UJ	0.32 UJ	0.24 U	62 U	4,200 U
1,4-Dichlorobenzene	1,800	ug/kg	0.39 U	2 U	4.4 U	4.6 U	0.44 U	0.4 U	0.38 U	0.49 UJ	0.43 U	5.7 U	R	83 U	0.41 UJ	0.87 UJ [60 UJ]	73 UJ	0.53 UJ	0.39 U	64 U	4,300 U
2-Butanone	120	ug/kg	2.5 U	13 U	28 U	30 U	2.9 U	15 J	2.4 U	3.2 UJ	2.8 U	37 U	2.7 U	610 U	2.7 UJ	5.6 UJ [440 UJ]	540 UJ	3.4 UJ	2.6 U	470 U	32,000 U
2-Hexanone	- -	ug/kg	3.5 U	18 U	40 U	42 U	4 U	3.6 U	3.4 U	4.4 UJ	3.9 U	52 U	3.8 U	140 U	3.8 UJ	7.9 UJ [100 UJ]	120 UJ	4.8 UJ	3.6 U	110 U	7,400 U
4-Methyl-2-Pentanone	- -	ug/kg	2.6 U	13 U	30 U	32 U	3 U	2.7 U	2.6 U	3.3 UJ	2.9 U	39 U	2.8 U	280 U	2.8 UJ	5.9 UJ [200 UJ]	250 UJ	3.6 UJ	2.7 U	220 U	15,000 U
Acetone	50	ug/kg	8.2 U	41 J	93 U	**98 J**	9.4 U	**100 J**	8 U	10 UJ	9.1 U	120 U	**1,100 J**	710 U	8.8 UJ	120 UJ [510 UJ]	630 UJ	120 UJ	8.4 U	550 U	37,000 U
Benzene	60	ug/kg	3.9 J	29	**480**	**470**	**64**	0.23 U	0.22 U	0.28 UJ	0.25 U	**130**	**140 J**	**6,000**	0.24 UJ	**220 J [210 J]**	**8,800 J**	27 J	8.5	40 U	**210,000**
Bromodichloromethane	- -	ug/kg	0.37 U	1.8 U	4.2 U	4.4 U	0.42 U	0.38 U	0.36 U	0.46 UJ	0.41 U	5.4 U	0.39 U	75 U	0.39 UJ	0.82 UJ [54 UJ]	66 UJ	0.5 UJ	0.37 U	58 U	3,900 U
Bromoform	- -	ug/kg	0.33 U	1.7 U	3.7 U	3.9 U	0.38 U	0.34 U	0.32 U	0.42 UJ	0.36 U	4.8 U	0.35 U	54 U	0.35 UJ	0.74 UJ [39 UJ]	48 UJ	0.45 UJ	0.34 U	42 U	2,800 U
Bromomethane	- -	ug/kg	0.78 U	3.9 U	8.8 U	9.3 U	0.9 U	0.8 U	0.76 U	0.98 UJ	0.86 U	11 U	0.83 U	170 U	0.83 UJ	1.7 UJ [120 UJ]	150 UJ	1.1 UJ	0.8 U	130 U	8,700 U
Carbon Disulfide	- -	ug/kg	3 J	19 J	200 J	40 J	0.13 U	2.4 J	0.11 U	0.14 UJ	0.12 U	1.6 U	7.3 J	84 U	0.12 UJ	0.25 UJ [60 UJ]	74 UJ	0.15 UJ	0.11 U	65 U	4,400 U
Carbon Tetrachloride	760	ug/kg	0.33 U	1.7 U	3.7 U	3.9 U	0.38 U	0.34 U	0.32 U	0.41 UJ	0.36 U	4.8 U	0.35 U	100 U	0.35 UJ	0.74 UJ [73 UJ]	89 UJ	0.45 UJ	0.33 U	78 U	5,200 U
Chlorobenzene	1,100	ug/kg	0.39 U	2 U	4.4 U	4.6 U	0.45 U	0.4 U	0.38 U	0.49 UJ	0.43 U	5.7 U	0.41 U	79 U	0.41 UJ	0.87 UJ [57 UJ]	70 UJ	0.53 UJ	0.4 U	61 U	4,100 U
Chloroethane	- -	ug/kg	0.58 U	2.9 U	6.6 U	6.9 U	0.66 U	0.6 U	0.56 U	0.73 UJ	0.64 U	8.5 U	0.62 U	190 U	0.62 UJ	1.3 UJ [140 UJ]	170 UJ	0.8 UJ	0.59 U	150 U	9,900 U
Chloroform	370	ug/kg	0.26 U	1.3 U	3 U	3.1 U	0.3 U	0.27 U	0.25 U	0.33 UJ	0.29 U	3.8 U	0.28 U	120 U	0.28 UJ	0.59 UJ [89 UJ]	110 UJ	0.36 UJ	0.27 U	96 U	6,400 U
Chloromethane	- -	ug/kg	0.36 U	1.8 U	4.1 U	4.4 U	0.42 U	0.38 U	0.36 U	0.46 UJ	0.4 U	5.3 U	0.39 U	150 U	0.39 UJ	0.82 UJ [160 J]	190 J	0.5 UJ	0.37 U	110 U	7,600 U
cis-1,2-Dichloroethene	250	ug/kg	0.39 U	2 U	4.4 U	4.6 U	0.45 U	0.4 U	0.38 U	0.49 UJ	0.43 U	5.7 U	0.41 U	170 U	0.41 UJ	0.87 UJ [120 UJ]	150 UJ	0.53 UJ	0.4 U	130 U	8,600 U
cis-1,3-Dichloropropene	- -	ug/kg	0.21 U	1.1 U	2.4 U	2.6 U	0.25 U	0.22 U	0.21 U	0.27 UJ	0.24 U	3.1 U	0.23 U	33 U	0.23 UJ	0.48 UJ [23 UJ]	29 UJ	0.29 UJ	0.22 U	25 U	1,700 U
Cyclohexane	- -	ug/kg	0.34 U	1.7 U	3.8 U	4 U	0.39 U	0.35 U	0.33 U	0.42 UJ	0.37 U	100 J	0.36 U	79 U	3.2 J	110 [57 UJ]	500 J	0.46 UJ	0.34 U	61 U	4,100 U
Dibromochloromethane	- -	ug/kg	0.32 U	1.6 U	3.6 U	3.8 U	0.37 U	0.33 U	0.31 U	0.4 UJ	0.35 U	4.7 U	0.34 U	81 U	0.34 UJ	0.72 UJ [58 UJ]	72 UJ	0.44 UJ	0.33 U	63 U	4,200 U
Dichlorodifluoromethane	- -	ug/kg	1.4 U	6.9 U	15 U	16 U	1.6 U	1.4 U	1.3 U	1.7 UJ	1.5 U	20 U	1.5 U	72 U	1.5 UJ	3 UJ [52 UJ]	63 UJ	1.9 UJ	1.4 U	56 U	3,700 U
Ethyl Benzene	1,000	ug/kg	0.27 U	39	**7,100**	**67,000**	220	2.4 J	0.27 U	0.35 UJ	0.3 U	4 U	500 J	**140,000 D**	0.29 UJ	**2,400 J [6,900 J]**	**30,000 J**	74 J	4.2 J	**13,000**	**1,300,000**
Isopropylbenzene	- -	ug/kg	0.41 U	260	2,300	13,000	81	0.42 U	0.4 U	0.51 UJ	0.45 U	5,200	R	6,100	0.44 UJ	1,800 J [5,100 J]	5,800 J	18 J	0.42 U	4,200	120,000
m/p-Xylenes	- -	ug/kg	0.56 U	18 J	3,000	7,100	17	1.5 J	0.55 U	0.71 UJ	0.63 U	8.3 U	780 J	1,900 J	0.6 UJ	1.3 UJ [390 J]	24,000 J	79 J	7.9	790 J	1,200,000
Methyl Acetate	- -	ug/kg	1.4 U	7.1 U	16 U	17 U	1.6 U	1.4 U	1.4 U	1.8 UJ	1.6 U	21 U	1.5 U	180 U	1.5 UJ	3.1 UJ [130 UJ]	160 UJ	1.9 UJ	1.4 U	140 U	9,300 U
Methyl Tertiary-Butyl Ether	930	ug/kg	0.25 U	1.3 U	2.9 U	3 U	0.29 U	0.26 U	0.25 U	0.32 UJ	0.28 U	3.7 U	0.27 U	77 U	0.27 UJ	0.57 UJ [55 UJ]	68 UJ	0.35 UJ	0.26 U	60 U	4,000 U
Methylcyclohexane	- -	ug/kg	0.39 U	20 J	4.4 U	110 J	0.45 U	0.4 U	0.38 U	0.49 UJ	0.43 U	5.7 J	0.42 U	1,500	0.42 UJ	0.88 UJ [89 UJ]	110 UJ	0.54 UJ	0.4 U	3,100	57,000
Methylene Chloride	50	ug/kg	0.75 U	3.8 U	8.5 U	8.9 U	0.86 U	0.77 U	0.73 U	0.94 UJ	0.83 U	11 U	5.7 UJ	130 U	0.8 UJ	1.7 UJ [96 UJ]	120 UJ	2.8 J	0.76 U	100 U	6,900 U
o-Xylene	- -	ug/kg	0.47 U	2.4 U	2,300	3,800	15	0.49 U	0.46 U	0.6 UJ	0.53 U	7 U	460 J	1,200	0.51 UJ	130 J [700 J]	11,000 J	46 J	2 J	1,100	560,000
Styrene	- -	ug/kg	0.34 U	1.7 U	260	1,120	0.4 U	0.36 U	0.34 U	0.43 UJ	0.38 U	5 U	170 J	74 U	0.37 UJ	0.77 UJ [53 UJ]	65 UJ	0.47 UJ	4.3 J	57 U	3,800 U
t-1,3-Dichloropropene	- -	ug/kg	0.28 U	1.4 U	3.2 U	3.4 U	0.32 U	0.29 U	0.28 U	0.36 UJ	0.31 U	4.1 U	0.3 U	92 U	0.3 UJ	0.63 UJ [66 UJ]	80 UJ	0.39 UJ	0.29 U	71 U	4,700 U
Tetrachloroethene	1,300	ug/kg	0.7 U	3.5 U	7.9 U	8.4 U	0.8 U	0.72 U	0.68 U	0.88 UJ	0.77 U	10 U	1.5 J	71 U	0.75 UJ	1.6 UJ [51 UJ]	63 UJ	0.96 UJ	0.71 U	55 U	3,700 U
Toluene	700	ug/kg	2.9 J	12 J	660	470	0.33 U	0.29 U	0.28 U	0.36 UJ	0.32 U	4.2 U	510 J	83 U	0.3 UJ	26 J [60 UJ]	**9,600 J**	24 J	9.9	64 U	**97,000**
trans-1,2-Dichloroethene	190	ug/kg	0.41 U	2.1 U	4.6 U	4.9 U	0.47 U	0.42 U	0.4 U	0.52 UJ	0.45 U	6 U	0.44 U	110 U	0.44 UJ	0.92 UJ [79 UJ]	97 UJ	0.56 UJ	0.42 U	86 U	5,700 U
Trichloroethene	470	ug/kg	0.35 U	1.8 U	4 U	4.2 U	0.41 U	0.36 U	0.34 U	0.44 UJ	0.39 U	5.2 U	0.38 U	140 U	0.38 UJ	0.79 UJ [100 UJ]	130 UJ	0.48 UJ	0.36 U	110 U	7,500 U
Trichlorofluoromethane	- -	ug/kg	2.7 U	14 U	31 U	32 U	3.1 U	2.8 U	2.6 U	3.4 UJ	3 U	40 U	2.9 U	120 U	2.9 UJ	6.1 UJ [89 UJ]	110 UJ	3.7 UJ	2.8 U	96 U	6,400 U
Vinyl Chloride	20	ug/kg	0.26 U	1.3 U	2.9 U	3.1 U	0.3 U	0.27 U	0.25 U	0.33 UJ	0.29 U	3.8 U	0.28 U	58 U	0.28 UJ	0.58 UJ [41 UJ]	51 UJ	0.36 UJ	0.26 U	44 U	3,000 U
Total VOCs	- -	ug/kg	9.8 J	438 J	16,300 J	93,200 J	397	121 J	ND	ND	ND	5,440 J	3,670 J	157,000 J	3.2 J	4,690 J [13,500 J]	89,900 J	271 J	36.8 J	22,200 J	3,540,000

See Notes on Page 5.

Table 6

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - VOCs

Sample ID:			B-15	B-15	B-16	B-16	B-16	B-17	B-17	B-19	B-19	B-21	B-21	B-21	B-22	B-22	B-23	B-23	B-23	B-27	B-32
Sample Depth (feet bgs):	Unrestricted		8 - 10	14 - 16	5 - 7	17 - 19	19 - 21	5 - 7	10 - 12	12 - 14	16 - 18	14 - 15	19 - 21	23 - 25	5 - 7	10 - 12	5 - 7	19 - 21	23 - 25	10 - 12	5 - 7
Date Collected:	Use SCOs	Units	04/13/04	04/13/04	04/06/04	04/06/04	04/06/04	04/08/04	04/08/04	04/12/04	04/12/04	04/05/04	04/05/04	04/05/04	04/08/04	04/08/04	04/19/04	04/19/04	04/20/04	05/20/04	04/06/04
1,1,1-Trichloroethane	680	ug/kg	0.32 U	0.38 U [0.35 U]	0.32 U	0.44 U	0.51 U	0.33 U	67 UJ	0.34 U	69 U	0.33 UJ	0.42 UJ	0.33 U	0.33 U	65 U	0.34 U	930 U	0.42 U	65 U [78 U]	0.31 UJ
1,1,2,2-Tetrachloroethane	- -	ug/kg	0.62 U	0.75 U [0.69 U]	0.63 U	0.87 U	1 U	0.64 U	81 UJ	0.66 U	84 U	R	95 UD	0.65 U	0.64 U	79 U	0.66 U	1,100 U	0.83 U	78 U [95 U]	0.6 U
1,1,2-Trichloroethane	- -	ug/kg	0.6 U	0.71 U [0.66 U]	0.6 U	0.83 U	0.95 U	0.61 U	85 UJ	0.63 U	87 U	0.62 UJ	0.78 UJ	0.62 U	0.61 U	83 U	0.63 U	1,200 U	0.79 U	82 U [99 U]	0.57 UJ
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	0.54 U	0.65 U [0.6 U]	0.55 U	0.75 U	0.87 U	0.55 U	110 UJ	0.57 U	120 U	0.56 UJ	0.71 UJ	0.56 U	0.55 U	110 U	0.57 U	1,600 U	0.72 U	110 U [130 U]	0.52 UJ
1,1-Dichloroethane	270	ug/kg	0.42 U	0.5 U [0.46 U]	0.42 U	0.58 U	0.67 U	0.43 U	35 UJ	0.44 U	36 U	0.43 UJ	0.54 UJ	0.43 U	0.43 U	34 U	0.44 U	490 U	0.55 U	34 U [41 U]	0.4 UJ
1,1-Dichloroethene	330	ug/kg	0.25 U	0.3 U [0.28 U]	0.26 U	0.35 U	0.41 U	0.26 U	53 UJ	0.27 U	54 U	0.26 UJ	0.33 UJ	0.26 U	0.26 U	52 U	0.27 U	730 U	0.34 U	51 U [62 U]	0.24 UJ
1,2,4-Trichlorobenzene	- -	ug/kg	0.29 U	0.35 U [0.32 U]	0.3 U	0.41 U	0.47 U	0.3 U	47 UJ	0.31 U	48 U	R	55 UD	0.3 U	0.3 U	46 U	0.31 U	650 U	0.39 U	45 U [55 U]	0.28 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	0.8 U	0.95 U [0.88 U]	0.81 U	1.1 U	1.3 U	0.82 U	150 UJ	0.85 U	160 U	R	180 UD	0.83 U	0.82 U	150 U	0.85 U	2,100 U	1.1 U	150 U [180 U]	0.77 U
1,2-Dibromoethane	- -	ug/kg	0.49 U	0.59 U [0.54 U]	0.5 U	0.68 U	0.78 U	0.5 U	100 UJ	0.52 U	110 U	0.51 UJ	0.64 UJ	0.51 U	0.5 U	100 U	0.52 U	1,400 U	0.65 U	100 U [120 U]	0.47 UJ
1,2-Dichlorobenzene	1,100	ug/kg	0.48 U	0.58 U [0.53 U]	0.49 U	0.67 U	0.77 U	0.49 U	60 UJ	0.51 U	62 U	R	70 UD	0.5 U	0.49 U	59 U	0.51 U	830 U	0.64 U	58 U [70 U]	0.46 U
1,2-Dichloroethane	20	ug/kg	3.6 U	4.3 U [4 U]	3.7 U	5 U	5.8 U	3.7 U	53 UJ	3.8 U	54 U	3.8 UJ	4.7 UJ	3.8 U	3.7 U	51 U	3.8 U	730 U	4.8 U	51 U [62 U]	3.5 UJ
1,2-Dichloropropane	- -	ug/kg	0.39 U	0.47 U [0.44 U]	0.4 U	0.55 U	0.63 U	0.4 U	52 UJ	0.42 U	54 U	0.41 UJ	0.52 UJ	0.41 U	0.4 U	51 U	0.42 U	720 U	0.52 U	50 U [61 U]	0.38 UJ
1,3-Dichlorobenzene	2,400	ug/kg	0.25 U	0.3 U [0.27 U]	0.25 U	0.35 U	0.4 U	0.25 U	61 UJ	0.26 U	63 U	R	72 UD	0.26 U	0.25 U	60 U	0.26 U	850 U	0.33 U	59 U [72 U]	0.24 U
1,4-Dichlorobenzene	1,800	ug/kg	0.41 U	0.49 U [0.46 U]	0.42 U	0.58 U	0.66 U	0.42 U	64 UJ	0.44 U	65 U	R	74 UD	0.43 U	0.42 U	62 U	0.44 U	880 U	0.55 U	61 U [74 U]	0.4 U
2-Butanone	120	ug/kg	2.7 U	3.2 U [3 U]	2.7 U	12 J	28 J	2.7 U	470 UJ	R	480 U	24 J	45 J	2.8 U	2.7 U	450 U	2.8 U	6,400 U	3.6 U	450 U [540 U]	2.6 UJ
2-Hexanone	- -	ug/kg	3.8 U	4.5 U [4.2 U]	3.8 U	5.2 U	6 U	3.9 U	110 UJ	4 U	110 U	3.9 UJ	4.9 UJ	3.9 U	3.9 U	110 U	4 U	1,500 U	5 U	100 U [130 U]	3.6 UJ
4-Methyl-2-Pentanone	- -	ug/kg	2.8 U	3.4 U [3.1 U]	2.9 U	3.9 U	4.5 U	2.9 U	220 UJ	3 U	220 U	2.9 UJ	3.7 UJ	2.9 U	2.9 U	210 U	3 U	3,000 U	3.8 U	210 U [250 U]	2.7 UJ
Acetone	50	ug/kg	8.8 U	11 U [9.7 U]	**58 J**	**78**	**130 J**	28 J	540 UJ	19 J	560 U	**340 J**	**270 J**	9.1 U	46 J	530 U	9.3 U	7,500 U	**180 J**	520 U [640 U]	**110 J**
Benzene	60	ug/kg	**180 J**	2.3 J [2.6 J]	37	4 J	25	17	**16,000 J**	12	**2,500**	4 J	**65 J**	0.25 U	21	**460 J**	0.25 U	**68,000**	4.5 J	**2,500 [3,300]**	30 J
Bromodichloromethane	- -	ug/kg	0.39 U	0.47 U [0.43 U]	0.4 U	0.55 U	0.63 U	0.4 U	57 UJ	0.42 U	59 U	0.41 UJ	0.51 UJ	0.41 U	0.4 U	56 U	0.42 U	790 U	0.52 U	55 U [67 U]	0.38 UJ
Bromoform	- -	ug/kg	0.35 U	0.42 U [0.39 U]	0.36 U	0.49 U	0.56 U	0.36 U	41 UJ	0.37 U	43 U	0.36 UJ	0.46 UJ	0.36 U	0.36 U	40 U	0.37 U	570 U	0.47 U	40 U [48 U]	0.34 U
Bromomethane	- -	ug/kg	0.83 U	1 U [0.92 U]	0.84 U	1.2 U	1.3 U	0.85 U	130 UJ	0.88 U	130 U	0.86 UJ	1.1 UJ	0.86 U	0.85 U	130 U	0.88 U	1,800 U	1.1 U	120 U [150 U]	0.8 UJ
Carbon Disulfide	- -	ug/kg	0.12 U	0.14 U [0.13 U]	2.7 J	0.17 J	2.3 J	1.9 J	64 UJ	0.13 U	66 U	5.7 J	0.16 UJ	0.12 U	0.12 U	62 U	0.13 U	890 U	7.2 J	62 U [75 U]	2.4 J
Carbon Tetrachloride	760	ug/kg	0.35 U	0.42 U [0.39 U]	0.35 U	0.49 U	0.56 U	0.36 U	77 UJ	0.37 U	79 U	0.36 UJ	0.46 UJ	0.36 U	0.36 U	75 U	0.37 U	1,100 U	0.47 U	74 U [90 U]	0.34 UJ
Chlorobenzene	1,100	ug/kg	0.41 U	0.5 U [0.46 U]	0.42 U	0.58 U	0.66 U	0.42 U	61 UJ	0.44 U	62 U	0.43 UJ	0.54 UJ	0.43 U	0.42 U	59 U	0.44 U	840 U	0.55 U	58 U [71 U]	0.4 U
Chloroethane	- -	ug/kg	0.62 U	0.74 U [0.68 U]	0.62 U	0.86 U	0.99 U	0.63 U	150 UJ	0.66 U	150 U	0.64 UJ	0.81 UJ	0.64 U	0.63 U	140 U	0.66 U	2,000 U	0.82 U	140 U [170 U]	0.6 UJ
Chloroform	370	ug/kg	0.28 U	0.33 U [0.31 U]	0.28 U	0.39 U	0.45 U	0.29 U	95 UJ	0.3 U	97 U	0.29 UJ	0.36 UJ	0.29 U	0.29 U	92 U	0.3 U	1,300 U	0.37 U	91 U [110 U]	0.27 UJ
Chloromethane	- -	ug/kg	0.39 U	0.47 U [0.43 U]	0.39 U	0.54 U	0.62 U	0.4 U	110 UJ	0.41 U	120 U	0.4 UJ	0.51 UJ	0.4 U	0.4 U	110 U	0.41 U	1,500 U	0.52 U	110 U [130 U]	0.38 UJ
cis-1,2-Dichloroethene	250	ug/kg	0.41 U	0.5 U [0.46 U]	0.42 U	0.58 U	0.66 U	0.42 U	130 UJ	0.44 U	130 U	0.43 UJ	0.54 UJ	0.43 U	0.42 U	120 U	0.44 U	1,700 U	0.55 U	120 U [150 U]	0.4 UJ
cis-1,3-Dichloropropene	- -	ug/kg	0.23 U	0.27 U [0.25 U]	0.23 U	0.32 U	0.37 U	0.23 U	25 UJ	0.24 U	26 U	0.24 UJ	0.3 UJ	0.24 U	0.23 U	24 U	0.24 U	350 U	0.3 U	24 U [29 U]	0.22 UJ
Cyclohexane	- -	ug/kg	0.36 U	0.43 U [0.4 U]	0.36 U	0.5 U	3 J	0.37 U	60 UJ	0.38 U	62 U	0.37 UJ	0.47 UJ	0.37 U	0.37 U	59 U	0.38 U	830 U	0.48 U	58 U [71 U]	0.35 UJ
Dibromochloromethane	- -	ug/kg	0.34 U	0.41 U [0.38 U]	0.35 U	0.48 U	0.55 U	0.35 U	62 UJ	0.36 U	64 U	0.35 UJ	0.45 UJ	0.35 U	0.35 U	61 U	0.36 U	860 U	0.45 U	60 U [73 U]	0.33 UJ
Dichlorodifluoromethane	- -	ug/kg	1.5 U	1.7 U [1.6 U]	1.5 U	2 U	2.3 U	1.5 U	55 UJ	1.5 U	56 U	1.5 UJ	1.9 UJ	1.5 U	1.5 U	54 U	1.5 U	760 U	1.9 U	53 U [64 U]	1.4 UJ
Ethyl Benzene	1,000	ug/kg	120	0.35 U [0.32 U]	67	12	8.8 J	12	**140,000 J**	3.4 J	**10,000**	0.3 UJ	1,000 J	0.3 U	3.9 J	**5,100**	0.31 U	**220,000**	59	**3,800 [5,900]**	7.4
Isopropylbenzene	- -	ug/kg	140	2.3 J [0.48 U]	12	20	38	12	28,000 J	31	1,900	R	330 JD	0.45 U	0.45 U	1,900	0.46 U	24,000	79	950 [1,400]	3.7 J
m/p-Xylenes	- -	ug/kg	18	0.72 U [0.67 U]	70	4.3 J	0.97 U	29	72,000 J	2.9 J	4,400	0.63 UJ	2,000 J	0.63 U	11	820 J	0.64 U	300,000	52	2,400 [3,800]	23
Methyl Acetate	- -	ug/kg	1.5 U	1.8 U [1.7 U]	1.5 U	2.1 U	2.4 U	1.5 U	140 UJ	R	140 U	1.6 UJ	2 UJ	1.6 U	1.5 U	130 U	1.6 U	1,900 U	2 J	130 U [160 U]	1.4 UJ
Methyl Tertiary-Butyl Ether	930	ug/kg	0.27 U	0.32 U [0.3 U]	0.27 U	0.38 U	0.43 U	0.28 U	59 UJ	0.29 U	61 U	0.28 UJ	0.35 UJ	0.28 U	0.28 U	58 U	0.29 U	820 U	0.36 U	57 U [69 U]	0.26 UJ
Methylcyclohexane	- -	ug/kg	0.42 U	0.5 U [0.46 U]	0.42 U	0.58 U	0.67 U	0.43 U	34,000 J	0.44 U	370 J	0.43 UJ	0.55 UJ	0.43 U	0.43 U	92 U	0.44 U	1,300 U	8	91 U [110 U]	0.4 UJ
Methylene Chloride	50	ug/kg	0.8 U	0.96 U [0.88 U]	6.3 U	7.6 J	14 J	0.82 U	100 UJ	1.9 J	110 U	6.3 UJ	6.1 UJ	0.83 U	0.82 U	100 U	8.2 UJ	1,400 U	4.8 UJ	98 U [120 U]	14 UJ
o-Xylene	- -	ug/kg	9.4	0.61 U [0.56 U]	63	24	18	29	21,000 J	2 J	2,800	0.53 UJ	1,400 J	0.53 U	7.3	1,300	0.54 U	120,000	34	1,100 [1,800]	17
Styrene	- -	ug/kg	0.37 U	0.44 U [0.41 U]	0.37 U	0.51 U	0.59 U	0.38 U	56 UJ	0.39 U	58 U	0.38 UJ	0.48 UJ	0.38 U	0.38 U	55 U	0.39 U	9,500 J	0.49 U	54 U [66 U]	0.36 U
t-1,3-Dichloropropene	- -	ug/kg	0.3 U	0.36 U [0.33 U]	0.3 U	0.42 U	0.48 U	0.31 U	70 UJ	0.32 U	72 U	0.31 UJ	0.39 UJ	0.31 U	0.31 U	68 U	0.32 U	970 U	0.4 U	67 U [82 U]	0.29 UJ
Tetrachloroethene	1,300	ug/kg	0.75 U	0.89 U [0.82 U]	0.76 U	1 U	1.2 U	0.77 U	54 UJ	0.79 U	56 U	0.77 UJ	0.98 UJ	0.77 U	0.77 U	53 U	0.79 U	750 U	0.99 U	52 U [63 U]	0.72 U
Toluene	700	ug/kg	2.2 J	0.36 U [0.34 U]	25	0.42 U	0.49 U	13	**4,600 J**	0.32 U	65 U	0.32 UJ	110 J	0.32 U	8.8	62 U	0.32 U	**91,000**	5.8 J	**1,100 [1,600]**	18 J
trans-1,2-Dichloroethene	190	ug/kg	0.44 U	0.52 U [0.48 U]	0.44 U	0.61 U	0.7 U	0.45 U	85 UJ	0.46 U	87 U	0.45 UJ	0.57 UJ	0.45 U	0.45 U	82 U	0.46 U	1,200 U	0.58 U	81 U [99 U]	0.42 UJ
Trichloroethene	470	ug/kg	0.38 U	0.45 U [0.42 U]	0.38 U	0.52 U	0.6 U	0.39 U	110 UJ	0.4 U	110 U	0.39 UJ	0.49 UJ	0.39 U	0.39 U	110 U	0.4 U	1,500 U	0.5 U	110 U [130 U]	0.36 UJ
Trichlorofluoromethane	- -	ug/kg	2.9 U	3.5 U [3.2 U]	2.9 U	4 U	4.6 U	3 U	95 UJ	3.1 U	97 U	3 UJ	3.8 UJ	3 U	3 U	92 U	3.1 U	1,300 U	3.8 U	91 U [110 U]	2.8 UJ
Vinyl Chloride	20	ug/kg	0.28 U	0.33 U [0.31 U]	0.28 U	0.39 U	0.44 U	0.28 U	44 UJ	0.29 U	45 U	0.29 UJ	0.36 UJ	0.29 U	0.28 U	43 U	0.29 U	610 U	0.37 U	42 U [51 U]	0.27 UJ
Total VOCs	- -	ug/kg	470 J	4.6 J [2.6 J]	335 J	162 J	267 J	142 J	316,000 J	72.2 J	22,000 J	374 J	5,220 J	ND	98 J	9,580 J	ND	833,000 J	432 J	11,900 [17,800]	212 J

Table 6

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - VOCs

Sample ID:			**B-32**	**B-32**	**B-32**	**B-33**	**B-33**	**B-37**	**B-37**	**B-38**	**B-38**	**B-45**	**B-45**	**B-45**	**B-46**	**TT-03**	**TT-04**	**TT-05**	**TT-08**	**TT-9**	**TT-10**	**TT-13**
Sample Depth (feet bgs):	**Unrestricted**		**13 - 15**	**21 - 23**	**35 - 37**	**4 - 5**	**7 - 9**	**5 - 7**	**11 - 13**	**10 - 12**	**16 - 18**	**7 - 9**	**22 - 24**	**32 - 34**	**7 - 9**	**2 - 3**	**4 - 5**	**4 - 5**	**3 - 4**	**2 - 3**	**5 - 6**	**4 - 5**
Date Collected:	**Use SCOs**	**Units**	**04/06/04**	**04/06/04**	**04/07/04**	**03/23/04**	**04/21/04**	**04/20/04**	**04/20/04**	**04/20/04**	**04/20/04**	**05/19/04**	**05/19/04**	**05/20/04**	**05/20/04**	**05/19/04**	**05/10/04**	**05/18/04**	**05/17/04**	**03/22/04**	**04/27/04**	**05/14/04**
1,1,1-Trichloroethane	680	ug/kg	0.4 UJ	0.32 UJ	0.36 U	0.34 U	1,500 U	0.31 U	3,100 U	1.7 U	0.33 U	0.33 U	320 U	640 U	0.3 U	0.33 U	0.31 U	0.35 U	0.33 U [0.31 U]	0.29 U	R	0.33 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	0.78 UJ	0.63 UJ	0.71 U	0.66 U	1,800 U	0.61 U	3,800 U	3.3 U	0.65 U	0.64 U	390 U	770 U	0.59 U	0.65 U	0.6 U	0.69 U	0.65 U [0.61 U]	0.57 U	R	0.65 U
1,1,2-Trichloroethane	- -	ug/kg	0.74 UJ	0.6 UJ	0.67 U	0.63 U	1,900 U	0.58 U	4,000 U	3.2 U	0.62 U	0.61 U	400 U	810 U	0.56 U	0.62 U	0.57 U	0.66 U	0.62 U [0.58 U]	0.54 U	R	0.62 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	0.68	0.55 UJ	0.61 U	0.57 U	2,600 U	0.53 U	5,300 U	2.9 U	0.56 U	0.55 U	540 U	1,100 U	0.51 U	0.57 U	0.52 U	0.6 U	0.56 U [0.53 U]	0.49 U	R	0.57 U
1,1-Dichloroethane	270	ug/kg	0.52 UJ	0.42 UJ	0.47 U	0.44 U	800 U	0.41 U	1,700 U	2.2 U	0.43 U	0.43 U	170 U	340 U	0.39 U	0.44 U	0.4 U	0.46 U	0.43 U [0.41 U]	0.38 U	R	0.44 U
1,1-Dichloroethene	330	ug/kg	0.32 UJ	0.26 UJ	0.29 U	0.27 U	1,200 U	0.25 U	2,500 U	1.4 U	0.26 U	0.26 U	250 U	500 U	0.24 U	0.27 U	0.24 U	0.28 U	0.26 U [0.25 U]	0.23 U	R	0.27 U
1,2,4-Trichlorobenzene	- -	ug/kg	0.37 UJ	0.3 UJ	0.33 U	0.31 U	1,100 U	0.29 U	2,200 U	1.6 U	0.3 U	0.3 U	220 U	450 U	0.28 U	0.31 U	0.28 U	0.32 U	0.3 U [0.29 U]	0.27 U	R	0.31 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	1 UJ	0.81 UJ	0.9 U	0.85 U	3,500 U	0.78 U	7,200 U	4.3 U	0.83 U	0.82 U	730 U	1,500 U	0.75 U	0.84 U	0.77 U	0.88 U	0.83 U [0.78 U]	0.73 U	R	0.84 U
1,2-Dibromoethane	- -	ug/kg	0.61 UJ	0.5 UJ	0.55 U	0.52 U	2,400 U	0.48 U	4,900 U	2.6 U	0.51 U	0.5 U	490 U	990 U	0.46 U	0.51 U	0.47 U	0.54 U	0.51 U [0.48 U]	0.45 U	R	0.51 U
1,2-Dichlorobenzene	1,100	ug/kg	0.6 UJ	0.49 UJ	0.55 U	0.51 U	1,400 U	0.47 U	2,800 U	2.6 U	0.5 U	0.49 U	290 U	570 U	0.45 U	0.5 U	0.46 U	0.53 U	0.5 U [0.47 U]	0.44 U	R	0.5 U
1,2-Dichloroethane	20	ug/kg	4.5 UJ	3.7 UJ	4.1 U	3.8 U	1,200 U	3.5 U	2,500 U	19 U	3.8 U	3.7 U	250 U	500 U	3.4 U	3.8 U	3.5 U	4 U	3.8 U [3.5 U]	3.3 U	R	3.8 U
1,2-Dichloropropane	- -	ug/kg	0.49 UJ	0.4 UJ	0.45 U	0.42 U	1,200 U	0.39 U	2,400 U	2.1 U	0.41 U	0.4 U	250 U	500 U	0.37 U	0.41 U	0.38 U	0.44 U	0.41 U [0.39 U]	0.36 U	R	0.41 U
1,3-Dichlorobenzene	2,400	ug/kg	0.31 UJ	0.25 UJ	0.28 U	0.26 U	1,400 U	0.24 U	2,900 U	1.3 U	0.26 U	0.25 U	290 U	580 U	0.23 U	0.26 U	0.24 U	0.27 U	0.26 U [0.24 U]	0.23 U	R	0.26 U
1,4-Dichlorobenzene	1,800	ug/kg	0.52 UJ	0.42 UJ	0.47 U	0.44 U	1,400 U	0.4 U	3,000 U	2.2 U	0.43 U	0.42 U	300 U	600 U	0.39 U	0.43 U	0.4 U	0.46 U	0.43 U [0.4 U]	0.38 U	R	0.43 U
2-Butanone	120	ug/kg	9.6 J	24 J	3 U	17 J	11,000 U	2.6 U	22,000 U	14 U	2.8 U	2.7 U	2,200 U	4,400 U	2.5 U	83	2.6 U	3 U	2.8 U [2.6 U]	2.4 U	R	2.8 U
2-Hexanone	- -	ug/kg	4.7 UJ	3.8 UJ	4.3 U	4 U	2,500 U	3.7 U	5,100 U	20 U	3.9 U	3.9 U	510 U	1,000 U	3.6 U	3.9 U	3.6 U	4.2 U	3.9 U [3.7 U]	3.4 U	R	3.9 U
4-Methyl-2-Pentanone	- -	ug/kg	3.5 UJ	2.9 UJ	3.2 U	3 U	4,900 U	2.8 U	10,000 U	15 U	2.9 U	2.9 U	1,000 U	2,100 U	2.7 U	3 U	2.7 U	3.1 U	2.9 U [2.8 U]	2.6 U	R	3 U
Acetone	50	ug/kg	**62 J**	**130 J**	9.9 U	**110 J**	12,000 U	8.6 U	26,000 U	47 U	9.1 U	9 U	2,600 U	5,200 U	8.3 U	**260 J**	8.5 U	9.7 U	9.1 U [8.6 U]	8 U	R	9.2 U
Benzene	60	ug/kg	**280 J**	58 J	6.9 J	0.25 U	**1,900 J**	2.2 J	**6,200 J**	27 J	2.5 J	0.24 U	**21,000**	**220,000**	0.22 U	0.25 U	0.23 U	0.26 U	0.25 U [0.23 U]	12	**140 J**	0.25 U
Bromodichloromethane	- -	ug/kg	0.49 UJ	0.4 UJ	0.44 U	0.42 U	1,300 U	0.38 U	2,700 U	2.1 U	0.41 U	0.4 U	270 U	540 U	0.37 U	0.41 U	0.38 U	0.43 U	0.41 U [0.38 U]	0.36 U	R	0.41 U
Bromoform	- -	ug/kg	0.44 UJ	0.36 UJ	0.4 U	0.37 U	940 U	0.34 U	1,900 U	1.9 U	0.36 U	0.36 U	200 U	390 U	0.33 U	0.37 U	0.34 U	0.39 U	0.36 U [0.34 U]	0.32 U	R	0.37 U
Bromomethane	- -	ug/kg	1 U	0.84 UJ	0.94 U	0.88 U	2,900 U	0.81 U	6,000 U	4.5 U	0.86 U	0.85 U	610 U	1,200 U	0.79 U	0.87 U	0.8 U	0.92 U	0.86 U [0.81 U]	0.76 U	R	0.87 U
Carbon Disulfide	- -	ug/kg	3 J	3 J	2.35 U	0.13 U	1,500 U	0.12 U	3,000 U	0.64 U	5.9 J	0.12 U	300 U	610 U	0.11 U	0.12 U	0.11 U	0.13 U	0.12 U [0.12 U]	0.11 U	R	0.12 U
Carbon Tetrachloride	760	ug/kg	0.44 UJ	0.35 UJ	0.4 U	0.37 U	1,700 U	0.34 U	3,600 U	1.9 U	0.36 U	0.36 U	370 U	730 U	0.33 U	0.37 U	0.34 U	0.39 U	0.36 U [0.34 U]	0.32 U	R	0.37 U
Chlorobenzene	1,100	ug/kg	0.52 UJ	0.42 UJ	0.47 U	0.44 U	1,400 U	0.4 U	2,800 U	2.2 U	0.43 U	0.42 U	290 U	580 U	0.39 U	0.43 U	0.4 UJ	0.46 U	0.43 U [0.4 U]	0.38 U	R	0.43 U
Chloroethane	- -	ug/kg	0.77 U	0.62 UJ	0.7 U	0.66 U	3,300 U	0.6 U	6,800 U	3.3 U	0.64 U	0.63 U	690 U	1,400 U	0.58 U	0.65 U	0.6 U	0.68 U	0.64 U [0.6 U]	0.56 U	R	0.65 U
Chloroform	370	ug/kg	0.35 UJ	0.28 UJ	0.32 U	0.3 U	2,100 U	0.27 U	4,400 U	1.5 U	0.29 U	0.29 U	450 U	900 U	0.26 U	0.29 U	0.27 U	0.31 U	0.29 U [0.27 U]	0.25 U	R	0.29 U
Chloromethane	- -	ug/kg	0.49 U	0.39 UJ	0.44 U	0.41 U	2,500 U	0.38 U	5,300 U	2.1 U	0.4 U	0.4 U	530 U	1,100 U	0.37 U	0.41 U	0.38 U	0.43 U	0.4 U [0.38 U]	0.36 U	R	0.41 U
cis-1,2-Dichloroethene	250	ug/kg	0.52 UJ	0.42 UJ	0.47 U	0.44 U	2,900 U	0.4 U	5,900 U	2.2 U	0.43 U	0.42 U	600 U	1,200 U	0.39 U	0.43 U	0.4 U	0.46 U	0.43 U [0.4 U]	0.38 U	R	0.43 U
cis-1,3-Dichloropropene	- -	ug/kg	0.29 UJ	0.23 UJ	0.26 U	0.24 U	570 U	0.22 U	1,200 U	1.2 U	0.24 U	0.23 U	120 U	240 U	0.22 U	0.24 U	0.22 U	0.25 U	0.24 U [0.22 U]	0.21 U	R	0.24 U
Cyclohexane	- -	ug/kg	0.45 UJ	0.36 UJ	0.41 U	0.38 U	1,400 U	0.35 U	2,800 U	1.9 U	0.37 U	0.37 U	1,900 J	8,300	0.34 U	0.38 U	0.35 U	0.4 U	0.37 U [0.35 U]	0.33 U	R	0.38 U
Dibromochloromethane	- -	ug/kg	0.43 UJ	0.35 UJ	0.39 U	0.36 U	1,400 U	0.33 U	2,900 U	1.8 U	0.35 U	0.35 U	300 U	590 U	0.32 U	0.36 U	0.33 U	0.38 U	0.35 U [0.33 U]	0.31 U	R	0.36 U
Dichlorodifluoromethane	- -	ug/kg	1.8 U	1.5 UJ	1.6 U	1.5 U	1,200 U	1.4 U	2,600 U	7.8 U	1.5 U	1.5 U	260 U	520 U	1.4 U	1.5 U	1.4 U	1.6 U	1.5 U [1.4 U]	1.3 U	R	1.5 U
Ethyl Benzene	1,000	ug/kg	240 J	350 J	8.6 J	1.4 J	**340,000**	4 J	**310,000**	140	2.7 J	0.3 U	**220,000**	**650,000 D**	0.28 U	0.31 U	0.28 U	0.32 U	0.3 U [0.29 U]	2.1 J	**50,000 J**	0.31 U
Isopropylbenzene	- -	ug/kg	120 J	250 J	0.49 U	1.8 J	26,000	0.43 U	13,000 J	17 J	44	7.7	24,000	74,000	0.41 U	0.46 U	0.42 U	0.48 U	0.45 U [0.43 U]	0.4 U	50 UD	0.46 U
m/p-Xylenes	- -	ug/kg	180 J	260 J	5.1 J	3.5 J	390,000	2.6 J	140,000	230	3.4 J	0.62 U	95,000	620,000	0.57 U	0.63 U	0.58 U	0.67 U	0.63 U [0.59 U]	2.7 J	40,000 J	0.63 U
Methyl Acetate	- -	ug/kg	1.9 UJ	1.5 UJ	1.7 U	1.6 U	3,100 U	1.5 U	6,400 U	8.1 U	1.6 U	1.5 U	650 U	1,300 U	1.4 U	1.6 U	1.4 U	1.7 U	1.6 U [1.5 U]	1.4 U	R	1.6 U
Methyl Tertiary-Butyl Ether	930	ug/kg	0.34 UJ	0.27 UJ	0.31 U	0.29 U	1,300 U	0.26 U	2,800 U	1.4 U	0.28 U	0.28 U	280 U	560 U	0.25 U	0.28 U	0.26 U	0.3 U	0.28 U [0.26 U]	0.25 U	R	0.28 U
Methylcyclohexane	- -	ug/kg	0.52 UJ	0.42 UJ	0.47 U	0.44 U	33,000	0.41 U	12,000 J	2.2 U	27 J	0.43 U	4,500 J	900 U	0.39 U	0.44 U	0.4 U	0.46 U	0.43 U [0.41 U]	0.38 U	R	0.44 U
Methylene Chloride	50	ug/kg	9.6 J	7.2 J	0.91 U	0.85 U	2,300 U	0.78 U	4,800 U	4.3 U	4.3 UJ	16	490 U	970 U	0.76 U	0.84 U	0.77 U	5.9 J	11 J [7.4 J]	0.73 U	R	0.84 U
o-Xylene	- -	ug/kg	320 J	150 J	2.5 J	0.54 U	140,000	1.3 J	75,000	120	0.53 U	0.52 U	86,000	310,000	0.48 U	0.53 U	0.49 U	0.56 U	0.53 U [0.5 U]	0.46 U	34,000 J	0.53 U
Styrene	- -	ug/kg	0.46 UJ	0.37 UJ	0.42 U	0.39 U	1,300 U	0.36 U	2,600 U	2 U	0.38 U	0.38 U	270 U	530 U	0.35 U	0.39 U	0.36 U	0.41 U	0.38 U [0.36 U]	1.4 J	500 J	0.39 U
t-1,3-Dichloropropene	- -	ug/kg	0.38 UJ	0.3 UJ	0.34 U	0.32 U	1,600 U	0.29 U	3,300 U	1.6 U	0.31 U	0.31 U	330 U	660 U	0.28 U	0.32 U	0.29 U	0.33 U	0.31 U [0.29 U]	0.28 U	R	0.32 U
Tetrachloroethene	1,300	ug/kg	0.93 UJ	0.76 UJ	0.85 U	0.79 U	1,200 U	0.73 U	2,500 U	4 U	0.77 U	0.77 U	260 U	520 U	0.71 U	0.78 U	0.72 U	0.82 U	0.77 U [0.73 U]	0.68 U	R	0.78 U
Toluene	700	ug/kg	12 J	2.2 J	0.35 U	0.32 U	**39,000**	3 J	**7,400 J**	68	0.32 U	0.31 U	**7,500**	**200,000**	0.29 U	0.32 U	0.29 U	0.34 U	0.32 U [0.3 U]	9	**1,700 J**	0.32 U
trans-1,2-Dichloroethene	190	ug/kg	0.55 UJ	0.44 UJ	0.49 U	0.46 U	1,900 U	0.43 U	4,000 U	2.3 U	0.45 U	0.45 U	400 U	800 U	0.41 U	0.46 U	0.42 U	0.48 U	0.45 U [0.43 U]	0.4 U	R	0.46 U
Trichloroethene	470	ug/kg	0.47 UJ	0.38 UJ	0.43 U	0.4 U	2,500 U	0.37 U	5,200 U	2 U	0.39 U	0.39 U	520 U	1,000 U	0.36 U	0.4 U	0.36 U	0.42 U	0.39 U [0.37 U]	0.34 U	R	0.4 U
Trichlorofluoromethane	- -	ug/kg	3.6 U	2.9 UJ	3.3 U	3.1 U	2,100 U	2.8 U	4,400 U	16 U	3 U	3 U	450 U	900 U	2.7 U	3 U	2.8 U	3.2 U	3 U [2.8 U]	2.6 U	R	3 U
Vinyl Chloride	20	ug/kg	0.35 U	0.28 UJ	0.31 U	0.29 U	990 U	0.27 U	2,100 U	1.5 U	0.29 U	0.28 U	210 U	420 U	0.26 U	0.29 U	0.27 U	0.31 U	0.29 U [0.27 U]	0.25 U	R	0.29 U
Total VOCs	- -	ug/kg	1,240 J	1,230 J	23.1 J	134 J	970,000 J	13.1 J	564,000 J	602 J	85.5 J	23.7	460,000 J	2,080,000	ND	343 J	ND	5.9 J	11 J [7.4 J]	27.2 J	126,000 J	ND

See Notes on Page 5.

Table 6

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - VOCs

Sample ID: Sample Depth (feet bgs): Date Collected:	Unrestricted Use SCOs	Units	TT-14 3 - 4 05/04/04	TT-15 3 - 4 05/04/04	TT-16 1 - 2 03/29/04	TT-17 6 - 7 04/30/04	TT-18 3 - 4 03/18/04	TT-19 3 - 4 04/26/04	TT-19 6 - 7 04/26/04	TT-21 5 - 6 04/28/04	TT-22 3 - 4 04/29/04
1,1,1-Trichloroethane	680	ug/kg	0.31 UJ	0.4 U	0.31 U	0.29 U	0.33 U	0.32 UJ	0.32 UJ	0.33 UJ	0.3 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	0.6 UJ	0.79 U	0.6 U	0.57 U	0.64 U	0.63 UJ	0.63 UJ	0.65 UJ	0.58 U
1,1,2-Trichloroethane	- -	ug/kg	0.57 UJ	0.76 U	0.57 U	0.54 U	0.61 U	0.6 UJ	0.6 UJ	0.62 UJ	0.56 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	0.52 UJ	0.69 U	0.52 U	0.49 U	0.55 U	0.55 UJ	0.55 UJ	0.57 UJ	0.5 U
1,1-Dichloroethane	270	ug/kg	0.4 UJ	0.53 U	0.4 U	0.38 U	0.43 U	0.42 UJ	0.42 UJ	0.44 UJ	0.39 U
1,1-Dichloroethene	330	ug/kg	0.24 UJ	0.32 U	0.24 U	0.23 U	0.26 U	0.26 UJ	0.26 UJ	0.27 UJ	0.24 U
1,2,4-Trichlorobenzene	- -	ug/kg	0.28 UJ	0.37 U	0.28 U	0.27 U	0.3 U	0.3 UJ	0.3 UJ	0.31 UJ	0.27 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	0.77 UJ	1 U	0.77 U	0.73 U	0.82 U	R	R	0.84 UJ	0.74 U
1,2-Dibromoethane	- -	ug/kg	0.47 UJ	0.62 U	0.47 U	0.45 U	0.5 U	0.5 UJ	0.5 UJ	0.51 UJ	0.46 U
1,2-Dichlorobenzene	1,100	ug/kg	0.46 UJ	0.61 U	0.46 U	0.44 U	0.49 U	0.49 UJ	0.49 UJ	0.5 UJ	0.45 U
1,2-Dichloroethane	20	ug/kg	3.5 UJ	4.6 U	3.5 U	3.3 U	3.7 U	3.7 UJ	3.7 UJ	3.8 UJ	3.4 U
1,2-Dichloropropane	- -	ug/kg	0.38 UJ	0.5 U	0.38 U	0.36 U	0.4 U	0.4 UJ	0.4 UJ	0.41 UJ	0.37 U
1,3-Dichlorobenzene	2,400	ug/kg	0.24 UJ	0.31 U	0.24 U	0.23 U	0.25 U	0.25 UJ	0.25 UJ	0.26 UJ	0.23 U
1,4-Dichlorobenzene	1,800	ug/kg	0.4 UJ	0.52 U	0.4 U	0.38 U	0.42 U	0.42 UJ	0.42 UJ	0.43 UJ	0.39 U
2-Butanone	120	ug/kg	2.6 UJ	3.4 U	2.6 U	2.4 U	2.7 U	2.7 UJ	2.7 UJ	2.8 UJ	2.5 U
2-Hexanone	- -	ug/kg	R	4.8 U	3.6 U	R	3.9 U	3.8 UJ	3.8 UJ	3.9 UJ	R
4-Methyl-2-Pentanone	- -	ug/kg	2.7 UJ	3.6 U	2.7 U	2.6 U	2.9 U	2.9 UJ	2.9 UJ	3 UJ	2.6 U
Acetone	50	ug/kg	8.5 UJ	11 U	**110 J**	8 U	9 U	8.9 UJ	8.9 UJ	9.2 UJ	8.2 U
Benzene	60	ug/kg	0.23 UJ	0.3 U	14	0.22 U	3.1 J	0.24 UJ	0.24 UJ	0.25 UJ	0.22 U
Bromodichloromethane	- -	ug/kg	0.38 UJ	0.5 U	0.38 U	0.36 U	0.4 U	0.4 UJ	0.4 UJ	0.41 UJ	0.37 U
Bromoform	- -	ug/kg	0.34 UJ	0.45 U	0.34 U	0.32 U	0.36 U	0.36 UJ	0.36 UJ	0.37 UJ	0.33 U
Bromomethane	- -	ug/kg	0.8 UJ	1.1 U	0.8 U	0.76 U	0.85 U	0.84 UJ	0.84 UJ	0.87 UJ	0.78 U
Carbon Disulfide	- -	ug/kg	0.11 UJ	0.15 U	6.9 J	0.11 U	0.12 U	0.12 UJ	0.12 UJ	0.12 UJ	0.11 U
Carbon Tetrachloride	760	ug/kg	0.34 UJ	0.44 U	0.34 U	0.32 U	0.36 U	0.35 UJ	0.35 UJ	0.37 UJ	0.33 U
Chlorobenzene	1,100	ug/kg	0.4 UJ	0.53 UJ	0.4 U	0.38 U	0.42 U	0.42 UJ	0.42 UJ	0.43 UJ	0.39 U
Chloroethane	- -	ug/kg	0.6 UJ	0.78 U	0.6 U	0.56 U	0.63 U	0.62 UJ	0.62 UJ	0.65 UJ	0.58 U
Chloroform	370	ug/kg	0.27 UJ	0.35 U	0.27 U	0.25 U	0.29 U	0.28 UJ	0.28 UJ	0.29 UJ	0.26 U
Chloromethane	- -	ug/kg	0.38 UJ	0.49 U	0.38 U	0.36 U	0.4 U	0.39 UJ	0.39 UJ	0.41 UJ	0.36 U
cis-1,2-Dichloroethene	250	ug/kg	0.4 UJ	0.53 U	0.4 U	0.38 U	0.42 U	0.42 UJ	0.42 UJ	0.43 UJ	0.39 U
cis-1,3-Dichloropropene	- -	ug/kg	0.22 UJ	0.29 U	0.22 U	0.21 U	0.23 U	0.23 UJ	0.23 UJ	0.24 UJ	0.21 U
Cyclohexane	- -	ug/kg	0.35 UJ	0.46 U	0.35 U	0.33 U	0.37 U	0.36 UJ	0.36 UJ	0.38 UJ	0.34 U
Dibromochloromethane	- -	ug/kg	0.33 UJ	0.43 U	0.33 U	0.31 U	0.35 U	0.35 UJ	0.35 UJ	0.36 UJ	0.32 U
Dichlorodifluoromethane	- -	ug/kg	1.4 UJ	1.8 U	1.4 U	1.3 U	1.5 U	1.5 UJ	1.5 UJ	1.5 UJ	1.4 U
Ethyl Benzene	1,000	ug/kg	0.28 UJ	0.37 U	950	0.27 U	0.3 U	0.3 UJ	0.3 UJ	0.31 UJ	0.27 U
Isopropylbenzene	- -	ug/kg	0.42 UJ	0.55 U	130	0.4 U	0.45 U	0.44 UJ	0.44 UJ	0.46 UJ	0.41 U
m/p-Xylenes	- -	ug/kg	0.58 UJ	0.77 U	780	0.55 U	2.1 J	0.61 UJ	0.61 UJ	0.63 UJ	0.56 U
Methyl Acetate	- -	ug/kg	R	1.9 U	1.4 U	R	1.5 U	1.5 UJ	1.5 UJ	1.6 UJ	R
Methyl Tertiary-Butyl Ether	930	ug/kg	0.26 UJ	0.34 U	0.26 U	0.25 U	0.28 U	0.27 UJ	0.27 UJ	0.28 UJ	0.25 U
Methylcyclohexane	- -	ug/kg	0.4 UJ	0.53 U	0.4 U	0.38 U	0.43 U	0.42 UJ	0.42 UJ	0.44 UJ	0.39 U
Methylene Chloride	50	ug/kg	0.77 UJ	1 U	5.6 U	0.73 U	0.82 U	0.81 UJ	0.81 UJ	0.84 UJ	0.75 U
o-Xylene	- -	ug/kg	0.49 UJ	0.64 U	770	0.46 U	0.52 U	0.51 UJ	0.51 UJ	0.53 UJ	0.47 U
Styrene	- -	ug/kg	0.36 UJ	0.47 U	0.36 U	0.34 U	8.1	0.37 UJ	0.37 UJ	0.39 UJ	0.34 U
t-1,3-Dichloropropene	- -	ug/kg	0.29 UJ	0.38 U	0.29 U	0.28 U	0.31 U	0.3 UJ	0.3 UJ	0.32 UJ	0.28 U
Tetrachloroethene	1,300	ug/kg	0.72 UJ	0.95 U	0.72 U	0.68 U	0.77 U	0.76 UJ	0.76 UJ	0.78 UJ	0.7 U
Toluene	700	ug/kg	0.29 UJ	0.39 U	16	0.28 U	2.8 J	0.31 UJ	0.31 UJ	0.32 UJ	0.28 U
trans-1,2-Dichloroethene	190	ug/kg	0.42 UJ	0.55 U	0.42 U	0.4 U	0.45 U	0.44 UJ	0.44 UJ	0.46 UJ	0.41 U
Trichloroethene	470	ug/kg	0.36 UJ	0.48 U	0.36 U	0.34 U	0.39 U	0.38 UJ	0.38 UJ	0.4 UJ	0.35 U
Trichlorofluoromethane	- -	ug/kg	2.8 UJ	3.7 U	2.8 U	2.6 U	3 U	2.9 UJ	2.9 UJ	3 UJ	2.7 U
Vinyl Chloride	20	ug/kg	0.27 UJ	0.35 U	0.27 U	0.25 U	0.28 U	0.28 UJ	0.28 UJ	0.29 UJ	0.26 U
Total VOCs	- -	ug/kg	ND	ND	2,780 J	ND	16.1 J	ND	ND	ND	ND

Table 6

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Analytical Results - VOCs - Site Characterization

Notes:
J = indicates an estimated value.
ND = not detected.
R = rejected.
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
UJ = estimated non-detect.
D = compounds analyzed at a dilution.
ug/kg = micrograms per kilogram.
bgs = below ground surface.
PQL = practical quantitation limit.
NYCRR = New York State Codes Rules and Regulations.
SCOs = Soil Cleanup Objectives according to 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives.
- - = no SCO exists for the specified compound.
VOCs = volatile organic compounds.
▨ Bolded and shaded values exceed the Unrestricted Use SCOs.

Table 7

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - VOCs

Sample ID:			SB-107B	SB-107B	SB-107B	SB-107B	SB-108	SB-108	SB-108	SB-109	SB-109	SB-109	SB-110	SB-110	SB-110	SB-110	SB-111B	SB-111B	SB-111B	SB-111B	SB-112	SB-112
Sample Depth (feet bgs):	Unrestricted		9 - 11	29 - 31	39 - 41	53 - 54	9 - 11	34 - 35	43 - 45	6.5 - 7	31 - 33	41 - 43	7 - 8	17 - 19	26 - 26.5	49 - 51	6 - 9	29 - 31	45 - 45.5	53 - 54	5 - 7	17 - 18
Date Collected:	Use SCOs	Units	06/20/06	06/20/06	06/20/06	06/20/06	06/19/06	06/20/06	06/21/06	06/15/06	06/15/06	06/16/06	06/21/06	06/21/06	06/22/06	06/22/06	06/21/06	06/22/06	06/22/06	06/22/06	06/23/06	06/23/06
1,1,1-Trichloroethane	680	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,1,2-Trichloroethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,1-Dichloroethane	270	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,1-Dichloroethene	330	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,2,4-Trichlorobenzene	- -	ug/kg	6 UJ [5.7 UJ]	16,000 UJ	6.1 UJ	6.8 UJ	5.9 UJ	6.1 UJ	30 UJ	6 UJ [6.4 UJ]	3,300 U	5.6 UJ	6.1 UJ	6.6 U	6.2 U	6.4 U	6.6 U	37,000 UJ [18,000 UJ]	6.4 U	6.3 U	8.1 U	34,000 UJ
1,2-Dibromo-3-Chloropropane	- -	ug/kg	6 U [5.7 U]	16,000 UJ	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 UJ	6.2 UJ	6.4 UJ	6.6 UJ	37,000 UJ [18,000 UJ]	6.4 UJ	6.3 UJ	8.1 UJ	34,000 U
1,2-Dibromoethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,2-Dichlorobenzene	1,100	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,2-Dichloroethane	20	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,2-Dichloropropane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
1,3-Dichlorobenzene	2,400	ug/kg	6 U [5.7 U]	**510,000**	1.1 J	6.8 U	5.9 U	6.1 U	46 J	6 U [6.4 U]	**56,000**	2 J	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	**270,000 [320,000]**	6.4 U	6.3 U	16	**1,200,000**
1,4-Dichlorobenzene	1,800	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
2-Butanone	120	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
2-Hexanone	- -	ug/kg	12 UJ [11 UJ]	16,000 U	12 UJ	14 UJ	12 UJ	12 UJ	59 UJ	12 UJ [13 UJ]	3,300 U	11 UJ	12 UJ	13 UJ	12 UJ	13 UJ	13 UJ	37,000 U [18,000 U]	13 UJ	13 UJ	16 UJ	34,000 U
4-Methyl-2-Pentanone	- -	ug/kg	12 UJ [11 UJ]	16,000 U	12 UJ	14 UJ	12 UJ	12 UJ	59 UJ	12 UJ [13 UJ]	3,300 U	11 UJ	12 UJ	13 UJ	12 UJ	13 UJ	13 UJ	37,000 U [18,000 U]	13 UJ	13 UJ	16 UJ	34,000 U
Acetone	50	ug/kg	12 U [11 U]	16,000 U	12 U	14 U	12 U	12 U	59 UJ	12 U [13 U]	3,300 U	11 U	12 U	13 U	12 U	13 U	13 U	37,000 U [18,000 U]	13 U	13 U	16 U	34,000 U
Benzene	60	ug/kg	24 U [23 U]	40,000 UJ	24 U	27 U	24 U	24 U	120 UJ	24 U [25 U]	8,200 UJ	22 U	24 U	27 U	25 U	26 U	26 U	92,000 UJ [45,000 UJ]	25 U	25 U	33 U	86,000 U
Bromodichloromethane	- -	ug/kg	6 U [5.7 U]	**53,000**	46	6.8 U	5.9 U	6.1 U	**460 J**	6 U [6.4 U]	**13,000**	9.1	6.1 U	6.6 U	6.2 U	6.4 U	1.3 J	**48,000 [41,000]**	6.4 U	6.3 U	13	**250,000**
Bromoform	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Bromomethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 UJ	6.2 UJ	6.4 UJ	6.6 UJ	37,000 U [18,000 U]	6.4 UJ	6.3 UJ	8.1 UJ	34,000 U
Carbon Disulfide	- -	ug/kg	6 UJ [5.7 UJ]	16,000 U	6.1 UJ	6.8 UJ	5.9 UJ	6.1 UJ	30 UJ	6 UJ [6.4 UJ]	3,300 U	5.6 UJ	6.1 UJ	6.6 UJ	6.2 UJ	6.4 UJ	6.6 UJ	37,000 U [18,000 U]	6.4 UJ	6.3 UJ	8.1 UJ	34,000 U
Carbon Tetrachloride	760	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	1.2 J	6.2 U	6.4 U	1.2 J	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Chlorobenzene	1,100	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Chloroethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 UJ	8.1 U	34,000 U
Chloroform	370	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 UJ	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Chloromethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	1.2 J	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
cis-1,2-Dichloroethene	250	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
cis-1,3-Dichloropropene	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Cyclohexane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Dibromochloromethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	40,000
Dichlorodifluoromethane	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 UJ	8.1 U	34,000 U
Ethyl Benzene	1,000	ug/kg	6 UJ [5.7 UJ]	16,000 U	6.1 UJ	6.8 UJ	5.9 UJ	6.1 U	30 UJ	6 UJ [6.4 UJ]	3,300 U	5.6 UJ	6.1 UJ	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Isopropylbenzene	- -	ug/kg	6 U [5.7 U]	**450,000**	3.4 J	6.8 U	5.9 U	6.1 U	210 J	6 U [6.4 U]	**98,000**	15	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	**520,000 [510,000]**	6.4 U	6.3 U	23	**1,000,000**
m/p-Xylenes	- -	ug/kg	6 U [5.7 U]	48,000	3.3 J	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	9,700	1.4 J	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	62,000 [66,000]	6.4 U	6.3 U	4.7 J	140,000
Methyl Acetate	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Methyl Tertiary-Butyl Ether	930	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Methylcyclohexane	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	50	ug/kg	24 UJ [23 UJ]	16,000 UJ	24 UJ	27 UJ	24 UJ	24 UJ	120 UJ	24 U [25 U]	3,300 U	22 U	24 UJ	27 UJ	25 UJ	26 UJ	26 UJ	37,000 U [18,000 U]	25 UJ	25 UJ	33 UJ	34,000 U
o-Xylene	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	260 J	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	17,000 J [18,000 U]	6.4 U	6.3 UJ	8.1 U	21,000 J
Styrene	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
t-1,3-Dichloropropene	- -	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Tetrachloroethene	1,300	ug/kg	6 U [5.7 U]	**140,000**	6.1 U	6.8 U	5.9 U	6.1 U	370 J	6 U [6.4 U]	670 J	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	**36,000 J [31,000]**	6.4 U	6.3 U	6.9 J	**470,000**
Toluene	700	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
trans-1,2-Dichloroethene	190	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Trichloroethene	470	ug/kg	6 U [5.7 U]	16,000 U	6.1 U	6.8 U	5.9 U	6.1 U	30 UJ	6 U [6.4 U]	3,300 U	5.6 U	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Trichlorofluoromethane	- -	ug/kg	6 UJ [5.7 UJ]	16,000 UJ	6.1 UJ	6.8 UJ	5.9 UJ	6.1 UJ	30 UJ	6 UJ [6.4 UJ]	3,300 U	5.6 UJ	6.1 UJ	6.6 U	6.2 U	6.4 U	6.6 U	37,000 U [18,000 U]	6.4 U	6.3 U	8.1 U	34,000 U
Vinyl Chloride	20	ug/kg	6 U [5.7 U]	**520,000**	2.9 J	6.8 U	5.9 U	6.1 U	**510 J**	6 U [6.4 U]	**65,000**	4.9 J	6.1 U	6.6 U	6.2 U	6.4 U	6.6 U	**680,000 [670,000]**	6.4 U	6.3 U	29	**1,600,000**
Total VOCs	- -	ug/kg	ND [ND]	1,720,000	56.7 J	ND	ND	ND	1,860 J	ND [ND]	242,000 J	33.6 J	ND	1.2 J	ND	ND	2.5 J	1,630,000 J [1,640,000]	ND	ND	92.6 J	4,720,000 J

See Notes on Page 17.

Table 7

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - VOCs

Sample ID:			SB-112	SB-112	SB-113	SB-113	SB-113	SB-113	SB-113	SB-113	SB-115	SB-115	SB-115	SB-115	SB-116	SB-116	SB-116	SB-116	SB-117	SB-117	SB-117	SB-117	SB-118	SB-118	SB-118	SB-118
Sample Depth (feet bgs):	Unrestricted		34 - 35	54 - 55	5 - 7	8.5 - 9.5	9 - 10	14 - 15	22 - 23	34 - 35	9 - 10	19 - 20	23 - 24	33 - 34	5 - 7	14 - 16	20 - 20.5	38 - 39	6 - 8	16 - 18	25.5 - 26	34 - 36	9 - 11	19 - 21	23 - 23.5	43 - 45
Date Collected:	Use SCOs	Units	07/27/06	07/27/06	07/13/06	07/13/06	07/27/06	07/27/06	07/27/06	07/27/06	07/25/06	07/25/06	07/25/06	07/25/06	06/13/06	06/23/06	06/23/06	06/23/06	07/06/06	07/06/06	07/06/06	07/06/06	06/26/06	06/26/06	06/26/06	06/26/06
1,1,1-Trichloroethane	680	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 UJ	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 UJ	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,1,2-Trichloroethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 UJ	11 UJ	6.5 UJ	6.8 U [6.8 UJ]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,1-Dichloroethane	270	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,1-Dichloroethene	330	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,2,4-Trichlorobenzene	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 UJ [5.5 UJ]	3,200 UJ	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 UJ	6.9 U	6.1 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	5.9 UJ	6.3 UJ	5.3 UJ	27 UJ	27 UJ	26 UJ	6.4 UJ	6.4 UJ	6.5 UJ	11 UJ	6.5 UJ	6.8 UJ [6.8 UJ]	5.6 U [5.5 U]	3,200 UJ	9.1 UJ	31 UJ	6 UJ	810 U	6 UJ	5.9 UJ [6.4 UJ]	6.8 UJ	610 UJ	6.9 UJ	6.1 UJ
1,2-Dibromoethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,2-Dichlorobenzene	1,100	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,2-Dichloroethane	20	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,2-Dichloropropane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
1,3-Dichlorobenzene	2,400	ug/kg	5.9 U	6.3 U	5.3 U	27 UJ	150	26 U	6.4 U	6.4 U	6.5 U	11 U	1.7 J	6.8 U [6.8 U]	1.5 J [5.5 U]	**78,000**	9.1 U	31 U	6 U	**19,000**	2.7 J	5.9 U [6.4 U]	6.8 U	1,100	6.6 J	6.1 U
1,4-Dichlorobenzene	1,800	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
2-Butanone	120	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
2-Hexanone	- -	ug/kg	12 UJ	13 UJ	11 UJ	54 UJ	55 UJ	53 UJ	13 UJ	13 UJ	13 UJ	23 UJ	13 UJ	14 UJ [14 UJ]	11 UJ [11 UJ]	3,200 U	18 UJ	62 UJ	12 UJ	810 UJ	12 UJ	12 UJ [13 UJ]	14 UJ	610 U	14 UJ	12 UJ
4-Methyl-2-Pentanone	- -	ug/kg	12 UJ	13 UJ	11 UJ	54 UJ	55 UJ	53 UJ	13 UJ	13 UJ	13 UJ	23 UJ	13 UJ	14 UJ [14 UJ]	11 UJ [11 UJ]	3,200 U	18 UJ	62 UJ	12 UJ	810 U	12 UJ	12 UJ [13 UJ]	14 UJ	610 U	14 UJ	12 UJ
Acetone	50	ug/kg	12 U	13 U	11 U	54 U	55 U	53 U	13 U	13 U	13 UJ	23 UJ	13 UJ	14 UJ [14 UJ]	11 U [11 U]	3,200 U	18 U	62 U	12 U	810 U	12 U	12 U [13 U]	14 U	610 U	14 U	12 U
Benzene	60	ug/kg	24 U	25 U	21 U	110 U	110 U	110 U	26 U	26 U	26 U	46 U	26 U	27 U [27 U]	22 U [22 UJ]	8,100 UJ	47 J	120 U	42 J	2,000 UJ	39	24 U [25 U]	27 U	1,500 UJ	**73**	24 U
Bromodichloromethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 J	1.5 J	**240**	6.5 U	**390**	27	4.8 J [4.4 J]	1.3 J [5.5 U]	**9,600**	**82**	**1,100**	36 J	**3,700**	2 J	1.2 J [6.4 U]	6.8 U	**420 J**	**200**	6.1 U
Bromoform	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Bromomethane	- -	ug/kg	5.9 UJ	6.3 UJ	5.3 UJ	27 UJ	27 UJ	26 UJ	6.4 UJ	6.4 UJ	6.5 UJ	11 UJ	6.5 UJ	6.8 UJ [6.8 UJ]	5.6 U [5.5 U]	3,200 U	9.1 UJ	31 UJ	6 UJ	810 UJ	6 UJ	5.9 UJ [6.4 UJ]	6.8 UJ	610 U	6.9 UJ	6.1 UJ
Carbon Disulfide	- -	ug/kg	5.9 UJ	6.3 UJ	5.3 UJ	27 UJ	27 UJ	26 UJ	6.4 UJ	6.4 UJ	6.5 UJ	11 UJ	6.5 UJ	6.8 UJ [6.8 UJ]	5.6 UJ [5.5 UJ]	3,200 U	9.1 UJ	31 UJ	6 UJ	810 U	6 UJ	5.9 UJ [6.4 UJ]	6.8 UJ	610 U	6.9 UJ	6.1 UJ
Carbon Tetrachloride	760	ug/kg	2 J	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	1.7 J	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	1.2 J	31 U	4.7 J	810 U	3.5 J	2.5 J [3.1 J]	1 J	610 U	6.9 U	6.1 U
Chlorobenzene	1,100	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 UJ	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Chloroethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	7.2 J	31 U	6 UJ	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Chloroform	370	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Chloromethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
cis-1,2-Dichloroethene	250	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 UJ	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
cis-1,3-Dichloropropene	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Cyclohexane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Dibromochloromethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	2.7 J	31 U	6.2 J	200 J	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Dichlorodifluoromethane	- -	ug/kg	5.9 UJ	6.3 UJ	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 UJ	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Ethyl Benzene	1,000	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 UJ	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Isopropylbenzene	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	210	6.4 U	6.4 U	6.5 U	2.3 J	2.6 J	6.8 U [6.8 U]	5.6 U [5.5 U]	**85,000**	16	31 U	16 J	**28,000**	2 J	5.9 U [1.6 J]	6.8 U	**4,000**	17	6.1 U
m/p-Xylenes	- -	ug/kg	5.9 UJ	6.3 UJ	5.3 U	6.8 J	88	130	6.4 U	6.4 U	6.5 U	11 U	22	6.8 U [6.8 U]	5.6 U [5.5 U]	10,000	2.4 J	31 U	18 J	5,000	6 U	5.9 U [6.4 U]	6.8 U	970	18	6.1 U
Methyl Acetate	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 UJ	27 UJ	26 UJ	6.4 UJ	6.4 UJ	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 UJ [5.5 UJ]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	97 J	6.9 U	6.1 U
Methyl Tertiary-Butyl Ether	930	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Methylcyclohexane	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	50	ug/kg	24 U	25 U	21 UJ	110 UJ	110 U	110 U	26 U	26 U	26 U	46 U	26 U	27 U [27 U]	22 U [22 U]	3,200 U	37 UJ	120 UJ	24 UJ	810 UB	24 UJ	24 UJ [25 UJ]	28 UJ	610 U	28 UJ	24 UJ
o-Xylene	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	3.4 J	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	1,000 J	9.1 U	31 U	6 UJ	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Styrene	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
t-1,3-Dichloropropene	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 UJ	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Tetrachloroethene	1,300	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	56	6.4 U	6.4 U	6.5 U	120	1.2 J	6.8 U [6.8 U]	1.2 J [5.5 U]	**8,400**	9.1 U	31 U	11 J	320 J	6 U	1.8 J [6.4 U]	1.3 J	98 J	1.8 J	6.1 U
Toluene	700	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
trans-1,2-Dichloroethene	190	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Trichloroethene	470	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 UJ [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Trichlorofluoromethane	- -	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	26 U	6.4 U	6.4 U	6.5 U	11 U	6.5 U	6.8 U [6.8 U]	5.6 U [5.5 U]	3,200 U	9.1 U	31 U	6 U	810 U	6 U	5.9 U [6.4 U]	6.8 U	610 U	6.9 U	6.1 U
Vinyl Chloride	20	ug/kg	5.9 U	6.3 U	5.3 U	27 U	27 U	260	6.4 U	6.4 U	6.5 U	22	10	6.8 U [6.8 U]	5.6 U [5.5 U]	**82,000**	14	31 U	21 J	**13,000**	4.8 J	5.9 U [6.4 U]	6.8 U	**3,000**	37	6.1 U
Total VOCs	- -	ug/kg	2 J	ND	ND	6.8 J	238	682 J	1.5 J	240	ND	539 J	64.5 J	4.8 J [4.4 J]	4 J [ND]	274,000 J	173 J	1,100	155 J	69,200 J	54 J	5.5 J [4.7 J]	2.3 J	9,690 J	353 J	ND

See Notes on Page 17.

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - VOCs

Sample ID:			SB-119	SB-119	SB-119	SB-119	SB-120	SB-120	SB-120	SB-120	SB-122	SB-122	SB-122	SB-122	SB-123	SB-123	SB-123	SB-123	SB-124	SB-124	SB-124	SB-124	SB-125	SB-125	SB-125	SB-125
Sample Depth (feet bgs):	**Unrestricted**		**7 - 9**	**11 - 13**	**17 - 19**	**37 - 39**	**5 - 7**	**11 - 13**	**17 - 17.5**	**33 - 35**	**9 - 10**	**13 - 14**	**20 - 20.5**	**39 - 40**	**5 - 7**	**13 - 15**	**19.5 - 20**	**37 - 39**	**7 - 9**	**15 - 17**	**27 - 27.5**	**37 - 39**	**6 - 7**	**17 - 18**	**30 - 30.5**	**42 - 43**
Date Collected:	**Use SCOs**	**Units**	**06/13/06**	**06/13/06**	**06/13/06**	**06/14/06**	**06/30/06**	**06/30/06**	**06/30/06**	**06/30/06**	**07/27/06**	**07/27/06**	**07/27/06**	**07/27/06**	**06/09/06**	**06/09/06**	**06/09/06**	**06/12/06**	**06/02/06**	**06/02/06**	**06/02/06**	**06/06/06**	**07/11/06**	**07/11/06**	**07/11/06**	**07/11/06**
1,1,1-Trichloroethane	680	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,1,2,2-Tetrachloroethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 UJ [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 UJ	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,1,2-Trichloroethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,1,2-Trichlorotrifluoroethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,1-Dichloroethane	270	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,1-Dichloroethene	330	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,2,4-Trichlorobenzene	- -	ug/kg	2,900 U	31 UJ	5.9 UJ	6.4 UJ	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 UJ	6.7 U [6.6 U]	6.1 U	6 UJ [7.4 UJ]	6.1 UJ	6.3 UJ	6.2 UJ	7.1 U	37 U	12 U	6.2 UJ	6.5 U	6.1 U	6.2 U	6.9 U
1,2-Dibromo-3-Chloropropane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 UJ [7 UJ]	6.6 UJ	6.8 UJ	6.6 UJ	7 UJ	10 UJ	6.7 UJ [6.6 UJ]	6.1 UJ	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 UJ	6.1 UJ	6.2 UJ	6.9 UJ
1,2-Dibromoethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,2-Dichlorobenzene	1,100	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 UJ	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,2-Dichloroethane	20	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,2-Dichloropropane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,3-Dichlorobenzene	2,400	ug/kg	**33,000**	190	43	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	4.5 J	9.2 J	6.7 U [6.6 U]	6.1 U	6 U [9.3]	6.1 U	6.3 U	6.2 U	4.2 J	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
1,4-Dichlorobenzene	1,800	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 UJ	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
2-Butanone	120	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 UJ	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
2-Hexanone	- -	ug/kg	2,900 U	62 UJ	12 UJ	13 UJ	14 UJ [14 UJ]	13 UJ	14 UJ	13 UJ	29 J	22 J	13 UJ [13 UJ]	12 UJ	12 UJ [15 UJ]	12 UJ	13 UJ	12 UJ	14 UJ	**580 J**	**160 J**	12 UJ	13 UJ	12 UJ	12 UJ	14 UJ
4-Methyl-2-Pentanone	- -	ug/kg	2,900 U	62 UJ	12 UJ	13 UJ	14 UJ [14 UJ]	13 UJ	14 UJ	13 UJ	14 UJ	20 UJ	13 UJ [13 UJ]	12 UJ	12 UJ [15 UJ]	12 UJ	13 UJ	12 UJ	14 UJ	74 UJ	24 UJ	12 UJ	13 UJ	12 UJ	12 UJ	14 UJ
Acetone	50	ug/kg	2,900 U	62 U	12 U	13 U	14 U [14 U]	13 U	14 U	13 U	14 U	20 U	13 U [13 U]	12 U	12 U [15 U]	12 U	13 U	12 U	14 U	74 U	24 U	12 U	13 U	12 U	12 U	14 U
Benzene	60	ug/kg	7,200 UJ	120 U	24 UJ	26 U	28 U [28 U]	27 U	27 U	26 U	**170 J**	**140**	27 U [26 U]	24 U	13 J [29 U]	24 J	14 J	25 U	28 U	**1,200**	**330**	12 J	23 J	12 J	11 J	28 U
Bromodichloromethane	- -	ug/kg	**8,500**	**180**	39	6.4 U	6.9 U [7 U]	4.3 J	1.5 J	18	7 U	6.8 J	22 J [4.8 J]	6.1 U	6 U [7.4 U]	6.1	6.3 U	6.2 U	7.1 U	37 U	2.7 J	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Bromoform	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Bromomethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 UJ [7 UJ]	6.6 UJ	6.8 UJ	6.6 UJ	7 UJ	10 UJ	6.7 UJ [6.6 UJ]	6.1 UJ	6 UJ [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 UJ	6.1 UJ	6.2 UJ	6.9 UJ
Carbon Disulfide	- -	ug/kg	2,900 U	31 UJ	5.9 UJ	6.4 UJ	6.9 UJ [7 UJ]	6.6 UJ	6.8 UJ	6.6 U	7 UJ	10 UJ	6.7 UJ [6.6 UJ]	6.1 UJ	6 UJ [7.4 UJ]	6.1 UJ	6.3 UJ	6.2 UJ	7.1 UJ	37 UJ	4.1 J	6.2 UJ	6.5 UJ	6.1 UJ	6.2 UJ	6.9 UJ
Carbon Tetrachloride	760	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 UJ [7 U]	1.7 J	13	0.83 J	2.2 J	1.5 J	1.5 J [6.6 U]	6.1 U	6 U [7.4 U]	1.4 J	2.1 J	6.2 UJ	7.1 U	16 J	2.8 J	6.2 U	6.5 U	1.2 J	1.2 J	6.9 U
Chlorobenzene	1,100	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Chloroethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 UJ [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 UJ	6.7 U [6.6 U]	6.1 U	6 UJ [7.4 U]	6.1 U	6.3 U	6.2 UJ	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Chloroform	370	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Chloromethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
cis-1,2-Dichloroethene	250	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	25	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
cis-1,3-Dichloropropene	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Cyclohexane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Dibromochloromethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	2.4 J	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Dichlorodifluoromethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 UJ [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 UJ]	6.1 U	6 UJ [7.4 U]	6.1 U	6.3 U	6.2 UJ	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Ethyl Benzene	1,000	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Isopropylbenzene	- -	ug/kg	**98,000**	690	220	6.4 U	6.9 UJ [7 U]	6.6 U	6.8 U	6.6 U	7 U	3.6 J	6.7 U [6.6 U]	6.1 U	6 UJ [7.4 U]	6.1 U	6.4	6.2 UJ	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
m/p-Xylenes	- -	ug/kg	11,000	160	32	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	9.4 J	17 J	6.7 U [6.6 UJ]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	2.7 J	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Methyl Acetate	- -	ug/kg	2,900 U	31 UJ	5.9 UJ	6.4 UJ	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 UJ	10 UJ	6.7 UJ [6.6 U]	6.1 UJ	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	21 J	16	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Methyl Tertiary-Butyl Ether	930	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Methylcyclohexane	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	50	ug/kg	2,900 U	120 U	24 U	26 U	28 UJ [28 UJ]	26 UJ	27 UJ	26 UJ	28 U	41 U	27 U [26 U]	24 U	24 U [29 U]	24 U	25 U	25 U	28 U	150 U	49 U	25 U	26 UJ	24 UJ	25 UJ	28 UJ
o-Xylene	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 UJ [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 UJ	6.7 U [6.6 U]	6.1 U	6 UJ [7.4 U]	6.1 U	6.3 U	6.2 UJ	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Styrene	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
t-1,3-Dichloropropene	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 UJ	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Tetrachloroethene	1,300	ug/kg	**4,400**	31 U	1.7 J	6.4 U	6.9 UJ [7 U]	6.6 U	6.8 U	6.6 U	7 U	4.4 J	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 UJ	7.1 U	6.4 J	2.5 J	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Toluene	700	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 UJ	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
trans-1,2-Dichloroethene	190	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Trichloroethene	470	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Trichlorofluoromethane	- -	ug/kg	2,900 U	31 U	5.9 U	6.4 U	6.9 U [7 U]	6.6 U	6.8 U	6.6 U	7 U	10 U	6.7 U [6.6 U]	6.1 U	6 U [7.4 U]	6.1 U	6.3 U	6.2 U	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Vinyl Chloride	20	ug/kg	**43,000**	**430**	130	6.4 U	6.9 UJ [7 U]	6.6 U	6.8 U	6.6 U	8.2 J	29	6.7 U [6.6 U]	6.1 U	6 UJ [7.4 U]	6.1 U	3.4 J	6.2 UJ	7.1 U	37 U	12 U	6.2 U	6.5 U	6.1 U	6.2 U	6.9 U
Total VOCs	- -	ug/kg	198,000	1,650	466 J	ND	ND [ND]	6 J	14.5 J	18.8 J	223 J	234 J	23.5 J [4.8 J]	ND	13 J [9.3]	31.5 J	28.3 J	ND	4.2 J	1,820 J	546 J	12 J	23 J	13.2 J	12.2 J	ND

See Notes on Page 17.

Table 7

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Analytical Results - VOCs - Remedial Investigation

Notes:

J = indicates an estimated value.
ND = not detected.
NA = not analyzed.
R = rejected.
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
UJ = estimated non-detect.
D = compounds analyzed at a dilution.
ug/kg = micrograms per kilogram.
bgs = below ground surface.
PQL = practical quantitation limit.
NYCRR = New York State Codes Rules and Regulations.
SCOs = Soil Cleanup Objectives according to 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives.
- - = no SCO exists for the specified compound.
VOCs = volatile organic compounds.
▨ Bolded and shaded values exceed the Unrestricted Use SCOs.

Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			B-4	B-4	B-5	B-5	B-5	B-6	B-7	B-7	B-8	B-8	B-10	B-10	B-11	B-11	B-11	B-11	B-12	B-12
Sample Depth (feet bgs):	Unrestricted		5 - 7	9 - 11	3 - 5	7 - 9	17 - 19	3 - 4	5 - 7	15 - 17	5 - 7	12 - 14	4 - 5	9 - 11	2 - 3	8 - 10	18 - 20	26 - 28	3 - 4	7 - 9
Date Collected:	Use SCOs	Units	04/21/04	04/21/04	04/15/04	04/15/04	04/15/04	03/23/04	05/20/04	05/20/04	05/18/04	05/18/04	03/26/04	04/14/04	03/17/04	04/22/04	04/22/04	04/22/04	03/17/04	04/09/04
1,1-Biphenyl	- -	ug/kg	11 U	11 U	270 J	570 J	62 J	11 U	10 U	140 J	59 U	160 U	1,700 J	36,000	1,100 U	1,500 J [2,600 J]	11,000	15 U	1,100 U	4,500
2,2-oxybis(1-Chloropropane)	- -	ug/kg	19 U	20 U	110 U	47 U	22 U	20 U	19 U	25 U	110 U	280 U	410 U	300 U	2,100 U	220 U [440 U]	540 U	27 U	2,000 U	47 U
2,4,5-Trichlorophenol	- -	ug/kg	24 U	24 U	130 U	57 U	28 U	25 U	23 U	30 U	130 UJ	350 UJ	510 U	370 U	2,600 U	270 U [540 U]	660 U	33 U	2,400 U	58 U
2,4,6-Trichlorophenol	- -	ug/kg	13 U	13 U	74 U	31 U	15 U	13 U	13 U	16 U	72 UJ	190 UJ	280 U	200 U	1,400 U	150 U [290 U]	360 U	18 U	1,300 U	32 U
2,4-Dichlorophenol	- -	ug/kg	13 U	13 U	71 U	30 U	15 U	13 U	12 U	16 U	69 UJ	180 UJ	270 U	200 U	1,400 U	140 U [280 U]	350 U	17 U	1,300 U	31 U
2,4-Dimethylphenol	- -	ug/kg	19 U	20 U	110 U	47 U	22 U	20 U	19 U	25 U	110 UJ	280 UJ	410 U	300 U	2,100 U	220 U [440 U]	540 U	27 U	2,000 U	47 U
2,4-Dinitrophenol	- -	ug/kg	16 U	R	90 U	38 U	18 U	16 U	16 U	20 U	87 UJ	230 UJ	340 U	250 UJ	1,700 U	180 UJ [360 UJ]	440 UJ	22 UJ	1,600 U	39 UJ
2,4-Dinitrotoluene	- -	ug/kg	7.2 U	7.3 U	41 U	17 U	8.3 U	7.4 U	7.1 U	9 U	39 UJ	110 UJ	150 U	110 U	770 U	2,700 J [5,100 J]	11,000	9.9 U	740 U	17 U
2,6-Dinitrotoluene	- -	ug/kg	15 U	16 U	87 U	37 U	18 U	16 U	15 U	19 U	84 UJ	220 UJ	330 U	240 U	1,600 U	170 U [350 U]	430 U	21 U	1,600 U	37 U
2-Chloronaphthalene	- -	ug/kg	7.5 U	7.6 U	43 U	18 U	8.7 U	7.7 U	7.4 U	9.5 U	41 UJ	110 UJ	160 U	120 U	810 U	85 U [170 U]	210 U	10 U	770 U	18 U
2-Chlorophenol	- -	ug/kg	16 U	16 U	88 U	38 U	18 U	16 U	15 U	20 U	86 UJ	230 UJ	330 U	240 U	1,700 U	180 U [350 U]	430 U	21 U	1,600 U	38 U
2-Methylnaphthalene	- -	ug/kg	42 J	400 J	250 J	11,000 J	330 J	110 J	300 J	1,100	480 J	10,000 J	13,000 J	1,000,000	670 U	16,000 [29,000]	51,000	73 J	10,000 J	26,000 D
2-Methylphenol	330	ug/kg	23 U	23 U	130 U	55 U	26 U	23 U	22 U	29 U	120 UJ	330 UJ	480 U	360 U	2,400 U	260 U [510 U]	630 U	31 U	2,300 U	55 U
2-Nitroaniline	- -	ug/kg	13 U	13 U	74 U	31 U	15 U	13 U	13 U	16 U	72 UJ	190 UJ	280 U	200 U	1,400 U	150 U [290 U]	360 U	18 U	1,300 U	32 U
2-Nitrophenol	- -	ug/kg	14 U	15 U	82 U	35 U	17 U	15 U	14 U	18 U	80 UJ	210 UJ	310 U	230 U	1,600 U	160 U [330 U]	400 U	20 U	1,500 U	35 U
3,3-Dichlorobenzidine	- -	ug/kg	58 U	58 U	330 U	140 U	67 U	60 U	57 U	73 U	320 UJ	850 UJ	1,200 U	900 UJ	6,200 U	650 U [1,300 U]	1,600 U	80 U	5,900 U	140 UJ
3+4-Methylphenols	- -	ug/kg	17 U	17 U	94 U	40 U	19 U	17 U	16 U	21 U	91 UJ	240 UJ	350 U	260 U	1,800 U	190 U [370 U]	460 U	23 U	1,700 U	40 U
3-Nitroaniline	- -	ug/kg	58 U	59 U	330 U	140 U	67 U	60 U	57 U	73 U	320 UJ	850 UJ	1,200 U	910 U	6,200 U	660 U [1,300 U]	1,600 U	80 U	5,900 U	240 J
4,6-Dinitro-2-methylphenol	- -	ug/kg	21 U	21 U	120 U	50 U	24 U	22 U	21 U	26 U	110 UJ	310 UJ	440 U	330 UJ	2,200 U	240 U [470 U]	580 U	29 U	2,100 U	51 UJ
4-Bromophenyl-phenylether	- -	ug/kg	9.5 U	9.6 U	54 U	23 U	11 U	9.8 U	9.3 U	12 U	52 UJ	140 UJ	200 U	150 U	1,000 U	110 U [210 U]	260 U	13 U	970 U	23 U
4-Chloro-3-methylphenol	- -	ug/kg	11 U	11 U	60 U	26 U	12 U	11 U	10 U	13 U	59 UJ	160 UJ	230 U	170 U	1,100 U	120 U [240 U]	300 U	15 U	1,100 U	26 U
4-Chloroaniline	- -	ug/kg	130 U	130 U	750 U	320 U	150 U	140 U	130 U	170 U	730 UJ	1,900 UJ	2,800 U	2,100 U	14,000 U	1,500 U [3,000 U]	3,700 U	180 U	14,000 U	320 U
4-Chlorophenyl-phenylether	- -	ug/kg	8.9 U	9 U	51 U	22 U	10 U	9.2 U	8.8 U	11 U	49 UJ	130 UJ	190 U	140 U	960 U	100 U [200 U]	250 U	12 U	910 U	22 U
4-Nitroaniline	- -	ug/kg	28 U	29 U	160 U	68 U	33 U	29 U	28 U	35 U	150 UJ	410 UJ	600 U	440 U	3,000 U	320 UJ [630 UJ]	780 U	39 U	2,900 U	69 U
4-Nitrophenol	- -	ug/kg	35 U	36 U	200 U	85 U	41 U	36 U	35 U	44 U	190 U	510 U	1,400 J	550 U	3,800 U	400 U [790 U]	970 UJ	48 UJ	3,600 U	86 U
Acenaphthene	20,000	ug/kg	70 J	62 J	500 J	720 J	160 J	240 J	140 J	470	44 U	12,000 J	3,600 J	**230,000**	850 U	**12,000 [21,000]**	**38,000**	100 J	810 U	**34,000 J**
Acenaphthylene	100,000	ug/kg	48 J	11 U	390 J	150 J	66 J	130 J	42 J	280 J	1,200 J	9,300 J	11,000	13,000 J	1,200 U	1,000 J [1,900 J]	7,300 J	15 U	15,000 J	2,400
Acetophenone	- -	ug/kg	19 U	19 U	110 U	45 U	22 U	19 U	18 U	24 U	100 U	280 U	400 U	290 U	2,000 U	210 U [420 U]	520 U	26 U	1,900 U	46 U
Anthracene	100,000	ug/kg	140 J	70 J	1,300 J	630 J	100 J	200 J	100 J	770	940 J	28,000	6,800 J	60,000 J	4,400 J	4,300 [8,300]	28,000	230 J	6,600 J	11,000 J
Atrazine	- -	ug/kg	11 U	11 U	62 U	27 U	13 U	11 U	11 U	14 U	60 U	160 U	230 U	170 U	1,200 U	120 U [250 U]	300 U	15 U	1,100 U	27 U
Benzaldehyde	- -	ug/kg	35 U	36 U	200 U	85 U	41 U	36 U	35 U	44 U	190 U	520 U	750 U	550 U	3,800 U	400 U [790 U]	980 U	49 U	3,600 U	86 U
Benzo(a)anthracene	1,000	ug/kg	130 J	82 J	**2,300 J**	440 J	120 J	390	71 J	**1,100**	**2,100**	**23,000**	**2,800 J**	**31,000 J**	**10,000 J**	**3,700 J [6,600 J]**	**22,000**	510	**22,000 J**	**5,500 J**
Benzo(a)pyrene	1,000	ug/kg	93 J	38 J	**2,300 J**	470 J	110 J	400	47 J	830	**2,200**	**25,000**	**8,200**	**22,000 J**	**10,000 J**	**2,800 J [5,200 J]**	**16,000**	510	**27,000 J**	**4,400 J**
Benzo(b)fluoranthene	1,000	ug/kg	90 J	42 J	**2,200 J**	380 J	100 J	430	19 U	970	**1,900 J**	**14,000**	**5,900 J**	**15,000 J**	**11,000 J**	**2,500 J [4,800 J]**	**21,000**	550	**22,000 J**	**3,100 J**
Benzo(g,h,i)perylene	100,000	ug/kg	37 J	16 U	960 J	160 J	52 J	150 J	15 U	380 J	870 J	6,100	3,500 J	2,800 J	1,700 U	650 J [1,200 J]	3,600 J	230 J	14,000 J	1,200 J
Benzo(k)fluoranthene	800	ug/kg	49 J	12 U	**1,100 J**	240 J	59 J	170 J	12 J	410 J	**1,700 J**	**11,000**	**2,300 J**	**6,700 J**	**6,300 J**	**1,100 J [2,200 J]**	**6,700 J**	190 J	**11,000 J**	**930 J**
bis(2-Chloroethoxy)methane	- -	ug/kg	16 U	17 U	93 U	40 U	19 U	17 U	16 U	21 U	90 UJ	240 UJ	350 U	260 U	1,800 U	190 U [370 U]	460 U	23 U	1,700 U	40 U
bis(2-Chloroethyl)ether	- -	ug/kg	18 U	18 U	100 U	43 U	20 U	18 U	17 U	22 U	97 U	260 U	380 U	280 U	1,900 U	200 U [400 U]	490 U	24 U	1,800 U	43 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	190 J	120 J	47 U	240 J	170 J	8.5 U	38 J	10 U	250 J	120 U	180 U	130 U	890 U	94 U [190 U]	230 U	220 J	850 U	20 U

See Notes on Page 9.

Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			B-4	B-4	B-5	B-5	B-5	B-6	B-7	B-7	B-8	B-8	B-10	B-10	B-11	B-11	B-11	B-11	B-12	B-12
Sample Depth (feet bgs):	**Unrestricted**		**5 - 7**	**9 - 11**	**3 - 5**	**7 - 9**	**17 - 19**	**3 - 4**	**5 - 7**	**15 - 17**	**5 - 7**	**12 - 14**	**4 - 5**	**9 - 11**	**2 - 3**	**8 - 10**	**18 - 20**	**26 - 28**	**3 - 4**	**7 - 9**
Date Collected:	**Use SCOs**	**Units**	**04/21/04**	**04/21/04**	**04/15/04**	**04/15/04**	**04/15/04**	**03/23/04**	**05/20/04**	**05/20/04**	**05/18/04**	**05/18/04**	**03/26/04**	**04/14/04**	**03/17/04**	**04/22/04**	**04/22/04**	**04/22/04**	**03/17/04**	**04/09/04**
Butylbenzylphthalate	- -	ug/kg	12 U	12 U	68 U	99 J	14 U	41 J	12 U	15 U	66 U	180 U	260 U	190 U	1,300 U	140 U [270 U]	340 U	17 U	1,200 U	29 U
Caprolatam	- -	ug/kg	13 U	13 U	75 U	32 U	15 U	14 U	13 U	17 U	73 U	190 U	280 U	210 U	1,400 U	150 U [300 U]	370 U	18 U	1,400 U	32 U
Carbazole	- -	ug/kg	63 J	8 U	45 U	19 U	9.2 U	87 J	7.8 U	210 J	320 UJ	120 UJ	170 U	3,000 J	850 U	90 UJ [180 UJ]	8,600 J	68 J	810 U	19 U
Chrysene	1,000	ug/kg	140 J	74 J	**2,200**	460 J	130 J	420	69 J	1,000	**2,200**	**22,000**	**2,200 J**	**25,000 J**	**11,000 J**	**3,400 J [5,900 J]**	**17,000**	440 J	**25,000 J**	**4,900 J**
Dibenz(a,h)anthracene	330	ug/kg	11 U	11 U	220 J	25 UJ	12 U	49 J	10 U	48 J	58 UJ	**830 J**	**1,100 J**	**1,300 J**	1,100 U	120 U [240 U]	**1,500 J**	78 J	1,100 U	**440 J**
Dibenzofuran	7,000	ug/kg	41 J	12 U	67 U	130 J	14 U	80 J	12 U	360 J	65 U	170 U	250 U	**9,100**	1,300 U	1,100 J [2,200 J]	**20,000**	56 J	1,200 U	1,300
Diethylphthalate	- -	ug/kg	11 U	11 U	64 U	27 U	13 U	12 U	11 U	14 U	62 U	170 U	240 U	180 U	1,200 U	130 U [250 U]	310 U	16 U	1,200 U	28 U
Dimethylphthalate	- -	ug/kg	8.6 U	8.7 U	49 U	21 U	9.9 U	8.9 U	8.4 U	11 U	47 UJ	130 UJ	180 U	130 U	920 U	97 U [190 U]	240 U	12 U	880 U	21 U
Di-n-butylphthalate	- -	ug/kg	100 J	38 J	260 J	12 U	130 J	4.9 U	4.7 U	6 U	910 J	1,300 J	100 U	75 UJ	510 U	54 U [110 U]	130 U	6.6 U	490 U	12 UJ
Di-n-octyl phthalate	- -	ug/kg	8.6 U	8.7 U	49 U	21 U	9.9 U	8.9 U	8.4 U	11 U	47 U	130 U	180 U	130 UJ	920 U	97 U [190 U]	240 U	12 U	880 U	21 UJ
Fluoranthene	100,000	ug/kg	260 J	130 J	4,100 J	710 J	180 J	760 J	120 J	2,600	3,800	35,000	9,000	54,000 J	22,000 J	6,000 [11,000]	52,000	790	31,000 J	9,200 J
Fluorene	30,000	ug/kg	120 J	77 J	730 J	1,000 J	130 J	300 J	100 J	630	620 J	1,400 J	6,600 J	**93,000 J**	1,100 U	6,100 [11,000]	**35,000**	150 J	5,200 J	13,000 J
Hexachlorobenzene	330	ug/kg	6.7 U	6.8 U	38 U	16 U	7.8 U	7 U	6.6 U	8.5 U	37 UJ	99 UJ	140 U	110 U	730 U	76 U [150 U]	190 U	9.3 U	690 U	16 U
Hexachlorobutadiene	- -	ug/kg	13 U	13 U	71 U	30 U	15 U	13 U	12 U	16 U	69 U	180 U	270 U	200 U	1,400 U	140 U [280 U]	350 U	17 U	1,300 U	31 U
Hexachlorocyclopentadiene	- -	ug/kg	9 U	9.1 U	51 U	22 U	10 U	9.3 U	8.9 U	11 U	50 UJ	130 UJ	190 U	140 U	970 U	100 U [200 U]	250 U	12 U	920 U	22 U
Hexachloroethane	- -	ug/kg	17 U	17 U	97 U	41 U	20 U	18 U	17 U	22 U	94 U	250 U	360 U	270 U	1,800 U	190 U [390 U]	480 U	24 U	1,800 U	42 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	8.7 U	8.8 U	**680 J**	21 U	42 J	120 J	8.6 U	350 J	**530 J**	**3,500 J**	180 U	**1,700 J**	940 U	430 J [200 U]	**2,900 J**	200 J	**8,700 J**	**830 J**
Isophorone	- -	ug/kg	13 U	14 U	76 U	32 U	15 U	14 U	13 U	17 U	74 U	200 U	280 U	210 U	1,400 U	150 U [300 U]	370 U	18 U	1,400 U	33 U
Naphthalene	12,000	ug/kg	130 J	200 J	1,400 J	**37,000 J**	1,400 J	270 J	430	1,600	900 J	110 U	**20,000**	**1,800,000**	840 U	**40,000 [78,000]**	**110,000**	170 J	**19,000 J**	**100,000 D**
Nitrobenzene	- -	ug/kg	18 U	19 U	100 U	44 U	21 U	19 U	18 U	23 U	100 UJ	270 UJ	390 U	290 U	2,000 U	210 U [410 U]	510 U	25 U	1,900 U	45 U
N-Nitroso-di-n-propylamine	- -	ug/kg	16 U	16 U	90 U	38 U	18 U	16 U	16 U	20 U	87 U	230 U	340 U	250 U	1,700 U	180 U [360 U]	440 U	22 U	1,600 U	39 U
N-Nitrosodiphenylamine	- -	ug/kg	9.1 U	9.3 U	52 U	22 U	11 U	9.4 U	9 U	12 U	50 UJ	130 UJ	190 U	140 U	980 U	100 U [210 U]	250 U	13 U	940 U	22 U
Pentachlorophenol	800	ug/kg	11 U	11 U	63 U	27 U	13 U	12 U	11 U	14 U	62 UJ	160 UJ	240 U	180 U	1,200 U	130 U [250 U]	310 U	15 U	1,100 U	27 U
Phenanthrene	100,000	ug/kg	550	300 J	4,400	3,500	410 J	550	330 J	3,000	3,600	15,000	21,000	**210,000 J**	17,000 J	20,000 [36,000]	**110,000**	720	33,000 J	35,000 J
Phenol	330	ug/kg	15 U	15 U	85 U	36 U	17 U	15 U	15 U	19 U	83 U	220 U	320 U	230 U	1,600 U	170 U [340 U]	420 U	21 U	1,500 U	37 U
Pyrene	100,000	ug/kg	300 J	230 J	6,400	1,700	290 J	900 J	170 J	2,000	4,100	69,000	5,700 J	100,000 J	21,000 J	10,000 [18,000]	48,000	720	49,000 J	17,000 J
Total SVOCs	- -	ug/kg	2,590 J	1,860 J	32,000 J	59,600 J	4,040 J	5,800 J	1,970 J	18,200 J	28,300 J	286,000 J	126,000 J	3,710,000 J	113,000 J	135,000 J [250,000 J]	621,000 J	6,010 J	299,000 J	275,000 J

See Notes on Page 9.
5/25/2017
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Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			B-12	B-15	B-15	B-16	B-16	B-16	B-17	B-17	B-19	B-19	B-21	B-21	B-21	B-22	B-22	B-23	B-23	B-23
Sample Depth (feet bgs):	Unrestricted		21 - 23	8 - 10	14 - 16	5 - 7	17 - 19	19 - 21	5 - 7	10 - 12	12 - 14	16 - 18	14 - 15	19 - 21	23 - 25	5 - 7	10 - 12	5 - 7	19 - 21	23 - 25
Date Collected:	Use SCOs	Units	04/15/04	04/13/04	04/13/04	04/06/04	04/06/04	04/06/04	04/08/04	04/08/04	04/12/04	04/12/04	04/05/04	04/05/04	04/05/04	04/08/04	04/08/04	04/19/04	04/19/04	04/20/04
1,1-Biphenyl	- -	ug/kg	870 U	87 J	51 J [13 U]	57 U	16 U	18 U	110 J	7,400	750	260 U	59 U	15 U	12 U	120 U	120 U	12 U	880 U	270 J
2,2-oxybis(1-Chloropropane)	- -	ug/kg	1,600 U	21 U	25 U [23 U]	110 U	29 U	33 U	43 U	93 U	22 U	480 U	110 U	27 U	22 U	210 U	230 U	22 U	1,600 U	28 U
2,4,5-Trichlorophenol	- -	ug/kg	1,900 U	25 U	30 U [28 U]	130 U	36 U	41 U	53 U	110 U	27 U	590 U	130 U	33 U	27 U	260 U	280 U	27 U	2,000 U	34 U
2,4,6-Trichlorophenol	- -	ug/kg	1,100 U	14 U	17 U [16 U]	70 U	20 U	22 U	29 U	63 U	15 U	320 U	72 U	18 U	15 U	140 U	150 U	15 U	1,100 U	19 U
2,4-Dichlorophenol	- -	ug/kg	1,000 U	13 U	16 U [15 U]	68 U	19 U	22 U	28 U	61 U	14 U	310 U	70 U	18 U	14 U	140 U	150 U	14 U	1,000 U	18 U
2,4-Dimethylphenol	- -	ug/kg	1,600 U	21 U	25 U [23 U]	110 U	29 U	33 U	43 U	93 U	22 U	480 U	110 U	27 U	22 U	210 U	230 U	22 U	1,600 U	28 U
2,4-Dinitrophenol	- -	ug/kg	R	17 UJ	20 UJ [19 UJ]	86 U	24 U	27 U	35 UJ	76 UJ	18 UJ	390 UJ	88 U	22 U	18 U	170 UJ	180 UJ	18 U	R	23 U
2,4-Dinitrotoluene	- -	ug/kg	590 U	7.7 U	9.2 U [8.5 U]	39 U	11 U	12 U	16 U	34 U	8.2 U	180 U	40 U	10 U	8 U	79 U	84 U	8.2 U	270,000 J	10 U
2,6-Dinitrotoluene	- -	ug/kg	1,300 U	16 U	20 U [18 U]	83 U	23 U	26 U	34 U	74 U	18 U	380 U	85 U	21 U	17 U	170 U	180 U	17 U	1,300 U	22 U
2-Chloronaphthalene	- -	ug/kg	610 U	8 U	9.6 U [8.9 U]	40 U	11 U	13 U	17 U	36 U	8.6 U	190 U	42 U	10 U	8.4 U	82 U	87 U	8.5 U	620 U	11 U
2-Chlorophenol	- -	ug/kg	1,300 U	17 U	20 U [19 U]	84 U	23 U	27 U	34 U	75 U	18 U	390 U	86 U	22 U	17 U	170 U	180 U	18 U	1,300 U	22 U
2-Methylnaphthalene	- -	ug/kg	1,800,000 J	280 J	280 J [59 J]	33 U	9.3 U	11 U	420 J	24,000	190 J	380,000	34 U	380 J	6.9 U	500 J	1,800 J	47 J	1,100,000 J	1,800 J
2-Methylphenol	330	ug/kg	1,900 U	24 U	29 U [27 U]	120 U	34 U	39 U	50 U	110 U	26 U	560 U	130 U	32 U	25 U	250 U	260 U	26 U	1,900 U	32 U
2-Nitroaniline	- -	ug/kg	1,100 U	14 U	17 U [16 U]	70 U	20 U	22 U	29 U	63 U	15 U	320 U	72 U	18 U	15 U	140 U	150 U	15 U	1,100 U	19 U
2-Nitrophenol	- -	ug/kg	1,200 U	15 U	19 U [17 U]	78 U	22 U	25 U	32 U	69 U	17 U	360 U	80 U	20 U	16 U	160 U	170 U	16 U	1,200 U	21 U
3,3-Dichlorobenzidine	- -	ug/kg	4,700 U	62 UJ	74 UJ [69 UJ]	310 U	87 U	99 U	130 UJ	280 UJ	66 UJ	1,400 UJ	320 U	81 U	64 U	630 UJ	670 UJ	66 U	4,800 U	82 U
3+4-Methylphenols	- -	ug/kg	1,300 U	18 U	21 U [20 U]	89 U	25 U	28 U	36 U	79 U	19 U	410 U	92 U	23 U	18 U	180 U	190 U	19 U	1,400 U	23 U
3-Nitroaniline	- -	ug/kg	4,700 U	62 U	74 U [69 U]	310 U	87 U	99 U	130 U	280 U	67 U	1,400 U	320 U	81 U	65 U	640 U	680 U	66 U	4,800 U	83 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	1,700 U	22 UJ	27 UJ [25 UJ]	110 U	31 U	36 U	46 UJ	100 UJ	24 UJ	520 UJ	120 U	29 U	23 U	230 UJ	240 UJ	24 U	1,700 U	30 U
4-Bromophenyl-phenylether	- -	ug/kg	770 U	10 U	12 U [11 U]	51 U	14 U	16 U	21 U	45 U	11 U	230 U	53 U	13 U	11 U	100 U	110 U	11 U	780 U	13 U
4-Chloro-3-methylphenol	- -	ug/kg	870 U	11 U	14 U [13 U]	57 U	16 U	18 U	24 U	51 U	12 U	260 U	59 U	15 U	12 U	120 U	120 U	12 U	880 U	15 U
4-Chloroaniline	- -	ug/kg	11,000 U	140 U	170 U [160 U]	720 U	200 U	230 U	290 U	640 U	150 U	3,300 U	740 U	190 U	150 U	1,500 U	1,500 U	150 U	11,000 U	190 U
4-Chlorophenyl-phenylether	- -	ug/kg	730 U	9.5 U	11 U [11 U]	48 U	13 U	15 U	20 U	43 U	10 U	220 U	50 U	12 U	10 U	98 U	100 U	10 U	740 U	13 U
4-Nitroaniline	- -	ug/kg	2,300 U	30 U	36 U [34 U]	150 U	42 U	48 U	62 U	140 U	32 U	700 U	160 U	39 U	31 U	310 U	330 U	32 U	2,300 U	40 U
4-Nitrophenol	- -	ug/kg	2,900 U	37 U	45 U [42 U]	190 U	53 U	60 U	78 U	170 U	40 U	870 U	200 U	49 U	39 U	380 U	410 U	40 U	2,900 U	50 U
Acenaphthene	20,000	ug/kg	**670,000 J**	89 J	300 J [9.5 U]	43 U	110 J	14 U	500 J	12,000 J	6,300 J	**290,000 J**	1,100 J	1,800	8.9 U	87 U	13,000 J	9 U	**630,000 J**	1,600 J
Acenaphthylene	100,000	ug/kg	**210,000 J**	11 U	14 U [13 U]	58 U	16 U	18 U	1,400	2,200	1,100	31,000	60 U	360 J	12 U	3,000 J	3,900 J	48 J	**230,000 J**	360 J
Acetophenone	- -	ug/kg	1,500 U	20 U	24 U [22 U]	100 U	28 U	32 U	42 U	90 U	22 U	470 U	100 U	26 U	21 U	210 U	220 U	21 U	1,600 U	27 U
Anthracene	100,000	ug/kg	**470,000 J**	66 J	180 J [10 U]	46 U	110 J	15 U	1,400 J	5,200 J	2,400 J	**102,500 J**	430 J	390 J	9.6 U	790 J	8,600 J	9.8 U	**680,000 J**	2,300 J
Atrazine	- -	ug/kg	900 U	12 U	14 U [13 U]	59 U	16 U	19 U	24 U	43 U	13 U	270 U	61 U	15 U	12 U	120 U	130 U	12 U	910 U	16 U
Benzaldehyde	- -	ug/kg	2,900 U	38 UD	45 U [42 U]	190 U	53 U	60 U	78 U	170 U	40 U	870 U	200 U	49 U	39 U	390 U	410 U	40 U	2,900 U	50 U
Benzo(a)anthracene	1,000	ug/kg	**240,000 J**	53 J	100 J [6.5 U]	250 J	240 J	90 J	**3,700 J**	**3,200 J**	**2,600 J**	**72,000 J**	**2,400**	**2,200**	6.1 U	**8,900 J**	**10,000 J**	47 J	**300,000 J**	**1,200 J**
Benzo(a)pyrene	1,000	ug/kg	**280,000 J**	48 J	63 J [7.4 U]	310 J	230 J	96 J	**3,500 J**	**2,400 J**	**2,200 J**	**57,000 J**	**2,300**	**1,800**	6.9 U	**8,600 J**	**8,900 J**	42 J	**390,000 J**	450 J
Benzo(b)fluoranthene	1,000	ug/kg	**230,000 J**	20 U	25 U [23 U]	300 J	220 J	92 J	**4,600 J**	**2,500 J**	**1,600 J**	**44,000 J**	**2,900**	**1,300**	21 U	**7,600 J**	**7,300 J**	51 J	**390,000 J**	650 J
Benzo(g,h,i)perylene	100,000	ug/kg	43,000 J	17 UJ	20 UJ [19 UJ]	200 J	130 J	27 U	840 J	470 J	510 J	9,800 J	1,000 J	430 J	17 U	2,800 J	2,600 J	18 U	57,000 J	220 J
Benzo(k)fluoranthene	800	ug/kg	**110,000 J**	13 UJ	16 UJ [15 UJ]	66 U	120 J	21 U	**1,600 J**	800 J	600 J	**16,000 J**	**920 J**	600	14 U	**3,400 J**	**2,500 J**	14 U	**160,000 J**	670 J
bis(2-Chloroethoxy)methane	- -	ug/kg	1,300 U	18 U	21 U [20 U]	89 U	25 U	28 U	36 U	79 U	19 U	410 U	91 U	23 U	18 U	180 U	190 U	19 U	1,400 U	23 U
bis(2-Chloroethyl)ether	- -	ug/kg	1,400 U	19 U	23 U [21 U]	96 U	27 U	30 U	39 U	85 U	20 U	440 U	98 U	25 U	20 U	190 U	210 U	20 U	1,500 U	25 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	670 U	52 J	52 J [48 J]	45 U	12 U	14 U	18 U	40 U	9.5 U	210	46 U	12 U	42 J	91 U	96 U	110 J	680 U	170 J

See Notes on Page 9.
5/25/2017
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Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			**B-12**	**B-15**	**B-15**	**B-16**	**B-16**	**B-16**	**B-17**	**B-17**	**B-19**	**B-19**	**B-21**	**B-21**	**B-21**	**B-22**	**B-22**	**B-23**	**B-23**	**B-23**
Sample Depth (feet bgs):	**Unrestricted**		**21 - 23**	**8 - 10**	**14 - 16**	**5 - 7**	**17 - 19**	**19 - 21**	**5 - 7**	**10 - 12**	**12 - 14**	**16 - 18**	**14 - 15**	**19 - 21**	**23 - 25**	**5 - 7**	**10 - 12**	**5 - 7**	**19 - 21**	**23 - 25**
Date Collected:	**Use SCOs**	**Units**	**04/15/04**	**04/13/04**	**04/13/04**	**04/06/04**	**04/06/04**	**04/06/04**	**04/08/04**	**04/08/04**	**04/12/04**	**04/12/04**	**04/05/04**	**04/05/04**	**04/05/04**	**04/08/04**	**04/08/04**	**04/19/04**	**04/19/04**	**04/20/04**
Butylbenzylphthalate	- -	ug/kg	980 U	13 U	15 U [14 U]	65 U	18 U	21 U	27 U	58 U	14 U	300 U	67 U	17 U	13 U	130 U	140 U	14 U	1,000 U	17 U
Caprolatam	- -	ug/kg	1,100 U	14 U	17 U [16 U]	72 U	20 U	23 U	29 U	64 U	15 U	330 U	74 U	19 U	15 U	150 U	150 U	15 U	1,100 U	19 U
Carbazole	- -	ug/kg	56,000 J	8.5 U	10 U [9.5 U]	43 U	12 U	14 U	180 J	320 J	9.1 U	3,000 J	44 U	11 U	8.9 U	87 U	92 U	9 U	130,000 J	290 J
Chrysene	1,000	ug/kg	**210,000**	57 J	94 J [14 U]	270 J	230 J	110 J	**3,240 J**	**2,800 J**	**2,500 J**	**64,000 J**	**2,400**	**1,900**	13 U	**8,040 J**	**9,500 J**	48 J	**200,000**	**1,300**
Dibenz(a,h)anthracene	330	ug/kg	**7,400 J**	11 UJ	14 UJ [13 UJ]	57 U	16 U	18 U	300 J	51 UJ	180 J	**1,900 J**	59 U	72 J	12 U	**460 J**	120 UJ	12 U	**23,000 J**	88 J
Dibenzofuran	7,000	ug/kg	**190,000 J**	13 U	15 U [14 U]	64 U	18 U	20 U	280 J	780 J	300 J	**11,000**	66 U	17 U	13 U	130 U	1,000 J	13 U	**350,000 J**	580 J
Diethylphthalate	- -	ug/kg	920 U	12 U	14 U [13 U]	61 U	17 U	19 U	25 U	54 U	13 U	280 U	63 U	16 U	13 U	120 U	130 U	13 U	930 U	16 U
Dimethylphthalate	- -	ug/kg	700 U	9.2 U	11 U [10 U]	46 U	13 U	15 U	19 U	41 U	9.9 U	210 U	48 U	12 U	9.6 U	94 U	100 U	9.8 U	710 U	12 U
Di-n-butylphthalate	- -	ug/kg	390 U	5.1 UJ	6.1 UJ [5.7 UJ]	26 U	7.2 U	8.2 U	11 UJ	23 UJ	5.5 UJ	120 UJ	27 U	6.7 U	5.3 U	52 UJ	56 UJ	76 J	390 U	6.8 U
Di-n-octyl phthalate	- -	ug/kg	700 U	9.2 UJ	11 UJ [10 UJ]	46 U	13 U	15 U	19 UJ	41 UJ	9.9 UJ	210 UJ	48 U	12 U	9.6 U	94 UJ	100 UJ	9.8 U	710 U	12 U
Fluoranthene	100,000	ug/kg	**590,000 J**	92 J	150 J [6 UJ]	390 J	340 J	120 J	7,800 J	6,000 J	3,700 J	**130,000 J**	4,700	2,800	50 J	8,860 J	15,000 J	65 J	**850,000 J**	3,200 J
Fluorene	30,000	ug/kg	**670,000 J**	82 J	190 J [12 U]	55 U	88 J	17 U	800 J	8,070 J	3,610 J	**160,000 J**	57 U	180 J	11 U	470 J	9,250 J	12 U	**680,000 J**	1,600 J
Hexachlorobenzene	330	ug/kg	550 U	7.2 U	8.6 U [8 U]	36 U	10 U	12 U	15 U	32 U	7.7 U	170 U	37 U	9.4 U	7.5 U	74 U	78 U	7.7 U	560 U	9.6 U
Hexachlorobutadiene	- -	ug/kg	1,000 U	13 U	16 U [15 U]	68 U	19 U	22 U	28 U	61 U	14 U	310 U	70 U	18 U	14 U	140 U	150 U	14 U	1,000 U	18 U
Hexachlorocyclopentadiene	- -	ug/kg	740 U	9.6 U	12 U [11 U]	49 U	14 U	15 U	20 U	43 U	10 U	220 U	50 U	13 U	10 U	99 U	110 U	10 U	750 U	13 U
Hexachloroethane	- -	ug/kg	1,400 U	18 U	22 U [20 U]	93 U	26 U	29 U	38 U	82 U	20 U	430 U	95 U	24 U	19 U	190 U	200 U	20 U	1,400 U	24 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	**18,000 J**	9.3 UJ	11 UJ [10 UJ]	47 U	110 J	15 U	**620 J**	310 J	370 J	**6,500 J**	**890 J**	360 J	9.7 U	**2,300 J**	**2,000 J**	9.9 U	**26,000 J**	93 J
Isophorone	- -	ug/kg	1,100 U	14 U	17 U [16 U]	72 U	20 U	23 U	30 U	64 U	15 U	330 U	74 U	19 U	15 U	150 U	160 U	15 U	1,100 U	19 U
Naphthalene	12,000	ug/kg	**2,600,000 J**	430	580 [49 J]	42 U	150 J	13 U	510 J	**100,000**	1,100	**1,200,000**	43 U	690	8.7 U	86 U	**22,000**	91 J	**2,100,000 J**	4,000 J
Nitrobenzene	- -	ug/kg	1,500 U	19 U	23 U [22 U]	99 U	27 U	31 U	40 U	88 U	21 U	450 U	100 U	26 U	20 U	200 U	210 U	21 U	1,500 U	26 U
N-Nitroso-di-n-propylamine	- -	ug/kg	1,300 U	17 U	20 U [19 U]	86 U	24 U	27 U	35 U	76 U	18 U	390 U	88 U	22 U	18 U	170 U	180 U	18 U	1,300 U	23 U
N-Nitrosodiphenylamine	- -	ug/kg	750 U	9.7 U	12 U [11 U]	49 U	14 U	16 U	20 U	44 U	10 U	230 U	51 U	13 U	10 U	100 U	110 U	10 U	750 U	13 U
Pentachlorophenol	800	ug/kg	910 U	12 U	14 U [13 U]	60 U	17 U	19 U	25 U	54 U	13 U	280 U	62 U	16 U	13 U	120 U	130 U	13 U	920 U	16 U
Phenanthrene	100,000	ug/kg	**1,200,000**	310 J	590 J [49 J]	390 J	360 J	280 J	6,420 J	20,000 J	11,000 J	**347,300 J**	930 J	980	9 U	1,900 J	32,000 J	120 J	**1,300,000**	4,500 D
Phenol	330	ug/kg	1,200 U	16 U	19 U [18 U]	81 U	23 U	26 U	33 U	72 U	17 U	370 U	83 U	21 U	17 U	160 U	170 U	17 U	1,200 U	21 U
Pyrene	100,000	ug/kg	**520,000**	180 J	300 J [7.6 U]	500 J	420 J	150 J	8,600 J	10,000 J	6,900 J	**200,000 J**	4,800	4,000	51 J	16,700 J	27,000 J	70 J	**550,000**	3,600
Total SVOCs	- -	ug/kg	10,100,000 J	1,830 J	2,930 J [205 J]	2,610 J	2,860 J	938 J	46,800 J	208,000 J	47,900 J	3,130,000 J	24,800 J	20,200 J	143 J	74,300 J	176,000 J	815 J	10,400,000 J	28,900 J

Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			B-27	B-32	B-32	B-32	B-32	B-33	B-33	B-37	B-37	B-38	B-38	B-45	B-45	B-45	B-46	TT-03	TT-04	TT-05
Sample Depth (feet bgs):	Unrestricted		10 - 12	5 - 7	13 - 15	21 - 23	35 - 37	4 - 5	7 - 9	5 - 7	11 - 13	10 - 12	16 - 18	7 - 9	22 - 24	32 - 34	7 - 9	2 - 3	4 - 5	4 - 5
Date Collected:	Use SCOs	Units	05/20/04	04/06/04	04/06/04	04/06/04	04/07/04	03/23/04	04/21/04	04/20/04	04/20/04	04/20/04	04/20/04	05/19/04	05/19/04	05/20/04	05/20/04	05/19/04	05/10/04	05/18/04
1,1-Biphenyl	- -	ug/kg	270 J [580]	270 J	110 J	1,600	13 U	12 U	2,500	110 U	1,500	2,000	12 U	750 J	8,500	47,000	53 J	120 U	11 U	130 U
2,2-oxybis(1-Chloropropane)	- -	ug/kg	22 U [27 U]	100 U	26 U	43 U	24 U	22 U	21 U	210 U	22 U	45 U	22 U	110 U	110 U	440 U	20 U	220 U	20 U	230 U
2,4,5-Trichlorophenol	- -	ug/kg	27 U [33 U]	120 U	32 U	52 U	29 U	27 U	26 U	250 U	27 U	55 U	27 U	130 UJ	140 UJ	540 U	24 U	270 UJ	25 U	280 UJ
2,4,6-Trichlorophenol	- -	ug/kg	15 U [18 U]	68 U	18 U	29 U	16 U	15 U	14 U	140 U	15 U	30 U	15 U	72 UJ	75 UJ	300 U	13 U	150 UJ	13 U	150 UJ
2,4-Dichlorophenol	- -	ug/kg	15 U [18 U]	65 U	17 U	28 U	15 U	14 U	14 U	130 U	14 U	29 U	14 U	70 UJ	72 UJ	290 U	13 U	140 UJ	13 U	150 UJ
2,4-Dimethylphenol	- -	ug/kg	22 U [27 U]	100 U	26 U	43 U	24 U	22 U	21 U	210 U	22 U	45 U	22 U	110 UJ	110 UJ	440 U	20 U	220 UJ	20 U	230 UJ
2,4-Dinitrophenol	- -	ug/kg	18 U [22 U]	82 U	21 U	35 U	19 U	18 U	17 U	1,700 UD	18 U	37 U	18 U	88 UJ	91 UJ	360 U	16 U	180 UJ	16 U	190 UJ
2,4-Dinitrotoluene	- -	ug/kg	8.3 U [10 U]	37 U	9.6 U	16 U	8.7 U	8.2 U	7.9 U	76 U	8 U	17 U	8 U	40 UJ	41 UJ	160 U	7.2 U	81 UJ	7.4 U	85 UJ
2,6-Dinitrotoluene	- -	ug/kg	18 U [21 U]	79 U	21 U	34 U	19 U	17 U	17 U	160 U	17 U	36 U	17 U	85 UJ	88 UJ	350 U	15 U	170 UJ	16 U	180 UJ
2-Chloronaphthalene	- -	ug/kg	8.6 U [10 U]	39 U	10 U	16 U	9.1 U	8.5 U	8.2 U	79 U	8.4 U	17 U	8.4 U	41 UJ	43 UJ	170 U	7.5 U	84 UJ	7.7 U	89 UJ
2-Chlorophenol	- -	ug/kg	18 U [22 U]	81 U	21 U	34 U	19 U	18 U	17 U	160 U	17 U	36 U	17 U	86 UJ	89 UJ	350 U	16 U	170 UJ	16 U	180 UJ
2-Methylnaphthalene	- -	ug/kg	1,800 [5,800]	520 J	1,200	17,000	160 J	7.1 U	16,000 JD	36,000 J	9,600 J	9,800 D	110 J	2,300 J	92,000 J	470,000 D	420	560 J	6.4 U	560 J
2-Methylphenol	330	ug/kg	26 U [32 U]	120 U	31 U	50 U	28 U	26 U	25 U	240 U	25 U	53 U	25 U	130 UJ	130 UJ	520 U	23 U	260 UJ	23 U	270 UJ
2-Nitroaniline	- -	ug/kg	15 U [18 U]	68 U	18 U	29 U	16 U	15 U	14 U	140 U	15 U	30 U	15 U	72 UJ	75 UJ	300 U	13 U	150 UJ	13 U	150 UJ
2-Nitrophenol	- -	ug/kg	17 U [20 U]	75 U	19 U	32 U	18 U	16 U	16 U	150 U	16 U	34 U	16 U	80 UJ	83 UJ	330 U	15 U	160 UJ	15 U	170 UJ
3,3-Dichlorobenzidine	- -	ug/kg	67 U [81 U]	300 U	78 U	130 U	70 U	66 U	63 U	610 U	65 U	130 U	65 U	320 UJ	330 UJ	1,300 U	58 U	650 UJ	60 U	680 UJ
3+4-Methylphenols	- -	ug/kg	19 U [23 U]	86 U	22 U	36 U	20 U	19 U	18 U	170 U	18 U	38 U	18 U	91 UJ	94 UJ	380 U	17 U	190 UJ	17 U	200 UJ
3-Nitroaniline	- -	ug/kg	67 U [81 U]	300 U	78 U	130 U	70 U	66 U	64 U	610 U	65 U	130 U	65 U	320 UJ	330 UJ	1,300 U	58 U	650 UJ	60 U	690 UJ
4,6-Dinitro-2-methylphenol	- -	ug/kg	24 U [29 U]	110 U	28 U	46 U	25 U	24 U	23 U	220 U	23 U	49 U	23 U	120 UJ	120 UJ	470 U	21 U	230 UJ	22 U	250 UJ
4-Bromophenyl-phenylether	- -	ug/kg	11 U [13 U]	49 U	13 U	21 U	11 U	11 U	10 U	100 U	11 U	22 U	11 U	52 UJ	54 UJ	220 U	9.5 U	110 UJ	9.8 U	110 UJ
4-Chloro-3-methylphenol	- -	ug/kg	12 U [15 U]	55 U	14 U	23 U	13 U	12 U	12 U	110 U	12 U	25 U	12 U	59 UJ	61 UJ	240 U	11 U	120 UJ	11 U	130 UJ
4-Chloroaniline	- -	ug/kg	150 U [190 U]	690 U	180 U	290 U	160 U	150 U	150 U	1,400 U	150 U	310 U	150 U	730 UJ	760 UJ	3,000 U	130 U	1,500 UJ	140 U	1,600 UJ
4-Chlorophenyl-phenylether	- -	ug/kg	10 U [12 U]	46 U	12 U	20 U	11 U	10 U	9.8 U	94 U	10 U	21 U	10 U	49 UJ	51 UJ	200 U	9 U	100 UJ	9.2 U	110 UJ
4-Nitroaniline	- -	ug/kg	32 U [39 U]	150 U	38 U	62 U	34 U	32 U	31 U	300 U	32 U	65 U	31 U	160 UJ	160 UJ	640 U	28 U	320 UJ	29 U	330 UJ
4-Nitrophenol	- -	ug/kg	40 U [49 U]	180 U	47 U	77 U	43 U	40 U	38 U	370 U	39 U	82 U	39 U	190 U	200 U	800 U	35 U	400 U	36 U	420 U
Acenaphthene	20,000	ug/kg	960 [2,300]	1,600 J	530	7,600	84 J	54 J	10,000 D	1,700 J	4,100 J	4,200 D	190 J	4,700 J	**37,000 J**	**170,000 D**	8 U	89 U	8.2 U	1,900 J
Acenaphthylene	100,000	ug/kg	580 [840]	470 J	14 U	490 J	13 U	12 U	2,700	500 J	800 J	3,800 J	54 J	2,900 J	5,200 J	41,000	11 U	120 U	11 U	450 J
Acetophenone	- -	ug/kg	22 U [26 U]	97 U	25 U	41 U	23 U	21 U	21 U	200 U	21 U	44 U	21 U	100 U	110 U	430 U	19 U	210 U	19 U	220 U
Anthracene	100,000	ug/kg	550 [1,300]	1,300 J	170 J	2,600	10 U	9.8 U	3,500 D	2,200 J	2,700 J	7,300 D	190 J	6,800	25,000	87,000 D	8.6 U	97 U	8.9 U	7,700
Atrazine	- -	ug/kg	13 U [15 U]	57 U	15 U	24 U	13 U	12 U	12 U	120 U	12 U	26 U	12 U	61 U	63 U	250 U	11 U	120 U	11 U	130 U
Benzaldehyde	- -	ug/kg	41 U [49 U]	180 U	47 U	77 U	43 U	40 U	39 U	370 U	39 U	82 U	39 U	190 U	200 U	800 U	35 U	400 U	36 U	420 U
Benzo(a)anthracene	1,000	ug/kg	970 [1,000]	**1,700 J**	180 J	**2,100**	6.6 U	140 J	**2,500**	**1,700 J**	**1,600 J**	**6,000 J**	190 J	**7,200**	**12,000**	**63,000**	5.5 U	580 J	250 J	**23,000**
Benzo(a)pyrene	1,000	ug/kg	**1,000 [1,200]**	**1,200 J**	140 J	**1,600**	7.5 U	250 J	**2,000**	**1,700 J**	640 J	**2,500 J**	160 J	**7,100**	**9,300**	**49,000**	6.2 U	790 J	360 J	**21,000**
Benzo(b)fluoranthene	1,000	ug/kg	540 [930]	**1,200 J**	96 J	**1,200**	23 U	280 J	**1,300**	960 J	920 J	**5,600 J**	100 J	**7,100**	**6,300**	**41,000**	19 U	1,000 J	500	**26,000**
Benzo(g,h,i)perylene	100,000	ug/kg	340 J [270 J]	440 J	64 J	540 J	19 U	130 J	400	810 J	280 J	1,100 J	73 J	1,800 J	1,700 J	8,500	16 U	180 U	310 J	6,100
Benzo(k)fluoranthene	800	ug/kg	610 J [690 J]	470 J	56 J	560 J	15 U	110 J	**1,100**	**920 J**	620 J	**3,400 J**	86 J	**3,200**	**3,900**	**19,000 J**	12 U	530 J	150 J	**11,000**
bis(2-Chloroethoxy)methane	- -	ug/kg	19 U [23 U]	85 U	22 U	36 U	20 U	19 U	18 U	170 U	18 U	38 U	18 U	91 UJ	94 UJ	370 U	17 U	180 UJ	17 U	190 UJ
bis(2-Chloroethyl)ether	- -	ug/kg	20 U [25 U]	92 U	24 U	39 U	21 U	20 U	19 U	190 U	20 U	41 U	20 U	98 U	100 U	400 U	18 U	200 U	18 U	210 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	9.5 U [12 U]	43 U	11 U	18 U	47 J	9.4 U	85 J	87 U	120 J	1,700	67 J	600 J	210 J	190 U	71 J	93 U	84 J	98 U

See Notes on Page 9.

Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			**B-27**	**B-32**	**B-32**	**B-32**	**B-32**	**B-33**	**B-33**	**B-37**	**B-37**	**B-38**	**B-38**	**B-45**	**B-45**	**B-45**	**B-46**	**TT-03**	**TT-04**	**TT-05**
Sample Depth (feet bgs):	**Unrestricted**		**10 - 12**	**5 - 7**	**13 - 15**	**21 - 23**	**35 - 37**	**4 - 5**	**7 - 9**	**5 - 7**	**11 - 13**	**10 - 12**	**16 - 18**	**7 - 9**	**22 - 24**	**32 - 34**	**7 - 9**	**2 - 3**	**4 - 5**	**4 - 5**
Date Collected:	**Use SCOs**	**Units**	**05/20/04**	**04/06/04**	**04/06/04**	**04/06/04**	**04/07/04**	**03/23/04**	**04/21/04**	**04/20/04**	**04/20/04**	**04/20/04**	**04/20/04**	**05/19/04**	**05/19/04**	**05/20/04**	**05/20/04**	**05/19/04**	**05/10/04**	**05/18/04**
Butylbenzylphthalate	- -	ug/kg	14 U [17 U]	63 U	16 U	26 U	15 U	14 U	13 U	130 U	14 U	28 U	13 U	67 U	69 U	270 U	12 U	140 U	12 U	140 U
Caprolatam	- -	ug/kg	15 U [19 U]	69 U	18 U	29 U	16 U	15 U	15 U	140 U	15 U	31 U	15 U	73 U	76 U	300 U	13 U	150 U	14 U	160 U
Carbazole	- -	ug/kg	54 J [140 J]	41 U	11 U	84 J	9.6 U	9 U	250 J	84 U	230 J	2,200 J	8.9 U	910 J	930 J	9,700	8 U	89 UJ	8.2 U	860 J
Chrysene	1,000	ug/kg	**910 [1,100]**	**1,500 J**	170 J	**1,900**	14 U	150 J	**2,500**	**1,600 J**	**1,700**	**6,000**	180 J	**7,200**	**11,000**	**58,000**	11 U	780 J	270 J	**22,000**
Dibenz(a,h)anthracene	330	ug/kg	12 U [15 U]	55 U	14 U	98 J	13 U	12 U	63 J	110 U	12 UJ	170 J	12 U	300 J	**370 J**	**1,700 J**	11 U	120 UJ	71 J	**790 J**
Dibenzofuran	7,000	ug/kg	140 J [350 J]	61 U	16 U	340 J	14 U	13 U	580 U	390 J	490 J	5,600 J	51 J	1,400 J	3,200	**29,000**	12 U	130 U	12 U	950 J
Diethylphthalate	- -	ug/kg	13 U [16 U]	59 U	15 U	25 U	14 U	13 U	12 U	120 U	13 U	26 U	13 U	62 U	65 U	260 U	11 U	130 U	48 J	130 U
Dimethylphthalate	- -	ug/kg	9.9 U [12 U]	45 U	12 U	19 U	10 U	9.8 U	9.4 U	91 U	9.6 U	20 U	9.6 U	47 UJ	49 UJ	200 U	8.6 U	97 UJ	8.9 U	100 UJ
Di-n-butylphthalate	- -	ug/kg	5.5 U [6.7 U]	25 U	6.4 U	10 U	5.8 U	5.4 U	5.2 U	50 U	5.4 U	11 U	5.3 U	1,700 J	590 J	110 U	4.8 U	21,000 J	790	3,500 J
Di-n-octyl phthalate	- -	ug/kg	9.9 U [12 U]	45 U	12 U	19 U	10 U	9.8 U	9.4 U	91 U	9.6 U	20 U	9.6 U	47 U	49 U	200 U	8.6 U	97 U	8.9 U	100 U
Fluoranthene	100,000	ug/kg	1,400 [1,900]	2,200	220 J	3,000	45 J	65 J	4,500 D	2,900 J	3,100 J	17,000 D	450	13,000	25,000	**110,000 D**	5 U	1,100 J	110 J	**150,000**
Fluorene	30,000	ug/kg	660 [1,600]	1,400 J	200 J	3,200	12 U	12 U	4,700 D	4,000 J	3,600 J	6,200 D	210 J	6,000 J	22,000 J	**110,000 D**	10 U	110 U	11 U	1,800 J
Hexachlorobenzene	330	ug/kg	7.8 U [9.4 U]	35 U	9.1 U	15 U	8.2 U	7.7 U	7.4 U	71 U	7.5 U	16 U	7.5 U	37 UJ	39 UJ	150 U	6.8 U	76 UJ	7 U	80 UJ
Hexachlorobutadiene	- -	ug/kg	15 U [18 U]	65 U	17 U	28 U	15 U	14 U	14 U	130 U	14 U	29 U	14 U	70 U	72 U	290 U	13 U	140 U	13 U	150 U
Hexachlorocyclopentadiene	- -	ug/kg	10 U [13 U]	47 U	12 U	20 U	11 U	10 U	9.9 U	95 U	10 U	21 U	10 U	50 UJ	52 UJ	210 U	9.1 U	100 UJ	9.3 U	110 UJ
Hexachloroethane	- -	ug/kg	20 U [24 U]	89 U	23 U	38 U	21 U	20 U	19 U	180 U	19 U	40 U	19 U	95 U	98 U	390 U	17 U	190 U	18 U	200 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	240 J [280 J]	350 J	56 J	**510 J**	11 U	110 J	120 J	**600 J**	84 J	370 J	58 J	**1,200 J**	**1,200 J**	**7,300 J**	8.7 U	98 UJ	250 J	4,600 UJ
Isophorone	- -	ug/kg	15 U [19 U]	69 U	18 U	29 U	16 U	15 U	15 U	140 U	15 U	31 U	15 U	74 U	76 U	300 U	13 U	150 U	14 U	160 U
Naphthalene	12,000	ug/kg	**4,800 [21,000]**	1,300 J	6,900	**120,000**	740	330 J	**75,000 D**	**92,000 J**	**24,000 J**	**19,000 JD**	140 J	1,300 J	**120,000 J**	**1,000,000 D**	140 J	470 J	88 J	880 J
Nitrobenzene	- -	ug/kg	21 U [26 U]	95 U	25 U	40 U	22 U	21 U	20 U	190 U	20 U	42 U	20 U	100 UJ	100 UJ	420 U	18 U	210 UJ	19 U	220 UJ
N-Nitroso-di-n-propylamine	- -	ug/kg	18 U [22 U]	82 U	21 U	35 U	19 U	18 U	17 U	170 U	18 U	37 U	18 U	88 U	91 U	360 U	16 U	180 U	16 U	190 U
N-Nitrosodiphenylamine	- -	ug/kg	11 U [13 U]	47 U	12 U	20 U	11 U	10 U	10 U	96 U	10 U	21 U	10 U	50 UJ	52 UJ	210 U	9.2 U	100 UJ	9.4 U	110 UJ
Pentachlorophenol	800	ug/kg	13 U [16 U]	58 U	15 U	25 U	14 U	13 U	12 U	120 U	13 U	26 U	13 U	62 UJ	64 UJ	250 U	11 U	130 UJ	12 U	130 UJ
Phenanthrene	100,000	ug/kg	2,000 [3,900]	5,300	630	9,800	120 J	48 J	9,400 ED	15,000	12,000	19,000 JD	1,200	30,000	85,000 D	**310,000 D**	67 J	630 J	47 J	39,000 UJ
Phenol	330	ug/kg	17 U [21 U]	78 U	20 U	33 U	18 U	17 U	16 U	160 U	17 U	35 U	17 U	83 U	86 U	340 U	15 U	170 U	15 U	180 U
Pyrene	100,000	ug/kg	1,800 [3,200]	3,700	360 J	4,900	72 J	74 J	7,000 D	6,300	5,100	1,800	560	23,000	40,000	**150,000 D**	61 J	1,300 J	170 J	**130,000**
Total SVOCs	- -	ug/kg	19,600 J [48,400 J]	24,900 J	11,100 J	179,000 J	1,270 J	1,740 J	146,000 J	169,000 J	73,200 J	125,000 J	4,070 J	130,000 J	510,000 J	2,780,000 J	812 J	28,700 J	3,500 J	408,000 J

Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			**TT-08**	**TT-9**	**TT-10**	**TT-10**	**TT-13**	**TT-13**	**TT-14**	**TT-15**	**TT-16**	**TT-17**	**TT-18**	**TT-19**	**TT-19**	**TT-21**	**TT-22**
Sample Depth (feet bgs):	**Unrestricted**		**3 - 4**	**2 - 3**	**5 - 6**	**7 - 8**	**3 - 4**	**4 - 5**	**3 - 4**	**3 - 4**	**1 - 2**	**6 - 7**	**3 - 4**	**3 - 4**	**6 - 7**	**5 - 6**	**3 - 4**
Date Collected:	**Use SCOs**	**Units**	**05/17/04**	**03/22/04**	**04/27/04**	**04/27/04**	**03/17/04**	**05/14/04**	**05/04/04**	**05/04/04**	**03/29/04**	**04/30/04**	**03/18/04**	**04/26/04**	**04/26/04**	**04/28/04**	**04/29/04**
1,1-Biphenyl	- -	ug/kg	600 U [560 U]	210 U	3,900 J	8,400	1,100 U	600 U	370 J	73 U	9,100	10 U	1,200 U	11 U	12 U	24 U	11 U
2,2-oxybis(1-Chloropropane)	- -	ug/kg	1,100 U [1,000 U]	380 U	430 U	420 U	2,100 U	1,100 U	200 U	130 U	400 U	19 U	2,100 U	21 U	21 U	44 U	19 U
2,4,5-Trichlorophenol	- -	ug/kg	1,300 UJ [1,300 UJ]	470 U	530 U	510 U	2,500 U	1,300 U	250 U	160 U	490 U	23 U	2,600 U	26 U	26 U	54 U	24 U
2,4,6-Trichlorophenol	- -	ug/kg	730 UJ [690 UJ]	260 U	290 U	280 U	1,400 U	730 U	130 U	89 U	270 U	13 U	1,400 U	14 U	14 U	29 U	13 U
2,4-Dichlorophenol	- -	ug/kg	710 UJ [660 UJ]	250 U	280 U	270 U	1,300 U	710 U	130 U	86 U	260 U	12 U	1,400 U	14 U	14 U	28 U	13 U
2,4-Dimethylphenol	- -	ug/kg	1,100 UJ [1,000 UJ]	380 U	430 U	420 U	2,100 U	1,100 U	200 U	130 U	400 U	19 U	2,100 U	21 U	21 U	44 U	19 U
2,4-Dinitrophenol	- -	ug/kg	890 UJ [830 UJ]	310 U	350 UJ	340 UJ	1,700 U	890 U	160 U	110 U	330 U	16 U	1,800 U	17 UJ	17 UJ	36 UJ	16 U
2,4-Dinitrotoluene	- -	ug/kg	400 UJ [380 UJ]	140 U	4,000 J	7,300 J	760 U	400 U	74 U	49 U	150 U	7 U	790 U	7.7 U	7.8 U	16 U	7.2 U
2,6-Dinitrotoluene	- -	ug/kg	860 UJ [800 UJ]	300 U	340 U	330 U	1,600 U	860 U	160 U	100 U	320 U	15 U	1,700 U	17 U	17 U	35 U	15 U
2-Chloronaphthalene	- -	ug/kg	420 UJ [390 UJ]	150 U	170 U	160 U	800 U	420 U	77 U	51 U	160 U	7.4 U	830 U	8.1 U	8.2 U	17 U	7.5 U
2-Chlorophenol	- -	ug/kg	870 UJ [820 UJ]	310 U	340 U	330 U	1,700 U	870 U	160 U	110 U	320 U	15 U	1,700 U	17 U	17 U	35 U	16 U
2-Methylnaphthalene	- -	ug/kg	350 U [330 U]	120 U	61,000	68,000	7,500 J	9,600 J	8,200	260 J	6,100 J	40 J	680 U	77 J	6.8 U	14 U	60 J
2-Methylphenol	330	ug/kg	1,300 UJ [1,200 UJ]	450 U	500 U	490 U	2,400 U	1,300 U	230 U	150 U	470 U	22 U	2,500 U	25 U	25 U	51 U	23 U
2-Nitroaniline	- -	ug/kg	730 UJ [690 UJ]	260 U	290 U	280 U	1,400 U	730 U	130 U	89 U	270 U	13 U	1,400 U	14 U	14 U	29 U	13 U
2-Nitrophenol	- -	ug/kg	810 UJ [760 UJ]	280 U	320 U	310 U	1,500 U	810 U	150 U	98 U	300 U	14 U	1,600 U	16 U	16 U	33 U	14 U
3,3-Dichlorobenzidine	- -	ug/kg	3,200 UJ [3,000 UJ]	1,100 U	1,300 U	1,200 U	6,100 U	3,200 U	600 U	390 U	1,200 U	57 U	6,400 U	62 U	63 U	130 U	58 U
3+4-Methylphenols	- -	ug/kg	930 UJ [870 UJ]	320 U	370 U	350 U	1,800 U	930 U	170 U	110 U	340 U	16 U	1,800 U	18 U	18 U	37 U	17 U
3-Nitroaniline	- -	ug/kg	3,300 UJ [3,000 UJ]	1,100 U	1,300 U	1,200 U	6,200 U	3,300 U	600 U	400 U	1,200 U	57 U	6,400 U	63 U	63 U	130 U	58 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	1,200 UJ [1,100 UJ]	410 U	460 U	450 U	2,200 U	1,200 U	220 U	140 U	430 U	20 U	2,300 U	23 U	23 U	47 U	21 U
4-Bromophenyl-phenylether	- -	ug/kg	530 UJ [500 UJ]	190 U	210 U	200 U	1,000 U	530 U	97 U	64 U	200 U	9.3 U	1,000 U	10 U	10 U	21 U	9.5 U
4-Chloro-3-methylphenol	- -	ug/kg	600 UJ [560 UJ]	210 U	240 U	230 U	1,100 U	600 U	110 U	73 U	220 U	10 U	1,200 U	11 U	12 U	24 U	11 U
4-Chloroaniline	- -	ug/kg	7,500 UJ [7,000 UJ]	2,600 U	2,900 U	2,900 U	14,000 U	7,500 U	1,400 U	910 U	2,800 U	130 U	15,000 U	140 U	150 U	300 U	130 U
4-Chlorophenyl-phenylether	- -	ug/kg	500 UJ [470 UJ]	170 U	200 U	190 U	950 U	500 U	92 U	61 U	190 U	8.7 U	980 U	9.6 U	9.7 U	20 U	8.9 U
4-Nitroaniline	- -	ug/kg	1,600 UJ [1,500 UJ]	550 U	620 UJ	600 UJ	3,000 U	1,600 U	290 U	190 U	590 U	28 U	3,100 U	30 UJ	31 UJ	64 UJ	28 U
4-Nitrophenol	- -	ug/kg	2,000 U [1,800 U]	690 U	780 U	750 U	3,700 U	2,000 U	360 U	240 U	730 U	34 U	3,900 U	38 U	38 U	79 U	35 U
Acenaphthene	20,000	ug/kg	440 U [420 U]	160 U	2,800 J	11,000	4,100 J	450 U	2,500 J	54 U	**44,000**	69 J	880 U	75 J	930	18 U	7.9 U
Acenaphthylene	100,000	ug/kg	4,000 J [4,000 J]	210 U	10,000	8,500	17,000 J	33,000	9,000	1,100 J	10,000	11 U	13,000 J	140 J	160 J	1,500	320 J
Acetophenone	- -	ug/kg	1,100 U [990 U]	370 U	420 U	400 U	2,000 U	1,100 U	190 U	130 U	390 U	18 U	2,100 U	20 U	21 U	42 U	19 U
Anthracene	100,000	ug/kg	2,400 J [2,400 J]	170 U	9,600	19,000	14,000 J	8,300 J	4,700	450 J	26,000	180 J	950 U	170 J	450	150 J	140 J
Atrazine	- -	ug/kg	620 U [580 U]	220 U	240 U	240 U	1,200 U	620 U	110 U	75 U	230 U	11 U	1,200 U	12 U	12 U	25 U	11 U
Benzaldehyde	- -	ug/kg	2,000 U [1,800 U]	690 U	780 U	760 U	3,800 U	2,000 U	360 U	240 U	730 U	35 U	3,900 U	38 U	38 U	79 U	35 U
Benzo(a)anthracene	1,000	ug/kg	**18,000 J [15,000 J]**	110 U	**10,000**	**17,000**	**46,000**	**28,000**	**5,400**	**2,600**	**24,000**	290 J	**6,000 J**	560	760	**2,100**	890
Benzo(a)pyrene	1,000	ug/kg	**24,000 [23,000]**	120 U	**8,100**	**11,000**	**45,000**	**50,000**	**8,100**	**3,100**	**23,000**	260 J	**17,000 J**	470	620	**3,500**	950
Benzo(b)fluoranthene	1,000	ug/kg	**28,000 [29,000]**	380 U	**8,300**	**12,000**	**42,000**	**40,000**	**6,700**	**3,300**	**19,000**	300 J	**9,400 J**	520	610	**4,400**	**1,200**
Benzo(g,h,i)perylene	100,000	ug/kg	6,800 J [6,900 J]	310 U	1,700 J	2,100 J	18,000 J	16,000 J	2,400 J	1,400 J	6,100 J	140 J	8,400 J	220 J	210 J	800 J	280 J
Benzo(k)fluoranthene	800	ug/kg	**19,000 J [14,000 J]**	240 U	**3,300 J**	**5,100 J**	**20,000 J**	**25,000**	**2,800 J**	**1,100 J**	**7,600**	130 J	**9,200 J**	250 J	150 J	**960**	350 J
bis(2-Chloroethoxy)methane	- -	ug/kg	920 UJ [860 UJ]	320 U	360 U	350 U	1,700 U	920 U	170 U	110 U	340 U	16 U	1,800 U	18 U	18 U	37 U	16 U
bis(2-Chloroethyl)ether	- -	ug/kg	990 U [930 U]	350 U	390 U	380 U	1,900 U	1,000 U	180 U	120 U	370 U	17 U	2,000 U	19 U	19 U	40 U	18 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	460 U [430 U]	160 U	180 U	180 U	880 U	460 U	85 U	56 U	170 U	86 U	910 U	210 J	220 J	420 J	160 U

See Notes on Page 9.

Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Soil Analytical Results - Site Characterization - SVOCs

Sample ID:			TT-08	TT-9	TT-10	TT-10	TT-13	TT-13	TT-14	TT-15	TT-16	TT-17	TT-18	TT-19	TT-19	TT-21	TT-22
Sample Depth (feet bgs):	**Unrestricted**		**3 - 4**	**2 - 3**	**5 - 6**	**7 - 8**	**3 - 4**	**4 - 5**	**3 - 4**	**3 - 4**	**1 - 2**	**6 - 7**	**3 - 4**	**3 - 4**	**6 - 7**	**5 - 6**	**3 - 4**
Date Collected:	**Use SCOs**	**Units**	**05/17/04**	**03/22/04**	**04/27/04**	**04/27/04**	**03/17/04**	**05/14/04**	**05/04/04**	**05/04/04**	**03/29/04**	**04/30/04**	**03/18/04**	**04/26/04**	**04/26/04**	**04/28/04**	**04/29/04**
Butylbenzylphthalate	- -	ug/kg	680 U [630 U]	240 U	270 U	260 U	1,300 U	680 U	120 U	82 U	250 U	12 U	1,300 U	13 U	13 U	27 U	12 U
Caprolatam	- -	ug/kg	740 U [700 U]	260 U	290 U	280 U	1,400 U	750 U	140 U	90 U	280 U	13 U	1,500 U	14 U	14 U	30 U	13 U
Carbazole	- -	ug/kg	440 UJ [420 UJ]	160 U	180 UJ	4,700 J	850 U	450 U	82 U	54 U	1,700 J	84 J	880 U	79 J	8.7 UJ	18 UJ	7.9 U
Chrysene	1,000	ug/kg	**18,000 J [17,000 J]**	220 U	**8,700**	**14,000**	**47,000**	**31,000**	**5,100**	**2,900**	**23,000**	290 J	**9,900 J**	560	670	**2,600**	910
Dibenz(a,h)anthracene	330	ug/kg	590 UJ [550 UJ]	210 U	230 U	**900 J**	1,100 U	**5,300 J**	110 U	**440 J**	**2,200 J**	10 U	1,200 U	75 J	71 J	**370 J**	11 U
Dibenzofuran	7,000	ug/kg	660 U [620 U]	230 U	1,800 J	**12,000**	1,300 U	670 U	750 J	81 U	4,800 J	89 J	1,300 U	49 J	70 J	27 U	12 U
Diethylphthalate	- -	ug/kg	630 U [590 U]	220 U	250 U	240 U	1,200 U	640 U	120 U	77 U	230 U	11 U	1,200 U	12 U	12 U	26 U	11 U
Dimethylphthalate	- -	ug/kg	480 UJ [450 UJ]	170 U	190 U	180 U	910 U	480 U	89 U	58 U	180 U	8.4 U	950 U	9.3 U	9.4 U	19 U	8.6 U
Di-n-butylphthalate	- -	ug/kg	270 U [250 U]	94 U	110 U	100 U	510 U	270 U	49 U	3,000	99 U	4.7 U	530 U	5.2 U	5.2 U	11 U	4.8 U
Di-n-octyl phthalate	- -	ug/kg	480 U [450 U]	170 U	190 U	180 U	910 U	480 U	89 U	58 U	180 U	8.4 U	950 U	9.3 U	9.4 U	19 U	8.6 U
Fluoranthene	100,000	ug/kg	26,000 [23,000]	98 U	16,000	33,000	70,000 J	30,000	7,200	2,500	41,000	660	550 U	870	1,300	1,200	960
Fluorene	30,000	ug/kg	570 U [540 U]	200 U	13,000	29,000	6,900 J	2,500 J	5,250	70 U	**33,000**	110 J	1,100 U	11 U	92 J	23 U	38 J
Hexachlorobenzene	330	ug/kg	380 UJ [350 UJ]	130 U	150 U	140 U	720 U	380 U	69 U	46 U	140 U	6.6 U	740 U	7.3 U	7.4 U	15 U	6.7 U
Hexachlorobutadiene	- -	ug/kg	710 U [660 U]	250 U	280 U	270 U	1,300 U	710 U	130 U	86 U	260 U	12 U	1,400 U	14 U	14 U	28 U	13 U
Hexachlorocyclopentadiene	- -	ug/kg	510 UJ [470 UJ]	180 U	200 U	190 U	960 U	510 U	93 U	61 U	190 U	8.9 U	1,000 U	9.7 U	9.8 U	20 U	9 U
Hexachloroethane	- -	ug/kg	960 U [900 U]	340 U	380 U	370 U	1,800 U	970 U	180 U	120 U	360 U	17 U	1,900 U	19 U	19 U	39 U	17 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	**4,200 J [4,100 J]**	170 U	**1,200 J**	**1,600 J**	**13,000 J**	**9,600 J**	**1,600 J**	**1,200 J**	**4,200 J**	130 J	**5,100 J**	180 J	170 J	**530 J**	220 J
Isophorone	- -	ug/kg	750 U [700 U]	260 U	300 U	290 U	1,400 U	750 U	140 U	91 U	280 U	13 U	1,500 U	14 U	15 U	30 U	13 U
Naphthalene	12,000	ug/kg	440 U [2,300 J]	1,600 J	**81,000**	**310,000**	**13,000 J**	**21,000**	7,800	710 J	**58,000**	200 J	860 U	190 J	130 J	130 J	68 J
Nitrobenzene	- -	ug/kg	1,000 UJ [960 UJ]	360 U	400 U	390 U	1,900 U	1,000 U	190 U	120 U	380 U	18 U	2,000 U	20 U	20 U	41 U	18 U
N-Nitroso-di-n-propylamine	- -	ug/kg	890 U [830 U]	310 U	350 U	340 U	1,700 U	890 U	160 U	110 U	330 U	16 U	1,800 U	17 U	750	36 U	16 U
N-Nitrosodiphenylamine	- -	ug/kg	510 UJ [480 UJ]	180 U	200 U	200 U	970 U	510 U	94 U	62 U	190 U	9 U	1,000 U	9.9 U	10 U	21 U	9.1 U
Pentachlorophenol	800	ug/kg	630 UJ [590 UJ]	220 U	250 U	240 U	1,200 U	630 U	120 U	76 U	230 U	11 U	1,200 U	12 U	12 U	25 U	11 U
Phenanthrene	100,000	ug/kg	2,100 J [2,800 J]	160 U	35,000	68,000	54,000	13,000 J	16,000	1,700 J	100,000	750	890 U	700	500	270 J	500
Phenol	330	ug/kg	840 U [790 U]	290 U	330 U	320 U	1,600 U	840 U	150 U	100 U	310 U	15 U	1,700 U	16 U	16 U	34 U	15 U
Pyrene	100,000	ug/kg	37,000 [30,000]	130 U	32,000	39,000	10,000 J	61,000	13,000	4,200	63,000	610	14,000 J	990	2,100	3,200	1,650
Total SVOCs	- -	ug/kg	190,000 J [174,000 J]	1,600 J	311,000 J	682,000 J	428,000 J	383,000 J	107,000 J	30,000 J	506,000 J	4,330 J	92,000 J	6,390 J	9,960 J	22,100 J	8,540 J

See Notes on Page 9.

Table 8

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Subsurface Analytical Results - SVOCs - Site Characterization

Notes:

J = indicates an estimated value.

ND = not detected.

R = rejected.

D = compounds analyzed at a dilution.

U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.

UJ = estimated non-detect.

ug/kg = micrograms per kilogram.

bgs = below ground surface.

PQL = practical quantitation limit.

NYCRR = New York State Codes Rules and Regulations.

SCOs = Soil Cleanup Objectives according to 6 NYCRR Subpart 375-6 *Remedial Program Soil Cleanup Objectives*.

- - = no SCO exists for the specified compound.

VOCs = volatile organic compounds.

▨ Bolded and shaded values exceed the Unrestricted Use SCOs.

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			**SB-107B**	**SB-107B**	**SB-107B**	**SB-107B**	**SB-108**	**SB-108**	**SB-108**	**SB-109**	**SB-109**	**SB-109**	**SB-110**	**SB-110**	**SB-110**	**SB-110**	**SB-111B**
Sample Depth (feet bgs):	**Unrestricted**		**9 - 11**	**29 - 31**	**39 - 41**	**53 - 54**	**9 - 11**	**34 - 35**	**43 - 45**	**6.5 - 7**	**31 - 33**	**41 - 43**	**7 - 8**	**17 - 19**	**26 - 26.5**	**49 - 51**	**6 - 9**
Date Collected:	**Use SCOs**	**Units**	**06/20/06**	**06/20/06**	**06/20/06**	**06/20/06**	**06/19/06**	**06/20/06**	**06/21/06**	**06/15/06**	**06/15/06**	**06/16/06**	**06/21/06**	**06/21/06**	**06/22/06**	**06/22/06**	**06/21/06**
1,1-Biphenyl	- -	ug/kg	140 J [370 U]	280,000 J	400 U	440 U	390 U	1,400 J	280 J	400 U [420 U]	59,000 J	61 J	57 J	440 U	410 U	410 U	300 J
1,2,4-Trichlorobenzene	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,100	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	2,400	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1,800	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-oxybis(1-Chloropropane)	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2,4,5-Trichlorophenol	- -	ug/kg	1,900 U [1,800 U]	2,600,000 U	2,000 U	2,100 U	1,900 U	7,800 U	1,800 U	1,900 U [2,000 U]	420,000 U	1,800 U	1,900 U	2,100 UJ	2,000 U	2,000 U	10,000 U
2,4,6-Trichlorophenol	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2,4-Dichlorophenol	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2,4-Dimethylphenol	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2,4-Dinitrophenol	- -	ug/kg	1,900 U [1,800 U]	2,600,000 U	2,000 U	2,100 U	1,900 U	7,800 UJ	1,800 U	1,900 U [2,000 U]	420,000 U	1,800 U	1,900 U	2,100 UJ	2,000 U	2,000 U	10,000 U
2,4-Dinitrotoluene	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2,6-Dinitrotoluene	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2-Chloronaphthalene	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2-Chlorophenol	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2-Methylnaphthalene	- -	ug/kg	240 J [370 U]	2,800,000	240 J	440 U	390 U	1,800	2,100	400 U [420 U]	660,000	630	84 J	440 U	72 J	410 U	1,100 J
2-Methylphenol	330	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
2-Nitroaniline	- -	ug/kg	1,900 U [1,800 U]	2,600,000 U	2,000 U	2,100 U	1,900 U	7,800 U	1,800 U	1,900 U [2,000 U]	420,000 U	1,800 U	1,900 U	2,100 U	2,000 U	2,000 U	10,000 U
2-Nitrophenol	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
3,3-Dichlorobenzidine	- -	ug/kg	790 U [750 U]	1,100,000 U	810 U	870 U	770 U	3,200 U	750 U	800 U [840 U]	170,000 U	740 U	790 U	880 U	810 U	820 U	4,300 U
3-Nitroaniline	- -	ug/kg	1,900 U [1,800 U]	2,600,000 U	2,000 U	2,100 U	1,900 U	7,800 U	1,800 U	1,900 U [2,000 U]	420,000 U	1,800 U	1,900 U	2,100 U	2,000 U	2,000 U	10,000 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	1,900 U [1,800 U]	2,600,000 U	2,000 U	2,100 U	1,900 U	7,800 UJ	1,800 U	1,900 U [2,000 U]	420,000 U	1,800 U	1,900 U	2,100 UJ	2,000 U	2,000 U	10,000 U
4-Bromophenyl-phenylether	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
4-Chloro-3-methylphenol	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
4-Chloroaniline	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
4-Chlorophenyl-phenylether	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
4-Nitroaniline	- -	ug/kg	790 U [750 U]	1,100,000 U	810 U	870 U	770 U	3,200 U	750 U	800 U [840 U]	170,000 U	740 U	790 U	880 U	810 U	820 U	4,300 U
4-Nitrophenol	- -	ug/kg	1,900 U [1,800 U]	2,600,000 U	2,000 U	2,100 U	1,900 U	7,800 U	1,800 U	1,900 U [2,000 U]	420,000 U	1,800 U	1,900 U	2,100 UJ	2,000 U	2,000 U	10,000 U
Acenaphthene	20,000	ug/kg	510 [86 J]	**1,500,000**	200 J	440 U	390 U	8,900	310 J	400 U [420 U]	**300,000**	320 J	400 U	440 U	100 J	410 U	830 J
Acenaphthylene	100,000	ug/kg	330 J [210 J]	**120,000 J**	400 U	440 U	390 U	1,100 J	1,100	400 U [420 U]	41,000 J	370 U	400 U	440 U	410 U	410 U	8,700
Acetophenone	- -	ug/kg	170 J [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Anthracene	100,000	ug/kg	650 [230 J]	**660,000**	140 J	440 U	74 J	5,200	840	400 U [420 U]	**140,000**	120 J	85 J	440 U	410 U	410 U	4,400
Atrazine	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Benzaldehyde	- -	ug/kg	60 J [370 UJ]	530,000 UJ	400 UJ	440 UJ	390 UJ	1,600 UJ	370 UJ	400 UJ [420 UJ]	87,000 UJ	370 UJ	130 J	440 UJ	410 UJ	410 UJ	2,200 UJ
Benzo(a)anthracene	1,000	ug/kg	**1,300 [610]**	**390,000 J**	88 J	440 U	180 J	**2,600**	540	77 J [67 J]	**84,000 J**	62 J	210 J	440 U	410 U	410 U	**20,000**
Benzo(a)pyrene	1,000	ug/kg	**1,400 J [550 J]**	**250,000 J**	56 J	440 U	230 J	**1,800**	370 J	110 J [98 J]	**59,000 J**	370 U	170 J	440 U	410 U	410 U	**17,000**
Benzo(b)fluoranthene	1,000	ug/kg	**1,800 J [690 J]**	**240,000 J**	400 U	440 U	280 J	**1,300 J**	290 J	140 J [420 U]	**44,000 J**	370 U	260 J	440 U	410 U	410 U	**15,000**
Benzo(g,h,i)perylene	100,000	ug/kg	750 [240 J]	**140,000 J**	400 U	440 U	120 J	710 J	93 J	100 J [90 J]	23,000 J	370 U	73 J	440 U	410 U	410 U	12,000

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			**SB-107B**	**SB-107B**	**SB-107B**	**SB-107B**	**SB-108**	**SB-108**	**SB-108**	**SB-109**	**SB-109**	**SB-109**	**SB-110**	**SB-110**	**SB-110**	**SB-110**	**SB-111B**
Sample Depth (feet bgs):	**Unrestricted**		**9 - 11**	**29 - 31**	**39 - 41**	**53 - 54**	**9 - 11**	**34 - 35**	**43 - 45**	**6.5 - 7**	**31 - 33**	**41 - 43**	**7 - 8**	**17 - 19**	**26 - 26.5**	**49 - 51**	**6 - 9**
Date Collected:	**Use SCOs**	**Units**	**06/20/06**	**06/20/06**	**06/20/06**	**06/20/06**	**06/19/06**	**06/20/06**	**06/21/06**	**06/15/06**	**06/15/06**	**06/16/06**	**06/21/06**	**06/21/06**	**06/22/06**	**06/22/06**	**06/21/06**
Benzo(k)fluoranthene	800	ug/kg	640 [290 J]	530,000 U	400 U	440 U	99 J	570 J	120 J	400 U [420 U]	**18,000 J**	370 U	77 J	440 U	410 U	410 U	**5,500**
Benzyl alcohol	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
bis(2-Chloroethyl)ether	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	390 U [370 U]	530,000 U	400 U	1,100	390 U	1,600 U	370 U	700 [1,200]	87,000 U	370 U	410 U	440 U	410 U	410 U	2,200 U
Butylbenzylphthalate	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Caprolatam	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Carbazole	- -	ug/kg	120 J [370 U]	530,000 U	400 U	440 U	390 U	280 J	72 J	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Chrysene	1,000	ug/kg	**1,300 [600]**	**350,000 J**	89 J	440 U	180 J	**2,600**	510	84 J [68 J]	**80,000 J**	55 J	220 J	440 U	410 U	410 U	**18,000**
Dibenz(a,h)anthracene	330	ug/kg	230 J [82 J]	530,000 U	400 U	440 U	390 U	230 J	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	**4,000**
Dibenzofuran	7,000	ug/kg	140 J [370 U]	**100,000 J**	400 U	440 U	390 U	680 J	170 J	400 U [420 U]	**24,000 J**	370 U	86 J	440 U	410 U	410 U	2,200 U
Diethylphthalate	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Dimethylphthalate	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Di-n-butylphthalate	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Di-n-octyl phthalate	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 UJ	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Fluoranthene	100,000	ug/kg	2,800 [1,500]	**570,000**	160 J	440 U	330 J	4,600	980	110 J [86 J]	**140,000**	110 J	610	440 U	67 J	410 U	20,000
Fluorene	30,000	ug/kg	510 [87 J]	**730,000**	110 J	440 U	390 U	4,500	1,000	400 U [420 U]	**160,000**	140 J	400 U	440 U	410 U	410 U	1,200 J
Hexachlorobenzene	330	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Hexachlorobutadiene	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Hexachlorocyclopentadiene	- -	ug/kg	390 UJ [370 UJ]	530,000 UJ	400 UJ	440 UJ	390 UJ	1,600 UJ	370 UJ	400 UJ [420 UJ]	87,000 UJ	370 UJ	400 UJ	440 UJ	410 UJ	410 UJ	2,200 UJ
Hexachloroethane	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	**760 [270 J]**	**120,000 J**	400 U	440 U	130 J	**600 J**	84 J	89 J [78 J]	**21,000 J**	370 U	75 J	440 U	410 U	410 U	**11,000**
Isophorone	- -	ug/kg	130 J [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Naphthalene	12,000	ug/kg	450 [370 U]	**4,800,000**	270 J	440 U	390 U	**13,000**	1,000	400 U [420 U]	**1,100,000**	1,100	100 J	440 U	530	410 U	2,500
Nitrobenzene	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
N-Nitroso-di-n-propylamine	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
N-Nitrosodiphenylamine	- -	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
p-Cresol	330	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Pentachlorophenol	800	ug/kg	1,900 U [1,800 U]	2,600,000 U	2,000 U	2,100 U	1,900 U	7,800 U	1,800 U	1,900 U [2,000 U]	420,000 U	1,800 U	1,900 U	2,100 UJ	2,000 U	2,000 U	10,000 U
Phenanthrene	100,000	ug/kg	1,600 J [250 J]	**2,200,000**	460	440 U	180 J	16,000	3,000	400 U [420 U]	**470,000**	370	430	440 U	120 J	410 U	4,100
Phenol	330	ug/kg	390 U [370 U]	530,000 U	400 U	440 U	390 U	1,600 U	370 U	400 U [420 U]	87,000 U	370 U	400 U	440 U	410 U	410 U	2,200 U
Pyrene	100,000	ug/kg	1,300 [660]	**1,000,000**	220 J	440 U	190 J	6,800	1,300	110 J [80 J]	**190,000**	160 J	250 J	440 U	78 J	410 U	32,000
Total SVOCs	- -	ug/kg	17,300 J [6,360 J]	16,300,000 J	2,030 J	1,100	1,990 J	74,700 J	14,200 J	1,520 J [1,770 J]	3,610,000 J	3,130 J	2,920 J	ND	967 J	ND	178,000 J

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			SB-111B	SB-111B	SB-111B	SB-112	SB-112	SB-112	SB-112	SB-113	SB-113	SB-113	SB-113	SB-113	SB-113	SB-115	SB-115
Sample Depth (feet bgs):	Unrestricted		29 - 31	45 - 45.5	53 - 54	5 - 7	17 - 18	34 - 35	54 - 55	5 - 7	8.5 - 9.5	9 - 10	14 - 15	22 - 23	34 - 35	9 - 10	19 - 20
Date Collected:	Use SCOs	Units	06/22/06	06/22/06	06/22/06	06/23/06	06/23/06	07/27/06	07/27/06	07/13/06	07/13/06	07/27/06	07/27/06	07/27/06	07/27/06	07/25/06	07/25/06
1,1-Biphenyl	- -	ug/kg	540,000 J [730,000 J]	400 U	410 U	410 J	66,000	390 UJ	410 UJ	340 U	340 U	360 U	340 U	420 U	420 U	420 U	70 J
1,2,4-Trichlorobenzene	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,100	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	2,400	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1,800	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-oxybis(1-Chloropropane)	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2,4,5-Trichlorophenol	- -	ug/kg	4,500,000 U [5,700,000 U]	2,000 U	2,000 U	2,600 U	270,000 U	1,900 UJ	2,000 UJ	1,700 U	1,600 U	1,700 UJ	1,600 UJ	2,000 UJ	2,000 UJ	2,000 U	1,800 U
2,4,6-Trichlorophenol	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2,4-Dichlorophenol	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2,4-Dimethylphenol	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2,4-Dinitrophenol	- -	ug/kg	4,500,000 UJ [5,700,000 UJ]	2,000 U	2,000 U	2,600 U	270,000 U	1,900 UJ	2,000 UJ	1,700 U	1,600 U	1,700 UJ	1,600 UJ	2,000 UJ	2,000 UJ	2,000 UJ	1,800 UJ
2,4-Dinitrotoluene	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2,6-Dinitrotoluene	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 UJ	410 UJ	340 U	340 U	360 UJ	340 UJ	420 UJ	420 UJ	420 U	380 U
2-Chloronaphthalene	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 UJ	410 UJ	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2-Chlorophenol	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2-Methylnaphthalene	- -	ug/kg	4,200,000 [5,700,000]	400 U	410 U	3,100	150,000	390 U	410 U	340 U	70 J	360 U	93 J	420 U	420 U	420 U	460
2-Methylphenol	330	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
2-Nitroaniline	- -	ug/kg	4,500,000 U [5,700,000 U]	2,000 U	2,000 U	2,600 U	270,000 U	1,900 U	2,000 U	1,700 U	1,600 U	1,700 U	1,600 U	2,000 U	2,000 U	2,000 U	1,800 U
2-Nitrophenol	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
3,3-Dichlorobenzidine	- -	ug/kg	1,900,000 U [2,400,000 U]	810 U	820 U	1,100 U	110,000 U	780 U	820 U	680 U	680 U	720 U	670 U	840 U	840 U	840 U	750 U
3-Nitroaniline	- -	ug/kg	4,500,000 U [5,700,000 U]	2,000 U	2,000 U	2,600 U	270,000 U	1,900 U	2,000 U	1,700 U	1,600 U	1,700 U	1,600 U	2,000 U	2,000 U	2,000 U	1,800 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	4,500,000 UJ [5,700,000 UJ]	2,000 U	2,000 U	2,600 U	270,000 UJ	1,900 UJ	2,000 UJ	1,700 U	1,600 U	1,700 UJ	1,600 UJ	2,000 UJ	2,000 UJ	2,000 UJ	1,800 UJ
4-Bromophenyl-phenylether	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
4-Chloro-3-methylphenol	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
4-Chloroaniline	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
4-Chlorophenyl-phenylether	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
4-Nitroaniline	- -	ug/kg	1,900,000 U [2,400,000 U]	810 U	820 U	1,100 U	110,000 U	780 U	820 U	680 U	680 U	720 U	670 U	840 U	840 U	840 U	750 U
4-Nitrophenol	- -	ug/kg	4,500,000 U [5,700,000 U]	2,000 U	2,000 U	2,600 U	270,000 U	1,900 U	2,000 U	1,700 U	1,600 U	1,700 U	1,600 U	2,000 U	2,000 U	2,000 U	1,800 U
Acenaphthene	20,000	ug/kg	**1,200,000 [1,400,000]**	400 U	410 U	770	**37,000 J**	390 U	410 U	340 U	110 J	120 J	210 J	75 J	420 U	420 U	340 J
Acenaphthylene	100,000	ug/kg	**1,400,000 [2,200,000]**	400 U	410 U	1,400	31,000 J	390 U	410 U	340 U	870	440	160 J	420 U	420 U	150 J	360 J
Acetophenone	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 UJ	410 UJ	340 U	85 J	140 J	81 J	420 U	420 U	420 U	380 U
Anthracene	100,000	ug/kg	**1,500,000 [1,700,000]**	400 U	410 U	1,600	37,000 J	390 UJ	410 UJ	340 U	200 J	140 J	210 J	420 U	420 U	79 J	570
Atrazine	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Benzaldehyde	- -	ug/kg	940,000 UJ [1,200,000 UJ]	400 UJ	410 UJ	530 UJ	55,000 UJ	390 UJ	410 UJ	340 UJ	340 UJ	210 J	120 J	70 J	420 UJ	420 UJ	380 UJ
Benzo(a)anthracene	1,000	ug/kg	**910,000 J [1,100,000 J]**	400 U	410 U	**2,800**	**26,000 J**	390 U	410 U	340 U	170 J	220 J	280 J	420 U	420 U	260 J	820
Benzo(a)pyrene	1,000	ug/kg	**660,000 J [740,000 J]**	400 U	410 U	**3,300**	**22,000 J**	390 UJ	410 UJ	340 U	250 J	460 J	200 J	420 UJ	420 UJ	380 J	760
Benzo(b)fluoranthene	1,000	ug/kg	**620,000 J [670,000 J]**	400 U	410 U	**3,100**	**21,000 J**	390 U	410 U	340 U	160 J	330 J	140 J	420 U	420 U	360 J	370 J
Benzo(g,h,i)perylene	100,000	ug/kg	**300,000 J [320,000 J]**	400 U	410 U	2,900	24,000 J	390 U	410 U	340 U	820	470	160 J	420 U	420 U	370 J	360 J

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:	**Unrestricted Use SCOs**	**Units**	**SB-111B**	**SB-111B**	**SB-111B**	**SB-112**	**SB-112**	**SB-112**	**SB-112**	**SB-113**	**SB-113**	**SB-113**	**SB-113**	**SB-113**	**SB-113**	**SB-115**	**SB-115**
Sample Depth (feet bgs):			**29 - 31**	**45 - 45.5**	**53 - 54**	**5 - 7**	**17 - 18**	**34 - 35**	**54 - 55**	**5 - 7**	**8.5 - 9.5**	**9 - 10**	**14 - 15**	**22 - 23**	**34 - 35**	**9 - 10**	**19 - 20**
Date Collected:			**06/22/06**	**06/22/06**	**06/22/06**	**06/23/06**	**06/23/06**	**07/27/06**	**07/27/06**	**07/13/06**	**07/13/06**	**07/27/06**	**07/27/06**	**07/27/06**	**07/27/06**	**07/25/06**	**07/25/06**
Benzo(k)fluoranthene	800	ug/kg	**270,000 J [290,000 J]**	400 U	410 U	**1,100**	55,000 U	390 U	410 U	340 U	110 J	190 J	110 J	420 U	420 U	380 J	510
Benzyl alcohol	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
bis(2-Chloroethyl)ether	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	940,000 U [1,200,000 U]	400 U	620	500 J	55,000 U	390 UJ	410 UJ	390 UJ	340 UJ	370 UJ	340 UJ	910 UJ	420 UJ	490 U	380 U
Butylbenzylphthalate	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Caprolatam	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Carbazole	- -	ug/kg	350,000 J [410,000 J]	400 U	410 U	580	55,000 U	390 U	410 U	340 U	57 J	360 U	340 U	420 U	420 U	420 U	380 U
Chrysene	1,000	ug/kg	**890,000 J [1,000,000 J]**	400 U	410 U	**2,800**	**24,000 J**	390 U	410 U	340 U	160 J	220 J	250 J	420 U	420 U	340 J	840
Dibenz(a,h)anthracene	330	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	**760**	55,000 U	390 UJ	410 UJ	340 U	120 J	81 J	340 UJ	420 UJ	420 UJ	81 J	99 J
Dibenzofuran	7,000	ug/kg	**590,000 J [640,000 J]**	400 U	410 U	380 J	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Diethylphthalate	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Dimethylphthalate	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Di-n-butylphthalate	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Di-n-octyl phthalate	- -	ug/kg	940,000 UJ [1,200,000 UJ]	400 U	410 U	530 U	55,000 UJ	390 UJ	410 UJ	340 U	340 U	360 UJ	340 UJ	420 UJ	420 UJ	420 U	380 U
Fluoranthene	100,000	ug/kg	**1,900,000 [2,100,000]**	400 U	410 U	4,600	49,000 J	390 U	410 U	340 U	180 J	210 J	390	420 U	420 U	400 J	1,100
Fluorene	30,000	ug/kg	**1,500,000 [2,000,000]**	400 U	410 U	920	**42,000 J**	390 U	410 U	340 U	340 U	76 J	170 J	420 U	420 U	420 U	290 J
Hexachlorobenzene	330	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Hexachlorobutadiene	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Hexachlorocyclopentadiene	- -	ug/kg	940,000 UJ [1,200,000 UJ]	400 UJ	410 UJ	530 UJ	55,000 UJ	390 U	410 U	340 UJ	340 UJ	360 U	340 U	420 U	420 U	420 U	380 U
Hexachloroethane	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	**280,000 J [300,000 J]**	400 U	410 U	**2,400**	**17,000 J**	390 UJ	410 UJ	340 U	**750**	410 J	140 J	420 UJ	420 UJ	380 J	350 J
Isophorone	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Naphthalene	12,000	ug/kg	**9,800,000 [13,000,000]**	400 U	410 U	5,000	**780,000**	71 J	410 UJ	340 U	76 J	68 J	210 J	420 U	860	390 J	1,100
Nitrobenzene	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
N-Nitroso-di-n-propylamine	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
N-Nitrosodiphenylamine	- -	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	110 J	420 U	420 U	420 U	380 U
p-Cresol	330	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Pentachlorophenol	800	ug/kg	4,500,000 U [5,700,000 U]	2,000 U	2,000 U	2,600 U	270,000 U	1,900 U	2,000 U	1,700 U	1,600 U	1,700 U	1,600 U	2,000 U	2,000 U	2,000 UJ	1,800 UJ
Phenanthrene	100,000	ug/kg	**4,600,000 [5,700,000]**	400 U	410 U	5,200	**130,000**	390 U	410 U	340 U	100 J	50 J	210 J	420 U	420 U	300 J	1,700
Phenol	330	ug/kg	940,000 U [1,200,000 U]	400 U	410 U	530 U	55,000 U	390 U	410 U	340 U	340 U	360 U	340 U	420 U	420 U	420 U	380 U
Pyrene	100,000	ug/kg	**2,000,000 [2,600,000]**	400 U	410 U	4,100	75,000	390 U	410 U	340 U	380	640	740	420 U	420 U	470	2,000
Total SVOCs	- -	ug/kg	33,500,000 J [42,600,000 J]	ND	620	47,700 J	1,530,000 J	71 J	ND	ND	4,670 J	4,480 J	3,980 J	145 J	860	4,340 J	12,100 J

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			SB-115	SB-115	SB-116	SB-116	SB-116	SB-116	SB-117	SB-117	SB-117	SB-117	SB-118	SB-118	SB-118	SB-118
Sample Depth (feet bgs):	Unrestricted		23 - 24	33 - 34	5 - 7	14 - 16	20 - 20.5	38 - 39	6 - 8	16 - 18	25.5 - 26	34 - 36	9 - 11	19 - 21	23 - 23.5	43 - 45
Date Collected:	Use SCOs	Units	07/25/06	07/25/06	06/13/06	06/23/06	06/23/06	06/23/06	07/06/06	07/06/06	07/06/06	07/06/06	06/26/06	06/26/06	06/26/06	06/26/06
1,1-Biphenyl	- -	ug/kg	200 J	440 U [440 U]	230 J [220 J]	17,000 J	600 U	400 U	7,800 U	99,000 J	380 U	380 U [410 U]	1,300	23,000	240 J	400 U
1,2,4-Trichlorobenzene	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,100	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	2,400	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1,800	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-oxybis(1-Chloropropane)	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2,4,5-Trichlorophenol	- -	ug/kg	2,100 U	2,100 U [2,100 U]	1,800 UJ [1,800 U]	390,000 U	2,900 U	1,900 U	38,000 U	500,000 U	1,800 U	1,900 U [2,000 U]	4,300 U	98,000 U	8,700 U	2,000 U
2,4,6-Trichlorophenol	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2,4-Dichlorophenol	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2,4-Dimethylphenol	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2,4-Dinitrophenol	- -	ug/kg	2,100 UJ	2,100 UJ [2,100 UJ]	1,800 U [1,800 U]	390,000 U	2,900 U	1,900 U	38,000 U	500,000 UJ	1,800 U	1,900 U [2,000 U]	4,300 U	98,000 U	8,700 U	2,000 U
2,4-Dinitrotoluene	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2,6-Dinitrotoluene	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2-Chloronaphthalene	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2-Chlorophenol	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2-Methylnaphthalene	- -	ug/kg	1,200	440 U [440 U]	1,600 [1,400]	210,000	480 J	400 U	7,800 U	880,000	130 J	380 U [410 U]	2,500	240,000	2,200	400 U
2-Methylphenol	330	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
2-Nitroaniline	- -	ug/kg	2,100 U	2,100 U [2,100 U]	1,800 U [1,800 U]	390,000 U	2,900 U	1,900 U	38,000 U	500,000 U	1,800 U	1,900 U [2,000 U]	4,300 U	98,000 U	8,700 U	2,000 U
2-Nitrophenol	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
3,3-Dichlorobenzidine	- -	ug/kg	850 U	880 U [890 U]	740 U [720 U]	160,000 U	1,200 U	800 U	16,000 U	210,000 U	750 U	770 U [820 U]	1,800 U	40,000 U	3,600 U	800 U
3-Nitroaniline	- -	ug/kg	2,100 U	2,100 U [2,100 U]	1,800 U [1,800 U]	390,000 U	2,900 U	1,900 U	38,000 U	500,000 U	1,800 U	1,900 U [2,000 U]	4,300 U	98,000 U	8,700 U	2,000 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	2,100 UJ	2,100 UJ [2,100 UJ]	1,800 UJ [1,800 UJ]	390,000 U	2,900 UJ	1,900 U	38,000 U	500,000 U	1,800 U	1,900 U [2,000 U]	4,300 U	98,000 U	8,700 U	2,000 U
4-Bromophenyl-phenylether	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
4-Chloro-3-methylphenol	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
4-Chloroaniline	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
4-Chlorophenyl-phenylether	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
4-Nitroaniline	- -	ug/kg	850 U	880 U [890 U]	740 U [720 U]	160,000 U	1,200 U	800 U	16,000 U	210,000 U	750 U	770 U [820 U]	1,800 U	40,000 U	3,600 U	800 U
4-Nitrophenol	- -	ug/kg	2,100 U	2,100 U [2,100 U]	1,800 UJ [1,800 U]	390,000 U	2,900 U	1,900 U	38,000 U	500,000 U	1,800 U	1,900 U [2,000 U]	4,300 U	98,000 U	8,700 U	2,000 U
Acenaphthene	20,000	ug/kg	420 J	440 U [440 U]	280 J [340 J]	**23,000 J**	390 J	400 U	11,000	**440,000**	230 J	380 U [410 U]	650 J	**95,000**	2,500	400 U
Acenaphthylene	100,000	ug/kg	420 U	440 U [440 U]	2,700 [2,700]	17,000 J	600 U	400 U	17,000	49,000 J	270 J	88 J [55 J]	2,000	24,000	950 J	400 U
Acetophenone	- -	ug/kg	420 U	440 U [440 U]	330 J [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Anthracene	100,000	ug/kg	420 U	440 U [440 U]	830 [940]	20,000 J	600 U	400 U	13,000	**170,000**	290 J	380 U [410 U]	1,800	57,000	2,300	400 U
Atrazine	- -	ug/kg	420 U	440 U [440 U]	370 UJ [360 U]	81,000 U	600 U	400 UJ	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Benzaldehyde	- -	ug/kg	420 UJ	440 UJ [440 UJ]	290 J [360 UJ]	81,000 UJ	600 UJ	400 UJ	7,800 UJ	100,000 UJ	380 UJ	380 UJ [410 UJ]	890 UJ	20,000 UJ	1,800 UJ	400 UJ
Benzo(a)anthracene	1,000	ug/kg	420 U	440 U [440 U]	**1,000 [1,200]**	**15,000 J**	600 U	400 U	**26,000**	**160,000**	90 J	380 U [410 U]	**3,000**	**42,000**	800 J	400 U
Benzo(a)pyrene	1,000	ug/kg	420 U	440 U [440 U]	**2,100 [2,300 J]**	**11,000 J**	600 U	400 U	**22,000**	**110,000**	49 J	380 U [410 U]	**3,700**	**26,000**	320 J	400 U
Benzo(b)fluoranthene	1,000	ug/kg	420 U	440 U [440 U]	**1,000 [2,200 J]**	81,000 U	600 U	400 U	**11,000**	**46,000 J**	380 U	380 U [410 U]	**1,800**	**11,000 J**	1,800 U	400 U
Benzo(g,h,i)perylene	100,000	ug/kg	420 U	440 U [440 U]	3,000 [1,800 J]	81,000 U	600 U	400 U	15,000	41,000 J	380 U	380 U [410 U]	3,300	9,700 J	1,800 U	400 U

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			**SB-115**	**SB-115**	**SB-116**	**SB-116**	**SB-116**	**SB-116**	**SB-117**	**SB-117**	**SB-117**	**SB-117**	**SB-118**	**SB-118**	**SB-118**	**SB-118**
Sample Depth (feet bgs):	**Unrestricted**		**23 - 24**	**33 - 34**	**5 - 7**	**14 - 16**	**20 - 20.5**	**38 - 39**	**6 - 8**	**16 - 18**	**25.5 - 26**	**34 - 36**	**9 - 11**	**19 - 21**	**23 - 23.5**	**43 - 45**
Date Collected:	**Use SCOs**	**Units**	**07/25/06**	**07/25/06**	**06/13/06**	**06/23/06**	**06/23/06**	**06/23/06**	**07/06/06**	**07/06/06**	**07/06/06**	**07/06/06**	**06/26/06**	**06/26/06**	**06/26/06**	**06/26/06**
Benzo(k)fluoranthene	800	ug/kg	420 U	440 U [440 U]	**1,400 [700 J]**	81,000 U	600 U	400 U	**13,000**	**65,000 J**	380 U	380 U [410 U]	**2,100**	**15,000 J**	230 J	400 U
Benzyl alcohol	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
bis(2-Chloroethyl)ether	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	420 U	440 U [440 U]	440 U [530 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	240 J	110 J [150 J]	5,400 J	20,000 UJ	1,800 UJ	400 U
Butylbenzylphthalate	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Caprolatam	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Carbazole	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Chrysene	1,000	ug/kg	420 U	440 U [440 U]	**1,500 [1,500]**	**13,000 J**	600 U	400 U	**26,000**	**150,000**	110 J	380 U [410 U]	**2,700**	**41,000**	1,000 J	400 U
Dibenz(a,h)anthracene	330	ug/kg	420 U	440 U [440 U]	**640 [420 J]**	81,000 U	600 U	400 U	**3,000 J**	100,000 U	380 U	380 U [410 U]	**490 J**	**2,600 J**	1,800 U	400 U
Dibenzofuran	7,000	ug/kg	420 U	440 U [440 U]	370 U [99 J]	81,000 U	600 U	400 U	7,800 U	**23,000 J**	380 U	380 U [410 U]	150 J	**7,500 J**	1,800 U	400 U
Diethylphthalate	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Dimethylphthalate	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Di-n-butylphthalate	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Di-n-octyl phthalate	- -	ug/kg	420 U	440 U [440 U]	370 U [85 J]	81,000 U	600 UJ	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	5,700	20,000 U	1,800 U	400 U
Fluoranthene	100,000	ug/kg	420 U	440 U [440 U]	950 [1,100]	20,000 J	600 U	400 U	36,000	**240,000**	100 J	380 U [410 U]	2,900	65,000	2,100	400 U
Fluorene	30,000	ug/kg	420 U	440 U [440 U]	390 [520]	26,000 J	120 J	400 U	7,500 J	**260,000**	100 J	380 U [410 U]	870 J	**75,000**	1,100 J	400 U
Hexachlorobenzene	330	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Hexachlorobutadiene	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 UJ	400 U
Hexachlorocyclopentadiene	- -	ug/kg	420 U	440 U [440 U]	370 U [360 UJ]	81,000 UJ	600 UJ	400 UJ	7,800 UJ	100,000 UJ	380 UJ	380 UJ [410 UJ]	890 UJ	20,000 UJ	1,800 U	400 UJ
Hexachloroethane	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	420 U	440 U [440 U]	**2,400 [1,700 J]**	81,000 U	600 U	400 U	**12,000**	**40,000 J**	380 U	380 U [410 U]	**2,300**	**8,800 J**	1,800 U	400 U
Isophorone	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Naphthalene	12,000	ug/kg	1,500	130 J [440 U]	2,500 [2,000]	**760,000**	930 U	400 U	1,400 J	**1,600,000**	170 J	82 J [90 J]	4,100	**270,000**	1,100 J	400 U
Nitrobenzene	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
N-Nitroso-di-n-propylamine	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
N-Nitrosodiphenylamine	- -	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	790 J	400 U
p-Cresol	330	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	400 U	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Pentachlorophenol	800	ug/kg	2,100 UJ	2,100 UJ [2,100 UJ]	1,800 U [1,800 U]	390,000 U	2,900 U	1,900 U	38,000 U	500,000 U	1,800 U	1,900 U [2,000 U]	4,300 U	98,000 U	8,700 U	2,000 U
Phenanthrene	100,000	ug/kg	420 U	440 U [440 U]	1,400 [1,200]	74,000 J	420 J	72 J	17,000	**780,000**	310 J	380 U [55 J]	4,100	**240,000**	18,000	400 U
Phenol	330	ug/kg	420 U	440 U [440 U]	370 U [360 U]	81,000 U	600 U	140 J	7,800 U	100,000 U	380 U	380 U [410 U]	890 U	20,000 U	1,800 U	400 U
Pyrene	100,000	ug/kg	420 U	440 U [440 U]	2,300 J [1,700]	41,000 J	600 U	400 U	65,000	**400,000**	170 J	380 U [410 U]	8,200	**110,000**	2,600	400 U
Total SVOCs	- -	ug/kg	3,320 J	130 J [ND]	26,800 J [24,100 J]	1,250,000 J	1,410 J	212 J	296,000 J	5,550,000 J	2,260 J	280 J [350 J]	59,100 J	1,360,000 J	36,200 J	ND

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			SB-119	SB-119	SB-119	SB-119	SB-120	SB-120	SB-120	SB-120	SB-122	SB-122	SB-122	SB-122	SB-123	SB-123
Sample Depth (feet bgs):	**Unrestricted**		**7 - 9**	**11 - 13**	**17 - 19**	**37 - 39**	**5 - 7**	**11 - 13**	**17 - 17.5**	**33 - 35**	**9 - 10**	**13 - 14**	**20 - 20.5**	**39 - 40**	**5 - 7**	**13 - 15**
Date Collected:	**Use SCOs**	**Units**	**06/13/06**	**06/13/06**	**06/13/06**	**06/14/06**	**06/30/06**	**06/30/06**	**06/30/06**	**06/30/06**	**07/27/06**	**07/27/06**	**07/27/06**	**07/27/06**	**06/09/06**	**06/09/06**
1,1-Biphenyl	- -	ug/kg	13,000 J	610 J	140 J	420 U	450 U [440 U]	73 J	440 U	430 U	9,100 U	11,000 J	430 U [430 UJ]	380 U	100 J [63 J]	750 U
1,2,4-Trichlorobenzene	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,100	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	2,400	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1,800	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-oxybis(1-Chloropropane)	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
2,4,5-Trichlorophenol	- -	ug/kg	220,000 U	20,000 U	1,900 UJ	2,100 UJ	2,200 U [2,200 U]	2,000 U	2,100 U	2,100 U	44,000 UJ	250,000 UJ	2,100 UJ [2,100 UJ]	1,900 UJ	3,800 U [2,400 U]	3,700 UJ
2,4,6-Trichlorophenol	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 UJ
2,4-Dichlorophenol	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
2,4-Dimethylphenol	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
2,4-Dinitrophenol	- -	ug/kg	220,000 U	20,000 U	1,900 U	2,100 U	2,200 U [2,200 U]	2,000 U	2,100 U	2,100 U	44,000 UJ	250,000 UJ	2,100 UJ [2,100 UJ]	1,900 UJ	3,800 UJ [2,400 UJ]	3,700 UJ
2,4-Dinitrotoluene	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
2,6-Dinitrotoluene	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 UJ	52,000 UJ	430 UJ [430 UJ]	380 UJ	790 U [490 U]	750 UJ
2-Chloronaphthalene	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 UJ]	380 U	790 U [490 U]	750 UJ
2-Chlorophenol	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
2-Methylnaphthalene	- -	ug/kg	120,000	7,900	1,100	420 U	450 U [81 J]	150 J	440 U	430 U	2,300 J	72,000	430 U [430 U]	380 U	620 J [390 J]	750 U
2-Methylphenol	330	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 UJ
2-Nitroaniline	- -	ug/kg	220,000 U	20,000 U	1,900 U	2,100 U	2,200 U [2,200 U]	2,000 U	2,100 U	2,100 U	44,000 U	250,000 U	2,100 U [2,100 U]	1,900 U	3,800 U [2,400 U]	3,700 U
2-Nitrophenol	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
3,3-Dichlorobenzidine	- -	ug/kg	92,000 U	8,100 U	780 U	850 U	910 U [890 U]	840 U	880 U	860 U	18,000 U	100,000 U	850 U [860 U]	770 U	1,600 U [970 U]	1,500 U
3-Nitroaniline	- -	ug/kg	220,000 U	20,000 U	1,900 U	2,100 U	2,200 U [2,200 U]	2,000 U	2,100 U	2,100 U	44,000 U	250,000 U	2,100 U [2,100 U]	1,900 U	3,800 U [2,400 U]	3,700 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	220,000 U	20,000 U	1,900 UJ	2,100 UJ	2,200 U [2,200 U]	2,000 U	2,100 U	2,100 U	44,000 UJ	250,000 UJ	2,100 UJ [2,100 UJ]	1,900 UJ	3,800 UJ [2,400 UJ]	3,700 U
4-Bromophenyl-phenylether	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
4-Chloro-3-methylphenol	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 UJ [490 U]	750 U
4-Chloroaniline	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
4-Chlorophenyl-phenylether	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
4-Nitroaniline	- -	ug/kg	92,000 U	8,100 U	780 U	850 U	910 U [890 U]	840 U	880 U	860 U	18,000 U	100,000 U	850 U [860 U]	770 U	1,600 U [970 U]	1,500 U
4-Nitrophenol	- -	ug/kg	220,000 U	20,000 U	1,900 UJ	2,100 UJ	2,200 U [2,200 U]	2,000 U	2,100 U	2,100 U	44,000 U	250,000 U	2,100 U [2,100 U]	1,900 U	R [2,400 U]	3,700 UJ
Acenaphthene	20,000	ug/kg	**39,000 J**	2,600 J	410	420 U	450 U [440 U]	270 J	440 U	430 U	5,900 J	**49,000 J**	430 U [430 U]	380 U	340 J [160 J]	150 J
Acenaphthylene	100,000	ug/kg	13,000 J	590 J	130 J	420 U	85 J [150 J]	64 J	440 U	430 U	3,400 J	22,000 J	430 U [430 U]	380 U	380 J [160 J]	210 J
Acetophenone	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 UJ]	380 U	790 U [490 U]	750 U
Anthracene	100,000	ug/kg	15,000 J	730 J	280 J	420 U	450 U [96 J]	100 J	440 U	430 U	15,000	**110,000**	430 U [430 UJ]	380 U	850 [430 J]	1,000
Atrazine	- -	ug/kg	46,000 U	4,100 U	390 UJ	420 UJ	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Benzaldehyde	- -	ug/kg	46,000 U	4,100 U	200 J	420 UJ	450 UJ [79 J]	170 J	440 UJ	430 UJ	3,800 J	19,000 J	430 UJ [430 UJ]	380 UJ	790 UJ [490 UJ]	750 UJ
Benzo(a)anthracene	1,000	ug/kg	**12,000 J**	620 J	210 J	420 U	180 J [350 J]	130 J	440 U	430 U	**13,000**	**98,000**	430 U [430 U]	380 U	**2,800 [1,200]**	**2,500**
Benzo(a)pyrene	1,000	ug/kg	**11,000 J**	4,100 U	160 J	420 U	210 J [390 J]	140 J	440 U	430 U	**7,600 J**	**48,000 J**	430 UJ [430 UJ]	380 UJ	**4,200 J [1,600 J]**	**2,100**
Benzo(b)fluoranthene	1,000	ug/kg	46,000 U	4,100 U	390 U	420 U	190 J [350 J]	420 U	440 U	430 U	**5,800 J**	**32,000 J**	430 U [430 U]	380 U	**3,100 J [1,100 J]**	**1,500**
Benzo(g,h,i)perylene	100,000	ug/kg	8,100 J	4,100 U	110 J	420 U	160 J [370 J]	120 J	440 U	430 U	4,300 J	32,000 J	430 U [430 U]	380 U	2,700 J [1,800 J]	1,300

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			**SB-119**	**SB-119**	**SB-119**	**SB-119**	**SB-120**	**SB-120**	**SB-120**	**SB-120**	**SB-122**	**SB-122**	**SB-122**	**SB-122**	**SB-123**	**SB-123**
Sample Depth (feet bgs):	**Unrestricted**		**7 - 9**	**11 - 13**	**17 - 19**	**37 - 39**	**5 - 7**	**11 - 13**	**17 - 17.5**	**33 - 35**	**9 - 10**	**13 - 14**	**20 - 20.5**	**39 - 40**	**5 - 7**	**13 - 15**
Date Collected:	**Use SCOs**	**Units**	**06/13/06**	**06/13/06**	**06/13/06**	**06/14/06**	**06/30/06**	**06/30/06**	**06/30/06**	**06/30/06**	**07/27/06**	**07/27/06**	**07/27/06**	**07/27/06**	**06/09/06**	**06/09/06**
Benzo(k)fluoranthene	800	ug/kg	46,000 U	4,100 U	71 J	420 U	180 J [300 J]	120 J	440 U	430 U	**5,700 J**	**37,000 J**	430 U [430 U]	380 U	**3,000 J [1,200 J]**	**1,200**
Benzyl alcohol	- -	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
bis(2-Chloroethyl)ether	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 UJ [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
bis(2-Ethylhexyl)phthalate	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	220 J [240 J]	420 U	440 U	430 U	9,100 UJ	52,000 UJ	430 UJ [430 UJ]	380 UJ	910 U [700 U]	750 U
Butylbenzylphthalate	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 UJ
Caprolatam	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Carbazole	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	1,500 J	11,000 J	430 U [430 U]	380 U	310 J [150 J]	750 U
Chrysene	1,000	ug/kg	**12,000 J**	550 J	230 J	420 U	200 J [380 J]	160 J	440 U	430 U	**14,000**	**100,000**	430 U [430 U]	380 U	**2,700 [1,100]**	**2,200**
Dibenz(a,h)anthracene	330	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [73 J]	420 U	440 U	430 U	9,100 UJ	**14,000 J**	430 UJ [430 UJ]	380 UJ	**1,000 J [590 J]**	180 J
Dibenzofuran	7,000	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	3,700 J	**28,000 J**	430 U [430 U]	380 U	220 J [130 J]	750 U
Diethylphthalate	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Dimethylphthalate	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Di-n-butylphthalate	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Di-n-octyl phthalate	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 UJ	52,000 UJ	430 UJ [430 UJ]	380 UJ	230 J [490 U]	750 UJ
Fluoranthene	100,000	ug/kg	18,000 J	960 J	370 J	420 U	310 J [560]	220 J	440 U	430 U	27,000	**180,000**	430 U [430 U]	380 U	4,100 J [1,900 J]	5,400
Fluorene	30,000	ug/kg	18,000 J	850 J	280 J	420 U	450 U [440 U]	80 J	440 U	430 U	6,800 J	**51,000 J**	430 U [430 U]	380 U	370 J [190 J]	290 J
Hexachlorobenzene	330	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Hexachlorobutadiene	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Hexachlorocyclopentadiene	- -	ug/kg	46,000 UJ	4,100 UJ	390 U	420 U	450 UJ [440 UJ]	420 UJ	440 UJ	430 UJ	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 UJ
Hexachloroethane	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	**7,100 J**	4,100 U	78 J	420 U	170 J [350 J]	120 J	440 U	430 U	**4,800 J**	**35,000 J**	430 UJ [430 UJ]	380 UJ	**2,800 J [1,700 J]**	**1,300**
Isophorone	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Naphthalene	12,000	ug/kg	**330,000**	**32,000**	2,500	210 J	190 J [270 J]	960	140 J	430 U	9,100 U	**43,000 J**	430 U [430 UJ]	380 U	500 J [340 J]	370 J
Nitrobenzene	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
N-Nitroso-di-n-propylamine	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
N-Nitrosodiphenylamine	- -	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
p-Cresol	330	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Pentachlorophenol	800	ug/kg	220,000 U	20,000 U	1,900 U	2,100 U	2,200 U [2,200 U]	2,000 U	2,100 U	2,100 U	44,000 U	250,000 U	2,100 U [2,100 U]	1,900 U	3,800 UJ [2,400 U]	3,700 U
Phenanthrene	100,000	ug/kg	47,000	2,800 J	1,200	420 U	220 J [350 J]	420	54 J	430 U	89,000	**700,000**	430 U [430 U]	380 U	3,200 [1,700]	3,200
Phenol	330	ug/kg	46,000 U	4,100 U	390 U	420 U	450 U [440 U]	420 U	440 U	430 U	9,100 U	52,000 U	430 U [430 U]	380 U	790 U [490 U]	750 U
Pyrene	100,000	ug/kg	24,000 J	1,300 J	610 J	420 UJ	380 J [700]	390 J	120 J	430 U	23,000	**180,000**	430 U [430 U]	380 U	3,200 J [2,000]	5,600
Total SVOCs	- -	ug/kg	687,000 J	51,500 J	8,080 J	210 J	2,700 J [5,090 J]	3,690 J	314 J	ND	237,000 J	1,870,000 J	ND [ND]	ND	36,700 J [17,900 J]	28,500 J

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			SB-123	SB-123	SB-124	SB-124	SB-124	SB-124	SB-125	SB-125	SB-125	SB-125
Sample Depth (feet bgs):	Unrestricted		19.5 - 20	37 - 39	7 - 9	15 - 17	27 - 27.5	37 - 39	6 - 7	17 - 18	30 - 30.5	42 - 43
Date Collected:	Use SCOs	Units	06/09/06	06/12/06	06/02/06	06/02/06	06/02/06	06/06/06	07/11/06	07/11/06	07/11/06	07/11/06
1,1-Biphenyl	- -	ug/kg	410 U	410 U	NA	NA	NA	400 U	420 U	400 U	400 U	450 U
1,2,4-Trichlorobenzene	- -	ug/kg	NA	NA	460 U	480 U	380 U	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,100	ug/kg	NA	NA	460 U	480 U	380 U	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	2,400	ug/kg	NA	NA	460 U	480 U	380 U	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1,800	ug/kg	NA	NA	460 U	480 U	380 U	NA	NA	NA	NA	NA
2,2-oxybis(1-Chloropropane)	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
2,4,5-Trichlorophenol	- -	ug/kg	2,000 U	2,000 UJ	2,200 U	2,300 U	1,800 U	1,900 U	2,000 U	1,900 U	2,000 U	2,200 U
2,4,6-Trichlorophenol	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
2,4-Dichlorophenol	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
2,4-Dimethylphenol	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 UJ	400 UJ	400 UJ	450 UJ
2,4-Dinitrophenol	- -	ug/kg	2,000 UJ	2,000 U	2,200 U	2,300 U	1,800 U	1,900 UJ	2,000 U	1,900 U	2,000 U	2,200 U
2,4-Dinitrotoluene	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
2,6-Dinitrotoluene	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
2-Chloronaphthalene	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
2-Chlorophenol	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
2-Methylnaphthalene	- -	ug/kg	410 U	410 U	350 J	460 J	190 J	400 U	420 U	400 U	400 U	450 U
2-Methylphenol	330	ug/kg	410 U	410 U	460 U	240 J	380 U	400 U	420 U	400 U	400 U	450 U
2-Nitroaniline	- -	ug/kg	2,000 U	2,000 U	2,200 U	2,300 U	1,800 U	1,900 U	2,000 U	1,900 U	2,000 U	2,200 U
2-Nitrophenol	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 UJ	400 UJ	400 UJ	450 UJ
3,3-Dichlorobenzidine	- -	ug/kg	830 U	820 U	910 U	960 U	760 U	790 U	840 U	800 U	810 U	900 U
3-Nitroaniline	- -	ug/kg	2,000 U	2,000 U	2,200 U	2,300 U	1,800 U	1,900 U	2,000 U	1,900 U	2,000 U	2,200 U
4,6-Dinitro-2-methylphenol	- -	ug/kg	2,000 UJ	2,000 UJ	2,200 U	2,300 U	1,800 U	1,900 UJ	2,000 U	1,900 U	2,000 U	2,200 U
4-Bromophenyl-phenylether	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
4-Chloro-3-methylphenol	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 UJ	400 UJ	400 UJ	450 UJ
4-Chloroaniline	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
4-Chlorophenyl-phenylether	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
4-Nitroaniline	- -	ug/kg	830 U	820 U	910 U	960 U	760 U	790 U	840 UJ	800 UJ	810 UJ	900 UJ
4-Nitrophenol	- -	ug/kg	2,000 U	2,000 UJ	2,200 U	2,300 U	1,800 U	1,900 U	2,000 UJ	1,900 UJ	2,000 UJ	2,200 UJ
Acenaphthene	20,000	ug/kg	410 U	410 U	190 J	340 J	120 J	400 U	420 U	400 U	400 U	450 U
Acenaphthylene	100,000	ug/kg	410 U	410 U	1,600	1,900	190 J	400 U	420 U	400 U	400 U	450 U
Acetophenone	- -	ug/kg	410 U	410 U	NA	NA	NA	400 U	420 U	400 U	400 U	450 U
Anthracene	100,000	ug/kg	410 U	410 U	1,000	1,300	160 J	400 U	420 U	400 U	400 U	450 U
Atrazine	- -	ug/kg	410 U	410 UJ	NA	NA	NA	400 U	420 U	400 U	400 U	450 U
Benzaldehyde	- -	ug/kg	410 UJ	410 UJ	NA	NA	NA	400 UJ	420 UJ	400 UJ	400 UJ	450 UJ
Benzo(a)anthracene	1,000	ug/kg	410 U	410 U	**2,500**	**2,700**	240 J	400 U	67 J	400 U	400 U	450 U
Benzo(a)pyrene	1,000	ug/kg	410 U	410 U	**3,400 J**	**3,400 J**	280 J	400 U	420 U	400 U	400 U	450 U
Benzo(b)fluoranthene	1,000	ug/kg	410 U	410 U	**3,000 J**	**3,900 J**	260 J	400 U	420 U	400 U	400 U	450 U
Benzo(g,h,i)perylene	100,000	ug/kg	410 U	410 U	2,400 J	2,000 J	180 J	400 U	420 UJ	400 UJ	400 UJ	450 UJ

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Soil Analytical Results - Remedial Investigation - SVOCs

Sample ID:			**SB-123**	**SB-123**	**SB-124**	**SB-124**	**SB-124**	**SB-124**	**SB-125**	**SB-125**	**SB-125**	**SB-125**
Sample Depth (feet bgs):	**Unrestricted**		**19.5 - 20**	**37 - 39**	**7 - 9**	**15 - 17**	**27 - 27.5**	**37 - 39**	**6 - 7**	**17 - 18**	**30 - 30.5**	**42 - 43**
Date Collected:	**Use SCOs**	**Units**	**06/09/06**	**06/12/06**	**06/02/06**	**06/02/06**	**06/02/06**	**06/06/06**	**07/11/06**	**07/11/06**	**07/11/06**	**07/11/06**
Benzo(k)fluoranthene	800	ug/kg	410 U	410 U	**1,200 J**	**1,200 J**	100 J	400 U	73 J	400 U	400 U	450 U
Benzyl alcohol	- -	ug/kg	NA	NA	460 U	480 U	380 U	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
bis(2-Chloroethyl)ether	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 UJ	400 UJ	400 UJ	450 UJ
bis(2-Ethylhexyl)phthalate	- -	ug/kg	1,000 U	410 U	460 U	700 U	790 U	400 U	420 U	400 U	400 U	450 U
Butylbenzylphthalate	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Caprolatam	- -	ug/kg	410 U	410 U	NA	NA	NA	400 U	420 U	400 U	400 U	450 U
Carbazole	- -	ug/kg	410 U	410 U	120 J	170 J	380 U	400 U	420 U	400 U	400 U	450 U
Chrysene	1,000	ug/kg	410 U	410 U	**2,700**	**3,000**	240 J	400 U	93 J	400 U	400 U	450 U
Dibenz(a,h)anthracene	330	ug/kg	410 U	410 U	**680 J**	**550 J**	56 J	400 U	420 U	400 U	400 U	450 U
Dibenzofuran	7,000	ug/kg	410 U	410 U	91 J	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Diethylphthalate	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Dimethylphthalate	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Di-n-butylphthalate	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Di-n-octyl phthalate	- -	ug/kg	410 U	410 U	65 J	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Fluoranthene	100,000	ug/kg	410 U	410 U	2,500	3,400	290 J	400 U	81 J	400 U	400 U	450 U
Fluorene	30,000	ug/kg	410 U	410 U	300 J	380 J	82 J	400 U	420 U	400 U	400 U	450 U
Hexachlorobenzene	330	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Hexachlorobutadiene	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Hexachlorocyclopentadiene	- -	ug/kg	410 U	410 U	460 UJ	480 UJ	380 UJ	400 U	420 UJ	400 UJ	400 UJ	450 UJ
Hexachloroethane	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Indeno(1,2,3-cd)pyrene	500	ug/kg	410 U	410 U	**2,300 J**	**2,000 J**	170 J	400 U	420 UJ	400 UJ	400 UJ	450 UJ
Isophorone	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
Naphthalene	12,000	ug/kg	85 J	410 U	540	690	140 J	400 U	420 U	400 U	400 U	450 U
Nitrobenzene	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
N-Nitroso-di-n-propylamine	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
N-Nitrosodiphenylamine	- -	ug/kg	410 U	410 U	460 U	480 U	380 U	400 U	420 U	400 U	400 U	450 U
p-Cresol	330	ug/kg	410 U	410 U	460 U	**520**	380 U	400 U	420 U	400 U	400 U	450 U
Pentachlorophenol	800	ug/kg	2,000 U	2,000 U	2,200 U	2,300 U	1,800 U	1,900 U	2,000 U	1,900 U	2,000 U	2,200 U
Phenanthrene	100,000	ug/kg	410 U	410 U	1,700	2,500	670	400 U	110 J	400 U	400 U	450 U
Phenol	330	ug/kg	410 U	410 U	460 U	**540 H**	380 U	400 U	420 U	400 U	400 U	450 U
Pyrene	100,000	ug/kg	410 U	410 UJ	3,800	3,900	390	400 U	86 J	400 U	400 U	450 U
Total SVOCs	- -	ug/kg	85 J	ND	30,400 J	35,100 J	3,760 J	ND	510 J	ND	ND	ND

See Notes on Page 11

Table 9

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Subsurface Analytical Results - SVOCs - Remedial Investigation

Notes:

J = indicates an estimated value.

ND = not detected.

R = rejected.

D = compounds analyzed at a dilution.

U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.

UJ = estimated non-detect.

ug/kg = micrograms per kilogram.

bgs = below ground surface.

PQL = practical quantitation limit.

NYCRR = New York State Codes Rules and Regulations.

SCOs = Soil Cleanup Objectives according to 6 NYCRR Subpart 375-6 *Remedial Program Soil Cleanup Objectives*.

- - = no SCO exists for the specified compound.

VOCs = volatile organic compounds.

▨ Bolded and shaded values exceed the Unrestricted Use SCOs.

Table 10a

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Groundwater Analytical Results - VOCs - Site Characterization

Sample ID:	**TOGS 1.1.1**		**MW-2**	**MW-4**	**MW-5**
Date Collected:	**Stds and GVs**	**Units**	**10/12/04**	**10/12/04**	**10/12/04**
1,1,1-Trichloroethane	5	ug/L	0.41 U	0.41 U	0.41 U [0.41 U]
1,1,2,2-Tetrachloroethane	5	ug/L	0.5 U	0.5 U	0.5 U [0.5 U]
1,1,2-Trichloroethane	1	ug/L	0.52 U	0.52 U	0.52 U [0.52 U]
1,1,2-Trichlorotrifluoroethane	5	ug/L	0.69 U	0.69 U	0.69 U [0.69 U]
1,1-Dichloroethane	5	ug/L	0.22 U	0.22 U	0.22 U [0.22 U]
1,1-Dichloroethene	5	ug/L	0.32 U	0.32 U	0.32 U [0.32 U]
1,2,4-Trichlorobenzene	5	ug/L	0.29 U	0.29 U	0.29 U [0.29 U]
1,2-Dibromo-3-Chloropropane	0.04	ug/L	0.94 U	0.94 U	0.94 U [0.94 U]
1,2-Dibromoethane	0.0006	ug/L	0.63 U	0.63 U	0.63 U [0.63 U]
1,2-Dichlorobenzene	3	ug/L	0.37 U	0.37 U	0.37 U [0.37 U]
1,2-Dichloroethane	0.6	ug/L	0.32 U	0.32 U	0.32 U [0.32 U]
1,2-Dichloropropane	1	ug/L	0.63 U	0.63 U	0.63 U [0.63 U]
1,3-Dichlorobenzene	3	ug/L	0.37 U	0.37 U	0.37 U [0.37 U]
1,4-Dichlorobenzene	3	ug/L	0.39 U	0.39 U	0.39 U [0.39 U]
2-Butanone	50 {GV}	ug/L	2.8 U	2.8 U	2.8 U [2.8 U]
2-Hexanone	50 {GV}	ug/L	0.66 U	0.66 U	0.66 U [0.66 U]
4-Methyl-2-Pentanone	- -	ug/L	1.3 U	1.3 U	1.3 U [1.3 U]
Acetone	50 {GV}	ug/L	3.3 U	3.3 U	3.3 U [3.3 U]
Benzene	1	ug/L	**440 D**	**51**	**5.7 [0.24 U]**
Bromodichloromethane	50 {GV}	ug/L	0.35 U	0.35 U	0.35 U [0.35 U]
Bromoform	50 {GV}	ug/L	0.25 U	0.25 U	0.25 U [0.25 U]
Bromomethane	5	ug/L	0.78 U	0.78 U	0.78 U [0.78 U]
Carbon Disulfide	60	ug/L	0.39 U	0.39 U	0.39 U [0.39 U]
Carbon Tetrachloride	5	ug/L	0.47 U	0.47 U	0.47 U [0.47 U]
Chlorobenzene	5	ug/L	0.37 U	0.37 U	0.37 U [0.37 U]
Chloroethane	5	ug/L	0.88 U	0.88 U	0.88 U [0.88 U]
Chloroform	7	ug/L	0.58 U	0.58 U	0.58 U [0.58 U]
Chloromethane	5	ug/L	0.68 U	0.68 U	0.68 U [0.68 U]
cis-1,2-Dichloroethene	5	ug/L	0.77 U	0.77 U	0.77 U [0.77 U]
cis-1,3-Dichloropropene	0.4	ug/L	0.15 U	0.15 U	0.15 U [0.15 U]
Cyclohexane	- -	ug/L	0.37 U	8.3	0.37 U [0.37 U]
Dibromochloromethane	50 {GV}	ug/L	0.38 U	0.38 U	0.38 U [0.38 U]
Dichlorodifluoromethane	5	ug/L	0.33 U	0.33 U	0.33 U [0.33 U]
Ethyl Benzene	5	ug/L	**910 D**	0.81 J	0.41 U [0.41 U]
Isopropylbenzene	5	ug/L	**94**	2.1 J	0.33 U [0.33 U]
m/p-Xylenes	- -	ug/L	200	2.9 J	3.1 J [0.96 U]
Methyl Acetate	- -	ug/L	0.83 U	0.83 U	0.83 U [0.83 U]
Methyl Tertiary-Butyl Ether	10	ug/L	0.36 U	0.36 U	0.36 U [0.36 U]
Methylcyclohexane	- -	ug/L	0.58 U	5.2	0.58 U [0.58 U]
Methylene Chloride	5	ug/L	0.62 U	0.62 U	0.62 U [0.62 U]
o-Xylene	5	ug/L	**300 D**	1.6 J	2.1 J [0.37 U]
Styrene	5	ug/L	0.34 U	0.34 U	0.34 U [0.34 U]
trans-1,3-Dichloropropene	0.4	ug/L	0.42 U	0.42 U	0.42 U [0.42 U]
Tetrachloroethene	5	ug/L	0.33 U	0.33 U	0.33 U [0.33 U]
Toluene	5	ug/L	**66**	3.3 J	1.3 J [0.39 U]
trans-1,2-Dichloroethene	5	ug/L	0.51 U	0.51 U	0.51 U [0.51 U]
Trichloroethene	5	ug/L	0.67 U	0.67 U	0.67 U [0.67 U]
Trichlorofluoromethane	5	ug/L	0.58 U	0.58 U	0.58 U [0.58 U]
Vinyl Chloride	2	ug/L	0.27 U	0.27 U	0.27 U [0.27 U]
Total VOCs	- -	ug/L	2,010	75.2 J	12.2 J [ND]

See notes on Page 2

Table 10a

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Groundwater Analytical Results - VOCs - Site Characterization

Notes:

{GV} = indicates a guidance value.
D = compounds analyzed at a dilution.
J = indicates an estimated value.
ND = not detected.
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
ug/L = micrograms per liter.
- - = no criterion exists for the specified compound.
PQL = practical quantitation limit.
▨ Bolded and shaded values exceed the New York State Technical and Operational Guidance Class GA Standards or Guidance Values, June 1998.
NYSDEC = New York State Department of Environmental Conservation.

Table 10b

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Groundwater Analytical Results - VOCs - Remedial Investigation

Sample ID: Date Collected:	TOGS 1.1.1 Stds and GVs	Units	MW-2 08/31/06	MW-4 08/28/06	MW-107A 08/31/06	MW-107B 08/31/06	MW-111A 08/31/06	MW-115A 08/30/06	MW-121A 08/29/06	MW-121B 08/29/06	MW-122A 08/28/06	MW-122B 08/28/06	MW-125A 08/29/06	MW-125B 08/29/06
1,1,1-Trichloroethane	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichlorotrifluoroethane	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	5	ug/L	**150**	0.34 J	0.33 J	**65**	0.15 J	0.93 J	1 U	1 U	0.19 J	1 U	1 U	1 U
1,2-Dibromo-3-Chloropropane	0.04	ug/L	10 U	4 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-Dibromoethane	0.0006	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.6	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	5	ug/L	3.7 J	2 U	0.15 J	**12**	1 U	0.26 J	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	3	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	3	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	50 {GV}	ug/L	4.2 J	10 UJ	5 UJ	25 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
2-Hexanone	50 {GV}	ug/L	25 UJ	10 UJ	5 UJ	25 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
4-Methyl-2-Pentanone	- -	ug/L	25 UJ	10 UJ	5 UJ	25 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Acetone	50 {GV}	ug/L	25 UJ	10 UJ	5 UJ	25 UJ	5 UJ	5 UJ	5 UJ	5 UJ	6 J	5 U	5 UJ	5 UJ
Benzene	1	ug/L	**270**	**110**	0.15 J	**360**	0.3 J	**97**	1 U	1 U	**1.4**	**1.1**	1 U	1 U
Bromodichloromethane	50 {GV}	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	50 {GV}	ug/L	5 UJ	2 UJ	1 UJ	5 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Bromomethane	5	ug/L	15 U	6 UJ	3 U	15 U	3 U	3 UJ	3 UJ	3 U	3 UJ	3 UJ	3 UJ	3 UJ
Carbon Disulfide	60	ug/L	5 U	2 U	1 U	5 U	1 U	0.5 J	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	5	ug/L	15 UJ	6 U	3 UJ	15 UJ	3 UJ	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Chloroform	7	ug/L	5 U	2 U	0.3 J	5 U	1 U	1 U	1 U	0.16 J	1 U	0.25 J	1 U	0.18 J
Chloromethane	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	0.4	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	- -	ug/L	5 U	5.5	1 U	5 U	1.6	3	1 U	1 U	1 U	2.4	1 U	1 U
Dibromochloromethane	50 {GV}	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromomethane	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane	5	ug/L	5 U	2 UJ	1 UJ	5 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Ethyl Benzene	5	ug/L	**420**	2 U	0.31 J	**190**	1 U	1.6	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	5	ug/L	**49**	2.3	1 U	**28**	3.9	**15**	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Acetate	- -	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	0.37 J	1 U	0.21 J	0.21 J
Methyl Tertiary-Butyl Ether	10	ug/L	5 U	2 U	1 U	5 U	0.14 J	1 U	1 U	1 U	1 U	0.29 J	0.36 J	1 U
Methylcyclohexane	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	ug/L	10 U	4 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Styrene	5	ug/L	5 U	2 U	1 U	1.9 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	0.4	ug/L	5 UJ	2 UJ	1 UJ	5 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Tetrachloroethene	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	5	ug/L	**10**	0.46 J	1 U	**75**	1 U	2.2	1 U	1 U	0.78 J	1 U	1 U	1 U
trans-1,2-Dichloroethene	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane	5	ug/L	5 UJ	2 U	1 U	5 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	2	ug/L	5 U	2 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes (total)	5	ug/L	**120**	1.7 J	0.42 J	**150**	0.52 J	**7.1**	1 U	1 U	1 U	1 U	1 U	1 U
Total VOCs	- -	ug/L	1,030 J	120 J	1.66 J	882 J	6.61 J	128 J	ND	0.16 J	8.74 J	4.04 J	0.57 J	0.39 J

See Notes on Page 2

Table 10b

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Groundwater Analytical Results - VOCs - Remedial Investigation

Notes:

GV = indicates a guidance value.
D = compounds analyzed at a dilution.
J = indicates an estimated value.
ND = not detected.
NA = not analyzed.
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
UJ = estimated non-detect.
R = rejected.
ug/L = micrograms per liter.
- - = no criterion exists for the specified compound.
PQL = practical quantitation limit.
▒ Bolded and shaded values exceed the New York State Technical and Operational Guidance Class GA Standards or Guidance Values, June 1998.
NYSDEC = New York State Department of Environmental Conservation.

Table 11a

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Groundwater Analytical Results - SVOCs - Site Characterization

Sample ID:			**MW-2**	**MW-4**	**MW-5**
Date Collected:	**NYSDEC_GA**	**Units**	**10/12/04**	**10/12/04**	**10/12/04**
1,1-Biphenyl	5	ug/L	**19**	0.27 U	0.27 U [0.27 U]
2,2-oxybis(1-Chloropropane)	5	ug/L	0.83 U	0.85 U	0.84 U [0.83 U]
2,4,5-Trichlorophenol	1	ug/L	0.58 U	0.59 U	0.59 U [0.58 U]
2,4,6-Trichlorophenol	1	ug/L	0.28 U	0.29 U	0.29 U [0.28 U]
2,4-Dichlorophenol	1	ug/L	0.29 U	0.29 U	0.29 U [0.29 U]
2,4-Dimethylphenol	1	ug/L	0.46 U	0.47 U	0.47 U [0.46 U]
2,4-Dinitrophenol	1	ug/L	0.19 U	0.19 U	0.19 U [0.19 U]
2,4-Dinitrotoluene	5	ug/L	0.34 U	0.34 U	0.34 U [0.34 U]
2,6-Dinitrotoluene	5	ug/L	0.41 U	0.42 U	0.42 U [0.41 U]
2-Chloronaphthalene	10 {G}	ug/L	0.39 U	0.39 U	0.39 U [0.39 U]
2-Chlorophenol	1	ug/L	0.73 U	0.74 U	0.73 U [0.73 U]
2-Methylnaphthalene	- -	ug/L	150 D	0.51 U	0.5 U [0.5 U]
2-Methylphenol	1	ug/L	1.1 U	1.2 U	1.1 U [1.1 U]
2-Nitroaniline	5	ug/L	0.3 U	0.3 U	0.3 U [0.3 U]
2-Nitrophenol	1	ug/L	0.27 U	0.27 U	0.27 U [0.27 U]
3,3-Dichlorobenzidine	5	ug/L	1.6 U	1.6 U	1.6 U [1.6 U]
3+4-Methylphenols	- -	ug/L	1.1 U	1.1 U	1.1 U [1.1 U]
3-Nitroaniline	5	ug/L	1 U	1.1 U	1.1 U [1.7 J]
4,6-Dinitro-2-methylphenol	1	ug/L	1.4 U	1.5 U	1.5 U [1.4 U]
4-Bromophenyl-phenylether	- -	ug/L	0.17 U	0.17 U	0.17 U [0.17 U]
4-Chloro-3-methylphenol	1	ug/L	0.3 U	0.31 U	0.3 U [0.3 U]
4-Chloroaniline	5	ug/L	4.1 U	4.2 U	4.1 U [4.1 U]
4-Chlorophenyl-phenylether	- -	ug/L	0.36 U	0.37 U	0.37 U [0.36 U]
4-Nitroaniline	5	ug/L	0.83 U	0.85 U	0.84 U [0.83 U]
4-Nitrophenol	1	ug/L	0.94 U	0.96 U	0.95 U [0.94 U]
Acenaphthene	20 {G}	ug/L	**26**	0.24 U	**8.6 J [21]**
Acenaphthylene	- -	ug/L	1.4 J	0.44 U	1.8 J [3.6 J]
Acetophenone	- -	ug/L	0.55 U	0.56 U	0.56 U [0.55 U]
Anthracene	50 {G}	ug/L	1.9 J	0.16 U	1.8 J [30]
Atrazine	7.5	ug/L	0.48 U	0.49 U	0.48 U [0.48 U]
Benzaldehyde	- -	ug/L	1.7 U	1.8 U	1.7 U [1.7 U]
Benzo(a)anthracene	0.002 {G}	ug/L	0.22 U	0.23 U	**3.6 J [16]**
Benzo(a)pyrene	*	ug/L	0.45 U	0.46 U	**0.45 U [7.9 J]**
Benzo(b)fluoranthene	0.002 {G}	ug/L	0.23 U	0.24 U	**1.9 J [7.2 J]**
Benzo(g,h,i)perylene	- -	ug/L	0.42 U	0.43 U	0.43 U [0.42 U]
Benzo(k)fluoranthene	0.002 {G}	ug/L	0.38 U	0.39 U	**0.39 U [4.2 J]**
bis(2-Chloroethoxy)methane	5	ug/L	0.44 U	0.45 U	0.45 U [0.44 U]
bis(2-Chloroethyl)ether	1	ug/L	0.33 U	0.33 U	0.33 U [0.33 U]
bis(2-Ethylhexyl)phthalate	5	ug/L	0.34 U	0.35 U	0.35 U [0.34 U]
Butylbenzylphthalate	50 {G}	ug/L	0.3 U	0.3 U	0.3 U [0.3 U]
Caprolatam	- -	ug/L	0.51 U	0.52 U	0.51 U [0.51 U]
Carbazole	- -	ug/L	1.6 J	0.31 U	0.31 U [2.9 J]
Chrysene	0.002 {G}	ug/L	0.38 U	0.39 U	**3.5 J [14]**
Dibenz(a,h)anthracene	- -	ug/L	0.29 U	0.3 U	0.29 U [0.29 U]
Dibenzofuran	- -	ug/L	2.2 J	0.32 U	0.32 U [9.9 J]
Diethylphthalate	50 {G}	ug/L	0.34 U	0.35 U	0.34 U [0.34 U]
Dimethylphthalate	50 {G}	ug/L	0.26 U	0.26 U	0.26 U [0.26 U]
Di-n-butylphthalate	50	ug/L	0.098 U	0.1 U	0.099 U [0.098 U]
Di-n-octyl phthalate	50 {G}	ug/L	0.17 U	0.18 U	0.17 U [0.17 U]
Fluoranthene	50 {G}	ug/L	0.21 U	0.21 U	**12 [51]**
Fluorene	50 {G}	ug/L	15	0.18 U	0.17 U [21]
Hexachlorobenzene	0.04	ug/L	0.23 U	0.24 U	0.23 U [0.23 U]
Hexachlorobutadiene	0.5	ug/L	0.38 U	0.38 U	0.38 U [0.38 U]
Hexachlorocyclopentadiene	5	ug/L	0.45 U	0.46 U	0.46 U [0.45 U]
Hexachloroethane	5	ug/L	0.91 U	0.93 U	0.92 U [0.91 U]
Indeno(1,2,3-cd)pyrene	0.002 {G}	ug/L	0.29 U	0.3 U	**0.29 U [3.1 J]**
Isophorone	50 {G}	ug/L	0.48 U	0.49 U	0.48 U [0.48 U]
Naphthalene	10 {G}	ug/L	**790 D**	0.27 U	0.27 U [0.27 U]
Nitrobenzene	0.4	ug/L	0.38 U	0.38 U	0.38 U [0.38 U]
N-Nitroso-di-n-propylamine	- -	ug/L	0.77 U	0.78 U	0.77 U [0.77 U]
N-Nitrosodiphenylamine	50 {G}	ug/L	0.28 U	0.29 U	0.28 U [0.28 U]
Pentachlorophenol	1	ug/L	0.39 U	0.4 U	0.39 U [0.39 U]
Phenanthrene	50 {G}	ug/L	12	0.28 U	**1.5 J [67]**
Phenol	1	ug/L	0.43 U	0.44 U	0.43 U [0.43 U]
Pyrene	50 {G}	ug/L	0.25 U	0.25 U	**14 [68]**
Total SVOCs	- -	ug/L	1,020 J	ND	48.7 J [329 J]

See Notes on Page 2.

Table 11a

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Groundwater Analytical Results - SVOCs - Remedial Investigation

Notes:

{G} = indicates a guidance value.
D = compounds analyzed at a dilution.
J = indicates an estimated value.
ND = not detected
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
ug/L = micrograms per liter.
* = a non-detectable concentration by the approved analytical methods referenced in section 700.3.
\- - = no criterion exists for the specified compound.
PQL = practical quantitation limit.
▨ Bolded and shaded values exceed the New York State Technical and Operational Guidance Class GA Standards or Guidance Values, June 1998.
NYSDEC = New York State Department of Environmental Conservation.

Table 11b

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Interim Site Management Plan

Groundwater Analytical Results - SVOCs - Remedial Investigation

Sample ID:	NYSDEC Stds. & GVs	Units	MW-2	MW-4	MW-107A	MW-107B	MW-111A	MW-115A	MW-121A	MW-121B	MW-122A	MW-122B	MW-125A	MW-125B
Date Collected:			08/31/06	08/28/06	08/31/06	08/31/06	08/31/06	08/30/06	08/29/06	08/29/06	08/28/06	08/28/06	08/29/06	08/29/06
1,1-Biphenyl	5	ug/L	**9 J**	13 UJ	13 U	**11 J**	10 U	10 U	11 UJ	10 UJ	10 UJ	10 UJ	11 UJ	14 UJ
2,2-oxybis(1-Chloropropane)	5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2,4,5-Trichlorophenol	1	ug/L	56 U	66 UJ	63 U	540 U	50 U	50 U	55 UJ	50 UJ	52 UJ	50 UJ	54 UJ	72 UJ
2,4,6-Trichlorophenol	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2,4-Dichlorophenol	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2,4-Dimethylphenol	1	ug/L	1 J	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2,4-Dinitrophenol	1	ug/L	56 UJ	66 UJ	63 UJ	540 U	50 U	50 UJ	55 UJ	50 UJ	52 UJ	50 UJ	54 UJ	72 UJ
2,4-Dinitrotoluene	5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2,6-Dinitrotoluene	5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2-Chloronaphthalene	10 {G}	ug/L	11 U	13 UJ	13 U	110 U	10 U	10 U	11 UJ	10 UJ	10 UJ	10 UJ	11 UJ	14 UJ
2-Chlorophenol	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2-Methylnaphthalene	- -	ug/L	11 U	13 U	2 J	42 J	10 U	10 U	11 U	10 U	2 J	10 U	11 U	14 U
2-Methylphenol	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
2-Nitroaniline	5	ug/L	56 U	66 U	63 U	540 U	50 U	50 U	55 U	50 U	52 U	50 U	54 U	72 U
2-Nitrophenol	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
3,3-Dichlorobenzidine	5	ug/L	22 U	26 U	25 U	220 U	20 U	20 U	22 U	20 U	21 U	20 U	22 U	29 U
3-Nitroaniline	5	ug/L	56 U	66 U	63 U	540 U	50 U	50 U	55 U	50 U	52 U	50 U	54 U	72 U
4,6-Dinitro-2-methylphenol	1	ug/L	56 U	66 UJ	63 U	540 U	50 U	50 U	55 UJ	50 UJ	52 UJ	50 UJ	54 UJ	72 UJ
4-Bromophenyl-phenylether	- -	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
4-Chloro-3-methylphenol	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
4-Chloroaniline	5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
4-Chlorophenyl-phenylether	- -	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
4-Nitroaniline	5	ug/L	22 U	26 U	25 U	220 U	20 U	20 U	22 U	20 U	21 U	20 U	22 U	29 U
4-Nitrophenol	1	ug/L	R	66 UJ	63 U	540 U	50 U	50 U	55 UJ	50 UJ	52 UJ	50 UJ	54 UJ	72 UJ
Acenaphthene	20 {G}	ug/L	15	13 U	2 J	**110**	14	14	11 U	10 U	3 J	10 U	11 U	14 U
Acenaphthylene	- -	ug/L	1 J	13 U	13 U	110 U	0.8 J	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Acetophenone	- -	ug/L	11 U	13 U	13 U	110 U	10 U	2 J	11 U	10 U	10 U	10 U	11 U	14 U
Anthracene	50 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	1 J	11 U	10 U	1 J	10 U	11 U	14 U
Atrazine	7.5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Benzaldehyde	- -	ug/L	12 UJ	13 UJ	13 UJ	110 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	10 UJ	11 UJ	14 UJ
Benzo(a)anthracene	0.002 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Benzo(a)pyrene	*	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Benzo(b)fluoranthene	0.002 {G}	ug/L	11 U	13 UJ	13 U	110 U	10 U	10 U	11 UJ	10 UJ	10 UJ	10 UJ	11 UJ	14 UJ
Benzo(g,h,i)perylene	- -	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Benzo(k)fluoranthene	0.002 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
bis(2-Chloroethoxy)methane	5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
bis(2-Chloroethyl)ether	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
bis(2-Ethylhexyl)phthalate	5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Butylbenzylphthalate	50 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Caprolatam	- -	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Carbazole	- -	ug/L	11 U	13 UJ	13 U	110 U	10 U	10 U	11 UJ	10 UJ	10 U	10 UJ	11 UJ	14 UJ
Chrysene	0.002 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Dibenz(a,h)anthracene	- -	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Dibenzofuran	- -	ug/L	2 J	13 U	13 U	110 U	10 U	10 U	11 U	10 U	2 J	10 U	11 U	14 U
Diethylphthalate	50 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Dimethylphthalate	50 {G}	ug/L	11 U	13 UJ	13 U	110 U	10 U	10 U	11 UJ	10 UJ	10 UJ	10 UJ	11 UJ	14 UJ
Di-n-butylphthalate	50	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	2 J	10 U	10 UJ	10 U	2 J	2 J
Di-n-octyl phthalate	50 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Fluoranthene	50 {G}	ug/L	11 U	13 U	13 U	110 U	1 J	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Fluorene	50 {G}	ug/L	10 J	13 U	1 J	26 J	10 U	2 J	11 U	10 U	3 J	10 U	11 U	14 U
Hexachlorobenzene	0.04	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Hexachlorobutadiene	0.5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Hexachlorocyclopentadiene	5	ug/L	11 UJ	13 U	13 UJ	110 UJ	10 UJ	10 UJ	11 U	10 U	10 U	10 U	11 U	14 U
Hexachloroethane	5	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Indeno(1,2,3-cd)pyrene	0.002 {G}	ug/L	11 U	13 UJ	13 U	110 U	10 U	10 U	11 UJ	10 UJ	10 UJ	10 UJ	11 UJ	14 UJ
Isophorone	50 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
Naphthalene	10 {G}	ug/L	**31**	13 U	3 J	**460**	0.9 J	10 U	11 U	10 U	1 J	10 U	11 U	14 U
Nitrobenzene	0.4	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
N-Nitroso-di-n-propylamine	- -	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
N-Nitrosodiphenylamine	50 {G}	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	10 U	10 U	11 U	14 U
p-Cresol	1	ug/L	11 U	13 U	13 U	110 U	10 U	10 U	11 U	10 U	**2 J**	10 U	11 U	14 U
Pentachlorophenol	1	ug/L	56 U	66 U	63 U	540 U	50 U	50 U	55 U	50 U	52 U	50 U	54 U	72 U
Phenanthrene	50 {G}	ug/L	4 J	13 U	2 J	43 J	10 U	1 J	11 U	10 U	6 J	10 U	11 U	14 U
Phenol	1	ug/L	R	13 U	13 U	110 U	10 U	1 J	11 U	10 U	1 J	10 U	11 U	14 U
Pyrene	50 {G}	ug/L	11 U	13 U	13 U	110 U	2 J	1 J	11 U	10 U	10 U	10 U	11 U	14 U
Total SVOCs	- -	ug/L	73 J	ND	10 J	692 J	18.7 J	22 J	2 J	ND	21 J	ND	2 J	2 J

See Notes on Page 2

Table 11b

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Groundwater Analytical Results - SVOCs - Remedial Investigation

Notes:

{G} = indicates a guidance value.

D = compounds analyzed at a dilution.

J = indicates an estimated value.

ND = not detected

R = rejected.

U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.

UJ = estimated non-detect.

ug/L = micrograms per liter.

* = a non-detectable concentration by the approved analytical methods referenced in section 700.3.

- - = no criterion exists for the specified compound.

PQL = practical quantitation limit.

▨ Bolded and shaded values exceed the New York State Technical and Operational Guidance Class GA Standards or Guidance Values, June 1998.

NYSDEC = New York State Department of Environmental Conservation.

Table 12a

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Groundwater Analytical Results - Inorganics - Site Characterization

Sample ID:			MW-2	MW-4
Date Collected:	NYSDEC_GA	Units	10/12/04	10/12/04
Metals				
Arsenic	0.025	mg/L	0.00484 U	0.00484 U
Barium	1	mg/L	0.526	0.0533 J
Cadmium	0.005	mg/L	0.000994 U	0.000994 U
Chromium	0.05	mg/L	0.00264 J	0.00583 J
Lead	0.025	mg/L	**0.117**	0.00179 U
Mercury	0.0007	mg/L	0.00013 J	0.00003 U
Selenium	0.01	mg/L	0.00524 U	0.00524 U
Silver	0.05	mg/L	0.00338 U	0.00338 U
Cyanide				
Cyanide	0.2	mg/L	0.031	0.01 U
Amenable Cyanide				
Cyanide-Amenable	- -	mg/L	0.03	0.01 U

Notes:

J = indicates an estimated value.
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
mg/L = milligrams per liter.
- - = no criterion exists for the specified compound.
PQL = practical quantitation limit.
▨ Bolded and shaded values exceed the New York State Technical and Operational Guidance Class GA Standards or Guidance Values, June 1998.
NYSDEC = New York State Department of Environmental Conservation.

Table 12b

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Groundwater Analytical Results - Inorganics - Remedial Investigation

Sample ID: Date Collected:	NYSDEC Stds. & GVs	Units	MW-2 08/31/06	MW-4 08/28/06	MW-107A 08/31/06	MW-107B 08/31/06	MW-111A 08/31/06	MW-115A 08/30/06	MW-121A 08/29/06	MW-121B 08/29/06	MW-122A 08/28/06	MW-122B 08/28/06	MW-125A 08/29/06	MW-125B 08/29/06
Metals														
Antimony	0.003	mg/L	0.02 UJ	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.025	mg/L	0.0098 B	0.04 U	0.0069 B	0.0098 B	0.0131 B	0.0047 B	0.04 U	0.0134 B	0.04 U	0.0043 B	0.04 U	0.04 U
Beryllium	0.003 {G}	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cadmium	0.005	mg/L	0.01 U	0.01 U	0.01 U	0.0011 B	0.01 U	0.01 U	0.01 U	0.00097 B	0.01 U	0.0017 B	0.01 U	0.0014 B
Chromium	0.05	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0074 B	0.0085 B	0.01 U	0.0029 B
Copper	0.2	mg/L	0.01 U	0.01 U	0.0136	0.01 U	0.01 U	0.01 U	0.0206	0.0041 B	**0.456**	0.0048 B	0.0041 B	0.0053 B
Lead	0.025	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.0787**	0.01 U	0.01 U	0.01 U
Mercury	0.0007	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0019**	0.0002 U	0.0002 U	0.0002 U
Nickel	0.1	mg/L	0.003 B	0.00075 B	0.0022 B	0.0093 B	0.0012 B	0.0016 B	0.0037 B	0.00073 B	0.0077 B	0.00083 B	0.0008 B	0.0014 B
Selenium	0.01	mg/L	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ
Silver	0.05	mg/L	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Thallium	0.0005 {G}	mg/L	R	R	R	R	R	R	R	R	R	R	R	R
Zinc	2 {G}	mg/L	0.0163 B	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0297 B	0.0114 B	0.0247 B	0.0105 B	0.05 U	0.05 U
Dissolved Metals														
Antimony	0.003	mg/L	NA	0.02 U	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	NA	NA
Arsenic	0.025	mg/L	NA	0.04 U	NA	NA	NA	NA	NA	0.0094 B	0.04 U	0.0047 B	NA	NA
Beryllium	0.003 {G}	mg/L	NA	0.005 U	NA	NA	NA	NA	NA	0.005 U	0.005 U	0.005 U	NA	NA
Cadmium	0.005	mg/L	NA	0.01 U	NA	NA	NA	NA	NA	0.00084 B	0.01 U	0.01 U	NA	NA
Chromium	0.05	mg/L	NA	0.01 U	NA	NA	NA	NA	NA	0.01 U	0.01 U	0.0044 B	NA	NA
Copper	0.2	mg/L	NA	0.01 U	NA	NA	NA	NA	NA	0.01 U	0.0045 B	0.01 U	NA	NA
Lead	0.025	mg/L	NA	0.01 U	NA	NA	NA	NA	NA	0.01 U	0.01 U	0.01 U	NA	NA
Mercury	0.0007	mg/L	NA	0.0002 U	NA	NA	NA	NA	NA	0.0002 U	0.0002 U	0.0002 U	NA	NA
Nickel	0.1	mg/L	NA	0.0012 B	NA	NA	NA	NA	NA	0.01 U	0.0011 B	0.01 U	NA	NA
Selenium	0.01	mg/L	NA	0.03 UJ	NA	NA	NA	NA	NA	0.03 UJ	0.03 UJ	0.03 UJ	NA	NA
Silver	0.05	mg/L	NA	0.006 U	NA	NA	NA	NA	NA	0.006 U	0.006 U	0.006 U	NA	NA
Thallium	0.0005 {G}	mg/L	NA	R	NA	NA	NA	NA	NA	R	R	R	NA	NA
Zinc	2 {G}	mg/L	NA	0.05 U	NA	NA	NA	NA	NA	0.05 U	0.05 U	0.05 U	NA	NA
Cyanide														
Cyanide	0.2	mg/L	0.0623	0.01 U	0.002 B	0.0081 B	0.0104	0.01 U	0.0031 B	0.01 U	0.01 U	0.0112	0.01 U	0.01 U

See Notes on Page 2

Table 12b

Consolidated Edison Company of New York, Inc.
Former East 11th Street Works
Manhattan, New York
Interim Site Management Plan

Groundwater Analytical Results - Inorganics - Remedial Investigation

Notes:

G = indicates a guidance value.
J = indicates an estimated value.
U = indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
UJ = estimated non-detect.
mg/L = milligrams per liter.
NA = not analyzed.
- - = no criterion exists for the specified compound.
PQL = practical quantitation limit.
▨ Bolded and shaded values exceed the New York State Technical and Operational Guidance Class GA Standards or Guidance Values, June 1998.
NYSDEC = New York State Department of Environmental Conservation.
B = indicates an estimated value between the IDL and the PQL.
IDL = instrument detection limit.
R = rejected.

Table 13
2010 Indoor Air Analytical Results - Jacob Riis

Consolidated Edison Company of New York, Inc.

Location ID: Date Collected:	NYSDOH Upper Fence Criterion (bold)	USEPA's BASE GuideValues-90th Percentile (shaded)	Units	AA-032310 03/23/10	AA-032410 03/24/10	AA-032510 03/25/10	JR-1115-IA-1 03/24/10	JR-1115-IA-2 03/24/10	JR-1115-IA-3 03/24/10	JR-1115-IA-4 03/24/10	JR-1141-IA-1 03/24/10	JR-1141-IA-2 03/24/10	JR-1141-IA-3 03/24/10	JR-1223-IA-1 03/25/10	JR-1223-IA-2 03/25/10	JR-1223-IA-3 03/25/10
Volatiles																
1,2-Dibromoethane	0.38	1.5	ug/m3	1.5 U	1.5 U	1.5 UJ	1.5 U [1.5 UJ]	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U [1.5 U]	1.5 U
Xylenes (total)	- -	- -	ug/m3	1.7 U	1.7 U	3.6 J	1.7 U [1.7 UJ]	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	3.3	2.4	2.6 [2.5]	2.5
1,1,1-Trichloroethane	2.5	20.6	ug/m3	1.1 U	1.1 U	1.1 UJ	1.1 U [1.1 UJ]	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
1,1,2,2-Tetrachloroethane	0.38	- -	ug/m3	1.4 U	1.4 U	1.4 UJ	1.4 U [1.4 UJ]	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U [1.4 U]	1.4 U
1,1,2-Trichloroethane	0.38	1.5	ug/m3	1.1 U	1.1 U	1.1 UJ	1.1 U [1.1 UJ]	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
1,1,2-Trichlorotrifluoroethane	2.5	- -	ug/m3	1.5 U	1.5 U	1.5 UJ	1.5 U [1.5 UJ]	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U [1.5 U]	1.5 U
1,1-Dichloroethane	0.38	0.7	ug/m3	0.81 U	0.81 U	0.81 UJ	0.81 U [0.81 UJ]	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U [0.81 U]	0.81 U
1,1-Dichloroethene	0.4	1.4	ug/m3	0.79 U	0.79 U	0.79 UJ	0.79 U [0.79 UJ]	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U [0.79 U]	0.79 U
1,2,4-Trichlorobenzene	0.47	6.8	ug/m3	3.7 U	3.7 U	3.7 UJ	3.7 U [3.7 UJ]	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U [3.7 U]	3.7 U
1,2,4-Trimethylbenzene	9.8	9.5	ug/m3	0.98 U	0.98 U	2.6 J	0.98 U [0.98 UJ]	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1.7	0.98 U	1.2 [1.1]	1.1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.42	- -	ug/m3	1.4 U	1.4 U	1.4 UJ	1.4 U [1.4 UJ]	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U [1.4 U]	1.4 U
1,2-Dichlorobenzene	0.48	1.2	ug/m3	1.2 U	1.2 U	1.2 UJ	1.2 U [1.2 UJ]	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U [1.2 U]	1.2 U
1,2-Dichloroethane	0.37	0.9	ug/m3	0.81 U	0.81 U	0.81 UJ	0.81 U [0.81 UJ]	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U [0.81 U]	0.81 U
1,2-Dichloropropane	0.39	1.6	ug/m3	0.92 U	0.92 U	0.92 UJ	0.92 U [0.92 UJ]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [0.92 U]	0.92 U
1,3,5-Trimethylbenzene	3.9	3.7	ug/m3	0.98 U	0.98 U	0.98 UJ	0.98 U [0.98 UJ]	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U [0.98 U]	0.98 U
1,3-Dichlorobenzene	0.46	2.4	ug/m3	1.2 U	1.2 U	1.2 UJ	1.2 U [1.2 UJ]	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U [1.2 U]	1.2 U
1,4-Dichlorobenzene	1.2	5.5	ug/m3	1.2 U	1.2 U	1.2 UJ	1.2 U [1.2 UJ]	1.2 U	1.2 U	1.2 U	**5.5**	**2.0**	**4.4**	1.2 U	**4.3 [4.2]**	**5.2**
Benzene	13	9.4	ug/m3	1.1	0.64	2.0 J	0.64 U [0.64 UJ]	0.64 U	0.83	0.70	0.64 U	1.3	8.6	1.3	1.6 [1.5]	1.5
Bromomethane	0.48	1.7	ug/m3	0.78 U	0.78 U	0.78 UJ	0.78 U [0.78 UJ]	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U [0.78 U]	0.78 U
Carbon Tetrachloride	1.3	1.3	ug/m3	1.3 U	1.3 U	1.3 UJ	1.3 U [1.3 UJ]	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U [1.3 U]	1.3 U
Chlorobenzene	0.41	0.9	ug/m3	0.92 U	0.92 U	0.92 UJ	0.92 U [0.92 UJ]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [0.92 U]	0.92 U
Chloroethane	0.39	1.1	ug/m3	1.3 U	1.3 U	1.3 UJ	1.3 U [1.3 UJ]	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U [1.3 U]	1.3 U
Chloroform	1.2	1.1	ug/m3	0.98 U	0.98 U	0.98 UJ	**1.4 [1.4 J]**	**1.3**	**2.7**	**5.4**	**2.4**	**11**	**63**	**2.2**	**4.0 [3.9]**	**4.0**
Chloromethane	4.2	3.7	ug/m3	1.4	1.4	1.4 J	1.4 [1.3 J]	1.3	1.4	1.4	1.3	1.2	1.4	1.2	1.2 [1.2]	1.2
cis-1,2-Dichloroethene	0.41	1.9	ug/m3	0.79 U	0.79 U	0.79 UJ	0.79 U [0.79 UJ]	0.79 U	0.79 U	0.79 U	0.79 U	**1.0**	**10**	0.79 U	0.79 U [0.79 U]	0.79 U
cis-1,3-Dichloropropene	0.38	2.3	ug/m3	0.91 U	0.91 U	0.91 UJ	0.91 U [0.91 UJ]	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U [0.91 U]	0.91 U
Dichlorodifluoromethane	10	16.5	ug/m3	3.1	3.1	3.0 J	3.1 [3.2 J]	2.7	3.1	3.1	3.2	3.1	3.2	2.8	3.0 [3.1]	3.0
Ethylbenzene	6.4	5.7	ug/m3	0.87 U	0.87 U	1.0 J	0.87 U [0.87 UJ]	0.87 U	0.87 U	0.87 U	0.87 U	1.1	**7.4**	0.87 U	0.87 U [0.87 U]	0.87 U
Hexachlorobutadiene	0.49	6.8	ug/m3	2.1 U	2.1 U	2.1 UJ	2.1 U [2.1 UJ]	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U [2.1 U]	2.1 U
Methylene Chloride	16	10	ug/m3	1.7 U	1.7 U	1.7 UJ	1.7 U [1.7 UJ]	1.7 U	1.7 U	1.7 U	1.7 U	11	**69**	1.7 U	1.7 U [1.7 U]	1.7 U
Naphthalene	- -	5.1	ug/m3	2.6 U	2.6 U	2.6 UJ	2.6 U [2.6 UJ]	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	3.8	2.6 U	2.6 U [2.6 U]	2.6 U
o-Xylene	7.1	7.9	ug/m3	0.87 U	0.87 U	1.5 J	0.87 U [0.87 UJ]	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	1.6	0.96	1.0 [0.96]	1.0
Styrene	1.4	1.9	ug/m3	0.85 U	0.85 U	0.85 UJ	0.85 U [0.85 UJ]	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U [0.85 U]	0.85 U
Tetrachloroethene	2.5	15.9	ug/m3	1.4 U	1.4 U	1.4 UJ	1.4 U [1.4 UJ]	1.4 U	1.4 U	1.4 U	1.4 U	**10**	**95**	1.4 U	**3.4 [3.4]**	**3.2**
Toluene	57	43	ug/m3	3.5	1.4	4.9 J	2.4 [2.4 J]	1.2	1.7	2.2	3.0	6.0	41	3.3	4.5 [4.1]	4.1
trans-1,3-Dichloropropene	0.4	1.3	ug/m3	0.91 U	0.91 U	0.91 UJ	0.91 U [0.91 UJ]	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U [0.91 U]	0.91 U
Trichloroethene	0.46	4.2	ug/m3	1.1 U	1.1 U	1.1 UJ	1.1 U [1.1 UJ]	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	**7.5**	1.1 U	1.1 U [1.1 U]	1.1 U
Trichlorofluoromethane	12	18.1	ug/m3	1.5	1.5	1.5 J	1.5 [1.5 J]	1.3	1.5	1.5	1.5	1.5	1.4	1.6	1.6 [1.6]	1.5
Vinyl Chloride	0.37	1.9	ug/m3	0.51 U	0.51 U	0.51 UJ	0.51 U [0.51 UJ]	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	**1.7**	0.51 U	0.51 U [0.51 U]	0.51 U
n-Alkanes																
n-Butane	- -	- -	ug/m3	4.3	2.2	7.1 J	3.1 [3.3 J]	2.6	2.2	3.1	170 D	71	43	6.7	10 [9.5]	9.7
Pentane	- -	- -	ug/m3	2.4	1.5 U	3.8 J	1.5 U [1.5 UJ]	1.5 U	1.5 U	5.0	2.3	2.1	6.2	3.8	5.6 [3.8]	4.7
n-Decane	15	17.5	ug/m3	2.9 U	2.9 U	2.9 UJ	2.9 U [2.9 UJ]	3.3	2.9 U	3.8	2.9 U	4.7	2.9 U	2.9 U	2.9 U [2.9 U]	2.9 U
n-Dodecane	9.2	- -	ug/m3	35 UJ	35 UJ	35 UJ	35 UJ [35 UJ]	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ [35 UJ]	35 UJ
n-Heptane	18	- -	ug/m3	0.82 U	0.82 U	0.86 J	0.82 U [0.82 UJ]	0.82 U	0.82 U	0.82 U	3.0	1.8	1.0	0.82 U	0.82 U [0.82 U]	0.82 U
n-Hexane	14	10.2	ug/m3	1.8 U	1.8 U	1.8 UJ	1.8 U [1.8 UJ]	1.8 U	1.8 U	1.8	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U [1.8 U]	1.8 U
n-Octane	5.2	- -	ug/m3	0.93 U	0.93 U	0.93 UJ	0.93 U [0.93 UJ]	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U [0.93 U]	0.93 U
Nonane	7.9	7.8	ug/m3	1.0 U	1.0 U	1.0 UJ	1.0 [1.2 J]	1.0 U	1.0 U	1.6	1.1	1.5	1.0 U	1.0 U	1.0 [1.0 U]	1.0 U
n-Undecane	12	22.6	ug/m3	32 U	32 U	32 UJ	32 U [32 UJ]	32 U	32 U	32 U	32 U	32 U	32 U	32 U	32 U [32 U]	32 U
Other VOCs																
Isoctane	- -	- -	ug/m3	0.93 U	0.93 U	1.4 J	0.93 U [0.93 UJ]	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U [0.93 U]	0.93 U
Isopropylbenzene	0.82	- -	ug/m3	0.98 U	0.98 U	0.98 UJ	0.98 U [0.98 UJ]	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	**1.2**	0.98 U	0.98 U [0.98 U]	0.98 U
Tentatively Identified Compounds (TICs)																
2-methylpentane	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
1,2,3- trimethylbenzene	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Isopentane	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	4.1 NJ	NF	NF	5.3 NJ	NF	NF	NF
Thiopenes	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Indene	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Indane	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	16 NJ	NF

Table 13
2010 Indoor Air Analytical Results - Jacob Riis

Consolidated Edison Company of New York, Inc.

Location ID:	NYSDOH Upper Fence Criterion (bold)	USEPA's BASE GuideValues- 90th Percentile (shaded)	Units	JR-1223-IA-4	JR-170-IA-1	JR-170-IA-2	JR-170-IA-3	JR-170-IA-4	JR-178-IA-1	JR-178-IA-2	JR-178-IA-3
Date Collected:				03/25/10	03/23/10	03/23/10	03/23/10	03/23/10	03/23/10	03/23/10	03/23/10
Volatiles											
1,2-Dibromoethane	0.38	1.5	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Xylenes (total)	- -	- -	ug/m3	2.8	1.7 U	1.9	2.6	4.1	2.8	3.6	2.6
1,1,1-Trichloroethane	2.5	20.6	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
1,1,2,2-Tetrachloroethane	0.38	- -	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,1,2-Trichloroethane	0.38	1.5	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
1,1,2-Trichlorotrifluoroethane	2.5	- -	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
1,1-Dichloroethane	0.38	0.7	ug/m3	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
1,1-Dichloroethene	0.4	1.4	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
1,2,4-Trichlorobenzene	0.47	6.8	ug/m3	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U
1,2,4-Trimethylbenzene	9.8	9.5	ug/m3	1.3	0.98 U	0.98 U	1.1	1.8	1.4	1.5	1.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.42	- -	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,2-Dichlorobenzene	0.48	1.2	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
1,2-Dichloroethane	0.37	0.9	ug/m3	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
1,2-Dichloropropane	0.39	1.6	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
1,3,5-Trimethylbenzene	3.9	3.7	ug/m3	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
1,3-Dichlorobenzene	0.46	2.4	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	1.2	5.5	ug/m3	**4.0**	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	**1.9**
Benzene	13	9.4	ug/m3	2.0	0.83	1.2	1.4	2.5	1.7	1.2	1.1
Bromomethane	0.48	1.7	ug/m3	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U
Carbon Tetrachloride	1.3	1.3	ug/m3	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Chlorobenzene	0.41	0.9	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
Chloroethane	0.39	1.1	ug/m3	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Chloroform	1.2	1.1	ug/m3	**5.4**	0.98 U	0.98 U	**1.7**	**4.7**	**14**	**1.7**	**4.9**
Chloromethane	4.2	3.7	ug/m3	1.5	1.2	1.3	1.3	1.9	1.3	1.3	1.3
cis-1,2-Dichloroethene	0.41	1.9	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
cis-1,3-Dichloropropene	0.38	2.3	ug/m3	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U
Dichlorodifluoromethane	10	16.5	ug/m3	3.1	3.0	3.0	3.0	3.2	2.9	2.9	2.9
Ethylbenzene	6.4	5.7	ug/m3	0.87	0.87 U	0.87 U	0.87 U	1.3	1.2	1.2	0.87 U
Hexachlorobutadiene	0.49	6.8	ug/m3	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Methylene Chloride	16	10	ug/m3	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Naphthalene	- -	5.1	ug/m3	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
o-Xylene	7.1	7.9	ug/m3	1.1	0.87 U	0.87 U	0.87 U	1.4	1.0	1.2	0.87
Styrene	1.4	1.9	ug/m3	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
Tetrachloroethene	2.5	15.9	ug/m3	**3.7**	1.4 U	1.4 U	1.4 U	1.4 U	2.0	1.4 U	1.4 U
Toluene	57	43	ug/m3	4.5	2.8	4.1	4.9	7.5	4.1	6.4	3.7
trans-1,3-Dichloropropene	0.4	1.3	ug/m3	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U
Trichloroethene	0.46	4.2	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Trichlorofluoromethane	12	18.1	ug/m3	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.5
Vinyl Chloride	0.37	1.9	ug/m3	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
n-Alkanes											
n-Butane	- -	- -	ug/m3	21	5.0	5.5	9.5	11	15	11	7.4
Pentane	- -	- -	ug/m3	7.7	1.5	2.6	4.1	9.4	3.2	27	4.1
n-Decane	15	17.5	ug/m3	3.7	2.9 U	2.9 U	2.9 U	13	2.9 U	3.5	2.9 U
n-Dodecane	9.2	- -	ug/m3	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ	35 UJ
n-Heptane	18	- -	ug/m3	1.7	0.82 U	0.82 U	1.1	1.6	0.94	1.4	0.94
n-Hexane	14	10.2	ug/m3	2.7	1.8 U	1.8 U	1.8	3.0	1.8 U	1.8 U	1.8 U
n-Octane	5.2	- -	ug/m3	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U
Nonane	7.9	7.8	ug/m3	1.4	1.0 U	1.0 U	1.0 U	2.4	1.4	2.7	1.6
n-Undecane	12	22.6	ug/m3	32 U	32 U	32 U	32 U	32 U	32 U	32 U	32 U
Other VOCs											
Isoctane	- -	- -	ug/m3	0.93 U	0.93 U	0.93 U	1.2	2.0	0.93 U	0.93 U	0.93 U
Isopropylbenzene	0.82	- -	ug/m3	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
Tentatively Identified Compounds (TICs)											
2-methylpentane	- -	- -	ug/m3	NF	NF	NF	NF	4.9 NJ	NF	NF	NF
1,2,3- trimethylbenzene	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF
Isopentane	- -	- -	ug/m3	NF	NF	NF	3.8 NJ	9.7 NJ	NF	12 NJ	4.4 NJ
Thiopenes	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF
Indene	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF
Indane	- -	- -	ug/m3	NF	NF	NF	NF	NF	NF	NF	NF

Table 13
Indoor Air Analytical Results - Jacob Riis

ISMP Annual Indoor Air Monitoring Report
Consolidated Edison Company of New York, Inc.

Lab Qualifier	Definition
J	Indicates an estimated value.
N	The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
NF	TIC Not Found.
U	Indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
[ ]	Identifies duplicate sample collected for quality control purposes.
bold font	Indicates analyte exceeded its NYSDOH Upper Fence Criterion.
shaded	Indicates analyte exceeded the USEPA's BASE Guidance Value (90th percentile).

Table 14
2011 Indoor Air Analytical Results - Jacob Riis

Consolidated Edison Company of New York, Inc.

Location ID:	NYSDOH Fuel Oil Heat - Indoor Air Upper Fence (bold)	USEPA BASE Guidance Values 90th Percentile (shade)		AA-022311	AA-022411	AA-022511	JR-1115-IA-1	JR-1115-IA-2	JR-1115-IA-3	JR-1115-IA-4	JR-1141-IA-1	JR-1141-IA-2	JR-1141-IA-3	JR-1223-IA-1	JR-1223-IA-2	JR-1223-IA-3	JR-1223-IA-4	JR-170-IA-1	JR-170-IA-3	JR-170-IA-4	JR-178-IA-1	JR-178-IA-2	JR-178-IA-3
Date Collected:			Units	02/23/11	02/24/11	02/25/11	02/24/11	02/24/11	02/24/11	02/24/11	02/24/11	02/24/11	02/24/11	02/25/11	02/25/11	02/25/11	02/25/11	02/23/11	02/23/11	02/23/11	02/23/11	02/23/11	02/23/11
Volatile Organic Compounds																							
1,1,1-Trichloroethane	2.5	20.6	ug/m3	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]	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U [R]	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
1,1,2,2-Tetrachloroethane	0.38	- -	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U [1.4 U]	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U [R]	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,1,2-Trichloroethane	0.38	1.5	ug/m3	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]	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U [R]	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
1,1,2-Trichlorotrifluoroethane	2.5	- -	ug/m3	0.63 J	0.80 J	0.64 J	0.69 J	0.65 J	0.72 J	0.67 J	0.65 J	0.74 J [0.58 J]	0.62 J	0.60 J	0.62 J	0.64 J	0.64 J	0.70 J [0.59 J]	0.64 J	0.65 J	0.64 J	0.67 J	0.61 J
1,1-Dichloroethane	0.38	0.7	ug/m3	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U [0.81 U]	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U [R]	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
1,1-Dichloroethene	0.4	1.4	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U [0.79 U]	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U [R]	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
1,2,4-Trichlorobenzene	0.47	6.8	ug/m3	7.4 U	7.4 U	7.4 UJ	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U [7.4 UJ]	7.4 U	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 U [R]	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
1,2,4-Trimethylbenzene	9.8	9.5	ug/m3	0.36 J	1.4	0.81 J	0.79 J	2.9	0.36 J	1.2	0.83 J	1.1 [1.6]	0.94 J	0.59 J	1.0	1.1	0.98 U	0.54 J [R]	0.50 J	0.46 J	0.93 J	0.69 J	0.68 J
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.42	- -	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U [1.4 U]	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U [R]	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,2-Dichlorobenzene	0.48	1.2	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U [1.2 U]	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U [R]	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
1,2-Dichloroethane	0.37	0.9	ug/m3	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U [0.81 U]	0.81 U	0.81 U	**0.41 J**	**0.60 J**	0.37 J	0.81 U [R]	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
1,2-Dichloropropane	0.39	1.6	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [0.92 U]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [R]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
1,3,5-Trimethylbenzene	3.9	3.7	ug/m3	0.98 U	0.46 J	0.33 J	0.98 U	1.6	0.98 U	0.47 J	0.36 J	0.35 J [0.47 J]	0.98 U	0.98 U	0.42 J	0.35 J	0.98 U	0.98 U [R]	0.98 U	0.98 U	0.36 J	0.98 U	0.98 U
1,3-Dichlorobenzene	0.46	2.4	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U [1.2 U]	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U [R]	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	1.2	5.5	ug/m3	1.2 U	0.69 J	1.2 U	0.61 J	1.2 U	1.2 U	**1.3**	0.60 J	0.90 J [0.98 J]	**1.3**	1.2 U	**3.4**	**6.6**	1.2 U	1.2 U [R]	1.2 U	1.2 U	**1.6**	0.46 J	0.40 J
Benzene	13	9.4	ug/m3	1.4	3.7	1.8	2.5	2.6	2.8	2.4	2.1	2.3 [2.7]	2.6	1.8	1.6	1.6	1.4	1.5 [1.7 J]	1.5	1.5	5.3	2.5	2.2
Bromomethane	0.48	1.7	ug/m3	0.78 U	0.17 J	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.13 J [0.78 U]	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U [R]	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U
Carbon Tetrachloride	1.3	1.3	ug/m3	0.56 J	0.84 J	0.80 J	0.83 J	0.65 J	0.85 J	0.61 J	0.62 J	0.63 J [0.80 J]	0.75 J	0.65 J	0.55 J	0.62 J	0.58 J	1.3 [0.53 J]	0.78 J	0.70 J	0.81 J	0.67 J	0.62 J
Chlorobenzene	0.41	0.9	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [0.92 U]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [R]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
Chloroethane	0.39	1.1	ug/m3	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.11 J	0.11 J [0.53 U]	0.21 J	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U [R]	0.11 J	0.53 U	0.13 J	0.53 U	0.53 U
Chloroform	1.2	1.1	ug/m3	0.22 J	0.27 J	0.31 J	**1.6**	0.80 J	**2.9**	**3.3**	**40**	**39 [41]**	**41**	0.76 J	**1.6**	1.1	1.0	1.1 [0.81 J]	**2.4**	0.89 J	**41**	**7.6**	**5.3**
Chloromethane	4.2	3.7	ug/m3	1.4	1.8	1.6	1.4	1.6	1.4	1.4	1.2	1.5 [1.4]	1.9	1.3	1.5	1.7	1.4	1.4 [1.3 J]	1.8	2.0	1.9	1.9	2.0
cis-1,2-Dichloroethene	0.41	1.9	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.27 J [0.25 J]	**1.0**	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U [R]	0.79 U	0.79 U	**13**	**2.1**	**1.4**
cis-1,3-Dichloropropene	0.38	2.3	ug/m3	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U [0.91 U]	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U [R]	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U
Dibromomethane	- -	- -	ug/m3	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U [2.8 U]	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U [R]	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
Dichlorodifluoromethane	10	16.5	ug/m3	3.1	3.6	3.2	3.2	3.5	3.3	3.4	3.0	3.0 [3.3]	3.1	2.9	3.0	3.1	2.8	3.1 [3.0 J]	3.1	3.2	3.3	3.3	3.3
Ethylbenzene	6.4	5.7	ug/m3	0.35 J	1.3	0.77 J	0.92	0.77 J	1.1	1.2	0.89	0.97 [1.3]	1.1	0.86	0.90	0.77 J	0.90	0.56 J [R]	0.47 J	0.50 J	2.0	0.87	0.79 J
Hexachlorobutadiene	0.49	6.8	ug/m3	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ [11 UJ]	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ [R]	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ
Methylene Chloride	16	10	ug/m3	1.6 J	3.2	**17**	3.6	1.6 J	2.8	**18**	4.0	1.9 [3.8]	2.2	6.7	2.4	1.2 J	2.6	1.7 J [3.2 J]	1.5 J	2.1	5.2	1.6 J	2.5
m-Xylene & p-Xylene	11	22.2	ug/m3	1.0	3.9	2.4	2.6	1.7	2.6	3.4	2.9	2.5 [3.6]	2.4	2.3	2.7	2.5	1.3	1.5 [R]	1.2	1.3	2.2	1.8	1.8
Naphthalene	- -	5.1	ug/m3	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.3 J	2.6 U	0.48 J [2.3 J]	2.6 U	2.6 U	0.49 J	2.6 U	2.6 U	2.6 U [R]	2.6 U	2.6 U	0.57 J	2.6 U	2.6 U
o-Xylene	7.1	7.9	ug/m3	0.37 J	1.4	0.90	0.88	0.88	0.90	1.2	1.0	0.96 [1.4]	0.96	0.83 J	0.97	0.88	0.50 J	0.58 J [R]	0.46 J	0.55 J	1.0	0.66 J	0.66 J
Styrene	1.4	1.9	ug/m3	0.85 U	0.27 J	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U [0.29 J]	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U [R]	0.85 U	0.85 U	0.31 J	0.85 U	0.29 J
Tetrachloroethene	2.5	15.9	ug/m3	0.99 J	2.1	2.0	1.4	**3.6**	2.1	1.4	**4.5**	**1.9 [2.6]**	**4.7**	1.4	1.4	1.7	1.4	1.4 [1.3 J]	1.6	1.3 J	**79**	**12**	**8.2**
Toluene	57	43	ug/m3	2.3	8.1	4.8	5.3	4.8	6.0	6.7	7.0	5.7 [7.5]	7.8	11	7.0	4.1	3.5	3.3 [4.4 J]	3.0	3.3	6.1	3.7	4.0
trans-1,3-Dichloropropene	0.4	1.3	ug/m3	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U [0.91 U]	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U [R]	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U
Trichloroethene	0.46	4.2	ug/m3	1.1 U	0.42 J	1.1 U	0.46 J	0.38 J	0.38 J	0.38 J	**1.1**	**0.97 J [0.99 J]**	**1.2**	1.1 U	1.1 U	1.1 U	**0.61 J**	0.29 J [R]	1.1 U	1.1 U	**9.2**	**1.3**	**0.89 J**
Trichlorofluoromethane	12	18.1	ug/m3	1.2	1.8	1.7	1.6	1.6	1.6	2.6	1.5	1.4 [1.6]	1.4	1.4	1.2	1.2	1.2	1.3 [1.2 J]	1.2	1.3	1.5	1.3	1.3
Vinyl Chloride	0.37	1.9	ug/m3	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U [0.51 U]	0.27 J	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U [R]	0.51 U	0.51 U	**2.2**	**0.46 J**	0.31 J
n-Alkanes																							
n-Butane	- -	- -	ug/m3	4.6	17	15	15	14	14	21	18	16 [17]	19	13	8.5	9.0	9.4	11 [14 J]	11	7.9	9.6	9.7	23
n-Decane	15	17.5	ug/m3	0.37 J	1.3 J	0.79 J	1.6 J	9.9	0.68 J	6.4	1.3 J	1.2 J [2.9 J]	0.84 J	0.56 J	1.6 J	1.7 J	5.8 U	0.88 J [R]	0.68 J	0.80 J	1.1 J	0.76 J	0.83 J
n-Dodecane	9.2	- -	ug/m3	7.0 U	0.92 J	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	0.94 J	0.71 J [2.8 J]	0.54 J	7.0 U	1.3 J	7.0 U	7.0 U	7.0 U [R]	7.0 U	7.0 U	1.6 J	0.57 J	0.55 J
n-Heptane	18	- -	ug/m3	0.58 J	1.9 J	1.0 J	1.2 J	1.1 J	1.3 J	1.4 J	0.88 J	1.0 J [1.4 J]	1.1 J	1.6 J	1.1 J	0.98 J	0.96 J	0.72 J [1.4 J]	0.57 J	0.71 J	1.1 J	0.89 J	0.76 J
n-Hexane	14	10.2	ug/m3	1.1 J	3.4	3.7	2.4	1.9	2.4	7.8	2.3	2.3 [2.8]	2.4	3.5	6.0	4.4	2.6	1.1 J [3.2 J]	0.95 J	1.0 J	1.8	1.5 J	1.3 J
n-Octane	5.2	- -	ug/m3	0.34 J	1.0 J	0.55 J	0.57 J	0.47 J	0.60 J	0.98 J	0.42 J	0.61 J [0.90 J]	0.67 J	0.50 J	0.64 J	0.64 J	0.37 J	0.47 J [0.26 J]	0.36 J	0.42 J	0.61 J	0.46 J	0.52 J
Nonane	7.9	7.8	ug/m3	0.29 J	1.0 J	0.53 J	1.1 J	1.2 J	0.57 J	2.8	0.47 J	0.69 J [0.97 J]	0.58 J	0.38 J	0.73 J	0.67 J	2.6 U	0.49 J [R]	0.39 J	0.71 J	0.52 J	0.43 J	0.58 J
n-Undecane	12	22.6	ug/m3	6.4 U	0.94 J	6.4 U	6.4 U	0.45 J	6.4 U	1.4 J	0.93 J	0.82 J [9.7]	0.54 J	6.4 U	1.9 J	0.84 J	6.4 U	0.41 J [R]	6.4 U	6.4 U	0.62 J	6.4 U	0.49 J
Pentane	- -	- -	ug/m3	1.8 J	8.3	6.1	6.2	5.4	6.1	7.0	8.4	7.2 [9.9]	8.7	16	3.9	3.5	4.2	2.0 J [6.2 J]	1.9 J	5.0	6.9	3.4	14
Branched Alkanes (Reported as TICs)																							
2,3-Dimethylpentane	5.2	- -	ug/m3	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U [0.82 U]	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U [R]	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
Isopentane	- -	- -	ug/m3	2.5	13	8.1	9.7	9.2	9.6	12	11	10 [12]	12	11	6.0	6.2	5.5	2.6 [8.8 J]	2.9	9.4	6.3	4.6	34
2-methylpentane	- -	- -	ug/m3	0.70 U	2.4 J	1.9 J	1.7 J	1.6 J	1.7 J	2.0 J	1.8 J	1.8 J [2.6 J]	1.9 J	2.7 J	1.6 J	1.5 J	1.3 J	0.70 U [2.2 J]	0.70 U	0.70 U	1.0 J	1.0 J	0.86 J
Other (Reported as TICs)																							
1,2,3-Trimethylbenzene	- -	- -	ug/m3	0.98 U	0.98 U	0.98 U	0.98 U	1.2 J	0.98 U	0.98 U	0.98 U	0.98 U [1.4 J]	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U [R]	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
2-Ethylthiophene	- -	- -	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [0.92 U]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U [R]	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
2-Methylthiophene	- -	- -	ug/m3	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U [0.80 U]	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U [R]	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
3-Methylthiophene	- -	- -	ug/m3	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U [0.80 U]	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U [R]	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
Indane	- -	- -	ug/m3	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U [0.97 U]	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U [R]	0.97 U	0.97 U	3.1 J	0.97 U	0.97 U
Indene	- -	- -	ug/m3	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U [1.9 U]	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U [R]	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Isoctane	- -	- -	ug/m3	0.56 J	2.3 J	1.3 J	1.4 J	1.2 J	1.4 J	1.5 J	1.3 J	1.2 J [1.6 J]	1.3 J	1.5 J	1.0 J	1.0 J	0.76 J	0.57 J [1.2 J]	0.53 J	0.60 J	0.83 J	0.79 J	0.76 J
Isopropylbenzene	0.82	- -	ug/m3	2.0 U	2.0 U	2.0 U	2.0 U	0.35 J	2.0 U	2.0 U	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U [R]	2.0 U	2.0 U	0.38 J	2.0 U	2.0 U
Thiopene	- -	- -	ug/m3	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U [0.69 U]	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U [R]	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U

Table 14
Indoor Air Analytical Results - Jacob Riis

ISMP Annual Indoor Air Monitoring
Consolidated Edison Company of New York, Inc.

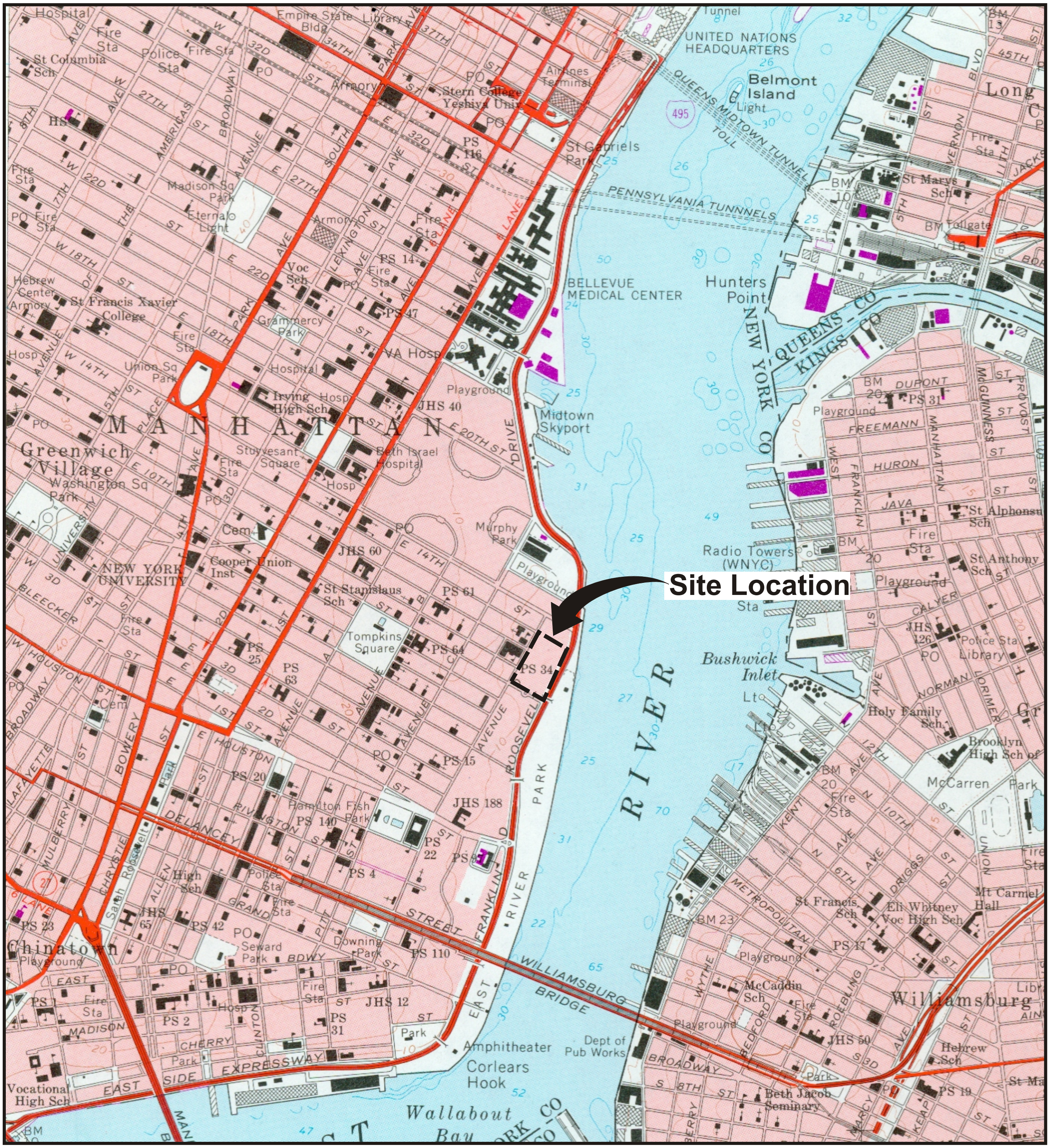
Lab Qualifier	Definition
J	Indicates an estimated value.
N	The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
U	Indicates the constituent was not detected at the PQL. The value preceding the U indicates the PQL.
[ ]	Identifies duplicate sample collected for quality control purposes.
bold font	Indicates analyte exceeded its NYSDOH Upper Fence Criterion.
▨ shaded	Indicates analyte exceeded the USEPA's BASE Guidance Value (90th percentile).

Table 15
2013 Indoor Air Analytical Results - Jacob Riis

Consolidated Edison Company of New York, Inc.

Location ID:	NYSDOH Fuel Oil Heat - Indoor Air Upper Fence (bold)	USEPA BASE Guidance Values 90th Percentile (shade)		AA-032613	AA-032713	AA-032813	JR-1115-IA-1	JR-1115-IA-2	JR-1115-IA-3	JR-1115-IA-4	JR-1141-IA-1	JR-1141-IA-2	JR-1141-IA-3	JR-1223-IA-1	JR-1223-IA-2	JR-1223-IA-3	JR-1223-IA-4	JR-170-IA-1	JR-170-IA-2	JR-170-IA-3	JR-170-IA-4	JR-178-IA-1	JR-178-IA-2	JR-178-IA-3
Date Collected:			Units	03/26/13	03/27/13	03/28/13	03/28/13	03/28/13	03/28/13	03/28/13	03/28/13	03/28/13	03/28/13	03/27/13	03/27/13	03/27/13	03/27/13	03/26/13	03/26/13	03/26/13	03/26/13	03/26/13	03/26/13	03/27/13
Volatile Organic Compounds																								
1,1,1-Trichloroethane	2.5	20.6	ug/m3	0.44 U	0.44 U	0.44 U	0.44 U [0.44 U]	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U [0.44 U]	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,1,2,2-Tetrachloroethane	0.38	- -	ug/m3	0.55 U	0.55 U	0.55 U	0.55 U [0.55 U]	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U [0.55 U]	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	**0.67**
1,1,2-Trichloroethane	0.38	1.5	ug/m3	0.44 U	0.44 U	0.44 U	0.44 U [0.44 U]	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U [0.44 U]	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,1,2-Trichlorotrifluoroethane	2.5	- -	ug/m3	0.49 J	0.48 J	0.50 J	0.48 J [0.49 J]	0.50 J	0.46 J	0.50 J	0.48 J	0.45 J	0.51 J	0.49 J	0.48 J	0.49 J	0.49 J	0.49 J [0.53 J]	0.49 J	0.48 J	0.49 J	0.50 J	0.52 J	0.47 J
1,1-Dichloroethane	0.38	0.7	ug/m3	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene	0.4	1.4	ug/m3	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,2,4-Trichlorobenzene	0.47	6.8	ug/m3	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ [0.59 UJ]	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ [0.59 UJ]	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 UJ	0.59 U
1,2,4-Trimethylbenzene	9.8	9.5	ug/m3	0.39 U	0.18 J	0.16 J	0.17 J [0.21 J]	2.4	0.39 U	0.56	0.17 J	0.39 U	0.39 U	0.23 J	0.47	0.47	0.26 J	0.33 J [0.44]	0.24 J	0.38 J	0.35 J	0.71	0.37 J	0.39 U
1,2-Dibromoethane	0.38	1.5	ug/m3	0.61 U	0.61 U	0.61 U	0.61 U [0.61 U]	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U [0.61 U]	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.42	- -	ug/m3	0.12 J	0.12 J	0.12 J	0.11 J [0.12 J]	0.11 J	0.11 J	0.13 J	0.56 U	0.12 J	0.093 J	0.12 J	0.11 J	0.11 J	0.11 J	0.12 J [0.12 J]	0.11 J	0.11 J	0.11 J	0.11 J	0.11 J	0.13 J
1,2-Dichlorobenzene	0.48	1.2	ug/m3	0.48 U	0.48 U	0.48 U	0.48 U [0.48 U]	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U [0.48 U]	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane	0.37	0.9	ug/m3	0.32 U	0.32 U	0.10 J	0.081 J [0.081 J]	0.32 U	0.11 J	0.32 U	0.14 J	0.12 J	0.11 J	0.32 U	0.088 J	0.32 U	0.32 U	0.088 J [0.091 J]	0.088 J	0.097 J	0.32 U	0.093 J	0.10 J	0.086 J
1,2-Dichloropropane	0.39	1.6	ug/m3	0.37 U	0.37 U	0.37 U	0.37 U [0.37 U]	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U [0.37 U]	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,3,5-Trimethylbenzene	3.9	3.7	ug/m3	0.39 U	0.39 U	0.39 U	0.39 U [0.22 J]	0.97	0.39 U	0.19 J	0.39 U	0.39 U	0.39 U	0.39 U	0.13 J	0.17 J	0.39 U	0.39 U [0.16 J]	0.39 U	0.17 J	0.39 U	0.28 J	0.13 J	0.39 U
1,3-Dichlorobenzene	0.46	2.4	ug/m3	0.48 U	0.48 U	0.48 U	0.48 U [0.48 U]	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U [0.48 U]	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
1,4-Dichlorobenzene	1.2	5.5	ug/m3	0.48 U	0.48 U	0.48 U	0.48 U [0.48 U]	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.18 J	0.48 U	0.18 J	0.48 U	0.48 U [0.48 U]	0.48 U	0.48 U	0.17 J	0.24 J	0.17 J	0.48 U
Benzene	13	9.4	ug/m3	0.67	0.75	0.64	0.59 [0.61]	0.59	0.57	0.60	0.61	0.46	0.69	0.60	0.75	0.77	0.68	1.3 [1.4]	0.72	1.3	0.98	1.7	1.1	0.62
Bromomethane	0.48	1.7	ug/m3	0.31 U	0.31 U	0.31 U	0.31 U [0.31 U]	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.068 J	0.31 U	0.31 U	0.31 U	0.058 J	0.31 U [0.31 U]	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.055 J
Carbon Tetrachloride	1.3	1.3	ug/m3	0.51	0.48	0.51	0.52 [0.54]	0.50	0.52	0.51	0.57	0.49	0.56	0.51	0.50	0.46	0.51	0.50 [0.58]	0.43	0.52	0.53	0.56	0.53	0.51
Chlorobenzene	0.41	0.9	ug/m3	0.37 U	0.37 U	0.37 U	0.37 U [0.37 U]	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U [0.37 U]	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Chloroethane	0.39	1.1	ug/m3	0.21 U	0.21 U	0.067 J	0.21 U [0.21 U]	0.21 U	0.21 U	0.21 U	0.34	0.14 J	0.063 J	0.21 U	0.21 U	0.21 U	0.077 J	0.069 J [0.070 J]	0.21 U	0.067 J	0.086 J	0.089 J	0.085 J	0.12 J
Chloroform	1.2	1.1	ug/m3	0.11 J	0.29 J	0.28 J	**3.5 [3.7]**	**1.4**	**3.4**	0.98	**6.3**	**8.5**	**14**	1.0	**5.1**	**6.0**	**7.6**	**14 [14]**	0.39 J	**23**	**1.9**	**20**	**7.4**	**14**
Chloromethane	4.2	3.7	ug/m3	1.0	1.0	1.0	1.1 [1.2]	1.0	1.3	0.92	3.5	1.6	1.5	1.0	1.0	1.0	1.0	1.2 [1.2]	1.2	1.2	1.3	1.5	1.2	1.4
cis-1,2-Dichloroethene	0.41	1.9	ug/m3	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	**3.1**	**1.5**	**0.66**
cis-1,3-Dichloropropene	0.38	2.3	ug/m3	0.36 U	0.36 U	0.36 U	0.36 U [0.36 U]	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U [0.36 U]	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Dichlorodifluoromethane	10	16.5	ug/m3	2.5	2.5	2.5	2.5 [2.5]	2.5	2.5	2.5	0.86	1.0	1.1	2.5	2.4	2.4	2.5	2.6 [2.7]	2.6	2.5	2.5	2.5	2.6	2.7
Ethylbenzene	6.4	5.7	ug/m3	0.16 J	0.21 J	0.17 J	0.16 J [0.16 J]	5.5	0.19 J	0.70	0.15 J	0.12 J	0.35 U	0.19 J	0.30 J	0.29 J	0.24 J	0.33 J [0.42]	0.31 J	0.43	0.36	0.58	0.44	1.4
Hexachlorobutadiene	0.49	6.8	ug/m3	0.85 U	0.85 U	0.85 U	0.85 U [0.85 U]	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U [0.85 U]	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
Methylene Chloride	16	10	ug/m3	1.6	1.0	1.7	0.83 [1.1]	0.70	0.99	0.71	1.1	1.4	1.1	0.73	0.96	0.76	2.6	1.9 [1.1]	0.76	1.1	1.3	1.8	3.4	1.2
m-Xylene & p-Xylene	11	22.2	ug/m3	0.39	0.62	0.56	0.49 [0.52]	**15**	0.55	2.6	0.47	0.29 J	0.21 J	0.62	0.93	0.91	0.64	1.1 [1.4]	0.99	1.3	1.2	2.4	1.5	2.8
Naphthalene	- -	5.1	ug/m3	1.0 U	1.0 U	1.0 U	3.2 [4.2]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	7.1	7.9	ug/m3	0.16 J	0.24 J	0.23 J	0.19 J [0.20 J]	4.1	0.21 J	0.83	0.18 J	0.35 U	0.35 U	0.24 J	0.37	0.36	0.23 J	0.42 [0.50]	0.33 J	0.48	0.39	0.88	0.58	0.59
Styrene	1.4	1.9	ug/m3	0.34 U	0.34 U	0.34 U	0.14 J [0.15 J]	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.10 J	0.34 U	0.34 U [0.34 U]	0.34 U	0.34 U	0.14 J	0.15 J	0.16 J	0.34 U
Tetrachloroethene	2.5	15.9	ug/m3	0.58	0.81	0.51 J	**3.8 J [0.51 J]**	1.1	0.66	0.44 J	0.44 J	0.16 J	0.37 J	0.74	0.88	0.77	0.64	0.62 [0.84]	0.55	0.84	0.74	**20**	**12**	**6.4**
Toluene	57	43	ug/m3	1.1	1.1	1.0	1.1 [1.2]	1.2	1.0	1.4	0.86	0.39	0.63	0.94	1.3	1.3	0.99	2.1 [1.9]	1.4	3.4	1.7	3.6	2.8	3.0
trans-1,3-Dichloropropene	0.4	1.3	ug/m3	0.36 U	0.36 U	0.36 U	0.36 U [0.36 U]	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U [0.36 U]	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Trichloroethene	0.46	4.2	ug/m3	0.21 U	0.21 U	0.15 J	**1.6 [0.21 U]**	0.084 J	0.21 U	0.21 U	0.082 J	0.21 U	0.16 J	0.21 U	0.21 U	0.21 U	0.21 U	0.081 J [0.087 J]	0.21 U	0.13 J	0.21 U	**2.5**	**1.0**	**3.1**
Trichlorofluoromethane	12	18.1	ug/m3	1.4	1.3	1.3	1.3 [1.3]	1.3	1.3	1.4	1.1	1.2	1.2	1.3	1.4	1.3	1.5	1.4 [1.5]	1.4	1.4	1.4	1.4	1.5	1.3
Vinyl Chloride	0.37	1.9	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U [0.20 U]	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U [0.20 U]	0.20 U	0.20 U	0.20 U	0.31	0.19 J	0.099 J
Total BTEX	- -	- -	ug/m3	1.9 J	2.1 J	1.8 J	1.9 J [2.0 J]	7.3	1.8 J	2.7	1.6 J	0.97 J	1.3	1.7 J	2.4 J	2.4 J	1.9 J	3.7 J [3.7]	2.4 J	5.1	3.0	5.9	4.3	5.0
Total VOCs	- -	- -	ug/m3	10 J	10 J	11 J	18 J [14 J]	24 J	13 J	12 J	17 J	16 J	22 J	11 J	16 J	17 J	19 J	27 J [28 J]	11 J	37 J	14 J	63 J	38 J	38 J
n-Alkanes																								
n-Butane	- -	- -	ug/m3	1.7	2.1	2.0	6.4 [6.5]	44 D	5.1	120 D	20	14	14	1.7	3.4	3.6	4.4	6.1 [6.0]	2.0	5.2	3.7	5.1	3.5	6.0
n-Decane	15	17.5	ug/m3	2.3 U	0.28 J	0.29 J	0.71 J [1.5 J]	7.7	0.15 J	1.6 J	0.38 J	0.17 J	0.14 J	0.38 J	0.96 J	0.90 J	0.55 J	0.49 J [0.59 J]	0.62 J	0.49 J	1.5 J	7.1	1.4 J	2.3 U
n-Dodecane	9.2	- -	ug/m3	0.23 J	2.8 U	2.8 U	0.41 J [0.43 J]	1.1 J	2.8 U	2.0 J	2.8 U	2.8 U	2.8 U	0.31 J	0.40 J	0.43 J	2.8 U	0.69 J [2.8 U]	2.8 U	0.34 J	0.35 J	0.23 J	2.8 U	2.8 U
n-Heptane	18	- -	ug/m3	0.22 J	0.36 J	0.37 J	0.22 J [0.19 J]	0.49 J	0.26 J	0.61 J	0.24 J	0.17 J	0.20 J	0.18 J	0.31 J	0.28 J	0.28 J	0.48 J [0.50 J]	0.21 J	0.56 J	0.29 J	0.73 J	0.43 J	2.4
n-Hexane	14	10.2	ug/m3	0.45 J	0.56 J	0.62 J	0.32 J [0.37 J]	0.44 J	0.38 J	0.52 J	0.41 J	0.31 J	0.51 J	0.37 J	0.52 J	0.52 J	0.59 J	1.4 [0.96]	0.36 J	1.0	0.51 J	2.0	0.94	0.78
n-Octane	5.2	- -	ug/m3	0.11 J	0.25 J	0.26 J	0.19 J [0.16 J]	0.65 J	0.16 J	0.68 J	0.17 J	0.75 U	0.071 J	0.14 J	0.27 J	0.22 J	0.19 J	0.29 J [0.33 J]	0.16 J	0.27 J	0.40 J	0.41 J	0.31 J	0.74
Nonane	7.9	7.8	ug/m3	1.0 U	0.23 J	0.22 J	0.21 J [0.24 J]	6.0	0.15 J	0.44 J	0.35 J	1.0 U	0.12 J	0.16 J	0.38 J	0.35 J	0.31 J	0.28 J [0.34 J]	0.25 J	0.26 J	0.64 J	0.34 J	0.22 J	1.0 U
n-Undecane	12	22.6	ug/m3	0.16 J	2.6 U	2.6 U	0.38 J [0.50 J]	3.6	2.6 U	2.7	2.6 U	2.6 U	2.6 U	0.31 J	0.55 J	0.66 J	0.24 J	0.49 J [0.28 J]	0.26 J	0.35 J	0.70 J	0.47 J	0.22 J	2.6 U
Pentane	- -	- -	ug/m3	0.59 J	0.86 J	0.86 J	0.57 J [0.58 J]	2.1	0.66 J	3.2	0.68 J	1.0 J	0.94 J	0.60 J	1.2	1.2	1.5	1.4 [1.5]	0.77 J	1.6	2.1	4.7	1.9	1.8
Branched Alkanes (Reported as TICs)																								
2,3-Dimethylpentane	5.2	- -	ug/m3	0.33 U	0.33 U	0.33 U	0.33 U [0.33 U]	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U [0.33 U]	0.33 U	0.33 U	0.33 U	0.38	0.33 U	0.40
Isopentane	- -	- -	ug/m3	1.0	1.5	1.1	0.94 [0.93]	1.2	0.92	1.2	1.2	1.6	1.4	1.0	2.1	2.1	2.5	2.9 [2.9]	1.5	4.2	5.5	6.9	3.2	2.0
2-methylpentane	- -	- -	ug/m3	0.31	0.45	0.38	0.28 U [0.29]	0.30	0.28 U	0.31	0.37	0.30	0.44	0.34	0.49	0.52	0.51	0.92 [0.94]	0.33	1.0	0.40	2.4	0.84	0.57
Other (Reported as TICs)																								
1,2,3-Trimethylbenzene	- -	- -	ug/m3	0.39 U	0.39 U	0.39 U	0.39 U [0.39 U]	1.2	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U [0.39 U]	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
2-Ethylthiophene	- -	- -	ug/m3	0.37 U	0.37 U	0.37 U	0.37 U [0.37 U]	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U [0.37 U]	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
2-Methylthiophene	- -	- -	ug/m3	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
3-Methylthiophene	- -	- -	ug/m3	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U [0.32 U]	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.88
Indane	- -	- -	ug/m3	0.39 U	0.39 U	0.39 U	0.39 U [0.39 U]	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U [0.39 U]	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
Indene	- -	- -	ug/m3	0.76 U	0.76 U	0.76 U	0.76 U [0.76 U]	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U [0.76 U]	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U
Isoctane	- -	- -	ug/m3	0.17 J	0.24 J	0.20 J	0.15 J [0.15 J]	0.20 J	0.15 J	0.22 J	0.17 J	0.41 J	0.16 J	0.18 J	0.25 J	0.27 J	0.31 J	0.83 J [0.89 J]	0.20 J	0.94	0.29 J	1.0	0.43 J	9.5
Isopropylbenzene	0.82	- -	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U [0.79 U]	0.40 J	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U [0.79 U]	0.79 U	0.79 U	0.79 U	0.13 J	0.79 U	0.79 U
Thiopene	- -	- -	ug/m3	0.28 U	0.28 U	0.28 U	0.28 U [0.28 U]	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U [0.28 U]	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U

Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., BROOKLYN, NEW YORK, 1967, PHOTOREVISED 1979.

2000' 0 2000'

Approximate Scale: 1" = 2000'

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
MANHATTAN, NEW YORK
INTERIM SITE MANAGEMENT PLAN

SITE LOCATION MAP

ARCADIS

FIGURE
1

08/07/08 SYRACUSE, NY-141/ENV-DJH-KLS
B0043013/0000/90100/CDR/43013N01.cdr

LEGEND:

- FORMER SITE FEATURES (FIRST OCCURRENCE–1868)
- FORMER SITE FEATURES (FIRST OCCURRENCE–1903)
- FORMER SITE FEATURES (FIRST OCCURRENCE–1920)
- ④ JACOB RIIS BUILDING NUMBER
- 367 BLOCK NUMBER

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE ORIGINAL SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).
5. ALL LOCATIONS ARE APPROXIMATE.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

EAST 11th STREET WORKS SITE

ARCADIS Design & Consultancy for natural and built assets

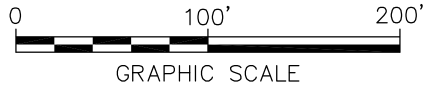
FIGURE
2

LEGEND:

SB-127 ▲	SOIL BORING
MW-106A ◐	MONITORING WELL
④	JACOB RIIS BUILDING NUMBER
🟧	ISMP AREA

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE OLD SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).
5. OLM = OIL-LIKE MATERIAL
   TLM = TAR-LIKE MATERIAL
   MGP = MANUFACTURED GAS PLANT
6. JACOB RIIS HOUSES COMPLEX EXTENDS FROM E. 6th STREET TO E. 13th STREET; BETWEEN AVENUE D AND F.D.R. DRIVE.



CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

ISMP AREA

ARCADIS

FIGURE
3

CITY:SYRACUSE, NY DIV/GROUP:ENV/CADD DB: A. SCHILLING, K. SARTORI, P. LISTER PM:MCS TM/TR: C. MASSARO LYR:ON=*;OFF=REF, (FRZ)
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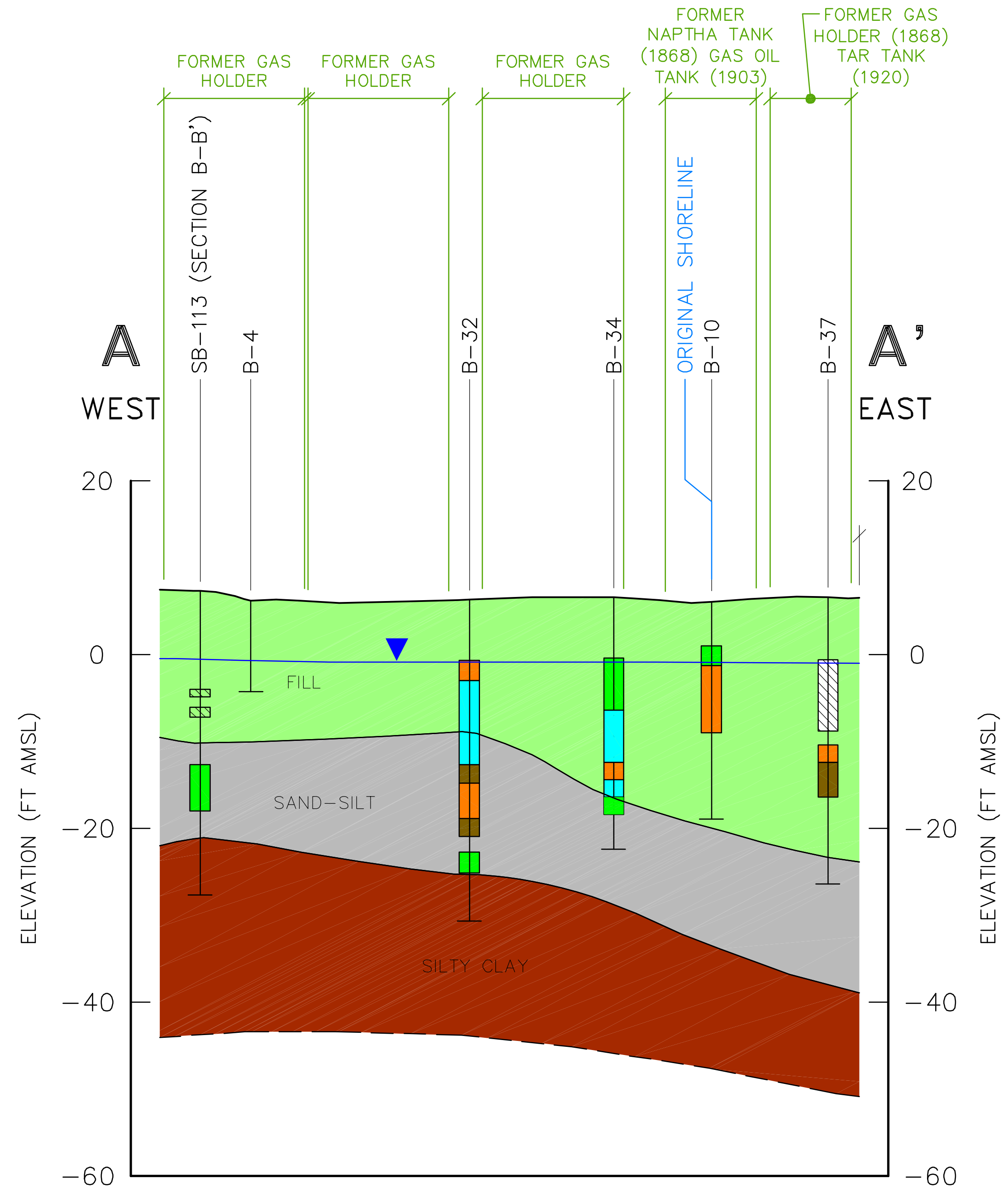
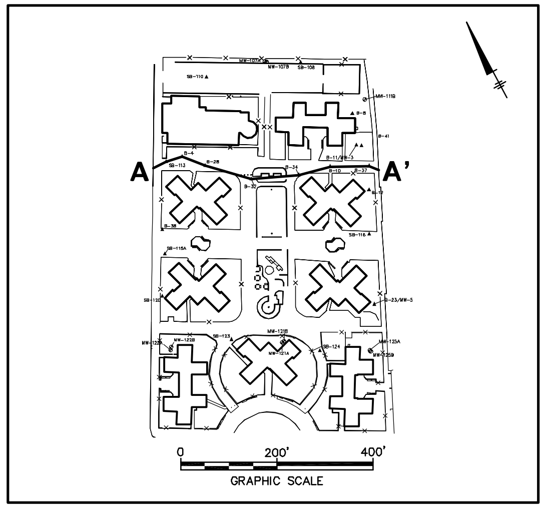
43013X02





SB-113 BORING ID

GROUND SURFACE

CONTACTS ARE APPROXIMATE AND INFERRED BETWEEN KNOWN DATA POINTS (BORINGS)

BOTTOM OF BORING

LEGEND:

▼ APPROXIMATE GROUNDWATER LEVELS AS MEASURED ON MARCH 5, 2007

🟫 TAR-LIKE MATERIAL (TLM)

🟧 OIL-LIKE MATERIAL (OLM)

🟦 OLM AND TLM

🟩 SHEEN

▨ WOOD

AMSL ABOVE MEAN SEA LEVEL

🟩 FILL

⬜ ALLUVIAL SAND-SILT UNIT

🟥 GLACIOLUCUSTRINE SILTY-CLAY UNIT

NOTES:

1. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
2. NO UNDERGROUND UTILITY CONDUITS ARE SHOWN.

0 20' 40'
VERTICAL SCALE

0 120' 240'
HORIZONTAL SCALE

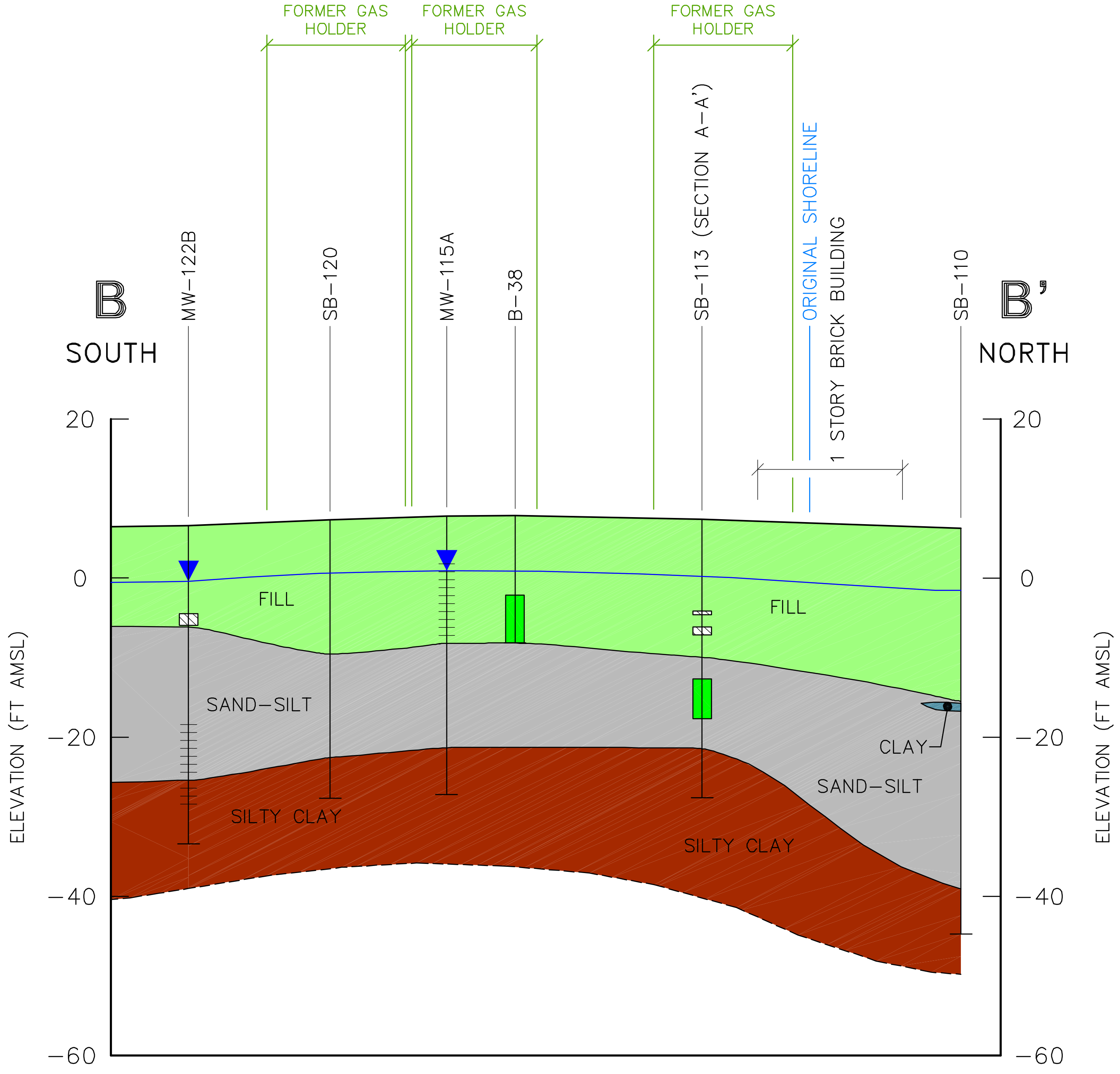
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11th STREET WORKS
INTERIM SITE MANAGEMENT PLAN

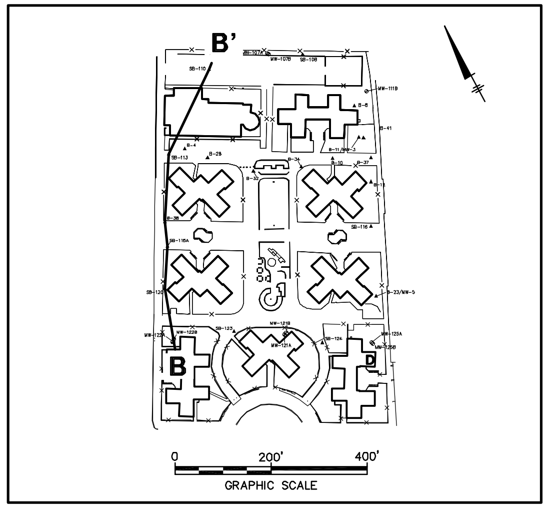
GENERALIZED GEOLOGIC CROSS SECTION A-A'

ARCADIS

FIGURE
4

CITY:SYRACUSE DIV/GROUP:141 DB:R. ALLEN, A.SCHILLING, W.JONES LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF* G:\ENVCAD\SYRACUSE\ACT\B0043013\0000\00500\DWG\REMINV\43013V12.dwg LAYOUT: 4 SAVED: 1/11/2011 3:45 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/11/2011 3:45 PM BY: JONES, WENDY
XREFS: 43013X01 IMAGES: PROJECTNAME: ---





MW-122B WELL OR BORING ID

GROUND SURFACE

CONTACTS ARE APPROXIMATE AND INFERRED BETWEEN KNOWN DATA POINTS (BORINGS, MONITORING WELLS, TEST PITS)

SCREEN

BOTTOM OF BORING

LEGEND:

▼ APPROXIMATE GROUNDWATER LEVELS AS MEASURED ON MARCH 5, 2007

■ TAR-LIKE MATERIAL (TLM)

■ OIL-LIKE MATERIAL (OLM)

■ OLM AND TLM

■ SHEEN

▨ WOOD

AMSL ABOVE MEAN SEA LEVEL

■ FILL

■ ALLUVIAL SAND-SILT UNIT

■ GLACIOLUCUSTRINE SILTY-CLAY UNIT

NOTE:

1. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
2. NO UNDERGROUND UTILITY CONDUITS ARE SHOWN.

0 20' 40'
VERTICAL SCALE

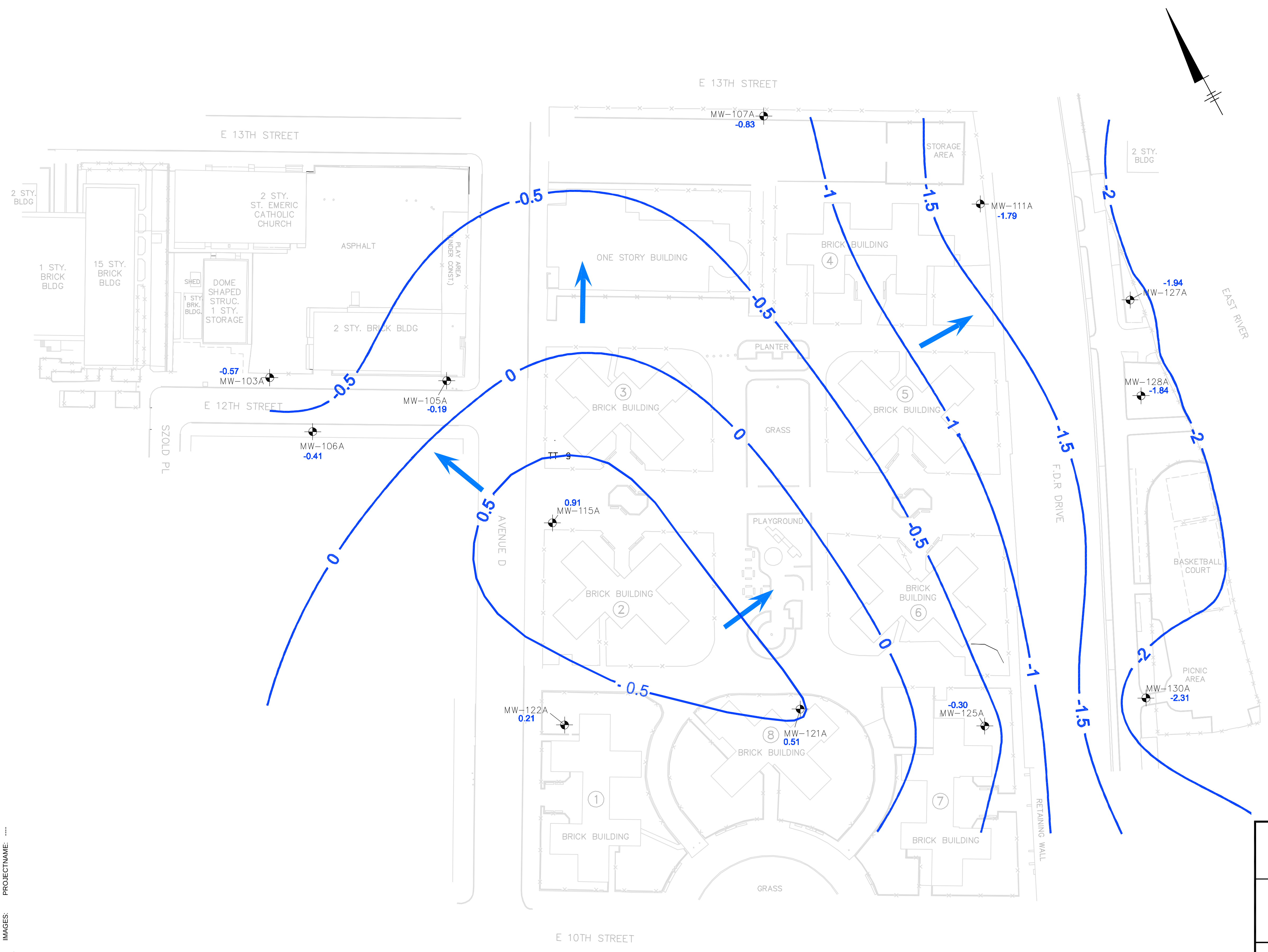
0 120' 240'
HORIZONTAL SCALE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11th STREET WORKS
INTERIM SITE MANAGEMENT PLAN

GENERALIZED GEOLOGIC CROSS SECTION B-B'

ARCADIS

FIGURE
5



LEGEND:

MW-106A ⌖ MONITORING WELL (REMEDIAL INVESTIGATION)

-1.84 GROUNDWATER ELEVATIONS IN FEET ABOVE OR BELOW BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM

-1.0 ── GROUNDWATER CONTOUR

← APPROXIMATE GROUNDWATER FLOW DIRECTION

④ JACOB RIIS BUILDING NUMBER

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE ORIGINAL SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).
5. DEEP MONITORING WELLS ARE DENOTED WITH A "B" (i.e., MW-104B); ALL OTHER WELLS ARE WATER TABLE WELLS.

0 100' 200'
GRAPHIC SCALE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11th STREET WORKS
INTERIM SITE MANAGEMENT PLAN

SHALLOW GROUNDWATER ELEVATION CONTOUR MAP - (MARCH 5, 2007)

ARCADIS

FIGURE
6

CITY:SYRACUSE DIV/GROUP:141 DB:R. ALLEN, A.SCHILLING, W.JONES LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0043013\0000\00500\DWG\REMINV\43013W03.dwg LAYOUT: 6 SAVED: 1/12/2011 11:29 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/12/2011 11:30 AM BY: JONES, WENDY
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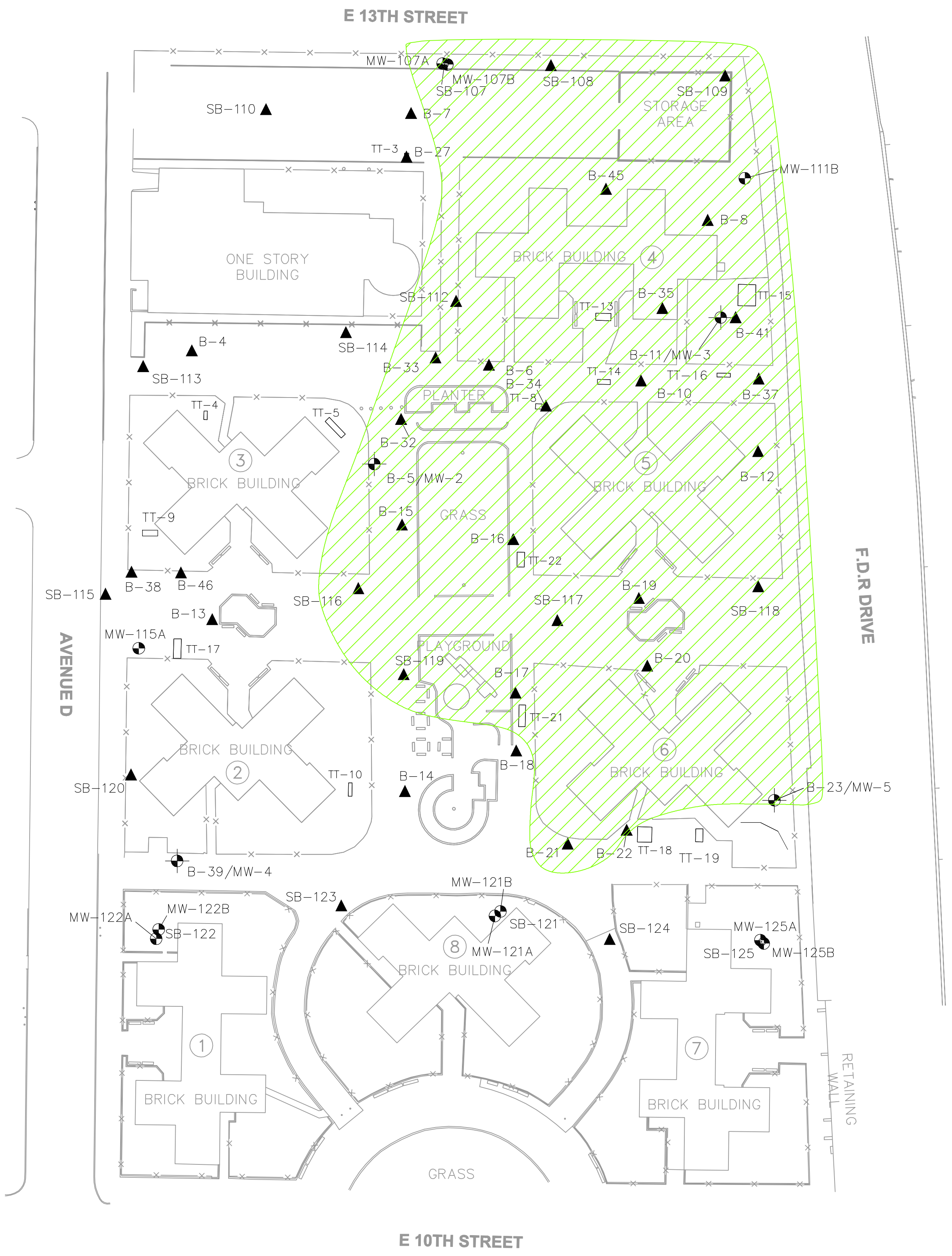

LEGEND:

SB-127 ▲	SOIL BORING
MW-106A ⊕	MONITORING WELL
④	JACOB RIIS BUILDING NUMBER
🟩	ESTIMATED EXTENT OF SUBSURFACE NAPL

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
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3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE OLD SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).
5. MGP-RELATED IMPACTS SHOWN FOR JACOB RIIS PROPERTY ONLY AND ARE BASED ON VISUAL OBSERVATIONS DURING SITE CHARACTERIZATION AND REMEDIAL INVESTIGATION.
6. MGP-RELATED IMPACTS WERE OBSERVED INTERMITTENTLY AT DEPTHS RANGING FROM 3 FEET BELOW GROUND SURFACE (BGS) TO 44 FEET BGS.
7. MGP-RELATED IMPACTS CONSIST OF:
   OIL-LIKE MATERIAL (OLM)
   TAR-LIKE MATERIAL (TLM)
   SHEEN
8. ALL LOCATIONS ARE APPROXIMATE.

0 100' 200'
GRAPHIC SCALE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

ESTIMATED EXTENT OF SUBSURFACE NAPL

ARCADIS

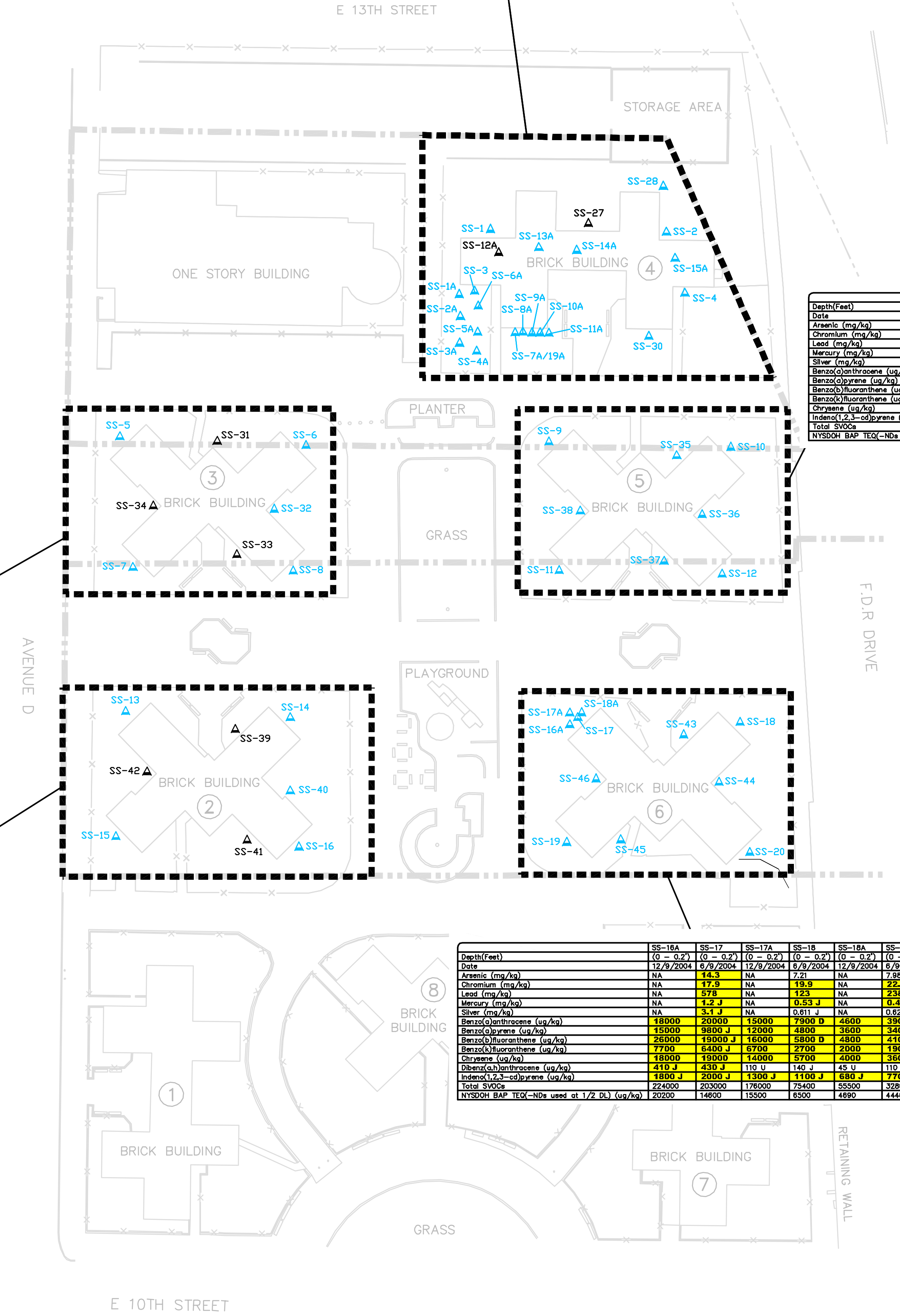
FIGURE
7

CITY:SYRACUSE, NY DIV/GROUP:ENV/CADD DB: A. SCHILLING, K. SARTORI, P. LISTER PM:MCS TM/TR: C. MASSARO LYR:ON=*;OFF=REF, (FRZ)
G:\ENVCAD\SYRACUSE\ACT\B0043013\0002\00022\DWG\43013C05.dwg LAYOUT: 7 SAVED: 4/5/2011 3:14 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/5/2011 3:15 PM BY: LISTER, PAUL
XREFS: 43013X00 43013X01 IMAGES: PROJECTNAME: ----

	SS-1	SS-1A	SS-2	SS-2A	SS-3	SS-3A	SS-4	SS-4A	SS-5A	SS-6A	SS-7A	SS-8A	SS-9A	SS-10A	SS-11A	SS-12A	SS-13A	SS-14A	SS-15A	SS-19A	SS-27	SS-28	SS-30
Depth(Feet)	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')
Date	6/11/2004	12/9/2004	6/11/2004	12/9/2004	6/11/2004	12/9/2004	6/11/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	8/24/2004	8/24/2004	8/24/2004
Arsenic (mg/kg)	**13.3**	NA	8.8	NA	6.5	NA	10.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (mg/kg)	**28.5**	NA	**50.3**	NA	**19.6**	NA	**32.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (mg/kg)	**252**	NA	**656**	NA	**2640**	NA	**408**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (mg/kg)	**0.89**	NA	**0.82**	NA	**0.86**	NA	**0.86**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene (ug/kg)	**2800**	**7100 D**	**1100 J**	**4700**	**44000**	**1200**	**13000**	**2200**	**3400**	**5500**	**4200**	**4700**	**2800**	**3400**	**2600**	150 J	**2800 J**	**4000 J**	**5700**	**1600**	260 J	**3400**	**2300**
Benzo(a)pyrene (ug/kg)	**2100**	**5200 D**	930 J	**3900**	**35000**	**1200**	**14000**	**2000**	**3200**	**4200**	**5200**	**4700**	**2800**	**3300**	**2600**	130 J	**2700 J**	**4200 J**	**8100**	**1600**	250 J	**2500**	**2800**
Benzo(b)fluoranthene (ug/kg)	**2700**	**6900 D**	**1300 J**	**4700**	**48000**	**1800**	**16000**	**2900**	**4900**	**5600**	**4700 D**	**7100**	**4100**	**4900**	**3600**	180 J	**3900 J**	**6000 J**	**10000**	**2300**	340 J	**2400**	**2000**
Benzo(k)fluoranthene (ug/kg)	**1200**	**3400**	540 J	**1900 J**	**22000**	690	**6700 J**	**1000**	**1800**	**1700 J**	**2700**	**2300 J**	**1400**	**1800**	**1200**	67 J	590 U	**2300 J**	**3100 J**	750 J	120 J	**2100**	**1900**
Chrysene (ug/kg)	**2600**	**6200 D**	**1100 J**	**4500**	**42000**	**1200**	**13000**	**2200**	**3400**	**4900**	**4200**	**4600**	**2900**	**3200**	**2600**	150 J	**2600 J**	**3800 J**	**6300**	**1500**	270 J	**3100**	**2400**
Dibenz(a,h)anthracene (ug/kg)	23 U	210 J	45 U	110 U	**840 J**	41 J	220 U	23 U	82 J	110 U	150 J	120 U	84 J	99 J	22 U	9.8 U	510 U	200 U	100 U	24 U	12 U	190 J	180 J
Fluoranthene (ug/kg)	4900 D	16000 D	1900 J	11000	**110000 D**	2700	23000 J	5100	6200 D	13000	7600 D	11000	6200	6900 D	5700	280 J	5900 J	8100	8000	3700	490	5900	3100
Indeno(1,2,3–cd)pyrene (ug/kg)	**550 J**	**1400**	190 J	**1800 J**	**6400 J**	150 J	**3000 J**	370 J	390 J	**1900 J**	**710 J**	**720 J**	500 J	460 J	**520 J**	78 J	420 U	**710 J**	**1300 J**	220 J	130 J	**1400**	**1100**
Total SVOCs	30600	81900	10900	50100	469000	14200	148000	24900	36500	56900	45900	57600	34000	38800	30000	1910	30200	47200	78300	19400	2930	37800	27500
NYSDOH BAP TEQ(–NDs used at 1/2 DL) (ug/kg)	2750	7050	1230	5140	46300	1570	17500	2590	4200	5620	6380	6080	3670	4330	3320	178	3670	5430	9940	2050	333	3460	3560

LEGEND:

SS-27▲	SOIL SAMPLE WITH NO EXCEEDANCES
SS-4▲	SOIL SAMPLE WITH EXCEEDANCES OF UNRESTRICTED USE SCO, BUT TSVOCs <500,000 ug/kg
860	EXCEEDANCE OF UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
J	INDICATES AN ESTIMATED VALUE
D	COMPOUND ANALYZED AT A DILUTION
mg/kg	MICROGRAMS PER KILOGRAM
*	COMPARED TO CRITERION FOR HEXAVALENT CHROMIUM
^	COMPARED TO CRITERION FOR TRIVALENT CHROMIUM
④	JACOB RIIS BUILDING NUMBER



	SS-9	SS-10	SS-11	SS-12	SS-35	SS-36	SS-37	SS-38
Depth(Feet)	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')
Date	6/9/2004	6/9/2004	6/9/2004	6/9/2004	8/24/2004	8/24/2004	8/24/2004	8/24/2004
Arsenic (mg/kg)	**25.8**	**15 [12.3]**	**32.1**	**13.2**	NA	NA	NA	NA
Chromium (mg/kg)	**23.4**	**23.1 [18.7]**	**21.6**	**30.8**	NA	NA	NA	NA
Lead (mg/kg)	**135**	**129 [83.2]**	**158**	**255**	NA	NA	NA	NA
Mercury (mg/kg)	**0.93 J**	**0.42 J [0.48 J]**	**0.47 J**	**0.59 J**	NA	NA	NA	NA
Silver (mg/kg)	0.786 J	**2.26 J [0.722 J]**	0.895 J	0.908 J	NA	NA	NA	NA
Benzo(a)anthracene (ug/kg)	**6800 D**	**2100 [560]**	750	500	970	1000	**1400**	**3600**
Benzo(a)pyrene (ug/kg)	**5700**	**1800 J [480]**	610	390	960	910	**1500**	**2700**
Benzo(b)fluoranthene (ug/kg)	**6500 D**	**1400 J [490]**	850	510	860	**1100**	**1300**	**2500**
Benzo(k)fluoranthene (ug/kg)	**3200**	**1200 J [240 J]**	350 J	230 J	**820**	560	**1400**	**2400**
Chrysene (ug/kg)	**6300**	**2100 [550]**	760	490	930	970	**1300**	**3300**
Indeno(1,2,3–cd)pyrene (ug/kg)	**1100 J**	**810 J [300 J]**	160 J	150 J	300 J	300 J	**540 J**	**920**
Total SVOCs	77900	20000	7900	6050	11500	11100	16400	37400
NYSDOH BAP TEQ(–NDs used at 1/2 DL) (ug/kg)	7410	2290 [628]	803	519	1200	1220	1950	3620

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE ORIGINAL SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).

	SS-5	SS-6	SS-7	SS-8	SS-31	SS-32	SS-33	SS-34
Depth(Feet)	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')
Date	6/9/2004	6/9/2004	6/9/2004	6/9/2004	8/24/2004	8/24/2004	8/24/2004	8/24/2004
Arsenic (mg/kg)	**24.1**	**23.4**	**32.8**	**16**	NA	NA	NA	NA
Chromium (mg/kg)	**20.7**	**23.7**	**18.3**	**12.9**	NA	NA	NA	NA
Lead (mg/kg)	**906**	**188**	**133**	**257**	NA	NA	NA	NA
Mercury (mg/kg)	**0.75 J**	**0.44 J**	**0.58 J**	**0.58 J**	NA	NA	NA	NA
Silver (mg/kg)	**3.63 J**	0.341 J	0.476 J	0.282 J	NA	NA	NA	NA
Benzo(a)anthracene (ug/kg)	**1800**	**2700**	**1500**	**2100**	300 J	**1100**	530	550
Benzo(a)pyrene (ug/kg)	**1400**	**1200 J**	**1200**	**2400**	280 J	1000	470	500
Benzo(b)fluoranthene (ug/kg)	**2000**	**2100**	**1500**	**2400**	380 J	930	480	680
Benzo(k)fluoranthene (ug/kg)	**850**	**1100 J**	780	**1100 J**	160 J	**860**	450	260 J
Chrysene (ug/kg)	**1700**	**2300**	**1300**	**1900**	280 J	990	560	520
Indeno(1,2,3–cd)pyrene (ug/kg)	260 J	**970 J**	210 J	**1500 J**	130 J	450	160 J	170 J
Total SVOCs	20000	27000	16900	21500	2800	12100	6370	6680
NYSDOH BAP TEQ(–NDs used at 1/2 DL) (ug/kg)	1880	1830	1580	3060	372	1330	603	654

	SS-13	SS-14	SS-15	SS-16	SS-39	SS-40	SS-41	SS-42
Depth(Feet)	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')
Date	6/9/2004	6/9/2004	6/9/2004	6/9/2004	8/24/2004	8/24/2004	8/24/2004	8/24/2004
Arsenic (mg/kg)	**54.4**	**33.1**	**46.8**	**32.3**	NA	NA	NA	NA
Chromium (mg/kg)	**16.7**	**16.3**	**14.5**	**19.2**	NA	NA	NA	NA
Lead (mg/kg)	**98.8**	**101**	**78.8**	**97.7**	NA	NA	NA	NA
Mercury (mg/kg)	**0.5 J**	**0.36 J**	**0.54 J**	**0.52 J**	NA	NA	NA	NA
Silver (mg/kg)	0.344 J	0.397 J	0.119 J	0.33 J	NA	NA	NA	NA
Benzo(a)anthracene (ug/kg)	350 J	**1100**	**1100**	**7600 D**	670 J	**2000**	180 J	190 J
Benzo(a)pyrene (ug/kg)	290 J	760	790	**8000 J**	730 J	**1900**	190 J	190 J
Benzo(b)fluoranthene (ug/kg)	280 J	940	960	**11000 J**	700 J	**2100**	170 J	230 J
Benzo(k)fluoranthene (ug/kg)	160 J	420	430	**4400 J**	640 J	**1500**	180 J	110 J
Chrysene (ug/kg)	310 J	1000	950	**6200 D**	670 J	**2000**	190 J	210 J
Dibenz(a,h)anthracene (ug/kg)	11 UJ	11 UJ	11 UJ	190 J	26 U	96 J	11 U	12 U
Indeno(1,2,3–cd)pyrene (ug/kg)	170 J	360 J	340 J	**1200 J**	230 J	**530 J**	110 J	110 J
Total SVOCs	3770	11200	11600	70100	8640	24800	2170	2340
NYSDOH BAP TEQ(–NDs used at 1/2 DL) (ug/kg)	380	1020	1050	10300	916	2490	245	252

	SS-16A	SS-17	SS-17A	SS-18	SS-18A	SS-19	SS-20	SS-43	SS-44	SS-45	SS-46
Depth(Feet)	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')	(0 – 0.2')
Date	12/9/2004	6/9/2004	12/9/2004	6/9/2004	12/9/2004	6/9/2004	6/9/2004	8/24/2004	8/24/2004	8/24/2004	8/24/2004
Arsenic (mg/kg)	NA	**14.3**	NA	7.21	NA	7.98	5.63	NA	NA	NA	NA
Chromium (mg/kg)	NA	**17.9**	NA	**19.9**	NA	**22.5**	**17.6**	NA	NA	NA	NA
Lead (mg/kg)	NA	**578**	NA	**123**	NA	**238**	**265**	NA	NA	NA	NA
Mercury (mg/kg)	NA	**1.2 J**	NA	**0.53 J**	NA	**0.46 J**	**0.48 J**	NA	NA	NA	NA
Silver (mg/kg)	NA	**3.1 J**	NA	0.611 J	NA	0.624 J	0.661 J	NA	NA	NA	NA
Benzo(a)anthracene (ug/kg)	**18000**	**20000**	**15000**	**7900 D**	**4600**	**3900**	**2400**	**1500**	**4100**	**5300**	**7300 D**
Benzo(a)pyrene (ug/kg)	**15000**	**9800 J**	**12000**	**4800**	**3600**	**3400**	**2000**	**1300**	**3200**	**4400**	**5800**
Benzo(b)fluoranthene (ug/kg)	**26000**	**19000 J**	**16000**	**5800 D**	**4800**	**4100**	**2900**	**1400**	**3600**	**5200**	**7100 D**
Benzo(k)fluoranthene (ug/kg)	**7700**	**6400 J**	**6700**	**2700**	**2000**	**1900**	**1200**	**1200**	**2800**	**3400**	**3000**
Chrysene (ug/kg)	**18000**	**19000**	**14000**	**5700**	**4000**	**3600**	**2300**	**1400**	**3500**	**5200**	**7400 D**
Dibenz(a,h)anthracene (ug/kg)	**410 J**	**430 J**	110 U	140 J	45 U	110 J	83 J	27 U	140 J	210 J	260 J
Indeno(1,2,3–cd)pyrene (ug/kg)	**1800 J**	**2000 J**	**1300 J**	**1100 J**	**680 J**	**770 J**	500 J	350 J	**840**	**1100**	**1700**
Total SVOCs	224000	203000	176000	75400	55500	32800	23800	19500	35400	55000	84000
NYSDOH BAP TEQ(–NDs used at 1/2 DL) (ug/kg)	20200	14600	15500	6500	4690	4440	2700	1660	4260	5860	7770

Unrestricted Use SCO – Cr 1 SVOCs (ug/kg)	
Analyte	Criteria Value
1,2–Dichlorobenzene	1100
1,3–Dichlorobenzene	2400
1,4–Dichlorobenzene	1800
2–Methylphenol	330
3–Methylphenol	330
4–Methylphenol	330
Acenaphthene	20000
Acenaphthylene	100000
Anthracene	100000
Benzo(a)anthracene	1000
Benzo(a)pyrene	1000
Benzo(b)fluoranthene	1000
Benzo(g,h,i)perylene	100000
Benzo(k)fluoranthene	800
Chrysene	1000
Dibenzo(a,h)anthracene	330
Dibenzofuran	7000
Fluoranthene	100000
Fluorene	30000
Hexachlorobenzene	330
Indeno(1,2,3–cd)pyrene	500
Naphthalene	12000
Pentachlorophenol	800
Phenanthrene	100000
Phenol	330
Pyrene	100000
Total SVOCs	500000

Unrestricted Use SCO – Cr 1 Metals(mg/kg)	
Analyte	Criteria Value
Arsenic	13
Barium	350
Beryllium	7.2
Cadmium	2.5
Chromium	1
Copper	50
Lead	63
Mercury	0.18
Nickel	30
Selenium	3.9
Silver	2
Zinc	109

0 100' 200'

GRAPHIC SCALE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

SURFACE SOIL ANALYTICAL RESULTS

ARCADIS

FIGURE
8

CITY:Syracuse, NY DIV/GROUP:Env-141 DB:AMS RCA KLS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0043013\0000\11000\DWG\INTERIM\43013C15.dwg LAYOUT: 8 SAVED: 1/12/2011 10:59 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/12/2011 10:59 AM BY: JONES, WENDY
XREFS: 43013X01 IMAGES: PROJECTNAME: ----

CITY:Syracuse-NY DIV/GROUP:ENV/CAD DB:AMS, K.SARTORI LD: PIC:(Opt) PM:B.W.AHRENS TM: LYR:(Opt)ON=*;OFF=*REF* ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 5/24/2017 10:15 AM BY: SARTORI, KATHERINE
G:\ENVCAD\SYRACUSE\ACT\B0043013\0007\00001\DWG\INTERIM\43013C09.dwg LAYOUT: 9 SAVED: 4/23/2008 12:30 PM
IMAGES: PROJECTNAME: ----
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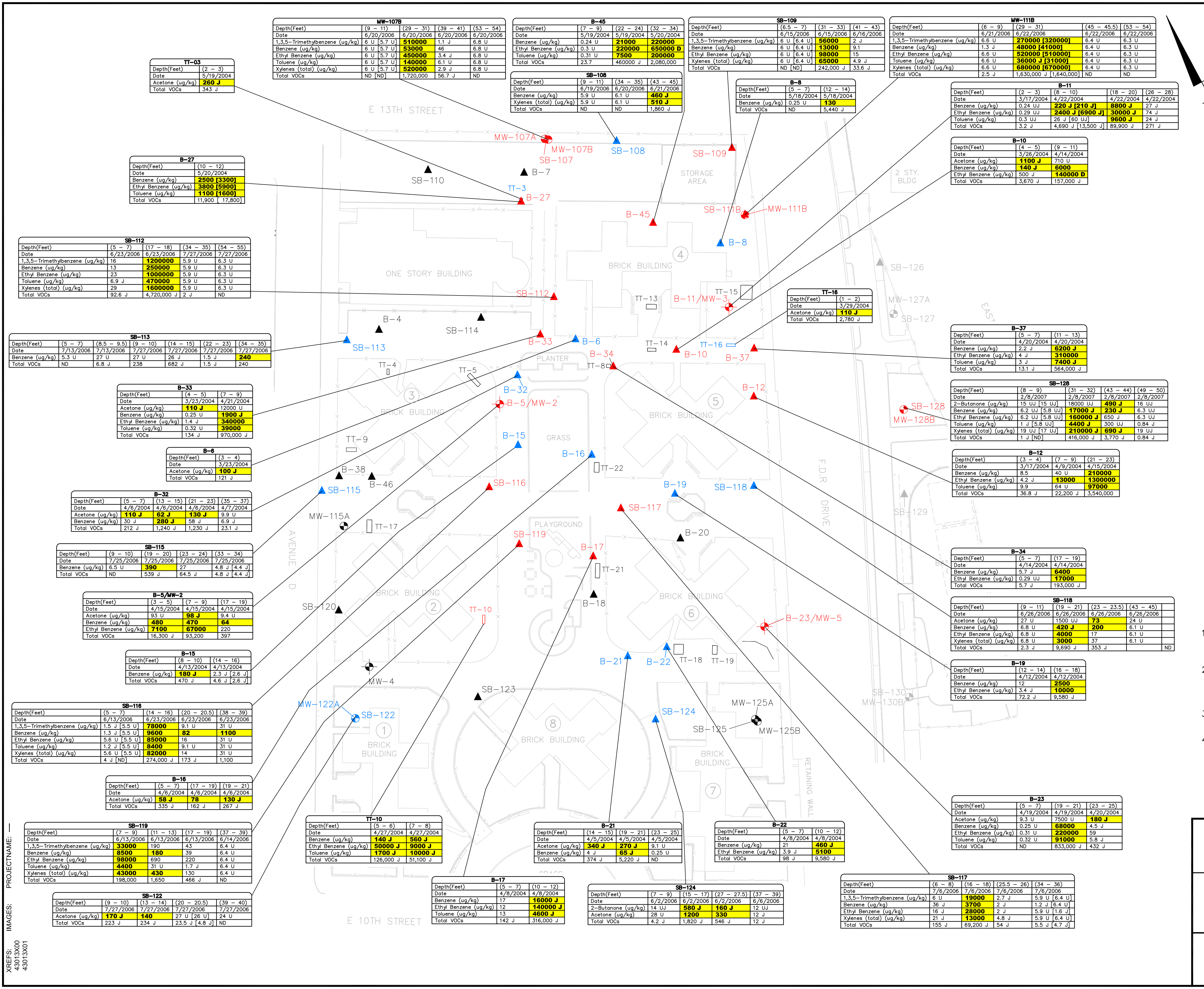


TT-03

Depth(Feet)	(2 – 3)
Date	5/19/2004
Acetone (ug/kg)	**260 J**
Total VOCs	343 J

MW-107B

Depth(Feet)	(9 – 11)	(29 – 31)	(39 – 41)	(53 – 54)
Date	6/20/2006	6/20/2006	6/20/2006	6/20/2006
1,3,5–Trimethylbenzene (ug/kg)	6 U [5.7 U]	**510000**	1.1 J	6.8 U
Benzene (ug/kg)	6 U [5.7 U]	**53000**	46	6.8 U
Ethyl Benzene (ug/kg)	6 U [5.7 U]	**450000**	3.4 J	6.8 U
Toluene (ug/kg)	6 U [5.7 U]	**140000**	6.1 U	6.8 U
Xylenes (total) (ug/kg)	6 U [5.7 U]	**520000**	2.9 J	6.8 U
Total VOCs	ND [ND]	1,720,000	56.7 J	ND

B-45

Depth(Feet)	(7 – 9)	(22 – 24)	(32 – 34)
Date	5/19/2004	5/19/2004	5/20/2004
Benzene (ug/kg)	0.24 U	**21000**	**220000**
Ethyl Benzene (ug/kg)	0.3 U	**220000**	**650000 D**
Toluene (ug/kg)	0.31 U	**7500**	**200000**
Total VOCs	23.7	460000 J	2,080,000

SB-108

Depth(Feet)	(9 – 11)	(34 – 35)	(43 – 45)
Date	6/19/2006	6/20/2006	6/21/2006
Benzene (ug/kg)	5.9 U	6.1 U	**460 J**
Xylenes (total) (ug/kg)	5.9 U	6.1 U	**510 J**
Total VOCs	ND	ND	1,860 J

SB-109

Depth(Feet)	(6.5 – 7)	(31 – 33)	(41 – 43)
Date	6/15/2006	6/15/2006	6/16/2006
1,3,5–Trimethylbenzene (ug/kg)	6 U [6.4 U]	**56000**	2 J
Benzene (ug/kg)	6 U [6.4 U]	**13000**	9.1
Ethyl Benzene (ug/kg)	6 U [6.4 U]	**98000**	15
Xylenes (total) (ug/kg)	6 U [6.4 U]	**65000**	4.9 J
Total VOCs	ND [ND]	242,000 J	33.6 J

B-8

Depth(Feet)	(5 – 7)	(12 – 14)
Date	5/18/2004	5/18/2004
Benzene (ug/kg)	0.25 U	**130**
Total VOCs	ND	5,440 J

MW-111B

Depth(Feet)	(6 – 9)	(29 – 31)	(45 – 45.5)	(53 – 54)
Date	6/21/2006	6/22/2006	6/22/2006	6/22/2006
1,3,5–Trimethylbenzene (ug/kg)	6.6 U	**270000 [320000]**	6.4 U	6.3 U
Benzene (ug/kg)	1.3 J	**48000 [41000]**	6.4 U	6.3 U
Ethyl Benzene (ug/kg)	6.6 U	**520000 [510000]**	6.4 U	6.3 U
Toluene (ug/kg)	6.6 U	**36000 J [31000]**	6.4 U	6.3 U
Xylenes (total) (ug/kg)	6.6 U	**680000 [670000]**	6.4 U	6.3 U
Total VOCs	2.5 J	1,630,000 J [1,640,000]	ND	ND

B-11

Depth(Feet)	(2 – 3)	(8 – 10)	(18 – 20)	(26 – 28)
Date	3/17/2004	4/22/2004	4/22/2004	4/22/2004
Benzene (ug/kg)	0.24 UJ	**220 J [210 J]**	**8800 J**	27 J
Ethyl Benzene (ug/kg)	0.29 UJ	**2400 J [6900 J]**	**30000 J**	74 J
Toluene (ug/kg)	0.3 UJ	26 J [60 UJ]	**9600 J**	24 J
Total VOCs	3.2 J	4,690 J [13,500 J]	89,900 J	271 J

B-10

Depth(Feet)	(4 – 5)	(9 – 11)
Date	3/26/2004	4/14/2004
Acetone (ug/kg)	**1100 J**	710 U
Benzene (ug/kg)	**140 J**	**6000**
Ethyl Benzene (ug/kg)	500 J	**140000 D**
Total VOCs	3,670 J	157,000 J

B-27

Depth(Feet)	(10 – 12)
Date	5/20/2004
Benzene (ug/kg)	**2500 [3300]**
Ethyl Benzene (ug/kg)	**3800 [5900]**
Toluene (ug/kg)	**1100 [1600]**
Total VOCs	11,900 [17,800]

SB-112

Depth(Feet)	(5 – 7)	(17 – 18)	(34 – 35)	(54 – 55)
Date	6/23/2006	6/23/2006	7/27/2006	7/27/2006
1,3,5–Trimethylbenzene (ug/kg)	16	**1200000**	5.9 U	6.3 U
Benzene (ug/kg)	13	**250000**	5.9 U	6.3 U
Ethyl Benzene (ug/kg)	23	**1000000**	5.9 U	6.3 U
Toluene (ug/kg)	6.9 J	**470000**	5.9 U	6.3 U
Xylenes (total) (ug/kg)	29	**1600000**	5.9 U	6.3 U
Total VOCs	92.6 J	4,720,000 J	2 J	ND

TT-16

Depth(Feet)	(1 – 2)
Date	3/29/2004
Acetone (ug/kg)	**110 J**
Total VOCs	2,780 J

SB-113

Depth(Feet)	(5 – 7)	(8.5 – 9.5)	(9 – 10)	(14 – 15)	(22 – 23)	(34 – 35)
Date	7/13/2006	7/13/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006
Benzene (ug/kg)	5.3 U	27 U	27 U	26 J	1.5 J	**240**
Total VOCs	ND	6.8 J	238	682 J	1.5 J	240

B-37

Depth(Feet)	(5 – 7)	(11 – 13)
Date	4/20/2004	4/20/2004
Benzene (ug/kg)	2.2 J	**6200 J**
Ethyl Benzene (ug/kg)	4 J	**310000**
Toluene (ug/kg)	3 J	**7400 J**
Total VOCs	13.1 J	564,000 J

SB-128

Depth(Feet)	(8 – 9)	(31 – 32)	(43 – 44)	(49 – 50)
Date	2/8/2007	2/8/2007	2/8/2007	2/8/2007
2–Butanone (ug/kg)	15 UJ [15 UJ]	18000 UJ	**490 J**	16 UJ
Benzene (ug/kg)	6.2 UJ [5.8 UJ]	**17000 J**	**230 J**	6.3 UJ
Ethyl Benzene (ug/kg)	6.2 UJ [5.8 UJ]	**160000 J**	650 J	6.3 UJ
Toluene (ug/kg)	1 J [5.8 UJ]	**4400 J**	300 UJ	0.84 J
Xylenes (total) (ug/kg)	19 UJ [17 UJ]	**210000 J**	**690 J**	19 UJ
Total VOCs	1 J [ND]	416,000 J	3,770 J	0.84 J

B-33

Depth(Feet)	(4 – 5)	(7 – 9)
Date	3/23/2004	4/21/2004
Acetone (ug/kg)	**110 J**	12000 U
Benzene (ug/kg)	0.25 U	**1900 J**
Ethyl Benzene (ug/kg)	1.4 J	**340000**
Toluene (ug/kg)	0.32 U	**39000**
Total VOCs	134 J	970,000 J

B-6

Depth(Feet)	(3 – 4)
Date	3/23/2004
Acetone (ug/kg)	**100 J**
Total VOCs	121 J

B-12

Depth(Feet)	(3 – 4)	(7 – 9)	(21 – 23)
Date	3/17/2004	4/9/2004	4/15/2004
Benzene (ug/kg)	8.5	40 U	**210000**
Ethyl Benzene (ug/kg)	4.2 J	**13000**	**1300000**
Toluene (ug/kg)	9.9	64 U	**97000**
Total VOCs	36.8 J	22,200 J	3,540,000

B-32

Depth(Feet)	(5 – 7)	(13 – 15)	(21 – 23)	(35 – 37)
Date	4/6/2004	4/6/2004	4/6/2004	4/7/2004
Acetone (ug/kg)	**110 J**	**62 J**	**130 J**	9.9 U
Benzene (ug/kg)	30 J	**280 J**	58 J	6.9 J
Total VOCs	212 J	1,240 J	1,230 J	23.1 J

SB-115

Depth(Feet)	(9 – 10)	(19 – 20)	(23 – 24)	(33 – 34)
Date	7/25/2006	7/25/2006	7/25/2006	7/25/2006
Benzene (ug/kg)	6.5 U	**390**	27	4.8 J [4.4 J]
Total VOCs	ND	539 J	64.5 J	4.8 J [4.4 J]

B-34

Depth(Feet)	(5 – 7)	(17 – 19)
Date	4/14/2004	4/14/2004
Benzene (ug/kg)	5.7 J	**6400**
Ethyl Benzene (ug/kg)	0.29 UJ	**17000**
Total VOCs	5.7 J	193,000 J

B-5/MW-2

Depth(Feet)	(3 – 5)	(7 – 9)	(17 – 19)
Date	4/15/2004	4/15/2004	4/15/2004
Acetone (ug/kg)	93 U	**98 J**	9.4 U
Benzene (ug/kg)	**480**	**470**	**64**
Ethyl Benzene (ug/kg)	**7100**	**67000**	220
Total VOCs	16,300 J	93,200	397

SB-118

Depth(Feet)	(9 – 11)	(19 – 21)	(23 – 23.5)	(43 – 45)	
Date	6/26/2006	6/26/2006	6/26/2006	6/26/2006	
Acetone (ug/kg)	27 U	1500 UJ	**73**	24 U	
Benzene (ug/kg)	6.8 U	**420 J**	**200**	6.1 U	
Ethyl Benzene (ug/kg)	6.8 U	**4000**	17	6.1 U	
Xylenes (total) (ug/kg)	6.8 U	**3000**	37	6.1 U	
Total VOCs	2.3 J	9,690 J	353 J		ND

B-15

Depth(Feet)	(8 – 10)	(14 – 16)
Date	4/13/2004	4/13/2004
Benzene (ug/kg)	**180 J**	2.3 J [2.6 J]
Total VOCs	470 J	4.6 J [2.6 J]

B-19

Depth(Feet)	(12 – 14)	(16 – 18)
Date	4/12/2004	4/12/2004
Benzene (ug/kg)	12	**2500**
Ethyl Benzene (ug/kg)	3.4 J	**10000**
Total VOCs	72.2 J	9,580 J

SB-116

Depth(Feet)	(5 – 7)	(14 – 16)	(20 – 20.5)	(38 – 39)
Date	6/13/2006	6/23/2006	6/23/2006	6/23/2006
1,3,5–Trimethylbenzene (ug/kg)	1.5 J [5.5 U]	**78000**	9.1 U	31 U
Benzene (ug/kg)	1.3 J [5.5 U]	**9600**	**82**	**1100**
Ethyl Benzene (ug/kg)	5.6 U [5.5 U]	**85000**	16	31 U
Toluene (ug/kg)	1.2 J [5.5 U]	**8400**	9.1 U	31 U
Xylenes (total) (ug/kg)	5.6 U [5.5 U]	**82000**	14	31 U
Total VOCs	4 J [ND]	274,000 J	173 J	1,100

B-16

Depth(Feet)	(5 – 7)	(17 – 19)	(19 – 21)
Date	4/6/2004	4/6/2004	4/6/2004
Acetone (ug/kg)	**58 J**	**78**	**130 J**
Total VOCs	335 J	162 J	267 J

B-23

Depth(Feet)	(5 – 7)	(19 – 21)	(23 – 25)
Date	4/19/2004	4/19/2004	4/20/2004
Acetone (ug/kg)	9.3 U	7500 U	**180 J**
Benzene (ug/kg)	0.25 U	**68000**	4.5 J
Ethyl Benzene (ug/kg)	0.31 U	**220000**	59
Toluene (ug/kg)	0.32 U	**91000**	5.8 J
Total VOCs	ND	833,000 J	432 J

SB-119

Depth(Feet)	(7 – 9)	(11 – 13)	(17 – 19)	(37 – 39)
Date	6/13/2006	6/13/2006	6/13/2006	6/14/2006
1,3,5–Trimethylbenzene (ug/kg)	**33000**	190	43	6.4 U
Benzene (ug/kg)	**8500**	**180**	39	6.4 U
Ethyl Benzene (ug/kg)	**98000**	690	220	6.4 U
Toluene (ug/kg)	**4400**	31 U	1.7 J	6.4 U
Xylenes (total) (ug/kg)	**43000**	**430**	130	6.4 U
Total VOCs	198,000	1,650	466 J	ND

TT-10

Depth(Feet)	(5 – 6)	(7 – 8)
Date	4/27/2004	4/27/2004
Benzene (ug/kg)	**140 J**	**560 J**
Ethyl Benzene (ug/kg)	**50000 J**	**9000 J**
Toluene (ug/kg)	**1700 J**	**10000 J**
Total VOCs	126,000 J	51,100 J

B-21

Depth(Feet)	(14 – 15)	(19 – 21)	(23 – 25)
Date	4/5/2004	4/5/2004	4/5/2004
Acetone (ug/kg)	**340 J**	**270 J**	9.1 U
Benzene (ug/kg)	4 J	**65 J**	0.25 U
Total VOCs	374 J	5,220 J	ND

B-22

Depth(Feet)	(5 – 7)	(10 – 12)
Date	4/8/2004	4/8/2004
Benzene (ug/kg)	21	**460 J**
Ethyl Benzene (ug/kg)	3.9 J	**5100**
Total VOCs	98 J	9,580 J

SB-122

Depth(Feet)	(9 – 10)	(13 – 14)	(20 – 20.5)	(39 – 40)
Date	7/27/2006	7/27/2006	7/27/2006	7/27/2006
Acetone (ug/kg)	**170 J**	**140**	27 U [26 U]	24 U
Total VOCs	223 J	234 J	23.5 J [4.8 J]	ND

B-17

Depth(Feet)	(5 – 7)	(10 – 12)
Date	4/8/2004	4/8/2004
Benzene (ug/kg)	17	**16000 J**
Ethyl Benzene (ug/kg)	12	**140000 J**
Toluene (ug/kg)	13	**4600 J**
Total VOCs	142 J	316,000 J

SB-124

Depth(Feet)	(7 – 9)	(15 – 17)	(27 – 27.5)	(37 – 39)
Date	6/2/2006	6/2/2006	6/2/2006	6/6/2006
2–Butanone (ug/kg)	14 UJ	**580 J**	**160 J**	12 UJ
Acetone (ug/kg)	28 U	**1200**	**330**	12 J
Total VOCs	4.2 J	1,820 J	546 J	12 J

SB-117

Depth(Feet)	(6 – 8)	(16 – 18)	(25.5 – 26)	(34 – 36)
Date	7/6/2006	7/6/2006	7/6/2006	7/6/2006
1,3,5–Trimethylbenzene (ug/kg)	6 U	**19000**	2.7 J	5.9 U [6.4 U]
Benzene (ug/kg)	36 J	**3700**	2 J	1.2 J [6.4 U]
Ethyl Benzene (ug/kg)	16 J	**28000**	2 J	5.9 U [1.6 J]
Xylenes (total) (ug/kg)	21 J	**13000**	4.8 J	5.9 U [6.4 U]
Total VOCs	155 J	69,200 J	54 J	5.5 J [4.7 J]

LEGEND:

SB-131 ▲	SOIL BORING
TT-16 ▭	TEST TRENCH
MW-106A ◉	MONITORING WELL
4900	EXCEEDANCE OF UNRESTRICTED USE SOIL CLEANUP OBJECTIVES (SOIL BORING AND MONITORING WELL SYMBOLS ARE RED)
SB-102 ▲ TT-1 ▭ B-TT1 ●	TVOC > 10,000 ug/kg, CONCENTRATION ABOVE UNRESTRICTED USE CLEANUP OBJECTIVE
B-25/MW-1 ◉ ▲ SB-131	TVOC < 10,000 ug/kg, CONCENTRATION ABOVE UNRESTRICTED USE CLEANUP OBJECTIVE
▲ B-3 ▭ TT-11 MW-105A ◉	NO CONCENTRATION ABOVE UNRESTRICTED USE CLEANUP OBJECTIVE
J	INDICATES AN ESTIMATED VALUE
D	COMPOUND ANALYZED AT A DILUTION
U	INDICATES THE CONSTITUENT WAS NOT DETECTED AT THE PQL. THE VALUE PRECEDING THE U INDICATES THE PQL
PQL	PRACTICAL QUANTITATION LIMIT
ug/kg	MICROGRAMS PER KILOGRAM
VOCs	VOLATILE ORGANIC COMPOUNDS
④	JACOB RIIS BUILDING NUMBER

Unrestricted Use SCO – Cr 1 VOCs (ug/kg)

Analyte	Criteria Value
1,1,1–Trichloroethane	680
1,1–Dichloroethane	270
1,1–Dichloroethene	330
1,2,4–Trimethylbenzene	3600
1,2–Dichlorobenzene	1100
1,2–Dichloroethane	20
1,3,5–Trimethylbenzene	8400
1,3–Dichlorobenzene	2400
1,4–Dichlorobenzene	1800
2–Butanone	120
Acetone	50
Benzene	60
Carbon Tetrachloride	760
Chlorobenzene	1100
Chloroform	370
cis–1,2–Dichloroethene	250
Ethylbenzene	1000
Methyl tert–butyl ether	930
Methylene Chloride	50
Tetrachloroethene	1300
Toluene	700
Total VOCs	10000
trans–1,2–Dichloroethene	190
Trichloroethene	470
Vinyl Chloride	20
Xylenes (total)	260

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE ORIGINAL SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).

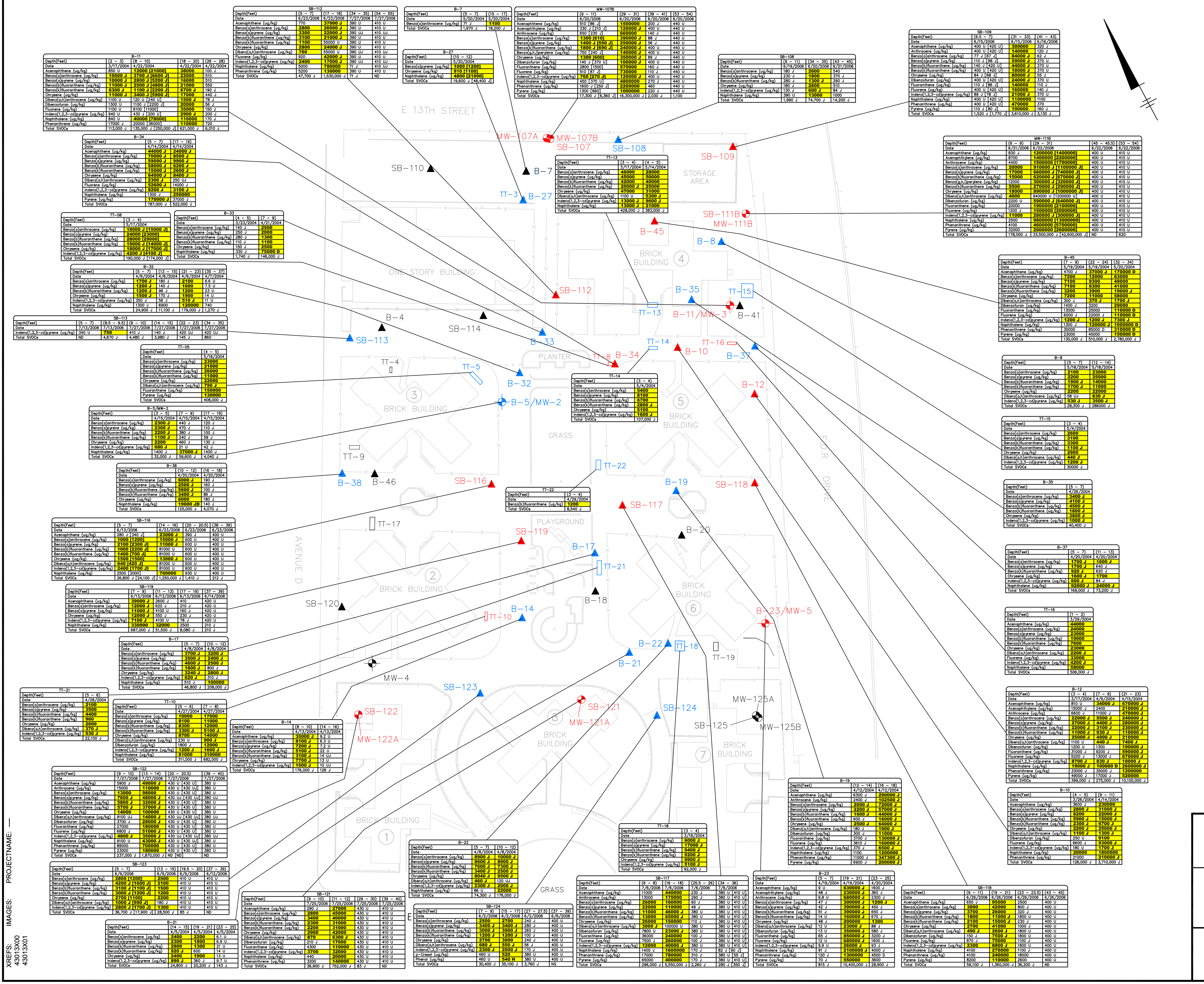
0 100' 200'
GRAPHIC SCALE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

SUBSURFACE SOIL RESULTS (VOCs) - JACOB RIIS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
9



LEGEND:

SB-131 ▲	SOIL BORING
TT-16 ▭	TEST TRENCH
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4900	EXCEEDANCE OF UNRESTRICTED USE SOIL CLEANUP OBJECTIVES (SOIL BORING AND MONITORING WELL SYMBOLS ARE RED)
SB-102 ▲ TT-1 ▭ B-TT1 ●	TVOC > 500,000 ug/kg, CONCENTRATION ABOVE UNRESTRICTED USE CLEANUP OBJECTIVE
▲ SB-131 B-25/MW-1	TVOC < 500,000 ug/kg, CONCENTRATION ABOVE UNRESTRICTED USE CLEANUP OBJECTIVE
▲ B-3 ▭ TT-11 MW-105A	NO CONCENTRATION ABOVE UNRESTRICTED USE CLEANUP OBJECTIVE
J	INDICATES AN ESTIMATED VALUE
D	COMPOUND ANALYZED AT A DILUTION
U	INDICATES THE CONSTITUENT WAS NOT DETECTED AT THE PQL. THE VALUE PRECEDING THE U INDICATES THE PQL
PQL	PRACTICAL QUANTITATION LIMIT
ug/kg	MICROGRAMS PER KILOGRAM
SVOCs	SEMI-VOLATILE ORGANIC COMPOUNDS
④	JACOB RIIS BUILDING NUMBER

Unrestricted Use SCO – Cr 1 SVOCs (ug/kg)	
Analyte	Criteria Value
1,2-Dichlorobenzene	1100
1,3-Dichlorobenzene	2400
1,4-Dichlorobenzene	1800
2-Methylphenol	330
3-Methylphenol	330
4-Methylphenol	330
Acenaphthene	20000
Acenaphthylene	100000
Anthracene	100000
Benzo(a)anthracene	1000
Benzo(a)pyrene	1000
Benzo(b)fluoranthene	1000
Benzo(g,h,i)perylene	100000
Benzo(k)fluoranthene	800
Chrysene	1000
Dibenzo(a,h)anthracene	330
Dibenzofuran	7000
Fluoranthene	100000
Fluorene	30000
Hexachlorobenzene	330
Indeno(1,2,3-cd)pyrene	500
Naphthalene	12000
Pentachlorophenol	800
Phenanthrene	100000
Phenol	330
Pyrene	100000
Total SVOCs	500000

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE ORIGINAL SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).

GRAPHIC SCALE

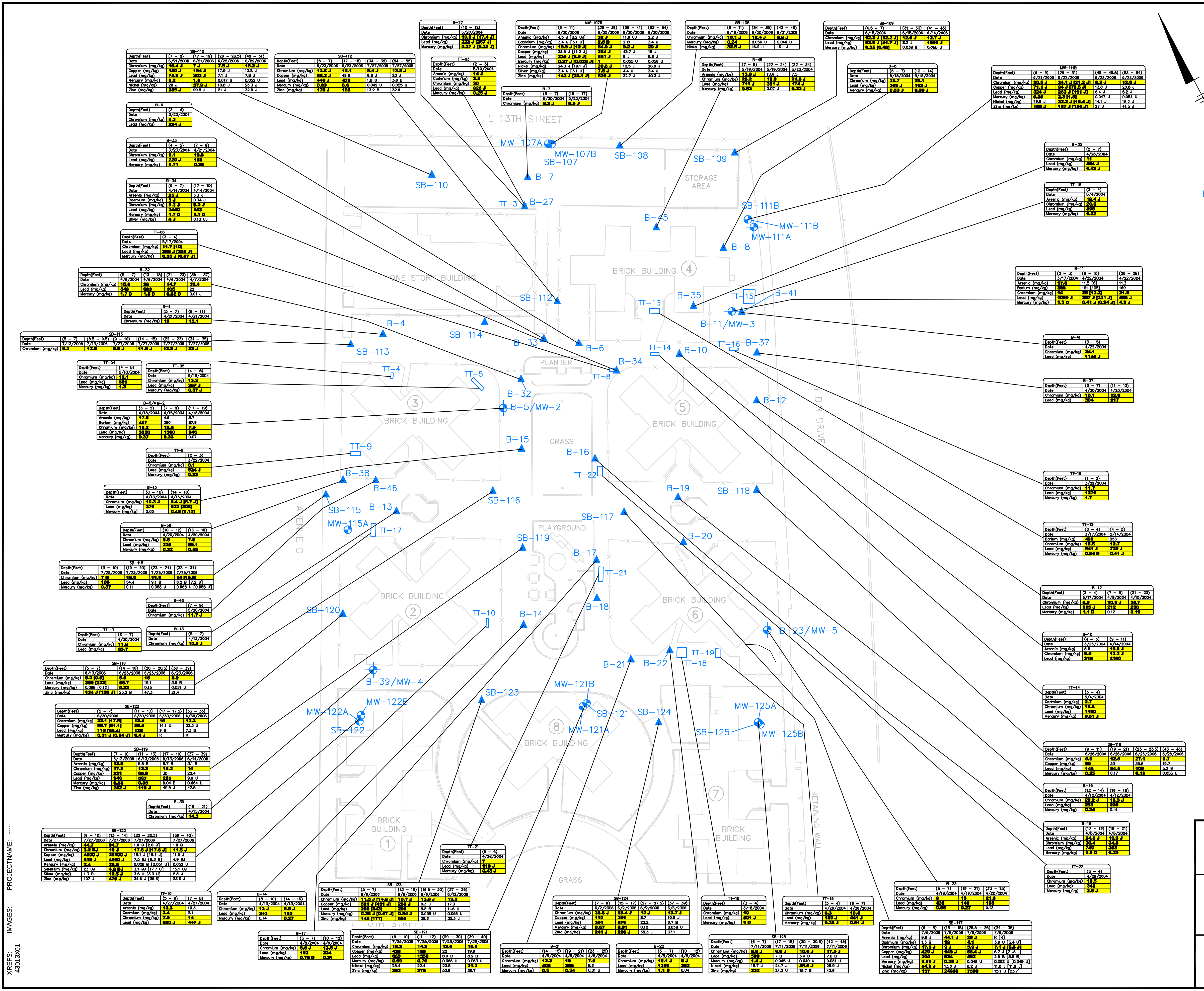
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

SUBSURFACE SOIL SAMPLING RESULTS (SVOCs) - JACOB RIIS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
10

CITY:Syracuse DIV/GROUP:Env-141 DB:AMS RCA AMS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0043013\0000\11000\DWG\INTERIM\43013C04.dwg LAYOUT: 11 SAVED: 1/11/2011 4:44 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/12/2011 11:07 AM BY: JONES, WENDY
XREFS: 43013X01 IMAGES: PROJECTNAME: ----



SB-110

Depth(Feet)	(7 - 8)	(17 - 19)	(26 - 26.5)	(49 - 51)
Date	6/21/2006	6/21/2006	6/22/2006	6/22/2006
Chromium (mg/kg)	**19.4 J**	**7 J**	**7.5 J**	**16.2 J**
Copper (mg/kg)	**150 J**	**184 J**	17.5 J	13.8 J
Lead (mg/kg)	**78.9 J**	**303 J**	7.1 J	7.8 J
Mercury (mg/kg)	**0.2**	**1.8**	0.017 B	0.052 U
Nickel (mg/kg)	20 J	**37.9 J**	10.8 J	25.3 J
Zinc (mg/kg)	**285 J**	99.5 J	21 J	32.9 J

SB-112

Depth(Feet)	(5 - 7)	(17 - 18)	(34 - 35)	(54 - 55)
Date	6/23/2006	6/23/2006	7/27/2006	7/27/2006
Chromium (mg/kg)	**13.8 J**	**18.1**	**8.4 J**	**13.8 J**
Copper (mg/kg)	**58.2 J**	49.8	6.8 J	20 J
Lead (mg/kg)	**440 J**	**478**	1.8 B	3.6 B
Mercury (mg/kg)	**0.83**	**6.6**	0.049 U	0.055 U
Zinc (mg/kg)	**176 J**	**163**	13.2 B	32.9

B-27

Depth(Feet)	(10 - 12)
Date	5/20/2004
Chromium (mg/kg)	**19.8 J [17.4 J]**
Lead (mg/kg)	**222 J [267 J]**
Mercury (mg/kg)	**0.27 J [0.29 J]**

TT-03

Depth(Feet)	(2 - 3)
Date	5/19/2004
Arsenic (mg/kg)	**14 J**
Cadmium (mg/kg)	**3.5**
Chromium (mg/kg)	**30**
Lead (mg/kg)	**826 J**
Mercury (mg/kg)	**0.25 J**

B-7

Depth(Feet)	(5 - 7)	(15 - 17)
Date	5/20/2004	5/20/2004
Chromium (mg/kg)	**8.2 J**	**9.5 J**

MW-107B

Depth(Feet)	(9 - 11)	(29 - 31)	(39 - 41)	(53 - 54)
Date	6/20/2006	6/20/2006	6/20/2006	6/20/2006
Arsenic (mg/kg)	4.5 J [8.2 UJ]	**32 J**	11.6 UJ	2.2 J
Cadmium (mg/kg)	3.4 U [3.1 U]	**2.8 B**	2 B	3.4 U
Chromium (mg/kg)	**16.9 J [12 J]**	**54.9 J**	**9.2 J**	**20 J**
Copper (mg/kg)	38.9 J [11.2 J]	**284 J**	43.7 J	18 J
Lead (mg/kg)	**235 J [8.9 J]**	**561 J**	8 J	8.8 J
Mercury (mg/kg)	**0.37 J [0.026 J]**	**1**	0.055 U	0.056 U
Nickel (mg/kg)	24.3 J [19.1 J]	**30.6 J**	12.5 J	26.9 J
Silver (mg/kg)	3.4 U [3.1 U]	**7.8 J**	4.4 U	3.4 U
Zinc (mg/kg)	**143 J [28.1 J]**	**626 J**	32.7 J	40.3 J

SB-108

Depth(Feet)	(9 - 11)	(34 - 35)	(43 - 45)
Date	6/19/2006	6/20/2006	6/21/2006
Chromium (mg/kg)	**10.1 J**	**12.4 J**	**8.9 J**
Mercury (mg/kg)	**0.24**	0.056 U	0.046 U
Nickel (mg/kg)	**32.5 J**	16.2 J	16.1 J

B-45

Depth(Feet)	(7 - 9)	(22 - 24)	(32 - 34)
Date	5/19/2004	5/19/2004	5/20/2004
Arsenic (mg/kg)	**13.9 J**	10.6 J	7.5
Chromium (mg/kg)	**28.2**	**10.9**	**21.6 J**
Lead (mg/kg)	**711 J**	**351 J**	**174 J**
Mercury (mg/kg)	**0.82**	0.07 J	**0.22 J**

SB-109

Depth(Feet)	(6.5 - 7)	(31 - 33)	(41 - 43)
Date	6/15/2006	6/15/2006	6/16/2006
Chromium (mg/kg)	**12.3 J [12.2 J]**	**12.6 J**	**12.7 J**
Lead (mg/kg)	**63.9 J [41.7 J]**	8.2 J	**1950 J**
Mercury (mg/kg)	**0.35 [0.49]**	0.038 B	0.055 U

B-8

Depth(Feet)	(5 - 7)	(12 - 14)
Date	5/18/2004	5/18/2004
Chromium (mg/kg)	**28.7**	**20.1**
Lead (mg/kg)	**309 J**	**163 J**
Mercury (mg/kg)	**0.53 J**	**0.56 J**

MW-111B

Depth(Feet)	(6 - 9)	(29 - 31)	(45 - 45.5)	(53 - 54)
Date	6/21/2006	6/22/2006	6/22/2006	6/22/2006
Chromium (mg/kg)	**30.5 J**	**34.1 J [21.2 J]**	**8.3 J**	**12.6 J**
Copper (mg/kg)	**71.1 J**	**94 J [79.5 J]**	13.8 J	20.8 J
Lead (mg/kg)	**324 J**	**263 J [191 J]**	6.4 J	8.2 J
Mercury (mg/kg)	**0.35**	**2.3 [1.8]**	0.047 U	0.054 U
Nickel (mg/kg)	29.9 J	**33.2 J [19.4 J]**	14.1 J	18.2 J
Zinc (mg/kg)	**188 J**	**157 J [126 J]**	27 J	41.5 J

B-6

Depth(Feet)	(3 - 4)
Date	3/23/2004
Chromium (mg/kg)	**9.3**
Lead (mg/kg)	**224 J**

B-33

Depth(Feet)	(4 - 5)	(7 - 9)
Date	3/23/2004	4/21/2004
Chromium (mg/kg)	**9.1**	**10.8**
Lead (mg/kg)	**220 J**	**155**
Mercury (mg/kg)	**0.71**	**0.28**

B-34

Depth(Feet)	(5 - 7)	(17 - 19)
Date	4/14/2004	4/14/2004
Arsenic (mg/kg)	**25 J**	3.3 J
Cadmium (mg/kg)	**3 J**	0.34 J
Chromium (mg/kg)	**9.3 J**	**9.2 J**
Lead (mg/kg)	**2440**	**143**
Mercury (mg/kg)	**1.7 D**	**1.1 D**
Silver (mg/kg)	**4 J**	0.13 UJ

TT-08

Depth(Feet)	(3 - 4)
Date	5/17/2004
Chromium (mg/kg)	**11.7 [10]**
Lead (mg/kg)	**286 J [258 J]**
Mercury (mg/kg)	**0.55 J [0.67 J]**

B-32

Depth(Feet)	(5 - 7)	(13 - 15)	(21 - 23)	(35 - 37)
Date	4/6/2004	4/6/2004	4/6/2004	4/7/2004
Chromium (mg/kg)	**15.8**	**28**	**14.7**	**33.4**
Lead (mg/kg)	**548**	**683**	**105**	22
Mercury (mg/kg)	**1.7 D**	**1.5 D**	**0.62 D**	0.01 J

B-4

Depth(Feet)	(5 - 7)	(9 - 11)
Date	4/21/2004	4/21/2004
Chromium (mg/kg)	**12**	**15.1**

SB-113

Depth(Feet)	(5 - 7)	(8.5 - 9.5)	(9 - 10)	(14 - 15)	(22 - 23)	(34 - 35)
Date	7/13/2006	7/13/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006
Chromium (mg/kg)	**8.2**	**12.6**	**6.9 J**	**11.6 J**	**12.8 J**	**23 J**

TT-04

Depth(Feet)	(4 - 5)
Date	5/10/2004
Chromium (mg/kg)	**12.1**
Lead (mg/kg)	**505**
Mercury (mg/kg)	**1.3**

TT-05

Depth(Feet)	(4 - 5)
Date	5/18/2004
Chromium (mg/kg)	**13.2**
Lead (mg/kg)	**367 J**
Mercury (mg/kg)	**0.57 J**

B-5/MW-2

Depth(Feet)	(3 - 5)	(7 - 9)	(17 - 19)
Date	4/15/2004	4/15/2004	4/15/2004
Arsenic (mg/kg)	**17.8**	4.9	8.7
Barium (mg/kg)	**407**	260	87.9
Chromium (mg/kg)	**18.2**	**12.6**	**7.5**
Lead (mg/kg)	**3330**	**1560**	**946**
Mercury (mg/kg)	**0.37**	**0.33**	0.07

TT-9

Depth(Feet)	(2 - 3)
Date	3/22/2004
Chromium (mg/kg)	**8.1**
Lead (mg/kg)	**524 J**
Mercury (mg/kg)	**0.23**

B-15

Depth(Feet)	(8 - 10)	(14 - 16)
Date	4/13/2004	4/13/2004
Chromium (mg/kg)	**10.3 J**	**6.4 J [6.7 J]**
Lead (mg/kg)	**276**	**822 [308]**
Mercury (mg/kg)	0.05	**0.45 [0.13]**

B-38

Depth(Feet)	(10 - 12)	(16 - 18)
Date	4/20/2004	4/20/2004
Chromium (mg/kg)	**8.8**	**7.8**
Lead (mg/kg)	**225**	**99.1**
Mercury (mg/kg)	**0.22**	**0.55**

SB-115

Depth(Feet)	(9 - 10)	(19 - 20)	(23 - 24)	(33 - 34)
Date	7/25/2006	7/25/2006	7/25/2006	7/25/2006
Chromium (mg/kg)	**7 N**	**15.6**	**11.6**	**14 [15.6]**
Lead (mg/kg)	**106**	54.4	9.1 B	8.2 B [7.2 B]
Mercury (mg/kg)	**0.37**	0.11	0.065 U	0.068 U [0.068 U]

B-46

Depth(Feet)	(7 - 9)
Date	5/20/2004
Chromium (mg/kg)	**11.7 J**

TT-17

Depth(Feet)	(6 - 7)
Date	4/30/2004
Chromium (mg/kg)	**11.8**
Lead (mg/kg)	**85.7**

B-13

Depth(Feet)	(5 - 7)
Date	4/12/2004
Chromium (mg/kg)	**10.5 J**

SB-116

Depth(Feet)	(5 - 7)	(14 - 16)	(20 - 20.5)	(38 - 39)
Date	6/13/2006	6/23/2006	6/23/2006	6/23/2006
Chromium (mg/kg)	**8.2 [9.5]**	**5.5**	**16**	**6.9**
Lead (mg/kg)	**350 [322]**	**66.7**	19.1	3.6 B
Mercury (mg/kg)	0.098 [0.12]	**0.23**	0.15	0.051 U
Zinc (mg/kg)	**134 J [128 J]**	25.2 B	47.3	21.4

SB-120

Depth(Feet)	(5 - 7)	(11 - 13)	(17 - 17.5)	(33 - 35)
Date	6/30/2006	6/30/2006	6/30/2006	6/30/2006
Chromium (mg/kg)	**22.1 [17.8]**	**12.4**	**15**	**13.2**
Copper (mg/kg)	**96.7 [81.1]**	**88.4**	14.1 U	22.2 U
Lead (mg/kg)	**116 [89.4]**	**128**	9 B	7.3 B
Mercury (mg/kg)	**0.31 J [0.24 J]**	**0.4 J**	R	R

SB-119

Depth(Feet)	(7 - 9)	(11 - 13)	(17 - 19)	(37 - 39)
Date	6/13/2006	6/13/2006	6/13/2006	6/14/2006
Arsenic (mg/kg)	**13.9**	5.8 B	6.7 B	3.1 B
Chromium (mg/kg)	**17.8**	**13.3**	**15.2**	**14**
Copper (mg/kg)	**231**	**65.8**	30	20.4
Lead (mg/kg)	**946**	**567**	**225**	9.9 U
Mercury (mg/kg)	**0.56**	**0.38**	0.04 B	0.064 U
Zinc (mg/kg)	**282 J**	**116 J**	49.5 J	42.5 J

B-39

Depth(Feet)	(19 - 21)
Date	4/15/2004
Chromium (mg/kg)	**14.3**

SB-122

Depth(Feet)	(9 - 10)	(13 - 14)	(20 - 20.5)	(39 - 40)
Date	7/27/2006	7/27/2006	7/27/2006	7/27/2006
Arsenic (mg/kg)	**44.7**	**94.7**	1.9 B [2.6 B]	1.9 B
Chromium (mg/kg)	**3.2 BJ**	**16 J**	**17.6 J [17.6 J]**	**11.5 J**
Copper (mg/kg)	**4500 J**	**25100 J**	18.1 J [18.4 J]	11.9 J
Lead (mg/kg)	**818 J**	**4500 J**	7.5 BJ [8.3 B]	4.9 BJ
Mercury (mg/kg)	**2.4**	**20.5**	0.026 B [0.051 U]	0.052 U
Selenium (mg/kg)	23 UJ	**4.8 BJ**	3.1 BJ [17.7 U]	15.1 UJ
Silver (mg/kg)	1.3 BJ	**12.5 J**	3.5 U [3.3 U]	2.8 U
Zinc (mg/kg)	107 J	**470 J**	34.6 J [36.8]	23.6 J

TT-10

Depth(Feet)	(5 - 6)	(7 - 8)
Date	4/27/2004	4/27/2004
Arsenic (mg/kg)	**13.3**	10.3
Cadmium (mg/kg)	**3.4**	2.1
Chromium (mg/kg)	**7.9**	**14**
Lead (mg/kg)	**650 J**	**447 J**

B-14

Depth(Feet)	(8 - 10)	(14 - 16)
Date	4/13/2004	4/13/2004
Chromium (mg/kg)	**13 J**	**8.9 J**
Lead (mg/kg)	**343**	**153**
Mercury (mg/kg)	0.14	**0.27**

B-17

Depth(Feet)	(5 - 7)	(10 - 12)
Date	4/8/2004	4/8/2004
Chromium (mg/kg)	**6.6 J**	**13.8 J**
Lead (mg/kg)	**162**	**234**
Mercury (mg/kg)	**0.75 D**	**0.21**

TT-21

Depth(Feet)	(5 - 6)
Date	4/28/2004
Chromium (mg/kg)	**7**
Lead (mg/kg)	**118 J**
Mercury (mg/kg)	**0.43 J**

SB-123

Depth(Feet)	(5 - 7)	(13 - 15)	(19.5 - 20)	(37 - 39)
Date	6/9/2006	6/9/2006	6/9/2006	6/12/2006
Chromium (mg/kg)	**11.5 J [14.9 J]**	**10.7 J**	**13.6 J**	**13.5**
Copper (mg/kg)	**521 J [451 J]**	**250 J**	9.3 J	17.3
Lead (mg/kg)	**255 [543]**	**295**	5.8 B	11.6 U
Mercury (mg/kg)	**0.38 J [0.47 J]**	**0.54 J**	0.058 U	0.056 U
Zinc (mg/kg)	**148 [177]**	**556**	38.6	35.3 J

SB-121

Depth(Feet)	(9 - 10)	(11 - 12)	(29 - 30)	(39 - 40)
Date	7/25/2006	7/25/2006	7/25/2006	7/25/2006
Chromium (mg/kg)	**15.3**	**14.2**	**12.6**	**16.5**
Copper (mg/kg)	**438**	**159**	22	19.6
Lead (mg/kg)	**663**	**1550**	8.9 B	8.2 B
Mercury (mg/kg)	**0.99**	**0.79**	0.066 U	0.063 U
Nickel (mg/kg)	25.4	22.4	20.8	**31.3**
Zinc (mg/kg)	**393**	**279**	53.6	38.7

B-21

Depth(Feet)	(14 - 15)	(19 - 21)	(23 - 25)
Date	4/5/2004	4/5/2004	4/5/2004
Chromium (mg/kg)	**12.3**	**19**	**7.5**
Lead (mg/kg)	**406**	**266**	8.6
Mercury (mg/kg)	**0.5**	**0.34**	0.01 U

B-22

Depth(Feet)	(5 - 7)	(10 - 12)
Date	4/8/2004	4/8/2004
Chromium (mg/kg)	**15.1 J**	**9 J**
Lead (mg/kg)	**1380**	**282**
Mercury (mg/kg)	**1.1 D**	0.04

SB-124

Depth(Feet)	(7 - 9)	(15 - 17)	(27 - 27.5)	(37 - 39)
Date	6/2/2006	6/2/2006	6/2/2006	6/6/2006
Chromium (mg/kg)	**38.6 J**	**53.4 J**	**12 J**	**13.7 J**
Copper (mg/kg)	**110**	**261**	8.7	19.5 J
Lead (mg/kg)	**391**	**671**	22.2	6.7 B
Mercury (mg/kg)	**0.67**	**0.91**	0.12	0.058 U
Zinc (mg/kg)	**241 J**	**226 J**	38.3 J	37.1

TT-18

Depth(Feet)	(3 - 4)
Date	3/18/2004
Chromium (mg/kg)	**10**
Lead (mg/kg)	**501 J**
Mercury (mg/kg)	**1 D**

TT-19

Depth(Feet)	(3 - 4)	(6 - 7)
Date	4/26/2004	4/26/2004
Chromium (mg/kg)	**6.3**	**10.4**
Lead (mg/kg)	**189 J**	**441 J**
Mercury (mg/kg)	**0.38 J**	**0.51 J**

SB-125

Depth(Feet)	(6 - 7)	(17 - 18)	(30 - 30.5)	(42 - 43)
Date	7/11/2006	7/11/2006	7/11/2006	7/11/2006
Chromium (mg/kg)	**9.9 J**	**6.8 J**	**10.6 J**	**17.5 J**
Lead (mg/kg)	**589**	7 B	3.4 B	7.6 B
Mercury (mg/kg)	**1.4 J**	0.045 U	0.049 U	0.051 U
Nickel (mg/kg)	15.7 J	24.7 J	**35.5 J**	25.9 J
Zinc (mg/kg)	**232**	24.3 U	19.7 B	43.6

B-23

Depth(Feet)	(5 - 7)	(19 - 21)	(23 - 25)
Date	4/19/2004	4/19/2004	4/20/2004
Chromium (mg/kg)	**8**	**15**	**21.9**
Lead (mg/kg)	**435**	**140**	**105**
Mercury (mg/kg)	**0.56**	**0.27**	0.13

SB-117

Depth(Feet)	(6 - 8)	(16 - 18)	(25.5 - 26)	(34 - 36)
Date	7/6/2006	7/6/2006	7/6/2006	7/6/2006
Arsenic (mg/kg)	9.9 J	**44.1 J**	**29 J**	R [R]
Cadmium (mg/kg)	1.3 B	**18**	**4.1**	3.9 U [3.4 U]
Chromium (mg/kg)	**17.5 J**	**9 J**	**5.9 J**	**7.1 J [6.8 J]**
Copper (mg/kg)	**429 J**	**149 J**	**66.4 J**	6.7 J [21.8 J]
Lead (mg/kg)	**204**	**924**	**492**	2.5 B [5.9 B]
Mercury (mg/kg)	**0.59 J**	**0.39 J**	0.048 U	0.052 U [0.049 U]
Nickel (mg/kg)	**54.3 J**	13.6 J	8.2 J	11.6 J [11.9 J]
Zinc (mg/kg)	**157**	**24600**	**7500**	15.1 B [23.7]

B-35

Depth(Feet)	(5 - 7)
Date	4/26/2004
Chromium (mg/kg)	**11**
Lead (mg/kg)	**564 J**
Mercury (mg/kg)	**0.42 J**

TT-15

Depth(Feet)	(3 - 4)
Date	5/4/2004
Arsenic (mg/kg)	**18.4 J**
Chromium (mg/kg)	**20.3**
Lead (mg/kg)	**596**
Mercury (mg/kg)	**0.32**

B-11

Depth(Feet)	(2 - 3)	(8 - 10)	(26 - 28)
Date	3/17/2004	4/22/2004	4/22/2004
Arsenic (mg/kg)	**17.8**	11.5 [6]	11.3
Barium (mg/kg)	**385**	191 [105]	169
Chromium (mg/kg)	**14**	**28 [13.3]**	**21.8**
Lead (mg/kg)	**1090 J**	**367 J [221 J]**	**558 J**
Mercury (mg/kg)	**1.3 D**	**0.41 J [0.24 J]**	**4.2 J**

B-41

Depth(Feet)	(3 - 5)
Date	4/22/2004
Chromium (mg/kg)	**24.1**
Lead (mg/kg)	**1140 J**

B-37

Depth(Feet)	(5 - 7)	(11 - 13)
Date	4/20/2004	4/20/2004
Chromium (mg/kg)	**10.1**	**12.6**
Lead (mg/kg)	**304**	**217**

TT-16

Depth(Feet)	(1 - 2)
Date	3/29/2004
Chromium (mg/kg)	**11.7**
Lead (mg/kg)	**1270**
Mercury (mg/kg)	**1.7**

TT-13

Depth(Feet)	(3 - 4)	(4 - 5)
Date	3/17/2004	5/14/2004
Barium (mg/kg)	**495**	253
Chromium (mg/kg)	**15.6**	**12.7**
Lead (mg/kg)	**641 J**	**739 J**
Mercury (mg/kg)	**0.84 D**	**0.41 J**

B-12

Depth(Feet)	(3 - 4)	(7 - 9)	(21 - 23)
Date	3/17/2004	4/9/2004	4/15/2004
Chromium (mg/kg)	**8.9**	**10.9 J**	**38.7**
Lead (mg/kg)	**515 J**	**212**	**230**
Mercury (mg/kg)	**1.1 D**	0.12	**0.19**

B-10

Depth(Feet)	(4 - 5)	(9 - 11)
Date	3/26/2004	4/14/2004
Arsenic (mg/kg)	5.9	**19.8 J**
Chromium (mg/kg)	**9.6**	**13.3 J**
Lead (mg/kg)	**315**	**2160**

TT-14

Depth(Feet)	(3 - 4)
Date	5/4/2004
Cadmium (mg/kg)	**2.7**
Chromium (mg/kg)	**16.8**
Lead (mg/kg)	**1480**
Mercury (mg/kg)	**0.51 J**

SB-118

Depth(Feet)	(9 - 11)	(19 - 21)	(23 - 23.5)	(43 - 45)
Date	6/26/2006	6/26/2006	6/26/2006	6/26/2006
Chromium (mg/kg)	**5.8**	**12.5**	**27.1**	**9.7**
Copper (mg/kg)	**89**	33	35.8	19.7
Lead (mg/kg)	**148**	**94.5**	**109**	5.2 B
Mercury (mg/kg)	**0.25**	0.17	**0.19**	0.055 U

B-19

Depth(Feet)	(12 - 14)	(16 - 18)
Date	4/12/2004	4/12/2004
Chromium (mg/kg)	**22.2 J**	**13.3 J**
Lead (mg/kg)	**255**	**220**
Mercury (mg/kg)	**0.24**	0.14

B-16

Depth(Feet)	(17 - 19)	(19 - 21)
Date	4/6/2004	4/6/2004
Arsenic (mg/kg)	**24.6 J**	**13.3 J**
Chromium (mg/kg)	**30.4**	**34.8**
Lead (mg/kg)	**749**	**303**
Mercury (mg/kg)	**0.9 D**	**0.23**

TT-22

Depth(Feet)	(3 - 4)
Date	4/29/2004
Chromium (mg/kg)	**10.5**
Lead (mg/kg)	**343**
Mercury (mg/kg)	**2.8 J**

LEGEND:

SB-127 ▲	SOIL BORING
TT-16 ▭	TEST TRENCH
MW-107A ◕	MONITORING WELL
7500	EXCEEDANCE OF UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
▲ SB-131 / B-25/MW-1	CONCENTRATION ABOVE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE
▲ B-3 / TT-11 / MW-105A	CONCENTRATION BELOW UNRESTRICTED USE SOIL CLEANUP OBJECTIVE
J	INDICATES AN ESTIMATED VALUE
D	COMPOUND ANALYZED AT A DILUTION
U	INDICATES THE CONSTITUENT WAS NOT DETECTED AT THE PQL. THE VALUE PRECEDING THE U INDICATES THE PQL
B	INDICATES AN ESTIMATED VALUE BETWEEN THE IDL AND THE PQL
N	SPIKE RECOVERY EXCEEDS THE UPPER OR LOWER CONTROL LIMITS
R	REJECTED
PQL	PRACTICAL QUANTITATION LIMIT
ug/kg	MICROGRAMS PER KILOGRAM
*	COMPARED TO CRITERION FOR HEXAVALENT CHROMIUM
^	COMPARED TO CRITERION FOR TRIVALENT CHROMIUM
IDL	INSTRUMENT DETECTION LIMIT
④	JACOB RIIS BUILDING NUMBER

Unrestricted Use SCO - Cr 1

Metals(mg/kg)

Analyte	Criteria Value
Arsenic	13
Barium	350
Beryllium	7.2
Cadmium	2.5
Chromium	1
Copper	50
Lead	63
Mercury	0.18
Nickel	30
Selenium	3.9
Silver	2
Zinc	109

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE ORIGINAL SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).

0 100' 200'
GRAPHIC SCALE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

SUBSURFACE SOIL SAMPLING RESULTS (INORGANICS) - JACOB RIIS

ARCADIS

FIGURE
11

MW-107A	
Date	8/31/2006
1,2,4-Trimethylbenzene (ug/L)	0.33 J
1,3,5-Trimethylbenzene (ug/L)	0.15 J
Benzene (ug/L)	0.15 J
Chloroform (ug/L)	0.3 J
Ethyl Benzene (ug/L)	0.31 J
m/p-Xylenes (ug/L)	NA
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Xylenes (total) (ug/L)	0.42 J
Total VOCs (ug/L)	1.66 J
2-Methylnaphthalene (ug/L)	2 J
Acenaphthene (ug/L)	2 J
Fluorene (ug/L)	1 J
Naphthalene (ug/L)	3 J
Phenanthrene (ug/L)	2 J
Total SVOCs (ug/L)	10 J

MW-107B	
Date	8/31/2006
1,2,4-Trimethylbenzene (ug/L)	**65**
1,3,5-Trimethylbenzene (ug/L)	**12**
Benzene (ug/L)	**360**
Ethyl Benzene (ug/L)	**190**
Isopropylbenzene (ug/L)	**28**
m/p-Xylenes (ug/L)	NA
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Styrene (ug/L)	1.9 J
Toluene (ug/L)	**75**
Xylenes (total) (ug/L)	**150**
Total VOCs (ug/L)	882 J
1,1-Biphenyl (ug/L)	**11 J**
2-Methylnaphthalene (ug/L)	42 J
Acenaphthene (ug/L)	**110**
Fluorene (ug/L)	26 J
Naphthalene (ug/L)	**460**
Phenanthrene (ug/L)	43 J
Total SVOCs (ug/L)	692 J

MW-111A	
Date	8/31/2006
1,2,4-Trimethylbenzene (ug/L)	0.15 J
Benzene (ug/L)	0.3 J
Cyclohexane (ug/L)	1.6
Isopropylbenzene (ug/L)	3.9
m/p-Xylenes (ug/L)	NA
Methyl tert-butyl Ether (ug/L)	0.14 J
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Xylenes (total) (ug/L)	0.52 J
Total VOCs (ug/L)	6.61 J
Acenaphthene (ug/L)	14
Acenaphthylene (ug/L)	0.8 J
Fluoranthene (ug/L)	1 J
Naphthalene (ug/L)	0.9 J
Pyrene (ug/L)	2 J
Total SVOCs (ug/L)	18.7 J

MW-2		
Date	10/12/2004	8/31/2006
1,2,4-Trimethylbenzene (ug/L)	NA	**150**
1,3,5-Trimethylbenzene (ug/L)	NA	3.7 J
2-Butanone (ug/L)	2.8 U	4.2 J
Benzene (ug/L)	**440 D**	**270**
Ethyl Benzene (ug/L)	**910 D**	**420**
Isopropylbenzene (ug/L)	**94**	**49**
m/p-Xylenes (ug/L)	200	NA
Methylcyclohexane (ug/L)	0.58 U	NA
o-Xylene (ug/L)	**300 D**	NA
Toluene (ug/L)	**66**	**10**
Xylenes (total) (ug/L)	NA	**120**
Total VOCs (ug/L)	2010	1030 J
1,1-Biphenyl (ug/L)	**19**	**9 J**
2,4-Dimethylphenol (ug/L)	0.46 U	1 J
2-Methylnaphthalene (ug/L)	150 D	11 U
Acenaphthene (ug/L)	**26**	15
Acenaphthylene (ug/L)	1.4 J	1 J
Anthracene (ug/L)	1.9 J	11 U
Carbazole (ug/L)	1.6 J	11 U
Dibenzofuran (ug/L)	2.2 J	2 J
Fluorene (ug/L)	15	10 J
Naphthalene (ug/L)	**790 D**	**31**
p-Cresol (ug/L)	NA	11 U
Phenanthrene (ug/L)	12	4 J
Phenol (ug/L)	0.43 U	R
Total SVOCs (ug/L)	1020 J	73 J

MW-115A	
Date	8/30/2006
1,2,4-Trimethylbenzene (ug/L)	0.93 J
1,3,5-Trimethylbenzene (ug/L)	0.26 J
Benzene (ug/L)	**97**
Carbon Disulfide (ug/L)	0.5 J
Cyclohexane (ug/L)	3
Ethyl Benzene (ug/L)	1.6
Isopropylbenzene (ug/L)	**15**
m/p-Xylenes (ug/L)	NA
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Toluene (ug/L)	2.2
Xylenes (total) (ug/L)	**7.1**
Total VOCs (ug/L)	128 J
Acenaphthene (ug/L)	14
Acetophenone (ug/L)	2 J
Anthracene (ug/L)	1 J
Fluorene (ug/L)	2 J
Phenanthrene (ug/L)	1 J
Phenol (ug/L)	1 J
Pyrene (ug/L)	1 J
Total SVOCs (ug/L)	22 J

MW-121B	
Date	8/29/2006
Chloroform (ug/L)	0.16 J
m/p-Xylenes (ug/L)	NA
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Total VOCs (ug/L)	0.16 J
Total SVOCs (ug/L)	ND

MW-121A	
Date	8/29/2006
m/p-Xylenes (ug/L)	NA
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Total VOCs (ug/L)	ND
Di-n-butylphthalate (ug/L)	2 J
Total SVOCs (ug/L)	2 J

MW-122B	
Date	8/28/2006
Benzene (ug/L)	**1.1**
Chloroform (ug/L)	0.25 J
Cyclohexane (ug/L)	2.4
m/p-Xylenes (ug/L)	NA
Methyl tert-butyl Ether (ug/L)	0.29 J
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Total VOCs (ug/L)	4.04 J
Total SVOCs (ug/L)	ND

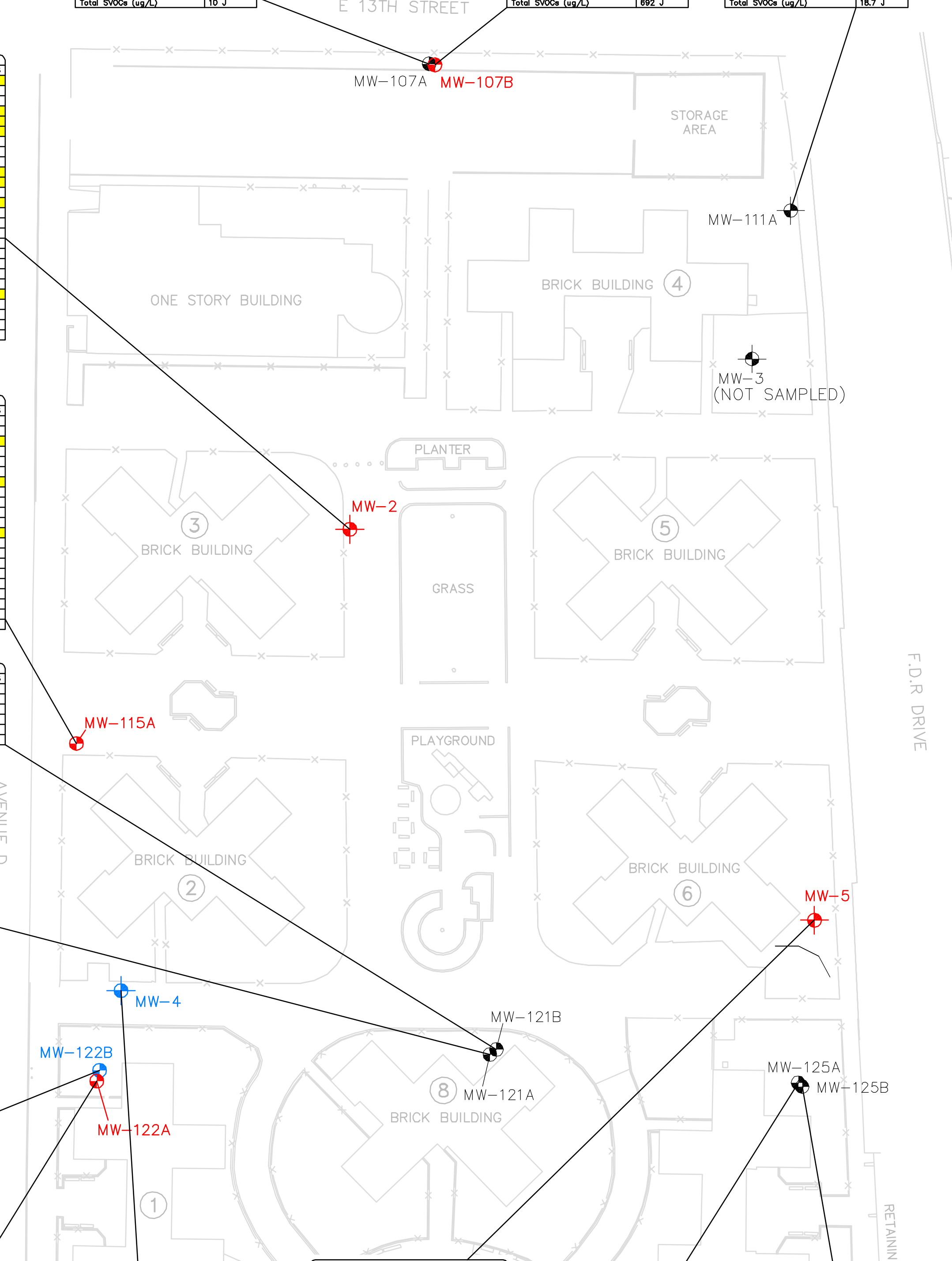
MW-122A	
Date	8/28/2006
1,2,4-Trimethylbenzene (ug/L)	0.19 J
Acetone (ug/L)	6 J
Benzene (ug/L)	**1.4**
m/p-Xylenes (ug/L)	NA
Methyl Acetate (ug/L)	0.37 J
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Toluene (ug/L)	0.78 J
Total VOCs (ug/L)	8.74 J
2-Methylnaphthalene (ug/L)	2 J
Acenaphthene (ug/L)	3 J
Anthracene (ug/L)	1 J
Dibenzofuran (ug/L)	2 J
Fluorene (ug/L)	3 J
Naphthalene (ug/L)	1 J
p-Cresol (ug/L)	**2 J**
Phenanthrene (ug/L)	6 J
Phenol (ug/L)	1 J
Total SVOCs (ug/L)	21 J

MW-4		
Date	10/12/2004	8/28/2006
1,2,4-Trimethylbenzene (ug/L)	NA	0.34 J
Benzene (ug/L)	**51**	**110**
Cyclohexane (ug/L)	8.3	5.5
Isopropylbenzene (ug/L)	2.1 J	2.3
m/p-Xylenes (ug/L)	2.9 J	NA
Methylcyclohexane (ug/L)	5.2	NA
o-Xylene (ug/L)	1.6 J	NA
Toluene (ug/L)	3.3 J	0.46 J
Xylenes (total) (ug/L)	NA	1.7 J
Total VOCs (ug/L)	75.2 J	120 J
Total SVOCs (ug/L)	ND	ND

MW-5	
Date	10/12/2004
1,2,4-Trimethylbenzene (ug/L)	NA
1,3,5-Trimethylbenzene (ug/L)	NA
Xylenes (total) (ug/L)	NA
Total VOCs (ug/L)	12.2 J [ND]
3-Nitroaniline (ug/L)	1.1 U [1.7 J]
Acenaphthene (ug/L)	**8.6 J [21]**
Acenaphthylene (ug/L)	1.8 J [3.6 J]
Anthracene (ug/L)	1.8 J [30]
Benzo(a)anthracene (ug/L)	**3.6 J [16]**
Benzo(b)fluoranthene (ug/L)	**1.9 J [7.2 J]**
Chrysene (ug/L)	**3.5 J [14]**
Fluoranthene (ug/L)	**12 [51]**
p-Cresol (ug/L)	NA
Phenanthrene (ug/L)	**1.5 J [67]**
Pyrene (ug/L)	**14 [68]**
Total SVOCs (ug/L)	48.7 J [329 J]

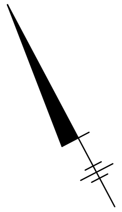
MW-125A	
Date	8/29/2006
m/p-Xylenes (ug/L)	NA
Methyl Acetate (ug/L)	0.21 J
Methyl tert-butyl Ether (ug/L)	0.36 J
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Total VOCs (ug/L)	0.57 J
Di-n-butylphthalate (ug/L)	2 J
Total SVOCs (ug/L)	2 J

MW-125B	
Date	8/29/2006
Chloroform (ug/L)	0.18 J
m/p-Xylenes (ug/L)	NA
Methyl Acetate (ug/L)	0.21 J
Methylcyclohexane (ug/L)	NA
o-Xylene (ug/L)	NA
Total VOCs (ug/L)	0.39 J
Di-n-butylphthalate (ug/L)	2 J
Total SVOCs (ug/L)	2 J



NYDEC_GA2 Groundwater VOCs (ug/L)	
Analyte	Criteria Value
1,1,1-Trichloroethane	5
1,1,2,2-Tetrachloroethane	5
1,1,2-Trichloroethane	1
1,1-Dichloroethane	5
1,1-Dichloroethene	5
1,2,4-Trichlorobenzene	5
1,2,4-Trimethylbenzene	5
1,2-Dichlorobenzene	3
1,2-Dichloroethane	0.6
1,2-Dichloropropane	1
1,2-Xylene	5
1,3,5-Trimethylbenzene	5
1,3-Dichlorobenzene	3
1,4-Dichlorobenzene	3
2-Butanone	50
2-Hexanone	50
4-Methyl-2-pentanone	
Acetone	50
Benzene	1
Bromodichloromethane	50
Bromoform	50
Bromomethane	5
Carbon disulfide	60
Carbon tetrachloride	5
Chlorobenzene	5
Chlorodibromomethane	50
Chloroethane	5
Chloroform	7
cis-1,2-Dichloroethene	5
cis-1,3-Dichloropropene	0.4
Cumene	5
Dibromochloropropane	0.04
Dibromomethane	5
Dichlorodifluoromethane	5
Ethylbenzene	5
Ethylene dibromide	0.0006
Freon 113	5
methyl chloride	5
Methyl tert-butyl ether	10
Styrene	5
Tetrachloroethene	5
Toluene	5
trans-1,2-Dichloroethene	5
trans-1,3-Dichloropropene	0.4
Trichloroethene	5
Trichlorofluoromethane	5
Vinyl chloride	2
Xylenes, Total	5

NYDEC_GA2 Groundwater SVOCs (ug/L)	
Analyte	Criteria Value
1,1-Biphenyl	5
1,2,4-Trichlorobenzene	5
1,2-Dichlorobenzene	3
1,3-Dichlorobenzene	3
1,4-Dichlorobenzene	3
2,4,5-Trichlorophenol	1
2,4,6-Trichlorophenol	1
2,4-Dichlorophenol	1
2,4-Dimethylphenol	1
2,4-Dinitrophenol	1
2,4-Dinitrotoluene	5
2,6-Dinitrotoluene	5
2-Chloronaphthalene	10
2-Chlorophenol	1
2-Methylnaphthalene	
2-Methylphenol	1
2-Nitroaniline	5
2-Nitrophenol	1
3,3'-Dichlorobenzidine	5
3-Nitroaniline	5
4,6-Dinitro-2-methylphenol	1
4-Bromophenyl phenyl ether	
4-Chloro-3-methylphenol	1
4-Chloroaniline	5
4-Chlorophenyl phenyl ether	
4-Methylphenol	1
4-Nitroaniline	5
4-Nitrophenol	1
Acenaphthene	20
Acenaphthylene	
Anthracene	50
Atrazine	7.5
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0.002
Benzo(g,h,i)perylene	
Benzo(k)fluoranthene	0.002
Benzyl alcohol	
Bis(2-chloro-1-methylethyl)ether	5
bis(2-Chloroethoxy)methane	5
bis(2-Chloroethyl)ether	1
bis(2-Ethylhexyl)phthalate	5
Butyl benzyl phthalate	50
Carbazole	
Chrysene	0.002
Dibenz(a,h)anthracene	
Dibenzofuran	
Diethyl phthalate	50
Dimethyl phthalate	50
Di-n-butyl phthalate	50
Di-n-octyl phthalate	50
Fluoranthene	50
Fluorene	50
Hexachlorobenzene	0.04
Hexachlorobutadiene	0.5
Hexachlorocyclopentadiene	5
Hexachloroethane	5
Indeno(1,2,3-cd)pyrene	0.002
Isophorone	50
Naphthalene	10
Nitrobenzene	0.4
N-Nitroso-di-n-propylamine	
N-Nitrosodiphenylamine	50
Pentachlorophenol	1
Phenanthrene	50
Phenol	1
Pyrene	50
Pyridine	50

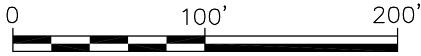


LEGEND:

MW-107B ◐	MONITORING WELL
🟨 48	EXCEEDANCE OF NEW YORK STATE TECHNICAL AND OPERATIONAL GUIDANCE CLASS GA STANDARDS OR GUIDANCE VALUES, JUNE 1998
MW-130A ◐	VOC AND SVOC CONCENTRATIONS ABOVE CLASS GA GRUNDWATER STANDARDS
MW-122B ◐	BENZENE ONLY ABOVE CLASS GA GRUNDWATER STANDARD
MW-121B ◐	VOC AND SVOC CONCENTRATIONS BELOW CLASS GA GRUNDWATER STANDARDS
J	INDICATES AN ESTIMATED VALUE
D	COMPOUND ANALYZED AT A DILUTION
U	INDICATES THE CONSTITUENT WAS NOT DETECTED AT THE PQL. THE VALUE PRECEDING THE U INDICATES THE PQL
PQL	PRACTICAL QUANTITATION LIMIT
ug/L	MICROGRAMS PER LITER
VOCs	VOLATILE ORGANIC COMPOUNDS
SVOCs	SEMI-VOLATILE ORGANIC COMPOUNDS
NA	NOT ANALYZED
ND	NOT DETECTED
④	JACOB RIIS BUILDING NUMBER

NOTES:

1. BASE MAP AND SURVEY CONTROL WAS TAKEN FROM ORIGINAL SURVEY DATED 9/3/2004; SUBMITTED BY B.B.L. ON 8/25/2006.
2. ALL ELEVATIONS SHOWN ARE IN BOROUGH PRESIDENT OF MANHATTAN VERTICAL DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK (NGVD29); REFERENCE CITY BENCH MARKS #399 AND #419.
3. ALL PLANIMETRIC FEATURES SHOWN ARE IN NAD 83 NY STATE PLANE COORDINATE SYSTEM.
4. THE ORIGINAL SURVEY WAS CONVERTED INTO NEW COORDINATE AND VERTICAL SYSTEM BASED ON 7 TRAVERSE POINTS, RECOVERED IN THE FIELD (#2,3,4,6,7,12, AND 18).



GRAPHIC SCALE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FORMER EAST 11TH STREET WORKS
INTERIM SITE MANAGEMENT PLAN

DETECTED VOCs AND SVOCs IN GROUNDWATER

ARCADIS

FIGURE
12

Appendix A

Soil Boring and Monitoring Well Construction Logs

BORING No.: B-TT1

BORING LOG

SHEET 1 OF 1

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison

PROJECT NO. 39656-0600-10000

AREA OF SITE

ADDRESS St. Emeric's Parking Lot

ELEVATION/DATUM

DRILLING CONTRACTOR ADT

DRILLER Victor

TRC INSPECTOR Morgan Evans

DRILLING RIG DK 5

TYPE/SIZE BIT 4.25" Hollow Stem Auger

START DATE 8/25/2004

END DATE 8/25/2004

SAMPLER TYPE 2" Split Spoon

HAMMER WEIGHT/DROP 140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs)) 12.5'

WATER LEVEL (ft bgs) 8'

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN FEET	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.5': ASPHALT	
							0.5'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL and brick fragments.	1'-2': N/O, N/S
					1			PID = 0.5 ppm max.
								2'-3': N/O, N/S
								PID = 0.8 ppm max.
								3'-4': N/O, N/S
					3		3.0': Decrease in brick fragment contents.	PID = 1.1 ppm max.
								4'-5': N/O, N/S
								PID = 2.0 ppm max.
							5.0': Absence of brick fragments.	
				17	5		5.0'-7.0': No Recovery	5'-7': N/O, N/S
		1	0.0'	5			Sample collected: E11STMGP-BTT1-56	PID = 0.0 ppm max.
				6				
				5				
				4	7		7.0'-7.1': Fill-F to c SAND and GRAVEL.	7'-9': N/O, N/S
		2	0.1'	7		▼		PID = 0.2 ppm max.
				5				
				3			Sample collected: E11STMGP-BTT1-8.59.0	
				9	9		9.0'-9.2': Fill-Brown and gray SILT, f to c SAND and GRAVEL with brick chunks in shoe of spoon.	9'-11': Sl MGP-related odor
		3	0.2'	7				PID = 0.3 ppm max.
				6				
				13				
					11		11.0'-11.3': Fill-Brown and gray SILT, f to c SAND and GRAVEL with brick chunks in shoe of spoon.	11'-13': MGP-related odor, N/S, visible OLM
		4	0.3'					
							Sample collected: E11STMGP-BTT1-1212.5	PID = 189 ppm max.
							E.O.B. @ 12.5' bgs (Refusal)	
					13			
					15			
					17			

TRC

BORING No.: B-1

SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS 13th St Southern Sidewalk		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG CME-LC60	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 8/27/2004	**END DATE** 8/27/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 25'	**WATER LEVEL (ft bgs)** 8.75'

		SAMPLES					**DESCRIPTION OF SOILS**	**REMARKS**
WELL	**CONSTRUCTION**	**NUMBER**	**RECOVERY IN INCHES**	**BLOWS PER 6"**	**DEPTH**	**WATER**	**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
							0.0'-0.2': Poured CONCRETE/ 0.2'-0.5': GRAVEL subbase.	
							0.5'-5.0': Fill-Dk brown SILT, f to c SAND and GRAVEL, brick fragments, glass, asphalt, slag, coal fragments and roots.	0.0'-1': N/O, N/S
					1			PID = 0.0 ppm max.
							1.0'-3.0': Whole and half pieces of brick.	1'-3': N/O, N/S
								PID = 0.0 ppm max.
					3			3'-5': Sl sewage odor, N/S
								PID = 0.0 ppm max.
				3	5		5.0'-6.2': Fill-Brown very f to c SAND, GRAVEL, some silt, ltl cobble, brick fragments, coal fragments and cinders.	5'-7': N/O, N/S
		1	1.2'	2				PID = 0.9 ppm max.
				2				
				7				
				9	7		7.0'-8.4': Fill-Brown very f to c SAND, GRAVEL, some silt, ltl cobble, brick fragments, coal fragments and cinders.	7'-9': Trace non-MGP related
		2	1.4'	10				odor, N/S
				14			Sample collected: E11STMGP-B01-8.08.5	PID = 0.9 ppm max.
				9		▼		
				12	9		9.0'-9.7': Fill-Brown very f to c SAND, GRAVEL, some silt, ltl cobble, brick fragments, coal fragments and cinders.	9'-11': N/O, N/S
		3	1.4'	4				PID = 0.3 ppm max.
				2			9.7'-10.4': Fill-Lt brown SILT, very f to c SAND and ltl gravel.	
				3				
				9	11		11.0'-12.6': Fill-Lt brown SILT, very f to c SAND, ltl gravel.	11'-13': N/O, N/S
		4	1.6'	9				PID = 0.3 ppm max.
				12				
				17				
				8	13		13.0'-13.9': Fill-Lt brown SILT, very f to c SAND, ltl gravel and cobbles.	13'-15': N/O, N/S,
		5	0.9'	8				PID = 0.3 ppm max.
				7				
				13				
				11	15		15.0'-16.3': Fill-Lt brown SILT, very f to c SAND, ltl gravel and cobbles.	15'-17': N/O, N/S
		6	2.0'	8				PID = 0.3 ppm max.
				15			16.3'-17.0: ML-Gray clayey SILT.	
				9			Sample collected: E11STMGP-B01-1616.5	17'-19': N/O, N/S
				9	17		17.0'-19.0': ML-SILT and very f to m SAND grading to clayey SILT.	PID = N/A
		7	2.0'	13				

TRC

BORING No.: B-1

SHEET 2 OF 2

BORING LOG

JOB NAME/ CLIENT
E 11th St MGP SCS/Con Edison

PROJECT NO.
39656-0600-10000

AREA OF SITE

ADDRESS
13th St Southern Sidewalk

ELEVATION/DATUM

DRILLING CONTRACTOR
ADT

DRILLER
Sean Miller

TRC INSPECTOR
Morgan Evans

DRILLING RIG
CME-LC60

TYPE/SIZE BIT
4.25" Hollow Stem Auger

START DATE
8/27/2004

END DATE
8/27/2004

SAMPLER TYPE
2" Split Spoon

HAMMER WEIGHT/DROP
140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs))
25'

WATER LEVEL (ft bgs)
8.75'

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				13				
				17				
				1	19		19.0'-21.0': ML-Gray clayey SILT.	19'-21': N/O, N/S
		8	2.0'	2				PID = 0.2 ppm max.
				5				
				9				
				11	21		21.0'-23.0': ML-Gray clayey SILT.	21'-23': N/O, N/S
		9	2.0'	3				PID = 0.0 ppm max.
				5				
				9				
				N/A	23		23.0'-25.0': ML-Gray clayey SILT.	23'-25': N/O, N/S
		10	2.0'	N/A				PID = 0.0 ppm max.
				N/A			Sample collected: E11STMGP-B01-24.525	
				N/A				
					25		E.O.B. at 25' bgs	
					27			
					29			
					31			
					33			
					35			

TRC

BORING No.: B-02/MW-6

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT
E 11th St MGP SCS/Con Edison

PROJECT NO.
39656-0600-10000

AREA OF SITE

ADDRESS
13th St Southern Sidewalk

ELEVATION/DATUM

DRILLING CONTRACTOR
ADT

DRILLER
Victor

TRC INSPECTOR
Jessica Elliott

DRILLING RIG
CME LC-60

TYPE/SIZE BIT
4.25" Hollow Stem Auger

START DATE
9/1/2004

END DATE
9/1/2004

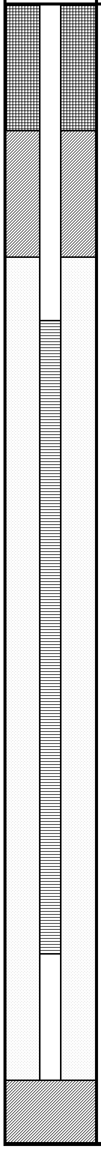
SAMPLER TYPE
2" Split Spoon

HAMMER WEIGHT/DROP
140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs))
21'

WATER LEVEL (ft bgs)
9'

WELL CONSTRUCTION



SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					0.0'-0.5': CONCRETE	
			1		0.5'-1.0': Fill-Dk brown COBBLES, f to c SAND and GRAVEL.	
					1.0'-2.0': Fill-Dk brown SILT, f to c SAND, some cobbles and tree roots.	1'-2': N/O, N/S PID = 0.5 ppm max.
					2.0'-3.0': Fill-Dk brown m to c SAND, some gravel, asphalt and tr brick fragments.	2'-3': N/O, N/S PID = 0.8 ppm max.
			3		3.0'-5.0': Fill-Lt to dk brown f to c SAND, SILT and tr cobbles.	3'-4': N/O, N/S PID = 1.1 ppm max. 4'-5': N/O, N/S PID = 2.0 ppm max.
			5			5'-5.5': Strong gasoline odor, N/S
		5			5.0'-5.5': Fill-Black SILT, f to c SAND, some gravel and slag.	
1	1.25'	7			5.5'-6.25': Fill-Orangish brown f to c SAND, some silt and tr gravel.	5.5'-7': N/O, N/S
		8				PID = 134 ppm max.
		4				
			7			
		3			7.0'-7.5': Fill-Black SILT, f to c SAND, some gravel and slag (most likely sluff).	7'-7.5': Strong gasoline odor, black staining, pockets of product
2	1.0'	6			7.5'-8.0': Fill-Tan f to c SAND, some silt and tr gravel.	
		9			Sample collected: E11STMGP-B02-79	7.5'-9': N/O, N/S
		2		▼		PID = 144 ppm max.
			9			
		8			9.0'-11.0': No Recovery.	
3	0.0'	5				
		3				
		4				
			11			
		7			11.0'-12.25': Fill-Tan f to c SAND, some silt and gravel and chunks of rock.	11'-13': N/O, N/S
4	1.5'	7				PID = 0.0 ppm max.
		11			12.25'-12.5': SM-Dk gray SILT, f SAND, some m sand, tr gravel and mica flecks.	
		7				
			13			
		6			13.0'-13.4': SM-Lt brown f to m SAND, some silt and c sand and tr gravel.	13'-15': Moderate non-MGP related odor, sheen, N/S
5	0.4'	8				
		7				PID = 0.0 ppm max.
		7				15'-17': Moderate non-MGP related odor, sheen, N/S
			15		15.0'-16.0': SW-Lt brown f to c SAND, some silt and gravel.	
		7				
6	1.2'	9			Sample collected: E11STMGP-B02-1517	PID = 0.0 ppm max.
		9			16.0'-16.2': ML-Tan silty CLAY and tr f sand.	
		8				
			17			
		8			17.0'-18.6': ML-Tan silty CLAY and tr f sand.	
7	1.6'	9				

░	Sand
▨	Bentonite Chips
▦	Concrete
☰	Well Screen

TRC

BORING No.: B-02/MW-6

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS 13th St Southern Sidewalk		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Victor	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG CME LC-60	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 9/1/2004	**END DATE** 9/1/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 21'	**WATER LEVEL (ft bgs)** 9'

WELL CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
▨			11				17'-19': N/O, N/S
▨			11	19			PID = 0.0 ppm max.
▨			5			19.0'-20.7': ML-Tan silty CLAY and tr f sand.	
▨	8	1.7'	4				19'-21': N/O, N/S
▨			7			Sample collected: E11STMGP-B02-1921	PID = 0.0 ppm max.
▨			7	21		E.O.B. at 21' bgs	
				23			
				25			
				27			
				29			
				31			
				33			
				35		Well set at 17' bgs Screen interval from 5'-15' bgs with a 2' sump from 15' to 17' bgs.	

⛆	Sand
▨	Bentonite Chips
▦	Concrete
☰	Well Screen

TRC

BORING No.: B-03

SHEET 1 OF 3

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison

PROJECT NO. 39656-0600-10000

AREA OF SITE

ADDRESS St. Emeric's Parking Lot

ELEVATION/DATUM

DRILLING CONTRACTOR ADT

DRILLER Chris Capabianco

TRC INSPECTOR Lisa Wasiowich

DRILLING RIG CME 75

TYPE/SIZE BIT 4.25" Hollow Stem Auger

START DATE 8/18/2004

END DATE 8/18/2004

SAMPLER TYPE 2" Split Spoon

HAMMER WEIGHT/DROP 140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs)) 39'

WATER LEVEL (ft bgs) 8'

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.5': ASPHALT	
							0.5'-1.0': Fill-Angular COBBLE, brown very f to c SAND, GRAVEL and ltl to some brick chunks and fragments.	
					1		1.0'-2.7': Fill-Large BRICK chunks and remnants of a brick wall.	
							Sample collected: E11STMGP-B03-2.53.0	
							2.7'-4.0': Large CONCRETE block.	
					3			
				5	5		5.0'-5.5': Fill-Brown f to m SAND and some rock (quartz) fragments.	5'-7': N/O, N/S
		1	1.2'	28			5.5'-6.2': Fill-ROCK (quartz) FRAGMENTS and ltl brown f to m sand.	PID = 0.7 ppm max.
				50				
				50/1"				
				20	7		7.0'-7.3': Fill-Brown f to m SAND and some f to c gravel. 7.3'-7.5': Fill-Broken up CONCRETE.	7'-9': N/O, N/S
		2	0.5'	50/2"		▼		PID = 0.0 ppm max.
				50	9		9.0'-9.8': Fill-Broken up CONCRETE.	9'-11': N/O, N/S
		3	0.8'	50/2"			Sample colllected: E11STMGP-B03-910	PID = 0.0 ppm max.
				WOH	11		11.0'-13.0': No Recovery	
		4	0.0'					
				1				
				1	13		13.0'-13.5': Fill-Dk brown f to c SAND, ltl f gravel and tr wood fragments. 13.5'-14.5': SP-Brown f to m SAND.	13'-15': Sl creosote odor, N/S
		5	1.5'	2				PID = 14.3 ppm max.
				2			Sample collected: E11STMGP-B03-1314	
				2				
				1	15		15.0'-15.5': SP-Brown f to m SAND and tr silt.	15'-17': Sl creosote odor, N/S
		6	0.5'	7				PID = 1.6 ppm max.
				7				
				7				
				2	17		17.0'-18.8': SW-Gray f to c SAND.	17'-19': N/O, N/S
		7	2.0'	3				PID = 1.7 ppm max.

TRC

BORING No.: B-03

BORING LOG

SHEET 2 OF 3

JOB NAME/ CLIENT
E 11th St MGP SCS/Con Edison

PROJECT NO.
39656-0600-10000

AREA OF SITE

ADDRESS
St. Emeric's Parking Lot

ELEVATION/DATUM

DRILLING CONTRACTOR
ADT

DRILLER
Chris Capabianco

TRC INSPECTOR
Lisa Wasiowich

DRILLING RIG
CME 75

TYPE/SIZE BIT
4.25" Hollow Stem Auger

START DATE
8/18/2004

END DATE
8/18/2004

SAMPLER TYPE
2" Split Spoon

HAMMER WEIGHT/DROP
140 lbs./30"

TOTAL DEPTH
(feet below ground surface (ft bgs))
39'

WATER LEVEL (ft bgs)
8'

WELL CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
	NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
			3				
			4	19		18.8'-19.0': SP-Brown f SAND.	
			1			19.0'-20.3': SP-Gray f to m SAND (sluff).	19'-21': N/O, N/S
	8	2.0'	2				PID = 0.4 ppm max.
			3			20.3'-21.0': SP-Brown f SAND.	
			4	21			
			2			21.0'-22.0': SP-Gray f to m SAND (sluff).	21'-23': N/O, N/S
	9	2.0'	3				PID = 1.1 ppm max.
			4			22.0'-23.0': SP-Brown f SAND.	
			3	23			
			2			23.0'-24.0': SP-Gray f to m SAND (sluff).	23'-25': N/O, N/S
	10	2.0'	3				PID = 1.1 ppm max.
			6			24.0'-25.0': SP-Brown f SAND.	
			5	25			
			3			25.0'-25.9': SP-Brown f SAND.	25'-27': N/O, N/S
	11	1.7'	3			25.9'-26.1': SP-Gray f to m SAND.	PID = 2.6 ppm max.
			3			26.1'-26.7': SP-Gray f SAND with alternating lenses of m sand.	
				27			
			5			27.0'-28.0': SW-Gray f to c SAND (sluff).	27'-29': N/O, N/S
	12	2.0'	6				PID = 3.2 ppm max.
			7			28.0'-29.0': SM-Brown SILT and f SAND.	
			10	29			
			2			29.0'-31.0': SM-Brown SILT and f SAND.	29'-31': N/O, N/S
	13	2.0'	10				PID = 2.4 ppm max.
			13			30.0': Tr wood fibers.	
			14	31			
			7			31.0'-33.0': SM-Brown SILT and f SAND.	31'-33': N/O, N/S
	14	2.0'	8				PID = 7.4 ppm max.
			8				
			8	33			
			WOH			33.0'-35.0': SP-Gray f to m SAND.	33'-35': N/O, N/S
	15	2.0'	1				PID = 1.2 ppm max.
			3				
			7	35			
			3			35.0'-37.0': SP-Gray f to m SAND.	35'-37': N/O, N/S
	16	2.0'	5				PID = 1.1 ppm max.

TRC

BORING No.: B-03

BORING LOG

SHEET 3 OF 3

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Chris Capabianco	**TRC INSPECTOR** Lisa Wasiowich	
DRILLING RIG CME 75	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 8/18/2004	**END DATE** 8/18/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 39'	**WATER LEVEL (ft bgs)** 8'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				6				
				4	37			
				3			37.0'-39.0': SP-Gray f to m SAND.	37'-39': N/O, N/S
		17	2.0'	4				PID = 2.5 ppm max.
				6			Sample collected: E11STMGP-B03-3839	
				10	39			
							E.O.B. at 39' bgs (Boring complete due to running sands in the augers)	
					41			
					43			
					45			
					47			
					49			
					51			
					53			

TRC

BORING No.: B-04

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/21/2004	**END DATE** 4/21/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 10.5'	**WATER LEVEL (ft bgs)** 5'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN FEET	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.7': ASPHALT	
					1		0.7'-5.0': Fill-Brown SILT, f to c SAND, GRAVEL, some brick fragments, cobblestone, aphalt and concrete.	0.7'-5.0': N/O, N/S PID = 0.0 ppm max.
					3			
							Sample collected: E11STMGP-B04-57	
					5	▼		
				12			5.0'-5.7': Fill-Tan/brown SILT, f to c SAND , GRAVEL, some brick fragments	5'-7': N/O, N/S
		1	0.7'	13			and concrete.	PID = 0.2 ppm max.
				18			Sample collected: E11STMGP-B04-57	
				25	7		7.0'-9.0': No recovery.	
				9				
		2	0.0'	20				
				20				
				37	9			9'-11': N/S, solvent odor
				9			9.0'-9.7': Fill-Dk gray SILT, f to c SAND, GRAVEL and some brick fragments	
		3	0.7'	14			and concrete.	PID = 32 ppm max.
				50/4			Sample collected: E11STMGP-B04-911	
					11		E.O.B. @ 10.5' bgs (Refusal due to wood timber)	
					13			
					15			
					17			

TRC

BORING No.: B-05/MW-2

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT
E 11th St MGP SCS/Con Edison

PROJECT NO.
39656-0600-10000

AREA OF SITE

ADDRESS
Jacob Riis

ELEVATION/DATUM

DRILLING CONTRACTOR
ADT

DRILLER
Sean Miller

TRC INSPECTOR
Scott Fischer

DRILLING RIG
Mobile B-61

TYPE/SIZE BIT
4.25" Hollow Stem Auger

START DATE
4/15/2004

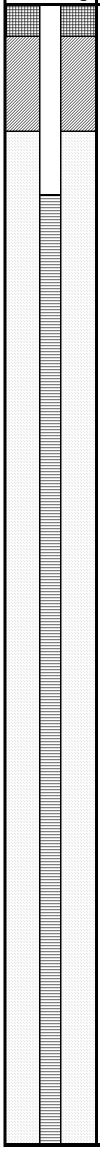
END DATE
4/15/2004

SAMPLER TYPE
2" Split Spoon

HAMMER WEIGHT/DROP
140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs))
21'

WATER LEVEL (ft bgs)
7'



WELL CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
	NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				1		0'-0.4': Poured CONCRETE/ 0.4'-0.5': GRAVEL subbase. 0.5'-2.5': Fill-Dk brown SILT, f to c SAND, GRAVEL, tr brick fragments, glass, concrete, coke and clinker material. 2.5'-3.0': Irregular concrete. Appears to be waste material.	0.5'-1.0': N/O, N/S PID = 0.0 ppm max. 1'-2': N/O, N/S PID = 0.0 ppm max.
	1	0.5'	5 8 9 11	3		3.0'-3.5': Fill-Dk brown SILT, f to c SAND and GRAVEL. Sample collected: E11STMGP-B05-35	3'-5': Strong MGP-related odor, black staining, visible (OLM) (last 2" of spoon) PID = 13.8 ppm max.
	2	0.5'	3 3 45 22	5		5.0'-5.5': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments. and concrete.	5'-7': Sl MGP-related odor, N/S PID = 1.7 ppm max.
	3	N/A	3 4 7 3	7	▼	7.0': Fill-Dk brown SILT, f to m SAND, tr brick fragments and concrete. Sample collected: E11STMGP-B05-79	7'-9': Strong MGP-related odor, sheen, visible (OLM), N/S PID = 83.0 ppm max.
	4	0.3'	2 1 2 1	9		9.0'-9.3': SM-Dk brown silty f SAND and tr f rounded gravel.	9'-11': Sl MGP-related odor, tr sheen, tr black staining PID = 8.4 ppm max.
	5	2.0'	1 1 1 2	11		11.0'-13.0': SM-Dk brown silty f SAND and tr m to c rounded gravel.	11'-13': Sl solvent odor, N/S PID = 4.1 ppm max.
	6	1.2'	1 3 3 4	13		13.0'-14.2': SM-Dk brown silty f SAND.	13'-15': N/O, N/S, PID = 1.3 ppm max.
	7	2.0'	1 1 1 2	15		15.0'-17.0': SM-Dk gray silty f SAND and tr leaf and root matter.	15'-17': N/O, N/S, PID = 1.4 ppm max.
	8	1.0'	3 1	17		17.0'-18.0': SW-Dk gray SILT, f to c SAND and some gravel. Sample collected: E11STMGP-B05-1719	17'-19': Sl petroleum odor, N/S PID = 0.6 ppm max.

TRC

BORING No.: B-05/MW-2

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/15/2004	**END DATE** 4/15/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 21'	**WATER LEVEL (ft bgs)** 7'

WELL CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
			1				
			10	19			
			1			19.0'-19.1': SW-Dk gray SILT, f to c SAND and some gravel.	
	9	0.1'	2				19'-21': N/O, N/S
			1				PID = 0.2 ppm max.
			3	21			
						E.O.B. at 21' bgs	
				23			
				25			
				27			
				29			
				31			
				33			
				35		Well set at 20' bgs.	
						Screen interval from 3' bgs to 18' bgs with a 2' sump from 18' to 20 bgs.	

⬚	Sand
▨	Bentonite Chips
▦	Concrete
▤	Well Screen

TRC

BORING No.: B-06

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/21/2004	**END DATE** 4/21/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 23'	**WATER LEVEL (ft bgs)** 5'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.4': Poured CONCRETE/ 0.4'-0.5': GRAVEL subbase.	
					1		0.5'-3.0': Fill-Dk brown SILT, f to c SAND and GRAVEL, some brick, concrete, asphalt, tr glass and metal scraps. Some coal and coke fragments.	0.5'-3': Sl petroleum odor, tr black staining PID = 0.0 ppm max.
					3		3.0'-5.0': Fill-Gray v. f. SAND, some silt, clay, tr m-c sand and gravel. Some coal and coke fragments. Sample collected: E11STMGP-B6-34	3'-4': Sl petroleum odor, tr black staining. PID (headspace): 9,999 ppm max.
		1	0.0'	5 10 4 4	5	▼	5.0'-7.0': No recovery.	PID = 26.0 ppm max.
		2	0.3'	2 3 5 7	7		7.0'-7.3': Fill-Dk gray SILT, f to c SAND, GRAVEL and some brick fragments and 1" clay seam.	7'-9': Visible sheen, black staining, MGP-related odor, visible (OLM). PID = 126 ppm max.
		3	0.7'	2 2 2 1	9		9.0'-9.7': Fill-Dk gray SILT, f to c SAND, GRAVEL, tr clay and brick fragments.	9'-11': Visible sheen, black staining, MGP-related odor, visible (OLM). PID = 14.5 ppm max.
		4	0.8'	7 7 8 9	11		11'-11.8': Fill-Dk gray SILT, f to c SAND, GRAVEL, tr clay, large brick fragments and wood fibers.	11'-13': Visible sheen, black staining, MGP-related odor, visible (OLM). PID = 46.7 ppm max.
		5	0.6'	1 8 9 17	13		13.0'-13.6': Fill-Dk gray SILT, f to c SAND, GRAVEL, tr clay and large brick fragments.	13'-15': N/0, N/S PID = 12.0 ppm max.
		6	0.2'	2 7 9 12	15		15.0'-15.2': Fill-Dk brown SILT, f to c SAND and GRAVEL.	15'-17': Visible sheen, black staining, slight MGP-related odor PID = 12.2 ppm max.
		7	0.3'	3 50/3	17		17.0'-17.3': Fill-Dk brown SILT, f to c SAND, GRAVEL and some clay.	17'-19': Visible sheen, black staining, slight MGP-related odor and visible (OLM)

TRC

BORING No.: B-06

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/21/2004	**END DATE** 4/21/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 23'	**WATER LEVEL (ft bgs)** 5'

		SAMPLES					**DESCRIPTION OF SOILS**	**REMARKS**
WELL	**CONSTRUCTION**	**NUMBER**	**RECOVERY IN INCHES**	**BLOWS PER 6"**	**DEPTH**	**WATER**	**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
								PID = 53.3 ppm max.
				8	19		19.0'-19.1': Fill-Dk brown SILT, f to c SAND, GRAVEL, some clay, brick fragments and wood fibers.	19'-21': Sheen, visible (OLM) and (TLM), black staining and MGP-related odor.
		8	0.1'	20				
				50/2				PID = 89.5 ppm max.
				10	21		21.0'-22.2': Fill-Dk gray SILT, f to c SAND, CLAY, tr gravel and wood timbers in shoe and bottom of spoon.	21'-23': Sheen, visible (OLM) and (TLM), black staining and MGP-related odor.
		9	1.2'	20				
				50/0				PID = 124 ppm max.
					23		E.O.B. @ 23' bgs (Refusal due to wood timber)	
					25			
					27			
					29			
					31			
					33			
					35			

TRC

BORING No.: B-07

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS DEP Building		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 5/20/2004	**END DATE** 5/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 17'	**WATER LEVEL (ft bgs)** 5'

		SAMPLES					DESCRIPTION OF SOILS	REMARKS
WELL	CONSTRUCTION	NUMBER	RECOVERY IN FEET	BLOWS PER 6"	DEPTH	WATER	f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.5': ASPHALT	
							0.5'-1.0': Coarse GRAVEL	
					1		1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, tr ash, asphalt, cobbles and concrete.	1'-5': N/A
					3			
				22	5	▼	5.0'-6.5': Fill-Tan f SAND.	5'-7': N/O, N/S
		1	1.5'	11			Sample collected: E11STMGP-B07-57	PID = 1.0 ppm max.
				9				
				9				
				13	7		7.0'-8.0': Fill-Dk gray f SAND.	7'-9': N/O, N/S
		2	1.0'	3				PID = 0.9 ppm max.
				3				
				3				
				4	9		9.0'-10.0': Fill-Dk gray f SAND.	9'-11': N/O, N/S
		3	1.0'	4				PID = 0.5 ppm max.
				2				
				3				
				1	11		11.0'-12.0': Fill-Dk gray f SAND with tr m to c sand.	11'-13': N/O, N/S
		4	1.0'	2				PID = 0.2 ppm max.
				1				
				5				
				2	13		13.0'-14.0': Fill-Dk gray f SAND with tr m to c sand.	13'-15': N/O, N/S
		5	1.5'	3				PID = 0.2 ppm max.
				3			14.0'-14.5': Fill-Dk gr f SAND, brick fragments, tr m to c sand and 2" black silty clay seam at 14.1' bgs	
				4				
				3	15		15.0'-16.5': Fill-Black silty CLAY, some f to m sand, non-CGRM wood timber in shoe and first 2" of spoon.	
		6	1.5'	1				15'-17': N/S, sulfur odor
				1			Sample collected: E11STMGP-B07-1517	PID = 5.0 ppm max.
				50/3				
					17		E.O.B. @ 17' bgs (Refusal due to wood timber)	

TRC

BORING No.: B-08
SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS DEP Building		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 5/18/2004	**END DATE** 5/18/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 14.0'	**WATER LEVEL (ft bgs)** N/A

WELL CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
						0.0'-1.0': Grass at surface. Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, asphalt and tr coal and coke fragments.	0'-1': N/O, N/S PID = 0.0 ppm max.
				1		1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, metal, glass and tr coal and coke fragments.	1'-3': N/O, N/S PID = 0.0 ppm max.
				3		3.0'-5.0': Fill-Brick chunks and large cobbles.	3'-5': N/O, N/S PID = 3.3 ppm max.
			35	5		5.0'-6.3': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and roots.	5'-7': N/O, N/S
	1	1.3'	50/2"			Sample collected: E11STMGP-B08-57	PID = 1.9 ppm max.
				7		7.0'-10.0': Drilled through three feet of boulders.	
				9			
			45			10.0'-10.2': Fill-Dk brown SILT, f to m SAND, GRAVEL, roots, brick fragments.	10'-12': MGP-related odor, sheen and visible (OLM) and (TLM)
	2	1.0'	24			10.2'-11.0': Fill-Dk brown SILT, f SAND and some gravel.	
			14	11			PID = 41.3 ppm max.
			4				
			WOH			12.0'-12.8': Fill-Brown SILT, f SAND and some gravel.	12'-14': Strong MGP-related odor, sheen, visible (OLM) and (TLM)
	3	0.8'	4	13			
			1			Sample collected: E11STMGP-B08-1214	
			5				PID = 43.1 ppm max.
						E.O.B. at 14' bgs (Refusal)	
				15			
				17			

TRC

BORING No.: B-10

SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/14/2004	**END DATE** 4/14/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 25'	**WATER LEVEL (ft bgs)** 4.5'

		SAMPLES					DESCRIPTION OF SOILS	REMARKS
WELL	**CONSTRUCTION**	**NUMBER**	**RECOVERY IN INCHES**	**BLOWS PER 6"**	**DEPTH**	**WATER**	**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
							0.0'-0.5': ASPHALT	
					1		0.5'-2.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, tr coke and coal fragments.	0.5'-1.0': N/O, N/S PID = 0.0 ppm max. 1'-2': N/O, N/S PID = 0.0 ppm max.
					3		2.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, tr coke and coal fragments and wood fibers. 3.0'-4.0': Fill-Dk brown SILT, f to c SAND and mostly BRICKS.	2'-4': N/O, N/S PID = 0.0 ppm max.
						▼	4.0'-4.6': Fill-Dk brown SILT, f to c SAND, some brick fragments.	4'-5': N/O, N/S PID = 0.5 ppm max.
		1	0.2'	3 2 2 6	5		Sample collected: E11STMGP-B10-45 5.0'-5.2': Fill-Reddish brown SILT and f SAND.	5'-7': Strong MGP-related odor, sheen, black staining. PID = 58.0 ppm max.
		2	0.5'	1 5 5 7	7		7.0'-7.5': Fill-SILT, f to c SAND, GRAVEL, brick fragments and concrete.	7'-9': Strong MGP-related odor, sheen, black staining, visible (OLM) PID = 61.0 ppm max.
		3	1.2'	WOH 3 2 1	9		9.0'-10.2': Fill-SILT, f to c SAND, GRAVEL, brick fragments and concrete. Sample collected: E11STMGP-B10-911	9'-11': Strong MGP-related odor, sheen, black staining, visible (OLM) PID = 120 ppm max.
		4	0.2'	4 5 5 3	11		11.0'-11.2': Fill-SILT, f to c SAND, GRAVEL, brick fragments and concrete.	11'-13': Strong MGP-related odor, sheen, black staining, visible (OLM) PID = 48.0 ppm max.
		5	0.3'	2 3 1 2	13		13.0'-13.3': Fill-SILT, f to c SAND, GRAVEL, brick fragments and concrete.	13'-15': Strong MGP-related odor, N/S, visible (OLM). PID = 31.0 ppm max.
		6	0.0'	2 2 2 1	15		15.0'-17.0': No Recovery.	
		7	1.8'	1 WOH	17		17.0'-18.8': ML-Dk gray silty CLAY and tr organics.	17'-19': Organic odor, N/S PID = 30.0 ppm max.

TRC

BORING No.: B-10

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT
E 11th St MGP SCS/Con Edison

PROJECT NO.
39656-0600-10000

AREA OF SITE

ADDRESS
Jacob Riis

ELEVATION/DATUM

DRILLING CONTRACTOR
ADT

DRILLER
Sean Miller

TRC INSPECTOR
Scott Fischer

DRILLING RIG
Mobile B-61

TYPE/SIZE BIT
4.25" Hollow Stem Auger

START DATE
4/14/2004

END DATE
4/14/2004

SAMPLER TYPE
2" Split Spoon

HAMMER WEIGHT/DROP
140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs))
25'

WATER LEVEL (ft bgs)
4.5'

WELL CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
			1				
			1	19			
			1			19.0'-20.8': ML-Dk gray silty CLAY and tr organics.	
	8	1.8'	WOH				19'-21': N/O, N/S
			1				PID = 30.0 ppm max.
			1	21			
			1			21.0'-23.0': ML-Dk gray silty CLAY and tr organics grading to olive gray silty . silty CLAY at 22.0' bgs	21'-23': N/O, N/S
	9	2.0'	1				PID = 15.0 ppm max.
			1				
			1	23			
			1			23.0'-25.0': ML-Olive gray to black silty CLAY and tr organics.	23'-25': N/O, N/S
	10	2.0'	1				PID = 10.0 ppm max.
			1				
			1	25			
						E.O.B. at 25' bgs	
				27			
				29			
				31			
				33			
				35			

TRC

BORING No.: B-11/MW-3

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/22/2004	**END DATE** 4/22/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 28'	**WATER LEVEL (ft bgs)** 7'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					1 3		0.0'-1.0': Grass at surface. Dk brown SILT, f to c SAND, GRAVEL, brick fragments, glass, rebar and roots. 1.0'-2.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, glass, rebar and roots. Hard, weathered tar material at 1.5' bgs. 2.0'-3.0': Fill-Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, glass, rebar and roots. Flat concrete at 3.0' bgs. Sample collected: E11STMGP-B11-23	0'-1': N/O, N/S PID = 0.0 ppm max. 1'-2': Sl naphthalene odor, N/S PID = 0.0 ppm max.
		1	1.1'	8 25 34 31	5		4.0'-5.1': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and non-CGRM wood fibers.	4'-6': N/O, black staining, sl sheen PID = 0.0 ppm max.
		2	0.9'	2 5 4 3	7	▼	6.0'-6.9': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and coal fragments.	6'-8': MGP-related odor, black staining, sheen, visible (OLM) and (TLM) in bottom of the spoon.
		3	0.9'	2 5 3 6	9		8.0'-8.9': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and coal fragments. Sample collected: E11STMGP-B11-810	8'-10': MGP-related odor, black staining, sheen, increase in (OLM) and (TLM) PID = 377 ppm max.
		4	2.0'	5 3 3 4	11		10.0'-12.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and coal fragments.	10'-12': Strong MGP-related odor, black staining, sheen, (visible OLM) and (TLM) PID = 298 ppm max.
		5	0.2'	2 2 5 2	13		12.0'-12.2': Fill-Dk brown SILT, f to c SAND, GRAVEL, some clay, brick fragments and coal fragments.	12'-14': Strong MGP-related odor, black staining, sheen, (visible OLM) and (TLM) PID = 233 ppm max.
		6	1.0'	10 30 50/0'	15		14.0'-14.5: Fill-Dk brown SILT, f to c SAND, GRAVEL, some clay, brick fragments and coal fragments. 14.5'-15.0': Fill-Non-Coal Gas Related Material wood timbers.	14-18': Strong MGP-related odor, black staining, sheen, (visible OLM) and (TLM) PID = 279 ppm max.
		7	0.8'	2 40 50/3"	17		16.0'-16.8': Fill-Black SILT, f to c SAND, brick fragments and non-CGRM wood timbers.	

TRC

BORING No.: B-11/MW-3

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/22/2004	**END DATE** 4/22/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 28'	**WATER LEVEL (ft bgs)** 7

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
		8	1.0'	5 3 2 2	19		18.0'-18.6': Fill-Black SILT, f to c SAND, brick fragments and non-CGRM wood timbers. 18.6'-19.0': Fill-Dk gray SILT, some clay, tr f to c sand, non-CGRM wood fibers. Sample collected: E11STMGP-B11-1820	18'-20': MGP-related odor, black staining, sheen, visible (OLM) PID = 411 ppm max.
		9	0.2'	2 5 7 5	21		20.0'-20.2': Fill-Black f to c silty SAND, CLAY, brick fragments and non-CGRM wood fibers.	20'-22': Strong MGP-related odor, black staining, sheen, vsible (OLM) PID = 318 ppm max.
		10	0.7'	6 4 8 7	23		22.0'-22.7': Fill-Black f to c silty SAND, tr clay, brick fragments and non-CGRM wood fibers.	22'-24': MGP-related odor, N/S, visible (OLM) PID = 59 ppm max.
		11	1.2'	2 4 3 7	25		24.0'-25.2': ML-Dk gray silty CLAY, tr f sand and tr organics.	24'-26: N/O, N/S PID = 0.0 ppm max.
		12	1.8'	1 1 1 3	27		26.0'-27.8': ML-Dk gray silty CLAY, tr f sand and tr organics. Sample collected: E11STMGP-B11-2628	26'-28': N/O, N/S PID = 0.0 ppm max.
					29		E.O.B. at 28' bgs	
					31			
					33			
					35			

TRC

BORING No.: B-12
SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS Jacob Riis
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Sean Miller
TRC INSPECTOR Scott Fischer/Jessica Elliott

DRILLING RIG Mobile B-61
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/9/2004
END DATE 4/15/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 23'
WATER LEVEL (ft bgs) 7'

f - fine m - medium c - coarse
Lt - light Dk - dark tr - trace ltl - little sl-slight

(PID, STAINING, ODORS, ETC.)
N/S = No Staining
N/O = No odors

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN INCHES	BLOWS PER 6"				
							0'-1.0': Grass and topsoil at surface with dk brown SILT, f to c SAND, GRAVEL, glass, metal, concrete, slag and coke fragments.	0.0'-1': N/O, N/S PID = 0.0 ppm max.
					1		1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, glass, metal, concrete, slag and coke fragments.	1'-3': N/O, N/S PID = 0.0 ppm max.
					3		3.0'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, glass, metal, concrete, slag and coke fragments, some black stained bricks and hard tar material on bricks. Sample collected: E11STMGP-B12-34	3'-5': N/O, black staining on bricks PID = 0.0 ppm max.
		1	0.5'	3 3 2 2	5		5.0'-5.5': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and concrete and tan sand in shoe.	5'-7': N/O, N/S PID = 1.3 ppm max.
		2	0.7'	1 1 1 1	7	▼	7.0'-7.7': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete and non-Coal Gas Related Material wood fibers. Sample collected: E11STMGP-B12-79	7'-9': Strong MGP-related odor, black staining, sheen, visible (OLM) PID = 141 ppm max.
		3	1.2'	5 1 1 20	9		9.0'-10.2': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete and non-CGRM wood fibers.	9'-11': Strong MGP-related odor, N/S PID = 95.0 ppm max.
		4	0.3'	50/4"	11		11.0'-11.3': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete and non-CGRM wood fibers.	11'-13': Strong MGP-related odor, N/S, visible (TLM) in shoe PID = 120 ppm max.
					13		13.0'-15.0': Augered from 11.0'-15.0' without sampling.	
		5	1.0'	1 1 1 1	15		15.0'-16.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete and non-CGRM wood fibers.	15'-17': Strong MGP-related odor, black staining, sheen, visible (OLM) and (TLM) PID = 69 ppm max.
		6	0.6'	14 11	17		17.0'-17.6': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, non-CGRM wood fibers and ash material.	17-19': Strong MGP-related odor, black staining, sheen, visible (OLM) and (TLM)

TRC

BORING No.: B-12

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/2/2004	**END DATE** 4/5/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 27'	**WATER LEVEL (ft bgs)** 7

WELL CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
			22				PID = 184 ppm max.
			12				
			6	19		19.0'-19.5': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete and increasing amount of non-CGRM wood fibers.	19'-21': Strong MGP-related odor, staining, sheen, visible (OLM) and (TLM)
	7	0.5'	35				
			44				
			20				PID = 322 ppm max.
			50/5"	21		21.0'-21.5': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and concrete. Sample collected: E11STMGP-B12-2123	21'-23': Strong MGP-related odor, black staining, sheen, visible (OLM) and (TLM)
	8	0.5'					PID = 570 ppm max.
				23		E.O.B. at 23' bgs (Refusal)	
				25			
				27			
				29			
				31			
				33			
				35			

TRC

BORING No.: B-13

BORING LOG

SHEET 1 OF 1

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/12/2004	**END DATE** 4/12/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 10'	**WATER LEVEL (ft bgs)** 7'

		SAMPLES					**DESCRIPTION OF SOILS**	**REMARKS**
WELL	**CONSTRUCTION**	**NUMBER**	**RECOVERY IN FEET**	**BLOWS PER 6"**	**DEPTH**	**WATER**	**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
							0'-0.3': Poured CONCRETE/ 0.3'-0.5': GRAVEL subbase.	
					1		0.5'-1.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, glass, metal, asphalt, roots and some black organics.	0.5'-5.0': N/O, N/S PID = 0.0 ppm max.
							1.0'-3.0': Fill-Lt brown SILT, f to c SAND, GRAVEL, some cobbles, concrete and brick fragments.	1'-3': N/O, N/S PID = 0.0 ppm max.
					3		3.0'-5.0': Fill-Lt brown SILT, f to c SAND, GRAVEL, some cobbles, concrete and brick fragments.	3'-5': N/O, N/S PID = 0.0 ppm max.
		1	0.5'	13 19 19 17	5		5.0'-5.5': Fill-Tannish orange f to c SAND and f rounded GRAVEL. Sample collected: E11STMGP-B13-57	5'-7': N/O, N/S PID = 0.6 ppm max.
		2	0.5'	5 8 8 12	7	▼	7.0'-7.5': Fill-Tannish orange f to c SAND and f rounded GRAVEL.	7'-9': N/O, N/S PID = 0.4 ppm max.
		3	0.5'	7 9 50/3"	9		9.0'-9.5': Fill-Gray f to c SAND, some f to m gravel, tr silt and non-CGRM wood timber in spoon.	9'-10': N/O, N/S PID = 0.4 ppm max.
							E.O.B. at 10.0'bgs (Refusal)	
					11			
					13			
					15			
					17			

TRC

BORING No.: B-14

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/13/2004	**END DATE** 4/13/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 16'	**WATER LEVEL (ft bgs)** 8'

		SAMPLES					DESCRIPTION OF SOILS	REMARKS
WELL	CONSTRUCTION	NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					1		0.0'-0.5': Poured CONCRETE and 2" subbase. 0.5'-1.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, glass and metal scraps.	0.5'-1': N/O, N/S PID = 0.0 ppm max.
							1.0'-3.0': In place bricks with mortar joints.	1'-3': N/O, N/S PID = 0.0 ppm max.
					3		3.0'-4.0': In place bricks with mortar joints.	3'-4': N/O, N/S PID = 0.0 ppm max.
		1	0.1'	7 7 6 3	5		4.0'-4.1': Fill-BRICK, CONCRETE and Dk brown f to c silty SAND	4'-6': N/O, N/S PID = 0.6 ppm max.
		2	0.4'	7 50/3"	7		6.0'-6.4': Fill-BRICK, CONCRETE, Dk brown f to c silty SAND and some slate.	6'-8': Sl petroleum odor, N/S PID = 0.4 ppm max.
		3	0.5'	2 1 1 5	9	▼	8.0'-8.5': Fill-Dk brown SILT, f to c SAND and GRAVEL. Sample collected: E11STMGP-B14-810	8'-10': Petroleum odor, N/S, visible sheen. PID = 22.0 ppm max.
		4	0.3'	2 1 2 5	11		10.0'-10.3': Fill-Dk brown SILT, f to c SAND and GRAVEL.	10'-12': Petroleum odor, N/S, visible sheen. PID = 3.5 ppm max.
		5	0.4'	4 6 5 5	13		12.0'-12.4': Fill-Tan f to c SAND and brick fragments.	12'-14': Sl petroleum odor, N/S, visible sheen. PID = 10 ppm max.
		6	1.9'	2 1 4 2	15		14.0'-15.9': SM-Brown SILT and some f sand. Sample collected: E11STMGP-B14-1416	14'-16': N/O, N/S visible sheen. PID = 0.5 ppm max.
					17		E.O.B. at 16' bgs	

TRC

BORING No.: B-15

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/13/2004	**END DATE** 4/13/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 16'	**WATER LEVEL (ft bgs)** 10'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.5: Poured CONCRETE and 2" subbase.	
					1		0.5'-1.0': Fill-Dk brown SILT, f to c SAND, tr gravel, cobble, brick fragments and tree roots.	0.5'-1': N/O, N/S
								PID = 0.0 ppm max.
							1.0'-2.0': Fill-Dk brown SILT, f to c SAND, tr gravel, cobble, glass, whole and half pieces of brick and tr coke fragments.	1'-2': N/O, N/S
								PID = 0.0 ppm max.
					3		2.0'-4.0': Fill-Mostly large bricks with dk brown silt, f to c sand, tr gravel, cobble, glass and tr coke fragments.	
								2'-4': N/O, N/S
								PID = 0.0 ppm max.
		1	0.2'	8	5		4.5'-4.7': Fill-Brick and concrete.	4'-6': N/O, N/S
				12				PID = 0.1 ppm max.
				21				
				9				6'-8': N/O, N/S
		2	0.1'	4	7		6.0'-6.1': Fill-Dk brown SILT, f SAND, tr gravel and non-CGRM wood fibers.	PID = 0.4 ppm max.
				3				
				9				
				2			8.0'-9.0': Fill-Olive gray f SAND, tr silt and coal fragments.	8'-10': Sl MGP-related odor, black staining at 8.5' bgs
		3	1.0'	5	9			
				7			Sample collected: E11STMGP-B15-810	PID = 0.7 ppm max.
				4		▼		
				1			10.0'-11.8': Fill-Olive gray f SAND, tr silt, coal fragments and seems of organics.	10'-12': Sl MGP-related odor, N/S
		4	1.8'	1	11			PID = 0.8 ppm max.
				2				
				1				
				1			12.0'-13.8': SP-Intermittent seams of olive gray f SAND and leaf matter.	12'-14': N/O, N/S, blebs of sheen
		5	1.8'	1	13			PID = 0.4 ppm max.
				WOH				
				1				
				1			14.0'-15.8': SP-Intermittent seams of olive gray f SAND and leaf matter.	14'-16': N/O, N/S
		6	N/A	1	15			PID = 0.4 ppm max.
				1			Sample collected: E11STMGP-B15-1416	
				6			Duplicate sample collected: E11STMGP-B51-1416	
							E.O.B. at 16' bgs	
					17			

TRC

BORING No.: B-16

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS Jacob Riis
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Sean Miller
TRC INSPECTOR Scott Fischer

DRILLING RIG Mobile B-61
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/6/2004
END DATE 4/6/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 21'
WATER LEVEL (ft bgs) 9'

		SAMPLES					DESCRIPTION OF SOILS	REMARKS
WELL	CONSTRUCTION	NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.3': Poured CONCRETE/ 0.3'-0.5': GRAVEL subbase.	
							0.5'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and concrete.	0.0'-1': N/O, N/S PID = 0.0 ppm max.
					1			
								1'-3': N/O, N/S
								PID = 0.0 ppm max.
							3.0': Layer of concrete.	
				37	3		3.0'-4.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, asphalt, concrete and coal fragments.	3'-5': Sl petroleum odor, N/S
		1	1.0'	50				PID = 4.0 ppm max.
				50/3"				
				44	5		5.0'-5.8': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and concrete.	5'-7': Sl petroleum odor, N/S
		2	0.8'	37				PID = 5.0 ppm max.
				14			Sample collected: E11STMGP-B16-57	
				15				
				2	7		7.0'-9.0': No Recovery.	
		3	0.0'	1				
				1				
				1		▼		
				1	9		9.0'-9.1': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and concrete.	9'-11': Sl petroleum odor, N/S and visible sheen
		4	0.1'	1				
				1				PID = 0.2 ppm max.
				WOH				
				1	11		11.0'-13.0': No Recovery.	
		5	0.0'	2				
				WOH				
				1				
				1	13		13.0'-14.8': ML-Black silty CLAY and tr organics.	13'-15': Sl MGP-related odor, N/S
		6	1.8'	1				and visible sheen on shoe
				1				PID = 0.2 ppm max.
				1				
				2	15		15.0'-16.5': ML-Black silty CLAY and tr organics.	15'-17': MGP-related odor, N/S
		7	1.5'	1				visible sheen, dk brown
				1				blebs of product.
				2				PID = 0.2 ppm max.
				1	17		17.0'-18.2': ML-Black silty CLAY and tr organics.	17'-19': MGP-related odor, N/S
		8	1.2'	1				visible sheen, dk brown

BORING No.: B-16

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/6/2004	**END DATE** 4/6/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 21'	**WATER LEVEL (ft bgs)** 9'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				1			Sample collected: E11STMGP-B16-1719	blebs of OLM.
				1	19			PID = 1.4 ppm max.
				1			19.0'-21.0': ML-Black silty CLAY and tr organics.	19'-21': Tr organic odor, N/S
		9	2.0'	1			Sample collected: E11STMGP-B16-1921	PID = 0.0 ppm max.
				1				
				1	21			
							E.O.B. at 21' bgs	
					23			
					25			
					27			
					29			
					31			
					33			
					35			

TRC

BORING No.: B-17

SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/8/2004	**END DATE** 4/9/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 27'	**WATER LEVEL (ft bgs)** 7'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.5: Poured CONCRETE and 2" subbase.	
					1		0.5'-1.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick and concrete fragments.	0.5'-1': N/O, N/S PID = 0.2 ppm max.
							1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, whole and half pieces of brick and large chunks of concrete and asphalt.	1'-3': N/O, N/S PID = 0.3 ppm max.
					3		3.0'-4.5': Fill-Dk brown SILT, f to c SAND, GRAVEL, whole and half pieces of BRICK and large chunks of concrete and asphalt.	3'-4': N/O, N/S PID = 0.3 ppm max.
		1	1.6'	13 28 15 35	5		5.0'-6.6': Fill-Brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, coal fragments and weathered brick from 5.5'-6' bgs. Sample collected: E11STMGP-B17-57	5'-7': Black stained brick in shoe with MGP-related odor PID = 5.0 ppm max.
					7	▼		
		2	1.1'	2 1 1 1	9		8.0'-9.1': Fill-Brown SILT, f to c SAND, GRAVEL, brick fragments, concrete and coal fragments.	8'-10': Strong MGP-related odor, visble (OLM), black staining. PID = 487 ppm max.
		3	1.2'	3 4 4 4	11		10.0'-11.2': Fill-Brown SILT, f to c SAND, GRAVEL, brick fragments, concrete and coal fragments. Sample collected: E11STMGP-B17-1012	10'-12': Strong MGP-related odor, visible (OLM), black staining, sheen. PID = 519 ppm max.
		4	1.3'	10 4 3 2	13		12.0'-13.3': Fill-Brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, coal fragments, some organic matter and wood fibers.	12'-14': Strong MGP-related odor, visible (OLM), black staining, sheen. PID = 266 ppm max.
		5	0.5'	1 1 1 1	15		14.0'-14.5': Fill-Black stained SILT, f to c SAND, f GRAVEL and coal fragments.	14'-16': Strong MGP-related odor, visible (OLM), black staining, sheen. PID = 250 ppm max.
		6	1.0'	WOH 1 1 1	17		16.0'-17.0': Fill-Black stained SILT, f to c SAND, f GRAVEL and coal fragments.	16'-18': Strong MGP-related odor, visible (OLM), black staining, sheen. PID = 150 ppm max.

TRC

BORING No.: B-17

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/8/2004	**END DATE** 4/9/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 27'	**WATER LEVEL (ft bgs)** 7

		SAMPLES					**DESCRIPTION OF SOILS**	**REMARKS**
WELL	**CONSTRUCTION**	**NUMBER**	**RECOVERY IN INCHES**	**BLOWS PER 6"**	**DEPTH**	**WATER**	**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
		7	0.9'	12 5 1 1	19		18.0'-18.9': SW-F to c SAND, tr f to m gravel and non-CGRM wood fibers (3" split spoon used due to no recovery with a 2" split spoon). 20.0-27.0': Sluff (Augers were advanced from 20'-25' continuously, but when the 2" split spoon rods were inserted inside the augers, the rods only stood at 22' bgs instead of 25'bgs. Therefore, the material recovered in the spoons from 20'-27' bgs is mostly likely sluff.)	18'-20': Strong MGP-related odor, sheen, visible (OLM) PID = 119 ppm max.
					21			
					23			
					25			
					27		E.O.B. at 27' bgs	
					29			
					31			
					33			
					35			

TRC

BORING No.: B-18

BORING LOG

SHEET 1 OF 1

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/6/2004	**END DATE** 4/6/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 7.5'	**WATER LEVEL (ft bgs)** N/A

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN FEET	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.5': Poured CONCRETE	
					1		0.5'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, glass, metal, slag, coke and coal fragments.	0.7'-5.0': N/O, N/S PID = 0.0 ppm max.
				50	3			3'-5': N/O, N/S PID = 2.0 ppm max.
		1	1.5	40				
				13				
				13	5			
				37			5.0'-5.8': Red brick chunks and a weathered mortar joint at 5.4' bgs.	5'-7': N/O, N/S PID = 6.8 ppm max.
		2	0.8'	50				
				50				
				50/2"	7			
				15			7.0'-7.1': Red brick chunks.	7'-7.5': Sl solvent odor, N/S
		3	0.1'	50/3"			E.O.B. at 7.5'bgs (Refusal due to brick)	PID = 8.6 ppm max.
					9			
					11			
					13			
					15			
					17			

TRC

BORING No.: B-19

SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS Jacob Riis
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Sean Miller
TRC INSPECTOR Jessica Elliott

DRILLING RIG Mobile B-61
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/12/2004
END DATE 4/12/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 28'
WATER LEVEL (ft bgs) 8'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					1		0.0'-0.5': Poured CONCRETE and 2" subbase. 0.5'-1.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, slag and coke fragments.	0.5'-1': N/O, N/S PID = 0.0 ppm max.
					3		1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, slag and coke fragments.	1'-3': N/O, N/S PID = 0.0 ppm max. 3'-4': N/O, N/S PID = 0.3 ppm max.
		1	0.1'	9 5 2 3	5		4.0'-4.1': 2" of concrete.	
		2	0.1'	13 10 9 8	7		6.0'-6.1': Fill-Brown SILT, f to c SAND, some concrete and coal fragments.	6'-8': N/O, N/S PID = 2.1 ppm max.
		3	0.1'	7 8 7 7	9	▼	8.0'-8.1': Fill-Brick and concrete fragments.	8'-10': Sl solvent odor, N/S PID = 0.5 ppm max.
		4	0.9'	7 8 11 9	11		10.0'-10.9': Fill-Black ASH material, some silt, very f sand, tr coal fragments and tr non-Coal Gas Related Material wood fibers.	10'-12': Sl solvent odor, N/S PID = 0.4 ppm max.
		5	1.7'	3 4 2 5	13		12.0'-13.7': Fill-Olive brown CLAY, SILT, f to c SAND, GRAVEL, ash material, coal fragments, glass and non-CGRM wood fibers. Sample collected: E11STMGP-B19-1214	12'-14': Sl MGP-related odor, black staining, sheen PID = 2.1 ppm max.
		6	1.3'	1 3 2 4	15		14.0'-15.3': Fill-Dk gray SILT, f to c SAND, GRAVEL, brick fragments, concrete, coal fragments, rubber and non-CGRM wood fibers.	14'-16': Strong MGP-related odor, visible (OLM) and (TLM), reddish black staining PID = 8.1 ppm max.
		7	1.0'	16 22 29 31	17		16.0'-17.0': Fill-Dk gray SILT, f to c SAND, GRAVEL, coal fragments and wood fibers in shoe. Sample collected: E11STMGP-B19-1618	16'-18': Strong MGP-related odor, visible (OLM) and (TLM), reddish black staining, sheen PID = 122 ppm max.

TRC

BORING No.: B-19

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS Jacob Riis
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Sean Miller
TRC INSPECTOR Jessica Elliott

DRILLING RIG Mobile B-61
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/12/2004
END DATE 4/12/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 28'
WATER LEVEL (ft bgs) 8

		SAMPLES					DESCRIPTION OF SOILS	REMARKS
WELL	CONSTRUCTION	NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				3				18'-20': Strong MGP-related odor in clay, no (OLM) or (TLM) in interior of clay
		8	0.5'	2	19		18.0'-18.5': ML-Dk gray silty CLAY.	
				1				
				5				PID = 219 ppm max.
				2			20.0'-22.0': ML-Dk gray silty CLAY	20'-22': Strong MGP-related odor in clay, no (OLM) or (TLM) in interior of clay
		9	2.0'	2	21			
				2				
				4				PID = 96 ppm max.
				1			22.0'-24.0': ML-Gray silty CLAY. 22.8': 1" wide fracture slanting at a 45 degree angle within the clay.	22'-24': No (OLM) or (TLM) in interior of clay, N/S, N/O
		10	2.0'	1	23			
				2				PID = 70.6 ppm max.
				4				
				1			24.0'-25.6': ML-Gray silty CLAY.	24'-26': No (OLM) or (TLM) in interior of clay, N/S, N/O
		11	2.0'	2	25			
				3				PID = 70.6 ppm max.
				6			25.6'-26.0': SP-Dk gray f to m SAND	
				2			26.0'-28.0': SP-Dk gray f to m SAND and shell fragments.	26'-28': No (OLM) or (TLM) in interior of clay, N/S, N/O
		12	2.0'	4	27			
				9				PID = 104 ppm max.
				6			27.8': 2" silty clay seam in sand.	
							E.O.B. at 28' bgs	
					29			
					31			
					33			
					35			

BORING No.: B-20

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/7/2004	**END DATE** 4/7/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 6.5'	**WATER LEVEL (ft bgs)** N/A

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN FEET	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.4': Poured CONCRETE/0.4'-0.5': GRAVEL subbase.	
					1		0.5'-1.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, asphalt and tr slag.	0.5'-1': N/O, N/S PID = 0.0 ppm max.
							1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, whole and half pieces of brick, concrete, asphalt and tr slag.	1'-3': N/O, N/S PID = 0.0 ppm max.
					3		3.0'-6.5': Smooth poured CONCRETE, containing no aggregate material.	3'-6.5': N/O, N/S PID = 0.0 ppm max.
					5			
					7		E.O.B. at 6.5' bgs (Refusal due to concrete)	
					9			
					11			
					13			
					15			
					17			

TRC

			BORING No.: B-21
BORING LOG			**SHEET 1 OF 2**

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/2/2004	**END DATE** 4/5/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 27'	**WATER LEVEL (ft bgs)** 7'

WELL	CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.2': Poured CONCRETE/ 0.2'-0.5': GRAVEL subbase.	
					1		0.5'-5.0': Fill-Dk brown SILT, f to c SAND and GRAVEL, brick fragments, glass, asphalt, slag, coal fragments and roots.	0.0'-1': N/O, N/S PID = 0.0 ppm max.
							1.0'-3.0': Whole and half pieces of brick.	1'-3': N/O, N/S PID = 0.0 ppm max.
					3			3'-5': Sl sewage odor, N/S PID = 0.0 ppm max.
					5			
				14			5.0'-5.1': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, asphalt and coal fragments.	5'-7': N/O, N/S
		1	0.1'	4				PID = 0.0 ppm max.
				1				
				1	7	▼		
				9			7.0'-7.1': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, asphalt and coal fragments.	7'-9': N/O, N/S
		2	0.1'	4				PID = 0.0 ppm max.
				1				
				2	9			
							9.0'-11.0': No Recovery.	
		3	0.0'					
					11			
				3			11.0'-11.2': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and concrete.	11'-13': N/O, N/S
		4	0.2'	3				PID = 0.0 ppm max.
				4				
				4	13			
				3			13.0'-15.0': SP-Dk brown SILT, f to c SAND and GRAVEL.	13'-15': Petroleum odor, N/S, visible sheen and product.
		5	2.0'	1				
				1			Sample collected: E11STMGP-B21-1415	PID = 0.0 ppm max.
				1	15			
				2			15.0'-15.2': SP-Dk brown SILT and f to c SAND.	15'-17': Petroleum odor, N/S and visible sheen
		6	0.2'	1				
				1				PID = 0.0 ppm max.
				5	17			17'-19': Petroleum odor, N/S
				6			17.0'-17.2': SP-Dk brown f to c SAND, some silt, tr clay and organics.	and visible sheen.
		7	2.0'	4			17.2'-19.0': ML-Dk gray clayey SILT, tr very f sand and organics.	PID = 0.5 ppm max.

TRC

BORING No.: B-21

SHEET 2 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison

PROJECT NO. 39656-0600-10000

AREA OF SITE

ADDRESS Jacob Riis

ELEVATION/DATUM

DRILLING CONTRACTOR ADT

DRILLER Sean Miller

TRC INSPECTOR Scott Fischer

DRILLING RIG Mobile B-61

TYPE/SIZE BIT 4.25" Hollow Stem Auger

START DATE 4/2/2004

END DATE 4/5/2004

SAMPLER TYPE 2" Split Spoon

HAMMER WEIGHT/DROP 140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs)) 27'

WATER LEVEL (ft bgs) 7

WELL	CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				4				
				6				
				19	19		19.0'-19.8': ML-Dk gray to black clayey SILT and tr organics.	19'-21': Petroleum odor, N/S
		8	0.8'	22			Sample collected: E11STMGP-B21-1921	and visible sheen.
				10				PID = 0.2 ppm max.
				10				
				1	21		21.0'-21.2': SP-Gray very f SAND, tr clay and silt.	21'-23': Sl petroleum odor, N/S
		9	0.2'	3				PID = 3.9 ppm max.
				5				
				6				
				6	23		23.0'-24.5': SP-Gray f SAND and tr silt.	23'-25': Very sl petroleum odor,
		10	1.5'	12				N/S
				10			Sample collected: E11STMGP-B21-2325	PID = 0.0 ppm max.
				9				
				6	25		25.0'-27.0': Sluff-Gray clayey SILT and f to c SAND.	
		11	2.0'	10				
				11				
				4				
					27		E.O.B. @ 27' bgs	
					29			
					31			
					33			
					35			

TRC

BORING No.: B-22

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/8/2004	**END DATE** 4/8/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 24'	**WATER LEVEL (ft bgs)** 7'

WELL	CONSTRUCTION	SAMPLES NUMBER	 RECOVERY IN INCHES	 BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.5': Poured CONCRETE and 2" subbase.	
					1		0.5'-1.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, some boulders, glass, brick fragments, asphalt, concrete and metal scraps.	0.5'-1': N/O, N/S PID = 0.2 ppm max.
							1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, glass, asphalt and concrete.	1'-3': N/O, N/S PID = 0.3 ppm max.
					3			
							3.0'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, glass, asphalt, concrete, and tr coal and coke fragments.	3'-5': N/O, N/S PID = 0.3 ppm max.
					5			
				50/1"			5.0'-5.1': Fill-Dk brown SILT, f to c SAND, GRAVEL, concrete and brick fragments.	5'-7': N/O, N/S
		1	0.1'					PID = 0.6 ppm max.
							Sample collected: E11STMGP-B22-57	
						▼	6.0'-7.0': Advanced augers to 8' bgs because augers were grinding at 6'-7'.	
					7			
				17			8.0'-8.6': Fill-Black stained SILT, f to c SAND, GRAVEL, brick fragments, ash, cinders and coal fragments.	8'-10': Strong MGP-related odor, visible (OLM), black staining.
		2	0.6'	16				
				5	9			PID = 21.0 ppm max.
				5				
				1			10.0'-10.6': Fill-Black stained SILT, f to c SAND, GRAVEL, brick fragments, ash, cinders and coal fragments.	10'-12': Strong MGP-related odor,
		3	0.6'	1				visible (OLM), black staining. visible sheen.
				1	11		Sample collected: E11STMGP-B22-1012	
				2				PID = 25.0 ppm max.
				1			12.0'-12.2': SW-F to c SAND, tr silt, tr black stained organics and tree roots.	12'-14': Strong MGP-related odor,
		4	0.2'	2				visible (OLM), black staining. visible sheen.
				1	13			
				2				PID = 14.0 ppm max.
				3			14.0'-14.2': SW-F to c SAND, tr silt, tr black stained organics and tree roots.	14'-16': Strong MGP-related odor,
		5	0.2'	1				visible (OLM), black staining. visible sheen.
				1	15			
				2				PID = 19.0 ppm max.
				4			16.0'-16.2': SW-F to c SAND and tr silt.	16'-18': Strong MGP-related odor,
		6	0.2'	1				visible (OLM), black staining.
				2	17			visible sheen.
				1				PID = 14.0 ppm max.

TRC

BORING No.: B-22

SHEET 2 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS Jacob Riis
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Jerry Heller
TRC INSPECTOR Scott Fischer

DRILLING RIG DK-50
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/8/2004
END DATE 4/8/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 24'
WATER LEVEL (ft bgs) 7

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				WOH			18.0'-20.0': No Recovery.	
		7	0.0'	2	19			
				1				
				1				
				WOH			20.0'-20.75': ML-Black silty CLAY	20'-22': Sl MGP-related odor due to wash in water table, N/S
		8	1.5'	1	21			
				1			20.75'-21.5': SW-Gray f to c SAND and tr silt.	PID = 9 ppm max.
				5				
				5			22.0'-24.0': Sluff	
		9	2.0'	5	23			
				10				
				15				
							E.O.B. at 24' bgs	
					25			
					27			
					29			
					31			
					33			
					35			

TRC

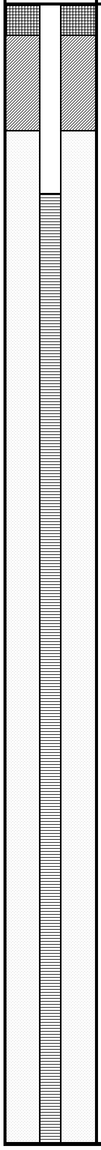
BORING No.: B-23/MW-5

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/19/2004	**END DATE** 4/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 25'	**WATER LEVEL (ft bgs)** 5'

WELL CONSTRUCTION



SAMPLES					**DESCRIPTION OF SOILS**	**REMARKS**
NUMBER	**RECOVERY IN INCHES**	**BLOWS PER 6"**	**DEPTH**	**WATER**	f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					0'-1.0': Grass at surface. Dk brown SILT, f to c SAND, GRAVEL, tree roots, and brick and concrete fragments.	
			1		1.0'-4.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, whole and half bricks, some coal and coke fragments.	1'-3': Sl petroleum odor, tr black staining PID = 0.0 ppm max.
			3			3'-5': Sl petroleum odor, tr black staining
					4.0'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, whole and half bricks. Tr to some orange to brown sand, coal and coke fragments.	
1	0.5	1 1 1 1	5	▼	5.0'-5.5': Fill-Dk brown SILT and f to c SAND, tr f gravel, concrete and brick fragments. Sample collected: E11STMGP-B23-57	5'-7': N/O, N/S PID = 0.0 ppm max.
2	0.4'	1 3 2 1	7		7.0'-7.4': Fill-Dk brown SILT and f to c SAND, tr f gravel, concrete and brick fragments.	7'-9': N/O, N/S PID = 0.2d ppm max.
3	1.0'	2 11 6 16	9		9.0'-10.0': Fill-Dk brown SILT and f to c SAND, tr f gravel, concrete and brick fragments and non-CGRM wood fibers.	9'-11': Visible sheen, black staining, MGP-related odor, visible (OLM). PID = 4.0 ppm max.
4	0.3'	WOH 3 2 2	11		11.0'-11.3': Fill-Dk brown SILT and f to c SAND, tr f gravel, concrete and brick fragments.	11'-13': Visible sheen, black staining, MGP-related odor, visible (OLM). PID = 7.8 ppm max.
5	0.1'	12 12 20 13	13		13.0'-13.1': Fill-Dk brown SILT and f to c SAND, tr f gravel, concrete and brick fragments.	13'-15': Sheen, black staining, MGP-related odor, visible (OLM). PID = 2. 7ppm max.
6	0.6'	12 3 10 15	15		15.0'-15.6': ML-Dk gray SILT, CLAY and very f SAND.	15'-17': Sheen, black staining, sl MGP-related odor
7	0.0'	17/1"	17		17.0'-19.0': No Recovery. 2" of wood timber in shoe.	

░	Sand
▨	Bentonite Chips
▦	Concrete
☰	Well Screen

TRC

BORING No.: B-23/MW-5

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/19/2004	**END DATE** 4/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 25'	**WATER LEVEL (ft bgs)** 5'

WELL CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
░							PID = 1.2 ppm max.
░			18	19		19.0'-19.5': ML-Dk gray SILT, CLAY and very f SAND.	19'-21': Visible sheen, reddish black
░	8	0.5'	7				staining, visible (TLM).
░			2			Sample collected: E11STMGP-B23-1921	PID = 75.6 ppm max.
░			12				
░			1	21		21.0'-21.6': ML-Dk gray SILT, CLAY and very f SAND. Wood timbers in shoe and bottom of spoon.	21'-23': Visible sheen, reddish black staining, visible (TLM).
░	9	0.6'	50/5"				PID = 61.0 ppm max.
▨			2	23		23.0'-25.0': ML-Dk gray silty CLAY and shell fragments.	23'-25': N/O, N/S in interior of clay.
▨	10	2.0'	2			Sample collected: E11STMGP-B23-2325	PID = 6.8 ppm max.
▨			5				
▨			8	25		25.0': SP-C SAND in shoe. E.O.B. at 25' bgs	
				27			
				29			
				31			
				33			
				35		Well set at 20' bgs.	

Screen interval from 3' bgs to 18' bgs with a 2' sump from 18' to 20 bgs.

░ Sand

▨ Bentonite Chips

▦ Concrete

☰ Well Screen

TRC

BORING No.: B-24A

BORING LOG

SHEET 1 OF 1

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Church Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Chris Stratton	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG CME 75	**TYPE/SIZE BIT** 3.25" Hollow Stem Auger	**START DATE** 8/19/2004	**END DATE** 8/19/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 10.5'	**WATER LEVEL (ft bgs)** 9'

WELL	**CONSTRUCTION**	**SAMPLES**			**DEPTH**	**WATER**	**DESCRIPTION OF SOILS**	**REMARKS**
		NUMBER	**RECOVERY IN FEET**	**BLOWS PER 6"**			**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
							0'-0.5': ASPHALT	
					1		0.5'-5.0': Fill-Lt tan very f to c SAND, some very f to m sub-rounded gravel and cobbles.	0.5'-5.0': N/O, N/S PID (headspace) = 2.6 ppm max.
					3			
					5			
							5.0'-7.0': Augered through. Did not sample.	
					7			
				5			7.0'-7.2': Fill-Lt brown and tan f to c SAND and brick fragments.	7'-9': N/O, N/S
		1	0.2'	4				PID = 0.0 ppm max.
				2				
				1		▼		
					9			
				WOH/12"			9.0'-10.0': Fill-SILT and f to c SAND. Sample collected: E11STMGP-B24-0911	9'-11': N/O, N/S
		2	N/A	20				PID = 0.2 ppm max.
				50/3"			10.0'-10.5': Wood timbers.	
							E.O.B. at 10.5' bgs (Refusal due to wood)	
					11			
					13			
					15			
					17			

TRC

BORING No.: B-24B

BORING LOG

SHEET 1 OF 1

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Church Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Chris Stratton	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG CME 75	**TYPE/SIZE BIT** 3.25" Hollow Stem Auger	**START DATE** 8/23/2004	**END DATE** 8/23/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 10.5'	**WATER LEVEL (ft bgs)** N/A

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN FEET	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.5': ASPHALT	
					1		0.5'-3.0': Fill-Lt tan very f to c SAND, some very f to m sub-rounded gravel and cobbles.	0.5'-3': N/O, N/S PID (headspace) = 2.6 ppm max.
							Sample collected: E11STMGP-B24-0102	
					3		Sample collected: E11STMGP-B24-0202.5 3.0'-10.0': Brick chunks and fragments.	
					5			
					7			
					9	▼		
				25			10.0'-10.9': Wood timbers.	10'-12': N/O, N/S
			0.9'	42			Sample collected: E11STMGP-B24-1010.5	PID = 13.9 ppm max.
					11			
				50/1"			E.O.B. at 10.5'bgs (Refusal due to wood)	
					13			
					15			
					17			

TRC

BORING No.: B-24C

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT: E 11th St MGP SCS/Con Edison
PROJECT NO.: 39656-0600-10000
AREA OF SITE:

ADDRESS: St. Emeric's Church Parking Lot
ELEVATION/DATUM:

DRILLING CONTRACTOR: ADT
DRILLER: Jeremy
TRC INSPECTOR: Morgan Evans

DRILLING RIG: CME 75
TYPE/SIZE BIT: 3.25" Hollow Stem Auger
START DATE: 8/25/2004
END DATE: 8/25/2004

SAMPLER TYPE: 2" Split Spoon
HAMMER WEIGHT/DROP: 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)): 10.5'
WATER LEVEL (ft bgs): 9'

		SAMPLES					DESCRIPTION OF SOILS	REMARKS
WELL	CONSTRUCTION	NUMBER	RECOVERY IN FEET	BLOWS PER 6"	DEPTH	WATER	f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0'-0.5': ASPHALT	
					1		0.5'-5.0': Fill-Lt tan very f to c SAND, some very f to m sub-rounded gravel and cobbles.	0.5'-5': N/O, N/S
								PID (headspace) = 2.6 ppm max.
					3			
					5			
				5			5.0'-6.2': Fill-Grayish brown SILT, very f to c SAND, brick fragments and tr cobble. Wood timbers in shoe of spoon.	5'-7': N/O, N/S
		1	1.2'	10				PID = 0.0 ppm max.
				4				
				7	7		Sample collected: E11STMGP-B24-6.57	
				3			7.0'-9.0': Fill-Grayish brown SILT, very f to c SAND, brick fragments and tr cobble. Wood timbers in shoe of spoon.	7'-9': N/O, N/S
		2	2.0'	5				PID = 0.0 ppm max.
				7				
				7	9	▼		
				4			9.0'-9.4': Fill-Grayish brown SILT, very f to c SAND, brick fragments and tr cobble. Wood timbers in shoe of spoon.	9'-11': N/O, N/S
		3	0.4'	6				PID = 0.2 ppm max.
				50/1"			Sample collected: E11STMGP-B24-1010.5	
					11		E.O.B. at 10.5'bgs (Refusal due to wood)	
					13			
					15			
					17			

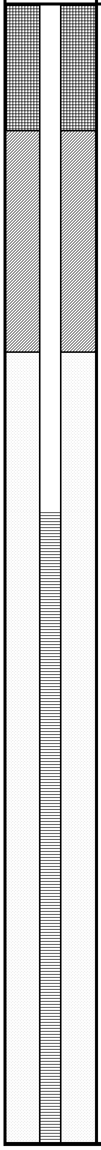
TRC

BORING No.: B-25/MW-1

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Chris Capabianco	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG CME 75	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 8/20/2004	**END DATE** 8/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 27'	**WATER LEVEL (ft bgs)** 10.5'



SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					0'-0.9': ASPHALT	
			1		0.9'-5.0': Fill-Brown f to m SAND, some c gravel, cobbles, tr silt and brick fragments.	1'-2': N/O, N/S PID (headspace) = 0.9 ppm max.
						2'-3': N/O, N/S PID (headspace) = 0.4 ppm max.
			3			3'-4': N/O, N/S PID (headspace) = 0.4 ppm max.
						4'-5': N/O, N/S PID (headspace) = 0.2 ppm max.
			5			
			7			
		2			7.0'-7.2': Fill-Tan to lt brown very f to m SAND, some silt, gravel and brick fragments.	
1	0.2'	1				
		2				
		4	9			
		1			9.0'-9.4': Fill-Tan to lt brown very f to m SAND, some silt, gravel and brick fragments.	9'-11': MGP-related odor, N/S
2	0.5'	3				PID = N/A
		4		▼	9.4'-9.5': Fill-Black very f to m SAND, some silt, gravel and brick fragments.	
		2	11		Sample Collected: E11STMGP-B25-1010.5	
		2			11.0'-12.0': Fill-Black f to c SAND.	11'-13': Strong MGP-related odor, N/S, visible (OLM)
3	1.0'	8				
		4				PID = N/A
		7	13			
		6			13.0': Fill-Black f to c SAND.	13'-15': MGP-related odor, N/S
4	N/A	1				PID = N/A
		2				
		2	15			15'-17': Strong MGP-related odor, N/S and visible sheen
		2			15.0': Fill-Tan to brown SILT and f to c SAND.	PID = 0.0 ppm max.
5	N/A	1				
		1				
		1	17		Sample Collected: E11STMGP-B25-16.517	
		WOH			17.0': Fill-Tan to brown SILT and f to c SAND.	
6	N/A	4				

⛆	Sand
▨	Bentonite Chips
▦	Concrete
☰	Well Screen

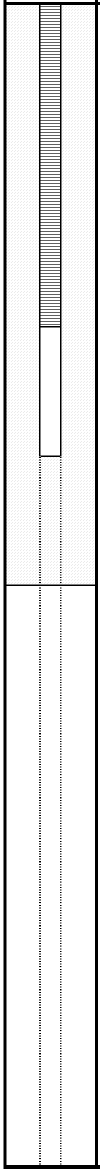
TRC

BORING No.: B-25/MW-1

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Chris Capabianco	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG CME 75	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 8/20/2004	**END DATE** 8/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 27'	**WATER LEVEL (ft bgs)** 10.5'



WELL CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							17'-19': Strong MGP-related odor, N/S and visible sheen. PID = N/A
			WOH	19		19.0': Fill-SILT, very f to c SAND, ltl f to m gravel, tr brick fragments and cobbles.	19'-21': MGP-related odor, N/S and visible sheen. PID = N/A
	8	N/A	3				
			1				
			2				
			WORods	21			
	9	N/A	2				
			3				
			4			Sample collected: E11STMGP-B25-22.523	
				23			
				25			
				27		E.O.B. at 27' bgs	
				29			
				31			
				33			
				35		Well set at 25' bgs Screen interval from 8' to 23' bgs with a 2' sump from 23' to 25' bgs	

░ Sand
▨ Bentonite Chips
▦ Concrete
☰ Well Screen

TRC

BORING No.: B-26

SHEET 1 OF 3

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG Mobil B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 8/18/2004	**END DATE** 8/18/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 39'	**WATER LEVEL (ft bgs)** 11'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					1 3 5		0.0'-0.8': ASPHALT 0.5'-7.0': Fill-Black and m brown very f to c SAND, GRAVEL and brick clusters joined togther by mortar joints.	1'-7': N/O, N/S
		1	0.0'	5 4 3 5	7		7.0'-9.0': No Recovery. Fill-Brown f to c SAND and subrounded GRAVEL in shoe of spoon.	7'-9': N/O, N/S PID = 0.1 ppm max.
		2	0.0'	1 2 1 4	9		9.0'-11.0': No Recovery. Fill-Brown f to c SAND and subrounded GRAVEL in shoe of spoon.	9'-11': N/O, N/S PID = 0.0 ppm max.
		3	0.8'	2 7 8 6	11	▼	11.0'-11.8': Fill-SILT, f to c SAND, GRAVEL and tr f cobbles. Sample collected: E11STMGP-B26-11.011.5	
		4	0.6'	2 3 2 4	13		13.0'-13.6': Fill-SILT, f to c SAND, GRAVEL and tr f cobbles.	13'-15': N/O, N/S PID = 0.0 ppm max.
		5	N/A	3 4 3 4	15		15.0'-17.0': SM-Gray SILT, some f to c SAND and ltl f gravel.	15'-17': Odor, N/S PID = 10.0 ppm max.
		6	N/A	2 1	17		17.0'-19.0': SM-Gray SILT, some f to c SAND and ltl f gravel.	17'-19': N/A PID = N/A

BORING No.: B-26

BORING LOG

SHEET 2 OF 3

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG Mobil B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 8/18/2004	**END DATE** 8/18/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 39'	**WATER LEVEL (ft bgs)** 11'

WELL	CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				2				
				7				
				1	19		19.0'-21.0': SM-Gray SILT, some f to c SAND and ltl f gravel.	19'-21': Odor, N/S
		7	N/A	1				PID = 12.3 ppm max.
				3				
				5				
				2	21		21.0'-23.0': SP-Brown very f to m SAND.	21'-23': N/O, N/S
		8	N/A	3				PID = 0.9 ppm max.
				2				
				7				
				4	23		23.0'-25.0': SM-Brown SILT with 3" and 4" m brown f to c sand lenses and 2" tan silt lense.	23'-25': N/O, N/S
		9	N/A	4				PID = 0.9 ppm max.
				4				
				5				
				1	25		25.0'-26.4': SM-Brown SILT with 3" and 4" m brown f to c sand lenses and 2" tan silt lense.	25'-27': N/O, N/S
		10	1.4'	1				PID = 1.2 ppm max.
				2			Sample collected: E11STMGP-B26-2527	
				2				
				6	27		27.0' - 29.0: Sluff	27'-29': N/O, N/S
		11	N/A	4				PID = 1.4 ppm max.
				7				
				8				
				9	29		29.0'-31.0': SW-Very f to c SAND.	29'-31': Odor, N/S
		12	N/A	12				PID = 5.9 ppm max.
				10				
				6				
				8	31		31.0'-33.0': Running sands in the augers. Unable to collect a true sample.	31'-33': N/O, N/S
		13	N/A	18				PID = 3.8 ppm max.
				14				
				15				
				6	33		33.0'-35.0': Running sands in the augers. Unable to collect a true sample.	33'-35': N/O, N/S
		14	N/A	6				PID = 1.2 ppm max.
				9				
				13				
					35		35.0'-37.0': Did not sample this interval due to running sands int the augers.	
		15	N/A					

TRC

BORING No.: B-26

SHEET 3 OF 3

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's Parking Lot		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG Mobil B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 8/18/2004	**END DATE** 8/18/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH** **(feet below ground surface (ft bgs))** 39'	**WATER LEVEL (ft bgs)** 11'

WELL	CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					37		37.0'-39.0': Running sands in the augers.	37'-39': N/A
		16	N/A					PID = N/A
							Sample collected: E11STMGP-B26-3739	
					39		E.O.B. at 39' bgs (Boring complete due to running sands in the augers)	
					41			
					43			
					45			
					47			
					49			
					51			
					53			

TRC

BORING No.: B-27

BORING LOG

SHEET 1 OF 1

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS DEP Building		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Keller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 5/20/2004	**END DATE** 5/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 13'	**WATER LEVEL (ft bgs)** 10'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN FEET	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-1.0': ASPHALT and GRAVEL.	
					1		1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, metal and glass.	1'-3': N/O, N/S PID = 0.0 ppm max. 2'-3': Sl MGP-related odor, black staining
					3		Sample collected: E11STMGP-TT03-23 3.0'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, asphalt, cobbles and tr ash and slag.	PID = 1.0 ppm max. 3'-5': N/O, N/S PID = 0.2 ppm max.
		1	0.0'	9 11 15 50/2"	5		5'-7': No recovery and brick in shoe.	
					7			
					9	▼		
		2	2.0'	1 50/2"	11		10.0'-12.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and wood fibers. Sample collected: E11STMGP-B27-1012	10'-12': MGP-related odor (Pine odor), sheen, tr black staining PID = 13.6 ppm max.
		3	2.0'	50/6"	13		12.0''-14.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and wood fibers. Wood in shoe. E.O.B. @ 13' bgs (Refusal due to wood timber)	12'-14': MGP-related odor (Pine odor), sheen, tr black staining PID = 10.9 ppm max.
					15			
					17			

TRC

BORING No.: B-32

BORING LOG

SHEET 1 OF 3

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS Jacob Riis
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Sean Miller
TRC INSPECTOR Scott Fischer

DRILLING RIG Mobile B-61
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/6/2004
END DATE 4/6/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 37'
WATER LEVEL (ft bgs) 7'

WELL	CONSTRUCTION	SAMPLES NUMBER	 RECOVERY IN INCHES	 BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.5': Poured CONCRETE	
							0.5'-1.0': Fill-Dk brown f to c SAND, SILT, tr gravel, cobbles and brick fragments.	0.5'-1.0': N/O, N/S
					1		1.0'-4.0': Fill-Dk brown f to c SAND, SILT, tr gravel, cobbles, wood fibers and half and whole bricks.	PID = 0.0 ppm max.
								1'-2.5': N/O, N/S
								PID = 0.0 ppm max.
							2.5'-4.0': Tr fragments of slag also present.	2.5'-3': N/O, N/S
					3		3.0'-4.0': Tr fragments of coal also present.	PID = 0.0 ppm max.
								3'-4': N/O, N/S
							4.0': Concrete holder from former MGP structure encountered.	PID = 0.0 ppm max.
				12	5		5.0': Fill-Dk brown SILT, f to c SAND, gravel, concrete and brick fragments.	5'-7': Visible sheen, MGP-related odor, black staining in shoe
		1	N/A	24				
				50/5"			Sample collected: E11STMGP-B32-57	PID = 5.1 ppm max.
						▼		
				5	7		7.0'-7.6': Fill-Dk brown SILT, f to c SAND, gravel, concrete and brick fragments.	7'-9': Visible sheen, strong MGP-related odor, visible (OLM)
		2	0.6'	4				
				3				PID = 18.1 ppm max.
				6				
				6	9		9.0'-9.4': Fill-Black SILT, f to c SAND, GRAVEL and brick fragments.	9'-11': Visible sheen, strong MGP-related odor, visible (OLM) and (TLM)
		3	0.4'	6				
				3				
				2				PID = 16.5 ppm max.
				2	11		11.0'-11.5': Fill-Black SILT, f to c SAND, GRAVEL and brick fragments.	11'-13': Visible sheen, strong MGP-related odor, visible (OLM) and (TLM)
		4	0.5'	4				
				6				
				3				PID = 17.0 ppm max.
				1	13		13.0'-13.6': Fill-Black SILT, f to c SAND, tr f gravel.	13'-15': Visible sheen, strong MGP-related odor, visible (OLM) and (TLM)
		5	0.6'	1				
				3			Sample collected: E11STMGP-B32-1315	
				5				PID = 189 ppm max.
				5	15		15.0'-16.5': SW-Black f to c SAND, some silt and gravel	15'-17': Visible sheen, strong MGP-related odor, visible (OLM) and (TLM), reddish black staining.
		6	1.5'	5				
				5				
				4				
				10	17		17.0'-17.5': SM-Black SILT, f to m SAND, tr c sand, round f gravel and organics.	PID = 62.0 ppm max.
		7	0.5'	2				17'-19': Strong MGP-related odor,

BORING No.: B-32

BORING LOG

SHEET 2 OF 3

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/6/2004	**END DATE** 4/6/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH** **(feet below ground surface (ft bgs))** 37'	**WATER LEVEL (ft bgs)** 7

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				8				visible (TLM) and (OLM)
				3				and (TLM) staining.
				3	19		19.0'-19.6': SW-Gray f to c SAND, coarsening with depth into c SAND and f GRAVEL and tr silt.	PID = 180 ppm max.
		8	0.6'	4				19'-21': Strong MGP-related odor,
				7				and (TLM) staining.
				11				PID = 85.0 ppm max.
				9	21		21.0'-22.5': ML-Gray f SAND (21.0'-21.5') grading to black silty CLAY.	21'-23': Visible sheen, strong
		9	1.5'	1				MGP-related odor, black
				7			Sample collected: E11STMGP-B32-2123	staining, visible (OLM)
				2				PID = 90.0 ppm max.
				3	23		23.0'-23.1': SW-Gray f to c SAND with non-Coal Gas Related Material	23'-25': Strong MGP-related odor,
		10	0.1'	9			wood fibers.	black staining and
				4				visible (OLM)
				2				PID = 134 ppm max.
				4	25		25'-27.0': SW-Dk gray f to c SAND, tr silt and f gravel.	25'-27': Stong MGP-related odor,
		11	2.0'	3				visible (TLM) and sheen.
				10				PID = 19.0 ppm max.
				4				
				2	27		27.0'-27.6': ML-Black silty CLAY.	27'-29': N/O, N/S inside of sample core.
		12	0.6'	3				
				4				PID = 6.0 ppm max.
				2				
				3	29		29.0'-29.6': SP-Dk gray f SAND, tr organics, roots, leaves and wood fibers.	29'-31': Strong MGP-related odor, N/S and sheen.
		13	0.6'	1				
				1				PID = 46.0 ppm max.
				5				
				9	31		31.0'-32.1': ML-Reddish brown sitly CLAY and gray silty clay seams (1/8"-1/4" thick).	31'-33': N/O, N/S inside of sample core.
		14	1.1'	19				
				20				PID = 21.0 ppm max.
				35				
				6	33		33.0'-33.5': ML-Reddish brown sitly CLAY and gray silty clay seams (1/8"-1/4" thick).	33'-35': N/O, N/S inside of sample core.
		15	0.5'	14				
				20				PID = 2.2 ppm max.
				25				35'-37': N/O, N/S inside of sample core.
				6	35		35.0'-36.0': ML/SP-Reddish brown silty CLAY (35.0'-35.5') grading to reddish brown very f SAND and tr silt. Gray silty clay seams (1/8"-1/4" thick).	
		16	1.0'	12				PID = 0.2 ppm max.

TRC

BORING No.: B-32

SHEET 3 OF 3

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/6/2004	**END DATE** 4/6/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 37'	**WATER LEVEL (ft bgs)** 7

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				25 37	37		Sample collected: E11STMGP-B32-3537	
							E.O.B. at 37' bgs	
					39			
					41			
					43			
					45			
					47			
					49			
					51			
					53			

TRC

BORING No.: B-33

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS DEP Building
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Sean Miller
TRC INSPECTOR Scott Fischer

DRILLING RIG Mobile B-61
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/21/2004
END DATE 4/21/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 31'
WATER LEVEL (ft bgs) 4'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.4': Poured CONCRETE/ 0.4'-0.5': GRAVEL subbase.	
					1		0.5'-1.0': Fill-Brown very f SAND, SILT and CLAY, some gravel, brick, metal, concrete and wood fibers.	0.5'-1.0': N/O, N/S PID = 0.0 ppm max.
							1.0'-3.0': Fill-Brown SILT, f to c SAND, GRAVEL, CLAY, brick fragments, wood fibers and coal and coke fragments.	1'-3': Black stained gravel, N/O PID = 0.0 ppm max.
					3		3.0'-5.0': Fill-Gray very f SAND, some silt, clay, tr m to c sand and gravel.	3'-5': Black staining throughout, strong wood/organic odor and sl. DRO odor.
						▼	Collected sample E11STMGP-B33-45	PID (headspace): 9,999 ppm max.
		1	0.05'	10 5 9 13	5		5.0'-5.05': Fill-Dk gray SILT, f to c SAND and GRAVEL.	5'-7': Visible sheen, MGP-related odor PID = 14.3 ppm max.
		2	0.8'	1 2 2 3	7		7.0'-7.8': Fill-Dk gray SILT, f to c SAND, GRAVEL and coal fragments. Collected sample E11STMGP-B33-79	7'-9': Visible sheen, MGP-related odor, visible (OLM) PID = 1,731 ppm max.
		3	0.4'	1 4 24 23	9		9.0'-9.4': Fill-Brown SILT f to c SAND and tr wood fibers.	9'-11': Visible sheen, MGP-related odor, visible (OLM), and black staining. PID = 992 ppm max.
		4	1.0'	2 6 4 7	11		11.0'-12.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and wood fibers.	11'-13': Visible sheen, MGP-related odor, visible (OLM), and black staining. PID = 1,200 ppm max.
		5	1.0'	1 4 12 6	13		13.0'-13.8': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments and wood fibers. 13.8'-14.0': 2" concrete/mortar seam in spoon.	13'-15': Visible sheen, MGP-related odor, visible (OLM), and black staining. PID = 80.4 ppm max.
		6	0.3'	5 4 7 5	15		15.0'-15.3': Fill-Dk brown SILT, f to c SAND, GRAVEL and brick fragments.	15'-17': Visible sheen, MGP-related odor, visible (OLM) and black staining. PID = 80.4 ppm max.
		7	0.4'	4 5	17		17.0'-17.4': Fill-Dk gray SILT, f to c SAND, GRAVEL, brick fragments and slag.	17'-19': Visible sheen, MGP-related odor, visible (OLM) and

BORING No.: B-33

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison
PROJECT NO. 39656-0600-10000
AREA OF SITE

ADDRESS DEP Building
ELEVATION/DATUM

DRILLING CONTRACTOR ADT
DRILLER Sean Miller
TRC INSPECTOR Scott Fischer

DRILLING RIG Mobile B-61
TYPE/SIZE BIT 4.25" Hollow Stem Auger
START DATE 4/21/2004
END DATE 4/21/2004

SAMPLER TYPE 2" Split Spoon
HAMMER WEIGHT/DROP 140 lbs./30"
TOTAL DEPTH (feet below ground surface (ft bgs)) 31'
WATER LEVEL (ft bgs) 4

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
		NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				50/0				black staining.
								PID = 37.0 ppm max.
				13	19		19.0'-19.6': Fill-Dk gray SILT, f to c SAND, GRAVEL, brick fragments, slag and glass.	19'-21': Visible sheen, MGP-related
		8	0.6'	23				odor, visible (OLM) and
				14				(TM) and black staining.
				9				PID = 80.4 ppm max.
				12	21		21.0'-21.6': Fill-Dk gray SILT, f to c SAND, GRAVEL, brick fragments, slag and glass.	21'-23': Visible sheen, MGP-related
		9	0.6'	36				odor, visible (OLM) and tr
				15				(TM) and black staining.
				19				PID = 20.4 ppm max.
				12	23		23': Fill-Gray SILT, CLAY, tr sand, gravel, wood fibers and coal fragments.	23'-25': Visible sheen, MGP-related
		10	N/A	50/1				odor, visible (OLM) and tr
								(TM) and black staining.
								PID = 654 ppm max.
				6	25		25'-25.8': Fill-Dk gray silty SAND, tr gravel and brick fragments.	25'-27': Visible sheen, MGP-related
		11	0.8'	4				odor, visible (OLM) and tr
				5				(TM) and black staining.
				1				PID = 50.2 ppm max.
				9	27		27'-27.1': Fill-Dk grayish brown silty SAND, some gravel and tr brick fragments. 2" of gray silty CLAY in shoe.	27'-29': Visible sheen, tr (OLM), sl MGP-related odor.
		12	0.1'	14				
				12				PID = 99 ppm max.
				14				
				3	29		29.0'-31.0': ML-Gray silty CLAY with tr f sand.	29'-29.5': Visible sheen, tr (OLM), sl MGP-related odor.
		13	2.0'	9				
				13				29.5'-31': N/O, N/S in interior of clay.
				15				PID = 15.4 ppm max.
					31		E.O.B. @ 31' bgs	
					33			
					35			

TRC

BORING No.: B-34

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS DEP Building		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/14004	**END DATE** 4/14/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 29'	**WATER LEVEL (ft bgs)** 7'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.5': ASPHALT	
					1		0.5'-1.0': Fill-Dk to m brown f to c SAND, SILT, tr gravel, cobbles and brick fragments.	0.5'-1.0': N/O, N/S PID = 0.0 ppm max.
					3		1.0'-5.0': Fill-Dk brown f to c SAND, SILT, tr gravel, cobbles, slag and coke fragments.	1'-2': N/O, N/S PID = 0.0 ppm max. 2'-4': N/O, N/S PID = 0.0 ppm max. 4'-5': N/O, N/S PID = 0.5 ppm max.
		1	0.5'	5 7 4 4	5		5.0'-5.5': Fill-Brown SILT, f to c SAND, GRAVEL, concrete and brick fragments. Sample collected: E11STMGP-B34-57	5'-7': N/O, N/S PID = 2.8 ppm max.
		2	0.5'	5 3 3 3	7	▼	7.0'-7.5': Fill-Brown SILT, f to c SAND, GRAVEL, concrete, black stained brick fragments and wood fibers.	7'-9': MGP-related odor, sl sheen, black stained brick. PID = 10.1 ppm max.
		3	0.0'	5 4 2 1	9		9.0'-11.0': No Recovery.	
		4	0.1'	2 2 1 4	11		11.0'-11.1': Fill-Dk brown SILT, f to c SAND, f GRAVEL and brick fragments.	11'-13': MGP-related odor, N/S, sheen PID = 3.4 ppm max.
		5	0.6'	3 3 2 50/3"	13		13.0'-13.6': Fill-Dk brown SILT, f to c SAND, f GRAVEL and brick fragments.	13'-15': Strong MGP-related odor, N/S, sheen, visible product PID = 148 ppm max.
		6	0.5'	7 6 6 9	15		15.0'-15.5': Fill-Dk brown SILT, f to c SAND, f GRAVEL and brick fragments.	15'-17': Visible sheen, strong coal tar odor, visible (OLM) and (TLM), reddish black staining. PID = 380 ppm max.
		7	2.0'	1 4	17		17.0'-19.0': Fill-Dk brown SILT, f to c SAND and tr to some f to m gravel. Sample collected: E11STMGP-B34-1719	17'-19': Strong MGP-related odor,

TRC

BORING No.: B-34

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/14004	**END DATE** 4/14/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 29'	**WATER LEVEL (ft bgs)** 7

		SAMPLES					**DESCRIPTION OF SOILS**	**REMARKS**
WELL	**CONSTRUCTION**	**NUMBER**	**RECOVERY IN INCHES**	**BLOWS PER 6"**	**DEPTH**	**WATER**	**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
				2				visible (TLM) and (OLM)
				13	19			and black staining.
				1			19.0'-19.8': Fill-F to c SAND, GRAVEL and slag fragments.	PID = 984 ppm max.
		8	0.8'	5				19'-21': Strong MGP-related odor,
				18				sheen, black staining,
				9	21			visible (OLM)
				8			21.0'-22.0': SM-Dk brown sandy SILT and tr f rounded gravel.	PID = 241 ppm max.
		9	1.0'	5				21'-23': Strong MGP-related odor,
				9				sheen, black staining,
				13	23			visible (OLM) and (TLM).
				3			23.0'-23.1': SM-Dk brown sandy SILT and tr f rounded gravel.	PID = 368 ppm max.
		10	0.1'	5				23'-25': Strong MGP-related odor,
				9				black staining and sheen
				12	25			PID = 88 ppm max.
				2			25.0'-25.4': ML-Black silty CLAY	
		11	1.8'	6			25.4'-26.8': SP-Gray f to m SAND.	25'-27': N/O, N/S in the interior of
				7				the clay in the spoon *
				15	27			PID = 6.0 ppm max.
				5			27.0'-28.5': SP-Gray f to m SAND.	
		12	1.5'	7				27'-29': N/O, N/S in the interior of
				11				the clay in the spoon *
				9				PID = 5.5 ppm max.
					29		E.O.B. at 29' bgs	
								Note: * A representative sample
								could not be collected.
					31			
					33			
					35			

TRC

BORING No.: B-35
SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/26/2004	**END DATE** 4/26/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 7.5'	**WATER LEVEL (ft bgs)** N/A

WELL CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
				1		0.0'-1.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, metal and glass. 1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, metal, glass and tr coal and coke fragments.	1'-3': N/O, N/S PID = 0.0 ppm max.
				3		3.0'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, metal, glass and tr coal and coke fragments.	3'-5': N/O, N/S PID = 3.3 ppm max.
	1	0.4'	N/A	5		5.0'-5.4': Fill-Dk brown SILT, f to c SAND, GRAVEL, tr concrete, brick fragments and non-CGRM wood fibers. Sample collected: E11STMGP-B35-57	5'-7': N/O, N/S PID = 1.9 ppm max.
	2	0.0'		7		7.0'-9.0': No Recovery/Refusal E.O.B. at 7.5' bgs (Refusal)	
				9			
				11			
				13			
				15			
				17			

TRC

BORING No.: B-37
SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG CME-57	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/20/2004	**END DATE** 4/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 33'	**WATER LEVEL (ft bgs)** 11'

WELL	CONSTRUCTION	SAMPLES NUMBER	SAMPLES RECOVERY IN INCHES	SAMPLES BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					1 3		0.0'-0.5': ASPHALT 0.5'-5.0': Fill-Dk brown SILT, f to c SAND, some gravel, brick fragments and cobbles.	1'-2': N/O, N/S PID = 0.0 ppm max. 2'-4': N/O, N/S PID = 0.0 ppm max. 4'-5': N/O, N/S PID = 0.5 ppm max.
		1	0.5'	6 7 1 1	5		5.0'-5.5': Fill-Dk brown SILT, f to c SAND, brick fragments, concrete and ash. Sample collected: E11STMGP-B37-57	5'-7': Sl solvent odor, N/S PID = 0.9 ppm max.
		2	1.0'	18 39 2 5	7		7.0'-8.0': Fill-Dk brown SILT, f to c SAND, brick fragments, concrete, ash and non-CGRM wood timbers.	7'-9': Strong solvent and MGP-related odor, black staining PID = 259 ppm max.
		3	0.3'	4 4 3 9	9		9.0'-9.3': Fill-Dk gray SILT, f to c SAND, brick fragments and wood fibers.	9'-11': Strong solvent and MGP-related odor, black staining PID = 1,058 ppm max.
		4	1.2'	4 2 2 2	11	▼	11.0'-12.2': Fill-Black stained SILT, f to c SAND, tr gravel, brick fragments and wood fibers. Sample collected: E11STMGP-B37-1113	11'-13': Strong MGP-related odor PID = 1,860 ppm max.
		5	0.1'	3 7 3 3	13		13.0-13.1': Fill-Black stained SILT, f to c SAND, tr gravel, brick fragments and wood fibers.	13'-15': Strong MGP-related odor PID = 76.0 ppm max.
		6	0.3'	3 2 4 2	15		15.0'-15.3': Fill-Black stained SILT, f to c SAND, tr gravel, brick fragments, wood fibers and slag.	15'-17': Strong MGP-related odor PID = 162 ppm max.
		7	0.8'	WOH 2	17		17.0'-17.8': Fill-Brown SILT, f to c SAND, tr gravel and organics.	17'-19': Strong MGP-related odor, black staining, visible (OLM)

TRC

BORING No.: B-37

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT
E 11th St MGP SCS/Con Edison

PROJECT NO.
39656-0600-10000

AREA OF SITE

ADDRESS
Jacob Riis

ELEVATION/DATUM

DRILLING CONTRACTOR
ADT

DRILLER
Sean Miller

TRC INSPECTOR
Scott Fischer

DRILLING RIG
CME-57

TYPE/SIZE BIT
4.25" Hollow Stem Auger

START DATE
4/20/2004

END DATE
4/20/2004

SAMPLER TYPE
2" Split Spoon

HAMMER WEIGHT/DROP
140 lbs./30"

TOTAL DEPTH
(feet below ground surface (ft bgs))
33'

WATER LEVEL (ft bgs)
11'

WELL	CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
		NUMBER	RECOVERY IN INCHES	BLOWS PER 6"				
				3				PID = 265 ppm max.
				3				
				3	19		19.0'-20.5': Fill-Dk gray SILT, f to c SAND, brick fragments, concrete and slag.	19'-21': Strong MGP-related odor, black staining, visible (TLM)
		8	1.5'	3				
				2				
				5				PID = 166 ppm max.
				2	21		21.0'-22.5': Fill-Dk gray SILT, f to c SAND, brick fragments, concrete and slag.	21'-23': Strong MGP-related odor, blebs of (TLM).
		9	1.5'	7				PID = 126 ppm max.
				5				
				12				
				18	23		23.0'-24.0': Fill-Gray f SAND, tr silt, brick fragments and concrete.	23'-25': Strong MGP-related odor, black staining.
		10	1.0'	50/2"				
								PID = 99.0 ppm max.
				18	25		25.0'-25.7': Fill-Gray f SAND, tr silt, brick fragments and concrete and non-Coal Gas Related Material wood fibers in shoe.	25'-27': Strong MGP-related odor, black staining.
		11	0.7'	12				
				22				PID = 129 ppm max.
				12				
				9	27		27.0'-28.0': Fill-Gray f SAND, tr silt, brick fragments and concrete and non-CGRM wood fibers in shoe.	27'-29': MGP-related odor, black staining.
		12	1.5'	8				
				7			28.0'-28.5': ML-Black silty CLAY and tr to some organics.	PID = 29.0 ppm max.
				5				
				4	29		29.0'-29.5': ML-Black silty CLAY and tr to some organics.	29'-31': N/O, N/S in interior of clay *
		13	1.9'	3			29.5'-30.9': SP-Dk gray f to m SAND and tr silt.	PID = 12.0 ppm max.
				7				
				7				
				4	31		31.0'-33.0': SP-Dk gray f to m SAND and tr silt.	31'-33': N/O, N/S in interior clay *
		14	2.0'	3				PID = 10 ppm max
				2				
				2				Note: * A representative
					33		E.O.B at 33' bgs	sample could not be collected.
					35			

TRC

BORING No.: B-38

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/20/2004	**END DATE** 4/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH** **(feet below ground surface (ft bgs))** 16'	**WATER LEVEL (ft bgs)** 8'

WELL	CONSTRUCTION	SAMPLES NUMBER	 RECOVERY IN INCHES	 BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
							0.0'-0.3': Poured CONCRETE/ 0.3'-0.5': GRAVEL subbase	
					1		0.5'-5.0': Fill-Brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, roots, glass and metals.	0.5'-3': N/O, N/S PID = 0.0 ppm max.
					3		3.0'-5.0': Whole and half bricks.	3'-5': N/O, N/S PID = 0.0 ppm max.
				6	5		5.0'-5.5': Fill-Brown SILT, f to c SAND, large chunks and fragments of brick.	5'-7': N/O, N/S
		1	0.5'	15				PID = 1.0 ppm max.
				50/5"				
					7		7.0'-8.0': Drilled through to break out of brick layer.	7'-9': N/O, N/S
						▼		PID = 0.2 ppm max.
				1			8.0'-8.7': Fill-Brown f to c SAND, tr silt and large chunks and fragments of brick.	8'-10': N/O, N/S
		2	0.7'	1	9			PID = 0.8 ppm max.
				5				
				8				
				12			10.0'-10.4': Fill-Brown f to c SAND, tr silt and large chunks and fragments of brick.	10'-12': Sl solvent odor, N/S, sheen
		3	0.4'	8				PID = 4.0 ppm max.
				9	11		Sample collected: E11STMGP-B38-1012	
				18				
				3			12.0'-12.9': Fill-Brown f to c SAND, tr silt and large chunks and fragments of brick. Silt content increasing with depth.	12'-14': Sl solvent odor, N/S, sl sheen
		4	0.9'	13	13			
				12				PID = 0.0 ppm max.
				5				
				3			14.0'-14.3': Fill-F to c SAND, GRAVEL and brick fragments.	14'-16': N/O, N/S, sl sheen
		5	0.3'	4				PID = 1.6 ppm max.
				8	15			
				9			Sample collected: E11STMGP-B38-1618	
							E.O.B. at 16' bgs	
					17			

TRC

BORING No.: B-39/MW-4

BORING LOG

SHEET 1 OF 2

JOB NAME/ CLIENT
E 11th St MGP SCS/Con Edison

PROJECT NO.
39656-0600-10000

AREA OF SITE

ADDRESS
Jacob Riis

ELEVATION/DATUM

DRILLING CONTRACTOR
ADT

DRILLER
Sean Miller

TRC INSPECTOR
Scott Fischer

DRILLING RIG
Mobile B-61

TYPE/SIZE BIT
4.25" Hollow Stem Auger

START DATE
4/15/2004

END DATE
4/15/2004

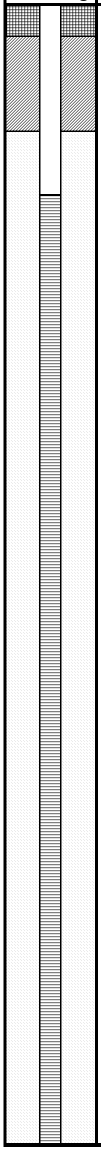
SAMPLER TYPE
2" Split Spoon

HAMMER WEIGHT/DROP
140 lbs./30"

TOTAL DEPTH (feet below ground surface (ft bgs))
21'

WATER LEVEL (ft bgs)
7'

WELL CONSTRUCTION



SAMPLES					DESCRIPTION OF SOILS	REMARKS
NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					0'-0.4': Poured CONCRETE/ 0.4'-0.5': GRAVEL subbase.	
			1		0.5'-1.0': Fill-Brown SILT, f to c SAND, GRAVEL, concrete, glass, metal and brick fragments.	0.5'-1.0': N/O, N/S PID = 0.0 ppm max.
					1.0'-4.0': In place bricks with mortar joints.	1'-3': N/O, N/S PID = 0.0 ppm max.
			3			3'-4': N/O, N/S PID = 0.0 ppm max.
1	0.0'	5 3 3 5	5		5.0'-7.0': No Recovery.	
2	0.1'	4 3 2 1	7	▼	7.0'-7.1': Fill-Dk brown SILT, f to c SAND, GRAVEL, asphalt and brick fragments.	7'-9': Asphalt odor, N/S PID = 1.6 ppm max.
3	1.1'	1 1 4 31	9		9.0'-10.1': Fill-Dk brown silty f SAND, tr gravel and organics (leaves and roots).	9'-11': Organic odor, N/S PID = 0.4 ppm max.
4	0.5'	4 7 8 10	11		11.0'-11.5': Fill-Dk brown silty f SAND, tr gravel and organics (leaves and roots).	11'-13': N/O, N/S, PID = 0.3 ppm max.
5	1.0'	2 1 3 3	13		13.0'-13.9': Fill-Dk brown SILT, f to c SAND and organics. 13.9'-14.0': ML-Dk gray silty CLAY.	13'-15': Organic odor, N/S, PID = 0.4 ppm max.
6	1.0'	4 6 8 3	15		15.0'-16.0': SM-Dk gray silty f SAND, tr clay and organics.	15'-17': Organic odor, N/S, PID = 0.1 ppm max.
7	0.8'	3 5	17		17.0'-17.8': SM-Dk gray silty f SAND, tr clay and organics.	

⁘	Sand
▨	Bentonite Chips
▦	Concrete
☰	Well Screen

TRC

BORING No.: B-39/MW-4

BORING LOG

SHEET 2 OF 2

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/15/2004	**END DATE** 4/15/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH** **(feet below ground surface (ft bgs))** 21'	**WATER LEVEL (ft bgs)** 7'

		SAMPLES					**DESCRIPTION OF SOILS**	**REMARKS**
WELL	**CONSTRUCTION**	**NUMBER**	**RECOVERY IN INCHES**	**BLOWS PER 6"**	**DEPTH**	**WATER**	**f - fine m - medium c - coarse** **Lt - light Dk - dark tr - trace ltl - little sl-slight**	**(PID, STAINING, ODORS, ETC.)** **N/S = No Staining** **N/O = No odors**
░	░			10				17'-19': N/O, N/S
░	░			11	19			PID = 0.1 ppm max.
░	░			1			19.0'-21.0': SM-Dk brown silty f SAND and tr clay.	
░	░	8	2.0'	2				19'-21': N/O, N/S
				2			Sample collected: E11STMGP-B39-1921	PID = 0.0 ppm max.
				4	21			
							E.O.B. at 21' bgs	
					23			
					25			
					27			
					29			
					31			
					33			░ Sand
								▨ Bentonite Chips
					35		Well set at 20' bgs	▦ Concrete
							Screen interval from 3' to 18' bgs with a 2' sump from 18' to 20' bgs	☰ Well Screen

TRC

BORING No.: B-40
SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's School Basement		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG Jackhammer	**TYPE/SIZE BIT** Jackhammer Point	**START DATE** 8/26/2004	**END DATE** 8/26/2004
SAMPLER TYPE 4' Macrocore	**HAMMER WEIGHT/DROP** Macrocore	**TOTAL DEPTH (feet below ground surface (ft bgs))** 4.5'	**WATER LEVEL (ft bgs)** N/A

WELL CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
						0.0'-0.2': CONCRETE/0.2'-0.4': GRAVEL 0.4'-4.5': Fill-Peet GRAVEL, some silt and f to c sand.	
				1			0.4'-4.5': N/O, N/S PID = 0.3 ppm max.
				3		Sample collected: E11STMGP-B40-4.04.5	
						E.O.B. at 4.5' bgs (Refusal due to smooth concrete surface)	
				5			
				7			
				9			
				11			
				13			
				15			
				17			

TRC

BORING No.: B-40A
SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS St. Emeric's School Basement		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Morgan Evans	
DRILLING RIG Jackhammer	**TYPE/SIZE BIT** Jackhammer Point	**START DATE** 8/26/2004	**END DATE** 8/26/2004
SAMPLER TYPE 4' Macrocore	**HAMMER WEIGHT/DROP** Macrocore	**TOTAL DEPTH (feet below ground surface (ft bgs))** 4'	**WATER LEVEL (ft bgs)** N/A

WELL	CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					1		0.0'-0.2': CONCRETE/0.2'-0.4': GRAVEL 0.4'-4.5': Fill-Peet GRAVEL, some silt and f to c sand.	0.4'-4': N/O, N/S PID = 0.3 ppm max.
					3		Sample collected: E11STMGP-B40A-3.54.0 E.O.B. at 4.0' bgs (Refusal due to smooth concrete surface)	
					5			
					7			
					9			
					11			
					13			
					15			
					17			

TRC

BORING No.: B-41

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Jerry Heller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 4/22/2004	**END DATE** 4/22/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 5.5'	**WATER LEVEL (ft bgs)** N/A

WELL CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
						0.0'-1.0': Grass at surface. Dk brown SILT, f to c SAND, GRAVEL, brick fragments and roots.	
				1			0.5'-3': N/O, N/S PID = 0.0 ppm max.
						1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, and in place bricks with Mortar joints at 3.0' bgs	
				3			
			12			3.0'-3.3': Fill-Mostly BRICK with dk brown silt, f to m sand, tr gravel. 2" of concrete in shoe.	3'-5': N/O, N/S
	1	0.3'	50/2"				PID = 3.3 ppm max.
						Sample collected: E11STMGP-B41-35	
				5		5.0': Transition from brick to concrete.	
						E.O.B. at 5.5' bgs (Refusal due to concrete)	
				7			
				9			
				11			
				13			
				15			
				17			

TRC

BORING No.: B-45
SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 5/19/2004	**END DATE** 5/19/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 27'	**WATER LEVEL (ft bgs)** 9'

WELL	CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN INCHES	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					1		0.0'-2.0': Grass at surface. Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, glass, metal, tr coal and coke fragments.	0'-2': N/O, N/S PID = 0.0 ppm max.
					3		2.0'-4.9': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, glass, metal, tr coal and coke fragments and whitish ash at 3'-4'.	2'-4.9': N/O, N/S PID = 0.0 ppm max.
					5		4.9': Brick rubble.	
		1	0.2'	2 1 2 4			5.0'-5.2': Fill-Lt brown SILT, f to m SAND, brick fragments, non-CGRM wood fibers and coal fragments.	5'-7': N/O, N/S PID = 0.2 ppm max.
		2	0.2'	5 4 2 5	7		7.0'-7.2': Fill-Lt brown SILT, f to m SAND, brick fragments, non-CGRM wood fibers and coal fragments. Sample collected: E11STMGP-B45-79	7'-9': N/O, N/S PID = 2.7 ppm max.
		3	1.4'	9 11 12 55	9	▼	9.0'-10.0': Fill-Brown f to c SAND, tr silt, gravel and brick fragments. 10.0'-10.4': Fill-Dk brown SILT, f to m SAND, tr c sand, gravel, brick fragments and coal fragments.	9'-11': MGP-related odor, tr black staining, sheen PID = 3.3 ppm max.
		4	0.5'	11 13 20 14	11		11.0'-11.5': Fill-Dk brown SILT, f to c SAND, some gravel, brick fragments and non-CGRM wood fibers.	11'-13': MGP-related odor, black staining, sheen, visible (OLM) PID = 7.7 ppm max.
		5	0.6'	10 15 15 20	13		13.0'-13.6': Fill-Dk brown SILT, f to c SAND, some gravel, brick fragments and non-CGRM wood fibers.	13'-15': MGP-related odor, black staining, sheen, visible (OLM) PID = 4.6 ppm max.
		6	2.0'	WOH 50/6"	15		15.0'-17.0': Fill-Dk gray SILT, f to c SAND, some gravel, brick fragments and non-CGRM wood fibers.	15'-17': MGP-related odor, black staining, sheen, visible (OLM), tr (TLM) blebs. PID = 7.7 ppm max.
					17		17.0'-20.0': Hit refusal with spoon, so auger through interval.	

BORING No.: B-45

SHEET 2 OF 2

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG DK-50	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 5/19/2004	**END DATE** 5/19/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 25'	**WATER LEVEL (ft bgs)** 9'

WELL	CONSTRUCTION	SAMPLES NUMBER	 RECOVERY IN INCHES	 BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
					19			
		7	2.0'	WOH WOH 5 5	21		20.0'-21.4': Fill-Dk gray SILT, f to c SAND, some gravel, brick fragments and non-CGRM wood fibers. 21.4'-22.0': Fill-M to c SAND, some gravel, tr silt and f sand and coal fragments.	20'-22': Strong MGP-related odor, black staining, sheen, visible (OLM) and (TLM) PID = 326 ppm max.
		8	1.5'	5 14 20 50/2"	23		22.0'-23.5': Fill-M to c SAND, some gravel, tr silt and f sand and coal fragments. Sample collected: E11STMGP-B45-2224	22'-24': Strong MGP-related odor, black, staining, sheen, (OLM) and (TLM) PID = 346 ppm max.
		9	1.2'	5 14 60/2"	25		24.0'-25.2': Fill-Dk brownish black stained SILT, f to c SAND, some gravel, brick fragments and non-CGRM wood fibers. E.O.B. at 25' bgs (Refusal)	24'-26': MGP-related odor, black staining, sheen, visible (OLM) and tr (TLM) PID = 386 ppm max.
					27			
					29			
					31			
					33			
					35			

TRC

BORING No.: B-46

BORING LOG

SHEET 1 OF 1

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE**	
ADDRESS Jacob Riis		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Sean Miller	**TRC INSPECTOR** Scott Fischer	
DRILLING RIG Mobile B-61	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 5/20/2004	**END DATE** 5/20/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 10.0'	**WATER LEVEL (ft bgs)** 7'

WELL CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
	NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
						0.0'-0.7': Poured CONCRETE/ 0.7'-1.0': GRAVEL subbase	
				1			1'-3': N/O, N/S
						1.0'-3.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, metal, glass and large cobbles.	PID = 0.0 ppm max.
				3		3.0'-5.0': Fill-Dk brown SILT, f to c SAND, GRAVEL, brick fragments, concrete, metal, glass and large cobbles.	3'-5': N/O, N/S PID = 3.3 ppm max.
				5			5'-7': N/O, N/S
			14			5.0'-5.1': Fill-Tan f to c SAND, some f to m gravel.	
	1	0.1'	6				PID = 1.9 ppm max.
			6				
			12	7	▼		
			11			7.0'-7.8': Fill-Tan and gray f to c rounded GRAVEL, some f to c sand and tr silt.	
	2	0.8'	8				
			7			Sample collected: E11STMGP-B46-79	
			14	9			
			13			9.0'-9.3': Fill-Tan and gray f to c rounded GRAVEL, some f to c sand, tr silt and non-Coal Gas Related Material wood timbers in shoe.	
	3	0.3'	37				
			50/2"			E.O.B. at 10.0' bgs (Refusal due to wood timbers)	
				11			
				13			
				15			
				17			

TRC

BORING No.: B-56
SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT E 11th St MGP SCS/Con Edison	**PROJECT NO.** 39656-0600-10000	**AREA OF SITE** S of Former Gas Holder No.9	
ADDRESS 12th St northern sidewalk, S of St. Emeric's School		**ELEVATION/DATUM**	
DRILLING CONTRACTOR ADT	**DRILLER** Victor	**TRC INSPECTOR** Jessica Elliott	
DRILLING RIG CME LC-60	**TYPE/SIZE BIT** 4.25" Hollow Stem Auger	**START DATE** 9/1/2004	**END DATE** 9/1/2004
SAMPLER TYPE 2" Split Spoon	**HAMMER WEIGHT/DROP** 140 lbs./30"	**TOTAL DEPTH (feet below ground surface (ft bgs))** 4.0'	**WATER LEVEL (ft bgs)** N/A

WELL CONSTRUCTION	SAMPLES			DEPTH	WATER	DESCRIPTION OF SOILS	REMARKS
	NUMBER	RECOVERY IN INCHES	BLOWS PER 6"			f - fine m - medium c - coarse Lt - light Dk - dark tr - trace ltl - little sl-slight	(PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
						0.0'-0.5': Poured CONCRETE	
						0.5'-1.0': Fill-Dk brown SILT, f to c SAND and COBBLES.	0.5'-1': N/O, N/S
				1		1.0'-4.0': Fill-Lt brown SILT, f to c SAND, some gravel and concrete and tr concrete fragments.	PID = 2.8 ppm max. 1'-2.5': N/O, N/S
						2.5': Large boulder blocking hole	PID = 1.8 ppm max.
							2.5'-4': Gasoline-like odor, N/S
				3		Sample collected: E11STMGP-B56-34	PID = 14.4 ppm max.
						4.0': Flat concrete surface. Unable to break through.	
						E.O.B. at 4.0' bgs. (Refusal due to concrete slab)	
				5			
				7			
				9			
				11			
				13			
				15			
				17			

TRC

Date Start/Finish: 7/14/06 - 7/15/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 690035.928
Easting: 637657.773
Casing Elevation: NA

Borehole Depth: 40' bgs
Surface Elevation: 8.89' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-101**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10									
0		1	0'-5'	NA	NA				Black ASPHALT	
	5								Brown fine to coarse SAND, little Cobbles and Brick fragments, trace Cinders, dry, no odors. (fill)	
5		2	5'-10'	5.0'					CONCRETE debris, dry. (fill)	
					3.4				Brown fine to coarse SAND, some fine Gravel and construction debris, dry. (fill)	
					1.6	☒			Brown fine SAND and SILT, some coarse Sand, little fine Gravel, moist-wet. (fill)	
10	0								Similar soils as above, some Cobbles, moist-wet. (fill)	Portland 15% Bentonite grout (0'-40' bgs)
		3	10'-15'	3.0'	1.2				CONCRETE. (fill)	
	-5				ND				CONCRETE and CONCRETE debris. (fill)	
15					0.3				Brown-gray fine to medium SAND, little Silt, trace Brick fragments. (fill)	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million.

Soil samples taken from 7'-8' bgs, 20'-21' bgs, 32.5'-33' bgs and 37'-38' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:SB-101

Template:SONIC2006-EL-NA.ldf
Date: 10/23/06

Date Start/Finish: 7/14/06 - 7/15/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 690035.928
Easting: 637657.773
Casing Elevation: NA

Borehole Depth: 40' bgs
Surface Elevation: 8.89' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-101**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		4	15'-20'	1.3'					Brown-gray fine to medium SAND, some Silt, little construction debris, wet. (fill)	
	-10				5.2					
20		5	20'-25'	5.0'	87.6	☒			Black fine to medium SAND, little Silt, little odor and tar-like material, wet.	
					47.2					
	-15				10.2					
25		6	25'-30'	5.0'	2.3					Portland 15% Bentonite grout (0'-40' bgs)
									Black and gray fine to medium SAND, little Silt, trace coarse Sand, wet.	
					0.3					
	-20								Brown to black fine to medium SAND, little Silt, wet.	
30		7	30'-35'	5.0'	ND					
					ND	☒				
	-25				ND				Similiar soils as above, some Silt.	
35					ND				Similiar soils as above, little Silt.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million.

Soil samples taken from 7'-8' bgs, 20'-21' bgs, 32.5'-33' bgs and 37'-38' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/14/06 - 7/15/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 690035.928
Easting: 637657.773
Casing Elevation: NA

Borehole Depth: 40' bgs
Surface Elevation: 8.89' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-101**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		8	35'-40'	5.0'	ND	☒			Light gray CLAY and SILT, trace fine Sand, wet.	Portland 15% Bentonite grout (0'-40' bgs)
	-30									
40									End of Boring at 40' bgs	
	-35									
45										
	-40									
50										
	-45									

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million.

Soil samples taken from 7'-8' bgs, 20'-21' bgs, 32.5'-33' bgs and 37'-38' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/13/06 - 7/13/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689948.653
Easting: 637697.738
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.72' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-102**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION
	10
0	
	5
5	
	0
10	
	-5
15	

Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
1	0'-5'	2.5'	NA				ASPHALT Brown to red SILT and fine to coarse SAND, some Gravel, trace Cobbles, moist. (fill) CONCRETE and COBBLES, some fine to medium Gravel. (fill)	Portland 15% Bentonite grout (0'-50' bgs)
2	5'-10'	5.0'	ND ND	☒			Brown fine to coarse GRAVEL and COBBLES, some fine to medium Sand, little Silt. (fill) Gray SILT and fine to coarse GRAVEL, some Sand, dry. (fill) Red brown fine to coarse GRAVEL, some fine to medium Sand, little Silt, moist to wet. (fill) Brown to gray fine to coarse GRAVEL, some fine to coarse Sand, Silt, and Cobbles, wet. (fill)	
3	10'-15'	5.0'	0.6 12.7 77.7				Black fine to coarse GRAVEL, some fine to medium Sand, little Silt and Cobbles, wet. (fill) Black stained WOOD pilings with tar-like material. (fill)	
							Black WOOD, timbers. (fill) Black fine SAND, some Silt, little Wood fragments, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 8'-9' bgs, 32'-33' bgs, 39'-40' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:SB-102

Template:SONIC2006-EL-NA.ldf
Date: 7/28/06

Date Start/Finish: 7/13/06 - 7/13/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689948.653
Easting: 637697.738
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.72' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-102**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table
	-10	4	15'-20'	5.0'	0.3 1.2		
20	-15	5	20'-25'	5.0'	0.2 0.1 ND		
25	-20	6	25'-30'	4.5'	0.2 1.0 1.2 2.2		
30	-25	7	30'-35'	5.0'	87.2 2.6	☒	
35							

Stratigraphic Description
Black fine SAND, some Silt, trace Wood fragments.
Gray to black fine to medium SAND, some silt, wet.
Brown to light brown SILT, some fine Sand (interbedded), little clay.
Similar soils as above, wet.
Gray to black fine SAND, some Silt, wet.
Black fine SAND, some silt, sheen and odor, wet.
Similar soils as above, heavy sheen and tar-like material, wet.
Brown to light brown fine to medium SAND and SILT, wet, little odor.
Brown fine SAND, little Silt, moist, some black staining from 36' bgs to 36.5' bgs.

Boring Construction

Portland 15% Bentonite grout (0'-50' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 8'-9' bgs, 32'-33' bgs, 39'-40' bgs and 49'-50' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/13/06 - 7/13/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689948.653
Easting: 637697.738
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.72' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-102**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
					3.7					
		8	35'-40'	5.0'	ND				Brown fine SAND, little Silt, wet.	Portland 15% Bentonite grout (0'-50' bgs)
	-30									
						☒				
40					ND					
		9	40'-45'	5.0'	ND					
	-35				ND					
45									Black fine SAND, some silt, wet.	
		10	45'-50'	4.5'					Brown fine SAND, some silt, wet.	
									Brown to gray SILT, some Clay, trace Sand, moist.	
	-40									
						☒				
50									End of Boring at 50' bgs	
	-45									
55										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 8'-9' bgs, 32'-33' bgs, 39'-40' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/30/06 - 7/30/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689986.529
Easting: 637640.986
Casing Elevation: 8.20' MVD

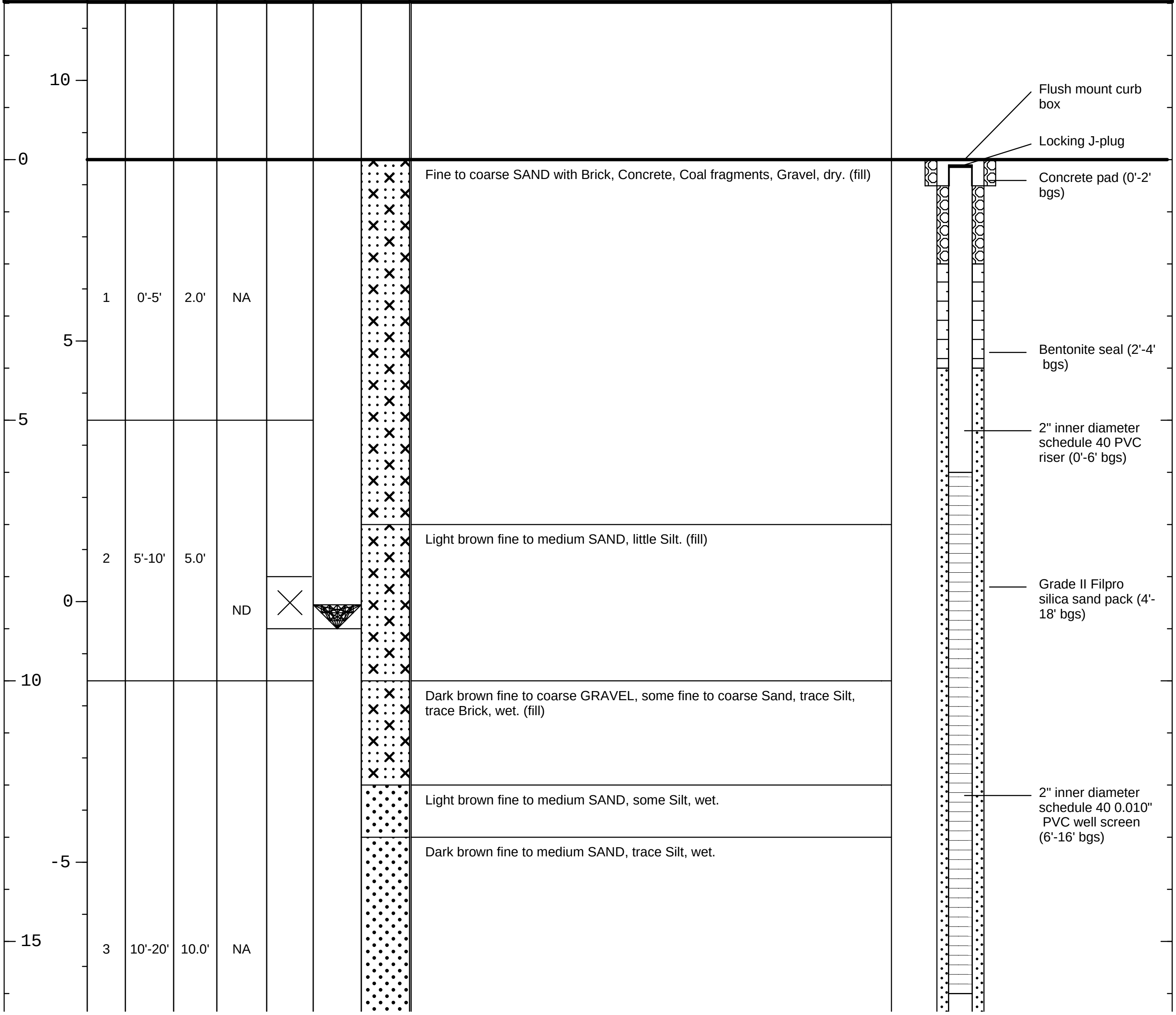
Borehole Depth: 50' bgs
Surface Elevation: 8.48' MVD

Descriptions By: Jeremy Cuccuini

Well/Boring ID: **MW(SB)-103A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York



Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample
1	0'-5'	2.0'	NA	
2	5'-10'	5.0'	ND	☒
3	10'-20'	10.0'	NA	

Stratigraphic Description

Fine to coarse SAND with Brick, Concrete, Coal fragments, Gravel, dry. (fill)

Light brown fine to medium SAND, little Silt. (fill)

Dark brown fine to coarse GRAVEL, some fine to coarse Sand, trace Silt, trace Brick, wet. (fill)

Light brown fine to medium SAND, some Silt, wet.

Dark brown fine to medium SAND, trace Silt, wet.

Well/Boring Construction

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 8'-9' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/30/06 - 7/30/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689986.529
Easting: 637640.986
Casing Elevation: 8.20' MVD

Borehole Depth: 50' bgs
Surface Elevation: 8.48' MVD

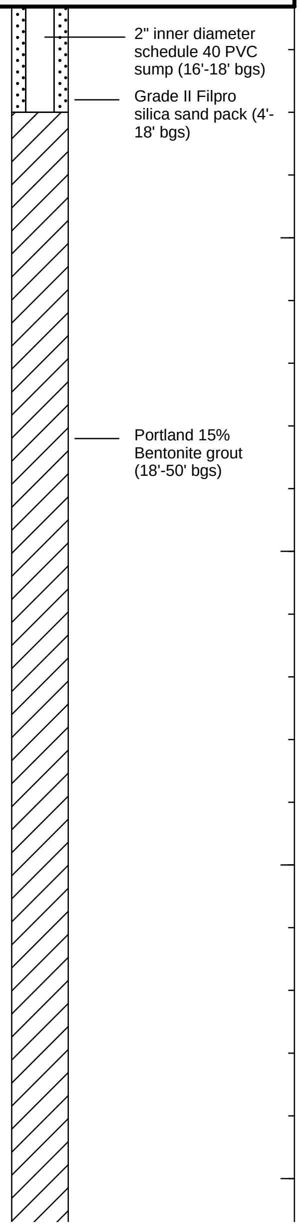
Descriptions By: Jeremy Cuccuini

Well/Boring ID: **MW(SB)-103A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-10									
20										
	-15									
25		4	20'-30'	10.0'	NA					
	-20									
30										
	-25									
35		5	30'-40'	10.0'	NA					



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 8'-9' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/30/06 - 7/30/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689986.529
Easting: 637640.986
Casing Elevation: 8.20' MVD

Borehole Depth: 50' bgs
Surface Elevation: 8.48' MVD

Descriptions By: Jeremy Cuccuini

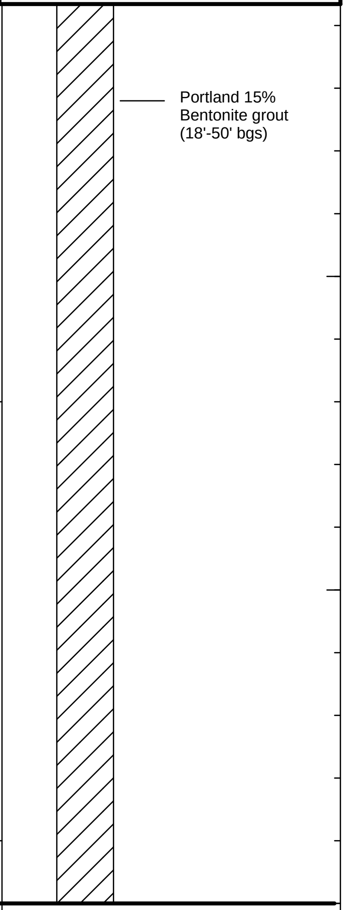
Well/Boring ID: **MW(SB)-103A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-30								
40									
									Dark brown CLAY, trace fine Sand, moist.
	-35								
45		6	40'-50'	10.0'	NA				
	-40								
						☒			Dark brown fine to medium SAND, trace coarse Sand and Silt, wet.
50									End of boring at 50' bgs
	-45								

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 8'-9' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/31/06 - 7/31/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689967.186
Easting: 637677.134
Casing Elevation: 8.06' MVD

Borehole Depth: 50' bgs
Surface Elevation: 8.38' MVD

Descriptions By: Jeremy Cuccuini

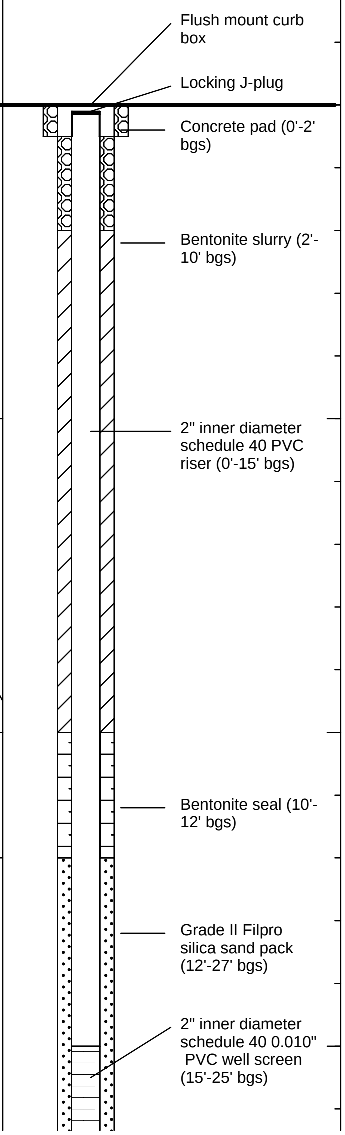
Well/Boring ID: **MW(SB)-104B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Stratigraphic Description
	10							
0								Dark brown fine to coarse SAND, some Brick, Concrete, Glass, Coal fragments, moist. (fill)
	5							
5		1	0'-10'	7.0'				Light brown fine to medium SAND, some Silt. (fill)
						☒	▼	
	0							
								Dark brown to black fine to coarse SAND, some Silt, black ash-like material, trace cinders, Brick, MGP odor. (fill)
10					3			Dark brown fine to coarse SAND and SILT, trace Brick, black ash-like material, MGP odors. (fill)
					5			
					138			Black fine to coarse SAND with tar-like material, little Silt, strong MGP odor, wet. (fill)
					155			
	-5							
					158			
15		2	10'-20'	10.0'	172			
					150			

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
PVC = polyvinyl chloride.

Soil samples taken from 7'-8' bgs, 20'-21' bgs, 25.5'-26' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 7/31/06 - 7/31/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689967.186
Easting: 637677.134
Casing Elevation: 8.06' MVD

Borehole Depth: 50' bgs
Surface Elevation: 8.38' MVD

Descriptions By: Jeremy Cuccuini

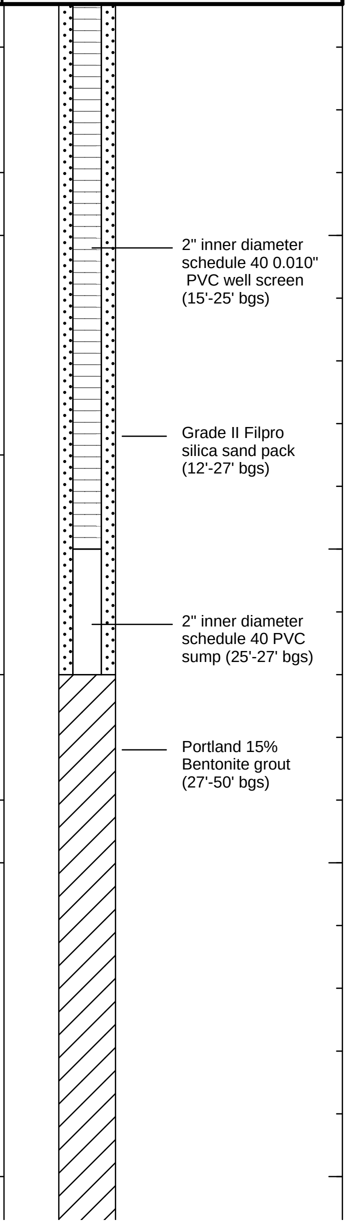
Well/Boring ID: **MW(SB)-104B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-10				78 55				Gray fine SAND and SILT, MGP odor, wet.
					50				Black fine to coarse SAND, trace black ash-like material, MGP odors.
20	-15				215 210 110 88	☒			Black fine to coarse SAND and SILT, tar-like material, strong MGP odor.
25		3	20'-30'	10.0'	5 ND	☒			Light brown CLAY, trace fine Sand, moist, MGP odors.
	-20								Red to brown CLAY, moist.
									Dark brown fine to medium SAND, trace coarse Sand, wet.
30	-25								Dark brown fine to medium SAND, trace coarse Sand, wet, slight MGP odor from 30'-31' bgs.
35		4	30'-40'	10.0'	NA				Similar soils as above, light brown.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
PVC = polyvinyl chloride.

Soil samples taken from 7'-8' bgs, 20'-21' bgs, 25.5'-26' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/31/06 - 7/31/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689967.186
Easting: 637677.134
Casing Elevation: 8.06' MVD

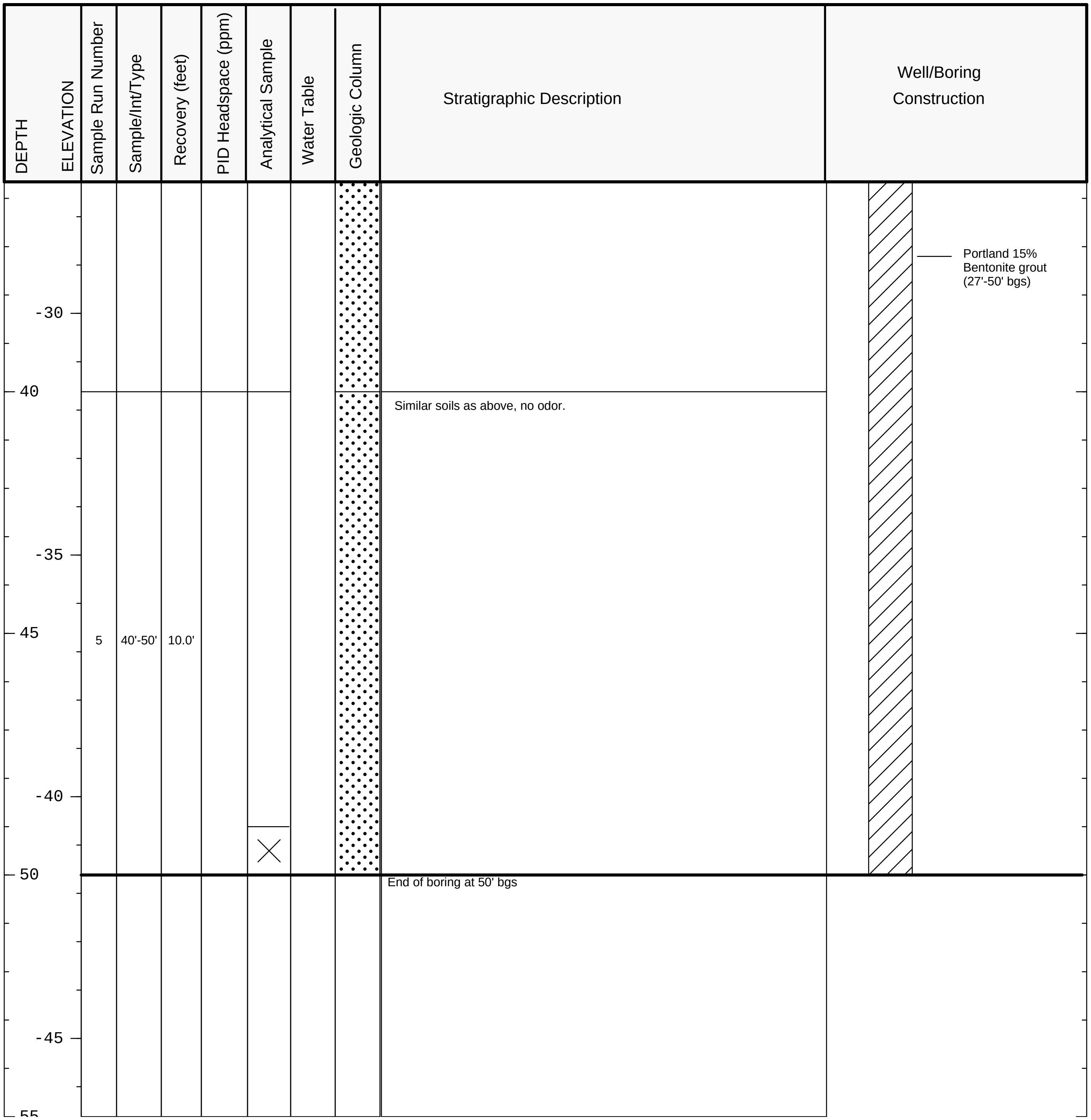
Borehole Depth: 50' bgs
Surface Elevation: 8.38' MVD

Descriptions By: Jeremy Cuccuini

Well/Boring ID: **MW(SB)-104B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York



Similar soils as above, no odor.

End of boring at 50' bgs

Portland 15%
Bentonite grout
(27'-50' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
PVC = polyvinyl chloride.

Soil samples taken from 7'-8' bgs, 20'-21' bgs, 25.5'-26' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/29/06 - 7/29/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689902.026
Easting: 637793.509
Casing Elevation: 7.61' MVD

Borehole Depth: 40' bgs
Surface Elevation: 7.88' MVD

Descriptions By: Jeremy Cuccuini

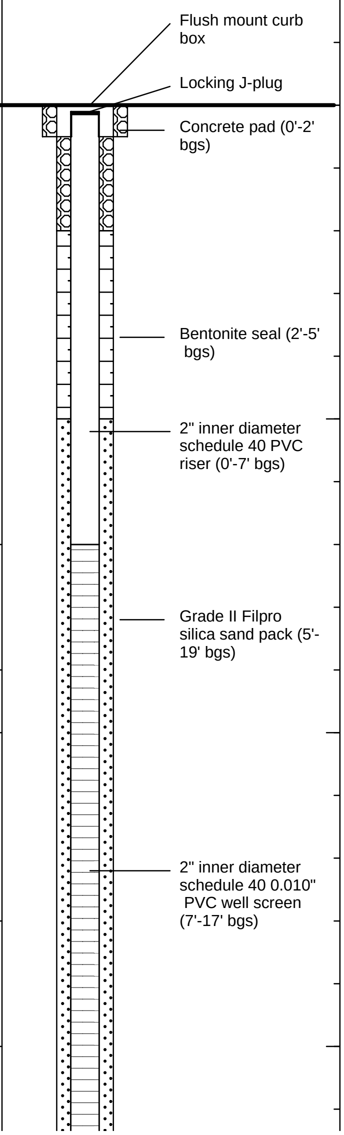
Well/Boring ID: **MW(SB)-105A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	10								
0									BRICK, CONCRETE, fine to coarse Sand. (fill)
	5	1	0'-5'	1.0'	NA				
5									
									Brown fine to coarse SAND, little Silt, trace black ash-like material, moist. (fill)
	0	2	5'-10'	2.0'					
					3.5				
									Dark brown fine to coarse SAND, some black ash-like material, little Silt, slight MGP odor. (fill)
					15	☒	▽		
10					10				Dark brown to black fine to coarse SAND, some Silt, trace Gravel, Cobbles, Wood fibers, MGP odor, wet. (fill)
					50	☒			
					15				
	-5								
					5				Dark brown fine to medium SAND, some Silt, trace Wood fibers, wet. (fill)
15		3	10'-20'	10.0'	12				Brown fine to medium SAND and SILT, wet.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 11'-12' bgs, 16.5'-17' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/29/06 - 7/29/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689902.026
Easting: 637793.509
Casing Elevation: 7.61' MVD

Borehole Depth: 40' bgs
Surface Elevation: 7.88' MVD

Descriptions By: Jeremy Cuccuini

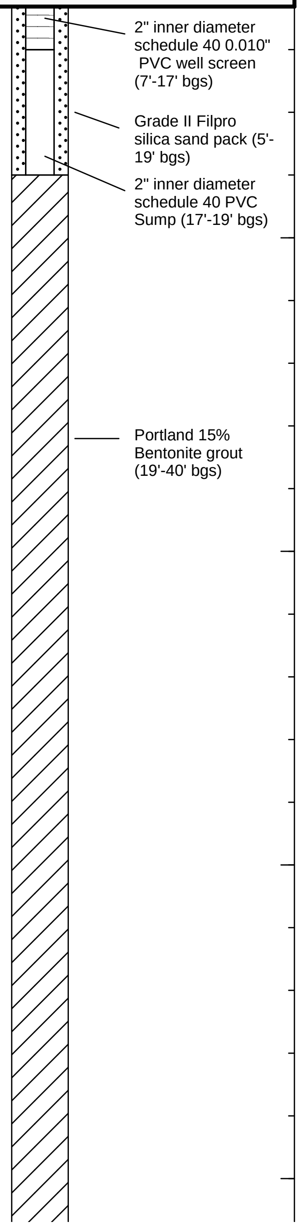
Well/Boring ID: **MW(SB)-105A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
						☒			
	-10								
20									
	-15								
25		4	20'-30'	10.0'					
	-20								
									Brown SILT, some fine Sand, trace clay lens, wet.
					ND				
30									
	-25	5	30'-35'	5.0'	NA				
35									

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 11'-12' bgs, 16.5'-17' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/29/06 - 7/29/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689902.026
Easting: 637793.509
Casing Elevation: 7.61' MVD

Borehole Depth: 40' bgs
Surface Elevation: 7.88' MVD

Descriptions By: Jeremy Cuccuini

Well/Boring ID: **MW(SB)-105A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-30	6	35'-40'	5.0'	NA	☒				Portland 15% Bentonite grout (19'-40' bgs)
40									End of boring at 40' bgs	
	-35									
45										
	-40									
50										
	-45									
55										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 11'-12' bgs, 16.5'-17' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/30/06 - 7/30/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689919.680
Easting: 637653.352
Casing Elevation: 8.24' MVD

Borehole Depth: 35' bgs
Surface Elevation: 8.49' MVD

Descriptions By: Jeremy Cuccuini

Well/Boring ID: **MW(SB)-106A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column
0	10							
		1	0'-5'	3.0'	NA			
5	5							
		2	5'-10'	2.5'				
	0				ND	☒	▼	
10								
	-5							
15		3	10'-20'	9.0'	NA			

Stratigraphic Description

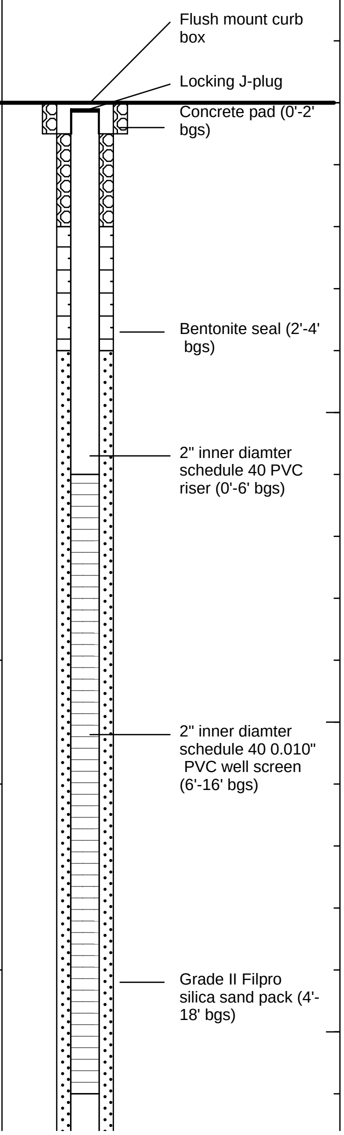
Fine to coarse SAND, some Silt, Brick, Glass and Concrete, trace Coal fragments, moist. (fill)

Dark brown fine to coarse SAND and SILT, some fine Gravel, trace Brick, Coal fragments, wet. (fill)

Dark brown fine to coarse SAND and SILT, some organics (Wood), organic odor, wet. (fill)

Light brown fine to medium SAND, little Silt, wet.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 8'-9' bgs, 20'-21' bgs and 32'-33' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/30/06 - 7/30/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689919.680
Easting: 637653.352
Casing Elevation: 8.24' MVD

Borehole Depth: 35' bgs
Surface Elevation: 8.49' MVD

Descriptions By: Jeremy Cuccuini

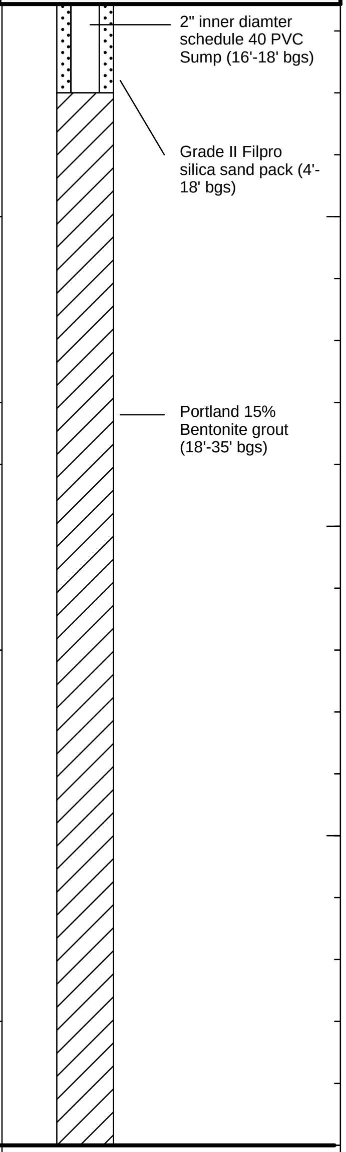
Well/Boring ID: **MW(SB)-106A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Saint Emeric's Property
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-10								
20						☒			Similar soils as above, slight MGP odor.
									Similar soils as above, no odor.
	-15								
									Light brown fine SAND and SILT, wet.
25		4	20'-30'	10.0'	NA				
									Red brown SILT, trace fine Sand, moist.
	-20								
30									
		5	30'-35'	NA	NA	☒			
									Light brown fine SAND, wet.
	-25								
35									End of boring at 35' bgs

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 8'-9' bgs, 20'-21' bgs and 32'-33' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:MW-106A

Template:SONIC2006-EL-NA_well.ldf
Date: 10/2/06

Date Start/Finish: 5/24/06 - 6/21/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689985.562
Easting: 638191.540
Casing Elevation: 6.71' MVD

Borehole Depth: 16' bgs
Surface Elevation: 6.99' MVD

Descriptions By: Ronald Kuhn

Well/Boring ID: **MW(SB)-107A**

Client: Consolidated Edison Company
of New York, Inc.

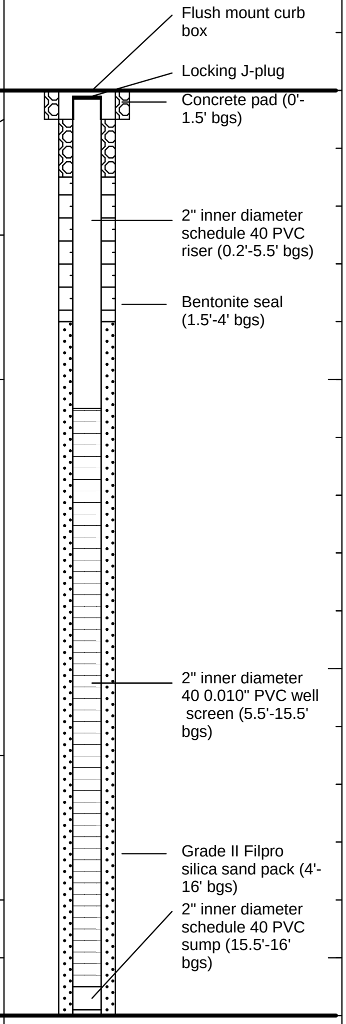
Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table
0		1	0'-5'	NA	ND		
5	0	2	5'-9'	5.0'	2.0 2.7		▽
10	-5	3	9'-14'	2.0'	2.9 1.1		
15	-10	4	14'-16'	2.0'	0.3		

Stratigraphic Description
ASPHALT
Dark brown fine to medium SAND, little asphalt, trace fine to coarse Gravel, trace Brick and Cobbles.
Orange Brown fine to medium SAND, moderately loose, moist.
Orange brown fine to medium SAND, trace coarse Sand, trace fine Gravel, trace Brick, loose, moist. (fill)
Dark gray brown fine to medium SAND, trace coarse Sand, trace/little fine to coarse Gravel, trace Cobble, trace Silt, trace Brick, loose, saturated. (fill)
Dark gray brown fine to medium SAND, trace coarse Sand, trace/little fine to coarse Gravel, trace Cobble, trace Silt, loose, wet.
Gray Brown fine to medium SAND, little coarse Sand, trace fine to coarse Gravel, trace Silt, loose, wet.

End of boring at 16' bgs

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected from SB-107B at 9'-11' bgs, 29'-31' bgs, 39'-41' bgs and 53'-54' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:MW-107A

Template:SONIC2006-EL-NA_well.ldf
Date: 7/25/06

Date Start/Finish: 5/24/06 - 6/21/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689983.419
Easting: 638194.194
Casing Elevation: 6.64' MVD

Borehole Depth: 54' bgs
Surface Elevation: 6.98' MVD

Descriptions By: Ronald Kuhn

Well/Boring ID: **MW(SB)-107B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table
0		1	0'-5'	NA	ND		
5	5	2	5'-9'	5.0'	2.0 2.7		▽
10	0	3	9'-14'	2.0'	2.9 1.1	☒	
15	-5						

Stratigraphic Description

ASPHALT

Dark brown fine to medium SAND, little Asphalt, trace fine to coarse Gravel, trace Brick/Cobble. (fill)

Orange brown fine to medium SAND, moderately loose, moist. (fill)

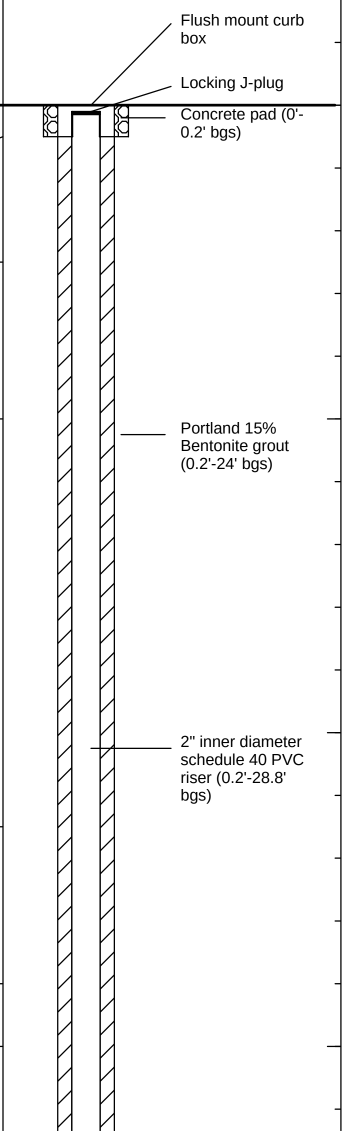
Orange brown fine to medium SAND, trace coarse Sand, trace fine Gravel, trace Brick, loose, moist. (fill)

Dark gray brown fine to medium SAND, trace coarse Sand, trace/little fine to coarse Gravel, trace Cobble, trace Silt, trace Brick, loose, saturated. (fill)

Dark gray brown fine to medium SAND, trace coarse Sand, trace/little fine to coarse Gravel, trace Cobble, trace Silt, loose, wet.

Gray Brown fine to medium SAND, little coarse Sand, trace fine to coarse Gravel, trace Silt, loose, wet.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-11' bgs, 29'-31' bgs, 39'-41' bgs and 53'-54' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/24/06 - 6/21/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689983.419
Easting: 638194.194
Casing Elevation: 6.64' MVD

Borehole Depth: 54' bgs
Surface Elevation: 6.98' MVD

Descriptions By: Ronald Kuhn

Well/Boring ID: **MW(SB)-107B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION
	-10
20	
	-15
25	
	-20
30	
	-25
35	

Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample
4	14'-19'	3.0'	0.3	
5	19'-24'	5.0'	0.3 0.5	
6	24'-29'	5.0'	0.2 0.4 1.1	
7	29'-34'	4.0'	211 63.2	☒
			54	

Water Table

Geologic Column

Stratigraphic Description

Dark gray/black fine SAND, trace Silt, loose, very slight odor, wet.

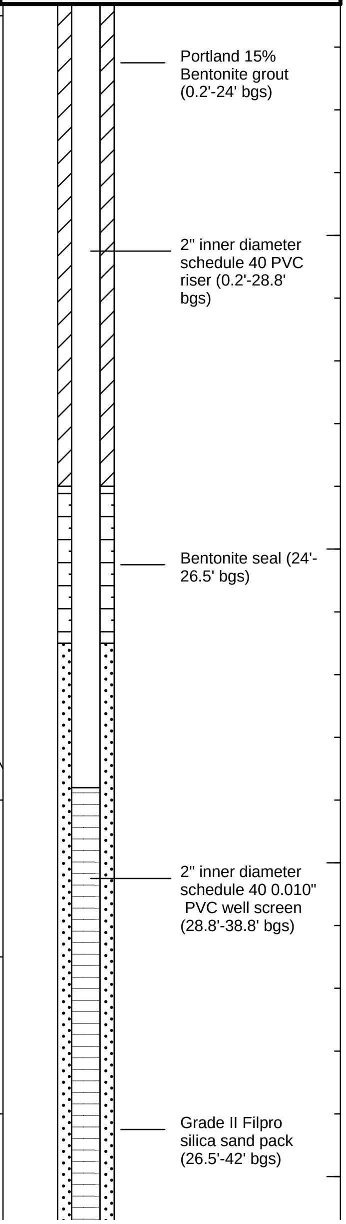
Dark gray/black Silty fine to medium SAND and red BRICK, heavy sheen, odor, moderately loose, wet.

Dark gray/black organic CLAYEY SILT, trace natural Organics (vegetation), trace tar-like material with MGP odor throughout, slight plasticity, moist.

Dark gray brown fine to medium SAND, trace coarse Sand, trace Silt, trace tar-like material, MGP odor throughout, wet.

Dark gray brown fine to medium SAND, trace coarse Sand, trace Silt, odor, tar-like material, loose, wet.

Well/Boring Construction



Portland 15% Bentonite grout (0.2'-24' bgs)

2" inner diameter schedule 40 PVC riser (0.2'-28.8' bgs)

Bentonite seal (24'-26.5' bgs)

2" inner diameter schedule 40 0.010" PVC well screen (28.8'-38.8' bgs)

Grade II Filpro silica sand pack (26.5'-42' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-11' bgs, 29'-31' bgs, 39'-41' bgs and 53'-54' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/24/06 - 6/21/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689983.419
Easting: 638194.194
Casing Elevation: 6.64' MVD

Borehole Depth: 54' bgs
Surface Elevation: 6.98' MVD

Descriptions By: Ronald Kuhn

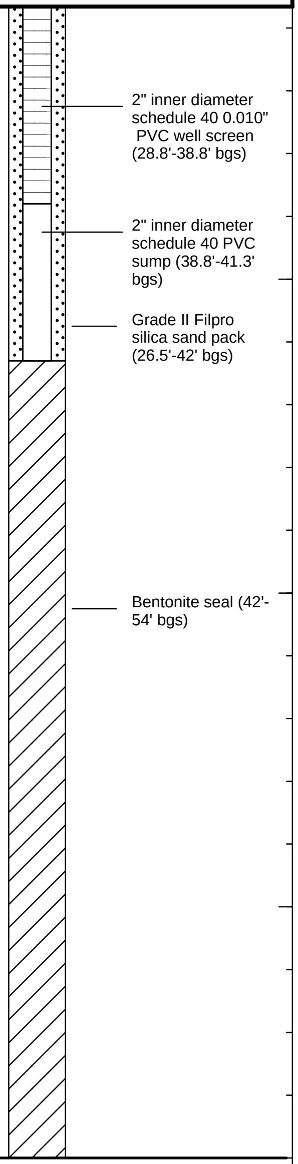
Well/Boring ID: **MW(SB)-107B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-30	8	34'-39'	3.0'	33 36.5				Dark red brown oil-like material with MGP odor at 37'-39' bgs.
40	-35	9	39'-44'	5.0'	2.1 7.5	☒			Light gray brown fine to medium SAND, trace Silt, slight MGP odor, loose, wet. Light gray brown fine SAND, trace Silt, slight MGP odor.
45	-40	10	44'-49'	5.0'	4.5 2.1 0.3				Red brown SILT, slight odor, moderately dense, wet.
50	-45	11	49'-54'	5.0'	ND ND ND	☒			Gray brown to red brown fine SAND, little Silt and Clay, wet.
55									End of boring at 54' bgs

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-11' bgs, 29'-31' bgs, 39'-41' bgs and 53'-54' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/23/06 - 6/20/06
Drilling Company: Universal Testing
Driller's Name: Victor, Brian, Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689948.653
Easting: 638255.912
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 6.76' MVD

Descriptions By: Ronald Kuhn/
Jeremy Cuccuini

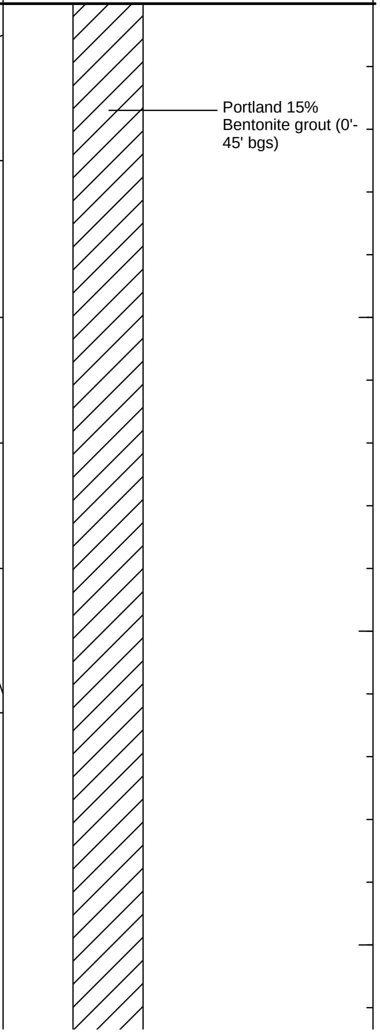
Boring ID: **SB-108**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0											ASPHALT
	5										Dark brown fine to medium SAND, little Silt, trace fine to coarse Gravel, trace asphalt.
			0'-5'	NA			ND				Orange brown fine to medium SAND, trace Silt, trace red brick, trace concrete, moist, dense.
5	0	1	5'-7'	1.3'	9 16 19 20	35	2.9				Orange brown fine to medium SAND, trace coarse Sand, trace fine to medium Gravel, trace Silt, moist. (fill)
		2	7'-9'	1.5'	4 14 15 16	29	3.0		▼		Similar soils as above, moist to wet. (fill)
10		3	9'-11'	1.8'	5 7 7 6	14	1.5	☒			Brown fine to medium SAND, trace coarse Sand, trace fine to medium Gravel, trace red brick, wet. (fill) Brown fine to medium SAND, trace coarse Sand, trace fine Gravel, trace Silt, wet. (fill)
	-5	4	11'-13'	0.6'	WOH NA 3 50/0.3	3	1.6				Pulverized red brick, wet. (fill)
		5	13'-15'	0.6'	21 50/0.3 NA NA	NA	1.4				
15		6	15'-17'	0.1'	50/0.2 NA NA	NA	0.2				

Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; WOH = weight of hammer;
NR = no recovery.

Soil samples taken from 9'-11' bgs, 34'-35' bgs and 43'-45' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Project: 43013.004
Data File:SB-108
Template:HSA_boring.ldf
Date: 7/24/06

Date Start/Finish: 5/23/06 - 6/20/06
Drilling Company: Universal Testing
Driller's Name: Victor, Brian, Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689948.653
Easting: 638255.912
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 6.76' MVD

Descriptions By: Ronald Kuhn/
Jeremy Cuccuini

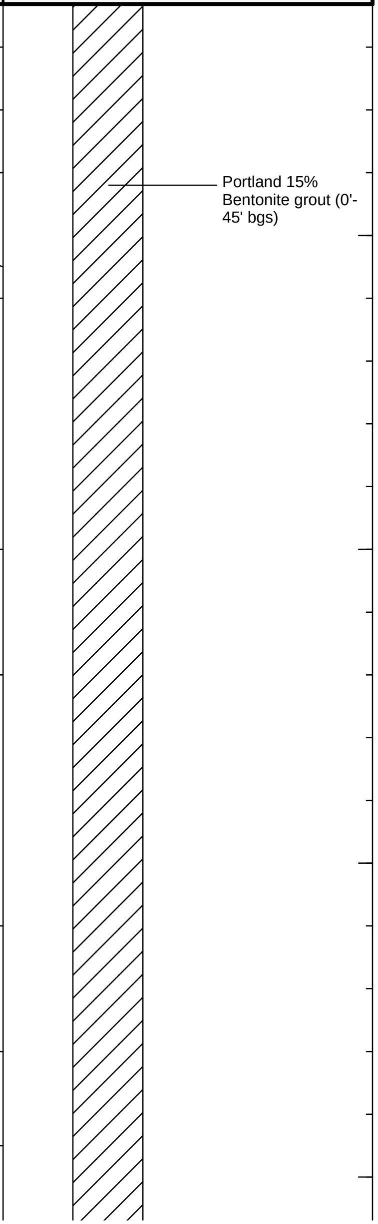
Boring ID: **SB-108**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-10				NA						
		7	17'-19'	2.0'	1 1 1 3	2	ND				Black fine to coarse SAND, some silt, trace gray ash-like material, wet. Dark brown fine to coarse SAND, trace brick particles, wet.
20		8	19'-21'	1.8'	1 1 1 2	2	3				Black fine to medium SAND, some silt, trace organics, slight MGP odor, wet. Dark brown fine to coarse SAND, trace Silt, slight MGP odor, wet.
	-15	9	21'-23'	1.0'	2 2 1 3	3	ND				Dark brown fine to medium SAND, wet.
		10	23'-25'	0.6'	1 2 1 1	3	ND				
25	-20	11	25'-27'	NR	1 1 1 1	2	NA				No recovery.
		12	27'-29'	0.1'	1 1 2 2	3	ND				Black fine SAND, some Silt, wet.
30		13	29'-31'	0.1'	1 1 2 2	3	ND				
	-25	14	31'-33'	1.0'	2 2 2 4	4	ND				Black fine to medium SAND, slight MGP odor, wet.
35		15	33'-35'	2.0'	8 10 9 10	19	50 100	☒			Black fine to medium SAND, strong MGP odor, tar-like material at 34-34.5' bgs. Brown fine SAND, some Silt, slight MGP odor, wet.
					3 5						

Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; WOH = weight of hammer;
NR = no recovery.

Soil samples taken from 9'-11' bgs, 34'-35' bgs and 43'-45' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/23/06 - 6/20/06
Drilling Company: Universal Testing
Driller's Name: Victor, Brian, Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689948.653
Easting: 638255.912
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 6.76' MVD

Descriptions By: Ronald Kuhn/ Jeremy Cuccuini

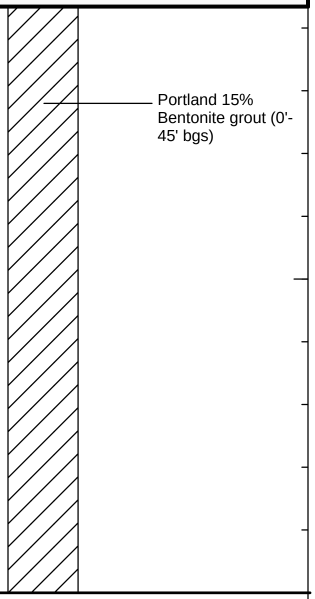
Boring ID: **SB-108**

Client: Consolidated Edison Company of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-30	16	35'-37'	1.6'	5 3	10	0.5			░	
		17	37'-39'	0.1'	3 3 8 11	11	0.5			░	Similar soils as above, slight MGP odor, sheen.
40		18	39'-41'	0.4'	5 4 5 5	9	1			░	Brown fine to medium SAND, slight MGP odor, wet.
	-35	19	41'-43'	0.5'	9 10 17 17	27	3.5			░	
		20	43'-45'	0.6'	10 15 10 9	25	5	☒		░	Similar soils as above with sheen, slight MGP odor.
45											End of boring at 45' bgs
	-40										
50											
	-45										
55											

Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; WOH = weight of hammer; NR = no recovery.

Soil samples taken from 9'-11' bgs, 34'-35' bgs and 43'-45' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Project: 43013.004
Data File:SB-108

Template:HSA_boring.ldf
Date: 7/24/06

Date Start/Finish: 5/24/06 - 6/16/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, Billy Swinick, Victor
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689884.790
Easting: 638304.690
Casing Elevation: NA

Borehole Depth: 43' bgs
Surface Elevation: 6.11

Descriptions By: Ronald Kuhn

Boring ID: **SB-109**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
0	5	1	0'-5'	NA	NA	NA	ND				CONCRETE. Brown fine to medium SAND, little SILT, trace fine to coarse GRAVEL, trace brick, cobble and asphalt. (fill)	
5	0	2	5'-7'	2.0'	5 6 2 8	8	2.9	☒	▽		Dark gray brown silty fine SAND, trace medium to coarse Sand, trace fine to medium Gravel, trace coal, brick, ash, cinders, moist. (fill) Orange brown fine SAND, trace Silt, wet.(fill)	
		3	7'-9'	0.5'	2 3 5 2	8	2.3				Orange brown silty fine to medium SAND, trace coarse Sand, trace fine to medium Gravel, loose, wet. (fill)	
10		4	9'-11'	0.5'	4 1 3 2	4	3.2				Dark gray/black silty fine to medium SAND, little Coal, cinders, wet. (fill)	Portland 15% Bentonite grout (0'-43' bgs)
	-5	5	11'-13'	1.2'	2 11 13 10	24	3.3				Dark gray/black silty FILL (red and gray brick, coal, cinders), trace fine to medium Gravel, loose, wet. (fill)	
		6	13'-15'	1.3'	11 11 8 9	19	2.8				Dark gray fine to medium SAND, trace Silt, little brick and coal, cinders, loose, wet. (fill)	
15	-10	7	15'-17'	1.4'	5 8 7	15	3.0				Dark gray silty fine to medium SAND, some slag, brick, cinders, coal, trace fine to medium Gravel, wet. (fill)	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer.

Soil samples taken from 6.5'-7' bgs, 31'-33' bgs and 41'-43' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/24/06 - 6/16/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, Billy Swinick, Victor
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689884.790
Easting: 638304.690
Casing Elevation: NA

Borehole Depth: 43' bgs
Surface Elevation: 6.11

Descriptions By: Ronald Kuhn

Boring ID: **SB-109**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
					7							
		8	17'-19'	1.1'	9 17 5 13	22	3.4				Dark gray silty FILL (brick, slag, concrete, cinders), loose, saturated. (fill)	
20		9	19'-21'	1.2'	12 7 6 9	13	4.0				Dark gray/black silty FILL (brick, slag, concrete, wood, cinders), very loose, slight sheen, wet. (fill)	
	-15	10	21'-23'	0.5'	18 4 4 6	8	25.5				Black stained WOOD, slight odor (non-MGP), trace sheen. (fill)	
		11	23'-25'	0.3'	3 10 8 17	18	14.5				Black clayey SILT and WOOD, trace fine Sand, slight odor (non-MGP), wet, trace sheen. (fill/native)	
25	-20	12	25'-27'	2.0'	2 2 1 1	3	20.9				Dark gray/black organic clayey SILT, trace fine Sand, moist, slight odor (non-MGP, more solvent-like)	Portland 15% Bentonite grout (0'-43' bgs)
		13	27'-29'	1.4'	1 1 1 1	2	15.2				Dark gray/black silty fine SAND, very loose/soft, slight sheen, odor.	
30		14	29'-31'	1.6'	1 1 1 3	2	11.8				Dark gray/black clayey SILT, little fine Sand, odor, slight sheen, wet. Dark gray/black silty fine SAND, loose, odor, wet.	
	-25	15	31'-33'	1.6'	WOH/12" NA 4 8	4	137	☒			Gray brown fine SAND, trace Silt, red brown tar-like material throughout sample (MGP odor), loose, wet.	
		16	33'-35'	1.5'	8 11 13 12	24	137				Gray brown fine SAND grading to gray brown fine to medium SAND, trace coarse Sand, trace coarse Gravel, moderately dense, trace red-brown tar-like material, trace sheen, MGP odor.	
35					7 10						Gray brown fine to medium SAND, trace coarse Sand, sheen, odor, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer.

Soil samples taken from 6.5'-7' bgs, 31'-33' bgs and 41'-43' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/24/06 - 6/16/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, Billy Swinick, Victor
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689884.790
Easting: 638304.690
Casing Elevation: NA

Borehole Depth: 43' bgs
Surface Elevation: 6.11

Descriptions By: Ronald Kuhn

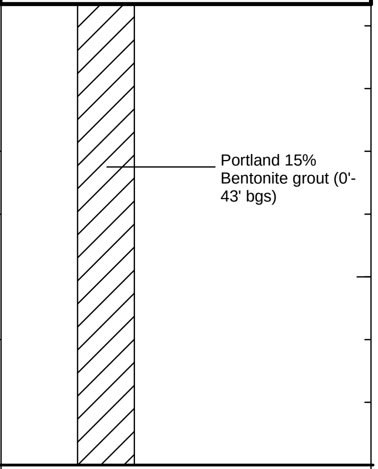
Boring ID: **SB-109**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-30	17	35'-37'	1.5'	13 17	23	68.6				
		18	37'-39'	2.0'	8 10 11 13	21	21.8				Brown fine SAND, little Silt, slight odor, wet.
40		19	39'-41'	0.6'	5 13 13 21	26	32.8				Gray fine SAND, trace Silt, slight odor, wet.
	-35	20	41'-43'	1.6'	16 65 66 47	131	11.1	☒			Gray fine SAND, trace Silt, dense, wet, very slight odor.
											End of boring at 43' bgs
45	-40										
50	-45										
55											

Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer.

Soil samples taken from 6.5'-7' bgs, 31'-33' bgs and 41'-43' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/25/06 - 6/22/06
Drilling Company: Universal Testing
Driller's Name: Victor, Brian, Sal
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 690013.641
Easting: 638069.443
Casing Elevation: NA

Borehole Depth: 51' bgs
Surface Elevation: 6.28' MVD

Descriptions By: Ronald Kuhn/
Jeremy Cuccuini

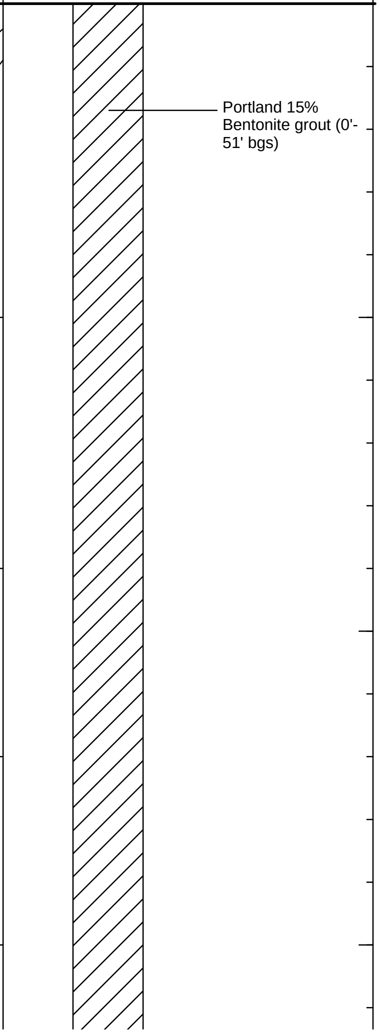
Boring ID: **SB-110**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0	5		0'-5'	NA	NA	NA	NA				Black ASPHALT Coarse GRAVEL sub-base Dark brown fine to medium SAND, trace coarse Sand, trace fine to coarse Gravel, moderately dense. (fill)
5	0	1	5'-7'	0.5'	5 5 4 7	9	ND				Brown fine to coarse SAND with Coal and Brick particles, trace clinker-like material, dry. (fill)
		2	7'-9'	1.0'	6 16 11 13	27	ND	☒	▼		
10		3	9'-11'	0.6'	6 10 6 2	16	ND				Dark brown fine to coarse SAND, little Silt, trace Brick particles, coal, slight MGP odor, wet. (fill)
	-5	4	11'-13'	1.4'	1 1 5 2	6	ND				Brown fine to medium SAND with gray Ash-like material, some Coal and Brick particles, trace silt, wet. (fill)
15		5	13'-15'	1.0'	1 2 3 2	5	ND				
	-10	6	15'-17'	1.0'	1 1 5	6	ND				Dark brown fine to medium SAND with gray to black ash-like material, trace brick, wet. (fill)

Boring Construction



Portland 15% Bentonite grout (0'-51' bgs)

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; NR = no recovery.

Soil samples taken from 7'-8' bgs, 17'-19' bgs, 26'-26.5' bgs and 49'-51' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 5/25/06 - 6/22/06
Drilling Company: Universal Testing
Driller's Name: Victor, Brian, Sal
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 690013.641
Easting: 638069.443
Casing Elevation: NA

Borehole Depth: 51' bgs
Surface Elevation: 6.28' MVD

Descriptions By: Ronald Kuhn/
Jeremy Cuccuini

Boring ID: **SB-110**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10				2							
		7	17'-19'	1.0'	1 1 7 4	8	1	☒			Black ASH-LIKE MATERIAL with fine to medium SAND, trace coal particles, slight MGP odors, wet. (fill)	
20		8	19'-21'	0.4'	36 11 7 7	18	ND					Portland 15% Bentonite grout (0'-51' bgs)
	-15	9	21'-23'	1.5'	5 4 2 2	6	ND				Black organic CLAY, trace fine Sand and Wood particles, moist.	
		10	23'-25'	1.0'	3 8 5 4	13	ND				Dark brown fine to coarse SAND, trace gray ash-like material, slight MGP odor, wet.	
25	-20	11	25'-27'	1.0'	3 7 11 9	18	ND	☒			Similar soils as above, no odors.	
		12	27'-29'	0.6'	10 6 5 6	11	ND				Brown fine to medium SAND, wet.	
30		13	29'-31'	1.6'	1 1 4 5	5	ND					
	-25	14	31'-33'	1.6'	1 4 3 2	7	ND					
		15	33'-35'	NR	NA NA NA NA	NA	NA					
35					3 4							

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; NR = no recovery.

Soil samples taken from 7'-8' bgs, 17'-19' bgs, 26'-26.5' bgs and 49'-51' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.004
Data File:SB-110

Template:HSA_boring.ldf
Date: 7/24/06

Date Start/Finish: 5/25/06 - 6/22/06
Drilling Company: Universal Testing
Driller's Name: Victor, Brian, Sal
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 690013.641
Easting: 638069.443
Casing Elevation: NA

Borehole Depth: 51' bgs
Surface Elevation: 6.28' MVD

Descriptions By: Ronald Kuhn/
Jeremy Cuccuini

Boring ID: **SB-110**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	16	35'-37'	1.0'	5 5	9	ND					
		17	37'-39'	0.6'	7 7 8 9	15	ND					Portland 15% Bentonite grout (0'-51' bgs)
40		18	39'-41'	0.8'	5 6 7 6	13	ND					
	-35	19	41'-43'	1.0'	6 5 10 5	15	ND					
		20	43'-45'	1.8'	8 8 10 9	18	ND				Brown fine SAND, some Silt, wet.	
45	-40	21	45'-47'	2.0'	3 3 4 6	7	ND				Red to brown SILT, trace fine Sand, moist.	
		22	47'-49'	2.0'	8 11 9 13	20	ND					
50		23	49'-51'	2.0'	4 5 5 6	10	ND	☒				
	-45										End of boring at 51' bgs	
55												

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; NR = no recovery.

Soil samples taken from 7'-8' bgs, 17'-19' bgs, 26'-26.5' bgs and 49'-51' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Project: 43013.004
Data File:SB-110

Template:HSA_boring.ldf
Date: 7/24/06

Date Start/Finish: 5/22/06 - 6/22/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689809.037
Easting: 638339.202
Casing Elevation: 6.14' MVD

Borehole Depth: 54' bgs
Surface Elevation: 6.42' MVD

Descriptions By: Ronald Kuhn

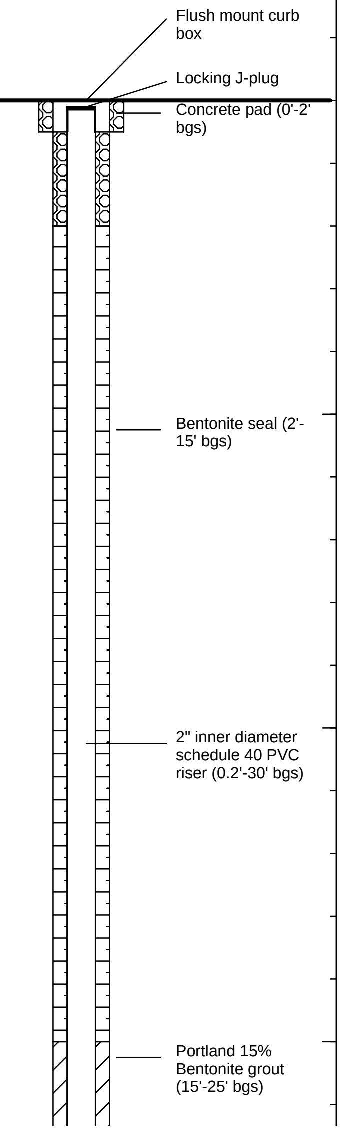
Well/Boring ID: **MW(SB)-111B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0									TOPSOIL
	5	1	0'-6'	5.0'	ND				ROCK BOULDERS, trace red Brick, trace Porcelain, trace Sands and Gravel within pore space of boulders. (fill)
5									Cored BOULDER. (fill)
	0	2	6'-9'	1.5'	1.6	☒	▽		Dark gray brown BOULDER (fractures from coring), little fine to coarse Gravel (fractured portion of Boulder while drilling), little fine Sand, little Silt, trace Sheen, slight MGP odor. (fill)
10	-5	3	9'-14'	2.0'	1.7 2.5				Dark gray fine to coarse SAND, trace fine to coarse Gravel, trace Silt, trace Brick, Sheen, MGP odor, saturated. (fill)
									COBBLE/BOULDER (cored), trace Sheen. (fill)
15					2.6 3.8				WOOD (railroad tie or piling), slight sheen, MGP/creosol odor. (fill)

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 6'-9' bgs, 29'-31' bgs, 45'-45.5' bgs and 53'-54' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:MW-111B

Template:SONIC2006-EL-NA_well.ldf
Date: 7/25/06

Date Start/Finish: 5/22/06 - 6/22/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689809.037
Easting: 638339.202
Casing Elevation: 6.14' MVD

Borehole Depth: 54' bgs
Surface Elevation: 6.42' MVD

Descriptions By: Ronald Kuhn

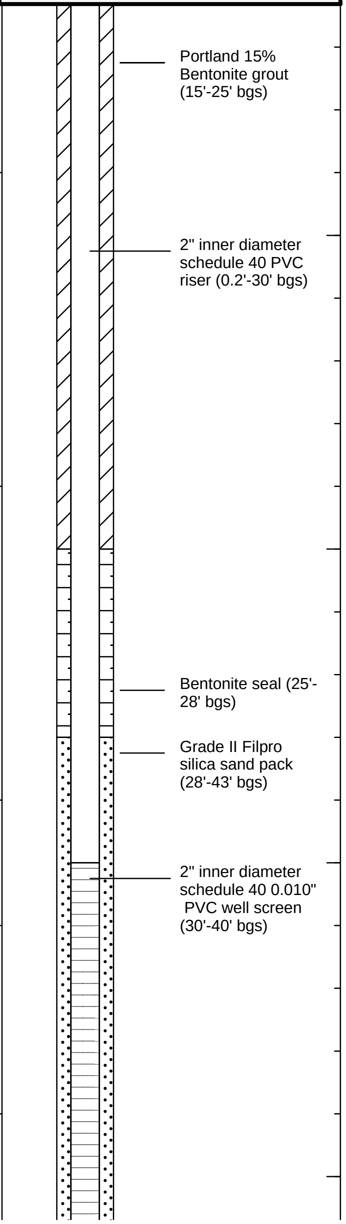
Well/Boring ID: **MW(SB)-111B**

Client: Consolidated Edison Company of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-10	4	14'-19'	0.5'	11.6				
20	-15	5	19'-24'	4.0'	81.5 163				Dark gray/black organic CLAYEY SILT, trace fine Sand, trace natural Organics (vegetation), red brown MGP tar-like material throughout, strong odor, wet. (fill)
25	-20	6	24'-29'	5.0'	185 314 240				Dark gray/black WOOD, trace MGP tar-like material throughout, trace Silt, wet. (fill)
30		7	29'-34'	5.0'	1148	X			Dark gray/black organic CLAYEY SILT, trace fine Sand, little Wood, strong MGP odor, tar-like material throughout, wet.
	-25				544				Gray brown fine to medium SAND, trace coarse Sand, tar-like material with MGP odor throughout, trace Silt, loose, wet.
35					156				Dark gray brown fine to medium SAND, trace coarse Sand, trace Organics (Wood), tar-like material with MGP odor throughout, saturated.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 6'-9' bgs, 29'-31' bgs, 45'-45.5' bgs and 53'-54' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/22/06 - 6/22/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689809.037
Easting: 638339.202
Casing Elevation: 6.14' MVD

Borehole Depth: 54' bgs
Surface Elevation: 6.42' MVD

Descriptions By: Ronald Kuhn

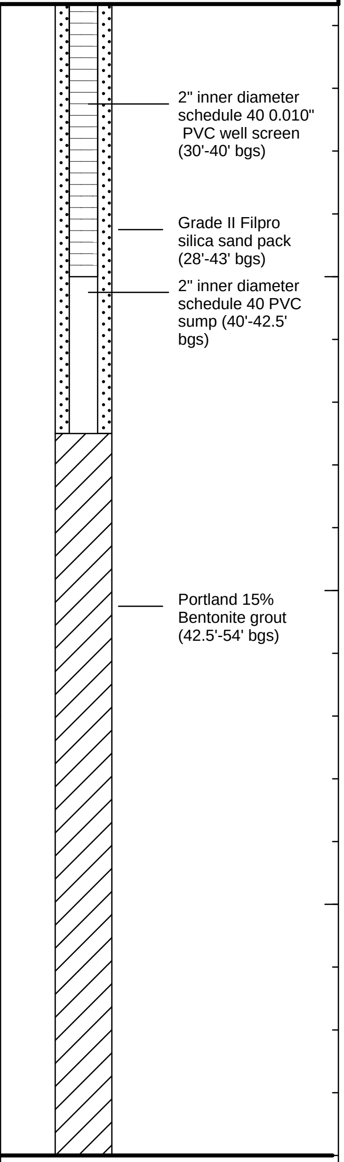
Well/Boring ID: **MW(SB)-111B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
					109				
	-30	8	34'-39'	4.0'					
					139				Coarse Sand, sheen with tar-like material at 38'-38.1' bgs.
									Fine to medium Gravel at 38.9'-39' bgs.
									Dark gray/black fine to coarse SAND, little fine to medium Gravel, trace Silt, saturated with red-brown tar-like material with MGP odor, saturated.
40					192				Gray brown fine SAND, trace Silt interbedding (~0.10' bedding), MGP odor, sheen on outside of sample, wet.
	-35	9	39'-44'	5.0'					
					47				
					23.7				Gray brown fine SAND and SILT, saturated.
45						☒			
					6.0				
	-40	10	44'-49'	5.0'					
									Gray brown fine SAND and SILT, Silt and Clay laminations throughout, wet.
					3.8				
									Red brown SILT, trace Clay, wet.
50					3.6				
	-45	11	49'-54'	5.0'					
					2.1				
					1.6	☒			
									End of boring at 54' bgs
55									

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 6'-9' bgs, 29'-31' bgs, 45'-45.5' bgs and 53'-54' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/26/06 - 7/28/06
Drilling Company: Boart Longyear
Driller's Name: Just, Scott
Drilling Method: Hollow-Stem Auger/Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689836.449
Easting: 638122.734
Casing Elevation: NA

Borehole Depth: 55' bgs
Surface Elevation: 7.35' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-112**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10											
0	5	1	0'-5'	NA	NA	NA	ND				CONCRETE Dark brown fine to medium SAND, little Silt, trace coarse Sand, trace red Brick/Cobble, trace fine to coarse Gravel. (fill)	
5		2	5'-7'	0.6'	4 4 5 4	9	5	☒	▼		Dark brown fine to coarse SAND and BRICK, trace Coal and Concrete fragments, trace Silt. (fill)	
	0	3	7'-9'	0.8'	3 4 4 5	8	30				Black fine to medium SAND, trace Coal fragments, ash-like material, oil-like material, sheen, slight MGP odor. (fill)	
10		4	9'-11'	0.8'	2 2 7 6	9	85					Portland 15% Bentonite grout (0'-55' bgs)
	-5	5	11'-13'	1.0'	4 3 2 3	5	25				Dark brown fine to medium SAND, trace Silt, black ash-like material, slight MGP odor, wet. (fill)	
		6	13'-15'	2.0'	3 2 1 1	3	20				Dark brown SILT and fine SAND, slight MGP odor, wet. (fill)	
15		7	15'-17'	2.0'	1 2 1 2	3	15					

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; NR = no recovery.

Soil samples taken from 5'-7' bgs, 17'-18' bgs, 34'-35' bgs and 54'-55' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/26/06 - 7/28/06
Drilling Company: Boart Longyear
Driller's Name: Just, Scott
Drilling Method: Hollow-Stem Auger/Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689836.449
Easting: 638122.734
Casing Elevation: NA

Borehole Depth: 55' bgs
Surface Elevation: 7.35' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-112**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table
	-10	8	17'-19'	1.5'	2 2 50/3" NA	NA	230	☒	
20		9	19'-21'	NR	50/1" NA NA NA	NA	NA		
	-15	10	21'-22.5'						
25		11	22.5'-25'						
	-20	12	25'-30'	5.0'			7.6 9.9 2.5 19.1 4.2		
30	-25	13	30'-35'	5.0'			2.7 0.5 0.6	☒	
35									

Stratigraphic Description
Black fine to coarse SAND, some Silt, strong MGP odor/sheen. (fill)
BRICK, fine to coarse SAND, 0.25' layer of tar-like material. (fill)
No recovery. (fill)
Hollow-stem auger refusal at 22.5' bgs; begin Rotary Sonic drilling.
Black COBBLES and fine to coarse GRAVEL, little fine to coarse Sand and Silt, wet, MGP odor. (fill)
Black fine to coarse SAND, some Silt, little fine Gravel, wet, sheen and MGP odors. (fill)
WOOD timber, wet, odor. (fill)
Gray to black SILT, little fine Sand, wet, slight MGP odor. (fill)
WOOD timber debris. (fill)
Gray to black SILT, little fine Sand, wet, slight MGP odor. (fill)
Similar soils as above, wet, no odor. (fill)
Black fine SAND, some fine Gravel, little Silt, wet.
Brown to tan fine SAND, little medium to coarse Sand and Silt, wet.
NOTE: Hit running sand and could collect sample, sample was lost. Core barrel locked and had to be vibrated to be released.

Boring Construction

Portland 15% Bentonite grout (0'-55' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; NR = no recovery.

Soil samples taken from 5'-7' bgs, 17'-18' bgs, 34'-35' bgs and 54'-55' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/26/06 - 7/28/06
Drilling Company: Boart Longyear
Driller's Name: Just, Scott
Drilling Method: Hollow-Stem Auger/Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689836.449
Easting: 638122.734
Casing Elevation: NA

Borehole Depth: 55' bgs
Surface Elevation: 7.35' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-112**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
40	-30 -35	14	35'-45'	0.0'			NA					Portland 15% Bentonite grout (0'-55' bgs)
45	-40	15	45'-50'	3.0'			0.5				Brown to gray fine SAND, little Silt, wet.	
50 55	-45	16	50'-55'	4.0'			ND	☒			Brown to gray fine SAND, some Silt, wet.	
											End of boring at 55' bgs	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; NR = no recovery.

Soil samples taken from 5'-7' bgs, 17'-18' bgs, 34'-35' bgs and 54'-55' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/13/06 - 7/27/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Hollow-Stem Auger/Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689897.632
Easting: 637912.51
Casing Elevation: NA

Borehole Depth: 35' bgs
Surface Elevation: 7.38' MVD

Descriptions By: D.M. Mack

Boring ID: **SB-113**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10											
0	5	1	0'-5'	NA			NA				Utility clearance was completed from ground surface to 5' bgs.	Portland 15% Bentonite grout (0'-35' bgs)
5		2	5'-7'	0.6'	10 17 17 15	34	ND	X			Light brown fine to coarse SAND, some Gravel, trace clinker-like material. (fill)	
	0								▽		Brown fine to coarse SAND and SILT, wet. (fill)	
		3	8'-10'	2.0'			3.6 60	X X			Black to gray coarse GRAVEL, some fine to coarse Sand, little Silt, wet. (fill)	
10		4	10'-12'	2.0'			NA 66.6				Brown fine to coarse SAND, some Silt, wet. (fill) Black to gray coarse GRAVEL, some coarse to fine Sand, little Silt, wet. (fill) WOOD piling. (fill)	
	-5	5	12'-15'	3.0'			6.9 26.2 12.2	X			Black to gray coarse GRAVEL, some coarse to fine Sand, little Silt, wet. (fill) WOOD piling, heavy odor, some Silt and fine Sand. (fill) Brown to black fine SAND, some coarse Gravel and Silt, wet. (fill)	
15							0.2				Brown to black fine SAND and SILT, little coarse Sand and Gravel, wet. (fill) Red BRICK fragments, some fine to coarse Sand and Silt, wet. (fill)	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 5'-7' bgs, 8.5'-9.5' bgs, 9'-10' bgs, 14'-15' bgs, 22'-23' bgs and 34'-35' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/13/06 - 7/27/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Hollow-Stem Auger/Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689897.632
Easting: 637912.51
Casing Elevation: NA

Borehole Depth: 35' bgs
Surface Elevation: 7.38' MVD

Descriptions By: D.M. Mack

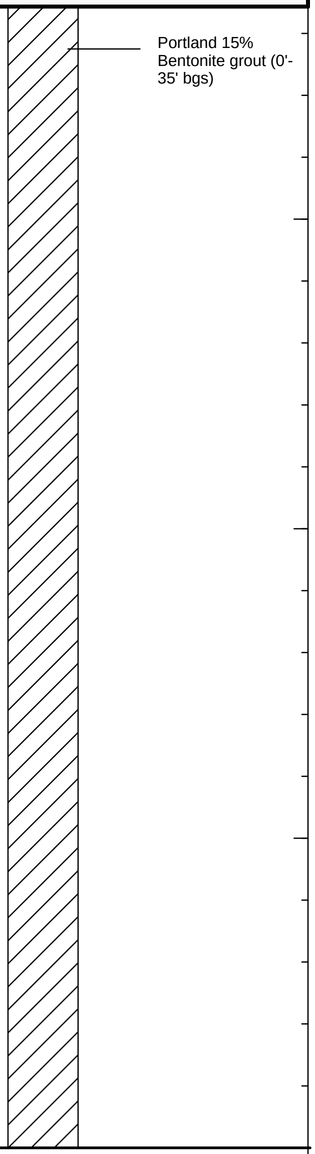
Boring ID: **SB-113**

Client: Consolidated Edison Company of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
							0.2				
	-10	6	15'-20'	5.0'			0.2 0.2				Fine to coarse SAND, some Silt, little coarse Gravel, wet.
20	-15	7	20'-25'	5.0'			ND	☒			Brown to gray SILT, some fine Sand, wet. Brown to tan tint in soil, possible sheen, not highly visible.
25							0.1				Brown to gray SILT and fine SAND, moist.
	-20	8	25'-30'	5.0'			ND				Gray fine SAND, some Silt, wet.
							ND				Brown to red SILT, some Clay, trace fine Sand, moist.
30	-25	9	30'-35'	5.0'			ND	☒			Red SILT and CLAY, trace fine Sand, moist.
35											End of boring at 35' bgs

Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 5'-7' bgs, 8.5'-9.5' bgs, 9'-10' bgs, 14'-15' bgs, 22'-23' bgs and 34'-35' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:SB-113

Template:C:\Documents and Settings\lbrown\Destop\Logs Mike Ferri\boring_wellWL2003.ldf
Date: 9/29/06

Date Start/Finish: 7/25/06 - 7/31/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689729.477
Easting: 637819.674
Casing Elevation: 7.53' MVD

Borehole Depth: 35' bgs
Surface Elevation: 7.78' MVD

Descriptions By: D.M. Mack

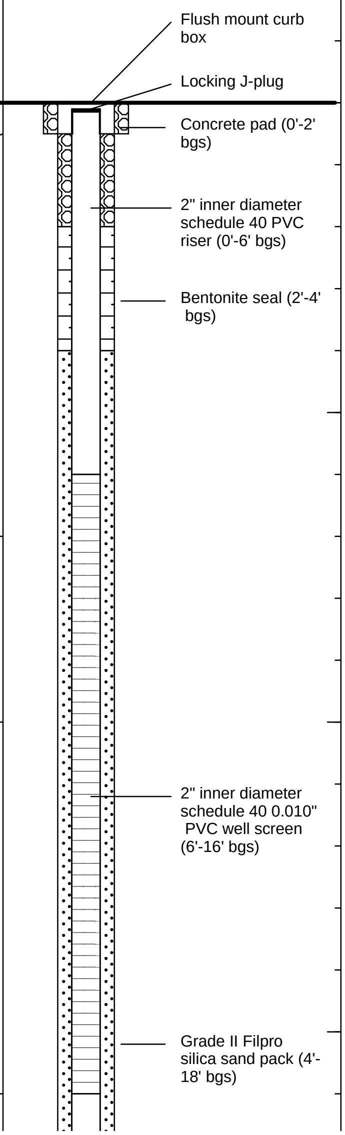
Well/Boring ID: **MW(SB)-115A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	10								
0									CONCRETE Construction debris, moist. (fill)
	5	1	0'-5'	0.6'	ND				
5							▽		
	0	2	5'-10'	2.5'	ND	☒			Brown COBBLES, some fine to medium Sand, little Silt and construction debris, wet. (fill)
10									Red BRICK and BRICK fragments, little Sand and Silt, wet. (fill)
	-5	3	10'-15'	1.5'	ND				
15					ND 0.1				Black fine to coarse SAND and SILT, little fine Gravel, wet.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 19'-20' bgs, 23'-24' bgs and 33'-34' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:MW-115A

Template:SONIC2006-EL-NA_well.ldf
Date: 7/28/06

Date Start/Finish: 7/25/06 - 7/31/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689729.477
Easting: 637819.674
Casing Elevation: 7.53' MVD

Borehole Depth: 35' bgs
Surface Elevation: 7.78' MVD

Descriptions By: D.M. Mack

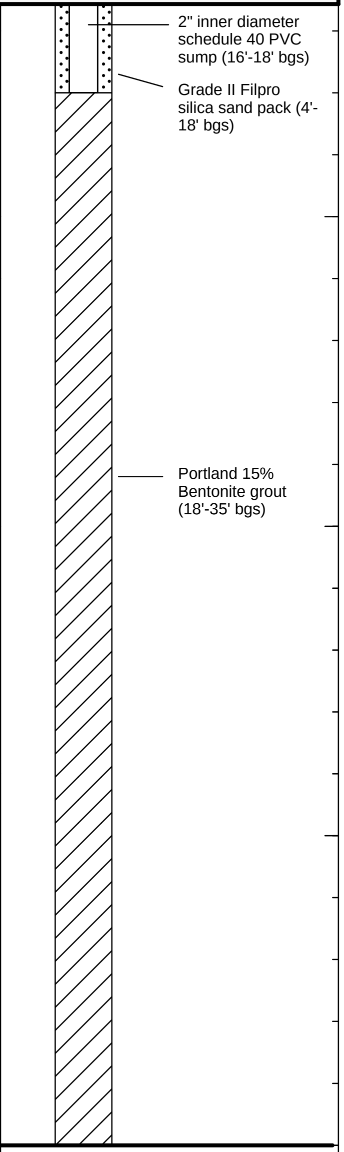
Well/Boring ID: **MW(SB)-115A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-10	4	15'-20'	3.5'	8.8	☒			Red to brown fine to medium SAND, some Silt, little coarse Gravel, moist.
20	-15	5	20'-25'	5.0'	ND ND	☒			Gray to brown fine SAND, little Silt, wet. Gray to brown fine SAND and SILT, some medium Sand, trace Clay, wet.
25	-20	6	25'-30'	5.0'	ND - 0.6 ND				Gray to brown fine SAND, some medium Sand, little Silt, wet. Gray to brown SILT and CLAY, trace fine Sand, wet.
30	-25	7	30'-35'	4.0'	ND	☒			End of boring at 35' bgs
35									

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 19'-20' bgs, 23'-24' bgs and 33'-34' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 5/17/06 - 6/23/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Hollow-Stem Auger/Spider Mini Sonic
Sampling Method: 4" Steel Casing

Northing: 689694.083
Easting: 637971.216
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 7.06' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-116**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10											
0	5	1	0'-5'	NA	NA	NA	ND		▼		CONCRETE. CONCRETE, Brick, trace to little fine to medium Sand, very dense, compact. (fill)	
5		2	5'-7'	1.3'	11 14 22 42	36	0.1	×			Gray brown fine to medium SAND, trace coarse Sand, trace Silt, slight sheen, wet. (fill) Orange brown fine to coarse SAND and fine to medium GRAVEL, trace Silt, trace sheen, loose, wet. (fill) Gray brown fine to medium SAND, little coarse SAND, trace fine to medium Gravel, trace red Brick, trace sheen, loose, wet. (fill)	
	0	3	7'-9'	0.7'	38 50/0.2' NA NA	NA	1.7				Gray brown fine to coarse SAND, little fine to medium Gravel, trace Silt, trace pulverized Brick, slight sheen, wet. (fill) Hollow-Stem auger used until refusal at 9' bgs. Sonic drilling was used to continue the drilling to 39' bgs.	
10	-5	4	9'-14'	5.0'			8.0				WOOD (oriented vertically), MGP odor, slight sheen, wet. (fill) Black staining at 10'-14' bgs.	Portland 15% Bentonite grout (0'-39' bgs)
15							95.9	×			Black FILL material consisting of Brick, Wood, Coal, some fine to coarse Gravel, little fine to medium Sand, trace coarse Sand, MGP odor, trace tar-like material throughout, loose, wet. (fill)	

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 5'-7' bgs, 14'-16' bgs, 20'-20.5' bgs and 38'-39' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/17/06 - 6/23/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Hollow-Stem Auger/Spider Mini Sonic
Sampling Method: 4" Steel Casing

Northing: 689694.083
Easting: 637971.216
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 7.06' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-116**

Client: Consolidated Edison Company of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		5	14'-19'	5.0'								
	-10						54.4					
											Dark gray/black fine SAND, little Silt, trace fine to coarse Gravel, odor, trace MGP tar-like material, loose, wet.	
							16.3					
20								☒			Dark gray brown SILTY CLAY, trace Shells, medium/high plasticity, moist.	
							8.2					
	-15											
							3.0					
		6	19'-29'	10.0'								
25							2.5				Dark gray brown silty fine SAND, trace Shells, no odors or sheen, moderately loose, wet. Trace fine to medium Gravel 25'-27' bgs.	Portland 15% Bentonite grout (0'-39' bgs)
	-20						1.7					
							0.5				Dark gray brown fine SAND, trace Silt, moderately loose, wet.	
30												
							0.3					
	-25											
							0.3				Red brown SILT, moderately dense, wet.	
		7	29'-39'	10.0'								
35							0.3					

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 5'-7' bgs, 14'-16' bgs, 20'-20.5' bgs and 38'-39' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/17/06 - 6/23/06
Drilling Company: Boart Longyear
Driller's Name: Joe Tidwell/Greg Hampton
Drilling Method: Rotary Sonic
Bit Size:
Auger Size: 4" inner diameter
Rig Type: Hollow-Stem Auger/Spider Mini Sonic
Sampling Method: 4" Steel Casing

Northing: 689694.083
Easting: 637971.216
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 7.06' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-116**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30						0.2					
							0.1	☒				Portland 15% Bentonite grout (0'-39' bgs)
											End of boring at 39' bgs	
40												
	-35											
45												
	-40											
50												
	-45											
55												

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Soil samples taken from 5'-7' bgs, 14'-16' bgs, 20'-20.5' bgs and 38'-39' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/19/06 - 7/7/06
Drilling Company: Universal
Driller's Name: Brian and Sal
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck, 140 lb Hammer, 30" Fall
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689610.766
Easting: 638081.268
Casing Elevation: NA

Borehole Depth: 36' bgs
Surface Elevation: 6.97' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-117**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table
0			0'-6'	NA	NA	NA	NA		
5	5 0	1	6'-8'	1.4'	23 14 13 14	27	6.8	☒	▽
		2	8'-10'	0.8'	6 2 2 2	4	25.5		
10		3	10'-12'	0.1'	2 2 1 1	3	10.1		
	-5	4	12'-14'	1.0'	2 3 2 1	5	25.7		
15		5	14'-16'	0.1'	2 1/12" NA 2	1	24.7		
	-10	6	16'-18'	1.0'	3 2 6 4	8	66.1	☒	

Stratigraphic Description

BRICK PAVERS

Light brown fine SAND. (fill)

Dark brown fine to medium SAND, tace Coal, trace Asphalt, trace red Brick, trace Concrete, trace Wood. (fill)

Gray brown silty fine to medium SAND, little coarse Sand, trace fine to medium Gravel, wet. (fill)

Red BRICK. (fill)

Dark gray/black stained silty fine to medium SAND, trace coarse Sand, trace Coal, Brick, trace tar-like matrerial, MGP odor, wet.

Dark gray/black silty fine to medium SAND, little coarse Sand, trace fine to medium Gravel, trace Coal and Brick, trace tar-like material, MGP odor, wet. (fill)

Dark gray fine to medium SAND, trace Silt, tar-like material in spoon, MGP odor, wet. (fill)

Dark gray silty fine SAND, MGP odor, dark red-brown tar-like material throughout, wet. (fill)

Dark gray/black fine SAND, tar-like material throughout, MGP odor, wet. (fill)

Dark gray/black WOOD, little fine Sand, saturated with tar-like material, MGP odor, wet. (fill)

Boring Construction

Portland 15% Bentonite grout (0'-36' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer.

Soil samples taken from 6'-8' bgs, 16'-18' bgs, 25.5'-26' bgs, and 34'-36' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/19/06 - 7/7/06
Drilling Company: Universal
Driller's Name: Brian and Sal
Drilling Method: Hollow-Stem Auger
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck, 140 lb Hammer, 30" Fall
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689610.766
Easting: 638081.268
Casing Elevation: NA

Borehole Depth: 36' bgs
Surface Elevation: 6.97' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-117**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		7	18'-20'	2.0'	1/18" NA NA 1	NA	13.1				Dark gray/black stained organic clayey SILT, no tar-like material in sample (outside only), MGP odor, moist.	
20		8	20'-22'	2.0'	WOH/12" NA 2 1	2	5.4				Dark gray organic silty CLAY, trace shells, soft, moderate plasticity, slight odor, moist.	
	-15	9	22'-24'	2.0'	WOH/24" NA NA NA	NA	16.1					
25		10	24'-26'	2.0'	4 5 4 7	9	9.1	☒			Dark gray fine to medium SAND, trace coarse Sand, trace Silt, loose, wet.	Portland 15% Bentonite grout (0'-36' bgs)
	-20	11	26'-28'	1.0'	2 3 3 3	6	3.8				Similar soils as above (slight odor).	
		12	28'-30'	NR	1 1 2 3	3	NA				No recovery.	
30		13	30'-32'	0.8'	5 2 3 5	5	1.2				Dark gray brown fine SAND, trace medium Sand, trace Silt, loose, wet.	
	-25	14	32'-34'	1.7'	4 3 12 20	15	3.2				Same as above, trace coarse Sand from 33.4' to 33.7' bgs, moderately dense.	
35		15	34'-36'	1.1'	7 10 12 14	22	0.8	X			Red-brown fine to medium SAND, trace coarse Sand, trace Silt, dense, wet. No recovery, Running sand refusal at 36' bgs.	
	-30										End of boring at 36' bgs	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer.

Soil samples taken from 6'-8' bgs, 16'-18' bgs, 25.5'-26' bgs, and 34'-36' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/10/06 - 6/27/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos and Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689566.627
Easting: 638213.691
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 5.87' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-118**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
0											CONCRETE.	
	5	1	0'-5'	NA	NA	NA	ND				Dark brown fine to medium SAND and red Brick, very dense and compact. (fill)	
5	0	2	5'-7'	0.5'	8 4 3 2	7	ND				Dark brown silty fine to medium SAND, trace red Brick, moist. (fill)	Portland 15% Bentonite grout (0'-45' bgs)
		3	7'-9'	1.7'	8 10 7 8	17	ND		▽		Dark brown silty fine to medium SAND, trace coarse Sand, little Brick, trace fine to medium Gravel, moist/wet. (fill)	
10	-5	4	9'-11'	0.6'	5 10 6 2	16	2.1	☒			Pulverized red BRICK, little fine to medium Sand, trace Silt, MGP odor, slight sheen, wet. (fill)	
		5	11'-13'	1.5'	8 6 4 7	10	2.8				Dark brown silty fine to medium SAND, little pulverized red Brick, trace coarse Sand, slight sheen, slight MGP odor, wet. (fill)	
		6	13'-15'	0.5'	WOR 4 5 2	9	2.0					
15	-10	7	15'-17'	1.5'	WOR/18" NA NA	NA	49.6				Dark gray brown silty fine SAND, trace medium to coarse Sand, trace red Brick, red-brown tar-like material throughout sample, MGP odor, wet. (fill)	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOR = weight of rod.

Soil samples taken from 9'-11' bgs, 19'-21' bgs, 23'-23.5' bgs and 43'-45' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/10/06 - 6/27/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos and Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689566.627
Easting: 638213.691
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 5.87' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-118**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
					3							
		8	17'-19'	0.6'	5 2 1 1	3	17.8				Gray brown silty fine SAND, trace fine to medium Gravel, trace red-brown tar-like material, MGP odor, wet. (fill)	
20	-15	9	19'-21'	1.4'	3 2 2 2	4	71.9	☒			Gray brown silty fine SAND, trace medium to coarse Sand, trace fine to medium Gravel, red-brown tar-like material throughout, MGP odor, wet. (fill)	
		10	21'-23'	2.0'	WOR/18" NA NA 4	NA	1.3				Dark gray/black organic clayey SILT, moderate plasticity, visually clean, MGP odor, tar-like material/sheen on outside of sample, moist. (fill)	Portland 15% Bentonite grout (0'-45' bgs)
		11	23'-25'	1.5'	WOR 2 1 1	3	0.5	☒			Same as above, trace shells/wood. (fill)	
25	-20	12	25'-27'	1.6'	1 1 1 7	2	3.3				Dark gray fine SAND, trace Silt, trace shells, MGP odor, wet.	
		13	27'-29'	0.5'	1 3 3 3	6	1.7				Dark gray fine SAND, trace Silt, loose, trace sheen, slight MGP odor, wet.	
30	-25	14	29'-31'	1.0'	3 5 10 11	15	1.9				Dark gray brown fine SAND, trace Silt, trace medium to coarse Sand seams at 29.4' to 29.5' bgs and 29.8' to 29.9' bgs, MGP odor, sheen on side of sample, wet.	
		15	31'-33'	1.4'	5 9 10 11	19	1.5				Dark gray brown fine to medium SAND, trace coarse Sand, trace Silt, loose, slight MGP odor, wet.	
		16	33'-35'	1.0'	17 17 19 23	36	2.3				Same as above, trace fine Gravel.	
35					2 13						Dark gray brown fine to medium SAND, trace coarse Sand, trace Silt, moderately dense, MGP odor, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOR = weight of rod.

Soil samples taken from 9'-11' bgs, 19'-21' bgs, 23'-23.5' bgs and 43'-45' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/10/06 - 6/27/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos and Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689566.627
Easting: 638213.691
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 5.87' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-118**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	17	35'-37'	1.2'	14 16	27	3.1					
		18	37'-39'	1.7'	4 11 11 20	22	4.4				Dark gray brown fine to medium SAND, trace coarse Sand, trace fine to medium Gravel, moderately dense, wet, slight odor. Red brown and gray brown SILT and CLAY, moderately stiff, moist.	Portland 15% Bentonite grout (0'-45' bgs)
40	-35	19	39'-41'	0.8'	4 15 16 13	31	ND				Red brown SILT, trace gray Clay laminations, moderately stiff/dense, wet.	
		20	41'-43'	1.1'	3 9 25 23	34	ND				Red brown SILT, trace gray Clay, moderately stiff/dense, wet.	
		21	43'-45'	0.6'	7 27 20 53	47	ND	☒			Red brown fine SAND and SILT, stiff/dense, wet.	
45	-40										End of boring at 45' bgs	
50	-45											
55												

Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOR = weight of rod.

Soil samples taken from 9'-11' bgs, 19'-21' bgs, 23'-23.5' bgs and 43'-45' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:SB-118

Template:HSA_boring.ldf
Date: 08/03/06

Date Start/Finish: 5/17/06 - 6/14/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, and Billy Swinick
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689627.453
Easting: 637970.957
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 7.24' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-119**

Client: Consolidated Edison Company of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
0	7.24		0'-5'	NA	NA	NA	ND				CONCRETE. Red BRICK, little fine to medium Sand, trace Metal, trace Cobble, very dense, compact. (fill)	Portland 15% Bentonite grout (0'-39' bgs)
5		1	5'-7'	0.7'	19 5 1 2	6	6.2		▽		Dark brown fine to medium SAND, trace coarse Sand, trace fine to medium Gravel, trace Brick/Concrete/Fabric, moist to wet. (fill) Dark brown fine to medium SAND, little coarse Sand, little Silt, sheen, wet, odor. (fill)	
		2	7'-9'	2.0'	9 3 4 4	7	101	☒			Dark brown fine SAND and SILT, trace medium to coarse Sand, trace organics (vegetation), tar-like material throughout interval (dark red brown, strong odor), wet. Dark gray fabric, tar-like material throughout. (fill)	
10		3	9'-11'	1.1'	9 14 36 17	50	157				Dark stained gray brown fine SAND, little Silt, trace medium to coarse Sand, trace Wood/Brick, trace red brown tar-like material throughout, odor, wet. (fill)	
	-5	4	11'-13'	0.5'	4 4 2 6	6	241	☒			Dark gray/black stained fine SAND, trace Silt, strong odor, sheen, wet.	
		5	13'-15'	0.8'	3 2 3 2	5	117				Similar soils as above, trace wood, wet.	
15		6	15'-17'	0.6'	WOH/12" NA 1	1	65.2				Dark gray black stained fine to medium SAND, trace coarse Sand, little Silt, trace Wood/Brick, strong odor, sheen, wet. (fill/native)	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; WOH = weight of hammer; ppm = parts per million.

Soil samples taken from 7'-9' bgs, 11'-13' bgs, 17'-19' bgs and 37'-39' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.004
Data File:SB-119.dat

Template:HSA_boring.ldf
Date: 7/16/06

Date Start/Finish: 5/17/06 - 6/14/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, and Billy Swinick
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689627.453
Easting: 637970.957
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 7.24' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-119**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Stratigraphic Description	Boring Construction
					2						
	-10	7	17'-19'	0.4'	3 2 2 3	4	12.2	X		Light gray brown fine SAND, little Silt, saturated, slight staining, odor.	
20		8	19'-21'	2.0'	1 1 1 1	2	14.0			Dark gray brown fine to medium SAND, little Silt, wet, odor. Dark gray stained clayey SILT, trace Organics (vegetation), trace fine Sand, moist. Gray brown fine SAND, little Silt, wet.	Portland 15% Bentonite grout (0'-39' bgs)
	-15	9	21'-23'	2.0'	3 3 3 4	6	22.1			Dark gray/black stained clayey SILT, trace fine Sand, odor, sheen, moist/wet. (sheen from water column)	
		10	23'-25'	2.0'	2 5 5 2	10	18.9			Dark gray/black clayey SILT, trace Organics (vegetation), slight odor, moist. (sheen on outside of sample from water column) Gray brown fine SAND, trace Silt, wet.	
25		11	25'-27'	0.8'	2 2 3 2	5	9.7			Similar soils as above; appears visually clean, black stained on outside edge from smearing, slight odor.	
	-20	12	27'-29'	0.6'	4 3 3 7	6	5.2			Gray brown fine SAND, trace Silt, wet, slight odor.	
30		13	29'-31'	0.8'	3 6 9 7	15	7.7			Gray brown fine SAND, trace Silt, wet, slight odor.	
	-25	14	31'-33'	1.2'	WOH/18" NA NA 4	NA	5.4			Gray brown fine to medium SAND, trace Silt, loose, wet, slight odor.	
		15	33'-35'	2.0'	6 6 8 13	14	9.3			Red brown SILT, dense/stiff, moist/wet.	
35					6 7						

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; WOH = weight of hammer;
ppm = parts per million.

Soil samples taken from 7'-9' bgs, 11'-13' bgs, 17'-19' bgs and 37'-39' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/17/06 - 6/14/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, and Billy Swinick
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689627.453
Easting: 637970.957
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 7.24' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-119**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		16	35'-37'	0.8'	9 8	16	ND					Portland 15% Bentonite grout (0'-39' bgs)
	-30	17	37'-39'	0.7'	7 16 20 23	36	ND	☒				
											End of boring at 39' bgs	
40												
	-35											
45												
	-40											
50												
	-45											
55												

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; WOH = weight of hammer; ppm = parts per million.

Soil samples taken from 7'-9' bgs, 11'-13' bgs, 17'-19' bgs and 37'-39' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.004
Data File:SB-119.dat

Template:HSA_boring.ldf
Date: 7/16/06

Date Start/Finish: 6/5/06 - 6/20/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos and Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689654.468
Easting: 637773.78
Casing Elevation: NA

Borehole Depth: 35' bgs
Surface Elevation: 7.36' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-120**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Stratigraphic Description
1	0'-5'	NA	NA	NA	ND		Dark brown silty fine to medium SAND, trace coarse Sand, trace fine to coarse Gravel, trace Cobbles, trace red Brick, moist.
2	5'-7'	1.4'	3 2 1 3	3	ND	☒	Olive brown silty fine to medium SAND, trace coarse Sand, trace fine to medium Gravel, trace Ceramic/Brick, wet, very loose. (fill)
3	7'-9'	0.2'	4 1 1 7	2	ND		Red BRICK, trace fine Sand, trace Silt, wet. (fill)
4	9'-11'	0.8'	3 2 2 3	4	0.1		Dark gray brown fine SAND and SILT, trace medium to coarse Sand, trace fine to medium Gravel, moist/wet. (fill)
5	11'-13'	1.2'	6 8 7 8	15	0.3	☒	Gray brown fine SAND, little Silt, little pulverized Brick, trace fine Gravel, loose, wet, slight MGP odor. (fill)
6	13'-15'	0.2'	8 9 6 7	15	ND		Pulverized red BRICK, trace fine Sand, trace Silt, wet, loose. (fill)
7	15'-17'	0.7'	WOR/12" NA 13 9	13	0.1		Gray brown silty fine SAND, trace medium to coarse Sand, trace fine to medium Gravel, little red Brick, wet, loose. (fill)
			5 7			☒	Gray brown fine SAND, trace Silt, moderately dense, wet.

Boring Construction: Portland 15% Bentonite grout (0'-35' bgs)

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOR = weight of rod.

Soil samples taken from 5'-7' bgs, 11'-13' bgs, 17'-17.5' bgs and 33'-35' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 6/5/06 - 6/20/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos and Sal
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689654.468
Easting: 637773.78
Casing Elevation: NA

Borehole Depth: 35' bgs
Surface Elevation: 7.36' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-120**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		8	17'-19'	1.3'	8 11	15	ND					
20		9	19'-21'	1.1'	4 3 5 6	8	ND				Same as above, moderately loose.	
	-15	10	21'-23'	1.4'	2 3 4 4	7	ND					
		11	23'-25'	1.4'	WOR 3 4 4	7	ND					
25		12	25'-27'	1.6'	1 3 5 7	8	ND					Portland 15% Bentonite grout (0'-35' bgs)
	-20	13	27'-29'	1.6'	9 10 17 13	27	ND				Gray brown very fine SAND and SILT, dense, wet. Gray brown fine SAND, trace Silt, wet.	
30		14	29'-31'	2.0'	7 10 11 12	21	ND				Red brown SILT, stiff/dense, wet.	
	-25	15	31'-33'	1.2'	3 7 9 15	16	ND				Red brown SILT, trace gray Clay laminations, stiff/dense, wet.	
		16	33'-35'	1.4'	10 13 20 15	33	ND	X				
35	-30										End of boring at 35' bgs	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOR = weight of rod.

Soil samples taken from 5'-7' bgs, 11'-13' bgs, 17'-17.5' bgs and 33'-35' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:SB-120

Template:HSA_boring.ldf
Date: 09/01/06

Date Start/Finish: 7/25/06 - 7/26/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689453.013
Easting: 637948.994
Casing Elevation: 6.76' MVD

Borehole Depth: 18' bgs
Surface Elevation: 6.99' MVD

Descriptions By: D.M. Mack

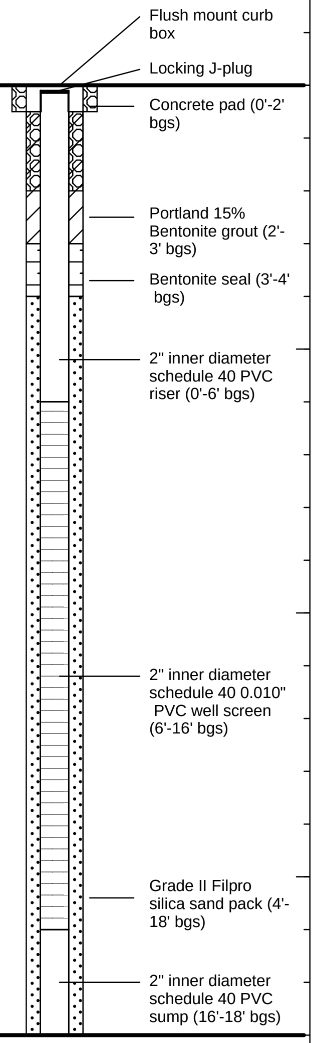
Well/Boring ID: **MW(SB)-121A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0					ND				Brown to black SILT and fine SAND, trace fine Gravel, moist. (fill)
	5	1	0'-5'	2.5'	ND				Brown to black SILT and fine SAND, some coarse Sand, little fine Gravel, moist. (fill)
5	0	2	5'-10'	1.0'	ND		▼		Brown fine to medium SAND and SILT, little fine Gravel, trace Cobbles and Brick fragments, wet. (fill)
10					16.2				Light brown SILT and fine to coarse SAND, some fine to coarse Gravel, slight odor.
	-5	3	10'-15'	4.0'	0.6				Brown to gray SILT, some fine to coarse Sand, trace fine Gravel, wet.
15	-10	4	15'-18'	3.0'	0.5				Similar soils as above, some black staining at approximately 17.5' bgs.
20									End of boring at 18' bgs

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected from SB-121B at 9'-10' bgs, 11'-12' bgs, 29'-30' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/25/06 - 7/26/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diamter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689453.928
Easting: 637953.765
Casing Elevation: 6.65' MVD

Borehole Depth: 40' bgs
Surface Elevation: 7.03' MVD

Descriptions By: D.M. Mack

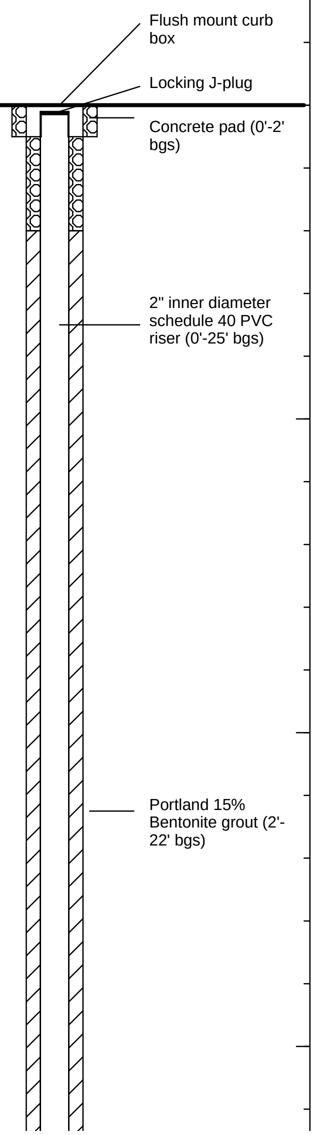
Well/Boring ID: **MW(SB)-121B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Stratigraphic Description
	10							
0					ND			Brown to black SILT and fine SAND, trace fine Gravel, moist. (fill)
					ND			Brown to black SILT and fine SAND, some coarse Sand, little fine Gravel, moist. (fill)
	5	1	0'-5'	2.5'				
5								
					ND		▼	Brown fine to medium SAND and SILT, little fine Gravel, trace Cobbles and Brick fragments, wet. (fill)
	0							
		2	5'-10'	1.0'				
						☒		
10								Light brown SILT and fine to coarse SAND, some fine to coarse Gravel, slight odor.
					16.2	☒		
	-5							Brown to gray SILT, some fine to coarse Sand, trace fine Gravel, wet.
		3	10'-15'	4.0'				
					0.6			
15								Similar soils as above, some black staining at approximately 17.5' bgs.

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 11'-12' bgs, 29'-30' bgs and 39'-40' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Project: 43013.005
Data File:MW-121B

Template:SONIC2006-EL-NA_well.ldf
Date: 8/25/06

Date Start/Finish: 7/25/06 - 7/26/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diamter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689453.928
Easting: 637953.765
Casing Elevation: 6.65' MVD

Borehole Depth: 40' bgs
Surface Elevation: 7.03' MVD

Descriptions By: D.M. Mack

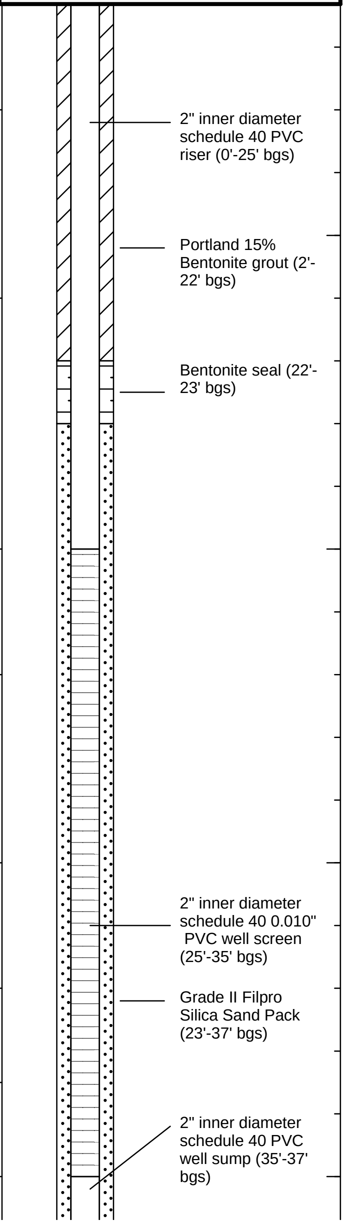
Well/Boring ID: **MW(SB)-121B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
					0.5				
	-10								
		4	15'-20'	4.0'					
									Gray ASH, some fine to medium Sand, little Silt, wet.
					0.8				
20									
					0.6				
									Black SILT and CLAY, trace Shells and Shell fragments. Wood timbers at approximately 22' bgs.
	-15								
		5	20'-25'	3.5'	1.8				
25									Black SILT and CLAY, little fine Sand, moist.
					ND				
	-20								Gray fine SAND, some Silt and medium Sand, trace Clay, wet. Some interbedded Silts in 27' bgs to 28' bgs range.
		6	25'-30'	5.0'					
						☒			
30									Brown gray fine to medium SAND, little Silt, wet.
					ND				
	-25								Similar soils as above, some SILT, wet.
		7	30'-35'	4.0'	ND				
									Brown to gray SILT and CLAY, trace fine Sand
					ND				
35									Brown to gray CLAY and SILT, little fine Sand, wet.

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 11'-12' bgs, 29'-30' bgs and 39'-40' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/25/06 - 7/26/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diamter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689453.928
Easting: 637953.765
Casing Elevation: 6.65' MVD

Borehole Depth: 40' bgs
Surface Elevation: 7.03' MVD

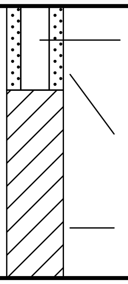
Descriptions By: D.M. Mack

Well/Boring ID: **MW(SB)-121B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-30									
		8	35'-40'	4.0'	ND	☒				
40									End of boring at 40' bgs	
	-35									
45										
	-40									
50										
	-45									
55										



Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 11'-12' bgs, 29'-30' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 7/13/06 - 7/13/06
Drilling Company: Boart Longyear
Driller's Name: Victor, Sal, Brian
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689548.125
Easting: 637736.773
Casing Elevation: 6.37' MVD

Borehole Depth: 17' bgs
Surface Elevation: 6.61' MVD

Descriptions By: Jeremy Cuccuini

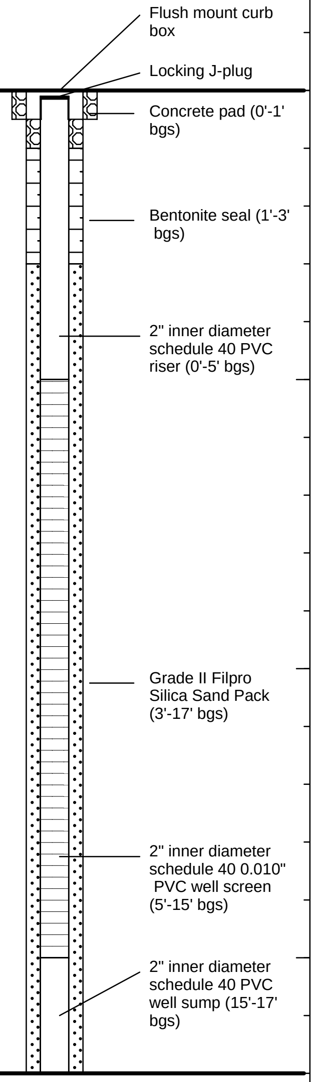
Well/Boring ID: **MW-122A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0		1	0'-5'	1.5'	ND				Light brown fine SAND and SILT, moist. (fill)
	5								Tan fine SAND and BRICK, moist (fill).
5	0	2	5'-10'	1.0'	10.2		▽		Black fine SAND and COBBLES, little silt, wet. (fill)
10		3	10'-15'	5.0'					Brown fine to coarse SAND and SILT, some coarse Gravel and construction debris, wet. (fill)
	-5								Black fine SAND and TIMBERS, wet, slight odor. (fill)
									Brown fine SAND, some Silt, wet.
15	-10	4	15'-17'	2.0'	0.1 - 0.2				Brown fine SAND, little medium Sand and Silt, wet.
									End of boring at 17' bgs

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
ppm = parts per million; PVC = polyvinyl chloride.

Samples collected from SB-122B at 9'-10' bgs, 13'-14' bgs, 20'-20.5' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/27/06 - 7/27/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689552.913
Easting: 637741.256
Casing Elevation: 6.39' MVD

Borehole Depth: 40' bgs
Surface Elevation: 6.58' MVD

Descriptions By: D.M. Mack

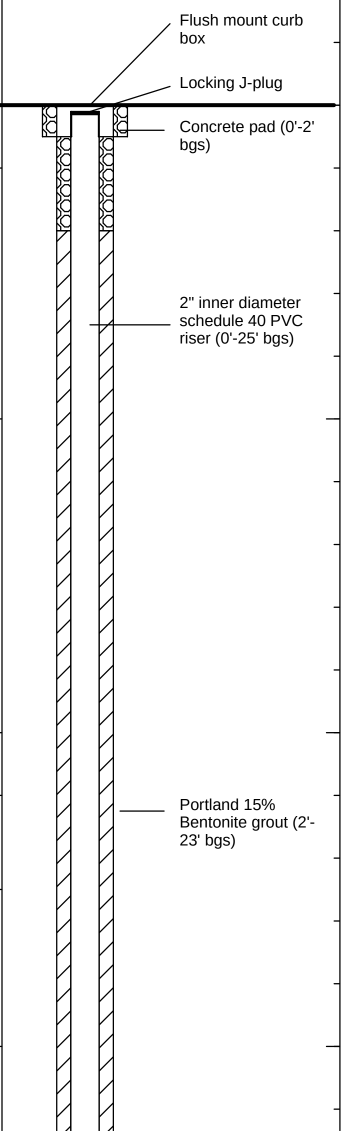
Well/Boring ID: **MW(SB)-122B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0					ND				Light brown fine SAND and SILT, moist. (fill)
	5				ND				Tan fine SAND and BRICK, moist (fill).
		1	0'-5'	1.5'					
5					10.2		▼		Black fine SAND and COBBLES, little silt, wet. (fill)
	0	2	5'-10'	1.0'					
						☒			
10					1.0				Brown fine to coarse SAND and SILT, some coarse Gravel and construction debris, wet. (fill)
	-5				14.2				Black fine SAND and TIMBERS, wet, slight odor. (fill)
		3	10'-15'	5.0'	0.2				Brown fine SAND, some Silt, wet.
						☒			
15									Brown fine SAND, little medium Sand and Silt, wet.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 13'-14' bgs, 20'-20.5' bgs and 39'-40' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/27/06 - 7/27/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689552.913
Easting: 637741.256
Casing Elevation: 6.39' MVD

Borehole Depth: 40' bgs
Surface Elevation: 6.58' MVD

Descriptions By: D.M. Mack

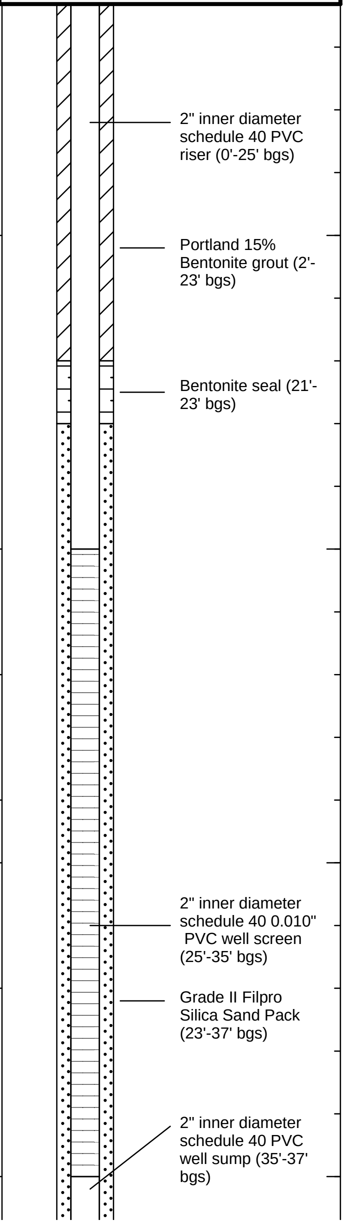
Well/Boring ID: **MW(SB)-122B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-10	4	15'-20'	5.0'	0.1 - 0.2				
20	-15	5	20'-25'	5.0'	0.1	☒			Brown to gray fine SAND, little Silt, wet.
25	-20	6	25'-30'	5.0'	0.1 0.1 ND				Brown SILT, some fine to medium Sand, wet. Brown to gray fine SAND, some Silt, wet. Brown to gray fine to coarse SAND, little Silt, wet.
30	-25	7	30'-35'	5.0'	NA				Similar soils as above, trace fine Gravel. Brown to Gray SILT and CLAY, trace fine Sand, wet.
35									Brown to gray SILT and CLAY, trace fine Sand, wet.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 13'-14' bgs, 20'-20.5' bgs and 39'-40' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 7/27/06 - 7/27/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689552.913
Easting: 637741.256
Casing Elevation: 6.39' MVD

Borehole Depth: 40' bgs
Surface Elevation: 6.58' MVD

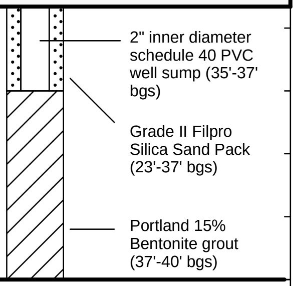
Descriptions By: D.M. Mack

Well/Boring ID: **MW(SB)-122B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-30									
		8	35'-40'	5.0'	ND	☒				
40									End of boring at 40' bgs	
	-35									
45										
	-40									
50										
	-45									
55										



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
ppm = parts per million; PVC = polyvinyl chloride.

Soil samples taken from 9'-10' bgs, 13'-14' bgs, 20'-20.5' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/9/06 - 6/9/06
Drilling Company: Universal Testing
Driller's Name: Brian Damos, Victor
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689507.612
Easting: 637858.806
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 6.08' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-123**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan. New York

Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Stratigraphic Description	Boring Construction
	0'-5'	NA	NA	NA	ND			ASPHALT Dark brown fine to medium SAND, little Silt, trace fine to coarse Gravel, trace asphalt. (fill) Orange brown fine to medium SAND, trace Silt, trace red brick, trace concrete, moist. (fill)	
1	5'-7'	2.0'	8 3 1 1	4	ND	X	▽	Gray brown fine SAND, trace medium to coarse Sand, trace fine to medium Gravel, trace Cinders, trace Brick, trace Coal, wet. (fill)	
2	7'-9'	2.0'	1 1 1 2	2	ND			Dark brown fine to medium SAND, trace coarse Sand, trace Silt, trace Cinders/Ash/Brick, wet. (fill) Black COAL, trace Cinders/Ash, wet. (fill)	
3	9'-11'	0.4'	1 1/18" NA NA	1	ND			Dark brown fine to medium SAND, trace coarse Sand, trace Silt, trace Brick/Cinders, very loose, wet. (fill)	Portland 15% Bentonite grout (0'-39' bgs)
4	11'-13'	0.4'	4 2 4 8	6	0.7			Black pulverized COAL, wet. (fill)	
5	13'-15'	0.9'	5 7 6 12	13	0.8	X		Black pulverized COAL, trace fine to coarse Sand, trace Silt, trace Brick/Porcelain, wet. (fill/native) Black stained SILTY CLAY, soft, slight odor.	
6	15'-17'	1.2'	1 1 1	2	0.2			Dark gray/black stained SILTY CLAY, trace natural Organics (Roots/Veg), moderately plastic, moderately soft, moist.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOH = weight of hammer; WOR = weight of rod.

Soil samples taken from 5'-7' bgs, 13'-15' bgs, 19.5'-20' bgs and 37'-39' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/9/06 - 6/9/06
Drilling Company: Universal Testing
Driller's Name: Brian Damos, Victor
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689507.612
Easting: 637858.806
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 6.08' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-123**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan. New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
					2							
		7	17'-19'	1.0'	1 1 1/12" NA	1	ND				Dark gray SILTY CLAY (much less staining).	
20		8	19'-21'	1.0'	1 WOH 1 3	1	0.2	X			Dark gray brown fine SAND, trace Silt, loose, wet. Dark gray brown micaceous fine SAND, trace Silt, loose, wet.	
	-15	9	21'-23'	1.2'	WOR WOR WOR WOR	NA	ND					
		10	23'-25'	2.0'	WOR WOR 3 2	3	ND					
25	-20	11	25'-27'	2.0'	3 3 3 2	6	ND				Gray brown fine SAND, trace Silt, loose, wet.	Portland 15% Bentonite grout (0'-39' bgs)
		12	27'-29'	2.0'	WOR 3 6 7	9	ND				Dark gray brown fine SAND, trace Silt, moderately loose, wet.	
30		13	29'-31'	2.0'	2 5 5 6	10	ND				Gray brown fine to medium SAND, trace coarse Sand, trace fine Gravel, moderately loose, wet.	
	-25	14	31'-33'	2.0'	6 8 14 20	22	ND				Dark gray brown fine SAND, trace Silt, moderately dense, wet.	
		15	33'-35'	0.7'	9 8 15 20	23	ND				Red brown SILT, dense/stiff, moist. Trace gray Clay at 35'-35.7' bgs.	
35					3 8							

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOH = weight of hammer; WOR = weight of rod.

Soil samples taken from 5'-7' bgs, 13'-15' bgs, 19.5'-20' bgs and 37'-39' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:SB-123

Template:HSA_boring.ldf
Date: 08/03/06

Date Start/Finish: 5/9/06 - 6/9/06
Drilling Company: Universal Testing
Driller's Name: Brian Damos, Victor
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689507.612
Easting: 637858.806
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 6.08' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-123**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan. New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	16	35'-37'	0.7'	9 13	17	ND					
		17	37'-39'	0.8'	4 9 14 19	23	ND	☒				Portland 15% Bentonite grout (0'-39' bgs)
											End of boring at 39' bgs	
40												
	-35											
45												
	-40											
50												
	-45											
55												

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million;
WOH = weight of hammer; WOR = weight of rod.

Soil samples taken from 5'-7' bgs, 13'-15' bgs, 19.5'-20' bgs and 37'-39' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:SB-123

Template:HSA_boring.ldf
Date: 08/03/06

Date Start/Finish: 5/31/06 - 6/2/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, Billy Swinick
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689400.95
Easting: 638010.354
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 6.00' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-124**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
0	5		0'-5'	NA	NA	NA	NA				ASPHALT Dark brown fine to medium SAND and red BRICK, trace Timber and Coal. (fill)	Portland 15% Bentonite grout (0'-39' bgs)
5	0	1	5'-7'	0.8'	3 2 1 WOH	3	0.8		▽		Dark brown fine SAND, trace Silt, trace Coal/Ash/Brick/Cinders. moist to wet. (fill)	
		2	7'-9'	0.6'	2 50/0.3' NA NA	NA	1.1	☒			Dark gray brown fine SAND, trace Silt, trace pulverized rock, trace Wood/Brick, wet. (fill) WOOD. (fill)	
10		3	9'-11'	1.7'	9 12 19 19	31	0.5				Dark brown fine SAND and SILT, trace medium to coarse Sand, trace fine Gravel, trace red Brick/Ash/Cinders, wet. (fill)	
	-5	4	11'-13'	0.4'	21 30 19 11	49	3.1				Dark brown fine SAND, little Silt, saturated Wood in tip of shoe prevented recovery. (fill)	
		5	13'-15'	NR	13 13 8 3	21	NA				No Recovery. WOOD. (fill)	
15	-10	6	15'-17'	0.9'	15 27 15	42	25.9	☒			Dark brown fine SAND and SILT, trace Coal/Brick, moist. (fill)	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer; NR = no recovery.

Soil samples taken from 7'-9' bgs, 15'-17' bgs, 27'-27.5' bgs, and 37'-39' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/31/06 - 6/2/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, Billy Swinick
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689400.95
Easting: 638010.354
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 6.00' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-124**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
					23							
		7	17'-19'	1.7'	31 31 25 25	56	22.9				Dark gray brown fine SAND, trace medium to coarse Sand, trace fine Gravel, trace Silt, trace red Brick, Coal, Wood, wet. (fill) WOOD. (fill)	
20		8	19'-21'	0.6'	46 33 9 6	42	20.6				Dark brown fine SAND and WOOD, trace Silt, trace Brick/Cinders, wet. (fill)	Portland 15% Bentonite grout (0'-39' bgs)
	-15	9	21'-23'	0.3'	75/0.4' NA NA NA	NA	NA				WOOD (refusal) (fill)	
		10	23'-25'	NA	NA	NA	NA				Drillers inadvertently drilled past interval	
25	-20	11	25'-27'	0.5'	80 16 13 12	29	33.4				WOOD. (fill)	
		12	27'-29'	0.5'	10 8 6 5	14	4.8	☒			Dark gray brown fine SAND, little Silt, trace natural organics (vegetation), moderately loose, wet.	
30		13	29'-31'	2.0'	10 8 8 13	16	4.1				Dark gray brown fine SAND, trace Silt, trace Wood, loose, wet.	
	-25	14	31'-33'	0.8'	13 15 17 18	32	ND				Similar soils as above. Brown SILT, moderately dense, wet.	
		15	33'-35'	0.3'	12 13 17 25	30	ND					
35					17 23							

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer; NR = no recovery.

Soil samples taken from 7'-9' bgs, 15'-17' bgs, 27'-27.5' bgs, and 37'-39' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/31/06 - 6/2/06
Drilling Company: Universal Testing
Driller's Name: Brian Ramos, Billy Swinick
Drilling Method: Hollow-Stem Auger (HSA)
Bit Size:
Auger Size: 3-1/4" inner diameter
Rig Type: CME 55 Truck-Mounted Rig
Sampling Method: 2" Splitspoons, 3" Splitspoons

Northing: 689400.95
Easting: 638010.354
Casing Elevation: NA

Borehole Depth: 39' bgs
Surface Elevation: 6.00' MVD

Descriptions By: Ronald Kuhn

Boring ID: **SB-124**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	16	35'-37'	0.8'	23 27	46	ND			▨		▨ Portland 15% Bentonite grout (0'-39' bgs)
		17	37'-39'	1.0'	15 23 48 50	71	ND	☒		▨	Red brown SILT, trace gray Silt interbedding (1-2 mm thickness), moderately dense, wet.	
											End of boring at 39' bgs	
40												
	-35											
45												
	-40											
50												
	-45											
55												

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; WOH = weight of hammer; NR = no recovery.

Soil samples taken from 7'-9' bgs, 15'-17' bgs, 27'-27.5' bgs, and 37'-39' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.004
Data File:SB-124

Template:HSA_boring.ldf
Date: 7/16/06

Date Start/Finish: 5/19/07 - 7/12/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diamter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689352.961
Easting: 638101.706
Casing Elevation: 5.49' MVD

Borehole Depth: 16' bgs
Surface Elevation: 5.64' MVD

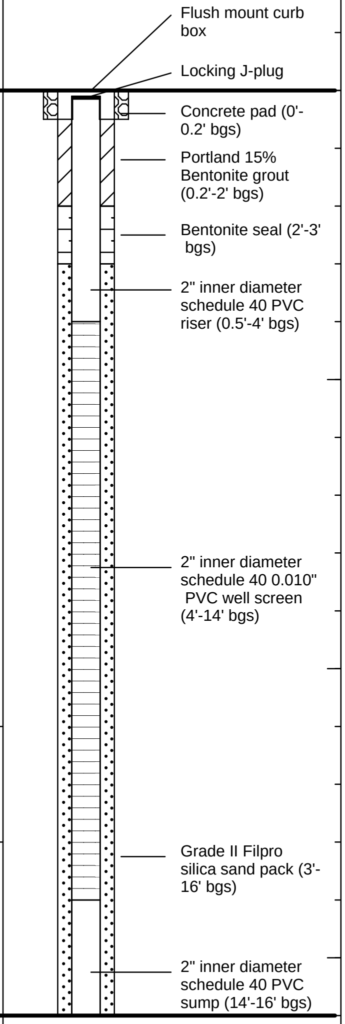
Descriptions By: D.M. Mack

Well/Boring ID: **MW(SB)-125A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	5		0'-5'	NA	ND				Dark brown fine to medium SAND, little Coal, Slag, Brick, Wood, trace fine to coarse Gravel, moist. (fill)	
5	0		5'-10'				▽			
10	-5	1	10'-15'	4.0'	0.3 0.6				Brown SILT and fine to medium SAND, some fine to coarse Gravel, wet. Brown to gray fine to coarse SAND and SILT, little Clay, wet.	
15	-10								End of boring at 16' bgs	



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl choride.

Samples collected from SB-125B at 6'-7' bgs, 17'-18' bgs, 30'-30.5' bgs and 42'-43' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: 43013.005
Data File:MW-125A
Template:SONIC2006-EL-NA_well.ldf
Date: 7/25/06

Date Start/Finish: 5/19/06 - 7/11/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689352.961
Easting: 638101.706
Casing Elevation: 5.48' MVD

Borehole Depth: 45' bgs
Surface Elevation: 5.62' MVD

Descriptions By: D.M. Mack

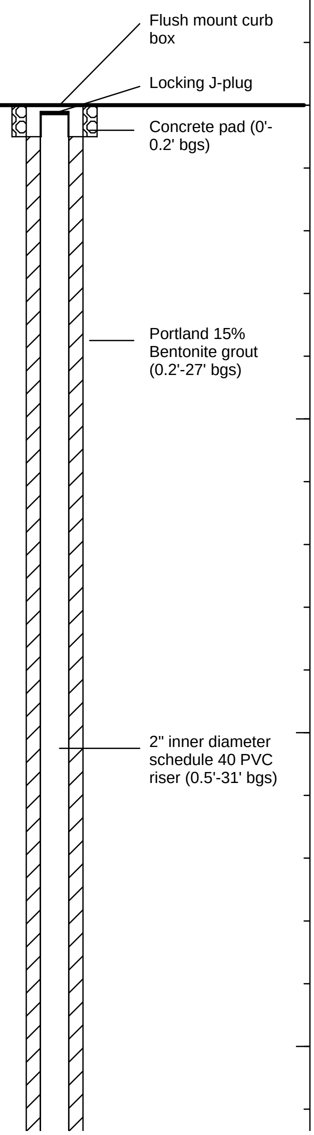
Well/Boring ID: **MW(SB)-125B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0	5		0'-5'	NA	ND				Dark brown fine to medium SAND, little Coal, Slag, Brick, Wood, trace fine to coarse Gravel and Cobbles, moist. (fill)
5	0				0.1	☒	▽		Brown to light brown fine to coarse SAND, little Silt and fine Gravel, moist. (fill)
		1	5'-10'	4.0'	0.5				Brown to black fine to coarse GRAVEL and SAND, some Silt, trace Brick fragments. (fill)
10	-5				0.8				Brown fine to medium SAND, some Silt, wet.
		2	10'-15'	0.5'	NA				No recovery.
15	-10				0.6				Brown to gray fine to medium SAND, some Silt and coarse Gravel.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl choride.

Soil samples taken from 6'-7' bgs, 17'-18' bgs, 30'-30.5' bgs and 42'-43' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 5/19/06 - 7/11/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689352.961
Easting: 638101.706
Casing Elevation: 5.48' MVD

Borehole Depth: 45' bgs
Surface Elevation: 5.62' MVD

Descriptions By: D.M. Mack

Well/Boring ID: **MW(SB)-125B**

Client: Consolidated Edison Company
of New York, Inc.

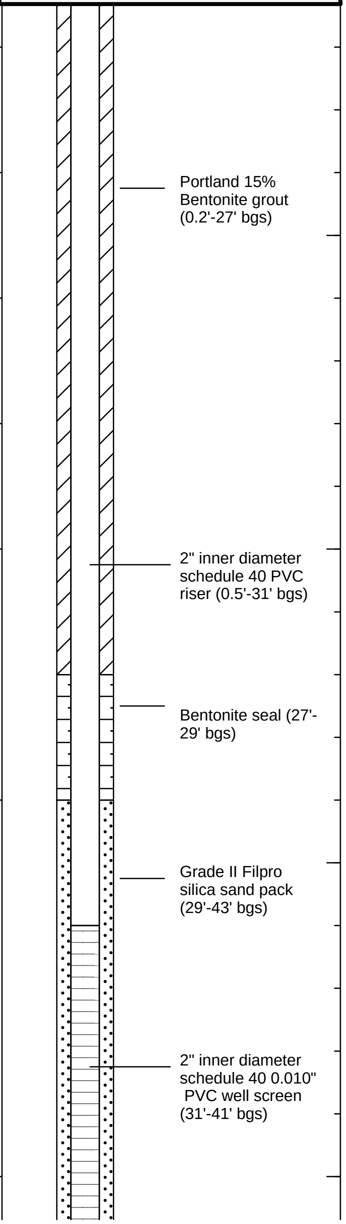
Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION
20	-15
25	-20
30	-25
35	-30

Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table
3	15'-20'	5.0'	1.0 0.7	☒	
4	20'-25'	4.0'	0.2 0.7 0.6		
5	25'-30'	5.0'	0.4 0.1		
6	30'-35'	2.0'	NA	☒	

Stratigraphic Description
Gray to black fine to coarse SAND and GRAVEL, some Silt, wet.
Brown fine to coarse SAND, some fine to coarse Gravel and Silt, wet.
Brown fine to coarse GRAVEL and SAND, some Silt, wet.
Brown to light brown fine to coarse SAND and GRAVEL, some Silt, wet.
Black organic SILT, trace fill, wet.
Fine to medium SAND, little Silt, wet.
Red-brown to gray fine to medium SAND, little Silt, wet.

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl choride.

Soil samples taken from 6'-7' bgs, 17'-18' bgs, 30'-30.5' bgs and 42'-43' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Project: 43013.005
Data File:MW-125B

Template:SONIC2006-EL-NA_well.ldf
Date: 7/25/06

Date Start/Finish: 5/19/06 - 7/11/06
Drilling Company: Boart Longyear
Driller's Name: Justin, Scott
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Mini Sonic Rig
Sampling Method: 4" Steel Casing

Northing: 689352.961
Easting: 638101.706
Casing Elevation: 5.48' MVD

Borehole Depth: 45' bgs
Surface Elevation: 5.62' MVD

Descriptions By: D.M. Mack

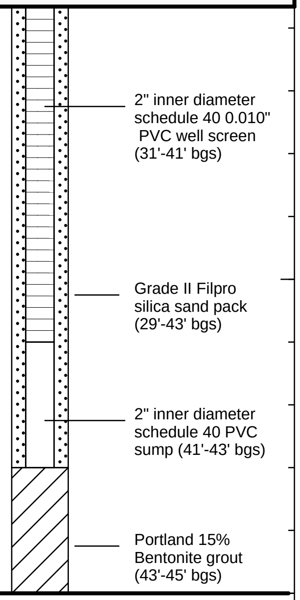
Well/Boring ID: **MW(SB)-125B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Jacob Riis Housing Development
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
		7	35'-40'	4.0'	0.3 0.2				
40	-35	8	40'-45'	5.0'	0.2 0.4 0.4	☒			Brown to gray CLAY and SILT, moist.
45	-40								End of boring at 45' bgs
50	-45								

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; PVC = polyvinyl choride.

Soil samples taken from 6'-7' bgs, 17'-18' bgs, 30'-30.5' bgs and 42'-43' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/6/07 - 2/12/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689713.758
Easting: 638441.464
Casing Elevation: NA

Borehole Depth: 50' bgs.
Surface Elevation: 6.10' MVD

Descriptions By: David Mack

Boring ID: **SB-126**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
0									TOPSOIL	Portland 15% Bentonite grout (0'-50' bgs)
	5	1	0'-5'	5.0'	NA				Brown-red fine to coarse SAND, some Silt, Gravel and Cobbles. (fill)	
5	0	2	5'-10'	2.0'	NA	☒	▼		CONCRETE. (fill) MICA SCHIST. (fill)	
10	-5	3	10'-15'	3.5'	ND - 8.7				Black to gray coarse to fine SAND, little coarse to fine Gravel and Silt, sheen, wet. (fill) Black to gray fine to coarse SAND and GRAVEL, little Cobbles and Silt, wet. (fill) CONCRETE. (fill)	
15	-10								Black to gray coarse to fine GRAVEL, some fine to coarse Sand and Cobbles, little Silt, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 9'-10' bgs, 31'-32' bgs, 46'-47' bgs, and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/6/07 - 2/12/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689713.758
Easting: 638441.464
Casing Elevation: NA

Borehole Depth: 50' bgs.
Surface Elevation: 6.10' MVD

Descriptions By: David Mack

Boring ID: **SB-126**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		4	15'-20'	4.0'	1.8 - 8.6				Sheen at 17'-18' bgs.	
20	-15	5	20'-25'	3.0'	1.7 - 4.6					
25	-20	6	25'-30'	4.0'	3.7 - 5.2					Portland 15% Bentonite grout (0'-50' bgs)
30	-25	7	30'-35'	5.0'	9.8 - 42.7	☒			Black SILT, some Wood, little fine Sand, heavy MGP-like odor, wet.	
									Black SILT, little Wood and fine Sand, slight MGP-like odor, wet.	
35									Black fine to coarse SAND, little Silt, heavy MGP-like odor, trace tar-like material, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 9'-10' bgs, 31'-32' bgs, 46'-47' bgs, and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/6/07 - 2/12/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689713.758
Easting: 638441.464
Casing Elevation: NA

Borehole Depth: 50' bgs.
Surface Elevation: 6.10' MVD

Descriptions By: David Mack

Boring ID: **SB-126**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	8	35'-40'	4.0'	97.6 - 310				Black SILT, little fine Sand and Gravel, wet.	
40	-35	9	40'-45'	2.5'	1000 - 1325				Brown to gray fine SAND, little Silt and medium to coarse Sand, tar-like material, wet.	
45	-40	10	45'-50'	2.5'	4.2 - 8.1	☒ ☒			Brown fine SAND, some Silt and Clay, wet.	Portland 15% Bentonite grout (0'-50' bgs)
50	-45								End of boring at 50' bgs	
55										

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 9'-10' bgs, 31'-32' bgs, 46'-47' bgs, and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/6/07 - 2/13/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689656.248
Easting: 638425.107
Casing Elevation: 6.36' MVD

Borehole Depth: 18' bgs
Surface Elevation: 6.71' MVD

Descriptions By: David Mack

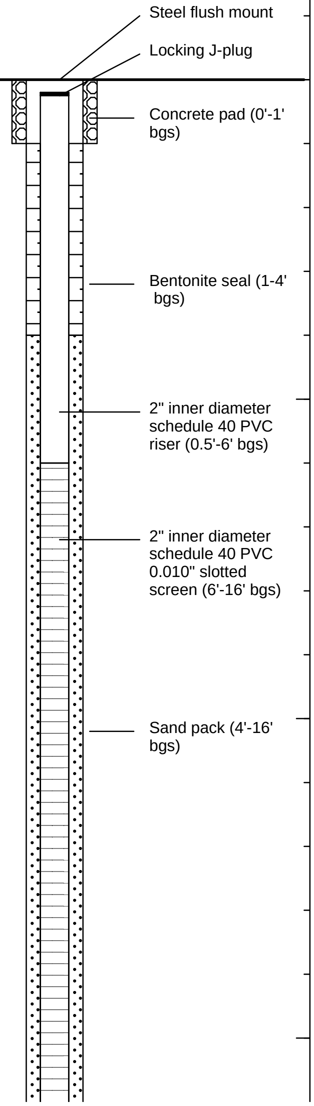
Well/Boring ID: **MW(SB)-127A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0									TOPSOIL
	5	1	0'-5'	5.0'	NA				Brown fine to coarse SAND, fine to coarse GRAVEL and COBBLES, some Silt. (fill)
5	0	2	5'-10'	3.5'	0.2 - 1.7				Brown-red fine to coarse GRAVEL and SAND, little Cobbles and Silt, moist to wet. (fill) Brown fine to coarse SAND, little fine to coarse Gravel and Silt, wet. (fill)
10	-5	3	10'-15'	3.5'	0.1 - 1.4				SCHIST and BRICK, some fine to coarse Sand, wet. (fill)
15									

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
ppm = parts per million; PVC = polyvinyl choride.

Samples collected from MW-127B at 7'-8' bgs, 48'-49' bgs, 50'-51' bgs and 54'-55' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/6/07 - 2/13/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689656.248
Easting: 638425.107
Casing Elevation: 6.36' MVD

Borehole Depth: 18' bgs
Surface Elevation: 6.71' MVD

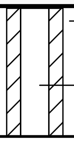
Descriptions By: David Mack

Well/Boring ID: **MW(SB)-127A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-10	4	15'-18'	2.0'	ND			⊠		Portland 15% Bentonite grout (16'-18' bgs) 2" inner diamter schedule 40 PVC sump (16'-18' bgs)
									End of boring at 18' bgs	
20										
	-15									
25										
	-20									
30										
	-25									



Portland 15%
Bentonite grout
(16'-18' bgs)

2" inner diamter
schedule 40 PVC
sump (16'-18' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
ppm = parts per million; PVC = polyvinyl choride.

Samples collected from MW-127B at 7'-8' bgs, 48'-49' bgs, 50'-51' bgs and 54'-55' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/6/07 - 2/13/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689654.224
Easting: 638422.332
Casing Elevation: 6.47' MVD

Borehole Depth: 55' bgs
Surface Elevation: 6.73' MVD

Descriptions By: David Mack

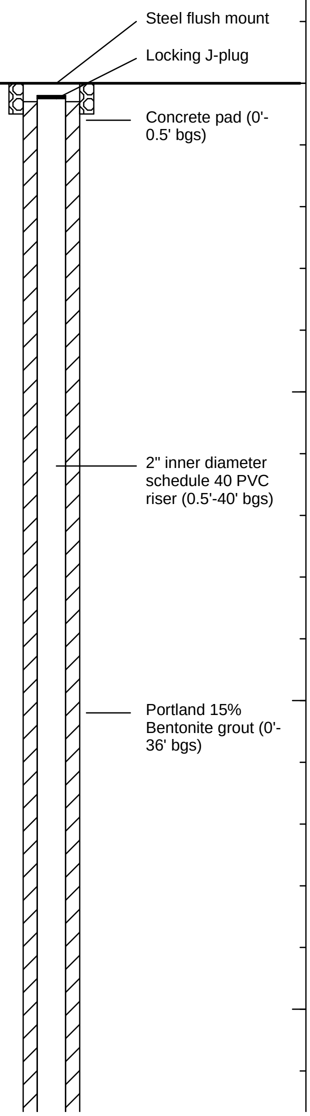
Well/Boring ID: **MW(SB)-127B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0									TOPSOIL
									Brown coarse to fine SAND, some Brick. (fill)
	5	1	0'-5'	5.0'	NA				Brown coarse to fine SAND and red CLAY, some Brick, Cobbles and Gravel. (fill)
5									Brown-red fine to coarse GRAVEL and SAND, little Cobbles and Silt, moist to wet. (fill)
	0	2	5'-10'	3.5'	0.2 - 1.7	☒	▼		
									Brown fine to coarse SAND, little fine to coarse Gravel and Silt, wet. (fill)
10									SCHIST and BRICK, some fine to coarse Sand, wet. (fill)
	-5	3	10'-15'	3.5'	0.1 - 1.4				
15									

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; NR = no recovery;
PVC = polyvinyl chloride.

Samples collected at 7'-8' bgs, 48'-49' bgs, 50'-51' bgs and 54'-55' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: B0043013.0400
Data File:MW-127B.dat
Template:SONIC2006-EL-NA_well.ldf
Date: 3/1/07

Date Start/Finish: 2/6/07 - 2/13/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689654.224
Easting: 638422.332
Casing Elevation: 6.47' MVD

Borehole Depth: 55' bgs
Surface Elevation: 6.73' MVD

Descriptions By: David Mack

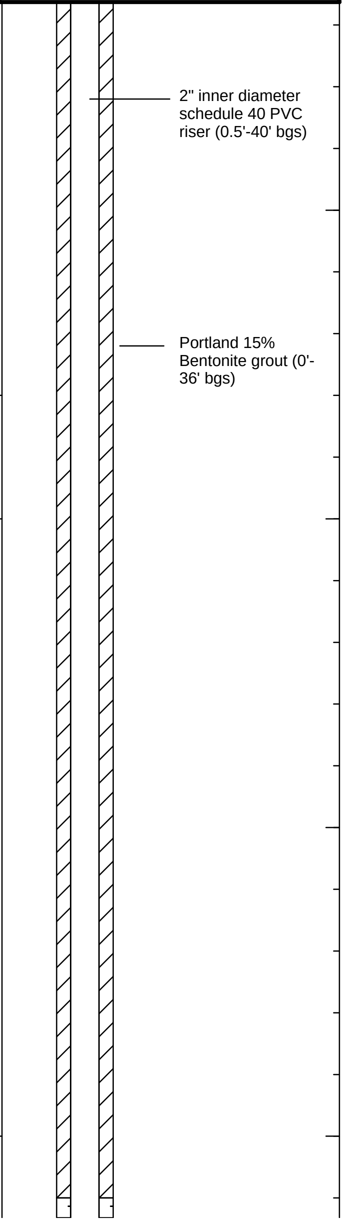
Well/Boring ID: **MW(SB)-127B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-10	4	15'-20'	2.0'	ND				
20	-15	5	20'-25'	3.5'	ND - 53.2				Black fine to coarse SAND and SILT, trace fine Gravel, sheen, MGP-like odor, wet.
25	-20	6	25'-30'	2.0'	8.7 - 18.5				Black SILT and fine to coarse SAND, sheen, MGP-like odor, wet.
30	-25	7	30'-35'	3.0'	10.5 - 21.7				
35									Black SILT, little fine to medium Sand, wet.

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million; NR = no recovery; PVC = polyvinyl chloride.

Samples collected at 7'-8' bgs, 48'-49' bgs, 50'-51' bgs and 54'-55' bgs. All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/6/07 - 2/13/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689654.224
Easting: 638422.332
Casing Elevation: 6.47' MVD

Borehole Depth: 55' bgs
Surface Elevation: 6.73' MVD

Descriptions By: David Mack

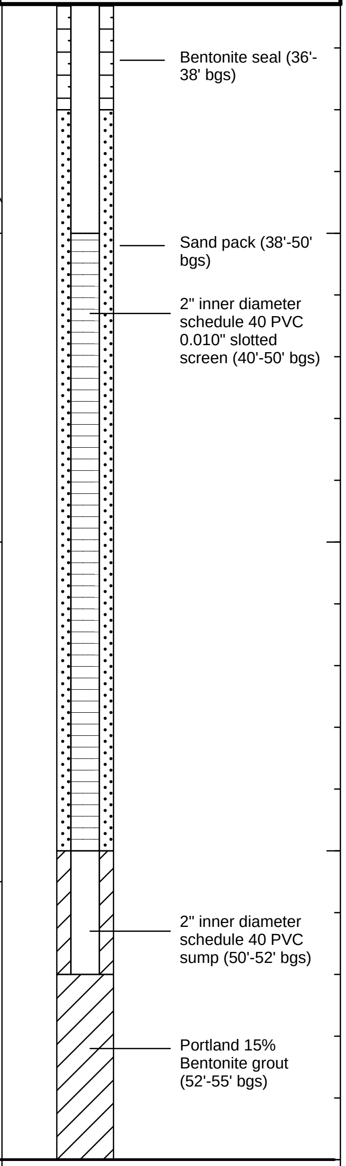
Well/Boring ID: **MW(SB)-127B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-30	8	35'-40'	5.0'	20.0 - 247				Black fine SAND, some Silt and coarse to medium Sand, sheen, heavy MGP-like odor, wet.
40	-35	9	40'-45'	NR	NA				[NO RECOVERY]
45	-40	10	45'-50'	2.0'	325 - 410	☒			Black fine to medium SAND, some Silt, sheen, heavy MGP-like odor.
50	-45	11	50'-55	5.0'	10.2 ND	☒ ☒			Light brown to gray SILT and CLAY, trace fine Sand.
55									End of boring at 55' bgs

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; NR = no recovery;
PVC = polyvinyl chloride.

Samples collected at 7'-8' bgs, 48'-49' bgs, 50'-51' bgs and 54'-55' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/7/07 - 2/09/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689567.945
Easting: 638390.311
Casing Elevation: 5.83' MVD

Borehole Depth: 18' bgs
Surface Elevation: 6.07' MVD

Descriptions By: David Mack

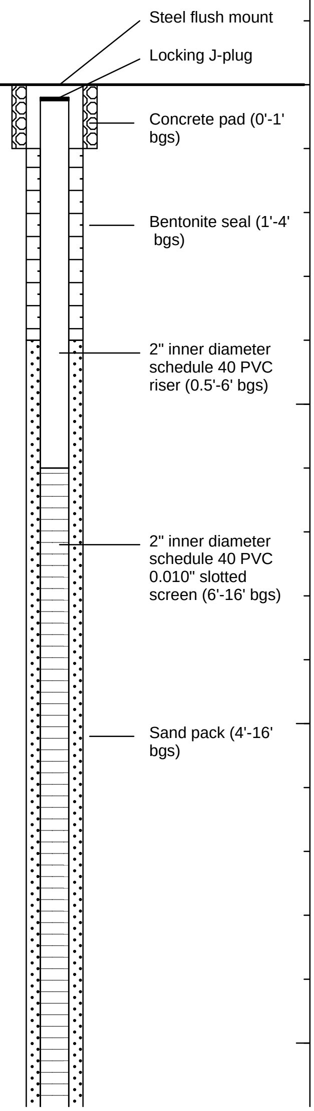
Well/Boring ID: **MW(SB)-128A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0									Black to gray SILT, little fine Sand, trace fine Gravel, dry. (fill)
	5								Brown SILT, some fine Sand, trace fine Gravel. (fill)
		1	0'-5'	5.0'	NA				Brown medium to coarse SAND and fine GRAVEL, little Silt and Cobbles. (fill)
5									Brown coarse to fine GRAVEL, some fine to coarse Sand and Silt, trace Cobbles, moist. (fill)
									Brown fine to coarse SAND, little fine Gravel and Silt, wet. (fill)
	0								Brown fine to coarse GRAVEL and SAND, wet. (fill)
		2	5'-10'	3.0'	ND				Gray to Brown fine to coarse GRAVEL and COBBLES, some coarse to fine Sand, moist to wet. (fill)
10									Dark brown to black fine SAND, some fine to coarse Gravel and Cobbles, trace construction debris, wet. (fill)
	-5	3	10'-15'	2.0'	ND				
15									Black fine to medium SAND, little coarse Sand and fine Gravel, sheen, MGP-like odor, wet.

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million.

Samples collected from MW-128B at 8'-9' bgs, 31'-32' bgs, 43'-44' bgs and 49'-50' bgs. Duplicate taken at 8'-9' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/7/07 - 2/09/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689567.945
Easting: 638390.311
Casing Elevation: 5.83' MVD

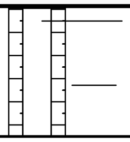
Borehole Depth: 18' bgs
Surface Elevation: 6.07' MVD

Descriptions By: David Mack

Well/Boring ID: **MW(SB)-128A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-10	4	15'-18'	2.0'	10.7 - 18.9			⁘		
									End of boring at 18' bgs	
20										
	-15									
25										
	-20									
30										
	-25									
35										

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected from MW-128B at 8'-9' bgs, 31'-32' bgs, 43'-44' bgs and 49'-50' bgs. Duplicate taken at 8'-9' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 2/7/07 - 2/8/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689563.930
Easting: 638387.869
Casing Elevation: 5.75' MV

Borehole Depth: 50' bgs
Surface Elevation: 6.00' MVD

Descriptions By: David Mack

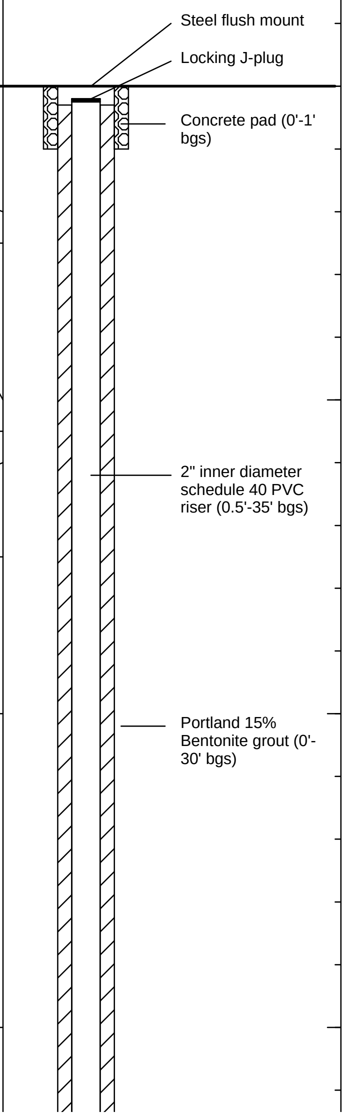
Well/Boring ID: **MW(SB)-128B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0									Black to gray SILT, little fine Sand, trace fine Gravel, dry. (fill)
	5								Brown SILT, some fine Sand, trace fine Gravel. (fill)
			0'-5'	5.0'	NA				Brown medium to coarse SAND and fine GRAVEL, little Silt and Cobbles. (fill)
5									Brown coarse to fine GRAVEL, some fine to coarse Sand and Silt, trace Cobbles, moist. (fill)
									Brown fine to coarse SAND, little fine Gravel and Silt, wet. (fill)
	0								Brown fine to coarse GRAVEL and SAND, wet. (fill)
			5'-10'	3.0'	ND	☒	▼		Gray to Brown fine to coarse GRAVEL and COBBLES, some coarse to fine Sand, moist to wet. (fill)
10	-5		10'-15'	2.0'	ND				Dark brown to black fine SAND, some fine to coarse Gravel and Cobbles, trace construction debris, wet. (fill)
15	-10								Black fine to medium SAND, little coarse Sand and fine Gravel, sheen, MGP-like odor, wet.

Well/Boring Construction



Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected at 8'-9' bgs, 31'-32' bgs, 43'-44' bgs and 49'-50' bgs. Duplicate taken at 8'-9' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 2/7/07 - 2/8/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689563.930
Easting: 638387.869
Casing Elevation: 5.75' MV

Borehole Depth: 50' bgs
Surface Elevation: 6.00' MVD

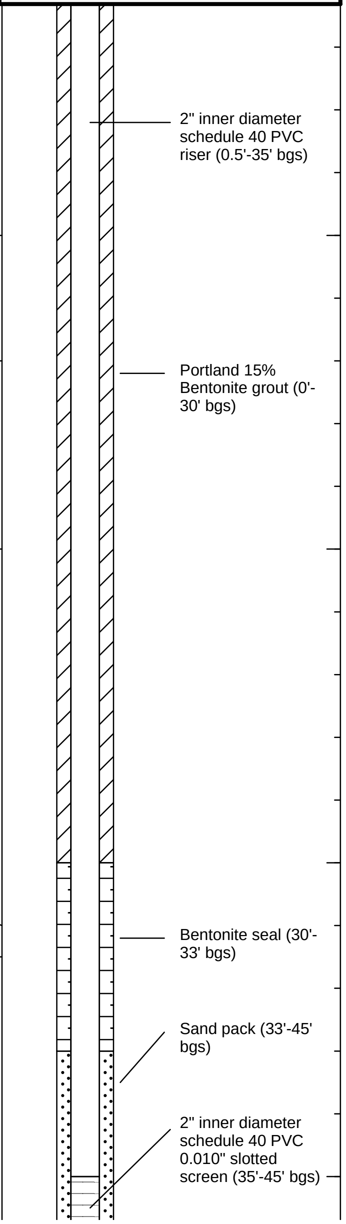
Descriptions By: David Mack

Well/Boring ID: **MW(SB)-128B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
			15'-20'	2.0'	10.7 - 18.9					
20	-15		20'-25'	5.0'	101 - 179 11.2 - 21.0				Black fine to coarse SAND, some Silt and fine Gravel, heavy MGP-like odor, wet. Tar-like material. (20-22' bgs) Black SILT, little fine Sand, wet.	
25	-20		25'-30'	4.0'	1.9 - 11.2				Black SILT, some fine Sand, trace Clay and fine Gravel, wet.	
30	-25		30'-35'	5.0'	157 - 242 1.9 - 12.3	☒			Black fine to coarse SAND and GRAVEL, little Silt, tar-like material, wet. Black SILT, some fine Sand, trace Clay and fine Gravel, wet.	
35										



Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected at 8'-9' bgs, 31'-32' bgs, 43'-44' bgs and 49'-50' bgs. Duplicate taken at 8'-9' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/7/07 - 2/8/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689563.930
Easting: 638387.869
Casing Elevation: 5.75' MV

Borehole Depth: 50' bgs
Surface Elevation: 6.00' MVD

Descriptions By: David Mack

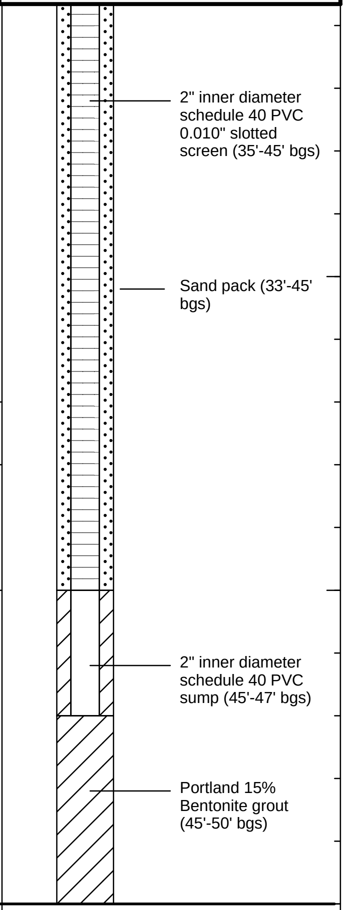
Well/Boring ID: **MW(SB)-128B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
	-30								Black SILT, some fine Sand, trace Clay and fine Gravel, wet, sheen, slight MGP-like odor.
			35'-40'	2.0'	10.1 - 27.2				
40									
	-35				110 - 178				Sheen, slight MGP-like odor (40'-42' bgs).
			40'-45'	5.0'					Black fine to coarse SAND, little fine Gravel and Silt, MGP-like odor and tar-like material.
					10 - 11.7	☒			Brown fine SAND, trace fine Gravel, wet.
45									Brown fine SAND, little Clay and Silt, wet.
	-40								
			45'-50'	5.0'	ND				Clay and Silt content increases from little to some Clay and Silt by 50' bgs.
						☒			
50									End of boring at 50' bgs
	-45								
55									

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected at 8'-9' bgs, 31'-32' bgs, 43'-44' bgs and 49'-50' bgs. Duplicate taken at 8'-9' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: B0043013.0400
Data File:MW-128B.dat
Template:SONIC2006-EL-NA_well.ldf
Date: 3/1/07

Date Start/Finish: 2/07/07 - 2/07/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689485.999
Easting: 638347.048
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 6.70' MVD

Descriptions By: David Mack

Boring ID: **SB-129**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
0	5	1	0'-5'	5.0'	NA				(fill) Concrete Obstruction Removed	
5	0	2	5'-10'	5.0'	ND 10.2 8.7	☒	▽		ROCK and ROCK FRAGMENTS, dry. (fill) Brown fine to coarse SAND and GRAVEL, some Silt, moist. (fill) Brown to black fine to coarse SAND and SILT, little fine to coarse Gravel. (fill) MGP-like odor (8.25'-8.5' bgs) Gray SANDSTONE, dry. (fill) Dark brown to black fine to coarse SAND, some Silt and fine Gravel, wet. (fill)	
10	-5	3	10'-15'	3.0'	13.2 - 19.8				Brown fine SAND, some Silt, little medium to coarse Sand, wet. (fill) Brown to black fine to coarse SAND, some fine to coarse Gravel, little Silt, MGP-like odor, wet. (fill) WOOD. (fill)	Portland 15% Bentonite grout (0'-50' bgs)
15										

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 7'-8' bgs, 18'-19' bgs, 33'-34' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 2/07/07 - 2/07/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689485.999
Easting: 638347.048
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 6.70' MVD

Descriptions By: David Mack

Boring ID: **SB-129**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-10									
		4	15'-20'	2.0'	19.7 - 42	☒			Brown WOOD, fine to coarse GRAVEL and COBBLES, some fine Sand and Silt, MGP-like odor, wet. (fill) Tar-like material noted on plastic liner. Some drops in Sand and Silt.	
20									Brown-gray fine SAND and COBBLES, little coarse to medium Sand and Gravel, wet. (fill) Tar-like material noted on plastic liner but not in soils.	
	-15	5	20'-25'	3.0'	1.1 - 2.8				WOOD. (fill)	
25		6	25'-30'	5.0'	10.2				Black SILT and WOOD, slight MGP-like odor, moist. (fill)	Portland 15% Bentonite grout (0'-50' bgs)
	-20				ND				Black SILT, little fine Sand, moist. (fill)	
30	-25	7	30'-35'	5.0'	1.7 - 21.0					
						☒			WOOD. (fill)	
35									Brown to black fine SAND, some medium to coarse Sand, little Silt, trace Cobbles, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 7'-8' bgs, 18'-19' bgs, 33'-34' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/07/07 - 2/07/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689485.999
Easting: 638347.048
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 6.70' MVD

Descriptions By: David Mack

Boring ID: **SB-129**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30									
		8	35'-40'	5.0'	ND					
40									Light brown fine SAND, some Silt, moist.	
	-35									
		9	40'-45'	5.0'	ND					
45										Portland 15% Bentonite grout (0'-50' bgs)
	-40									
		10	45'-50'	5.0'	ND				Light brown to gray CLAY and SILT, little fine Sand, moist.	
						☒				
50									End of boring at 50' bgs	
	-45									
55										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 7'-8' bgs, 18'-19' bgs, 33'-34' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/2/07 - 2/9/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689302.735
Easting: 638254.798
Casing Elevation: 4.44' MVD

Borehole Depth: 23' bgs
Surface Elevation: 4.82' MVD

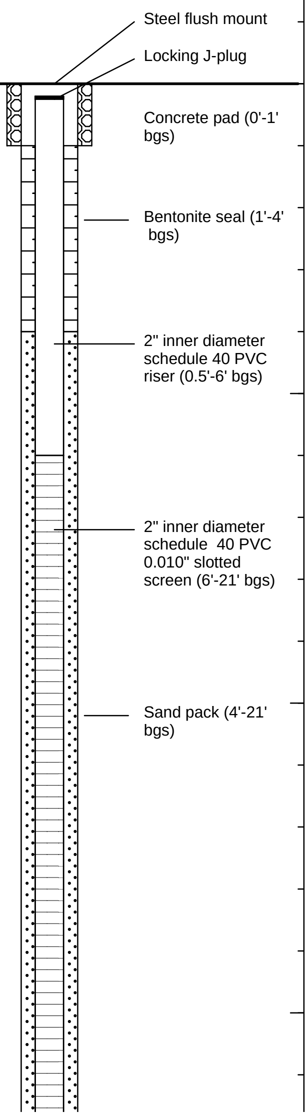
Descriptions By: David Mack

Well/Boring ID: **MW(SB)-130A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	5								ASPHALT, sub-base material.	
									Light brown fine to coarse SAND, BRICK, COBBLES and CONCRETE, trace Glass, Coal particles, moist. (fill)	
		1	0'-5'	5.0'	NA					
5	0								Brown fine to coarse GRAVEL, some fine to coarse Sand and Silt, moist. (fill)	
		2	5'-10'	3.5'	ND		▽		Dark brown fine to coarse GRAVEL and SAND, some Silt, wet. (fill)	
10	-5								Dark brown to black fine SAND, some fine to coarse Gravel, little Silt, wet. (fill)	
		3	10'-15'	2.0'	ND					
15	-10				2.8 3.7 10.2 23.6				Black fine to coarse GRAVEL and SAND, little Silt, MGP-like odor. (fill)	



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected from MW-130B at 7'-8' bgs, 20'-21' bgs 28'-29' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/2/07 - 2/9/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689302.735
Easting: 638254.798
Casing Elevation: 4.44' MVD

Borehole Depth: 23' bgs
Surface Elevation: 4.82' MVD

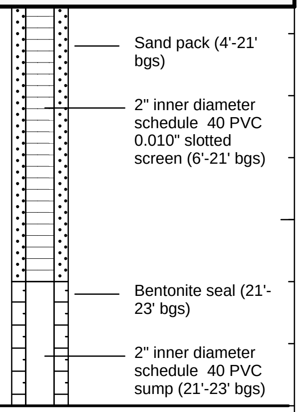
Descriptions By: David Mack

Well/Boring ID: **MW(SB)-130A**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	15'-20'	2.0'						
20	-15								Black SILT, little fine Sand and Clay, sheen, strong MGP-like odor, wet.	
		5	20'-23'	3.0'	23.6 - 101				Black SILT, some Clay, little fine Sand, MGP-like odor, moist.	
									End of boring at 23' bgs	
25	-20									
30	-25									
35	-30									



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected from MW-130B at 7'-8' bgs, 20'-21' bgs 28'-29' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/02/07 - 2/06/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689298.295
Easting: 638253.204
Casing Elevation: 4.57' MVD

Borehole Depth: 45' bgs
Surface Elevation: 4.85' MVD

Descriptions By: David Mack

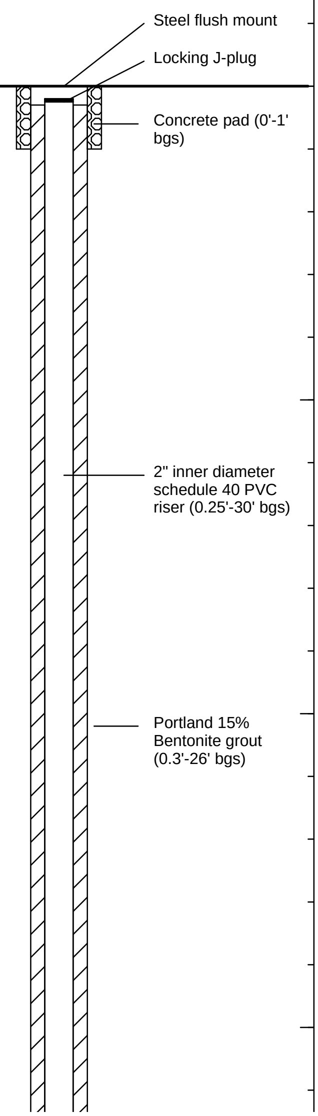
Well/Boring ID: **MW(SB)-130B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description
0	5								ASPHALT, sub-base material.
		1	0'-5'	5.0'	NA				Light brown fine to coarse SAND, BRICK, COBBLES and CONCRETE, trace Glass, Coal particles, moist. (fill)
5	0	2	5'-10'	3.5'	ND				Brown fine to coarse GRAVEL, some fine to coarse Sand and Silt, moist. (fill)
						☒	▼		Dark brown fine to coarse GRAVEL and SAND, some Silt, wet. (fill)
10	-5	3	10'-15'	2.0'	ND				Dark brown to black fine SAND, some fine to coarse Gravel, little Silt, wet. (fill)
15	-10				2.8 3.7 10.2				Black fine to coarse GRAVEL and SAND, little Silt, MGP-like odor. (fill)

Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected at 7'-8' bgs, 20'-21' bgs, 28'-29' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/02/07 - 2/06/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689298.295
Easting: 638253.204
Casing Elevation: 4.57' MVD

Borehole Depth: 45' bgs
Surface Elevation: 4.85' MVD

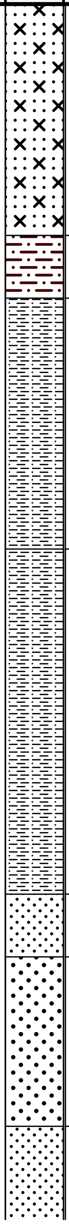
Descriptions By: David Mack

Well/Boring ID: **MW(SB)-130B**

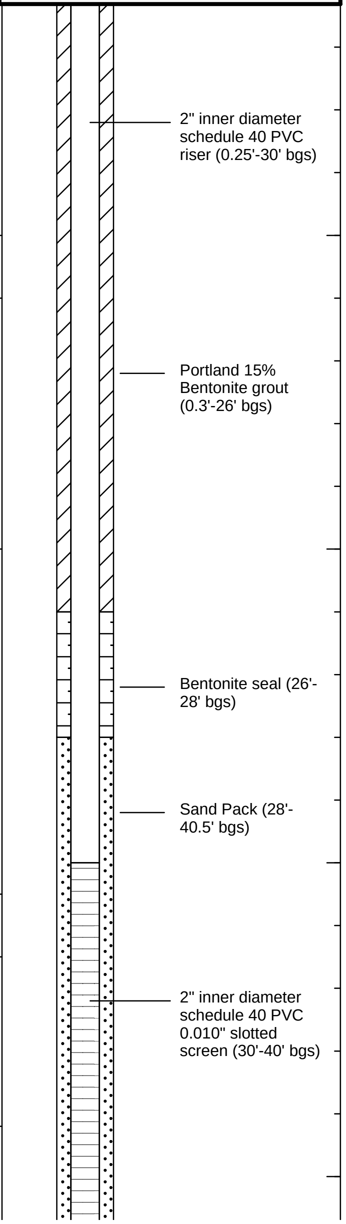
Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Stratigraphic Description
		4	15'-20'	2.0'	23.6			
20	-15	5	20'-25'	5.0'	23.6 - 101	☒		Black SILT, little fine Sand and Clay, sheen, strong MGP-like odor, wet. Black SILT, some Clay, little fine Sand, MGP-like odor, moist.
25	-20	6	25'-30'	5.0'	ND - 1.2	☒		Black SILT, some Clay, little fine Sand, moist. Trace Wood at 29' bgs
30	-25	7	30'-35'	5.0'	ND - 1.9			Black fine SAND, some Silt, trace Shells, moist. Brown to gray medium SAND, some fine to coarse Sand, trace Silt, moist. Light brown to gray fine SAND, little Silt, moist.
35	-30							



Well/Boring Construction



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected at 7'-8' bgs, 20'-21' bgs, 28'-29' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 2/02/07 - 2/06/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 689298.295
Easting: 638253.204
Casing Elevation: 4.57' MVD

Borehole Depth: 45' bgs
Surface Elevation: 4.85' MVD

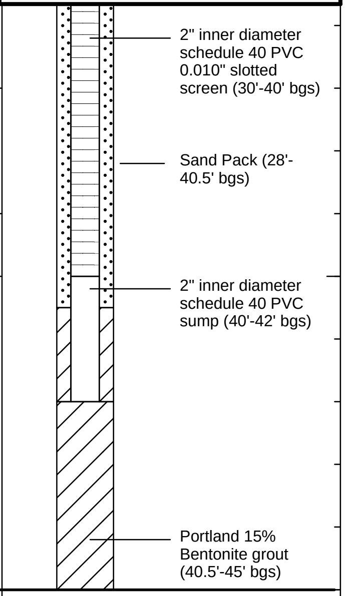
Descriptions By: David Mack

Well/Boring ID: **MW(SB)-130B**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
East River Park Promenade
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Well/Boring Construction
		8	35'-40'	5.0'	ND				Light brown to gray fine SAND, some Silt, little Clay, trace fine Gravel, moist.	
									Light brown to gray fine SAND and SILT, some Clay, moist.	
40	-35	9	40'-45'	5.0'	ND	☒			Light brown to gray CLAY and SILT, little fine Sand, moist.	
45	-40								End of boring at 45' bgs	
50	-45									
55	-50									



ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million; PVC = polyvinyl chloride.

Samples collected at 7'-8' bgs, 20'-21' bgs, 28'-29' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/12/07 - 1/15/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690142.170
Easting: 637605.917
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.46' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-131**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10									
0									Dark brown fine SAND and SILT, trace Organics, moist. (fill)	
		1	0'-5'	5.0'	NA				Brown fine to coarse SAND and SILT, some Brick, Cobbles and gray to black Ash-like material, trace Clinker-like material, moist. (fill)	
	5								Some Wood and Brick fragments	
5									Brown fine to coarse SAND, some Silt, trace black to gray Ash-like material, fine to coarse Gravel and Cobble, moist. (fill)	
									WOOD, some fine to medium Sand and Silt, MGP-like odor. (fill)	
	0	2	5'-10'	5.0'	16.5 50 65	☒			Fine to medium SAND and SILT, some Wood, trace fine to medium Gravel, Brick, and gray Ash-like material, strong MGP-like odor, moist. (fill)	
					50				Fine to coarse SAND, some Silt and Brick particles, trace fine to medium Gravel, slight MGP-like odor, moist. (fill)	
10		3	10'-15'	5.0'	4.0	☒	▽		Dark brown fine to coarse SAND, some fine to medium Gravel, some weathered Schist, trace Silt, wet. (fill)	Portland 15% Bentonite grout (0'-50' bgs)
	-5					☒			Light brown fine to coarse SAND, wet.	
									Light brown SILT, trace fine Sand, wet.	
15										

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 7'-8' bgs, 10'-11' bgs, 13'-14' bgs, 36'-37' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

ARCADIS BBL
Infrastructure, environment, facilities

Date Start/Finish: 1/12/07 - 1/15/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690142.170
Easting: 637605.917
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.46' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-131**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		4	15'-20'	5.0'	ND					
									Dark brown fine to medium SAND, wet.	
	-10								Gray-brown Clayey SILT, wet.	
20		5	20'-25'	4.0'	ND				Gray-brown fine to medium SAND, wet.	
	-15								Gray-brown SILT, trace fine Sand, wet.	
25		6	25'-30'	5.0'	ND				Gray-brown fine SAND, moist.	Portland 15% Bentonite grout (0'-50' bgs)
	-20								Olive brown fine SAND, moist.	
30	-25	7	30'-35'	4.0'	ND				Olive-brown fine to medium SAND, trace fine Gravel, wet.	
35									Light brown fine to coarse SAND, some fine to coarse Gravel, trace Silt, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 7'-8' bgs, 10'-11' bgs, 13'-14' bgs, 36'-37' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/12/07 - 1/15/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690142.170
Easting: 637605.917
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.46' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-131**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
						☒			Petroleum-like odor and sheen at 36'-36.5' bgs.	
	-30	8	35'-40'	5.0'	ND					
40		9	40'-45'	5.0'	ND					
	-35								Light brown fine to coarse SAND and SILT, trace fine to medium Gravel, wet.	
45		10	45'-50'	5.0'	ND					Portland 15% Bentonite grout (0'-50' bgs)
	-40					☒				
50									End of boring at 50' bgs	
	-45									
55										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 7'-8' bgs, 10'-11' bgs, 13'-14' bgs, 36'-37' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/12/07 - 1/16/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690105.473
Easting: 637583.139
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.45' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-132**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10									
0									Dark brown fine to coarse SAND and SILT, trace Organics, moist. (fill)	
									Dark Brown fine to coarse SAND and SILT, some Brick and Cobbles, moist. (fill)	
	5	1	0'-5'	5.0'	NA				Brown fine SAND and SILT, some Brick, trace black ash-like material and fine to coarse Gravel, moist. (fill)	
5									Light brown fine to medium SAND and SILT, trace Brick, moist. (fill)	
	0	2	5'-10'	5.0'	ND				Dark brown fine to coarse SAND and SILT, trace fine to medium Gravel and Brick, moist. (fill)	
10					10	☒	▽		Slight MGP-like odor.	Portland 15% Bentonite grout (0'-50' bgs)
	-5	3	10'-15'	5.0'	10 45 55	☒			Dark brown fine to medium SAND and SILT, trace black stained ash-like material, strong MGP-like odor, wet. (fill)	
					10				Olive-brown fine SAND and SILT, slight MGP-like odor, wet.	
15									Red-brown Clayey SILT, moist.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 10'-11' bgs, 13'-14' bgs, 16'-17' bgs and 49'-50' bgs.
Duplicate sample taken at 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/12/07 - 1/16/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690105.473
Easting: 637583.139
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.45' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-132**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
-10 20	4	15'-20'	5.0'	ND	☒			Light brown fine SAND and SILT, moist. Light brown fine SAND, trace Silt, wet. Light brown fine SAND and SILT, wet.	
-15 25	5	20'-25'	5.0'	ND				Light brown fine SAND, trace Silt, wet.	Portland 15% Bentonite grout (0'-50' bgs)
-20 30	6	25'-30'	5.0'	ND				Light brown fine SAND and SILT, moist.	
-25 35	7	30'-35'	5.0'	ND				Gray-brown fine to coarse SAND, some Silt and fine to medium Gravel, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 10'-11' bgs, 13'-14' bgs, 16'-17' bgs and 49'-50' bgs.
Duplicate sample taken at 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/12/07 - 1/16/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690105.473
Easting: 637583.139
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.45' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-132**

Client: Consolidated Edison Company of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	8	35'-40'	5.0'	ND				Olive brown fine to medium SAND and SILT, trace fine to coarse Gravel and Cobbles, wet.	
									Orange-brown fine to coarse SAND and SILT, trace fine Gravel, moist.	
40	-35	9	40'-45'	5.0'	ND				Light brown fine to medium SAND and SILT, moist.	
45	-40	10	45'-50'	5.0'	3.0	☒			Dark brown fine to coarse SAND and SILT, some fine to medium Gravel, wet.	Portland 15% Bentonite grout (0'-50' bgs)
50	-45								End of boring at 50' bgs	
55										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 10'-11' bgs, 13'-14' bgs, 16'-17' bgs and 49'-50' bgs.
Duplicate sample taken at 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/15/07 - 1/17/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690059.862
Easting: 637555.142
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.39' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-133**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10									
0								×:×	Fine to medium SAND, some Organics. (fill)	▨
5	5	1	0'-5'	5.0'	NA			×:×	Fine to medium SAND, trace Brick, Concrete and Glass, moist. (fill)	▨
									Red-brown fine to medium SAND and SILT, moist.	▨
10	0	2	5'-10'	5.0'	ND	☒	▼		Light brown fine to medium SAND and SILT, moist.	▨ Portland 15% Bentonite grout (0'-50' bgs)
	-5	3	10'-15'	5.0'	ND				Olive brown fine SAND and SILT, wet.	▨
15									[NO RECOVERY]	▨

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; NR = no recovery.

Samples collected at 10'-11' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/15/07 - 1/17/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690059.862
Easting: 637555.142
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.39' MVD

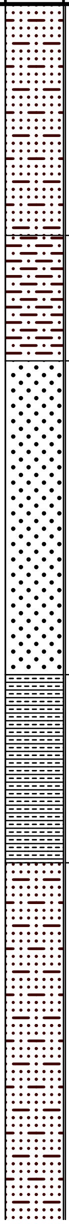
Descriptions By: Jeremy Cuccuini

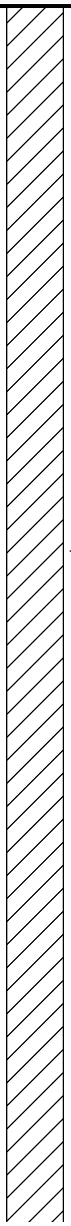
Boring ID: **SB-133**

Client: Consolidated Edison Company of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		4	15'-20'	NR	NA					
	-10									
20									Red-brown SILT, some fine Sand, wet.	
		5	20'-25'	5.0'	ND				Light brown fine to medium SAND, wet.	
	-15									
25										Portland 15% Bentonite grout (0'-50' bgs)
		6	25'-30'	5.0'	ND				Light brown Silty CLAY, some fine Sand, wet.	
	-20									
30									Light brown fine SAND and SILT, trace medium to coarse Gravel, wet.	
		7	30'-35'	5.0'	ND					
	-25									
35										





ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; NR = no recovery.

Samples collected at 10'-11' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: B0043013.0400
Data File:SB-133.dat

Template:SONIC2006-EL-NA.ldf
Date: 03/01/07

Date Start/Finish: 1/15/07 - 1/17/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690059.862
Easting: 637555.142
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.39' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-133**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
		8	35'-40'	5.0'	ND				Olive-gray CLAY, trace fine Sand, moist.	
	-30								Olive-brown fine to medium SAND and SILT, trace fine to medium Gravel, wet.	
									Brown fine to coarse SAND and GRAVEL, trace Cobbles and Silt, dry.	
40									Olive-brown fine SAND and SILT, wet.	
		9	40'-45'	5.0'	ND					
	-35								Light brown fine to medium SAND, some Silt, trace fine to medium Gravel, wet.	
45										Portland 15% Bentonite grout (0'-50' bgs)
		10	45'-50'	5.0'	ND					
	-40								Olive-gray SILT and CLAY, trace fine Sand, moist.	
						X			Light brown fine to coarse SAND and SILT, trace fine to coarse Gravel, wet.	
50									End of boring at 50' bgs	
	-45									
55										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million; NR = no recovery.

Samples collected at 10'-11' bgs and 49'-50' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/17/07 - 1/19/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690277.477
Easting: 637549.149
Casing Elevation: NA

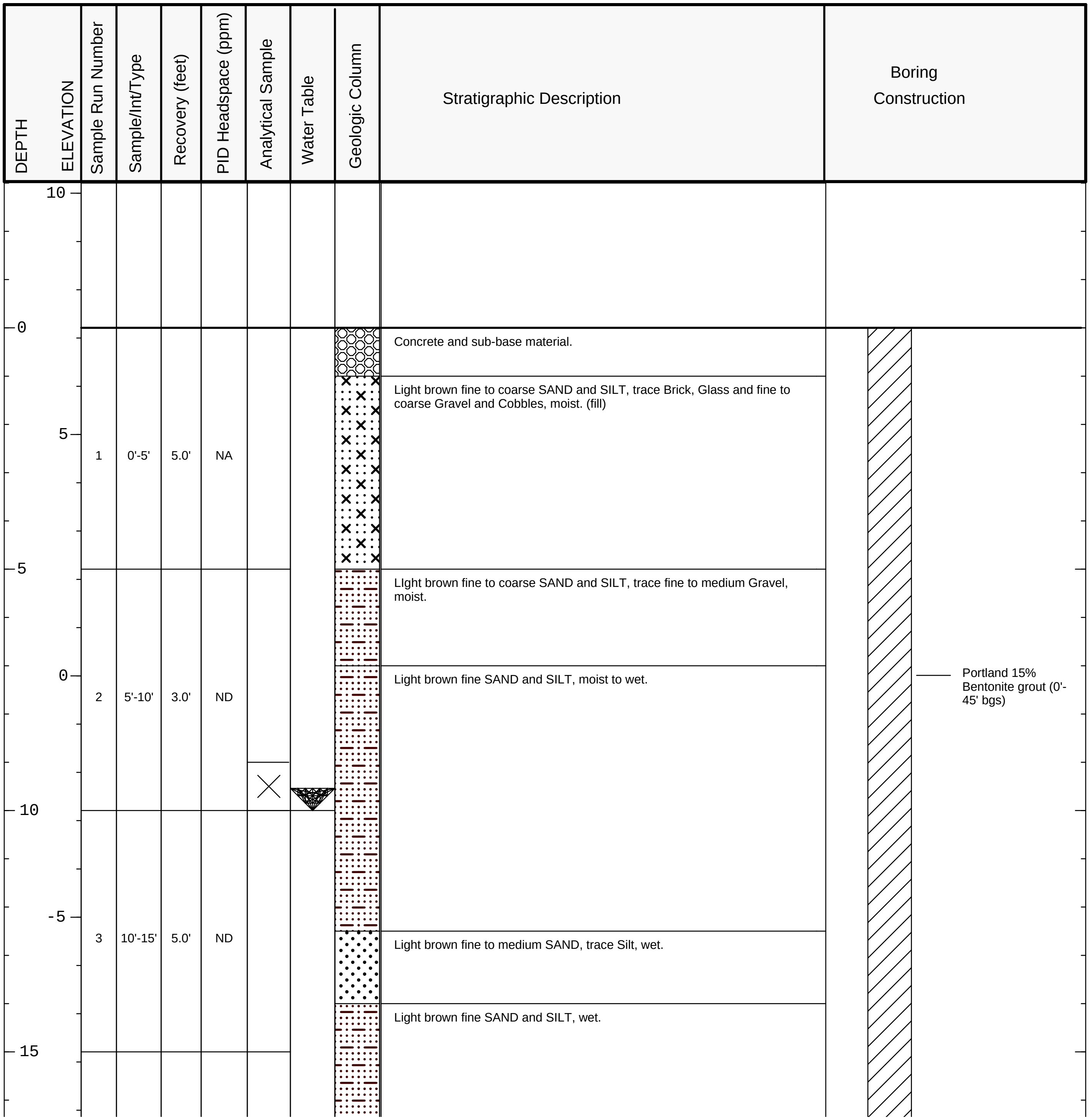
Borehole Depth: 45' bgs
Surface Elevation: 7.21' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-134**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York



Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)
1	0'-5'	5.0'	NA
2	5'-10'	3.0'	ND
3	10'-15'	5.0'	ND

Stratigraphic Description

Concrete and sub-base material.

Light brown fine to coarse SAND and SILT, trace Brick, Glass and fine to coarse Gravel and Cobbles, moist. (fill)

LIght brown fine to coarse SAND and SILT, trace fine to medium Gravel, moist.

Light brown fine SAND and SILT, moist to wet.

Light brown fine to medium SAND, trace Silt, wet.

Light brown fine SAND and SILT, wet.

Boring Construction

Portland 15% Bentonite grout (0'-45' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million.

Samples collected at 9'-10' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/17/07 - 1/19/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690277.477
Easting: 637549.149
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 7.21' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-134**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table
	-10	4	15'-20'	5.0'	ND		
20	-15	5	20'-25'	5.0'	ND		
25	-20	6	25'-30'	5.0'	ND		
30	-25	7	30'-35'	5.0'	ND		
35							

Geologic Column / **Stratigraphic Description**

Olive-brown fine to medium SAND, trace Silt, wet.

Olive-brown SILT, some fine Sand, moist.

Light brown fine SAND, some Silt, wet.

Light brown fine SAND and SILT, wet.

Red-brown fine to medium SAND, wet.

Olive-brown fine to medium SAND, trace Silt, wet.

Boring Construction

Portland 15% Bentonite grout (0'-45' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million.

Samples collected at 9'-10' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/17/07 - 1/19/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690277.477
Easting: 637549.149
Casing Elevation: NA

Borehole Depth: 45' bgs
Surface Elevation: 7.21' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-134**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	8	35'-40'	5.0'	ND	☒			Olive-brown fine SAND and SILT, wet. Olive-brown Clayey SILT, trace fine Sand, moist.	
40	-35	9	40'-45'	3.0'	ND				Light brown fine SAND and SILT, trace coarse Gravel, moist.	Portland 15% Bentonite grout (0'-45' bgs)
45									End of boring at 45' bgs	
	-40									
50	-45									

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; ppm = parts per million.

Samples collected at 9'-10' bgs and 39'-40' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: B0043013.0400
Data File:SB-134.dat

Template:SONIC2006-EL-NA.ldf
Date: 03/01/07

Date Start/Finish: 1/15/07 - 1/18/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690091.937
Easting: 637446.121
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.44' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-135**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	10									
0									Fine to coarse SAND, SILT, and ORGANICS, moist. (fill)	
									Light brown fine to medium Silty SAND, trace black ash-like material, Glass, Brick, and Gravel, moist. (fill)	
		1	0'-5'	5.0'	NA					
	5									
5										
		2	5'-10'	2.0'						Portland 15% Bentonite grout (0'-50' bgs)
	0								BRICK and COBBLES, sheen at 10' bgs. (fill)	
					2.1					
10						☒	▼		Dark brown fine SAND and SILT, slight MGP-like odor, wet.	
					1.4					
		3	10'-15'	3.0'						
	-5									
15						☒			Light brown SILT, wet.	

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface; MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 10'-11' bgs, 15'-16' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/15/07 - 1/18/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690091.937
Easting: 637446.121
Casing Elevation: NA

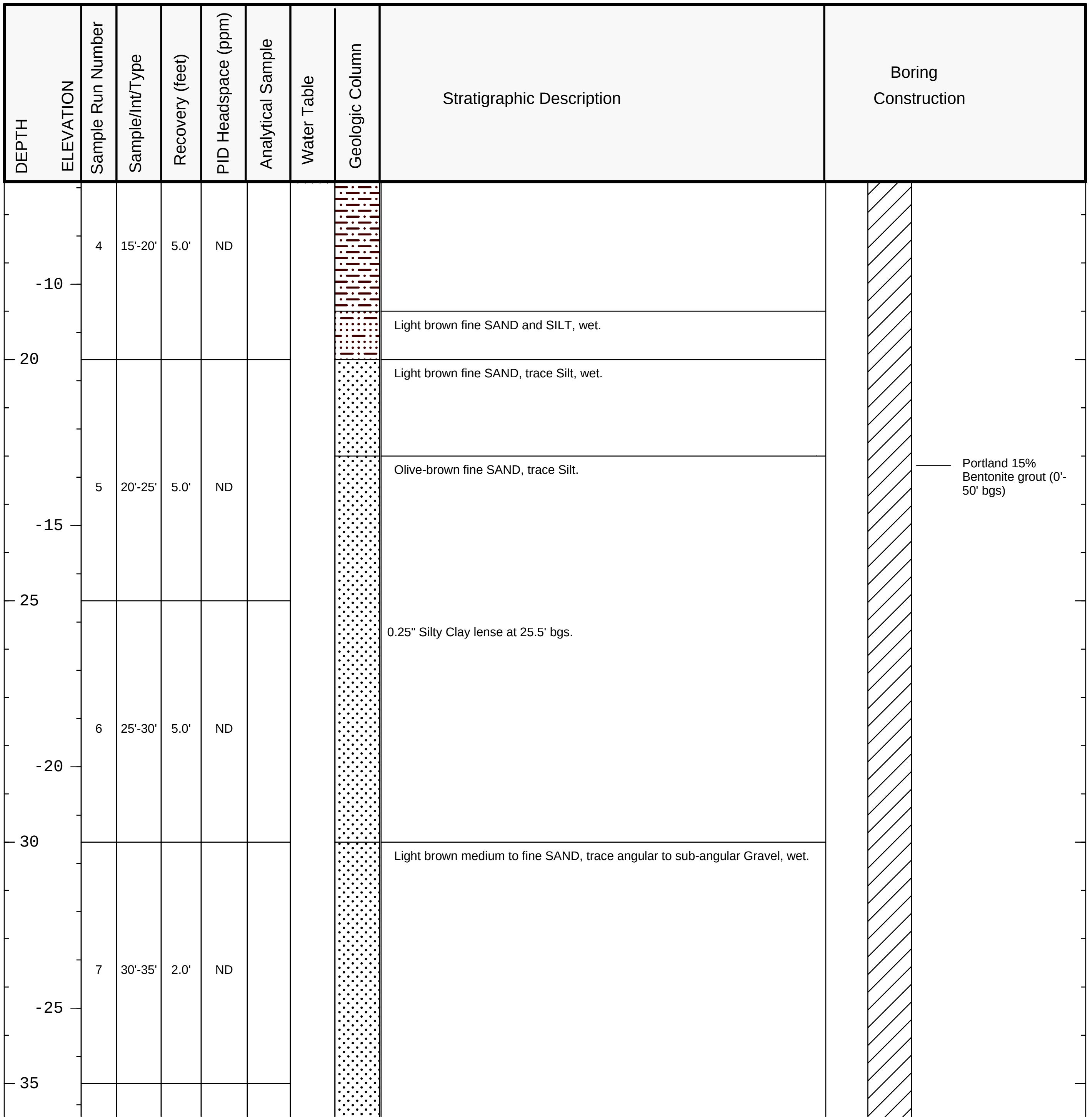
Borehole Depth: 50' bgs
Surface Elevation: 8.44' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-135**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York



Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)
4	15'-20'	5.0'	ND
5	20'-25'	5.0'	ND
6	25'-30'	5.0'	ND
7	30'-35'	2.0'	ND

Stratigraphic Description

Light brown fine SAND and SILT, wet.

Light brown fine SAND, trace Silt, wet.

Olive-brown fine SAND, trace Silt.

0.25" Silty Clay lense at 25.5' bgs.

Light brown medium to fine SAND, trace angular to sub-angular Gravel, wet.

Portland 15% Bentonite grout (0'-50' bgs)

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 10'-11' bgs, 15'-16' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Date Start/Finish: 1/15/07 - 1/18/07
Drilling Company: Boart Longyear
Driller's Name: Ben Grim
Drilling Method: Rotary Sonic

Casing Size: 4" inner diameter
Rig Type: Spider Sonic
Sampling Method: 5' sonic run

Northing: 690091.937
Easting: 637446.121
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 8.44' MVD

Descriptions By: Jeremy Cuccuini

Boring ID: **SB-135**

Client: Consolidated Edison Company
of New York, Inc.

Location: Former East 11th Street Works
Haven Plaza
Manhattan, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Water Table	Geologic Column	Stratigraphic Description	Boring Construction
	-30	8	35'-40'	5.0'	ND				Olive-gray fine SAND and SILT, trace Gravel, moist.	
40	-35	9	40'-45'	5.0'	ND	☒			Olive-brown Clayey SILT, moist.	Portland 15% Bentonite grout (0'-50' bgs)
45		10	45'-50'	5.0'	ND				Light brown fine to medium SAND, moist.	
	-40								Olive gray SILT, trace fine Sand, moist.	
									Olive brown Clayey SILT, moist to wet.	
50	-45								End of boring at 50' bgs	
55										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks: NA = not available; ND = non-detect; bgs = below ground surface;
MGP = manufactured gas plant; ppm = parts per million.

Samples collected at 10'-11' bgs, 15'-16' bgs and 40'-41' bgs.
All elevations shown are in Borough President of Manhattan Vertical Datum (MVD), which is 2.75 feet above mean sea level at Sandy Hook.

Project: B0043013.0400
Data File:SB-135
Template:SONIC2006-EL-NA.ldf
Date: 03/01/07

Appendix B

Excavation Work Plan

APPENDIX B – EXCAVATION WORK PLAN

B-1 NOTIFICATION

This Excavation Work Plan (EWP) should be reviewed prior to any intrusive activities and must be followed if potentially MGP-impacted material may be encountered during an intrusive activity.

At least 30 days prior to the start of any activity that is anticipated to encounter existing MGP residuals, the site owner, ISMP entity, or their representative will notify Con Edison. The ISMP entity will also review the Intrusive Activities Guidelines flowchart provided as Attachment B-1 to this appendix. Con Edison will subsequently notify the NYSDEC within 30 days prior to any construction activities. Workers must be notified of the environmental conditions with clear instruction regarding how the work is to proceed. This 30-day notification period does not apply to emergency situations where advance notification is not practicable (e.g., power/utility outages, emergency repairs, etc.). Table 1a included in the ISMP text provides contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related emergency contact information is provided in Table B1, below.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, and estimated volumes of contaminated soil to be excavated;
- A summary of environmental conditions anticipated to be encountered in the work areas, including plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;

- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

DISCLAIMER: This ISMP is not intended to serve as a design document for construction activities within potentially impacted areas. The ISMP Entities are responsible for the preparation of the document(s) that incorporate the requirements set forth in this EWP.

Intrusive and waste management activities will be conducted in accordance with all applicable state and federal rules, regulations, and guidance, regardless of whether they are specifically identified herein or not (including any and all applicable subsequent updates, modifications, or alternative/replacement rules, regulations, and guidance). These regulatory requirements may include:

- United States Environmental Protection Agency (USEPA) regulations, including Title 40 of the Code of Federal Regulations (CFR).
- Occupational Safety and Health Administration (OSHA) regulations, including Title 29 CFR Parts 1910 and 1926, OSHA and United States Department of Labor.
- NYSDEC *DER-10, Technical Guidance for Site Investigation and Remediation*, May 2010.
- State of New York Codes, Rules and Regulations, including Title 6 of the Official Compilation of Codes, Rules, and Regulations (6 NYCRR) Parts 360, 364, and 370-374 regarding disposal/treatment, transportation, and management of hazardous waste.
- 6 NYCRR Part 375 regarding the environmental remediation program, effective December 14, 2006 (NYSDEC, 2006).
- Recommendations of the National Institute of Occupational Safety and Health (NIOSH).

- Applicable guidelines of the New York State Department of Health (NYSDOH).
- Transportation regulations, including U.S. Department of Transportation (USDOT) regulations, including Title 29 CFR Parts 171 and 172 and New York State Department of Transportation (NYSDOT) rules and regulations.
- Applicable federal, state, and local government regulations.

Whenever there is a conflict or overlap of any rules, regulation, or guidance, the most stringent provision shall be applicable.

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

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Voluntary Cleanup Agreement (VCA), and all approved work plans and reports, including this ISMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list provided in Table 1a. For emergencies, appropriate emergency response personnel provided in Section 1.4 of the ISMP text (Table 1b), should be contacted. These emergency contact lists must be maintained in an easily accessible location at the site.

B-2 SOIL VAPOR INTRUSION EVALUATION

If construction of any enclosed structures are proposed over areas that may contain MGP-related impacts and the potential for soil vapor intrusion (SVI) exists (i.e., within the ISMP Area), vapor intrusion should be evaluated, and an SVI mitigation system may be required as an element of the building foundation to eliminate potential exposure to vapors within the structure. This mitigation system could include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to installing a mitigation system, a vapor intrusion evaluation work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "*Guidance for Evaluating Vapor Intrusion in the State of New York*". Based on testing results, measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the NYSDOH guidance and construction details of the proposed structure.

Depending on the intended use, design, and occupancy of the proposed structure, an evaluation will be conducted with the NYSDEC and NYSDOH to determine if the structure requires inclusion in the annual indoor air sampling program presented in the *Interim Site Management Plan for Indoor Air Monitoring, Former East 11th Street Works.*

B-3 SOIL SCREENING METHODS

Visual, olfactory, and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially MGP-impacted areas. Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work. Soil must be visually characterized for the presence of NAPLs, staining, and/or obvious odors. For purposes of this EWP, stained soil is soil that is observed to be discolored, tinted, dyed, unnaturally mottled, or contains a sheen. Soil that is excavated from the ISMP area that does not exhibit visual evidence of NAPL, staining and possess an obvious odor, may be reused as fill material.

Soil will be segregated based on visual observation, previous environmental data, and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Section B-5 of this Appendix.

Excavated soil that contains visual evidence of NAPL or staining, or possesses an obvious odor, will be considered potentially impacted and staged for further evaluation for off-site transportation and disposal.

B-4 SOIL STAGING METHODS

During excavation activities in the ISMP Area, access to the open excavation and the excavated materials must be controlled (via construction fencing, perimeter flagging, barricades, or other means as defined in a task-specific work plan) to mitigate direct contact with potentially impacted materials. Access to the excavation will be controlled until an appropriate barrier layer (e.g., soil cover, concrete, or asphalt) is restored.

Potentially impacted soil must be placed on polyethylene sheeting or directly loaded into an appropriate container (e.g., roll-off, drum, etc.). Stockpiled, potentially MGP-impacted soil must be covered whenever the soil pile is not actively in use (e.g., soil being added to or removed from the stockpile), during overnight/weekend hours, during periods of precipitation, or whenever dust action levels are exceeded. The potentially impacted material will be covered using polyethylene sheeting, or similar, to reduce potential infiltration of precipitation, migration of wind-blown dust, and/or direct contact exposures.

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

B-5 SAMPLING OF STAGED SOIL

Stockpiled potentially MGP-impacted soil will be sampled and sent for laboratory analysis to evaluate off-site disposal options. Each sample collected for characterization purposes must be submitted to an approved NYSDOH Environmental Laboratory Approval Program- (ELAP-) certified laboratory under proper Chain-Of-Custody protocols.

Sampling procedures must be consistent with NYSDEC-approved procedures and protocols.

For each 100 cubic yards of soil generated, a minimum of one composite soil sample will be collected for laboratory analysis of:

- BTEX using USEPA SW-846 Method 8260
- PAHs using USEPA SW-846 Method 8270C
- hazardous waste characteristics (toxicity characteristic leaching procedure [TCLP] using SW-846 Method 1311, corrosivity, reactivity and ignitability)

However, the potential disposal facility(ies) should be contacted to confirm the required sample frequency and analyses.

Use of excavated soil for backfill material will be limited to placement above the groundwater table. Excavated soil that is not used for backfilling will be transported for off-site disposal in accordance with applicable requirements and regulations. **The ISMP Entity is required to use Con Edison approved facility**. A list of approved disposal facilities will be provided to the ISMP Entity by Con Edison.

B-6 QUALITY ASSURANCE/QUALITY CONTROL

Soil and water characterization samples collected pursuant to this ISMP shall be analyzed using the most recent NYSDEC Analytical Services Protocol (ASP). The laboratory selected to perform the analyses shall be NYSDOH ELAP-certified to perform Contract Laboratory Program (CLP) analysis and Solid Waste and Hazardous Waste Analytical testing on all media to be sampled. The laboratory shall maintain this certification for the duration of the project.

Procedures for chain of custody, laboratory instrumentation calibration, laboratory analyses, reporting of data, internal quality control, and corrective actions shall be followed in accordance with NYSDEC ASP and the laboratory’s Quality Assurance Plan. QA/QC samples (e.g., field duplicate, matrix spike, matrix spike duplicate, and/or trip blank samples) shall be collected, as needed, to assess the quality of the analytical data. The laboratory’s in-house QA/QC limits shall be utilized whenever they are more stringent than those suggested by the USEPA methods.

Laboratory detection limits shall be less than or equal to the Part 375 Restricted Use SCOs for Industrial Use, 6 NYCRR Part 703.5 surface water and TOGS 1.1.1 groundwater quality standards and guidance values.

B-7 MATERIALS EXCAVATION AND LOAD-OUT

The ISMP Entity will prepare a Materials Excavation and Load-out Plan for submittal to the NYSDEC at least 30 days prior to the start of any intrusive activity for review and approval. The plan will require that a qualified environmental professional or person under their supervision will oversee all intrusive work and the excavation and load-out of all excavated material. The ISMP Entity and its contractors will be responsible for safe execution of all invasive and other work performed under this plan.

The Materials Excavation and Load-out Plan will require that the presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this EWP is posed by utilities or easements on the site.

The plan will require that loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements). A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks be washed at the truck wash before leaving the site until the activities performed are complete. Truck wash waters will be collected and disposed of off-site in an appropriate manner. The plan will also require that locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking. In addition, the qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

B-8 MATERIALS TRANSPORT OFF-SITE

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

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. Truck liners will be used by all trucks carrying excavated materials from the site.

The ISMP Entity will prepare a Transportation Management Plan (TMP) for submittal to the NYSDEC at least 30 days prior to the start of any intrusive activity for review and approval. The TMP will contain a map identifying the required truck transport routes to and from the site. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. The proposed routes will take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

The TMP will prohibit trucks from stopping and idling in the neighborhood outside the project site. Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development. Queuing of trucks will be performed on-site to minimize off-site disturbance. Off-site queuing will be prohibited.

B-9 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. Disposal of material from the site for unregulated off-site disposal is prohibited.

As described in Section B-5, the ISMP Entity is required to use Con Edison approved facility. Off-site disposal locations for excavated soil will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate (i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction/demolition debris recycling facility, etc.). Actual disposal quantities and associated documentation will be reported to the NYSDEC and Con Edison in a Construction Completion Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

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

B-10 MATERIALS REUSE ON-SITE

A remedy for the ISMP area has not yet been selected by the NYSDEC; therefore, site-specific soil remediation goals for subsurface soil have not been defined. Concurrence with the NYSDEC must be obtained prior to excavation activities regarding soil reuse criteria. The qualified environmental professional will ensure that procedures defined for materials reuse in this EWP are followed and that unacceptable material does not remain on-site.

Staged soil identified for potential reuse based on no visual observation of impacts or presence of odors can be used a backfill material beneath a minimum of 2 feet of imported approved cover material. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below a demarcation layer (see paragraph B-12) or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. Use of excavated soil for backfill material will also be limited to placement above the groundwater table.

Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

B-11 FLUIDS MANAGEMENT

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

Pumping of water from excavations (i.e., groundwater and/or storm water accumulating in excavations) within the ISMP Area, if necessary, shall be done in such a manner as to prevent the migration of particulates or soil/fill and to prevent damage to the existing subgrade. Water pumped from such excavations shall be assumed to exceed the surface water and groundwater quality standards set forth in 6 NYCRR Part 703.5 and TOGS 1.1.1, respectively. Water should be discharged to the local sewer authority (if authorized), transported offsite for proper disposal, or treated on site via a treatment system that has been approved by the NYSDEC, as appropriate. Runoff from surface discharges shall be controlled/eliminated. No discharges shall enter a surface water body without proper permits.

B-12 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the pre-existing cover materials will be restored in kind (e.g., grassed area, asphalt pavement, concrete sidewalks, etc.). At a minimum, the cover system will consist of a minimum of 24 inches of clean soil as described in paragraph B-13. The demarcation layer, consisting of a geotextile or equivalent material will be placed to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soil defined in the ISMP.

B-13 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional. prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

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

All imported soil will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Trucks entering the site with imported soil will be securely covered with tight fitting covers. Imported soil will be stockpiled separately from excavated materials and covered to prevent dust releases.

Fill material that is imported from an off site source(s) to backfill subsurface excavations or provide a cover layer in the ISMP area shall meet the requirements of NYSDEC DER-10, Section 5.4(e), including the following criteria:

- Off site borrow soils shall be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic or radioactive substances, wastes or petroleum products, and be compliant with the requirements of, and not exceed the allowable constituent levels for imported Unrestricted Use fill that are provided in Section 5.4(e) and Appendix 5 of NYSDEC DER-10.
- Off site borrow soils cannot otherwise be defined as a solid waste in accordance with 6NYCRR Part 360-1.2(a).
- Sampling is required for all imported soil backfill and cover material. Sampling frequency of the material will be determined using either: a) the guidance provided in NYSDEC DER-10, Table 5.4(e), or; b) a NYSDEC-approved work plan. Discrete and composite samples will be required; the quantity of samples will be determined based on the volume of soil imported for use.
- At least one sample from every source is required as described in Section 5.4(e)3 of NYSDEC DER-10.
- Laboratory analyses will be determined using either: a) the guidance provided in Table 5.4(e) and Section 10 of the NYSDEC DER-10, or; b) a NYSDEC-approved work plan. Generally, composite samples should be analyzed for polychlorinated biphenyls (PCBs), pesticides, Target Compound List (TCL) SVOCs, and Target Analyte List (TAL) inorganic constituents (including cyanide); discrete samples should be analyzed for TCL VOCs.

- Material containing constituents at concentrations greater than the NYSDEC DER-10 Unrestricted Use criteria may only be used as fill material with prior approval from NYSDEC.
- In non-paved areas, the top 2 feet of backfill should be clean fill that meets NYSDEC DER-10 Unrestricted Use criteria.

B-14 STORMWATER POLLUTION PREVENTION

During activities covered by this EWP, erosion and sedimentation control measures shall be employed in accordance with site-specific plans (e.g., erosion control plans) prepared by the ISMP Entity, or it’s contractor, in conformance with applicable laws and regulations. Proven soil conservation practices shall be incorporated in any such plans in order to mitigate soil erosion, off-site sediment migration, and water pollution from erosion. Appropriate temporary erosion control measures (e.g., silt fencing, hay bales) shall be installed and maintained around all impacted and potentially impacted soil/fill stockpiles and non-vegetated soil surfaces in the ISMP Area during such activities. Such stockpiles shall be graded and compacted as necessary for positive surface water runoff and dust control.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area. Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

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

B-15 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during subsurface excavations or development related construction, excavation activities will be suspended until the NYSDEC's Project Manager and Con Edison is notified and sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soil, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analyses to be performed will be developed in conjunction with the NYSDEC prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will also be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Construction Completion Report.

B-16 COMMUNITY AIR MONITORING PLAN

Community air monitoring will be conducted during soil disturbance activities within the ISMP area. A copy of the NYSDOH *Generic Community Air Monitoring Plan* (Generic CAMP) is included as Appendix C to the ISMP. The ISMP Entity will confirm monitoring requirements with the NYSDEC prior to mobilization to the site for ground intrusive activities.

Real-time monitoring for VOCs and particulates (i.e., dust) at the upwind and downwind perimeter of each designated work area will be required. The intent is to provide a measure of protection for the community (including residences, on-site workers not directly involved with the subject work activities, etc.) from potential airborne contaminant releases. Normal lawn care and shallow (less than 2 feet below ground surface) seasonal plantings of shrubs or flowers will not require community air monitoring.

A figure showing the location of air sampling stations based on generally prevailing wind conditions should be prepared and submitted with the notification requirements described in Section B-1 These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least one downwind monitoring station.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

B-17 ODOR CONTROL PLAN

Odor control may be required during implementation of this ISMP. The ISMP Entity will prepare an Odor Control Plan for approval by the NYSDEC as part of the notifications requirements. Odor control methods shall be capable of controlling emissions of MGP-related nuisance odors from intrusive work. If MGP-related nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. Con Edison and the NYSDEC will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the ISMP Entity's Remediation Engineer, and any measures that are implemented will be discussed in the completion report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soil.

If odors develop and cannot be otherwise controlled, additional means to eliminate MGP-related nuisance odors will include: (d) direct load-out of soil to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

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

B-18 DUST CONTROL PLAN

During activities covered by the ISMP, dust control measures shall be employed in accordance with site-specific plans (including a site-specific HASP and CAMP) prepared in conformance with applicable laws and regulations. The ISMP Entity or it's contractor will incorporate a dust suppression plan in accordance with applicable regulations that addresses dust management during invasive on-site work that will include, at a minimum, the items listed below:

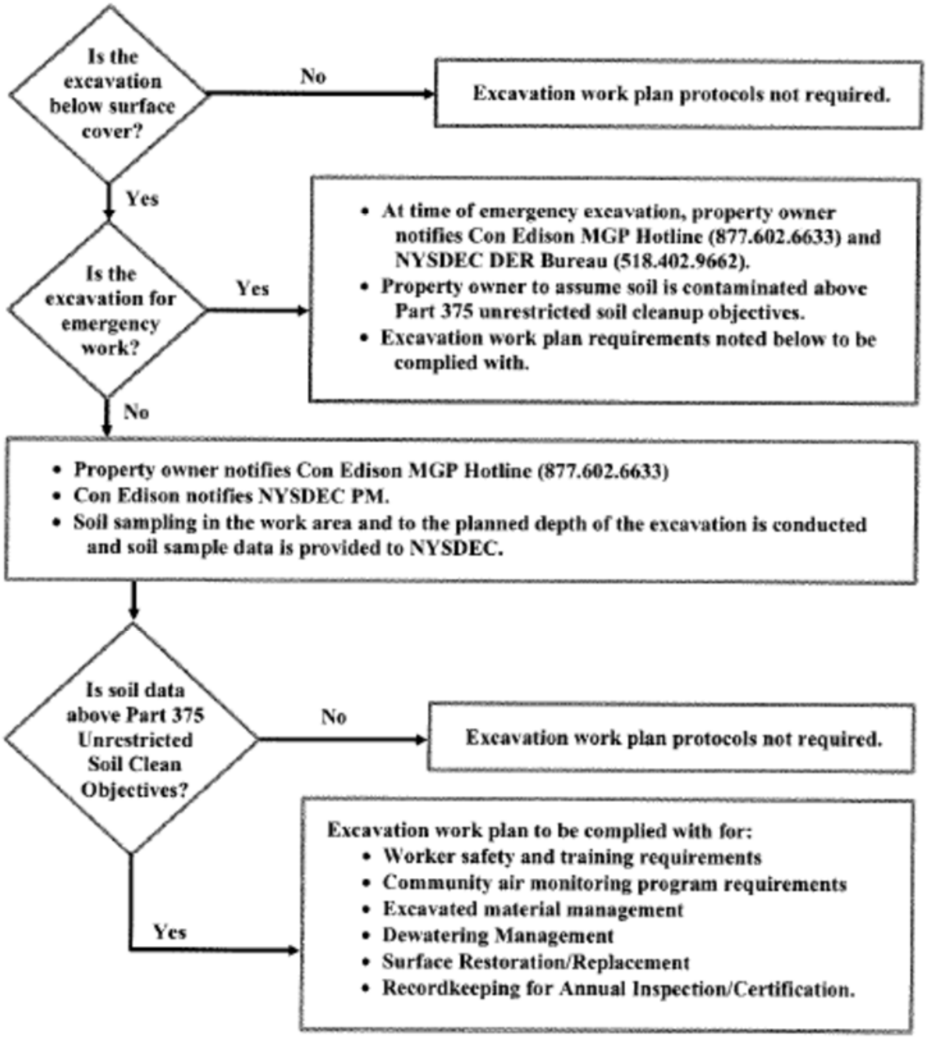
- Dust suppression will be achieved through the use of a dedicated on-site water supply for road wetting, applying water on traffic areas, wetting equipment, spraying water on earth-removal equipment buckets during dumping, and hauling materials in properly covered or watertight containers.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soil vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

During activities involving earthwork in the ISMP area that may generate significant dust, air monitoring for particulates (i.e., dust) shall be performed in accordance with applicable regulations. Appropriate measures shall be taken (as described above) to keep particulate levels below the action levels set forth in the site-specific HASP and CAMP. If action levels for dust are exceeded, work must be suspended until additional or other appropriate dust control measures are employed to remedy the situation.

ATTACHMENT B-1

INTRUSIVE ACTIVITIES GUIDELINES

INTRUSIVE ACTIVITIES GUIDELINES



Is the excavation below surface cover?

Excavation work plan protocols not required.

Is the excavation for emergency work?

- At time of emergency excavation, property owner notifies Con Edison MGP Hotline (877.602.6633) and NYSDEC DER Bureau (518.402.9662).
- Property owner to assume soil is contaminated above Part 375 unrestricted soil cleanup objectives.
- Excavation work plan requirements noted below to be complied with.

- Property owner notifies Con Edison MGP Hotline (877.602.6633)
- Con Edison notifies NYSDEC PM.
- Soil sampling in the work area and to the planned depth of the excavation is conducted and soil sample data is provided to NYSDEC.

Is soil data above Part 375 Unrestricted Soil Clean Objectives?

Excavation work plan protocols not required.

Excavation work plan to be complied with for:

- Worker safety and training requirements
- Community air monitoring program requirements
- Excavated material management
- Dewatering Management
- Surface Restoration/Replacement
- Recordkeeping for Annual Inspection/Certification.

Appendix C

NYSDOH Generic Community Air Monitoring Plan

Appendix C
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. APeriodic@ monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

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

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

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

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix D

Generic Health and Safety Plan

APPENDIX D – GENERIC HEALTH AND SAFETY PLAN

Invasive work that may disturb the soil within the ISMP area will be performed in accordance with applicable federal, state, and local rules and regulations to protect worker health and safety. If intrusive work is expected to be conducted where impacted soil or groundwater is anticipated, the ISMP Entity conducting the intrusive activities (such as the NYCHA or their Contractor) will prepare and follow a site-specific, activity-specific HASP that meets the requirements of 29 CFR 1910 and 29 CFR 1926 and details the procedures that will be utilized to comply with applicable regulations and mitigate potential exposures. In addition, entities performing the monitoring requirements of this EWP will also prepare and maintain their own site- and task-specific HASP onsite during the work activities. Normal lawn care or other aboveground landscaping is not considered intrusive activities that require implementation of a HASP. In addition, shallow (less than 2 feet below ground surface) seasonal plantings of shrubs or flowers, which occur at a frequency of less than three days per planting season (per year), also will not trigger the requirements set forth in this HASP.

The HASP will cover all personnel who will be employed by the ISMP Entity to perform the work within the ISMP area at the Jacob Riis Houses complex, including direct employees, as well as subcontractors. If the ISMP Entity does not wish to include subcontractors under their HASP, the subcontractor will be responsible for developing and implementing their own HASP that meets the applicable requirements.

The site-specific HASPs will include information regarding activities anticipated to be conducted within the ISMP area. All ISMP Entities who may come in to contact with impacted environmental media will follow the site-specific HASP detailing the procedures that will be utilized to comply with applicable regulations. These procedures may include wearing adequate PPE, performing appropriate air monitoring, and implementing other engineering controls, as necessary, to mitigate potential ingestion, inhalation, or contact with residual constituents in the soil.

The ISMP Entity has the sole responsibility for confirming that the worksite is safe, neat, and maintained in an orderly condition, and is free from hazards. The ISMP Entity is also solely responsible by law for compliance, and regulatory reporting requirements, for all workplace and employee safety issues.

A generic HASP is included as **Appendix D** for reference purposes. This generic HASP should be reviewed by a qualified representative for the ISMP Entity and their Contractor performing the work, and should revised to include task-specific requirements and procedures, the most current regulatory requirements, and any additional safety requirements. **Inclusion of this Generic HASP is for illustrative purposes only. ISMP Entities shall be responsible for preparing a site-specific HASP in accordance with the ISMP and all applicable local, state and federal rules, laws and regulations.** ISMP entities shall be solely responsible for the health and safety of their own employees, subcontractors, agents and invitees, the public, and protection of property.

Consolidated Edison Company of New York, Inc.

APPENDIX D

GENERIC HEALTH AND SAFETY PLAN

ISMP for Jacob Riis Houses

NYSDEC Site No. V00534

May 2017

GENERIC HEALTH AND SAFETY PLAN

ISMP For Jacob Riis Houses

NYSDEC Site No. V00534

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SIGNATURES

I have read, understand and agree to abide by the requirements presented in this health and safety plan (HASP). I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Name Printed	Signature	Date

CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
Bpm	beats per minute
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COI	Constituent of Interest
Con Edison	Consolidated Edison Company of New York, Inc.
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination-Reduction Zone
dBA	A-weighted decibels
DEET	diethyltoluamide
EH&S	Environmental Health and Safety
EMS	Emergency Medical Services
EZ	Exclusion Zone
FM	Factory Mutual Engineering Corporation
GFCI	Ground-Fault-Circuit Interrupter
GPR	ground penetrating radar
HASP	Health and Safety Plan
HSO	Health and Safety Officer
HSS	Health and Safety Supervisor
II	Incident Investigation
kV	Kilovolt
LEL	Lower Explosive Limit
Mph	miles per hour
NEC	National Electrical Code
NESC	National Electrical Safety Code
NIOSH	National Institute for Occupational Safety and Health

NRR	noise reduction rating
NYCDEP	New York City Department of Environmental Protection
NYCHA	New York City Housing Authority
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
OVA	organic vapor analyzer
PEL	permissible exposure limit
PID	photoionization detector
PM	Project Manager
PM_{10}	particulate matter less than ten microns in diameter
PPE	personal protective equipment
ppm	part per million
PVC	polyvinyl chloride
RMSF	Rocky Mountain Spotted Fever
SDS	Safety Data Sheet
SMP	Site Management Plan
SS	Site Supervisor
SVOC	semi-volatile organic compound
SZ	Support Zone
TLV	threshold limit value
UL	Underwriters Laboratory
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
$\mu g/m^3$	microgram per cubic meter

PREFACE

This *Generic Health and Safety Plan* (GHASP) presents a guide for Contractors performing field sampling activities and/or intrusive work in potentially impacted areas of the Jacob Riis Houses complex, as described in the Interim *Site Management Plan for Jacob Riis Houses* (ISMP). For the purposes of this GHASP, maintenance, contractors, utilities workers, and/or NYCHA employees or their contractors conducting intrusive activities within the ISMP area are collectively referred to as "ISMP Entities".

This generic HASP should be reviewed by a qualified representative for the ISMP Entity and their Contractor performing the work, and should revised/updated to include task-specific requirements and procedures, the most current regulatory requirements, and any additional safety requirements. **Inclusion of this Generic HASP is for illustrative purposes only. ISMP Entities shall be responsible for preparing a site-specific HASP in accordance with the ISMP and all applicable local, state and federal rules, laws and regulations.** ISMP Entities shall be solely responsible for the health and safety of their own employees, subcontractors, agents and invitees, the public, and protection of property.

Any intrusive work on the site that will potentially encounter or disturb remaining MGP-impacts, including any modifications or repairs to the existing ground surface cover, will be performed in compliance with a Contractor-prepared task-specific HASP. The Contractor's HASP must be in compliance with DER-10 and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Invasive work must be performed in accordance with applicable federal, state, and local rules and regulations to protect worker health and safety. The Contractor's HASP will cover all personnel who will be employed by the Contractor to perform the work at the site, including direct employees, as well as subcontractors. If the Contractor does not wish to include subcontractors under the HASP, the subcontractor will be responsible for developing and implementing a HASP that meets applicable requirements. The Contractor will submit the task-specific HASP to the NYSDEC and Con Edison for review prior to initiating intrusive activities.

This GHASP may be used as a guide when preparing the task-specific HASP; however, current site conditions must be considered and specific site activities defined evaluated. All Contractor employees who may come in to contact with potentially impacted environmental media will follow the Contractor's site-specific HASP detailing the procedures that will be utilized to comply with applicable regulations. The Contractor has the sole responsibility for confirming that the worksite is safe, neat, and maintained in an orderly condition, and is free from hazards. The Contractor is also solely responsible by law for compliance and regulatory reporting requirements for all workplace and employee safety issues.

1 INTRODUCTION

1.1 Objective

This GHASP has been prepared to serve as a guidance document to establish baseline safety activities required when performing intrusive within the ISMP area of the Jacob Riis Houses complex. The objective of this Generic HASP is to provide an example/mechanism for establishing safe working conditions at the site. The safety organization, procedures, protective equipment, and specific hazard control methodologies to minimize the potential for injury, illness, or other incidents for activities that expose soil within the identified area of the site presented in this Generic HASP need to be reviewed/established by the ISMP Entity based on an analysis of potential physical, chemical, and environmental hazards.

The minimum requirements presented in this Generic HASP shall be followed for any intrusive activities conducted within the ISMP area (defined in the ISMP) by ISMP Entities. Intrusive activities may include, but are not limited to: excavation, fence post installation, landscaping which results in disturbance of site soil, re-grading of the property, and installation or maintenance of subsurface utilities or conduit at any depth below grade. Normal lawn care or other aboveground landscaping is not considered intrusive activities that require implementation of a HASP. In addition, shallow (less than 2 feet below ground surface) seasonal plantings of shrubs or flowers, which occur at a frequency of less than three days per planting season (per year), also will not trigger the requirements set forth in this HASP.

As of the issue date of this GHASP, the guidance provided was consistent with applicable Occupational Safety and Health Administration (OSHA) regulations and United States Environmental Protection Agency (USEPA) Standard Operating Safety Guidelines (USEPA, 1992); however, must be verified by the ISMP Entity. Guidance documents are provided in the references listed in Section 10. **This GHASP is for illustrative purposes only**. ISMP Entities shall be responsible for preparing a site-specific HASP in accordance with the ISMP and all applicable local, state and federal rules, laws and regulations. ISMP entities shall be solely responsible for the health and safety of their own employees, subcontractors, agents and invitees, the public, and protection of property. Any use or adaptation of this GHASP by ISMP entities will be at the sole risk of such ISMP Entity.

The scope of work proposed by a ISMP Entity should be reviewed as it pertains to the generic requirements of this document, and incorporated into a task-specific document.

1.2 Definitions

The following definitions (listed alphabetically) are applicable to this HASP:

- Contamination-Reduction Zone (CRZ) - Area between the exclusion zone and support zone that provides a transition between contaminated and clean areas. Decontamination stations are located in this zone.

- Exclusion Zone (EZ) - Any portions of the site where hazardous substances are present, or are reasonably suspected to be present, and pose an exposure hazard to on-site personnel.

- Incident - All losses, including first-aid cases, injuries, illnesses, near-misses, spills/leaks, equipment and property damage, motor vehicle accidents, regulatory violations, fires, and business interruptions.
- Near-Miss - An incident in which no injury, illness, motor vehicle accident, equipment or property damage, etc., occurred, but under slightly different circumstances could have occurred.
- Project - All on site work performed under the scope of work.
- Site - The area where the work is to be performed.
- Subcontractor - Includes contractor personnel.
- Support Zone (SZ) - All areas of the site, except the EZ and CRZ. The SZ surrounds the CRZ and EZ. Support equipment and break areas are located in this zone.
- Visitor - All other personnel, except the on-site personnel.
- Work Area - The portion of the site where work activities are actively being performed. This area may change daily as work progresses and includes the SZ, CRZ, and EZ. If the work area is located in an area on site that is not contaminated, or suspected of being contaminated, the entire work area may be an SZ.

2 ROLES AND RESPONSIBILITIES

2.1 All Personnel

All personnel must adhere to the procedures outlined in this GHASP during the performance of their work. Each person is responsible for completing tasks safely and reporting any unsafe acts or conditions to their supervisor. No person may work in a manner that is in conflict with these procedures. After due warnings, any person or subcontractor who violates safety procedures will be dismissed from the site.

All personnel will receive training in accordance with applicable regulations, and be familiar with the requirements and procedures contained in this Generic HASP prior to initiating site activities. In addition, all personnel will attend an initial hazard briefing prior to beginning work at the site.

2.2 Personnel Descriptions

2.2.1 Health and Safety Officer

The Health and Safety Officer (HSO) or his/her designee (Health and Safety Manager) has overall responsibility for technical health and safety aspects including review and approval of the site-specific HASP. Inquiries regarding health and safety procedures and technical or regulatory issues should be addressed to this individual. The HSO or his/her designee must approve changes or addenda to the HASP.

2.2.2 Project Manager

The Project Manager (PM) is responsible for verifying that activities are completed in accordance with the requirements of the site HASP, for providing resources so that project activities are completed in accordance with the HASP, and for meeting all regulatory and contractual requirements. The PM is responsible for confirming that the Site Supervisor (SS) has the equipment, materials, and qualified personnel to fully implement the safety requirements of the HASP, and/or subcontractors assigned to a project. It is also the responsibility of the PM to perform the following duties:

- Consult with the HSO on-site health and safety issues.
- Verify that subcontractors meet health and safety requirements prior to commencing work.
- Verify that all incidents are thoroughly investigated.
- Approve, in writing, addenda or modifications to the HASP.
- Suspend work or modify work practices, as necessary, for personal safety, protection of property, and regulatory compliance.

2.2.3 Health and Safety Supervisor

The Health and Safety Supervisor (HSS) is responsible for field health and safety issues, including the execution of the HASP. Questions in the field regarding health and safety procedures, project procedures, and other technical or regulatory issues should be addressed to this individual. The HSS will advise the PM on health and safety issues, and will establish and coordinate the project air monitoring program if one is deemed necessary (see Section 6.1, Air Monitoring). The HSS is the primary site contact on health and safety matters. It is the responsibility of the HSS to perform the following duties:

- Provide on-site technical assistance, if necessary.
- Participate in all incident investigations (IIs) and confirm that they are reported to the PM and Con Edison within 24 hours (or sooner to Con Edison based upon contractual agreement).
- Coordinate site and personal air monitoring, as required, including equipment maintenance and calibration.
- Conduct site safety orientation training and safety meetings.
- Verify that all personnel and subcontractors have received the required physical examinations and medical certifications.
- Review site activities with respect to compliance with the HASP.
- Maintain required health and safety documents and records.
- Assist the SS in instructing field personnel on project hazards and protective procedures.

2.2.4 Site Supervisor

The Site Supervisor (SS) is responsible for implementing the HASP, including communicating requirements to on-site personnel and subcontractors. The SS will be responsible for informing the PM of changes in the work plan, procedures, or site conditions so that those changes may be addressed in the HASP. Other responsibilities are to perform the following duties:

- Consult with the HSS on-site health and safety issues.
- Stop work, as necessary, for personal safety, protection of property, and regulatory compliance.
- Obtain a site map, determine and post routes to medical facilities, and post emergency telephone numbers.
- Notify local public emergency representatives (as appropriate) of the nature of the site operations and post their telephone numbers (e.g., local fire department personnel who would respond for a confined-space rescue).

- Observe on-site project personnel for signs of ill-health effects.
- Investigate and report any incidents to the PM and Con Edison.
- Verify that all on-site personnel have completed applicable training.
- Verify that on-site personnel are informed of the physical, chemical, and biological hazards associated with the site activities and the procedures and protective equipment necessary to control the hazards.
- Issue/obtain any required work permits.
- Perform and/or oversee real-time breathing zone air monitoring and monitoring under the Community Air Monitoring Plan (CAMP).

2.3 Subcontractors

Subcontractors and their personnel must understand and comply with applicable regulations and site requirements established in the task-specific HASP. Subcontractors may prepare their own site-specific HASP that must be consistent with the requirements of this GHASP.

All subcontractor personnel will receive training in accordance with applicable regulations and be familiar with the requirements and procedures contained in this GHASP prior to initiating site activities. All subcontractor personnel will attend an initial hazard briefing prior to beginning work at the site. Additionally, on-site subcontractor personnel must attend and participate in the documented daily safety meetings.

Subcontractors must designate individuals to function as the PM, HSO, HSS, and SS. In some firms, it is not uncommon for the duties of the HSO to be carried out by the PM. This is acceptable, provided that the PM has the required knowledge, training, and experience to properly address all hazards associated with the work, and to prepare, approve, and oversee the execution of the subcontractor's HASP. A subcontractor may designate the same person to perform the duties of both the HSS and the SS. However, depending on the level of complexity of a contractor's scope of work, it may be infeasible for one person to perform both functions satisfactorily.

2.4 All On-Site Personnel

All on-site personnel (including subcontractors) must read and acknowledge their understanding of the HASP before commencing work, and abide by its requirements. All on-site personnel must sign the HASP Acknowledgement Form after reviewing the HASP.

All personnel will receive training in accordance with applicable regulations, and be familiar with the requirements and procedures contained in the HASP prior to initiating site activities. In addition, all on-site personnel will attend an initial hazard briefing (prior to beginning work at the site) and the daily safety meetings.

On-site personnel will immediately report the following to the PM and Con Edison:

- Personal injuries and illnesses, no matter how minor.
- Unexpected or uncontrolled release of chemical substances.
- Symptoms of chemical exposure.
- Unsafe or hazardous situations.
- Unsafe or malfunctioning equipment.
- Changes in site conditions that may affect the health and safety of project personnel.
- Damage to equipment or property.
- Situations or activities for which they are not properly trained.
- Near-misses.

2.5 Visitors

All visitors to work areas must check in with the SS. Visitors will be cautioned to avoid skin contact with surfaces, soils, groundwater, or other materials that may be, or are suspected to be, impacted by constituents of interest (COIs).

Visitors requesting to observe work at the site must don appropriate personal protective equipment (PPE) prior to entering the work area, and must have the appropriate training and medical clearances to do so. If respiratory protective devices are necessary, visitors who wish to enter the work area must have been respirator trained and fit-tested for a respirator within the past 12 months. Visitors will be escorted at all times while on site.

2.6 Stop Work Authority

Every employee and subcontractor is empowered, expected, and has the responsibility to stop the work of another co-worker if the working conditions or behaviors are considered unsafe.

2.7 Applicable Con Edison Environmental, Health, and Safety (EH&S) Policy Guidelines

A Con Edison EH&S Hazard Analysis for Contractor Work and EH&S Hazard Analysis for Contractor Work are provided in Appendix A. Con Edison Work Plan Guides that may be applicable to planned activities are also provided in Appendix A. These documents will be reviewed by site personnel prior to the commencement of site activities.

3 PROJECT HAZARDS AND CONTROL MEASURES

3.1 Scope of Work

Potential field activities may include the following tasks:

- Field mobilization/site reconnaissance.
- Subsurface utility location and clearance.
- Excavation.
- Fence post installation.
- Landscaping.
- Equipment decontamination.
- Field demobilization.

Because of the complex and changing nature of field projects, supervisors must continually inspect the work site to identify hazards that may harm site personnel, the community, or the environment. The SS must be aware of these changing conditions and discuss them with the PM whenever these changes impact employee health, safety, the environment, or performance of the project. The SS will keep all personnel and subcontractors informed of the changing conditions, and the HSO will write or approve addenda or revisions to the HASP as necessary. Each field activity is described below, and potential hazards and control measures for each activity are discussed.

3.1.1 Field Mobilization/Site Reconnaissance

As part of the mobilization activities, project personnel will walk the site to confirm the existence of anticipated hazards, and identify safety and health issues that may have arisen since the writing of this plan. Site mobilization will also include establishing work areas. A break area will be established outside the regulated work area (i.e., in the support zone).

Hazards – The hazards of this phase of activity are associated with heavy equipment movement, manual materials handling, installation of temporary on-site facilities, and manual site preparation. Manual materials handling and manual site preparation may cause blisters, sore muscles, and joint and skeletal injuries; and may present eye, contusion and laceration hazards. The work area presents slip, trip and fall hazards from scattered debris and irregular walking surfaces. Freezing-weather hazards include frozen, slick and irregular walking surfaces. Rainy weather may cause wet, muddy, slick walking surfaces, and unstable soil. Installation of temporary field support facilities may expose personnel to electrical hazards, underground and overhead utilities, and physical injury due to manual lifting and moving of materials.

Environmental hazards include plants, such as poison ivy and poison oak; aggressive fauna, such as ticks, fleas, mosquitoes, wasps, spiders, rats, and snakes; weather, such as sunburn, lightning, rain, heat and cold-related illnesses; and pathogens, such as rabies, Lyme disease, and bloodborne pathogens.

Control – Control procedures for the above-mentioned hazards are discussed in Section 4, General Safety Practices.

3.1.2 Subsurface Utility Location and Clearance

All utility clearance activities will be performed in accordance to the Con Edison Utility Clearance Process for Intrusive Activities Revision 1, dated October 8, 2003 (Con Edison, October 2003). Minimum overhead electrical clearances are provided in Table 3-1. As part of the utility clearance activities, an initial geophysical survey followed by a removal of surface covers will be performed. The geophysical survey will include the use of ground penetrating radar (GPR) and electromagnetic utility locating instruments. A copy of the Con Edison Utility Clearance Process Checklist (Appendix B) is included as an example for use to document that nearby utilities have been marked on the ground. Each checklist shall be in the possession of the SS prior to commencement of the intrusive activity at that point of the site.

The surface cover removal will consist of using power tools to remove concrete and/or asphalt surface covers to expose underlying soil/fill material. Soil/fill material will be removed manually utilizing a decontaminated hand auger or post-hole digger in tandem with a non-conductive probe rod, which can be used to confirm the absence of underground utilities to a minimum depth of five feet below the bottom of the interior concrete slab, or vacuum excavation methods.

Hazards – Transport and operation of GPR and electromagnetic utility locating equipment and trips/slips/falls are the main hazards associated with the geophysical investigation. The primary physical hazards for this activity are associated with the use of concrete cutting equipment, lifting and awkward posture/repetitive motion, slips/trips/falls and potential exposure to COIs. Inhalation and absorption of COIs and/or dust, and proximity of operations to the breathing zone are the primary routes of entry associated with manual excavation of potentially impacted subsurface soils. The hazards directly associated with manual hand auguring include strains, sprains, pinching, and potential eye hazards.

Environmental hazards include plants, such as poison ivy and poison oak; aggressive fauna, such as ticks, fleas, mosquitoes, wasps, spiders, rats, and snakes; weather, such as sunburn, lightning, rain, heat and cold-related illnesses; and pathogens, such as rabies, Lyme disease, and bloodborne pathogens.

Control – Initially Level D protection will be worn during utility clearance activities. If COIs are encountered, personnel will upgrade to Modified Level D protection to control dermal exposure. If necessary, based on field observations and site conditions, air monitoring may be conducted during utility clearance activities to assess the potential for exposure to airborne COIs. If the results of air monitoring indicate the presence of organic vapors in a concentration causing concern, personnel will upgrade to Level C protection. Section 6.1, Air Monitoring, describes air monitoring requirements and action levels. Each level of PPE is described in Section 5, Personal Protective Equipment. Control procedures for environmental and general hazards are discussed in Section 4, General Safety Practices.

Saw cutting or coring of concrete or asphalt surfacing will not be conducted directly above any dielectric feeder cables (a.k.a. “pipe-type” feeders), regardless of the dielectric feeder cable depth. Vacuum excavation, for utility clearance test pitting purposes, will be accomplished with vacuum excavation equipment that is equipped with a manual (“butterfly” valve) or remote (immediate) electronic vacuum cut-off control that is operational.

3.1.3 Excavation

3.1.3.1 Soil Excavation

This task involves the creation of a man-made cut, trench, or depression in the earth's surface.

Physical Hazards: The physical hazards involved in the excavation of soils are related to the excavation itself, and the operation of heavy equipment. Excavations pose significant hazards to employees if they are not carefully controlled. There exists a chance for the excavation to collapse in on itself if it is not dug properly, sloped, benched, and/or shored as required. The excavation is also a fall hazard, and employees must pay careful attention to what they are doing or they risk a fall into the excavation.

In some areas of the site, the presence of overhead utilities, such as power lines, requires careful positioning of the excavating equipment in order to maintain a safe distance between the lines and the closest part of the equipment. The presence of underground utilities, such as gas lines, power lines, water lines, telephone lines, and sewer pipes, must be determined prior to beginning the excavation.

Some field activities may require personnel to enter an excavation. Whenever possible, sampling, equipment placement, and other activities should be done remotely, without entering the excavation.

Noise may also present a hazard. Heavy equipment operation frequently results in noise levels exceeding 85 dBA, requiring the use of hearing protection for exposed personnel.

Chemical Hazards: Airborne concentrations of soil contaminants and the dust from the procedure pose the potential for exposure.

Control: All excavation shall be performed from a stable ground position. Daily inspections of the excavation shall be made by a competent person, one who has received training in excavation safety. The inspector shall determine the likelihood of a cave-in, and corrective action, such as sloping or shoring, shall be taken if the walls appear to be unstable.

All spoils shall be located at least 2 feet from the edge of the excavation to prevent it from falling back into the excavation. The excavation shall be guarded on all sides by barricades or caution tape at least 2 feet from the edge.

Before any digging can be done, all underground utilities must be located and identified.

All project personnel shall participate in the Daily Safety Meetings and be instructed on the following requirements:

- Before excavating, the existence and location of underground pipe, electrical equipment, and gas lines will be determined by contacting the appropriate utility company and/or client representative to mark the location of the lines. If the client's knowledge of the area is incomplete, an appropriate device, such as a cable avoiding tool, will be used to locate the service line.

- A combustible gas indicator will be used to monitor the excavation area if flammable vapors are suspected.

- Operations must be suspended and the area vented if the airborne flammable concentration exceeds 10 percent of the LEL in the area of an ignition source (i.e., sparks from bucket of excavator).

- If excavating equipment is located in the vicinity of overhead power lines, a minimum distance must be maintained between the lines and any point on the equipment. The following table presents these minimum distances.

Table 3-1

Minimum Safe Distances

Nominal System Voltage	**Minimum Required Clearance**
0-50kV	10 feet
51-100kV	12 feet
101-200kV	15 feet
201-300kV	20 feet
301-500kV	25 feet
501-750kV	35 feet
751-1,000kV	45 feet

When the equipment is in transit, with the boom lowered and no load, the equipment clearance must be at least 4 feet for voltages less than 50kV, 10 feet for voltages of 50kV to 345kV, and 16 feet for voltages above 345kV.

Dust Control: Airborne particulate generation will be controlled during site excavations. Although the site soils are sandy, dust generation is possible; dry, dusty soil will be wetted with a water spray from a potable water source to control the generation of dust. Soil will not be wetted to a degree which will cause runoff or soil erosion.

3.1.3.2 Soil Classification

29 CFR 1926 Subpart P, Appendix A describes methods for classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The

appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils. This appendix applies during the following conditions:

- Sloping or benching system is designed in accordance with the requirements set forth in 1926.652(b)(2) as a method of protection for employees from cave-ins.
- Timber shoring for excavations is designed as a method of protection from cave-ins in accordance with Appendix C to Subpart P of Part 1926, and when aluminum hydraulic shoring is designed in accordance with 29 CFR Subpart P, Appendix D.
- If other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in 1926.652(c), and the use of the data are predicated on the use of the soil classification system set forth in Appendix A of 29 CFR 1926.

Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V). Short-term exposure means a period of time less than or equal to 24 hours that an excavation is open. Soil and rock deposits must be classified in accordance with Appendix A to Subpart P of Part 1926. The maximum allowable slope for a soil or rock deposit must be determined from the table below. The actual slope must not be steeper than the maximum allowable slope. The actual slope must be less steep than the maximum allowable slope when there are signs of distress. If that situation occurs, the slope must be cut back to an actual slope that is at least one-half horizontal to one vertical (½H:1V) less steep than the maximum allowable slope. When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person must determine the degree to which the actual slope must be reduced below the maximum allowable slope and confirm that such reduction is achieved. Surcharge loads from adjacent structures must be evaluated in accordance with 1926.651(l). Configurations of sloping and benching systems must be in accordance with 29 CFR 1926 Subpart P, Appendix B.

Maximum Allowable Slopes

(29 CFR 1926 Subpart P Appendix B)

Soil or Rock Type	Maximum Allowable Slopes (H:V)[1] for Excavations Less Than 20 Feet Deep[2]
Stable Rock	Vertical (90°)
Type A[3]	¾:1 (53°)
Type B	1:1 (45°)
Type C	1½ :1 (34°)

Notes:

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

[2] Sloping or benching for excavations greater than 20 feet deep must be designed by a registered professional engineer.

[3] A short-term maximum allowable slope of ½H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth must be ¾H:1V (53°).

(Source: Table B-1, 29 CFR 1926 Subpart P Appendix B, Maximum Allowable Slopes.)

3.1.3.3 Excavation Entry Procedure

Persons entering an excavation must do so under controlled conditions. The excavation must be properly sloped, benched, or shored, and ladders or ramps must be available every 25 feet laterally in the excavation. Each entry shall have an attendant who observes the entrant(s) and is prepared to render assistance. Competent person inspections should be conducted prior to entry to verify that conditions are acceptable for employees.

Inspections must also be made after every rainstorm or other hazard-increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated. Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees must be removed from the hazardous area until the necessary precautions have been taken to maintain their safety.

Walkways must be provided where employees or equipment are required or permitted to cross over excavations. Guardrails that comply with 1926.502(b) must be provided. Adequate barrier protection must be provided at all remotely located excavations. All wells, pits, shafts, etc., must be barricaded or covered. Upon completing exploration and other similar operations, temporary wells, pits, shafts, etc., must be backfilled.

Duties of Workers Entering an Excavation:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure to site contaminants.
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space.
- Alert the attendant whenever:
  - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
  - The entrant detects a prohibited condition.
- Exit from the excavation as quickly as possible whenever:
  - An order to evacuate is given by the attendant or the supervisor.
  - The entrant recognizes any warning sign or symptom of exposure to a dangers situation.

  - The entrant detects a prohibited condition.

Duties of Attendants:

- Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure to site contaminants.
- Continuously maintains a count of entrants in the excavation.
- Remains outside the excavation during entry operations until relieved by another attendant.
- Communicates with authorized entrants as necessary to monitor entrant status to alert entrants of the need to evacuate the excavation under any of the following conditions:
  - If the attendant detects a prohibited condition.
  - If the attendant detects the behavioral effects of hazard exposure in an entrant.
  - If the attendant detects a situation outside the excavation that could endanger the entrants.
  - If the attendant cannot effectively and safely perform his duties.
  - Summon rescue and other emergency services if the attendant determines that entrants may need assistance to evacuate the excavation.

Other hazards and controls associated with excavation activities are outlined below.

Hazards - Accidents can occur as a result of improperly placing the equipment on uneven or unstable terrain, or failing to adequately secure the equipment prior to the start of operations. Overhead utility lines can create hazardous conditions if contacted by the equipment. Underground installations such as electrical lines, conduit, and product lines pose a significant hazard if contacted. The primary physical hazards for this activity are associated with the use of excavation equipment, lifting and awkward posture/repetitive motion, slips/trips/falls and potential exposure to COIs. Inhalation and absorption of COIs and/or dust, and proximity of operations to the breathing zone are the primary routes of entry associated with manual excavation of potentially impacted subsurface soils. The hazards directly associated with manual hand auguring include strains, sprains, pinching, and potential eye hazards.

Environmental hazards include plants, such as poison ivy and poison oak; aggressive fauna, such as ticks, fleas, mosquitoes, wasps, spiders, rats, and snakes; weather, such as sunburn, lightning, rain, heat and cold-related illnesses; and pathogens, such as rabies, Lyme disease, and bloodborne pathogens.

Control – Initially Level D protection will be worn during excavation activities. If COIs are encountered, personnel will upgrade to Modified Level D protection to control dermal exposure. If necessary, based on field observations and site conditions, air monitoring may be conducted during excavation activities to assess the potential for exposure to airborne COIs. If the results of air monitoring indicate the presence of organic vapors in a concentration causing concern, personnel will upgrade to Level C protection.

Section 6.1, Air Monitoring, describes air monitoring requirements and action levels. Each level of PPE is described in Section 5, Personal Protective Equipment. Control procedures for environmental and general hazards are discussed in Section 4, General Safety Practices.

3.1.4 Fence Post Installation

Hazards and controls associated with fence post installation are outlined below.

Hazards - Accidents can occur as a result of improperly placing the equipment on uneven or unstable terrain, or failing to adequately secure the equipment prior to the start of operations. Overhead utility lines can create hazardous conditions if contacted by equipment. Underground installations such as electrical lines, conduit, and product lines pose a significant hazard if contacted. The primary physical hazards for this activity are associated with the use of fence post installation equipment, lifting and awkward posture/repetitive motion, slips/trips/falls and potential exposure to COIs. Inhalation and absorption of COIs and/or dust, and proximity of operations to the breathing zone are the primary routes of entry associated with manual excavation of potentially impacted subsurface soils. The hazards directly associated with manual hand auguring include strains, sprains, pinching, and potential eye hazards.

Environmental hazards include plants, such as poison ivy and poison oak; aggressive fauna, such as ticks, fleas, mosquitoes, wasps, spiders, rats, and snakes; weather, such as sunburn, lightning, rain, heat and cold-related illnesses; and pathogens, such as rabies, Lyme disease, and bloodborne pathogens.

Control – Initially Level D protection will be worn during fence post installation activities. If COIs are encountered, personnel will upgrade to Modified Level D protection to control dermal exposure. If necessary, based on field observations and site conditions, air monitoring may be conducted during fence post installation activities to assess the potential for exposure to airborne COIs. If the results of air monitoring indicate the presence of organic vapors in a concentration causing concern, personnel will upgrade to Level C protection. Section 6.1, Air Monitoring, describes air monitoring requirements and action levels. Each level of PPE is described in Section 5, Personal Protective Equipment. Control procedures for environmental and general hazards are discussed in Section 4, General Safety Practices.

3.1.5 Landscaping

Landscaping activities include replanting, seeding, mowing, and general site maintenance. Hazards and controls for these activities are outlined below.

Hazards - Accidents can occur as a result of improperly placing equipment on uneven or unstable terrain, or failing to adequately secure the equipment prior to the start of operations. Accidents can also occur as a result of failure to use equipment properly. Overhead utility lines can create hazardous conditions if contacted by any landscaping equipment. Underground installations such as electrical lines, conduit, and product lines pose a significant hazard if contacted. The primary physical hazards for landscaping activities are associated with the use of landscaping equipment, lifting and awkward posture/repetitive motion, slips/trips/falls and potential exposure to COIs. Inhalation and absorption of COIs and/or dust, and proximity of operations to the breathing zone are the primary routes of entry associated with manual excavation of potentially impacted subsurface soils. The hazards directly associated with manual hand auguring include strains, sprains, pinching, and potential eye hazards.

Environmental hazards include plants, such as poison ivy and poison oak; aggressive fauna, such as ticks, fleas, mosquitoes, wasps, spiders, rats, and snakes; weather, such as sunburn, lightning, rain, heat and cold-related illnesses; and pathogens, such as rabies, Lyme disease, and bloodborne pathogens.

Control – Initially Level D protection will be worn during landscaping activities. If COIs are encountered, personnel will upgrade to Modified Level D protection to control dermal exposure. If necessary, based on field observations and site conditions, air monitoring may be conducted during activities to assess the potential for exposure to airborne COIs. If the results of air monitoring indicate the presence of organic vapors in a concentration causing concern, personnel will upgrade to Level C protection. Section 6.1, Air Monitoring, describes air monitoring requirements and action levels. Each level of PPE is described in Section 5, Personal Protective Equipment. Control procedures for environmental and general hazards are discussed in Section 4, General Safety Practices.

3.1.6 Equipment Decontamination

Equipment/materials decontamination will be performed to control the transfer of COIs from the site. Equipment will be decontaminated by either scrubbing with a mild detergent/citrus solvent or a high pressure steam/wash to remove visible dirt and dust.

Hazards – Sources of chemical hazards from decontaminating equipment are decontamination detergents or solvents, foreign matter and COIs on the equipment prior to decontamination, and rinsate from the decontamination process. Physical hazards associated with this activity are back strain, slippery surfaces, cuts and burns from the high pressure steam wash and hearing loss due high levels of noise generated by the equipment.

Control – All equipment shall be decontaminated before arriving at and leaving the site. In addition, all operations that have the potential to generate or release hazardous material will be conducted in a controlled area using the appropriate engineering controls. Specific decontamination techniques will be established based on site conditions. Decontamination procedures will be reviewed with all personnel on site. A bermed (all four sides) decontamination pad on a suitable surface (concrete or paved area) with polyethylene sheeting or other appropriate containment system will be established. The decontamination pad will include a backsplash sheet. Pressure washing with manual scrub brushing as needed will be used to decontaminate equipment. COI impacted equipment will be determined “clean” by using visual inspection of all equipment.

The decontamination facility will be inspected on a daily basis for evidence of leaks or loss of integrity to the containment system. If any deficiencies are noted they will be corrected immediately. All wastewater and waste materials generated on site will be contained in the decontamination system for characterization and proper disposal.

Personnel involved in decontamination activities may be exposed to skin contact with contaminated materials and chemicals brought to the site as part of the project work. All personnel will review the operating procedures and PPE prior to decontamination. Personnel involved in decontamination activities must wear PPE that is appropriate for the task, and no less than one level below the level worn by personnel working in the EZ. PPE for this activity is specified in Section 5, Personal Protective Equipment.

3.1.7 Field Demobilization

Demobilization involves removing all tools, equipment, supplies, and vehicles brought to the site. The hazards of this phase of activity are associated with heavy equipment operation and manual materials handling.

Hazards – Manual materials handling may cause blisters, sore muscles, and joint and skeletal injuries; and may present eye, contusion, and laceration hazards. The work area presents slip, trip, and fall hazards from scattered debris and irregular walking surfaces. Rainy weather may cause wet, muddy, slick walking surfaces, and unstable soil. Freezing weather hazards include frozen, slick, and irregular walking surfaces.

Environmental hazards include plants such as poison ivy and poison oak; aggressive fauna such as ticks, fleas, mosquitoes, wasps, spiders, rats and snakes; weather such as sunburn, lightning, rain, and heat- or cold-related illnesses; and pathogens such as rabies, Lyme disease, and bloodborne pathogens.

Control – Control procedures for these hazards are discussed in Section 4, General Safety Practices.

3.2 Chemical Hazards

The chemical hazards associated with site operations are related to inhalation, ingestion, and skin or eye contact with materials that are impacted by site COIs. Potential COIs at the site include: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and cyanide.

Ambient air monitoring will occur during all intrusive site activities or any surface activity which may generate airborne emissions. Air monitoring requirements for site activities are outlined in Section 6 Air Monitoring.

The potential for inhalation of COIs during mobilization and demobilization activities is low. The potential for inhalation of COIs during utility clearance, decontamination, and landscaping activities is low to moderate. The potential for dermal contact with environmental media containing COIs during mobilization and demobilization activities is low to moderate. The potential for dermal contact with COI-containing environmental media or equipment during subsurface utility location, excavation, and fence post installation activities is moderate to high.

Levels of PPE to be used for each work activity should be selected based on the COIs at the site; levels of PPE are discussed in Section 5, Personal Protective Equipment. The Safety Data Sheet (SDS) for specific COIs at the time this generic plan was written are attached to this HASP (Appendix C). The list of SDSs should be reviewed prior to mobilization to verify that all chemicals to be used on site also have the appropriate SDS included in the site HASP.

Any chemicals to be brought to the work site must be pre-approved for use by the Con Edison Corporate Environmental Health & Safety Department (a one week turnaround time will be allowed for review by Con Edison). An SDS must accompany all materials brought to the site. No material shall be used or installed by any personnel prior to review of the SDS by the SS or HSS. Following review of the SDS by the SS or HSS, copies shall be made and placed in the HASP. The location of the SDS for on-site chemicals shall be communicated to all on-site employees. All provisions of 29 CFR 1910.1200, are to be followed with regard to chemicals that are to be used during on site activities.

The SDS for the COIs and the chemicals in use at the site are included in Appendix C. The Chemical Hazard Information Table (Table 3-2) lists the chemical, physical, and toxicological properties of several potential site COIs.

Table 3-2

Chemical Hazard Information

Substance **[CAS Number]**	**IP[1]** **(eV)**	**Odor Threshold (ppm)**	**Route[2]**	**Symptoms of Exposure**	**Treatment**	**TWA[3]**	**STEL[4]**	**Source[5]**	**IDLH (NIOSH)[6]**
Benzene 71-43-2	9.24	1.5-5	Inh Abs Ing Con	Irritated eyes, skin, nose, respiratory system; giddiness; headache, nausea, staggered gait; fatigue, anorexia, lassitude; dermatitis; bone marrow depression; **carcinogenic**	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	1 ppm 0.5 ppm (skin) 0.1 ppm	5 ppm 2.5 ppm 1 ppm	PEL TLV REL	**Ca** [500 ppm]
Benzo[a]pyrene 50-32-8			Inh Ing	Irritated eyes, skin, respiratory tract; skin irritation with burning sensation, rash, and redness, dermatitis - **carcinogenic**	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.2 mg/m^3* none 0.1 mg/m^3* *Benzene soluble frac. **Cyclohexane extractable frac.	NE NE NE	PEL TLV REL	**Ca** [80 mg/m^3]
Fluorene [86-73-7]			Inh Con	It is irritating to the skin, eyes, and respiratory tract.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	NE		PEL TLV REL	
Ethylbenzene [100-41-4]	8.76	0.09-0.6	Inh Ing Con	Irritated eyes, mucous membranes; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	100 ppm 100 ppm 100 ppm	125 ppm 125 ppm 125 ppm	PEL TLV REL	800 ppm

Substance [CAS Number]	IP[1] (eV)	Odor Threshold (ppm)	Route[2]	Symptoms of Exposure	Treatment	TWA[3]	STEL[4]	Source[5]	IDLH (NIOSH)[6]
Naphthalene [91-203]	8.12	ND	Inh Abs Ing Con	Irritated eyes; headache; confusion, excitement, malaise; nausea, vomiting, abdominal pain; irritated bladder, profuse sweating; jaundice, renal shutdown; dermatitis	Eye: Irrigate immediately Skin: Molten flush immediately/ sol-liq soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	10 ppm 10 ppm 10 ppm	 15 ppm	PEL TLV REL	250 ppm
Toluene [108-88-3]	8.82	0.16-37	Inh Abs Ing Con	Fatigue, weakness; confusion, euphoria, dizziness; headache; dilated pupils, lacrimation; nervousness, muscular fatigue, insomnia; paralysis; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	100 ppm 50 ppm (skin) 100 ppm	150 ppm NE 150 ppm	PEL TLV REL	500 ppm
Xylene (o-, m-, and p-isomers) [1330-20-7; 95-47-6; 108-38-3; 106-42-3]	8.56 8.56 8.44	1.1-20	Inh Abs Ing Con	Dizziness, excitement, drowsiness, in coordination, staggering gait; irritated eyes, nose, throat; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	100 ppm 100 ppm 100 ppm	150 ppm 150 ppm 150 ppm	PEL TLV REL	900 ppm

Notes:

1IP	=	Ionization potential (electron volts).
2Route	=	Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; and Con, Skin and/or eye contact.
3TWA	=	Time-weighted average. The TWA concentration for a normal workday (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.
4STEL	=	Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.
5PEL	=	Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).

5TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value – TWA.

5REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.

6IDLH (NIOSH) = Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.

NE = None established. No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub. No. 90-117, 1990, 1997).

C = Ceiling limit value which should not be exceeded at any time.

Ca = Carcinogen.

NA = Not applicable.

ND = Not Determined.

LEL = Lower explosive limits.

LC50 = Lethal concentration for 50 percent of population tested.

LD50 = Lethal dose for 50 percent of population tested.

NIC = Notice of intended change (ACGIH).

4 GENERAL SAFETY PRACTICES

4.1 General Safety Rules

General safety rules for site activities include, but are not limited to, the following:

- At least one copy of the HASP must be in a location at the site that is readily available to personnel, and all project personnel must review the plan prior to starting work.
- The HASP review by Con Edison will be documented, and a copy of this documentation will be provided to the Con Edison Construction Management representative on site.
- Consume food, beverages, chewing gum, and tobacco products only in the SZ or other designated area outside the EZ and CRZ. Cosmetics must not be applied in the EZ or CRZ.
- Wash hands before eating, drinking, smoking, or using toilet facilities.
- Wear all PPE as required, and stop work and replace damaged PPE immediately.
- Secure disposable coveralls, boots, and gloves at the wrists and legs, and confirm closure of the suit around the neck.
- Upon skin contact with materials that may be impacted by COIs, remove contaminated clothing and wash the affected area immediately. Contaminated clothing must be changed. Any skin contact with materials potentially impacted by COIs must be reported to the PM, SS or HSS immediately. If needed, medical attention should be sought.
- Practice contamination avoidance. Avoid contact with surfaces either suspected or known to be impacted by COIs, such as standing water, mud, or discolored soil. Equipment must be stored on elevated or protected surfaces to reduce the potential for incidental contamination.
- Remove PPE as required in the CRZ to limit the spread of COI-containing materials.
- At the end of each shift, or as required, dispose of all single-use coveralls, soiled gloves, and respirator cartridges in receptacles designated for this purpose.
- Do not remove soil containing site COIs from protective clothing or equipment with compressed air, by shaking, or by any other means that disperses contaminants into the air.
- Inspect all non-disposable PPE for contamination in the CRZ. Any PPE found to be contaminated must be decontaminated or disposed of appropriately.
- Recognize emergency signals used for evacuation, injury, fire, etc.
- Report all injuries, illnesses, near-misses, and unsafe conditions or work practices to the SS or HSS.
- Use the “buddy system” during all operations requiring Level C PPE and, when appropriate, during Modified Level D operations.

- Obey all warning signs, tags, and barriers. Do not remove any warnings unless authorized to do so.
- Use, adjust, alter, and repair equipment only if trained and authorized to do so and in accordance with the manufacturer's directions.
- Personnel are to perform only tasks for which they have been properly trained, and will advise their supervisor if they have been assigned a task for which they are not trained.
- The presence or consumption of alcoholic beverages or illicit drugs during the workday, including breaks, is strictly prohibited. Notify your supervisor if you must take prescription or over-the-counter drugs that list drowsiness as a side-effect or indicate that heavy equipment should not be operated while taking the medication.
- Remain upwind during site activities whenever possible.

All personnel that will be performing or overseeing work must be trained in a behavior based safety system.

4.2 Buddy System

On-site personnel must use the buddy system as required by operations. Use of the "buddy system" is required during all operations requiring Level C PPE, and when appropriate, during Level D operations. Personnel must observe each other for signs of chemical exposure and heat or cold stress. Indications of adverse effects include, but are not limited to:

- Changes in complexion and skin coloration.
- Changes in coordination.
- Changes in demeanor.
- Excessive salivation and papillary response.
- Changes in speech pattern.

Personnel must also be aware of the potential exposure to possible safety hazards, unsafe acts, or noncompliance with safety procedures.

Field personnel must inform their partners or fellow workers of nonvisible effects of exposure to toxic materials that they may be experiencing. The symptoms of such exposure may include, but are not limited to:

- Headaches.
- Dizziness.
- Nausea.

- Blurred vision.
- Cramps.
- Irritation of eyes, skin, or respiratory tract.

If protective equipment or noise levels impair communications, pre-arranged hand signals must be used for communication. Personnel must stay within line of sight of another team member.

4.3 Heat Stress

Heat stress is caused by several interacting factors, including environmental conditions, clothing, and workload, as well as the physical and conditioning characteristics of the individual. Since heat stress is one of the most common illnesses associated with heavy outdoor work conducted with direct solar load and, in particular, because wearing PPE can increase the risk of developing heat stress, workers must be able to recognize the signs and symptoms of heat-related illnesses. Personnel must be aware of the types and causes of heat-related illnesses, and be able to recognize the signs and symptoms of these illnesses in themselves and their co-workers.

The average mean, normal low, normal high, and record high, and record low temperatures for each month are provided for New York, NY in Table 4-1.

Table 4-1

New York, New York, Monthly Temperature Summary

Month	**Mean (F)**	**Normal Low (F)**	**Normal High (F)**	**Record Low (F)**	**Record High (F)**
January	32	25	38	-4	68
February	34	26	40	-2	73
March	42	34	49	10	83
April	52	43	60	19	89
May	62	53	70	36	98
June	71	63	79	46	99
July	77	68	84	54	105
August	76	67	83	50	101
September	69	60	76	41	98
October	58	49	65	30	86
November	48	41	54	17	80
December	37	30	42	-1	75

4.3.1 Heat Rashes

Heat rashes are one of the most common problems in hot work environments. Commonly known as prickly heat, a heat rash is manifested as red papules and usually appears in areas where the clothing is restrictive. As sweating increases, these papules give rise to a prickling sensation. Prickly heat occurs in skin that is persistently wetted by sweat, and heat rash papules may become infected if they are not treated. In most cases, heat rashes will disappear when the affected individual returns to a cool environment.

4.3.2 Heat Cramps

Heat cramps are usually caused by performing hard physical labor in a hot environment. These cramps have been attributed to an electrolyte imbalance caused by sweating. It is important to understand that cramps can be caused both by too much or too little salt.

Cramps appear to be related to a lack of water replenishment. Because sweat is a hypotonic solution (plus or minus 0.3% sodium chloride [NaCl]), excess salt can build up in the body if the water lost through sweating is not replaced. Thirst cannot be relied on as a guide to the need for water; instead, water must be taken every 15 to 20 minutes in hot environments.

Under extreme conditions, such as working for six to eight hours in heavy protective gear, a loss of sodium may occur. Drinking commercially available carbohydrate electrolyte replacement liquids is effective in minimizing physiological disturbances during recovery.

4.3.3 Heat Exhaustion

Heat exhaustion occurs from increased stress on various body organs due to inadequate blood circulation, cardiovascular insufficiency, or dehydration. Signs and symptoms include:

- Pale, cool, moist skin.
- Heavy sweating.
- Dizziness.
- Nausea.
- Headache.
- Vertigo.
- Weakness.
- Thirst.

- Giddiness.

Heat exhaustion responds readily to prompt treatment however should not be dismissed lightly. The fainting associated with heat exhaustion can be dangerous because the victim may be operating machinery or controlling an operation that should not be left unattended; moreover, the victim may be injured when he or she faints. Also, the signs and symptoms seen in heat exhaustion are similar to those of heat stroke, which is a medical emergency.

Workers suffering from heat exhaustion should be removed from the hot environment, given fluid replacement, and be encouraged to get adequate rest.

4.3.4 Heat Stroke

Heat stroke is the most serious form of heat stress. Heat stroke occurs when the body's ability to regulate temperature fails and the body's temperature rises to critical levels. This condition is caused by a combination of highly variable factors and its occurrence is difficult to predict.

Heat stroke is a medical emergency. The primary signs and symptoms of heat stroke are:

- Confusion.
- Irrational behavior.
- Loss of consciousness.
- Convulsions.
- A lack of sweating (usually).
- Hot, dry skin.
- An abnormally high body temperature (e.g., a rectal temperature of 41 degrees Celsius [105.8 degrees Fahrenheit]).

If body temperature is too high, it causes death. The elevated metabolic temperatures caused by a combination of workload and environmental heat load, both of which contribute to heat stroke, are also highly variable and difficult to predict.

If a worker shows signs of possible heat stroke, professional medical treatment should be obtained immediately. The worker should be placed in a shady area and the outer clothing should be removed. The worker's skin should be wetted and air movement around the worker should be increased to improve evaporative cooling until professional methods of cooling are initiated and the seriousness of the condition can be assessed. Fluids should be replaced as soon as possible. The medical outcome of an episode of heat stroke depends on the victim's physical fitness and the timing and effectiveness of first-aid treatment.

Regardless of the worker’s protestations, no employee suspected of being ill from heat stroke should be sent home or left unattended unless a physician has specifically approved such an order.

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing heat stress is particularly important because once someone suffers from heat stroke or exhaustion, that person may be predisposed to additional heat-related injuries.

4.3.5 Heat Stress Safety Precautions

Heat stress monitoring and work rest cycle implementation should commence when the ambient adjusted temperature exceeds 72 degrees Fahrenheit. Screening criteria for heat stress exposure are described in Table 4-2 and examples of activities within metabolic rate categories are provided in Table 4-3.

Acclimatization is a set of physiological adaptations, which allows the body to react to heat stress conditions. Full-heat acclimatization requires up to three weeks of continued physical activity under heat-stress conditions similar to those anticipated for the work. Its loss begins when the activity under those heat-stress conditions is discontinued, and a noticeable loss occurs after four days. With a recent history of heat stress exposures (e.g., five of the last seven days), a worker can be considered acclimatized for the purpose of using the table Screening Criteria for Heat Stress Exposure (Table 4-2).

Additionally, one or more of the following control measures can be used to help control heat stress and are mandatory if any site worker has a heart rate (measure immediately prior to rest period) exceeding 115 beats per minute (bpm):

- Site workers will be encouraged to drink plenty of water and electrolyte replacement fluids throughout the day.
- On-site drinking water will be kept cool (50 to 60 degrees Fahrenheit).
- A work regimen that will provide adequate rest periods for cooling down will be established, as required.
- All personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion, and heat cramps.
- Cooling devices, such as vortex tubes or cooling vests, should be used when personnel must wear impermeable clothing in conditions of extreme heat.
- Employees should be instructed to monitor themselves and co-workers for signs of heat stress and to take additional breaks as necessary.
- A shaded rest area must be provided. All breaks should take place in the shaded rest area.
- Employees must not be assigned to other tasks during breaks.

- Employees must remove impermeable garments during rest periods. This includes white Tyvek™ - type garments.

All employees must be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress disorders.

Table 4-2

Screening Criteria For Heat Stress Exposure

For 8 Hour Work Day Five Days Per Week With Conventional Breaks

	Acclimatized				**Unacclimatized**			
Work Demands	**Light**	**Moderate**	**Heavy**	**Very Heavy**	**Light**	**Moderate**	**Heavy**	**Very Heavy**
100% Work	85.1ºF (29.5ºC)	81.5ºF (27.5ºC)	78.8ºF (26ºC)		81.5ºF (27.5ºC)	77ºF (25ºC)	72.5F (22.5ºC)	
75% Work; 25% Rest	86.9ºF (30.5ºC)	83.3ºF (28.5ºC)	81.5ºF (27.5ºC)		84.2ºF (29ºC)	79.7ºF (26.5ºC)	76.1ºF (24.5ºC)	
50% Work; 50% Rest	88.7ºF (31.5ºC)	85.1ºF (29.5ºC)	83.3ºF (28.5ºC)	81.5ºF (27.5ºC)	86ºF (30ºC)	82.4ºF (28ºC)	79.7ºF (26.5ºC)	77ºF (25ºC)
25% Work, 75% Rest	90.5ºF (32.5ºC)	87.8ºF (31ºC)	86ºF (30ºC)	85.1ºF (29.5ºC)	87.8ºF (31ºC)	84.2ºF (29ºC)	82.4ºF (28ºC)	79.7ºF (26.5ºC)

Source: 2004 TLVs and BEIs - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH), 2004 - page 171.

Table 4-3

Examples of Activities Within Metabolic Rate Categories

Categories	**Example Activities**
Resting	Sitting quietly
	Sitting with moderate arm movements
Light	Sitting with moderate arm and leg movements
	Standing with light work at machine or bench while using mostly arms
	Using a table saw
	Standing with light or moderate work at machine or bench and some walking about
Moderate	Scrubbing in a standing position
	Walking about with moderate lifting or pushing
	Walking on a level at 6 Km/hr while carrying 3 Kg weight load

Categories	Example Activities
Heavy	Carpenter sawing by hand
	Shoveling dry sand
	Heavy assembly work on a noncontinuous basis
	Intermittent heavy lifting with pushing or pulling (e.g., pick-and-shovel work)
Very Heavy	Shoveling wet sand

Source: 2004 TLVs and BEIs - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH), 2004 - page 172

4.4 Cold Stress

Persons working outdoors in temperatures at or below freezing may be frostbitten. The monthly normal and record low temperatures for New York are provided in Table 4-1. Extreme cold for a short time may cause severe injury to exposed body surfaces or result in profound generalized cooling, causing death. Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ears are the most susceptible. Two factors influence the development of a cold weather injury: ambient temperature and the velocity of the wind. For instance, 10 degrees Fahrenheit with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18 degrees Fahrenheit. An equivalent chill temperature chart relating the actual dry bulb temperature and wind velocity is presented in Table 4-4.

Table 4-4

Wind Chill

Estimated Wind Speed (in mph)	Actual Temperature Reading (ºF)											
	50	**40**	**30**	**20**	**10**	**0**	**-10**	**-20**	**-30**	**-40**	**-50**	**-60**
	Equivalent Chill Temperature (ºF)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh within one minute.			GREAT DANGER Flesh may freeze within 30 seconds.				
	Trench foot and immersion foot may occur at any point on this chart.											

(This chart was developed by the U.S. Army Research Institute of Environmental Medicine, Natick, MA {Source: ACGIH Threshold Limit Values for Chemical Substances and Physical Agents}).

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of tissue damage associated with frostbite. Frostbite of the extremities can be categorized into:

- Frost nip or incipient frostbite: characterized by suddenly blanching or whitening of skin.
- Superficial frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep Frostbite: tissues are cold, pale, and solid; extremely serious injury.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature, and it can be fatal. Its symptoms are usually exhibited in five stages: 1) shivering, 2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95 degrees Fahrenheit, 3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate, 4) freezing of the extremities, and finally, 5) death. Trauma sustained in freezing or sub-zero conditions requires special attention, because an injured worker is predisposed to secondary cold injury. Special provisions must be made to prevent hypothermia and secondary freezing of damaged tissues in addition to providing for first-aid treatment. To avoid cold stress, site personnel must wear protective clothing appropriate for the level of cold and physical activity. In addition to protective clothing, preventive safe work practices, additional training, and warming regimens may be utilized to prevent cold stress.

4.4.1 Safety Precautions for Cold Stress Prevention

- For air temperature of 0 degrees Fahrenheit or less, the hands should be protected by mittens. For exposed skin, continuous exposure should not be permitted when air speed and temperature results in a wind chill temperature of less than minus 25 degrees Fahrenheit.
- At air temperatures of 36 degrees Fahrenheit or less, field personnel who become immersed in water or whose clothing becomes wet must be immediately provided with a change of dry clothing and be treated for hypothermia.
- If work is done at normal temperature or in a hot environment before entering the cold, the field personnel must ensure that their clothing is not wet as a consequence of sweating. If wet, field personnel must change into dry clothes prior to entering the cold area.
- If the available clothing does not give adequate protection to prevent hypothermia or frostbite, work must be modified or suspended until adequate clothing is made available, or until weather conditions improve.
- Field personnel handling evaporative liquid (e.g., gasoline, alcohol, or cleaning fluids) at air temperatures below 40 degrees Fahrenheit must take special precaution to avoid soaking of clothing or gloves with the liquids because of the added danger of cold injury due to evaporative cooling.

4.4.2 Safe Work Practices

- Direct contact between bare skin and cold surfaces (less than 20 degrees Fahrenheit) should be avoided. Metal tool handles and/or equipment controls should be covered by thermal insulating material.
- For work performed in a wind chill temperature at or below 10 degrees Fahrenheit, workers should be under constant protective observation (buddy system). The work rate should be established to prevent heavy sweating that will result in wet clothing. For heavy work, rest periods must be taken in heated shelters and workers should be provided with an opportunity to change into dry clothing if needed.
- Field personnel should be provided the opportunity to become accustomed to cold-weather working conditions and required protective clothing.
- Work should be arranged in such a way that sitting or standing still for long periods is minimized.

During the warming regimen (rest period), field personnel should be encouraged to remove outer clothing to permit sweat evaporation or to change into dry work clothing. Dehydration, or loss of body fluids, occurs insidiously in the cold environment and may increase susceptibility to cold injury due to a significant change in blood flow to the extremities. Fluid replacement with warm, sweet drinks and soups is recommended. The intake of coffee should be limited because of diuretic and circulatory effects.

4.5 Carbon Monoxide

When working indoors or in an excavation with any type of gasoline, diesel or LP gas powered equipment; carbon monoxide (CO) is a significant hazard. Recognize that a single generator, propane heater or propane fork truck can quickly generate CO above the permissible exposure level regardless of the size of the room. The following guidelines will mitigate any carbon monoxide issues.

- Utilize remotely powered equipment whenever possible. Validate that the exhaust from the generating unit is not being sucked or blown back into the building.

- Use an approved exhaust extension for stationary work. Run the extension to the outside of the building.

- Do not use unvented gas or kerosene space heaters in enclosed spaces.

- When operating any fossil-fueled equipment indoors ensure that all pre-operation equipment checks are completed and that the equipment is running to specifications. Smokey exhaust, sputtering, backfires, etc indicate an equipment problem requiring immediate service.

- Provide ventilation within the building regardless of the weather outdoors. Open vents and intakes as well as entry and overhead doors.

- Utilize large fans to move air into or out of the building. Sometimes you get better results blowing air out than bringing it in. For stationary work be sure to move fresh air through the breathing zone of employees.

- Operate a properly calibrated CO meter (such as the Multi-Rae) within the worker breathing zone before, during and after equipment operation. Recognize that a CO alarm requires immediate action. Stop work, shut down engines and move to the outdoors until the alarm subsides and it is safe to reenter. Exposure guidelines for CO are listed in Table 6-1.

4.5.1 Symptoms of Carbon Monoxide Exposure

CO is called the silent killer because it has no odor and it slowly overcomes those who are overexposed. Symptoms include: headache, fatigue, shortness of breath, nausea and dizziness. Employees in the same room may or may not have all symptoms simultaneously. As with all field work, use the buddy system to keep each other safe.

4.5.2 Treatment of Carbon Monoxide Exposure

If you think you are experiencing any of the symptoms of CO poisoning, get fresh air immediately. Open windows and doors for more ventilation, turn off any combustion equipment, leave the building, and seek medical treatment. Failure to adequately respond to the situation could result in loss of consciousness or death. It is important to contact a doctor immediately for a proper diagnosis. Tell your doctor that you suspect CO poisoning is causing your problems. Prompt medical attention is important if you are experiencing any symptoms of CO poisoning when you are operating fuel-burning devices.

If there are any changes or modifications to the work or site conditions that present additional hazards not covered by this addendum or the site-specific HASP, the PM and the HSO shall be notified.

4.6 Biological Hazards

Biological hazards may include poison ivy, snakes, thorny bushes and trees, ticks, mosquitoes, and other pests.

4.6.1 Ticks

Lyme disease – This disease commonly occurs in summer and is transmitted by the bite of infected ticks. “Hot spots” in the United States include New York, New Jersey, Pennsylvania, Massachusetts, Connecticut, Rhode Island, Minnesota, and Wisconsin.

Symptoms of Lyme disease include a rash or a peculiar red spot, like a bull’s eye, which expands outward in a circular manner. The victim may have headache, weakness, fever, a stiff neck, and swelling and pain in the joints, and eventually, arthritis.

Erlichiosis – This disease also commonly occurs in summer and is transmitted by the bite of infected ticks. “Hot spots” in the United States include New York, Massachusetts, Connecticut, Rhode Island, Minnesota, and Wisconsin. Symptoms of erlichiosis include muscle and joint aches and flu-like symptoms, but there is typically no skin rash.

Rocky Mountain Spotted Fever (RMSF) – This disease is transmitted via the bite of an infected tick. The tick must be attached for four to six hours before the disease-causing organism (Rickettsia rickettsii) becomes reactivated and can infect humans.

The primary symptom of RMSF is the sudden appearance of a moderate-to-high fever. The fever may persist for two to three weeks. The victim may also have a headache, deep muscle pain, and chills. A rash appears on the hands and feet on about the third day and eventually spreads to all parts of the body. For this reason, RMSF may be confused with measles or meningitis. The disease may cause death, if untreated, but if identified and treated promptly, death is uncommon.

Control – These diseases are transmitted primarily by the deer tick, which is smaller and redder than the common wood tick. The diseases may be transmitted by immature ticks, which are small and hard to see. The tick may be as small as a period on this page. Tick repellant containing diethyltoluamide (DEET) should be used when working in tick-infested areas, and pant legs should be tucked into boots. In addition, workers should search the entire body every three or four hours for attached ticks. Ticks should be removed promptly and carefully without crushing, since crushing can squeeze the disease-causing organism into the skin. A gentle and steady pulling action should be used to avoid leaving the head or mouth parts in the skin. Hands should be protected with surgical gloves when removing ticks.

4.6.2 Mosquitoes

Personnel may be exposed to mosquitoes during work activities.

West Nile Virus – Typical exposure to mosquitoes does not present a significant hazard. However, if West Nile virus is prevalent in the area exposure to this virus is increased. West Nile virus results in flu-like symptoms and can be serious if not treated or in immune compromised individuals.

Control – To minimize the threat of mosquito bites all personnel working outside must be aware of the potential for encountering mosquitoes and implement the basic precautions listed below:

- Avoid working at dawn or dusk when mosquitoes are most active.
- Prevent accumulation of standing water at the work-site.
- Apply an insect repellent that contains DEET to exposed skin.
- Wear light colored clothes, preferably with long-sleeves and full-length pants.
- Do not touch any dead birds or animals that you encounter.

If dead birds are detected near the site, report to the local County Health Department. If flu-like symptoms are present, contact your doctor or the HSO for more information.

4.6.3 Poisonous Plants

Poisonous plants may be present in the work area and are occasionally found in moist or wet soils. Personnel should be alerted to their presence and instructed on methods to prevent exposure. Poison sumac grows as a shrub or small tree with large alternate, compound leaves having 7-13 leaflets without teeth. All plant parts are poisonous. The lack of 1) leaflet glands, 2) "wings" between the leaflets, and 3) teeth on the leaves, in addition to this species' red stems supporting the leaflets and leaves, help to distinguish this plant from similar-looking nonpoisonous species such as other sumacs and tree-of-heaven. Flowers are shades of green, white and yellow and appear in late spring. Fruits are small white berries that mature in late summer and may last through winter.

Poison ivy is a woody shrub or vine with hairy looking aerial roots. It grows to 10 feet or more, climbing high on trees, walls and fences or trails along the ground. All parts of poison ivy, including the roots, are poisonous at all times of the year.

Poison Sumac

Poison Ivy

The main control for both poison ivy and poison sumac is to avoid contact with the plant, cover arms and hands, and frequently wash potentially exposed skin. Particular attention must be given to avoiding skin contact with objects or protective clothing that have touched the plants. Treat every surface that may have touched the plant as contaminated, and practice contamination avoidance.

Poison ivy and sumac are very easy to treat if you identified your contact with the irritating plant within a few hours of the incident. The urushiol oil present in both plants chemically bonds with the proteins in your skin about 30 minutes after contact. Nearly 75 percent of the population is affected by contact with urushiol, although immunity to urushiol today does not assure immunity tomorrow, and vice versa. Rash symptoms can appear within a few hours but can take two to five days to appear. The rash starts as a red, annoyingly itchy area that starts to swell. The area then gets inflamed and will get covered in clusters of tiny pimples, the pimple eventually merge and turn into blisters. The fluid in the blisters turns yellow, dries up, and becomes crusty. Left completely untreated, this cycle can last as short as five days and in severe cases as long as five to six weeks.

If you come in contact with poison ivy, oak, or sumac, or a animal exposed to any of these, or tools, gear, or clothing exposed to any of these, you should wash off with hot water (not so hot that it burns) and strong soap as soon as possible. If you can get washed up in the first six hours, before the first symptoms appear, you have a good chance of avoiding an outbreak, and an even better chance of minimizing the effects if you do have one.

4.6.4 Snakes

Hazards – The possibility of encountering snakes exists, specifically for personnel working in wooded or vegetated areas. Snake venoms are complex and include proteins, some of which have enzymatic activity. The effects produced by venoms include:

- Neurotoxic effects with sensory, motor, cardiac, and respiratory difficulties.
- Cytotoxic effects on red blood cells, blood vessels, heart muscle, kidneys, and lungs.
- Defects in coagulation.

- Effects from local release of substances by enzymatic actions.

Other noticeable effects of venomous snakebites include swelling, edema, and pain around the bite, and the development of ecchymosis (the escape of blood into tissues from ruptured blood vessels).

Control – To minimize the threat of snakebites, all personnel walking through vegetated areas must be aware of the potential for encountering snakes and the need to avoid actions that will provoke encounters, such as turning over logs. If a snake bite occurs, an attempt should be made to identify the snake via size and markings. The victim must be transported to the nearest hospital within 30 minutes. First-aid consists of applying a constriction band and washing the area around the wound to remove any unabsorbed venom.

4.6.5 Spiders

Hazards – Personnel may encounter spiders during work activities. Two spiders of concern are the black widow and the brown recluse. Both prefer dark sheltered areas such as basements, equipment sheds and enclosures, and around woodpiles or other scattered debris. The black widow is shiny black, approximately 1-inch long, and found throughout the United States. There is a distinctive red hourglass marking on the underside of the black widow’s body. The bite of a black widow is seldom fatal to healthy adults, but effects include respiratory distress, nausea, vomiting, and muscle spasms. The brown recluse is smaller than the black widow and gets its name from its brown coloring and behavior. The brown recluse is more prevalent in the Southern United States. The brown recluse has a distinctive violin shape on the top of its body. The bite of the brown recluse is painful, and the bite site ulcerates and takes many weeks to heal completely.

Control – To minimize the threat of spider bites, all personnel walking through vegetated areas must be aware of the potential for encountering these arachnids. Personnel should avoid actions that may result in encounters, such as turning over logs and placing hands in dark places such as behind equipment or in corners of equipment sheds or enclosures. If a spider bite occurs, the victim must be transported to the nearest hospital as soon as possible. First-aid consists of applying ice packs and washing the area around the wound to remove any unabsorbed venom.

4.6.6 Rats

Hazards – Rats are known to spread 35 diseases to humans and animals. Some human diseases rats spread are salmonellosis, rabies, tularemia, leptospirosis, amoebic dysentery, typhus, jaundice, trichinosis, rickettsial pox, lymphocytic choriomeningitis, ray fungus, and ringworm.

Control – New York City rats are typically Norway Rats that burrow underground and can be disturbed by soil intrusive activities such as excavation. Piles of lumber, trash or other materials can also be shelter for rats. Keep clear of debris piles or other potential rat habitats. If the pile must be cleared, use long handle tools. Keep clear of rats and do not attempt to corner or kill them, they are wild animals and will fight to protect themselves. Do not leave trash, especially food, in the area as this will attract rats to the site.

If you are bitten by a rat, wash the wound with soap and water and see a doctor immediately. Rats may carry diseases and at the least, rat bites can cause infection. If the rat is captured or killed, health authorities may wish to check it for rabies or other diseases. When picking up a carcass, use the inside of a plastic bag to avoid touching it. Double-seal it in plastic and freeze until further notice.

4.7 Noise

Hazards – Exposure to noise louder than the appropriate action level can cause temporary impairment of hearing; prolonged and repeated exposure can cause permanent damage to hearing. The risk and severity of hearing loss increase with the intensity and duration of exposure to noise. In addition to damaging hearing, noise can impair voice communication, thereby increasing the risk of accidents on site.

Control – All personnel must wear hearing protection, with a noise reduction rating (NRR) of at least 20, when noise levels exceed 85 A-weighted decibels (dBA). When it is difficult to hear a co-worker at normal conversation distance, the noise level is approaching or exceeding 85 dBA and hearing protection is necessary. All site personnel who may be exposed to noise must also receive baseline and annual audiograms, and training as to the causes and prevention of hearing loss. Noise monitoring is discussed in Section 6.2, Noise Monitoring.

Whenever possible, equipment that does not generate excessive noise levels will be selected. If using noisy equipment is unavoidable, barriers or increased distance will be used to minimize worker exposure to noise, if feasible.

4.8 Spill Control

All personnel must take every precaution to minimize the potential for spills during site operations. All on-site personnel must immediately report any discharge, no matter how small, to the PM.

Spill control equipment and materials will be located on site at locations that present the potential for discharge. All sorbent materials used to cleanup spills will be containerized and labeled appropriately. In the event of a spill, the SS will follow the provisions in Section 9, Emergency Procedures, to contain and control released materials and to prevent their spread to off-site areas.

Fluid-containing vehicles and equipment on the project site and spotted on a pervious surface (e.g., soil, blue stone, etc.) will be parked over polyethylene sheeting that extends the full length and width of the vehicle. Following usage, sheeting will be properly disposed of.

4.9 Sanitation

Site sanitation will be maintained according to appropriate federal, state, and local requirements.

4.9.1 Break Area

Breaks must be taken in the SZ, away from the active work area, after site personnel go through decontamination procedures. There will be no smoking, eating, drinking, or chewing gum or tobacco in any area other than the SZ.

4.9.2 Potable Water

The following rules regarding potable water apply to all field operations:

- An adequate supply of potable water will be provided at each project site. Potable water must be kept away from hazardous materials or media and contaminated clothing or equipment.
- Portable containers used to dispense drinking water must be capable of being tightly closed and must be equipped with a tap dispenser. Water must not be consumed directly from the container (drinking from the tap is prohibited) nor may it be removed from the container by dipping.
- Containers used for drinking water must be clearly marked and must not be used for any other purpose.
- Disposable drinking cups must be provided. A sanitary container for dispensing cups and a receptacle for disposing of used cups is required.

4.9.3 Sanitary Facilities

Access to facilities for washing before eating, drinking, or smoking, or alternate methods such as waterless hand cleaner and paper towels, will be provided.

4.9.4 Lavatory

If permanent toilet facilities are not available, an appropriate number of portable chemical toilets will be provided.

This requirement does not apply to mobile crews or to normally unattended site locations so long as employees at these locations have transportation immediately available to nearby toilet facilities.

4.10 Emergency Equipment

Adequate emergency equipment for the activities being conducted on-site and as required by applicable sections of 29 CFR 1910 and 29 CFR 1926 will be on site prior to commencing project activities. Personnel will be provided with access to emergency equipment including, but not limited to, the following:

- Fire extinguishers of adequate size, class, number, and location as required by applicable sections of 29 CFR 1910 and 1926.
- Industrial first-aid kits of adequate size for the number of personnel on site.
- Emergency eyewash and/or shower if required by operations being conducted on site.

4.11 Lockout/Tagout Procedures

Only fully qualified and trained personnel will perform maintenance procedures. Before maintenance begins on energized equipment, lockout/tagout procedures per OSHA 29 CFR 1910.147 will be followed.

Lockout is the placement of a device that uses a positive means, such as lock, to hold an energy- or material-isolating device such that the equipment cannot be operated until the lockout device is removed. If a device cannot be locked out, a tagout system must be used. Tagout is the placement of a warning tag on an energy- or material-isolating device to indicate that the equipment controls may not be operated until the tag is removed by the person who attached the tag.

4.12 Electrical Safety

Electricity may pose a particular hazard to site workers due to the use of portable electrical equipment. If wiring or other electrical work is needed, a qualified electrician must perform it.

General electrical safety requirements include:

- Contact with any Con Edison electric manhole or vault cover cannot be made until the cover has been tested for stray-voltage concerns. If an entry into a confined space is anticipated the procedures to be used for entering the space will be provided to Con Edison.
- All electrical wiring and equipment must be a type listed by Underwriters Laboratories (UL), Factory Mutual Engineering Corporation (FM), or other recognized testing or listing agency.
- All installations must comply with the National Electrical Safety Code (NESC), the National Electrical Code (NEC), or United States Coast Guard (USCG) regulations.
- Portable and semi-portable tools and equipment must be grounded by a multi-conductor cord having an identified grounding conductor and a multi-contact polarized plug-in receptacle.
- Tools protected by an approved system of double insulation, or its equivalent, need not be grounded. Double-insulated tools must be distinctly marked and listed by UL or FM.
- Live parts of wiring or equipment must be guarded to prevent persons or objects from touching them.
- Electric wire or flexible cord passing through work areas must be covered or elevated to protect it from damage by foot traffic, vehicles, sharp corners, projections, or pinching.
- All circuits must be protected from overload.
- Temporary power lines, switchboxes, receptacle boxes, metal cabinets, and enclosures around equipment, must be marked to indicate the maximum operating voltage.
- Plugs and receptacles must be kept out of water unless of an approved submersible construction.
- All extension cord outlets must be equipped with ground-fault-circuit interrupters (GFCIs).
- Attachment plugs or other connectors must be equipped with a cord grip and be constructed to endure rough treatment.

- Extension cords or cables must be inspected prior to each use and replaced if worn or damaged. Cords and cables must not be fastened with staples, hung from nails, or suspended by bare wire.

- Flexible cords must be used only in continuous lengths without splice, with the exception of molded or vulcanized splices made by a qualified electrician.

4.13 Lifting Safety

Using proper lifting techniques may prevent back strain or injury. The fundamentals of proper lifting include:

- Consider the size, shape, and weight of the object to be lifted. A mechanical lifting device or additional persons must be used to lift an object if it cannot be lifted safely alone.

- The hands and the object should be free of dirt or grease that could prevent a firm grip.

- Gloves must be used and the object inspected for metal slivers, jagged edges, burrs, or rough or slippery surfaces.

- Fingers must be kept away from points that could crush or pinch them, especially when putting an object down.

- Feet must be placed far enough apart for balance. The footing should be solid and the intended pathway should be clear.

- The load should be kept as low as possible, close to the body, with the knees bent.

- To lift the load, grip firmly and lift with the legs, keeping the back as straight as possible.

- A worker should not carry a load that he or she cannot see around or over.

- When putting an object down, the stance and position are identical to that for lifting; the legs are bent at the knees and the back is straight as the object is lowered.

4.14 Ladder Safety

When portable ladders are used to access an upper landing surface, the ladder side rails must extend at least three feet above the upper landing surface to which the ladder is used to gain access. When such an extension is not possible because of the ladder's length, then the ladder must be secured at its top to a rigid support that will not deflect, and a grasping device (such as a grabrail) must be provided to assist employees in mounting and dismounting the ladder. In no case must the extension be such that ladder deflection under a load would, by itself, cause the ladder to slip off its support.

Additional ladder precautions include:

- Ladders must be maintained free of oil, grease, and other slipping hazards.

- Ladders must not be loaded beyond the maximum intended load for which they were built or beyond their manufacturer's rated capacity.
- Ladders must be used only for the purpose for which they were designed.
- Non-self-supporting ladders must be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (the distance along the ladder between the foot and the top support).
- Wood-job-made ladders with spliced side rails must be used at an angle such that the horizontal distance is one-eighth the working length of the ladder.
- Fixed ladders must be used at a pitch no greater than 90° from the horizontal, as measured to the back side of the ladder.
- Ladders must be used only on stable and level surfaces unless secured to prevent accidental displacement.
- Ladders must not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Slip-resistant feet must not be used as a substitute for care in placing, lashing, or holding a ladder that is used on slippery surfaces, including, but not limited to, flat metal or concrete surfaces that are constructed so they cannot be prevented from becoming slippery.
- Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways must be secured to prevent accidental displacement or a barricade must be used to keep the activities or traffic away from the ladder.
- The area around the top and bottom of ladders must be kept clear.
- The top of a non-self-supporting ladder must be placed with the two rails supported equally unless it is equipped with a single support attachment.
- Ladders must not be moved, shifted, or extended while occupied.
- Ladders must have nonconductive side rails.
- The top step should not be used as a step (or the step labeled that it or any step above it should not be used as a step).
- Cross-bracing on the rear section of stepladders must not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections.

- Ladders must be inspected by the HSO for visible defects daily and after any occurrence that could affect their safe use.

- Portable ladders with structural defects such as, but not limited to, broken or missing rungs, cleats, or steps; broken or split rails; corroded components; or other faulty or defective components must either be immediately marked in a manner that readily identifies them as defective or tagged with “Do Not Use” or similar language, and withdrawn from service.

- Fixed ladders with structural defects such as, but not limited to, broken or missing rungs, cleats, or steps; broken or split rails; or corroded components must be withdrawn from service.

- Ladder repairs must restore the ladder to a condition meeting its original design criteria before the ladder is returned to use.

- Single-rail ladders must not be used.

- When ascending or descending a ladder, the user must face the ladder.

- Each employee must use at least one hand to grasp the ladder when progressing up and/or down the ladder.

- An employee must not carry any object or load that could cause the employee to lose balance and fall.

4.15 Traffic Safety

If work will take place within a street, diagrams will be provided to Con Edison for mid-street and intersection traffic protection mechanisms.

The work area may be located within or adjacent to a public or private roadway or sidewalk where exposure to vehicular traffic is possible. For work within roadways and sidewalks, a permit will be required, as issued by the New York City Department of Transportation or New York State Department of Transportation, or both organizations, as applicable. Signage and other control measures stipulated by the permitting authority or authorities will be applied during all activities. This may include the closure of a travel lane or lanes or sidewalks, and erection of signs, cones, barricades, or flashing lights, as applicable.

In addition, during activities along or within a roadway, equipment will be aligned parallel to the roadway to the extent feasible, facing into the oncoming traffic so as to place a barrier between the work crew and the oncoming traffic. All crewmembers must remain behind the equipment and the traffic barrier. Crewmembers working in or near streets will wear orange reflective traffic safety vests.

The flow of traffic into and out of the adjacent business and other organizations must be assessed, and precautions taken to warn motorists of the presence of workers and equipment. Where possible, vehicles should be aligned to provide physical protection to people and equipment.

4.16 Bloodborne Pathogens

For reference purposes, standard operating procedures for exposure controls for bloodborne pathogens and other infectious materials are described in Appendix D. These procedures should be reviewed and revised, if necessary, during preparation of a site- and task-specific HASP.

4.17 Material Handling

In general, the following guidelines will be used for material handling activities.

If work will take place within a street, diagrams will be provided to Con Edison for mid-street and intersection traffic protection mechanisms.

- Whenever possible heavy objects will be lifted and moved by mechanical devices rather than by manual effort.
- The mechanical devices will be appropriate for the lifting or moving task and will be operated only by trained and authorized personnel.
- Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects.
- Lifting devices (including equipment, slings, ropes, chains and straps) will be inspected, certified, and labeled to confirm their weight capacities. Defective equipment will be taken out of service immediately and repaired or destroyed.
- The wheels of any trucks being loaded or unloaded will be chocked to prevent movement.
- Outriggers will be extended on a flat, firm surface during operation.
- The lift and swing path of a crane/equipment will be watched and maintained clear of obstructions.
- Personnel will not pass under a raised load, nor will a suspended load be left unattended.
- Personnel will not be carried on lifting equipment, unless it is specifically designed to carry passengers.
- All reciprocating, rotating, or other moving parts will be guarded at all times.
- Accessible fire extinguishers will be available in all mechanical lifting devices.
- All material must be stored in tiers, racked, blocked, or otherwise secure to prevent sliding, falling, or collapse.
- Verify all loads/material are secure before transportation.

Materials handling tasks that are unusual or require specific guidance will need a written addendum to the HASP. The addendum must identify the lifting protocols and must be submitted to Con Edison for approval before the tasks are performed. Upon approval, the plan must be reviewed with all affected employees and documented. Any deviation from a written plan will require approval by Con Edison.

4.18 Compressors

A New York City Fire Department Certificate of Fitness is required for the individual operating a compressor (e.g., compressor used for an air knife employed as part of vacuum excavation activities). The Certificate of Fitness will be provided to the Con Edison Construction Inspection representative.

5 PERSONAL PROTECTIVE EQUIPMENT

5.1 Levels of Protection

PPE is required to safeguard site personnel from various hazards. Varying levels of protection may be required depending on COI levels and the degree of physical hazard. This section presents the various levels of protection and defines the conditions of use for each level. Table 5-1 summarizes the levels of personal protection required for the anticipated work activities.

Table 5-1

PPE Selection Matrix

Task	Levels of Protection
Mobilization / Site Reconnaissance	Level D
Utility Location and Clearance	Level D/Modified Level D/Level C
Advancement of Sediment Probings	Level D/Modified Level D/Level C
Installation of Soil Borings	Modified Level D/Level C
Installation of Sediment Cores, Sediment and Surface Water Sampling	Level D/Modified Level D/Level C
Groundwater Sampling/MW Development	Modified Level D/Level C
Management of Investigation Derived Waste	Level D/Modified Level D
Equipment Decontamination	Level D/Modified Level D
Surveying	Level D
Demobilization	Level D

5.1.1 Level D Protection

The minimum level of protection that is required of all personnel and subcontractors at the site is Level D, which is worn when activities do not involve potential dermal contact with contaminants and air monitoring indicates that no inhalation hazard exists. Level D protection includes the following equipment:

- Work clothing as prescribed by weather.
- Steel-toe work boots, meeting American National Standards Institute (ANSI) Z41.
- Safety glasses with side shields or goggles, meeting ANSI Z87.
- Hard hat, meeting ANSI Z89, at all times when working on site. Hard hats cannot be white or “Con Edison blue” in color and tape/paint applied from other than the manufacturer is not permitted on hard hats.
- Orange reflective safety vest, meeting ANSI 107 (vests shall always be worn in and around streets).

- Hearing protection (if noise levels exceed 85 dBA, then hearing protection with a USEPA NRR of at least 20 dBA must be used).

Metatarsal protectors will be worn by those performing saw cutting and jack hammering activities. If possible, cut-resistant gloves will be used in combination with nitrile gloves for cutting activities.

5.1.2 Modified Level D Protection

Modified Level D will be used when airborne COIs are not present at levels of concern, but site activities present the potential for skin contact with COI-impacted materials. Modified Level D consists of the following equipment:

- Nitrile outer gloves worn over nitrile surgical gloves.
- Latex or polyvinyl chloride (PVC) overboots when contact with COI-impacted media is anticipated.
- Steel-toe work boots, meeting ANSI Z41.
- Safety glasses with side shields or goggles, meeting ANSI Z87.
- Face shield in addition to safety glasses or goggles when projectiles or splash hazards exist.
- Orange reflective safety vest, meeting ANSI 107 (vests shall always be worn in and around streets).
- Tyvek® or KleenGuard®coveralls when skin contact with COI-impacted media is anticipated. Coveralls shall extend from the neck to ankles and wrists.
- Hard hat, meeting ANSI Z89, at all times when working on site. Hard hats cannot be white or “Con Edison blue” in color and tape/paint applied from other than the manufacturer is not permitted on hard hats.
- Hearing protection (if noise levels exceed 85 dBA, then hearing protection with a USEPA NRR of at least 20 dBA must be used).

Metatarsal protectors will be worn by those performing saw cutting and jack hammering activities. If possible, cut-resistant gloves will be used in combination with nitrile gloves for cutting activities.

5.1.3 Level C Protection

Level C protection will be required when the airborne concentration of COIs reaches a level of concern, typically one-half of the OSHA Permissible Exposure Limit (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV). The following equipment will be used for Level C protection:

- Full-face, National Institute for Occupational Safety and Health- (NIOSH-) approved, air-purifying respirator with combination organic vapor cartridges.

- Polyethylene-coated Tyvek® suit with ankles and cuffs taped to boots and gloves.
- Nitrile outer gloves worn over nitrile surgical gloves.
- Steel-toe work boots, meeting ANSI Z41.
- Orange reflective safety vest, meeting ANSI 107 (vests shall always be worn in and around streets).
- Chemical-resistant boots with steel toes, or latex or PVC overboots over steel-toe boots.
- Hard hat, meeting ANSI Z89 at all times when working on site. Hard hats cannot be white or "Con Edison blue" in color and tape/paint applied from other than the manufacturer is not permitted on hard hats.
- Hearing protection (if noise levels exceed 85 dBA, then hearing protection with a USEPA NRR of at least 20 dBA must be used).
- Metatarsal protectors will be worn by those performing saw cutting and jack hammering activities. If possible, cut-resistant gloves will be used in combination with nitrile gloves for cutting activities. Workers requiring a respirator will have medical clearance and fit-test documentation available on site.

5.2 Site Respiratory Protection Program

Respiratory protection is an integral part of employee health and safety at the site due to potentially hazardous concentrations of airborne COIs. The site respiratory protection program will consist of the following elements (as a minimum):

- All on-site personnel who may use respiratory protection will have an assigned respirator.
- All on-site personnel who may use respiratory protection will have been fit-tested and trained in the use of a full-face, air-purifying respirator within the past 12 months.
- All on-site personnel who may use respiratory protection must, within the past year, have been medically certified as being capable of wearing a respirator. Documentation of the medical certification must be provided to the HSS prior to commencing site work.
- Only cleaned, maintained NIOSH-approved respirators will be used.
- If respirators are used, the respirator cartridge is to be properly disposed of at the end of each work shift, or when load-up or breakthrough occurs, whichever occurs first.
- Contact lenses are not to be worn when a respirator is worn.

- All on-site personnel who may use respiratory protection must be clean-shaven. Mustaches and sideburns are permitted, but they must not touch the sealing surface of the respirator.
- Respirators will be inspected and a negative-pressure test performed prior to each use.
- After each use, the respirator will be wiped with a disinfectant, cleansing wipe. When used, the respirator will be thoroughly cleaned at the end of the work shift. The respirator will be stored in a clean plastic bag, away from direct sunlight in a clean, dry location, in a manner that will not distort the face piece.

5.3 Using PPE

Depending on the level of protection selected, specific donning and doffing procedures may be required. The procedures presented in this section are mandatory if Modified Level D or Level C PPE is used. All personnel entering the EZ must put on the required PPE in accordance with the requirements of the HASP. When leaving the EZ, PPE will be removed in accordance with the procedures listed to minimize the spread of COIs.

5.3.1 Donning Procedures

These procedures are mandatory only if Modified Level D or Level C PPE is used on site:

- Remove bulky outerwear and street clothes and store in clean location.
- Put on work clothes or coveralls.
- Put on the required chemical-protective coveralls.
- Put on the required chemical-protective boots or boot covers.
- Put on the required chemical-protective gloves.
- Don the required respirator and perform appropriate fit check (Level C).
- Put hood or head covering over head and respirator straps, and tape hood to face piece (Level C).
- Don remaining PPE, such as safety glasses or goggles, safety vest and hard hat.

When these procedures are instituted, one person must remain outside the work area to confirm that each person entering has the proper protective equipment.

5.3.2 Doffing Procedures

The following procedures are only mandatory if Modified Level D or Level C PPE is required for the site. Whenever a person leaves the work area, the following decontamination sequence will be followed:

- Upon entering the CRZ, rinse COI-impacted materials from the boots or remove COI-impacted boot covers.
- Clean reusable protective equipment.
- Remove protective garments, equipment, and respirator (Level C). All disposable clothing should be placed in plastic bags with contaminated-waste labels.
- Wash hands, face, and neck (or shower if necessary).
- Proceed to clean area and dress in clean clothing.
- Clean and disinfect respirator for next use.

All disposable equipment, garments, and PPE must be bagged in plastic bags labeled for disposal. See Section 7, Work Zones and Decontamination, for detailed information on decontamination stations.

5.4 PPE Selection

PPE will be selected based on the potential for contact, site conditions, ambient air quality, and the judgment of supervising site personnel and health and safety professionals. The PPE used will be chosen to be effective against the COIs present on site.

Specifically, the level of PPE selected will be based on air monitoring of the work environment, and an assessment by the SS and HSS of the potential for skin contact with COIs. The Airborne Contaminant Action Levels in Table 6-1 (provided in Section 6) should be used to verify that the PPE prescribed in Table 5-1 is appropriate.

6 AIR MONITORING

6.1 Air Monitoring

Air monitoring will be conducted continuously when the potential to encounter COIs exists due to ground intrusive work. Air monitoring will be conducted to evaluate employee exposure to airborne constituents. The monitoring results will dictate work procedures and the selection of PPE. The HSS will be responsible for utilizing the air monitoring results to determine appropriate health and safety precautions for all personnel and subcontractors. Air monitoring results should be recorded in field notebooks or on an air monitoring log (see Appendix E for an example of a monitoring log).

6.1.1 VOCs, CO, and Flammable Vapors

Air monitoring should be performed continuously using a combination of single and multi-gas organic vapor analyzers (OVAs), such as the RAE Systems MiniRAE 2000 (or similar), wherever CO, flammable gases or VOCs could be generated. All work activity must stop where tests indicate the concentration of flammable vapors exceeds 10% of the lower explosive limit (LEL) at a location with a potential ignition source. Such an area must be ventilated to reduce the concentration to an acceptable level.

6.1.2 Benzene

In areas where petroleum hydrocarbons are suspected, benzene detector tube readings must be taken if photoionization detector (PID) readings exceed 1 part per million (ppm), and are sustained for 15 minutes in the breathing zone. The benzene detector tubes will be used to verify that the level of benzene in the breathing zone is less than 1 ppm.

6.1.3 Airborne Particulates

Air monitoring must be conducted using a portable dust monitor (e.g., TSI DustTRAK or equivalent) during all activities that have the potential to generate airborne particulates. Readings should be taken in the breathing zone of site workers as well as downwind of site activities in order to identify potential off site impacts.

6.2 Noise Monitoring

Noise monitoring may be conducted as required. Hearing protection is mandatory for all employees in noise hazardous areas, such as around heavy equipment. As a general rule, sound levels that cause speech interference at normal conversation distance should require the use of hearing protection. Where ambient sound levels cause speech interference, hearing protection will be mandatory within 15 feet of the noise source.

6.3 Monitoring Equipment Maintenance and Calibration

All direct-reading instrumentation calibrations should be conducted under the approximate environmental conditions that the instrument will be used. Instruments must be calibrated before and after use, noting the reading(s) and any adjustments that are necessary. All air monitoring equipment calibrations, including the standard used for calibration, must be documented on a calibration log or in the field notebook. All completed health and safety forms must be reviewed by the HSS and maintained by the SS.

All air-monitoring equipment will be maintained and calibrated in accordance with the specific manufacturer's procedures. Preventive maintenance and repairs will be conducted in accordance with the respective manufacturer's procedures. When applicable, only manufacturer-trained and/or authorized personnel will be allowed to perform instrument repairs or preventive maintenance.

If an instrument is found to be inoperative or suspected of giving erroneous readings, the HSS must be responsible for immediately removing the instrument from service and obtaining a replacement unit. If the instrument is essential for safe operation during a specific activity, that activity must cease until an appropriate replacement unit is obtained. The HSS will be responsible for confirming that a replacement unit is obtained and/or repairs are initiated on the defective equipment.

6.4 Action Levels

Table 6-1 presents airborne contaminant action levels that will be used to determine the procedures and protective equipment necessary based on conditions as measured at the site.

Table 6-1

Airborne Contaminant Action Levels

Parameter	Reading	Action
Total Organic Vapors	0 ppm to ≤ 1 ppm	Normal operations; hourly breathing zone monitoring; continuous monitoring during soil intrusive activities.
	> 1 ppm to 5 ppm	Normal operations; continuous monitoring; screen for benzene with colorimetric tubes at these concentrations if readings are sustained for more than 15 minutes; investigate cause of reading and initiate controls if feasible
	≥ 5 ppm to ≤ 10 ppm	Normal operations; continuous monitoring; screen for benzene with colorimetric tubes; investigate cause of reading and initiate controls if feasible
	≥ 10 ppm to ≤ 50 ppm	Upgrade to Level C PPE; screen for benzene with colorimetric tubes; investigate cause of reading and initiate controls if feasible
	> 50 ppm	Stop work; investigate cause of reading; initiate controls before resuming work
Benzene (colorometric tube)	< 0.5 ppm	Normal operations
	≥ 0.5 ppm to 5 ppm	Upgrade to Level C PPE

Parameter	Reading	Action
	> 5 ppm	Stop work; investigate cause of reading
Total Particulates[2]	<u><</u>0 to 0.100 milligrams per cubic meter (mg/m^3)	Normal operations
	>0.100 mg/m^3 above background, or visible airborne dust.	Initiate wetting of work area to control dust; upgrade to level C if dust control measures do not control dust within 15 minutes, monitor downwind impacts.
	>0.15 mg/m^3 in worker breathing zone or at downwind perimeter of work area.	Stop work; investigate cause of reading; contact PM and HSO.
Carbon Monoxide	0 ppm to <10 ppm	Normal operations.
	10 ppm to <20 ppm	Normal operations; evaluate sources of carbon monoxide and implement additional ventilation of work area.
	20 ppm	Stop work.
Flammable Vapors LEL	< 10% LEL	Normal operations; investigate any positive readings above and initiate controls if feasible
	> 10% LEL	Stop work; ventilate area; investigate source of vapors.
Oxygen	< 19.5 %	Stop work; evacuate work area, investigate cause of reading; ventilate area; contact J. Keough or C. Webster.
	> 19.5% to < 23.5 %	Normal operations.
	> 23.5 %	Stop work; evacuate work area; investigate cause of reading; ventilate area; contact J. Keough or C. Webster.
Hydrogen Sulfide	0 ppm to < 5 ppm	Normal operations.
	> 5 ppm	Stop work; evacuate work area, investigate cause of reading; ventilate area; contact J. Keough or C. Webster.

1) PID readings are sustained for a period of two minutes at breathing zone height, measured with a calibrated photoionization detector with an 11.7 eV lamp.

2) Readings for particulate are sustained for two minutes at breathing zone height, measured with a calibrated Real Time Aerosol Monitor (mini RAM/PDR1000). Dust sampling instruments provide “total dust” levels, and do not differentiate between contaminated and non-contaminated dust particulate. Dust action levels are based upon total dust and not respirable dust levels. Action levels are in excess of background levels, as measured either prior to activities in work areas or off-site.

6.5 Community Air Monitoring Plan

A copy of the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan*, dated June 2000 is included as Appendix C to the ISMP document. The intent of this CAMP is to provide for a measure of protection of the downwind communities from potential airborne releases of COIs during activities. As such, this CAMP specifies the potential air emissions, as well as the air monitoring methods, action levels, and abatement measures that will be implemented during activities at the site.

As required by the NYSDOH CAMP, ambient air monitoring will be implemented at the site for total VOCs and particulate matter less than 10 microns in diameter (PM_{10}). Air monitoring will occur during any site activity that may generate dust emissions. Total VOCs and PM_{10} levels in ambient air will be continuously measured in real-time using portable instruments. The sample location rationale, sample methods, action levels, and abatement procedures are discussed below.

6.5.1 Sampling Location Selection

One upwind and one downwind air monitoring sample location will be selected based on the established work zone area, proximity to potential community receptors, and the prevailing wind direction. In general the initial air monitoring stations will be located along the perimeter of the work zone as defined in the HASP. If VOC or PM_{10} action levels (discussed below) are exceeded at the downwind work zone perimeter, then the downwind air monitoring location will be moved to the nearest downwind community receptor.

Note that the upwind and downwind air monitoring locations may change throughout the day based on changes in wind direction and work zone areas.

6.5.2 Sampling Methods

Total VOCs in ambient air will be monitored and recorded using a portable organic vapor analyzer OVA equipped with a PID with data-logging capabilities (MiniRae2000 or equivalent). The OVA-PID will be housed in a watertight shelter attached to a tripod and set at a height of approximately five feet above the ground. Total VOC levels will be measured continuously and recorded at 15 minute average intervals.

PM_{10} levels in ambient air will be monitored and recorded using a portable dust monitor capable of particle size fractionization of less than 10 microns in diameter (TSI Dust TRAK or equivalent). The dust monitor will be housed with the OVA-PID in a watertight shelter attached to a tripod and set at a height of approximately five feet above the ground. PM_{10} levels will be measured continuously and recorded at 15 minute average intervals.

On-site personnel will monitor the total VOC and PM_{10} levels within the work zone as part of the HASP. If VOC or PM_{10}levels within the work zone increase then the upwind and downwind perimeter air monitoring stations will be checked at 15 minute intervals to determine if the VOC levels or PM_{10} are increasing at the work zone perimeter. If the downwind levels are greater than the upwind levels then it will be assumed that the emissions are the result of work zone activities. If the difference between the downwind and upwind VOC or the PM_{10} level is greater than their respective action level (discussed below), then monitoring will commence at the nearest downwind community receptor.

6.5.3 Action Levels

The action levels provided below are based on the values provided in the NYSDOH generic CAMP and will be used to initiate response actions, if necessary, based on real-time monitoring.

6.5.3.1 Total VOC Action Levels

The following total VOC action levels and responses, based on the NYSDOH generic CAMP, will be implemented during any activity that may generate emissions.

- If the ambient air concentration of total VOCs exceeds 5 ppm above the background (upwind location) for the 15 minute average, intrusive site activities will be temporarily halted while monitoring continues. If the total VOC concentration readily decreases (through observation of instantaneous readings) below 5 ppm above background, then intrusive site activities will resume with continuous monitoring.

- If the ambient air concentrations of total VOCs persist at levels in excess of 5 ppm above background but less than 25 ppm above background, intrusive site work activities will be halted, the source of the elevated VOC concentrations identified, corrective actions to reduce or abate the emissions undertaken, and air monitoring will continue. Once these actions have been implemented, intrusive site work activities will resume provided the following two conditions are met.

  - The 15 minute average VOC concentrations remain below 5 ppm above background.

  - The VOC level 200 feet downwind of the sample location or half the distance to the nearest potential receptor or residential/commercial structure (whichever is less but in no case less than 20 feet) is below 5 ppm over background for the 15 minute average.

- If the ambient air concentrations of total VOCs are above 25 ppm above background, intrusive site activities will stop and emission control measures will be implemented.

6.5.3.2 PM_{10} Action Levels

The following PM_{10} action levels and responses, based on the NYSDOH generic CAMP, will be implemented during any activity that may generate emissions.

- If the average ambient air concentration of PM_{10} at any one (or more) of the sampling locations is noted at levels in excess of 100 micrograms per cubic meter ($\mu g/m^3$) above the background (upwind location) for the 15 minute interval, or if airborne dust is observed leaving the work area, intrusive site activities will be temporarily halted. The source of the elevated PM_{10} concentration is to be identified, corrective actions to reduce or abate the emissions will be undertaken, and air monitoring will continue. Work may continue following the implementation of dust suppression techniques provided the PM_{10} levels do not exceed 150 $\mu g/m^3$ above background and no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, PM_{10} levels are greater than 150 µg/m^3 above background, work will stop, and site activities will be re-evaluated. Work will only resume after dust suppression measures and other controls are implemented and PM_{10} levels are less than 150 µg/m^3 above background, and no visible dust is migrating from the work area.

6.5.4 Emission Control Measures

The following emission control measures may be used if action levels are exceeded during activities:

- Apply water to exposed soil/material piles.
- Cover excavated soil/material piles with polypropylene sheeting or other appropriate material.
- Reduce surface area of exposed material/soil area.
- Containerize excavated material.
- Implement whatever methods are necessary to eliminate continuing emissions that could occur after site work ceases.

6.5.5 Meteorological Monitoring

Wind direction and wind speed be monitored and recorded at least once per hour during intrusive sampling activities. Wind direction will be determined using a windsock, wind vane, multi-purpose wind meter, or other appropriate equipment. Wind speed will be determined using a handheld wind speed meter.

6.5.6 Instrument Calibration

Calibration of the VOC and PM_{10} instrumentation will occur in accordance with each of the equipment manufacturer’s calibration and quality assurance requirements. The VOC and PM_{10} monitors will be calibrated at least daily, and calibrations will be recorded in the field activity logbook.

7 WORK ZONES AND DECONTAMINATION

7.1 Work Zones

7.1.1 Authorization to Enter

Only personnel with the appropriate training and medical certifications (if respirators are required) will be allowed to work at the project site. The SS will maintain a list of authorized persons; only personnel on the authorized-persons list will be allowed to enter the site work areas.

7.1.2 Site Orientation and Hazard Briefing

No person will be allowed in the work area during site operations without first being given a site orientation and hazard briefing. This documented orientation will be presented by the SS or HSS and will consist of a review of the HASP. This review must cover the chemical, physical, and biological hazards; protective equipment; safe work procedures; and emergency procedures for the project. Following this initial meeting, daily safety meetings will be held each day before work begins.

All people entering the site work areas, including visitors, must document their attendance at this briefing, as well as the daily safety meetings, on the forms included with this plan.

7.1.3 Certification Documents

A training and medical file may be established for the project and kept on site during all site operations. Specialty training, such as first-aid and cardiopulmonary resuscitation (CPR), as well as current medical clearances for all project field personnel required to wear respirators, will be maintained within that file. All personnel must provide their training and medical documentation to the HSS prior to starting work.

7.1.4 Entry Log

A log-in/log-out sheet will be maintained on site by the SS. Personnel must sign in and out on a log sheet as they enter and leave the work area, and the SS may document entry and exit in the field notebook.

7.1.5 Entry Requirements

In addition to the authorization, hazard briefing, and certification requirements listed above, no person will be allowed in any work area unless they are wearing the minimum PPE as described in Section 5, Personal Protective Equipment.

7.1.6 Emergency Entry and Exit

People who must enter the work area on an emergency basis will be briefed of the hazards by the SS. All activities will cease in the event of an emergency. People exiting the work area because of an emergency will gather in a safe area for a head count. The SS is responsible for confirming that all people who entered the work area have evacuated in the event of an emergency.

7.1.7 Contamination-Control Zones

Contamination-control zones are maintained to prevent the spread of contamination, and to prevent unauthorized people from entering hazardous areas.

7.1.7.1 Exclusion Zone

An EZ may consist of a specific work area or may be the entire area of potential contamination. All employees entering an EZ must use the required PPE, and must have the appropriate training and medical clearance for hazardous waste work. The EZ is the defined area where there is a possible respiratory and/or contact health hazard. Cones, caution tape, or a site diagram will identify the location of each EZ.

7.1.7.2 Contamination-Reduction Zone

The CRZ or transition area will be established, if necessary, to perform decontamination of personnel and equipment. All personnel entering or leaving the EZ will pass through this area to prevent any cross-contamination. Tools, equipment, and machinery will be decontaminated in a specific location. All personnel will be decontaminated on site adjacent to the EZ. Personal protective outer garments and respiratory protection will be removed in the CRZ and prepared for cleaning or disposal. This zone is the only appropriate corridor between the EZ and the SZ.

7.1.7.3 Support Zone

The SZ is a clean area outside the CRZ located to prevent employee exposure to hazardous substances. Eating and drinking will be permitted in the SZ only after proper decontamination. Smoking may be permitted in the SZ, subject to site requirements.

7.1.8 Posting

Work areas will be prominently marked and delineated using cones, caution tape, or a site diagram.

7.1.9 Site Inspections

The SS will conduct a daily inspection of site activities, equipment, and procedures to verify that the required elements are in place.

7.2 Decontamination

7.2.1 Personnel Decontamination

All personnel wearing Modified Level D or Level C protective equipment in the EZ must undergo personal decontamination prior to entering the SZ. The personnel decontamination area will consist of the following stations, at a minimum:

- Station 1: Personnel leaving the contaminated zone will remove the gross contamination from their outer clothing and boots.

- Station 2: Personnel will remove their outer garment and gloves and dispose of them in properly labeled containers. Personnel will then decontaminate their hard hats and boots with an aqueous solution of detergent or other appropriate cleaning solution. These items are then hand carried to the next station.

- Station 3: Personnel will thoroughly wash their hands and face before leaving the CRZ. Respirators will be sanitized and then placed in a clean plastic bag.

7.2.2 Equipment Decontamination

All equipment such as bailers, oil/water probes, transfer containers must be decontaminated prior to leaving the work area. A solution of Alconox (or equivalent) will be used to remove all visible contamination. The decontamination solution and rinsate must be poured into a drum for disposal.

7.2.3 PPE Decontamination

Where and whenever possible, single-use, external protective clothing must be used for work within the EZ or CRZ. This protective clothing must be disposed of in properly labeled containers. Reusable protective clothing will be rinsed on site with detergent and water. The rinsate will be collected for disposal.

When removed from the CRZ, the respirator will be thoroughly cleaned with soap and water. The respirator face piece, straps, valves, and covers must be thoroughly cleaned at the end of each work shift and ready for use prior to the next shift. Respirator parts may be disinfected with a solution of bleach and water, or by using a spray disinfectant.

8 TRAINING AND MEDICAL SURVEILLANCE

8.1 Training

8.1.1 General

All on-site project personnel who work in areas where they may be exposed to site contaminants must be trained as required by OSHA Regulation 29 CFR 1910.120 (HAZWOPER). Field employees also must receive a minimum of three days of actual field experience under the direct supervision of a trained, experienced supervisor. Personnel who completed their initial training more than 12 months prior to the start of the project must have completed an eight hour refresher course within the past 12 months. The SS must have completed an additional eight hours of supervisory training, and must have current first-aid and CPR certificates.

8.1.2 Basic 40-Hour Course

The following is a list of the topics typically covered in a 40-hour HAZWOPER training course:

- General safety procedures.
- Physical hazards (fall protection, noise, heat stress, cold stress).
- Names and job descriptions of key personnel responsible for site health and safety.
- Safety, health, and other hazards typically present at hazardous waste sites.
- Use, application, and limitations of PPE.
- Work practices by which employees can minimize risks from hazards.
- Safe use of engineering controls and equipment on site.
- Medical surveillance requirements.
- Recognition of symptoms and signs that might indicate overexposure to hazards.
- Worker right-to-know (Hazard Communication OSHA 1910.1200).
- Routes of exposure to contaminants.
- Engineering controls and safe work practices.
- Components of a health and safety program and a site-specific HASP.

- Decontamination practices for personnel and equipment.
- Confined-space entry procedures.
- General emergency response procedures.

8.1.3 Supervisor Course

Managers and supervisors must receive an additional eight hours of training, which typically includes:

- General site safety and health procedures.
- PPE programs.
- Air monitoring techniques.

8.1.4 Site-Specific Training

Site-specific training will be accomplished by on-site personnel reading the HASP or through a thorough site briefing by the PM, SS, or HSS on the contents of the HASP before work begins. The review must include a discussion of the chemical, physical, and biological hazards; protective equipment and safety procedures; and emergency procedures.

8.1.5 Daily Safety Meetings

Twice daily safety meetings will be held to cover the work to be accomplished, hazards anticipated, PPE and procedures required to minimize site hazards, and emergency procedures. The SS or HSS should present these meetings prior to beginning the day’s fieldwork and again in the afternoon. No work will be performed in an EZ before the morning safety meeting has been held. The safety meeting must also be held prior to new tasks and repeated if new hazards are encountered. An example of a Daily Safety Meeting Log is included in Appendix H.

8.1.6 First-aid and CPR

At least one employee current in first-aid and CPR will be assigned to the work crew, and will be on site during operations. Refresher training in first-aid (triennially) and CPR (annually) are required to keep the certificate current. These individuals must also receive training regarding the precautions and protective equipment necessary to protect against exposure to bloodborne pathogens.

8.2 Medical Surveillance

8.2.1 Medical Examination

All personnel who are potentially exposed to site contaminants must participate in a medical surveillance program as defined by OSHA at 29 CFR 1910.120(f).

8.2.2 Pre-Placement Medical Examination

All potentially exposed personnel must have completed a comprehensive medical examination prior to assignment and periodically thereafter, as defined by applicable regulations. The pre-placement and periodic medical examinations typically include the following elements:

- Medical and occupational history questionnaire.
- Physical examination.
- Complete blood count, with differential.
- Liver enzyme profile.
- Chest x-ray, at a frequency determined by the physician.
- Pulmonary function test.
- Audiogram.
- Electrocardiogram for persons older than 45 years of age, or if indicated during the physical examination.
- Drug and alcohol screening, as required by job assignment.
- Visual acuity.
- Follow-up examinations, at the discretion of the examining physician or the corporate medical director.

The examining physician must provide the employee with a letter summarizing his or her findings and recommendations, confirming the worker’s fitness for work and ability to wear a respirator. Documentation of medical clearance will be available for each employee during all project site work.

Subcontractors will certify that all their employees have successfully completed a physical examination by a qualified physician. The physical examinations must meet the requirements of 29 CFR 1910.120 and 29 CFR 1910.134. Subcontractors will supply copies of the medical examination certificate for each on-site employee.

8.2.3 Other Medical Examinations

In addition to pre-employment, annual, and exit physicals, personnel may be examined:

- At employee request after known or suspected exposure to toxic or hazardous materials.
- At the discretion of the HSS, HSO, or occupational physician in anticipation of, or after known or suspected exposure to toxic or hazardous materials.

8.2.4 Periodic Exam

Following the placement examination, all employees must undergo a periodic examination similar in scope to the placement examination. For employees potentially exposed more than 30 days per year, the frequency of periodic examinations will be annual. For employees potentially exposed less than 30 days per year, the frequency for periodic examinations will be 24 months.

8.2.5 Medical Restriction

When the examining physician identifies a need to restrict work activity, the employee's supervisor must communicate the restriction to the employee and the HSS. The terms of the restriction will be discussed with the employee and the supervisor.

9 EMERGENCY PROCEDURES

9.1 General

Prior to the start of operations, the work area will be evaluated for the potential for fire, contaminant release, or other catastrophic event. Unusual conditions or events, activities, chemicals, and conditions will be reported to the SS/HSS immediately.

The SS/HSS will establish evacuation routes and assembly areas for the site. All personnel entering the site will be informed of this route and the assembly area.

9.2 Emergency Response

If an incident occurs, the SS or HS should take the following steps:

- Evaluate the incident and assess the need for assistance and/or evacuation.

- Contact the Con Edison Construction Management representative, unless a personal injury is involved, in which call 911. The Con Edison Construction Management representative will contact the Manhattan Control Center.

- Take appropriate measures to stabilize the incident scene.

9.2.1 Fire

In the case of a fire on-site, the SS/HSS will assess the situation and direct firefighting activities. The SS/HSS will confirm that the PM is immediately notified of any fires. Site personnel will attempt to extinguish the fire with available extinguishers, if safe to do so. In the event of a fire that site personnel are unable to safely extinguish with one fire extinguisher, the local fire department will be summoned.

9.2.2 Contaminant Release

In the event of a contaminant release, the following steps will be taken:

- Notify SS/HSS and Con Edison Construction Management representative immediately.
- Evacuate immediate area of release.
- Conduct air monitoring to determine needed level of PPE.
- Take preventive measures to prevent the entrance of contaminants to sewers, catch basins, manholes, and vaults.
- Don required level of PPE and prepare to implement control procedures.

The SS/HSS has the authority to commit resources as needed to contain and control released material, and to prevent its spread to off-site areas.

As a preventative measure, fluid-containing vehicles and equipment on the project site spotted on a pervious surface (e.g., soil, blue stone, etc.) will be parked over polyethylene sheeting that extends the full length and width of the vehicle.

9.3 Medical Emergency

All employee injuries must be promptly reported to the HSS/SS, who will:

- Confirm that the injured employee receives prompt first-aid and medical attention.
- In emergency situations, the worker is to be transported by appropriate means to the nearest urgent care facility (normally a hospital emergency room).

9.3.1 Emergency Care Steps

After identifying the emergency and contacting the Con Edison Construction Inspection representative and prior to entering an accident area, site personnel must follow the following emergency care steps:

- Survey the scene. Determine if it is safe to proceed. Try to determine if the conditions that caused the incident are still a threat. Protect yourself from exposure before attempting to rescue the victim.
- Do a primary survey of the victim. Check for airway obstruction, breathing, and pulse. Assess likely routes of chemical exposure by examining the eyes, mouth, nose, and skin of the victim for symptoms.
- Phone emergency medical services (EMS). Give the location, telephone number used, caller’s name, what happened, number of victims, victim’s condition, and help being given.
- Maintain airway and perform rescue breathing as necessary.
- Perform CPR as necessary.

- Do a secondary survey of the victim. Check vital signs and do a head-to-toe exam.
- Treat other conditions as necessary. If the victim can be moved, take him or her to a location away from the work area where EMS can gain access.

9.4 First-aid—General

All persons must report any injury or illness to their immediate supervisor or the SS and the Con Edison Construction Inspection representative. Trained personnel will provide first-aid. Injuries and illnesses requiring medical treatment must be documented. The SS and HSS must conduct an II as soon as emergency conditions no longer exist, and first-aid and/or medical treatment has been confirmed. IIs must be completed and submitted to the PM within 24 hours after the incident.

In addition to the II discussed above, in the event of injury or illness, a Con Edison Contractor Injury Report form will be completed and provided to the Con Edison representative on site within 24 hours of the incident. A Con Edison Contractor Injury Report Form is included in Appendix I. An investigation report that includes a description of the incident, root cause determination, and actions to be taken to prevent recurrence will be submitted with the Con Edison Contractor Injury Report Form. Work will not be allowed to re-commence on the task where the injury occurred until Con Edison considers the preventative action plan to be acceptable.

If first-aid treatment is required, first-aid kits are kept at the CRZ. If treatment beyond first-aid is required, the injured person(s) should be transported to the medical facility. If the injured person is not ambulatory or shows any sign of not being in a comfortable and stable condition for transport, then an ambulance and/or paramedics should be summoned. If there is any doubt as to the injured worker’s condition, it is best to let the local paramedic or ambulance service examine and transport the worker.

9.4.1 First-aid - Inhalation

Any employee complaining of symptoms of chemical overexposure as described in Section 4, General Safety Practices, will be removed from the work area and transported to the designated medical facility for examination and treatment.

9.4.2 First-aid - Ingestion

Call EMS and consult a poison control center for advice. If available, refer to the SDS for treatment information. If the victim is unconscious, keep them on their side and clear the airway if vomiting occurs.

9.4.3 First-aid - Skin Contact

Project personnel, who have had skin contact with contaminants will, unless the contact is severe, proceed through the CRZ to the wash area. Personnel will remove any contaminated clothing and then flush the affected area with water for at least 15 minutes. The worker should be transported to the medical facility if he or she shows any sign of skin reddening, irritation, or if he or she requests a medical examination.

9.4.4 First-aid - Eye Contact

Project personnel who have had contaminants splashed in their eyes or experience eye irritation must immediately proceed to the eyewash station in the CRZ. Do not decontaminate prior to using the eyewash. Remove whatever protective clothing is necessary to use the eyewash. Flush the eye with clean running water for at least 15 minutes. Arrange prompt transport to the designated medical facility.

9.4.5 Reporting Injuries, Illnesses, and Near-Miss Incidents

Injuries and illnesses, however minor, will be reported to the SS immediately. The SS will notify Con Edison of the incident. The SS will complete an injury report and submit it to the HSO and PM within 24 hours.

Near-miss incidents are situations in which no injury or property damage occurred, but under slightly different circumstances an injury or property damage could have occurred. Near-misses are caused by the same factors as injuries; therefore, they must be reported and investigated in the same manner. An SPSA must be done immediately after an injury, illness, near-miss, or other incident to determine if it is safe to proceed with the work.

9.5 Emergency Information

The means to summon local public response agencies such as police, fire, and ambulance will be reviewed in the daily safety meeting. These agencies are identified in Table 9-1.

Table 9-1

Emergency Contacts

Emergency Contacts	**Telephone No.**
PM-Con Edison: TBD	TBD
Con Edison Construction Manager: TBD	TBD
Contingency Contacts	**Telephone No.**
Police: 9th Precinct	911 212.477.7811
New York One Call Center (3 day notice required for utility markouts)	811
Poison Control Center:	800.332.3073
National Pollution Toxic Chemical Oil Spills	800.424.8802
Medical Emergency	**Telephone No.**
Ambulance Service:	911
Hospital Name	New York Presbyterian Lower Manhattan Hospital
Hospital Phone Number	212.312.5000

Emergency Room Number:	212.312.5070
Main Hospital Address:	170 William Street New York, NY 10038-2649
Route to Hospital (Emergency Room):	See Figure 9-1
Project Contractor Contacts	**Telephone No.**
Task Manager: TBD	TBD
Site Supervisor : TBD	TBD
Health & Safety Officer: TBD	TBD

9.5.1 Directions to Hospital

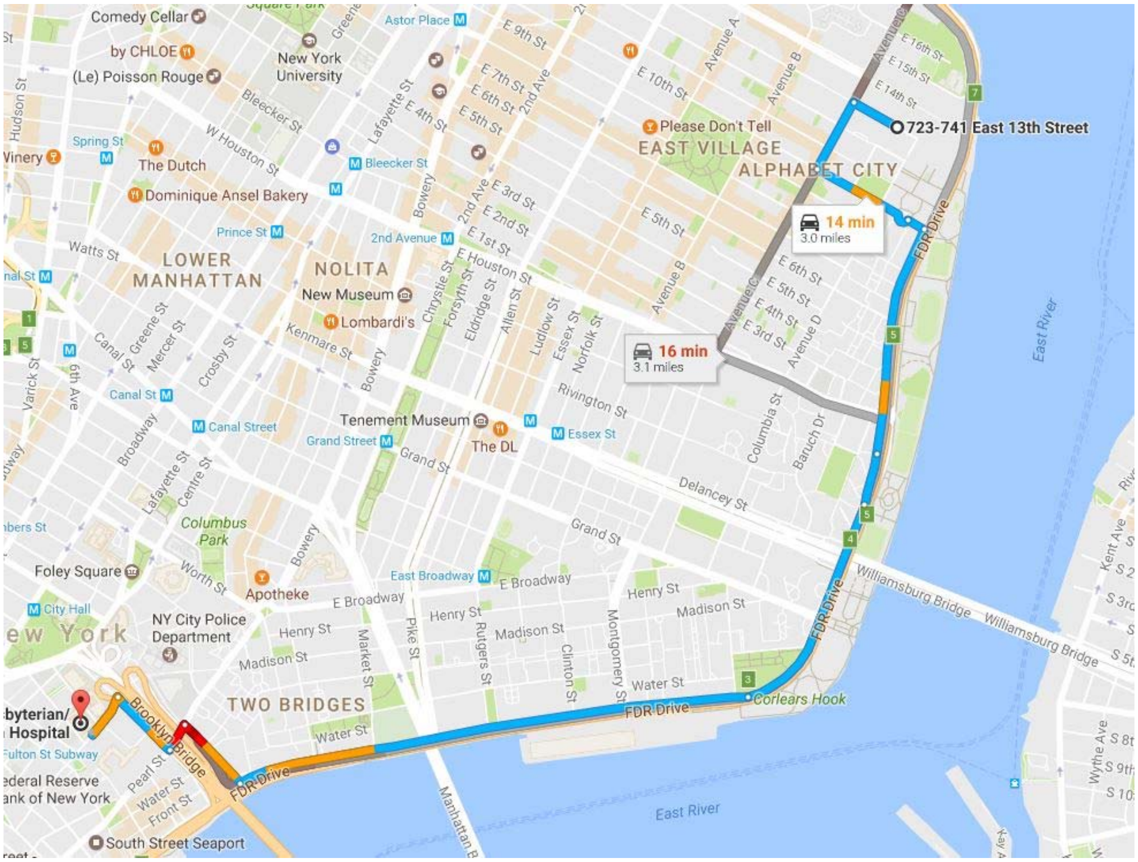
It is the responsibility of the HSS to verify the directions to the hospital prior to the start of work.

Driving Directions to New York Presbyterian Lower Manhattan Hospital

1. Head northwest on E 13th St toward Avenue C/Loisaida Ave (0.5mi)
2. Turn right onto Avenue C/Loisaida Ave (0.3mi)
3. Turn right onto the Franklin D. Roosevelt East River Drive S ramp to Battery Park (0.1mi)
4. Merge onto FDR Drive/Franklin D. Roosevelt East River Drive (24mi)
5. Use right two lanes to take exit 2 toward Manhattan Civic Center (0.2mi)
6. Use right lane to merge onto Robert F. Wagner Sr. Place (174ft)
7. Use the 2nd from the left lane to turn onto Pearl St (320 ft)
8. Turn right onto Frankfort St (0.1mi)

Turn left onto Gold St (472 ft)

Figure 1: Route to Hospital



10 REFERENCES

This HASP follows the guidelines established in the references listed below.

Standard Operating Safety Guides, USEPA (Publication 9285.1-03, June 1992).

Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH, OSHA, USCG, USEPA (86116, October 1985).

Title 29 of the Code of Federal Regulations (CFR), Part 1910 and Part 1926.

Con Edison Utility Clearance Process for Intrusive Activities Revision 1, Con Edison, (October 2003)

Pocket Guide to Chemical Hazards, DHHS, PHS, CDC, NIOSH (2003).

Threshold Limit Values, ACGIH (2005).

Guide to Occupational Exposure Values, ACGIH (2005).

Quick Selection Guide to Chemical Protective Clothing, Forsberg, K. and S.Z. Mansdorf, 2nd Ed. (1993).

APPENDIX A

Con Edison EH&S Hazard Analysis for Contractor Work, Hazard Analysis for Contractor Work, and Work Plan Guides

Con Edison

Health and Safety Plan

Guide 1: Introduction

Program outline

Guide 1: Introduction

Con Edison commitment to EH&S excellence

Con Edison's policy is to demonstrate leadership and excellence in worker and public safety and health and environmental protection. This commitment shall be evident and continually reinforced in all Company operations and shall be adopted by each contractor performing work for Con Edison.

Each contractor shall be required to meet fundamental workplace requirements established by law and by regulation and be expected to reach beyond these basic requirements to realize a higher level of achievement for Environmental Health and Safety (EH&S) matters.

Contractors EHS programs and procedures (ehasp)

Contractors interested in working for ConEdison are required to submit 2 types of EHS Plans. The first plan required of contractor's is the Corporate EHS Program and Procedures (generic eHASP) and the second may be a project specific EHS Plan and or a task specific EHS Plan.

The first plan, the Contractor's corporate environmental, health, and safety programs and procedures (generic eHASP) is required in order to be placed on the approved bidder list. This information shall consist of documents uniquely authored by each contractor for the purpose of detailing practical implementation of all environmental, health, and safety standards that would be applicable to their work, such as a respiratory protection, scaffold or hazard communication program. If a primary activity of the contractor is scaffold erection, a corporate scaffold procedure (in addition to other programs) is required in order for contractor approval. Health and safety-related documents shall, as a minimum, address all applicable Occupational Safety and Health Act (OSHA) regulations. These documents shall be prepared at a level of detail necessary to illustrate how the contractor complies with each applicable OSHA requirement applicable to the business they are involved in. Documents that simply restate the regulatory standards verbatim will not be considered acceptable.

Once on the approved bidder list, a contractor may be chosen to bid on specific project within the Con Ed system which then requires the second EHS plan. A requirement of this bid is the development of a project specific environmental, health and safety plan (eHASP). This document is a written plan outlining the work to be performed which addresses the hazards expected and presents control measures for environmental and personnel protection. The hazards and control measures identified here are briefly stated but clearly identify the requirements of the contactors workers in performing the job activities. The hazards and control measures identified are supported by the contractors corporate EHS programs and procedures. As an example, control measure specified in a project specific eHASP requiring the use of respiratory protection would also require a Corporate Respiratory Protection Program in compliance with OSHA. See attachment 3 for a project specific eHASP template that can be used to develop you project specific eHASP.

For those situations where a repetitive and routine task is performed by a contractor at several locations within our territory, we have approved the use of a "Task Specific eHASP". A Task

Guide 1: Introduction

Specific eHASP is an alternate form of a project specific eHASP. A Task Specific eHASP is a general EHS plan developed by Con Ed or the contractor and accepted by Con Ed for use. This plan identifies the common hazards expected and control measures which the contractor is expected to be expert in and responsible for addressing. The contractor may utilize a Task Specific eHASP if they have agreed to the terms of the plan and have provided Con Edison with a signed copy. See section C of the manual for an example task specific ehasp.

The following sections provide guidance in the process of developing project specific environmental, health and safety plans (eHASP). At this point, we would expect the contractor has already been placed on the approved bidders list and has satisfied their obligation to provide an acceptable Corporate EHS Program.

Contractor responsibility

It is the responsibility of every contractor to be aware of and comply with all federal, state, and local regulations governing the environment and worker health and safety (EH&S). The contractor work plan required by Con Edison prior to the start of work must include processes for anticipating, identifying, assessing, and controlling any potential effects to the environment and potential hazards to workers, Con Edison employees, and the public. Con Edison personnel will review this work plan against the project scope of work, specifications and EH&S considerations and verify it is implemented in the field.

Con Edison will review the EH&S component of each contractor's work and any violations of EH&S law by a contractor can result in suspension or termination of that contractor.

Purpose of this guide

This guide is a general reference for all contractors for the preparation of acceptable EH&S programs and work plans when performing work for Con Edison. This document provides EH&S guidance for the development of a eHASP for all contractors performing the following three work catagories:

- Work requiring a project/site specific work plan (see # 1 on page 6);
- Work that complies with Con Edison's EH&S task specific guidance (see # 2 on page 8);
- All other work to be performed for Con Edison (see # 3 on page 8).

  Note: The user organization's EH&S representative will determine the type of eHASP required of the contractor.

The requirement for a site eHASP depends on the environmental, health and safety issues expected on the job. Jobs that involve the handling of hazardous materials, working around unsafe situations or working with power equipment, requires a written eHASP. When this type of work is performed in new locations with changing environmental conditions and with variable hazards, a site specific or job specific eHASP is required. When the job is routine and performed on a regular basis, a task specific eHASP may be used for all similar jobs. The contractor may use a Con Edison generated task specific eHASP or may prepare their own task specific eHASP for our review. The eHASP shall address

- Important contractor information for project management and emergency use
- Job description
- Hazard identification and control methods
- Personal protective equipment requirements
- Employee training
- Site control and housekeeping
- Waste management

This guide is **not** intended to be, nor should it be interpreted as, an all-inclusive and comprehensive digest of all applicable federal, state, and local EH&S laws and regulations. The guide will help focus contractors on potential EH&S issues that may be encountered during work at Con Edison facilities and project sites and allow contractors to take appropriate steps in assessing and proactively preparing for site conditions.

This guide presents summaries of the main points found in EH&S laws and regulations that are commonly applicable to contractor activities at Con Edison facilities. References for locating additional sources of information for each topic are provided. This guide is meant to encourage every contractor to better preplan Con Edison projects and to assure EH&S regulatory compliance, accident prevention and efficient job completion.

eHASP - Hazard analysis and control

The following three sections identify what actions will be taken by Con Edison and the Contractor for the development of an eHASP for a specific project/job. The intent of this process is to assure that all EH&S issues are identified and properly addressed by the contractor in the eHASP. In the event any new or unusual situations or hazards arise which were not initially addressed, it is the responsibility of both Con Edison and the contractor to resolve these issues onsite.

1. **For contractors who are required to submit a project /site specific eHASP , the following steps are required:**

Con Edison will:

- Provide a “Request for Bid” or Proposal to qualified contractors.
- Include in the Request for Bid or Proposal details about the job to be performed and a listing of the hazards present or that may be expected on-site, by attaching a completed and signed “EH&S Hazard Analysis for Contractor Work”, Attachment 1. Also provide a copy of attachment 2 “EH&S Plan Checklist” for the contractor to complete and sign.

Contractor will:

- Review Table 1 to determine some of the hazards expected based on the job activity.
- Review Attachment 1 to verify the information is accurate and co-sign the page. Comment and include additional hazards as necessary.
- Complete and sign Attachment 2, the "EH&S Plan Checklist.
- Identify any additional hazards in Attachments 1 and 2. Address all these hazards in the eHASP to be submitted for review by Con Edison.
- Ensure that the specific requirements of regulations and standards are met during all phases of the project.
- Bids for the proposed work are sent directly to the Corporate Purchasing Department.
- The proposed project/site specific eHASP for work to be performed shall be forwarded directly to the Contract Administrator by the contractor and will include completed and signed Attachments 1 and 2.

The contractor will correspond directly with the user organization requesting the work to assure a complete and clear project/site specific work plan is approved prior to the start of work. The Purchasing Department will issue a purchase order when commercial procurement matters are satisfied notwithstanding any work plan issues. Work will commence only when a 'Notice to Proceed' is issued by the user organization upon receipt of an acceptable project/site specific work plan.

2. For contractors who will comply with a Con Edison EH&S Task Specific EH&S guidance, the following steps are required:

Con Edison will:

- Provide a Request for Bid or Proposal to qualified contractors.
- Include in the Request for Bid or Proposal an EH&S task-specific eHASP guidance developed by Con Edison for the task to be performed for the length of the contract.

Contractor will:

Review and sign the task-specific eHASP guidance for implementation. Contractor may prepare there own task specific guidance for Con Edison review.

- Prepare a written explanation when a signed task specific guidance package is not provided.
- Provide the signed task specific eHASP guidance or explanation, and bid to Con Edison's Corporate Purchasing Department.

3. All other contractors working for Con Edison will:

Use the information in this guide for the continued improvement of their work practices, EH&S programs and compliance with all federal, state and local laws and regulations

Guide 1: Introduction

Contractor eHASP implementation & oversight

Contractor:

Will have in possession, the project or task specific eHASP at the start of work. Each contractor supervisor, worker and employee onsite will be familiar with contents of the eHASP. Contractor supervision will be accountable and will be responsible to assure all work is performed in compliance with the eHASP as written. Contractor will conduct a prejob review of the work to be performed to review the eHASP and technical aspects of the job and to verify current EH&S issues in the field have not changed.

Con Edison:

Will review with the contractor the work to be performed and the eHASP prior to the start of work. Contractor employees will be evaluated as to their knowledge of the eHASP by the designated Con Ed Representatives. Con Ed will verify the eHASP is on site and being implemented in all phases of work. Appropriate equipment, supplies and ppe will be inspected. Inspection frequency of the contractors will be determined by the local organizations and will be conducted as necessary to assure compliance to the contract and the eHASP.

Failure of the contractor to comply with the requirements of their eHASP and EH&S law may lead to suspension or termination in accordance with our Corporate Procedures.

Con Edison contractor evaluation and procurement process

The Con Edison Purchasing Department, the EH&S Department, and the designated operating department representatives (as appropriate) are responsible for contractor evaluation and award as follow:

- Purchasing - will identify the successful bidder and notify the requesting organization.
- EH&S – will resolve Corporate eHASP Plan issues directly with the contractor(s).
- Operating Department - will review the contractor work plan and eHASP specific to the job specifications and the EH&S requirements of the job in compliance with this document.

It is Con Edison's policy that each prime contractor and its subcontractor(s) must meet all requirements of this program. The contractors must assure that environmental, health and safety matters are managed during all phases of the project to ensure the safety and health of contractor personnel, Con Edison personnel and the public, and to ensure the protection of the environment.

Contractors are responsible for ensuring that their work activities are completed as required by this guide and applicable EH&S laws and regulations, whichever will better protect the environment and ensure the safety of the public and personnel.

Table 1

Matrix of common Con Edison contracts And typical associated project hazards

Contractor	Typical Hazards	Applicable Guide Sections
Asbestos Abatement Operations	**Respiratory:** asbestos, silica, dust	3, 17, 26
	Dermal: chemicals, cuts, abrasions	3,5
	Eye: asbestos, dusts, particles, chemicals	3,5
	Electrical: shock from frayed wires, improper grounds, cut wires	7
	Hand Tools: cuts, pinching, smashing, exposed moving parts	19
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
	Fires: open flame, storage, housekeeping	11
Excavation	**Heavy Equipment:** crushing, pinching	17, 18, 19
	Trenching: cave in, unstable soils, falls, falling objects, drowning	9
	Utilities: electrocution, explosion, steam heat, water	7
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Confined Spaces: lack of oxygen, toxic gases, H2S, methane	6, 26
	Respiratory: asbestos, silica, dust	26
	Eye: asbestos, dust, particles, chemical	24
	Lifting: musculoskeletal problems	18
	Traffic: accidents, pedestrian safety	32
Construction – General	**Heavy Equipment:** crushing, pinching	16,17
	Trenching: cave in, unstable soils, falls, falling objects, drowning	8
	Utilities: electrocution, explosion, steam heat, water	7
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Confined Spaces: lack of oxygen, toxic gases, hydrogen sulfide, methane	6, 8

Contractor	Typical Hazards	Applicable Guide Sections
Construction – General (continued)	**Respiratory:** asbestos, silica, dust	26
	Eye: asbestos, dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
	Welding / Torching: fire, sparks, heat, toxic gases, metal fumes	11, 31
	Grinding: abrasions, cuts, heat, fire, particles, metal fumes	11, 24, 26
	Traffic: accidents, pedestrian safety	32
Construction – Electrical	**Heavy Equipment:** crushing, pinching	17, 18
	Trenching: cave in, unstable soils, falls, falling objects, drowning	9
	Utilities: electrocution, explosion, steam heat, water	7
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Confined Spaces: lack of oxygen, toxic gases, hydrogen sulfide, methane	6, 8
	Respiratory: asbestos, silica, dust	26
	Eye: asbestos, dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
	Traffic: accidents, pedestrian safety	32
Construction – Gas	**Heavy Equipment:** crushing, pinching	17, 18
	Trenching: cave in, unstable soils, falls, falling objects, drowning	9
	Utilities: electrocution, explosion, steam heat, water	7
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Confined Spaces: lack of oxygen, toxic gases, hydrogen sulfide, methane	6, 8
	Respiratory: asbestos, silica, dust	26
	Eye: asbestos, dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
	Traffic: accidents, pedestrian safety	32
Construction – Asphalt	**Heavy Equipment:** crushing, pinching	17, 18
	Utilities: electrocution, explosion, steam heat, water	7
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Respiratory: asbestos, silica, dust, volatile organic vapors, H2S	26

Contractor	Typical Hazards	Applicable Guide Sections
Construction – Asphalt cont.	**Eye:** asbestos, dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
	Traffic: accidents, pedestrian safety	32
Painting	**Tools**: cuts, pinching, smashing, exposed moving parts	17, 19
	Respiratory: asbestos, silica, dust, volatile organic vapors	26
	Eye: asbestos, dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
	Grinding: abrasions, cuts, heat, fire, airborne particles, metal dust	24
Lead Abatement	**Lead:** toxic materials	16, 17
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Respiratory: asbestos, silica, dust, volatile organic vapors	26
	Eye: asbestos, dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
	Grinding: abrasions, cuts, heat, fire, airborne particles, metal dust	24
	Fires: smoke, toxic vapors, burns	11
Welding/Torch Cutting	**Respiratory:** metal fumes, VOC	17, 26
	Eye: airborne metal particles, intense light	24
	Dermal: burns, cuts, abrasions	24
	Fires: intense heat, open flame	11
Grinding	**Tools**: cuts, pinching, smashing, exposed moving parts	17, 19
	Eye: airborne metal particles, sparks	24
Grinding (continued)	**Dermal:** burns, cuts, abrasions	24
	Fires: intense heat, sparks	11
	Chemicals: organic vapors, fire, dermal contact	11, 26
	Work Positions: musculoskeletal problems	18
HVAC Maintenance	**Tools**: cuts, pinching, smashing,	17, 19
	Eye: dusts, particles, chemicals	24
	Respiratory: dust, volatile organic chemicals, biological agents	26
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33

Contractor	Typical Hazards	Applicable Guide Sections
	Grinding: abrasions, cuts, heat, fire, airborne particles, metal dust	24
	Lead: inhalation and ingestion	16, 26
	Gas: fire, explosion, asphyxiant	11, 12
	Electrical: shock	7
	Asbestos: incidental contact with walls, insulation, respiratory and dermal hazard	3, 15
Housekeeping	**Asbestos:** incidental contact, dermal hazard, respiratory protection	3, 15, 17
	Lead: paint, inhalation and ingestion	16
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Respiratory: dust, volatile organic chemicals, biological agents	26
	Eye: dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
	Grinding: abrasions, cuts, heat, fire, airborne particles, metal dust	24
	Gas: fire, explosion, asphyxiant	11, 12
	Electrical: shock	7
Vehicle Maintenance	**Asbestos:** respiratory/ dermal hazard	3
	Lead: paint, inhalation and ingestion	16
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Respiratory: dust, volatile organic chemicals, biological agents	26
	Eye: dusts, particles, chemicals	24
	Lifting: musculoskeletal problems	18
Vehicle Maintenance (continued)	**Gas:** fire, explosion, asphyxiant	11,12, 17
	Electrical: shock	7
	Grinding: abrasions, cuts, heat, fire, airborne particles, metal dust	24
	Welding/Torching: fire, sparks, heat, metal fumes	11, 31
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
Roofing Repair/Replacement	**Grinding:** abrasions, cuts, heat, fire, airborne particles, metal dust	17, 24
	Welding/Torching: fire, sparks, heat, metal fumes	11, 31
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
	Asbestos: insulation, respiratory and dermal hazard	3,
	Lead: paint, inhalation and ingestion	16
	Tools: cuts, pinching, smashing, exposed moving parts	19

Contractor	Typical Hazards	Applicable Guide Sections
	Respiratory: dust, volatile organic chemicals, biological agents	26
	Eye: dusts, particles, chemicals	24
	Fire: Burns	11
	Volatile organic chemicals: tar/pitch	5
	Sheet metal: cuts	24
Boiler Maintenance / Repair	**Grinding:** abrasions, cuts, heat, fire, airborne particles, metal dust	17, 24
	Welding/Torching: fire, sparks, heat, metal fumes	11, 31
	Lifting: musculoskeletal problems	18
	Falls: heights, scaffolds, ladders	33
	Asbestos: insulation, respiratory and dermal hazard	3
	Lead: paint, inhalation and ingestion	16
	Tools: cuts, pinching, smashing, exposed moving parts	19
	Respiratory: dust, volatile organic chemicals	26
	Eye: dusts, particles, chemicals	24
	Fire: Burns	11
	Volatile organic chemicals: tar/pitch	5
	Utilities: explosion, steam heat, water	7

Attachment 1 Eh&s hazard analysis for Contractor work

Applicable to		**Project**	
Section		**Yes**	**No**
1.0	Introduction	____	____
2.0	Air Resources	____	____
3.0	Asbestos Awareness	____	____
4.0	Bloodborne Pathogens Exposure Control Plan	____	____
5.0	Chemical Safety and Handling	____	____
6.0	Confined Space Program (Permit-Required)	____	____
7.0	Electrical Safety	____	____
8.0	Electrical Enclosed Spaces	____	____
9.0	Excavation and Trenching	____	____
10.0	Fish, Wildlife and Wetlands	____	____
11.0	Fire Protection and Prevention	____	____
12.0	Gas Enclosed Spaces	____	____
13.0	Hazard Communication Program	____	____
14.0	Hearing Conservation	____	____
15.0	Insulation Materials (Non-Asbestos)	____	____
16.0	Lead Management Program	____	____
17.0	Management of Change	____	____
18.0	Materials Handling	____	____
19.0	Mechanical Equipment	____	____
20.0	Mercury Management Program	____	____
21.0	Noise	____	____
22.0	Oil and Dielectric Fluid	____	____
23.0	PCB Management	____	____
24.0	Personal Protective Equipment	____	____
25.0	Pesticide Use, Storage, and Disposal	____	____
26.0	Respiratory Protection Program	____	____
27.0	Sampling	____	____
28.0	Vehicle Management	____	____
29.0	Waste Management	____	____
30.0	Water Resources	____	____
31.0	Welding and Burning	____	____
32.0	Work Area Protection	____	____
33.0	Working at Elevations	____	____

Explanation of Additional Hazards Present:

____

____

____

____

____

Provided by: Con Edison Representative

__________________________ ______________

Name Date

Received by: Contractor Representative

__________________________ ______________

Name

Attachment 2

EH&S plan checklist

Contractor: ______________________________

Description of Project/Job: ______________________________

____

Con Edison Facility/Location: ______________________________

____

If you answer "yes" to any of the items below, describe in the project – specific environmental, health and safety) plan (eHASP) how you will protect your employees, Con Edison employees, the public and the environment, if applicable, from the indicated hazard as required by OSHA, EPA, DEC, and any other federal, state, or local laws and regulations. The hazards identified by Con Edison in attachment 1 shall also be used to answer this questionnaire and develop your eHASP. Indicate how and where you will dispose of all waste. After you complete your EH&S plan, enter the page number(s) to identify where in your eHASP each hazard is addressed. This checklist does not preclude the submission of a eHASP nor is it meant to be an all-inclusive guide to EH&S issues.

1) Do you expect that the job may involve any of the following? (Please circle the response for each item, either to confirm or indicate that the project does not involve the item.)

	Yes	No	Section(s)
Asbestos	X	X	________
PCBs	X	X	________
Lead or lead paint or chips*	X	X	________
Mercury	X	X	________
Other hazardous wastes (corrosive, reactive, toxic, ignitable, or listed hazardous wastes)	X	X	________
Non-hazardous wastes	X	X	________
Other hazardous materials/chemicals (MSDS)	X	X	________
Work at high elevations (scaffolds, ladders, etc.)	X	X	________
Work in excavations	X	X	________
Heavy equipment	X	X	________
Hand and/or power tools	X	X	________
Work in confined or enclosed spaces	X	X	________
Welding/burning	X	X	________
Electrical, Gas or Steam work	X	X	________
Explosives	X	X	________

- *Note: All paint removed at Con Edison is considered to contain lead*

	Yes	No	Page(s)
Discharges to water, land or sewers	X	X	________
Air emissions	X	X	________
Excessive Noise	X	X	________
Traffic and/or Roadway	X	X	________
Petroleum or Used Oil	X	X	________
Pesticides	X	X	________
Permits and/or Certifications-Licenses	X	X	________

2) If you expect to encounter any other EH&S hazards, please list them below and address them in your EH&S plan.

Hazard	Page(s)
______________________________	________
______________________________	________
______________________________	________
______________________________	________

3) In your EH&S plan, detail the training and personal protective equipment your employees will be required to have to perform this job.

4) List in your EH&S plan all emergency contacts and phone numbers, including contractor and Con Edison representatives.

5) Company SIC Code: ______

6) Last 2 Years OSHA Incident Rate: ______ ______

7) Present Experience Modification Rate: _______

Signature ________________________________ Date ______________

Type/Print Name ______________________ Title ___________________

Con Edison Acceptance
To be completed by authorized Con Edison Representative

	Yes	No
Accepted.. ..	X	X

Signature ________________________________ Date ______________
____

Type/Print Name ______________________ Title ___________________

Guide 4: Bloodborne Pathogens Exposure Control Plan

Overview

Bloodborne pathogens (BBP) are pathogenic microorganisms that may be present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV). A source of occupational exposure may occur when an employee gives First Aid and CPR to an individual who has infectious blood. The occupational exposure occurs when there is the possibility for an employee's eyes, mucous membranes, non-intact skin (i.e., cut and abraded skin) to come into contact with potentially infectious materials from another employee. Additional sources of exposure are contact with infectious waste found at project sites, glassware, needles and other sharp objects which have been involved in injuries to personnel and are contaminated with blood or related bodily fluids.

Minimum BBP Requirements

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- If there is a reasonably anticipated contact with any potentially infectious materials, the contractor's written BBP Exposure Control Plan must be available to all contractor and Con Edison personnel for review upon request.

- The Exposure Control Plan must include procedures for:
    - Exposure determinations;
    - Methods of compliance;
    - HBV vaccinations and post-exposure evaluation and follow-up;
    - Communications of hazards to workers;
    - Worker training.

- Universal precautions (i.e., treat all potentially infectious material as if it were infected) must be used at all times.

- Proper PPE must be used at all times when there is a chance for exposure to infectious materials.

- Hand-washing facilities or products (antiseptic hand cleaner, etc.) must be readily available to all employees.

- All infectious material must be placed in appropriate, labeled containers (sharps containers, biohazard bags, etc.) and disposed of properly.

Guide 4: Bloodborne Pathogens Exposure Control Plan

- All infected equipment and surfaces must be decontaminated with an appropriate disinfecting solution prior to re-use.

- Following a report of exposure, the exposed employee is entitled to a confidential medical evaluation.

- All employees with a reasonable risk for exposure must attend appropriate training, which includes:
    - An explanation of the OSHA BBP standard;
    - A general explanation of bloodborne diseases;
    - An explanation of the modes of transmission of BBP;
    - An explanation of the Exposure Control Plan;
    - Appropriate methods for recognizing tasks that involve potential exposure;
    - An explanation of the use and limitations of methods to prevent exposure;
    - Proper types, use, handling, decontamination, and disposal of PPE;
    - The availability of HBV vaccines and the procedures for obtaining a vaccination;
    - Appropriate actions to take during an emergency involving BBP;
    - Post-exposure procedures;
    - An explanation of required signs and labels.

- All required records for exposed employees must be kept confidential.

Regulatory Citations

A complete text of the requirements for BBP can be found in Title 29 Code of Federal Regulations, Part 1910, Section 1030.

Contacts

For additional information regarding BBP requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378), or visit the OSHA web site at: www.OSHA.gov

Guide 5: Chemical Safety and Handling

Overview

Federal and State laws as well as Con Edison require that specific procedures are followed to properly handle chemicals to protect workers and prevent spills. These procedures include those for storing, handling, transferring, and processing chemicals.

Minimum Chemical Safety and Handling Requirements

Prior to working in any Con Edison facility or on any Con Edison project, all contractors must, at a minimum, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific work plan submitted to Con Edison and include a process to meet these requirements.

- The contractor must assure that the equipment brought into a Con Edison site to deliver or store hazardous chemicals is in good condition and that all equipment required is operating. This includes, but is not limited to all deadman switches, valves, hoses, pumps, lights, etc.

- Contractor personnel must be licensed and/or have the necessary handling permits or certifications. Documentation must be present with the driver or on the vehicle at all times for inspection by Con Edison representative. Incomplete documentation will prevent chemicals/shipment from being permitted in a Con Edison facility or site.

- Contractor personnel must be thoroughly familiar with operation of equipment and the use of materials or chemicals used in the Con Edison facility.

- Contractor personnel should have knowledge of the physical properties, hazards, and personnel protective equipment (PPE) required. All contractor personnel shall be provided with appropriate PPE for the chemicals or hazards present.

- Spill response equipment shall be available on location to contain or control a reasonably anticipated release or spill. All chemical spills in a Con Edison facility or location must be reported to a Con Edison authorized representative immediately upon discovery.

- Contractor will provide to Con Ed a complete inventory of chemicals brought onto a Con Ed facility or location. Contractor must have all material safety data sheets (MSDS) for the material carried or at Con Ed facilities or locations and available on request.

- The reportable quantity of each hazardous substance and the amount that exceeds the reportable quantity shall be known regardless of the units used (pounds vs. gallons).

Guide 5: Chemical Safety and Handling

- At the end of the project the contractor shall remove any chemicals that were not used.

- If quantities of chemicals brought on-site exceed the threshold planning quantities (TPQs) or threshold reporting quantities (TRQs), the contractor shall identify how the Community Right-To-Know reporting requirements will be met, including the procedures for:

    - Retaining of Material Safety Data Sheets (MSDS).
    - Filing an annual chemical inventory form with the NYSDEC.
    - Coordinating with the local emergency planning committee (LEPC) and the fire department with jurisdiction over the job area.
    - Preparing Risk Management Plans, as required.

Regulatory Citations

A complete text of the requirements for chemical safety and handling can be found in:

- Title 29 Code of Federal Regulations (CFR) Part 1910; Title 33 CFR Part 153.

- Title 40 CFR Parts 68, 117, 280, 302, 355 and 370.

- Title 6 New York Code of Rule and Regulations (NYCRR), Parts 595 through 599.

- The New York City Administrative Code Chapter 4, Subchapter 9.

- Title 3 Rules of New York City (RCNY) Chapter 1; Title 15 RCNY Chapters 11 and 41.

- Article 22 Westchester County Sanitary Code, Articles 1&3 Rockland Sanitary Code.

Contacts

For additional information or clarification of these requirements, contact the following agencies:

- Projects in the five boroughs, contact Region 2 NYSDEC office located at Hunters Point Plaza, 47-40 21st St, Long Island City, NY 11101 (718-482-4900).   www.dec.state.ny.us.

- For projects in Westchester, Rockland and Dutchess Counties, contact the NYSDEC Region 3 office at 21 South Putt Corners Road, New Paltz, NY 12561 (914-256-3000).

- Projects in the five boroughs, contact the NYCDEP at 59-17 Junction Boulevard, 10th Floor, Corona, NY 11368 (718-337-4375). NYCEP's web is www.ci.nyc.ny.us.

- Westchester County projects, contact Westchester Department of Environmental Facilities at 207 North Avenue, New Rochelle, NY 10810 (914-637-3000). www.co.westchester.ny.us.

- For projects located in Rockland County, contact the Rockland County Department of Health on Sanatorium Road, Pamona, NY 10970 (914-634-2500). www.co.rockland.ny.us.

Region II office of the Environmental Protection Agency (EPA) is located at 290 Broadway, New York, New York 10007 (212-637-3000). The EPA's website is www.EPA.gov.

Guide 7: Electrical Safety

Overview

Electrical safety is an important component to any safety program. To minimize personal injury from contact with energized sources, workers must be trained in the fundamentals of electrical safety and all electrical hazards on a project must be identified and corrected. Only properly licensed electricians may perform any electrical work on Con Edison projects.

Minimum Electrical Safety Requirements

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- Before work begins, all electric circuits, exposed or concealed, that may be contacted by workers must be posted with warning signs.

- All workers must be notified of the location and hazard involved with nearby electrical circuits and protective measures taken.

- Workers must not work near any part of an electrical circuit unless they are protected against shock by guarding or by de-energizing and grounding the circuit.

- Workspaces, walkways, and similar locations must be kept free of electric cords and tools.

- Equipment must not be stored around electrical cabinets to prevent access.

- Workers must inspect all electrical equipment, including extension cords, for the following hazards:
    - Missing ground pins on plugs (except double-insulated);
    - Insulation pulled free from plugs or support connections;
    - Damaged insulation;
    - Exposed wires; and
    - Evidence of arcing, sparking, or smoking.

- When any conditions are identified on equipment that make it unsafe to operate, the equipment must be removed from the site until repaired by a qualified person.

- Portable lamps must be covered by a fixed, grounded (if metal) guard and equipped with an insulated handle.

Guide 7: Electrical Safety

- All underground utilities must be marked prior to any groundbreaking activities.

- Flexible cords must be suitable for the condition and location of use and must be used as appropriate.

- Three-wire extension cords must be used and must be rated for hard or extra-hard use.

- Splices and/or taps are prohibited in extension cords.

- Extension cords must not be fastened with staples, hung on nails, or suspended on wires.

- Workers must be trained in the safety-related work practices that pertain to their job and cannot work near electrical hazards without training to recognize and avoid the hazard.

- Electrical workers must test all equipment to verify if energy is present.

- Only qualified, trained workers may test electrical equipment.

- Workers must properly lockout and tagout any circuit or equipment being worked on and verify the equipment is de-energized.

- Personal protective equipment used by electrical workers must be appropriate and in good condition.

- Portable metal ladders and ladders with metal reinforcement are prohibited near energized electrical equipment.

- ALL electrical equipment used on a project (hand tools, etc.) must be protected with a ground-fault circuit interrupter (GFCI).

- Materials must not be stored in transformer vaults.

- AC and DC wiring systems must be properly grounded.

- Proper clearance from overhead power lines must be maintained at all times.

Regulatory Citations

A complete text of the requirements for Electrical Safety can be found in Title 29 Code of Federal Regulations, Part 1910, Section 147 and Subpart S, and Part 1926, Subpart K.

Guide 7: Electrical Safety

Contacts

For additional information regarding Electrical Safety requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378). The OSHA website can be found at www.OSHA.gov.

Guide 11: Fire Protection and Prevention

Overview

Fire safety and prevention is critical to the effective operations of Con Edison facilities. Con Edison focuses on responsibly safeguarding human and business assets to avoid a fire or explosion that may cause injury or disrupt operations. All contractors performing construction and maintenance operations must implement measures to prevent and control fires, if one occurs.

Fire Prevention and Fire Control Requirements

Prior to working in a Con Edison facility or on a Con Edison project, all contractors must, at a minimum, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety (EH&S) Plan submitted to Con Edison and a process to meet these requirements.

- The contractor program must identify the fire protection requirements and procedures.
- The contractor must identify personnel who are trained in the use of fire extinguishers and fire fighting techniques personnel and can fight a fire during the early or incipient stage.
- A Con Edison Rep will be informed of all fire or explosion occurrences.
- Ensure all field offices, shanties, and storage facilities are constructed in accordance with applicable codes, and fabricated noncombustible material for protection against fire.
- The contractor must identify operations that present a potential fire hazard, for example hotwork (welding, grinding and cutting) and the use of flammable liquids and gases.
- Contractor must identify procedures to eliminate and control fire hazards including housekeeping, electrical safety, safety procedures for hot work, storage and handling of flammable and combustible liquids and compressed gases.
- Good housekeeping standards must be enforced in the work area, including the requirements that waste, rubbish and flammable materials and rags be removed from the area daily.
- All waste, rubbish, and flammable materials must be stored in approved containers.
- Handling procedures will address safe transport, use, and storage of flammable materials.
- Noncombustible tables or shelves, or protected work area will be used for hot work.

- Storing flammable liquids in approved safety cans that are painted red with a yellow band around the can and labeled to identify the contents.

- Storing combustible liquids in green safety cans that are labeled to identify the contents.

- Storing all FCL in closed approved metal cabinets and only storing quantities of these liquids on-site that do not exceed the minimum amount required for efficient operation.

- Storing bulk drum quantities of FCL liquids in storage rooms specially designed for fire and spill protection.

- Prohibit the use of gasoline and other highly flammable liquids for cleaning.

- Using approved pumps, or approved self-closing faucets and drip pans when dispensing FCL from drums or portable tanks.

- Class B/C rated fire extinguishers will be located in close proximity to FCL areas and monthly and annual inspections will be performed to ensure that the units are ready for use.

- In the event of a fire involving compressed gases, the gases will be permitted to burn and not extinguished, under any circumstances, unless it is possible to control the gas flow.

- Oil, grease, and highly volatile liquids must not be stored near oxygen cylinders.

- Smoking is prohibited in the vicinity of flammable or combustible liquids and gases.

- Using liquefied petroleum gas (LPG) indoors for cutting and/or welding operations shall be limited to small quantities and no more than a 1-pound bottle shall be stored in the building.

- Open flames or spark-producing tools must not be used in any enclosure where an explosion concern may exist until testing indicates that an explosion hazard does not exist.

Regulatory Citations

A complete text of the requirements for Hot Work can be found in Title 29 Code of Federal Regulations, Part 1910, Subpart Q and Part 1926, Subpart J.

Guide 11: Fire Protection and Prevention

Contacts:

For additional information or clarification of these requirements, contact:

- The New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York (212-337-2378), or visit the OSHA web site at: www.OSHA.gov.

- The NYC Fire Department located at 250 Livingston Blvd, Brooklyn, NY (718-694-2000).

Guide 13: Hazard Communication

Overview

OSHA requires that the hazards associated with all chemicals used or stored at a job site be evaluated. This information must be communicated to employees who may be exposed to these chemicals or use them in their daily jobs. The process for informing employees about the chemicals, their locations, and potential hazards is called a Hazard Communication (HAZCOM) program. In general, this program includes requirements and procedures for container labeling and other forms of warning, procedures for obtaining and retaining material safety data sheets (MSDSs) and employee training.

Minimum HAZCOM Requirements

In order to work in any Con Edison facility or on any project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- If any hazardous material is used or stored at the job site, the contractor's written HAZCOM program must be available to all contractor and Con Edison personnel for review upon request.

- The HAZCOM program must include procedures for:

    - Labeling containers and the use of warning forms;
    - Obtaining and retaining MSDSs;
    - Specific worker training requirements;
    - Documentation that these training requirements have been completed by each worker;
    - A list or inventory of hazardous material at the job site.

- The supervisor must inform all workers about the hazardous materials at the job site when they first are first assigned to a project and whenever a new hazardous material is brought to the site.

- Workers must be informed of the location of:

    - The HAZCOM program;
    - The list/inventory of hazardous substances;
    - The locations of MSDSs and the procedures for obtaining a copy of an MSDS;
    - These must all be available for each worker to review during their work period.

- The Con Edison representative must be informed of all chemicals brought to the site.

Guide 13: Hazard Communication

- Each contractor must obtain information from the Con Edison representative regarding chemicals that Con Edison uses or stores at the site.

- When more than one contractor is working at a job site, each contractor must inform the other(s) concerning the location of their MSDSs and procedures for labeling and worker protection.

- THE PRIME CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE HAZCOM PROGRAM ON THE JOB SITE.

- ALL containers will be labeled.

    - Labels on hazardous material containers will not be defaced or removed.
    - The labels will identify the substance in the container and appropriate warnings about the substance.
    - The material identity will match the material currently in the container, its MSDS, and the overall list/inventory.

- An MSDS must be available at the job site for every chemical that is present at that site.

- A documented training program will be provided to every worker at the job site. This training will include:
    - Information regarding the HAZCOM program;
    - Health and environmental hazards of every chemical used at the job site;
    - Ways to detect the presence of hazardous materials at a job site (including monitoring methods and devices used);
    - How to read and understand the information contained on an MSDS; and
    - How workers can protect themselves from harmful exposure (e.g., safe work practices, personal hygiene, and protective equipment).

Regulatory Citations

A complete text of the requirements for HAZCOM can be found in Title 29 Code of Federal Regulations, Part 1910, Section 1200, and Title 29 Code of Federal Regulations, Part 1926, Section 59.

Contacts

For additional information regarding HAZCOM requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378). The OSHA web site can be found at www.OSHA.gov.

Guide 14: Hearing Conservation

Overview

Noise is defined as unwanted sound. Noise can cause sudden traumatic temporary hearing loss, long-term slowly occurring hearing loss that is irreversible, disruption of communication, and masking of warning devices and alarms. These long-term effects may occur at noise levels lower that are constant and daily.

Minimum Hearing Conservation Requirements

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- Workers must not be exposed to noise levels above those stated in the regulations.

- All noise levels must be measured on the A-weighted scale by a trained person.

- When noise exposure includes two or more periods at different noise levels, the combined noise exposure must be calculated.

- When noise levels exceed the permissible limits, worker exposure must be controlled through engineering controls, administrative controls, personal protective equipment (PPE), or a combination of these.

- Engineering controls consist of isolating, enclosing, or insulating equipment or operations or substituting quieter equipment or operations.

- Engineering controls are always preferred over other controls.

- Administrative controls involve rotating workers to jobs having lower noise exposures and reducing the time that each worker is exposed.

- PPE, for example earplugs and earmuffs, must be rated to reduce the noise exposure to within acceptable limits.

- A noise exposure at or above 85 decibels on the A-weighted scale (dBA) averaged over an 8-hour time period (with or without PPE) requires a formal written hearing conservation program.

- A hearing conservation program must include:
    - Noise monitoring;

  - Procedures for employee notification;
  - Provisions to permit employees to observe monitoring;
  - Initial and annual audiometric testing, and an evaluation of the audiogram by a qualified professional;
  - A noise training program for all affected workers; and
  - Formal record keeping.
- The following table is a guide to common noise levels:

Permissible Duration	dBA	Examples of Noise Sources
No protection or time exposure calculation required.	15	Wooded Forest
	25	Quiet Bedroom
	35	Library
	65	Normal Speaking
	75	General Office Area
Action Level for Hearing Conservation Program	85	Average Machine Shop
8 Hours	90	
6 Hours	92	
4 Hours	95	
3 Hours	97	
2 Hours	100	Air Spray Operation
1.5 Hours	102	
30 Minutes	110	Power Table Saw
15 Minutes	115	
7.5 Minutes	120	
4 Minutes	125	Rock-n-Roll Concert
2 Minutes	130	Aircraft Jet Engine/Ear Pain Threshold
NOT TO EXCEED	140	

- A standard rule-of-thumb for noise states that when standing face-to-face at a distance of 1 to 2 feet, if it is necessary to raise your voice to be heard, the background noise exceeds 85 dBA.

Regulatory Citations

A complete text of the requirements for Hearing Conservation can be found in Title 29 Code of Federal Regulations, Part 1910, Section 95 and Part 1926, Section 52.

Contacts

For additional information regarding Hearing Conservation requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378). The OSHA website can be found at www.OSHA.gov.

Guide 14: Hearing Conservation

Guide 17: Management of Change

Overview

Con Edison requires that all contractors comply with all environmental, health and safety (EH&S) regulations. This includes EH&S regulations that are identified prior to beginning each project and those that become apparent after the job has begun. To ensure that all EH&S requirements are met during the project, the Contractor must develop a process to manage change. This management of change process will allow the Contractor to meet all EH&S obligations required by the regulations and to keep Con Edison informed of changing conditions that may trigger modifications to the Contractor's anticipated work plan.

Minimum Management of Change Requirements

When working in any Con Edison facility or on any Con Edison project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- The Contractor must notify the Con Edison Authorized Representative of any change in working conditions that could affect compliance with environmental or health and safety requirements as soon as the changed conditions are identified.

- An example of change in conditions can include, but is not limited to the following:

    - Unforeseen hazards not anticipated the bidding process.
    - Weather conditions that could affect worker safety.
    - Unexpected changes in the scope of the project.
    - The potential to generate wastes not expected during project planning.
    - The potential for unexpected sample collection.

- The Contractor shall identify the contingencies they have prepared for managing change.

- The Contractor shall take all appropriate precautions prior to implementing any contingencies prepared to manage change. Precautions can include the following:

    - Increasing or decreasing the levels of personal protective equipment.
    - Taking special safety precautions to deal with unsuspected conditions (for example, unanticipated confined space conditions).
    - Planning for inclement weather.
    - Identifying the potential for environmental permits due to changing field conditions.

Guide 17: Management of Change

- All personnel shall be appropriately trained to perform their job function under the changed conditions prior to being allowed to work under the changed conditions.

- Subcontractors will be held to the management of change procedures outlined by the Prime Contractor.

- THE PRIME CONTRACTOR SHALL HAVE THE ULTIMATE RESPONSIBILITY FOR IMPLEMENTING MANAGEMENT OF CHANGE PROCEDURES RELATIVE TO THE PROJECT.

Regulatory Citations

A complete text of the statutory requirements for Management of Change can be found in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) at Title 42 United States Code (U.S.C.) Sections 9601 through 9675; in the Resource Conservation and Recovery Act (RCRA) at Title 42 U.S.C. Sections 6901 through 692K; and in the New York Environmental Conservation Law, Articles 70 and 71.

Contacts

For additional information regarding management of change requirements or clarification of these requirements, contact the following agencies:

- For projects within the five boroughs, contact the Region 2 NYSDEC office located at Hunters Point Plaza, 47-40 21st Street, Long Island City, New York 11101 (718-482-4900). NYSDEC's web site can be found at www.dec.state.ny.us.

- For projects located in Dutchess, Orange, Rockland, or Westchester Counties, contact the Region 3 NYSDEC office at 21 South Putt Corners Road, New Paltz, NY 12561 (914-256-3000).

- For all projects, also contact the Region II office of the Environmental Protection Agency (EPA) located at 290 Broadway, New York, New York 10007 (212-637-3000). EPA's web site can be found at www.EPA.gov.

Guide 18: Materials Handling

Overview

Materials handling can be accomplished in a variety of ways, lifted and moved both manually or using a mechanical means, such as a fork truck or crane. All types of material handling operations require safety planning and practices that are clearly defined.

Minimum Materials Handling Requirements

In order to perform work in any Con Edison facility or on any project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- Whenever possible, objects will be lifted and moved by mechanical devices (cranes, manually operated chain hoists, fork trucks, etc.) rather than by manual effort.

- The mechanical devices will be appropriate for the lifting or moving task and will be operated only by trained and authorized personnel.

- Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects.

- Lifting devices will be inspected, certified, and labeled to confirm their weight capacities.

- All devices shall be inspected by a trained and qualified individual at least once a year and will be inspected prior to each use by the user.

- Defective equipment will be taken out of service immediately and repaired or destroyed.

- Personnel will not pass under a raised load, nor will a suspended load be left unattended.

- Personnel will not be carried on lifting equipment, unless it is specifically designed to carry passengers.

- The wheels of the truck being loaded or unloaded will be chocked to prevent movement.

- The lift and swing path of a crane will be watched and maintained clear of obstructions.

- Accessible areas within the swing radius of a crane will be guarded or barricaded.

- All reciprocating, rotating, or other moving parts will be guarded at all times.

Guide 18: Materials Handling

- Accessible fire extinguishers will be available in all mechanical lifting devices.
- Lifting devices will never be left near the edge of excavations or unstable areas.
- Mobile lifting equipment, equipped with outriggers will be set before any work is begun.
- Operations near overhead power lines are prohibited unless the power source has been shut off and locked out/tagged out or the appropriate clearance distances are maintained.
- Cranes may only be moved when directed by a signal person.
- Wire ropes will be removed from service when any abrasion, scrubbing, peening, evidences of corrosion, kinking, crushing, bird caging, or other damage exists.
- Unsafe behavior while driving a fork truck is not permitted.
- Each fork truck will be provided with an overhead guard.
- All mobile lifting devices shall be equipped with an audible backup warning device.
- All traffic regulations shall be observed when a lifting device is in operation.
- Only authorized personnel shall refill liquefied petroleum gas (LPG) tanks on fork trucks.
- Employees involved in heavy lifting will be properly trained in lifting procedures and should be physically qualified to protect the person and the material.
- Tiered or stacked material will be stored within acceptable height limits to avoid falling. Only material that will be immediately used may be stored on scaffolds or runways.
- Personnel will be trained in the procedures used for material handling. This training will address the requirements of applicable regulations, for example the training of personnel who operate powered industrial trucks.

Regulatory Citations

A complete text of the requirements for Materials Handling can be found in Title 29 Code of Federal Regulations, Part 1910, Subpart N and Part 1926, Subparts H and O.

Guide 18: Materials Handling

Contacts

For additional information regarding Materials Handling requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378), or visit the OSHA web site at: www.OSHA.gov.

Guide 19: Mechanical Equipment

Overview

Hand and power tools are commonplace on most project sites. OSHA requires that these tools be maintained in a safe condition to protect both the worker and the public from injury.

Minimum Requirements for Hand and Power Tools

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- All contractor hand and power tools must be maintained in a safe condition and used properly.
- Only workers who have been trained in the use of a particular tool may operate that tool.
- All hand and power tools must be inspected prior to use to ensure proper operation and structural integrity.
- All hand and power tools that are damaged must be removed from the job site until they are repaired.
- Removing any guards from a power tool is prohibited and operating a power tool with any guards removed is prohibited.
- Moving parts of equipment (belts, pulleys, shafts, etc.) must have guards that comply with the appropriate American National Standards Institute (ANSI) standards.
- Workers who are exposed to flying objects, dust, fumes, vapors, etc. when using hand or power tools must wear the appropriate personal protective equipment (PPE).
- Wrenches of any kind must be removed from the project site when the jaws are worn to the point where slippage occurs.
- Mushroomed heads on impact tools (chisels, etc.) must be repaired or removed from the site.
- Wooden tool handles must be free of splinters and cracks and be tight in the tool.
- Electric hand tools must be double insulated or grounded and protected by a ground-fault circuit interrupter (GFCI).

Guide 19: Mechanical Equipment

- All fixed electric tools must have a disconnect switch that can be locked or tagged in the off position.

- Compressed air may only be used for cleaning when the pressure is set to less than 30 pounds per square inch (psi) and chip guards and PPE are used.

- The use of compressed air for personal cleaning is prohibited.

- All pneumatic hand tools must be equipped with a safety device on the mussel to prevent accidental discharge and be secured to the air line with a safety chain or other means to prevent accidental disconnect.

- Fuel-powered hand tools must be turned off when being refueled or serviced.

- Powder-actuated hand tools must be inspected tested and inspected daily prior to use to ensure proper working conditions.

- Grinding machines must be guarded in accordance with applicable ANSI standards.

- Work rests on stationary grinders must be within inch of the grinding wheel surface and the tongue guard must be within ¼ inch of the grinding wheel surface.

- The manufacturer's capacity rating must be marked on all jacks and must never be exceeded.

- As soon as a load has been raised by a jack, the load must be cribbed, blocked, or otherwise secured.

Regulatory Citations

A complete text of the requirements for Hand and Power Tools can be found in Title 29 Code of Federal Regulations, Part 1910, Subparts O and P, and Part 1926, Subpart I.

Contacts

For additional information regarding Hand and Power Tool requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378), or visit the OSHA web site at www.OSHA.gov.

Guide 21: Noise

Overview

Local laws and regulations require that the noise produced during construction/work activities is neither excessive nor intrusive. The contractor must identify the measures that will be taken to assure the noise limits for the area in which they are working will not be exceeded. The noise levels that are acceptable generally depend on the location where the noise is generated and the time of day. In general, most regulations require that facility and commercial operations do not produce unnecessary noise as compared to the surrounding community. For operations within a fixed facility (for example, a generating station), the noise levels measured at the facility perimeter are used to determine impacts on the community. For a discussion of worker protection from excessive noise, refer to the Hearing Conservation EH&S Work Plan Guide.

Prior to working in any Con Edison facility or on any Con Edison project, all contractors must, at a minimum, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

Minimum Noise Requirements

- Local noise ordinances should be reviewed to determine the maximum levels of noise that can be generated at the job site during specific work periods.

- Local noise ordinances should be reviewed to determine whether octave band measurements are required.

- Noise measurements should be obtained by qualified personnel using the guidance of the American National Standards Institute (ANSI) standards and the results should be compared to the applicable ordinances.

- The sampling should be performed by a qualified person who is familiar with the make and type of equipment used in the measurements and experienced in general noise data collection procedures.

- To comply with ordinances, sampling should evaluate the sound levels associated with specific types of noise, for example:

    - Impulse noise is short bursts of noise.
    - Periodic noise is steady, high-level noise.

- The contractor is responsible for ensuring that all work performed by both his crew and subcontractors complies with applicable noise ordinances.

- Equipment and vehicles need to be maintained in good operating condition, ie. mufflers, belts and tune-ups.

Regulatory Citations

A complete text of the requirements for noise can be found in the:

- New York City Administrative Code and Charter, Title 24, Chapter 2, Subchapter 6.

- New York City Zoning Resolutions Section 42-21, Article IV.

- Rockland County Health Code, Article IX.

- Westchester County regulations which can be obtained from local townships.

Contacts

For additional information regarding noise requirements or clarification of these requirements, contact the following agencies:

- For projects within the five boroughs, contact the New York City Department of Environmental Protection (NYCDEP) office located at 59-17 Junction Boulevard, 10th Floor, Corona, NY 11368 (718-337-4375 or visit their walk-up One Stop Information and Referral Center at 96-05 Horace Harding Expressway, Corona, NY 11368. NYCEP's web site can be found at www.ci.nyc.ny.us.

- For projects located in Rockland County, contact the Rockland County Department of Health on Sanatorium Road, Pamona, NY 10970 (914-634-2500). Rockland County's web site can be found at www.co.rockland.ny.us.

- For information on standard practices for monitoring noise, contact the American National Standards Institute (ANSI) at 11 West 42nd Street, New York, NY 10036 (212-642-4900). ANSIs web site can be found at www.ansi.org.

Guide 24: Personal Protective Equipment

Overview

For many tasks, personal protective equipment (PPE) is as essential to the job as any tool. OSHA requires that every employer evaluate all tasks associated with a project to determine the hazards associated with these tasks and the appropriate PPE to be worn by each affected employee. This hazard assessment must be documented.

Minimum PPE Requirements

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- All employers must conduct a hazard assessment prior to the start of every project and as conditions change on the project to determine the types of PPE necessary for each task.

- The results of the hazard assessment must be communicated to every employee on the project prior to the start of work and as conditions change.

- All workers must be trained to recognize the need for and types of PPE necessary, the proper use of PPE, the limitations of PPE, and proper care and disposal of PPE.

- All workers must be trained in the procedures for inspecting PPE prior to use to ensure it provides the required protection.

- All PPE used must meet applicable American National Standards Institute (ANSI) standards.

- All PPE must be maintained in a sanitary and reliable condition.

- Where employees supply their own PPE, the employer is responsible for ensuring the adequacy, maintenance, and sanitation of this PPE.

- Hard hats must never be changed or modified in any way and must be appropriate for the type of work being performed. White hard hats are not permitted on any Con Edison site.

- Eye protection must be appropriate for the type of work being performed, and must be equipped with side shields.

- Burning goggles must be equipped with appropriate filtering lenses for the work being performed.

Guide 24: Personal Protective Equipment

- Gloves must provide adequate wrist and hand protection based on the tasks being performed, and must be compatible with and resistant to any potential hazard (sharps, chemical, electrical, etc.).

- Safety shoes or boots must be fitted with protective toe guards.

- Additional PPE may be necessary for certain situations, for example overboots or rubber boots should be worn for wet conditions or chemical spills, etc.

- Protective clothing (reusable or disposable) must be appropriate for the type of work being performed.

- Orange reflective vests, approved by the U.S. Department of Transportation, must be worn when working in areas exposed to or adjacent to vehicle traffic.

- Fall protection devices must meet the requirements defined in the Con Edison EHS Work Plan Guide for Working at Elevation which is Section 33 in this manual.

- Workers required to wear hearing protection must be allowed to select the type of device they wish to wear from a number of suitable devices.

- Flame resistant garments are required in areas where there is a potential for arc or flash.

Regulatory Citations

A complete text of the requirements for Personal Protective Equipment can be found in Title 29 Code of Federal Regulations, Part 1910, Subpart I, and Part 1926, Section 28 and Subpart E.

Contacts

For additional information regarding Personal Protective Equipment requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378). The OSHA website can be found at www.OSHA.gov.

Guide 26: Respiratory Protection Program

Overview

Respiratory protection is often necessary to allow employees to work safely in hazardous environments. When an airborne contaminant or oxygen-deficient atmosphere exceeds the regulated exposure limits, an employer must eliminate the hazard through engineering and administrative controls or use of the proper respiratory protective equipment.

Minimum Respiratory Protection Requirements

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and to include a procedure to meet these requirements.

- Contractor must have available a written Respiratory Protection Program (RPP).

- Perform Exposure Assessments to assess the need for respiratory protection based on limits established by OSHA, American Conference of Governmental Industrial Hygienist, National Institute of Occupational Safety and Health or Con Edison.
- Selection of the proper Air Purifying Respirators (APR) or Supplied Air Respirators (SAR) will depend on the characteristics of the workplace and the level of protection necessary. Characteristics include the concentration of airborne contaminants, immediately dangerous to life or health (IDLH) conditions, oxygen-deficient atmospheres, and the protection factor (PF) of each respirator.

- APR's will not be worn in oxygen-deficient atmospheres, IDLH conditions, when the contaminant exceeds the PF of the respirator, or when cartridges do not exist for a particular contaminant.

- Breathing air quality must meet the Compressed Gas Association's definition of "Grade D" air for all supplied air respirator use. This includes breathing air cylinders and 5-minute escape cylinders. Compressors shall meet applicable OSHA standards.

- In IDLH atmospheres prior to entry, a rescue plan shall be conveyed to crew members.

- The contractor will follow OSHA regulations regarding maintenance, inspection, proper use of cylinders, fittings, hoses, manifolds, etc., and recordkeeping.

- Self-Contained Breathing Apparatus (SCBA) shall be used in situations where the contaminant or concentration of a contaminant is unknown.

Guide 26: Respiratory Protection Program

- Respirator use requires training with the properly selected respirator, medical evaluation to wear the respirator, and proper fit-testing of the respirator.

- Respirators shall be inspected, maintained, cleaned, disinfected, and stored according to the manufacturers' directions and applicable OSHA guidelines..

- Emergency equipment shall be inspected monthly and all records will be kept on file.

- The RPP administrator shall maintain results of periodic program review, and shall identify, based on the results of the review, any necessary changes which may need to be made to the respiratory program. Records shall identify the name of the person conducting the review, the date, and any observations made during the review.

- Based on the RPP outlined in this work plan guide, the program manager shall maintain the following records at all times:

    - Hazard Assessments.
    - Employee Training.
    - Fit-Testing.
    - Medical Surveillance.
    - Respirator and Fit-Test Equipment Maintenance and Repair.

Regulatory Citations

A complete text of the requirements for Respiratory Protection can be found in Title 29 Code of Federal Regulations, Part 1910, Section 134.

Contacts

For additional information regarding Confined Space requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378), or visit the OSHA web site at: www.OSHA.gov.

Guide 27: Sampling

Overview

Samples may be required to characterize a material or waste, to confirm the presence or absence of hazardous substances, to determine the extent of a spill or release, to confirm that cleanup standards have been met, and/or to comply with permit or regulatory criteria or standards. It is the contractor's responsibility to ensure that samples are properly managed and analyzed, collection methods are consistent with all regulatory protocols and good sampling practice and samples are representative of the material.

Minimum Sampling Requirements

Prior to working in any Con Edison facility or on a Con Edison project, all contractors must, at a minimum, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety (EH&S) Plan submitted to Con Edison and include a process to meet these requirements.

- The contractor must have a Sampling Plan including:
    - Sampling techniques that will be used.
    - A sampling summary, including sample matrices, parameters analyzed for, sample preparation, analytical method numbers, volumes and types of sample containers, sample preservation methods if required, and holding times allowed for the samples.
    - Sample handling procedures.
    - Quality Assurance /Quality Control procedures and Chain-of-Custody procedures..
    - Equipment and personnel decontamination procedures.
    - How wastes generated during the sampling effort will be managed.
    - Method detection limits, method quantification limits, and reporting limits.
    - Data validation procedures and record keeping and documentation procedures.

- The contractor shall identify the procedures used to ensure that representative samples will be collected, including the procedures to prevent cross-contamination of samples, to prevent the loss of volatile constituents when samples are handled and placed in jars, and collect homogeneous samples of materials.

- If composite samples are identified for collection in the EH&S Plan, the Contractor shall specify how many aliquots will be used to make up each composite sample.

- The contractor must identify how many and what types of quality assurance/quality control (QA/QC) samples (i.e., duplicate, field blank, rinsate blank, and trip blank samples) will be collected during the sampling event.

Guide 27: Sampling

- The contractor must identify whether the laboratory that will analyze the samples is approved under New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) for the methods proposed. If the laboratory is ELAP-certified, the Contractor must provide the laboratory ELAP certification number.

- For asbestos sampling requirements, see the Con Edison Contractor EH&S Work Plan Guide for Asbestos.

Regulatory Citations

Documents prepared by United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Control (NYSDEC) governing the collection and analysis of environmental samples include:

- The Region II CERCLA Quality Assurance Manual, Revision 1, USEPA, October 1989,

- The NYSDEC Sampling Guidelines and Protocols, Division of Water, Bureau of Spill Prevention and Response, March 1991.

Contacts

For additional information regarding sampling requirements or clarification of these requirements, contact the following agencies:

- For projects within the five boroughs, contact the Region 2 NYSDEC office located at Hunters Point Plaza, 47-40 21st Street, Long Island City, New York 11101 (718-482-4900) "www.dec.state.ny.us".

- For projects located in Dutchess, Orange, Rockland, or Westchester Counties, contact the Region 3 NYSDEC office at 21 South Putt Corners Road, New Paltz, NY 12561 (914-256-3000) "www.dec.state.ny.us".

- For information on NYSDOH's ELAP program, contact the New York State Department of Health office in the Wadsworth Center, Empire State Plaza, Albany, NY 12201-0509 (518-485-5570) "www.health.state.ny.us".

- For all projects, also contact the Region II office of the EPA located at 290 Broadway, New York, New York 10007 (212-637-3000) "www.EPA.gov".

Guide 28: Vehicle Management

Overview

Vehicles may be used for personnel transport, equipment or soil hauling, earthmoving, and pile driving. OSHA has specific requirements designed to ensure that vehicles are maintained and operated in a safe condition to protect workers and the public. In addition, state licenses and department of motor vehicles regulations address the proper operation and maintenance of vehicles.

Minimum Vehicle Management Requirements

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- Only properly trained personnel may operate the vehicles for which they are trained.

- All applicable personnel must possess valid Commercial Drivers Licenses.

- All vehicles must have a functioning service, emergency, and parking brake system and functioning brake lights.

- Vehicles will be inspected prior to use and removed from service if deficiencies exist.

- Vehicles used on public roads must have U.S. Department of Transportation approved flares, triangles, or other warning devices in the vehicle.

- Tools and materials carried in passenger compartments must be secured.

- Vehicles with cabs must have windshields and functioning powered wipers.

- All vehicles must have proper seats with seat belts for each person.

- Vehicles loaded by crane, loader, or similar equipment must have a cab shield or canopy. Equipment cabs must have safety glass that does not distort the driver's vision.

- All vehicles left near a highway at night must have appropriate warning devices.

- Workers must not work under or between equipment or vehicles suspended from slings, hoists, or jacks until the equipment is blocked or otherwise supported.

Guide 28: Vehicle Management

- All vehicles must be fully lowered and blocked during repair or when not in use.

- Parking brake must be set and wheels chocked when parked and on an incline.

- All vehicles must have functioning backup alarms.

- Loads/Material must be secured and covered if disturbed by winds while in transit.

- Vehicles and equipment designed to move slowly over public roads must display an appropriate slow-moving traffic identification symbol (orange triangle).

- Roadway weight limits will be adhered to.

- The following equipment must have Roll-Over Protection Structures (ROPS):

    - Rubber-tired scrapers, loaders, and dozers, Wheeled tractors;
    - Crawler tractors and loaders, and Motor graders.

- ROPS must be labeled appropriately.

- Fueling operations must be conducted in accordance with the requirements of the Con Edison EHS Work Plan Guide for Fire Protection and Prevention in this manual.

Regulatory Citations

A complete text of the requirements for Vehicle Management can be found in Title 29 Code of Federal Regulations, Part 1926, Subparts F and O.

Contacts

For additional information regarding Vehicle Management requirements or clarification of these requirements, contact the New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York 10014 (212-337-2378), or visit the OSHA web site at: www.OSHA.gov.

Guide 29: Waste Management

Overview

Federal and State laws require that wastes be properly classified and managed as hazardous waste, solid waste, or universal waste. Waste classification will define the requirements for managing the materials. In general, waste management includes characterization, labeling, storage, transportation, disposal, personnel training, and reporting and recordkeeping.

Minimum Waste Management Requirements

Prior to working in any Con Edison facility or on any Con Edison project, all contractors must, at a minimum, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison, and include a process to meet these requirements.

- Contractors take title to all wastes generated if so stated in the specifications; however, CON EDISON RESERVES THE RIGHT TO TAKE TITLE TO ALL WASTES GENERATED BY THE CONTRACTOR'S ACTIVITIES AT CON EDISON FACILITIES AND WORK SITES.

- Contractor must have an active EPA waste generator identification for waste disposal.

- Contractor will comply with all applicable requirements for hazardous wastes generated, including:
    - Characterizing the waste, managing accumulated and stored waste.
    - Labeling of containers, storing the waste, inspecting the storage areas.
    - Filling out manifests and Land Disposal Restriction (LDR) forms.
    - Training of personnel concerning the proper procedures to use.
    - Ensuring that waste is disposed at a permitted facility.
    - Ensuring that reports and records are maintained.

- Contractor shall identify the procedures to classify wastes generated at the job site.

- Wastes shall be segregated when stored to prevent mixing of waste types.

- Storing of solid waste dumpsters will be properly maintained, able to store 150% of expected generation, and covered (with lids, doors, and/or tarps).

- Security measures will avoid non-authorized personnel from tampering with wastes.

- Contractor must evaluate the waste generated for recycling, instead of disposing of waste.

Guide 29: Waste Management

- Contractor must identify the transportation/disposal firms and their permit numbers to manage and transport Con Edison waste. Only permitted treatment/disposal facilities may be used to receive solid and hazardous wastes generated from a Con Edison job site.

- Department of Transportation (DOT) requirements will be adhered to for waste packaging, shipping, and transport, including container selection and vehicle placards.

- All hazardous and solid waste transporters must have the appropriate permits and certifications prior to hauling waste.

- The contractor shall provide copies of all shipping papers and certificates of disposal that are obtained and prepared for wastes generated at the job site.

Regulatory Citations

A complete text of the requirements for waste management can be found in:

- Title 40 CFR, US EPA, Parts 172, 173, 260 through 262, 264, 265, and 268;

- Title 6 NYCRR, Parts 360, 364, 367, 370 through 374, and 376;

- Title 6 Rules of the City of New York (RCNY) Chapter 2; Title 16 RCNY Chapter 1;

- Westchester County, Chapter 825 and Westchester County Local Law No. 14-1992;

- Dutchess County Local Law No. 4 of 1990.

Contacts

For additional information contact the following agencies:

- In five boroughs, contact the NYC Department of Sanitation at 125 Worth Street, NYC, NY 10013 (212-219-8090) www.ci.nyc.ny.us and Region 2 NYSDEC at 47-40 21st Street, Long Island City, NY 11101 (718-482-4900) "www.dec.state.ny.us".

- Projects in Westchester, Rockland and Dutchess Counties, contact the Region 3 NYSDEC office at 21 South Putt Corners Road, New Paltz, NY 12561 (914-256-3000). Projects in Westchester County, contact the local municipality. Projects in Rockland County, contact the Rockland County Department of Health on Sanatorium Road, Pamona, NY 10970 (914-634-2500) "www.co.rockland.ny.us". Projects in Dutchess County, contact the Dutchess County Health Department, Division of Environmental Health Services in Poughkeepsie, NY 12601 (914-486-3404) "www.dutchessny.gov".

Guide 32: Work Area Protection

Overview

Workers must not only be protected from hazards on the project site but also from hazards generated by nearby operations. Members of the public passing near work areas must also be protected from any site-generated hazards. It is therefore important that all work areas be properly barricaded and posted with warning signs and that signals be used to control nearby vehicle traffic. In addition to OSHA, local agencies may have specific requirements for work conducted in roadways or near pedestrian traffic.

Minimum Work Area Protection Requirements

In order to perform work on any Con Edison facility or project, all contractors must, at least, meet the following requirements. Please note that additional requirements may be necessary based on job-specific activities. It is the responsibility of each contractor to identify these requirements in the job-specific Environmental Health and Safety Plan submitted to Con Edison and include a process to meet these requirements.

- All work areas must be sufficiently barricaded to prevent unauthorized access and limit exposure of the public to work area hazards.

- Accident prevention signs (e.g., "Danger - Keep Out") must be visible when work is being performed and must be covered when hazards no longer exist.

- All signs must conform to the requirements specified by OSHA and be used only for their intended purpose.

- Traffic signs must be placed appropriately to control vehicle traffic on or near project sites and must conform to applicable American National Standards Institute (ANSI) standards.

- Flaggers must be used to control traffic when signs, signals and barricades do not provide the necessary protection.

- Flaggers and workers working near traffic must wear a reflective orange vest approved by the U.S. Department of Transportation.

- Only appropriately trained personnel may act as flaggers.

- Flashing warning lights must be placed on barriers during hours of darkness.

- Caution, warning, and construction information traffic signs must be displayed, as appropriate.

- Construction vehicles or equipment left or parked near a roadway must have appropriate warnings displayed or barricades positioned.

- Disabled vehicles must display reflective triangles, warning lights, flags, or flares to warn traffic of their position.
- The arrangement of traffic control devices must be inspected periodically to ensure their effectiveness.
- Barricades must be weighted or supported to prevent their displacement.
- Workers responsible for placing traffic control devices must be trained in the use and placement of these devices.

Regulatory Citations

A complete text of the requirements for Work Area Protection can be found in Title 29 Code of Federal Regulations, Part 1910, Sections 144 and 145, and Part 1926, Subpart G.

Contacts

For additional information regarding Work Area Protection requirements or clarification of these requirements, contact:

- The New York regional OSHA office located at 201 Varick Street, Room 670, New York, New York (212-337-2378). The OSHA website can be found at www.OSHA.gov.
- The New York City Department of Transportation located at 40 Worth Street, Manhattan, New York (212-442-7070).
- The New York State Department of Transportation located at 47-40 21st Street, Long Island City, New York (718-482-4600).

APPENDIX B

Con Edison Utility Clearance Process

UTILITY CLEARANCE PROCESS FOR INTRUSIVE ACTIVITIES
E H&S REMEDIATION PROGRAM

1.0 INTRODUCTION

This document outlines the process that should be used to identify, locate and clear subsurface utilities as part of all Environmental Health and Safety Department's Remediation Section intrusive site investigations. The various activities that comprise this process are specified in efforts to eliminate or substantially reduce the risk of encountering a subsurface utility while performing intrusive activities. Where appropriate, reference is made to other existing safety procedures that should also be considered. **Note that modifications and additions to the text in this version of the process, relative to the topics outlined in Section 2.0, are italicized.**

Due to the potential presence of subsurface utilities and the inherent variable of their size, depth and layout, it is not possible to address all situations and circumstances that may be encountered during intrusive activities. However, adherence to the steps outlined here will effectively minimize physical impacts to subsurface utilities and prevent associated health and safety risks that might otherwise result from field investigation activities. The activities prescribed below should not be blindly followed. Rather, it is the intent of this document that **ALL FIELD PERSONNEL**:

1) Understand the terms of this process including all revised or added provisions;

2) Develop an awareness and be mindful of, the potential and actual risks associated with utilities and other related hazards at a site;

3) Become familiar with the location(s) and configuration(s) of all subsurface utilities at the site, as marked out and as delineated on available drawings;

4) Develop an awareness and understanding of the potential uncertainties associated with utility locations as marked out;

5) Maintain a high level of vigilance while implementing all components of intrusive fieldwork.

ALL FIELD PERSONNEL, including the Con Edison Project Manager (PM), Construction Management (CM), consultants and contractors should be familiar with the fundamental provisions of this utility clearance process PRIOR to engaging in any field activities.

The process described in the remainder of this document consists of the three (3) primary components summarized below. These components are designed for use in an integrated manner.

Process Narrative – The narrative provides detailed descriptions of the specific steps that should be taken prior to and during intrusive activities to minimize the potential of encountering subsurface utilities.

Utility Clearance Flow Chart: The key steps of the utility clearance process, as outlined in the narrative, are shown graphically on the flow chart provided in **Attachment A**. The flow chart serves as a guide and should not replace the narrative for developing an understanding of and/or implementing the process.

Utility Clearance Checklist - A key component of this process is the completion of the checklist provided in **Attachment B**. The checklist shall, be completed by the Con Edison PM. The intent of the checklist is to ensure that all appropriate steps of the process described herein have been completed. Secondly, it will be used to document that all reasonable steps were taken to prevent conditions that may be potentially harmful to the on-site workers and the surrounding community at large, and that might otherwise adversely impact the physical integrity of, or cause damage to, the utility. The completed checklist will be incorporated in the project files maintained by the Con Edison PM.

2.0 REVISIONS FROM PREVIOUS VERSION

This version (Revision 1) has been modified to incorporate additional provisions and or guidance based on lessons learned during implementation of the original version for intrusive activities at various sites. The key topics that have been added or modified are listed below and described in greater detailed in the referenced sections of this protocol.

- Use of private utility location contractors (Sections 4.2.1 and 4.2.2);
- Work around gas lines (Section 4.3 and 4.4); and
- Requirements for utility clearance in building basements (Section 4.4).

Modifications and additions to the text relative to the topics listed above are *italicized* (in addition to the website links in Section 4.1 which are also italicized).

3.0 APPLICABILITY

The utility clearance process shall be performed prior to and/or during the intrusive site investigation activities listed below.

- Excavation of Soil Borings
- Installation of Monitoring Wells
- Installation of Soil Gas Sampling Probe Points
- Excavation of Exploratory Test Pits/Trenches

4.0 SUBSURFACE UTILITY CLEARANCE PROCESS

The key activities that comprise the process are listed below and a detailed description of each is provided in the remainder of this document in the order in which they should be completed (as shown in the Utility Clearance Flow Chart in **Attachment A**).

- Obtain Plates, Drawings and Maps
- Notification to Con Edison Operating Groups and Submission of Site-Specific HASP for review and approval
- Code 753 Utility Mark-Out
- Site Walk
- Utility Clearance - Sample Location Confirmation
- Checklist Completion

It is noted that completion of some steps may not be warranted for all intrusive activities at all sites. The process is designed to be flexible and, thus, allows the Con Edison PM to incorporate those utility clearance activities that are appropriate for a set of site-specific conditions, knowledge of the site, previous work completed at a site, etc. Exceptions are summarized in Section 5.0 of this document. The key premise is that any deviations and the rationale for each are well documented and reflect sound judgment on the part of the Con Edison PM and other project personnel.

4.1 Obtain Plates, Drawings and Maps

Hard copies of available utility plates, drawings and/or maps should be obtained by the Con Edison PM. Drawings, plates, etc. should be reviewed as a preliminary step to determine the type and approximate size and location of utilities in the vicinity of the work site. The drawing title, most recent revision date shown on the drawings, approximate scale and source shall be documented in the appropriate space(s) on the Utility Clearance Checklist (**Attachment B**).

The source of the drawings may vary depending on whether the site is a Con Edison owned/operated facility, private/public property, or extends into a public street/sidewalk. The various sources for substation utility drawings are discussed below and listed in **Table 1**. Drawings for private properties and facilities, such as apartments, schools, churches, residences, etc., can typically be reviewed at, and/or obtained from, the property/facility manager and Department of Public Works and/or Department of Buildings in the municipality where the property is located.

NOTE: Copies of all drawings obtained during this step should be available at the site during all site walks/inspections and at all times during subsequent intrusive activities. The drawings should be reviewed immediately prior to implementing intrusive activities at each new site location where intrusive activities are to be performed.

Steam, Gas and Electric
All electric and gas plates are available on Con Edison's intranet by searching for 'maps' or accessing the Advanced Mapping System website listed below.

http://maps/AdvancedMappingHomePage.htm

Similarly, steam plates can be obtained by selecting "Active" and "Archived" Steam Plates from the website:

http://maps/steam.htm

Based on agreement between Transmission Operations and EH&S, Remediation personnel may access these intranet sites and print the plates using the facilities in the conference room in Building 97 in Astoria. In addition, a large format photocopier, which is also located in Building 97, is available for use by EH&S remediation. A log book, which is stored at the facility, should be completed each time the facilities (i.e., plotter, computer, and or photocopier) are used.

Conduit and Duct Occupancy (C&DO) utility plates should be obtained from the appropriate Con Edison engineering group(s) including, electric (e.g., distribution lines, transmission feeders, etc.) steam and gas by the Con Edison PM.

AFTER accessing the website and obtaining the required drawings, the appropriate party listed in **Table 1** may be contacted with inquiries regarding electric and steam plates or for questions regarding use of the Advanced Mapping System.

Sewer and Water
Drawings showing water and sewer utilities should be obtained from the New York City Department of Environmental Protection (NYCDEP). Drawings can be requested from the NYCDEP by completing the form provided in **Attachment C** and faxing or mailing it using the appropriate contact information listed on the request form. If you have questions you should contact the NYCDEP personnel at the telephone number listed in **Table 1**.

Subterranean Tunnels
Drawings showing locations and depths of tunnels including subways and automobile tunnels and related subsurface infrastructure should be obtained as appropriate by contacting the Metropolitan Transportation Authority as listed in **Table 1**. It is noted that if intrusive activities will be performed in the immediate vicinity of subsurface MTA structures, such as subway or automobile tunnels, a letter submitted to the MTA may be required to request a work permit from MTA. The letter should include a brief summary of the work and a map(s)/drawing(s) of the proposed work and will be submitted to:

Mr. Rajen Ydeshi
Outside Projects
New York City Transit
2 Broadway, 7th Floor
New York, New York 10004

Miscellaneous

Con Edison generally does not maintain plates and drawings showing detailed information of utility distribution on private property. However, as discussed above, facility managers, property owners, Department of Public Works and/or Department of Buildings of the municipality where the site is located, should be contacted in efforts to obtain available utility drawings for the facility. Contact information (e.g., telephone numbers, e-mail addresses, etc.) for municipalities can typically be obtained by accessing the municipality's website. The name, address and telephone numbers for the Department of Buildings in New York City are listed in **Table 1**.

4.2 Complete Utility Markouts

Due to the diversity and nature of sites investigated by the EH&S Remediation Group and the potential utilities at these sites, an effective mark out may require an M-scope survey by Con Edison, requesting a Code 753 utility survey and or a subsurface utility survey by a private utility-locating contractor. The applicability of each of these is discussed below.

4.2.1 Overview of Utility Markout Methods

Code 753

The Con Edison PM should instruct their consultant and/or contractor to request a Code 753 utility mark out as per the 16 New York City Rules and Regulations (NYCRR) Part 753. Consistent with the One-Call (also called Dig Safe New York) criteria, the request should be made at least 72 hours prior to initiating fieldwork. The telephone numbers of the various one-call systems are listed by region below.

New York City / Long Island:	(800) 272-4480
Westchester	(800) 962-7962

Confirmation that mark outs completed under Code 753, and as received by facsimile or telephone from the participating utility companies, should be documented on spaces provided on the Utility Clearance Checklist (**Attachment B**). The markouts should be maintained by the Con Edison PM or designated representative. If the physical markings on the street/sidewalk become faint or obscure they should be refreshed by over-painting with new paint as needed. When the utility markouts are being refreshed, typically by consultant, contractor, or other project personnel, a Con Edison representative or their designee **MUST** be present and observe this activity.

Con Edison M-Scope Survey

Con Edison engineering groups (see below for contacts) can conduct utility surveys using a 'M-Scope' on a case-by-case basis and will be limited to the engineering group' availability. This tool uses the magnetic susceptibility of subsurface features such as electrical conduits, electric cables, pipes, etc. This method of survey can be subject to interference by other conductive bodies at grade or in the subsurface, such as buried pieces of metal, rebar in concrete, iron-rich soil, etc., and may be ineffective or produce misleading results in these types of conditions. A utility survey using an M-Scope can be requested by contacting the appropriate party listed below. Note for markouts inside substations contact Mark Rimler at (212) 460-3921.

County	Contact Name	Telephone Number
Manhattan	Jane Shin	(212) 894-9345
Brooklyn & Queens	John Haas	(718) 348-6725
Bronx	Greg Kasbarian	(718) 904-4659
Westchester	Faney Bantin	(914) 789-6715
Staten Island	Joseph Nappi	(718) 890-6231

Private Utility Contractor

Prior to mobilizing to the site the following information MUST be provided to and reviewed by the Con Edison PM:

- *the name of the contractor;*
- *the name of technician(s) who will perform the utility surveys;*
- *for each technician, a summary of experience and training in conducting surveys in a setting similar that at the site (e.g., urban, inside buildings, etc.); and*
- *Summary of experience and training of each instrument.*

When using a private utility location contractor, the Con Edison PM shall diligently attempt to arrange for the facility or property manager and or engineer, who is most familiar with the utility layout and distribution in the building or on the property to participate in the site walk with the private utility locating contractor during on the first day of conducting the on-site utility survey.

Private utility contractors employ a variety of utility detection and location techniques, which may include:

- Ground Penetrating Radar (GPR)

- Magnetometer

- M-Scope

- Electrical Conductivity

- Electrical Resistance
- Acoustics

Use of multiple methods may permit the detection and surveying of conductive and non-conductive buried utilities.

The utility location contractor ***SHALL*** *specify which utility detection tool/techniques they plan to bring* ***AND*** *use at the site. In addition, they* ***SHALL*** *bring* ***ALL*** *support tools and equipment necessary to allow them access to manholes, vaults, circuit boxes, pipe clean-outs, etc.*

At the commencement of a utility survey using a private utility location contractor ***AND*** *prior to them deploying any survey equipment, the utility location contractor* ***SHALL****:*

1) *Review* ***ALL*** *utility drawings*

2) *Reconcile* ***ALL*** *drawings with markouts identified by the Code 753 survey at the property perimeter.*

3) *Determine presence and type nature of sub-slab utilities and diligently attempt to confirm their configuration during the utility survey.*

4) *Inspect the site to identify where* ***ALL*** *utility service enters and or leaves the property and or building. This* ***SHALL*** *include a thorough inspection of building basement(s); boiler and or machine room(s); externally-exposed utility infrastructure including manholes; vaults; electrical, gas, water valves and or meters; etc.*

5) *Visually identify, open and inspect* ***ALL*** *relevant utility access-ways including manholes, vaults, gas and or water valves boxes and telephone, cable and communication boxes.*

6) *Identify and document* ***ALL*** *apparent uncertainties such as manholes containing service lines that apparently go to the building or property, but that cannot be located within the basement of the building or on site.*

NOTE*: In ALL cases, the private utility contractor shall diligently attempt to 'hook-onto' or 'tone' each conduit source (e.g., pertinent electrical conduits in basement, water and or gas valves in valve box, distribution lines in manhole, etc.). This may require opening manholes circuit electrical distribution 'trunk' boxes, moving equipment or stored materials at the facility or property to allow access. No project personnel shall enter a manhole or vault unless they are certified and trained in confined space access, have and know how to use* ***ALL*** *pertinent safety equipment, and approved by the Con Edison PM.*

In some situations, multiple metallic conduits may be in direct contact in the subsurface. In this circumstance the signal of the locating tool may be transferred from the conduit being 'toned' *to an adjacent conduit(s) and may produce a 'secondary' signal. In efforts to understand and identify this occurrence, the location of each apparent signal shall be visually/physically marked using pieces of tape, paint or similar method. The sources being 'toned' shall be numbered and the corresponding signals associated with each signal source shall be marked with the corresponding number a teach location where the signals from each source is detected. Accordingly, the resulting mark outs will show apparent multiple conduits for a single source.*

4.2.2 Applicability of Utility Clearance Resources

The use of the various utility markout resources that may be employed at various sites is summarized in the table below and discussed in the remainder of this section.

Site Setting	**Utility Survey by Con Edison**	**Utility Survey by Private Contractor**	**Code 753 (1)**
Con Edison Facility	X	X (optional)	X[1]
Street / Sidewalk	X (optional)	X (optional)	X
Private Property	X (optional)	X	X[1]

(1) At larger Con Edison Properties (e.g., Astoria) or large private or publicly owned properties, a Code 753 survey may not be warranted.

Con Edison Facility

Utility markouts at Con Edison facilities should be coordinated by the Con Edison PM with support from the Construction Management (CM) inspector assigned to the project (if any) and/or facility personnel, as appropriate. At a minimum, an M-Scope survey should be completed. In some circumstances, an independent utility locating contractor should also be used. The decision to use a utility contractor will be made by the Con Edison PM. The use of an independent utility mark-out contractor is strongly recommended at sites where a variety of utilities are known or suspected to be present and which may not be readily identified or mapped using M-Scope alone. A benefit of using a utility locator contractor is that, as described above, they can provide a greater array of tools to locate a variety of subsurface utilities that are non-conductive, such as concrete sewer lines, PVC pipes, etc. in addition to identifying/confirming the presence and location of conductive utilities.

Private Property (including Soil Gas Sampling Probes)

An independent utility locator should be used for utility markouts on private properties. It is noted that utility markouts in basements or slab-on-grade constructed buildings may be inconclusive due to the presence of rebar or welders-mesh commonly used as reinforcement in concrete. Accordingly, a thorough inspection of the basement floor and walls should be performed to identify where utilities enter and leave the building, as well as how the utility (elctric, water gas, steam, etc.) are distributed in the vicinity of the sample locations. Sub- or in-floor utilities often enter along the perimeter of the floor, at support columns, and/or along dividing walls. The observation of utilities entering the floor may indicate utilities that lie within or immediately beneath the concrete basement slab. If the location of the utility layout of any such sub- or in-floor utility cannot be effectively determined, then any intrusive work must be discussed with the Con Edison PM and may require that no intrusive activities be performed at that location. *However, this action should only be considered after all applicable survey tools and methods have been diligently deployed and or implemented.*

Public Street / Sidewalk

A combination of Con Edison utility survey staff and independent utility locator contractors may be used for work areas located in and along roadways. Since Con Edison maintains utilities in streets and along sidewalks, in addition to the mark outs performed through the Code 753 survey, an M-scope survey may also be requested within a 10 foot radius of each proposed sample location. It is noted that due to often heavy work loads of the M-Scope survey staff, this option may not always be available or practicable and should be considered optional.

4.3 Site Walk

After completion of the activities outlined above, a site walk shall be conducted by the Con Edison PM with participation from Construction Management (if it will be providing field oversight), contractors (drillers, soil gas, excavators, private utility location contractor, etc.), Con Edison facility managers, NYSDEC (as deemed appropriate by the Con Edison PM), and private facility managers/property owners. A list of the names and phone numbers of each participant at the site walk will be maintained by the Con Edison PM. The key objectives of the site walk are to:

- Review the all planned locations where invasive activities will be performed,
- Adjust the positions of the locations away from utilities as marked out (as necessary)
- Collectively determine the appropriate utility clearance activities (e.g., test pits, etc.) that will be performed at each location (as described in Section 3.4) and document all decisions and /or concerns using the Utility Clearance Checklist (as described in Section 4.0) and in **Table 2**.

Other site conditions and project issues assessed during the site walk should include:

- Presence and location of overhead utilities and/or obstructions that might prevent the safe operation of drilling /excavating equipment;
- Presence of, or need for, appropriate grounding for electrical equipment at the site;
- Site access to equipment;

- Storage of equipment/supplies overnight (e.g., establish a staging area);
- Storage and management of investigative derived waste (IDW);
- Hours of on-site work;
- Permits needed, if any;
- Review roles and responsibilities of all project personnel who will be onsite;
- Review site and emergency contacts; and
- Review anticipated schedule of work *and contingency action as deemed appropriate.*

4.4 Utility Clearance - Sample Location Confirmation

The appropriate actions necessary to confirm the location and/or absence of utilities, which are agreed on during the site walk and as documented in the Utility Clearance Checklist and in **Table 2**, will be implemented at each sample location during the investigation. As discussed above, and consistent with the Utility Clearance Process Flow Chart, the actions will generally include one or more of the following:

- Moving the location outside the **tolerance zone**, if possible. If no ***tolerance zone*** is marked out during the utility survey (i.e., only a utility center line is marked), the **<u>tolerance zone</u>** will be defined in the field as: **the distance of one-half of the known diameter of the utility plus two feet on either side of the centerline as marked out.**
- Performing a utility clearance test pit at each location where intrusive work will be performed; and/or
- Performing a utility clearance test pit using non-mechanical means to expose and physically verify the exact location and configuration of all nearby utilities.

Brief descriptions of the activities that will be completed during the various investigation activities are discussed below.

NOTE: When working within 25 feet of high pressure gas lines (i.e., 125 psig or greater), *Gas Emergency Response Center (ERC)* shall be contacted *[718-319-2330] and notified of the planned activities <u>at least two days prior to start of intrusive work</u>. If working within 5 feet of a transmission main or within 10 feet of the tolerance zone of a main* the gas line will be carefully excavated by hand in accordance with the Gas Operations Standard G-11863, titled <u>"Inspection and Maintenance Requirements Associated with the Excavation Activities Near Gas Pipelines Operating at 125 psig and Above".</u>

Soil Borings / Monitoring Wells
All locations within the tolerance zone should be moved outside the zone, if possible. After moving the location, a utility clearance test pit should be excavated to a minimum of 5-feet below ground surface using non-mechanical methods, such as hand auger, post-hole digger and/or vacuum truck. The diameter of the test pit should be at least two inches wider than the outer diameter (OD) of the mechanized drilling equipment. The 5-foot depth is consistent with the concept that most utilities are typically installed within the top five feet of the subsurface.

NOTE: Utilities may be deeper than five feet due to buildup of surface grade on properties and or streets or right-of-ways. Although the original depth of utilities is anticipated to be within the upper five feet, utilities that are buried in areas that have been built up will presently be deeper by the thickness of the built-up material.

Intrusive investigation locations where physical space prohibits the relocation of proposed sample locations outside the tolerance zone, the adjacent utility(ies) will be exposed by excavating using non-mechanical methods to visually confirm its physical location and configuration. This confirmatory excavation will be completed in addition, a 5-foot excavation at the specific location being investigated (e.g., soil boring, monitoring well boring, etc.), as described above.

Soil Gas Sampling
At soil gas sample locations, test pits will also be excavated to one foot below grade or below the bottom of a concrete floor, if present, prior to installation of soil gas sample probes points. The one-foot depth specified is consistent with the concept that most utilities that could be impacted by the advancement and emplacement of the probe points, such as telephone lines, local electric (e.g., for outdoor lighting), cable television, in-ground sprinkler lines, etc., are typically installed from grade to a depth of one foot.

Basements / Indoor Soil Borings and Monitoring Wells
Prior to installing a soil boring, monitoring well or soil gas sample probe point in the concrete slab of a basement and after identifying that no utilities are present in the floor of the basement or foundation slab (as per Section 3.2.2), an electric powered diamond core drill, concrete saw or jack hammer will be used to advance through the concrete and expose the underlying soil. *If sub-slab utilities are suspected of being present, but not confirmed during the utility location survey, the concrete shall be cored or saw cut to an estimated depth of approximately 2/3 the thickness of the concrete (if known). If the thickness of the concrete thickness is not known, it shall be assumed to 8-inches thick. Coring shall proceed at 1-inch increments, with the removal of each one-inch ‘plug’ of concrete and visual inspection of the core hole to verify the absence of utilities. The remaining 1/3 of the concrete shall be broken using electric jackhammer,, hammer drill or using hand tools. Appropriate safety equipment shall be worn during concrete removal actions.*

At each location where soil borings and/or monitoring wells will be installed, a hand excavated test pit will then be advanced to a depth of five feet below the bottom of concrete slab. This test pit should be excavated using hand auger, post-hole digger and/or vacuum truck in tandem with a non-conductive probe rod, which can be used to confirm the absence of utilities to a depth of five feet below the bottom of the concrete slab.

NOTE: The use of a jack-hammer to loosen compact soil during hand excavating a utility clearance test pit is strictly prohibited, except as noted above.

Exploratory Test Pit/Trench

Exploratory test pits/trenches will be performed to identify the presence or absence of subsurface structures related to former operating facilities at the site, such as gas holder foundations at former manufactured gas plant (MGP) sites, and should not be confused with **utility clearance test pits** discussed above. The **exploratory test pits** or **trenches** will typical have dimensions of approximately five feet wide by 10 feet deep by 10 to 20 long, accordingly, excavating them by hand is impracticable. The excavation of **exploratory test pits/trenches** must be approached with heightened awareness as the potential for damaging subsurface utilities, if present, is great.

In efforts to develop a reasonable degree of confidence that utilities will not be encountered during excavation of **exploratory test pits/trenche**s, a focused utility survey will be conducted in the area immediately surrounding the test pit or the area defined by a boundary established by measuring two feet perpendicular from all sides of the proposed exploratory test pit boundaries. For example, if the surface dimensions of the exploratory test pit are 10 feet long by 5 feet wide, the surrounding area of the focused utility survey will have dimensions 14 feet long by nine (9) feet wide. It is suggested that the focused utility survey should be completed after all other on-site surveys have been completed. This will allow the surveyor(s) to develop a better understanding of the site-wide subsurface utility configuration.

Following completion of the focused utility survey, **utility clearance test pit**s will be excavated by hand to confirm the presence of any and all utilities identified within five feet from the exploratory test pit/trench. After exposing the utilities, the excavator can proceed to excavate the **exploratory test pit/trench**, however, the operator should be experienced with digging in areas where underground utilities may be present and should use the utmost care when performing the excavation. Excavation should proceed slowly enough so that any obstruction/structure encountered can be evaluated and to confirm that the structure is not a utility.

5.0 CHECKLIST COMPLETION

The Utility Clearance Checklist (**Attachment B**), as well as the overall Utility Clearance Process to locate and clear utilities was designed to be dynamic. Accordingly the Utility Clearance Checklist should be updated throughout the process as each utility clearance activity is completed. During the site walk and after all utility-related issues at each location have been identified and addressed to the satisfaction of all project personnel, the relevant portions of the Utility Clearance Checklist will be completed by the Con Edison PM. It is noted that the Utility Clearance Checklist will be considered complete only after all proposed utility clearance actions identified during the site walk have been successfully implemented and all pertinent information and activities have been documented.

6.0 EXCEPTIONS TO REQUIREMENTS OF THE UTILITY CLEARANCE PROCESS

Due to the inherent diversity and conditions present at project sites, some general exceptions to the utility clearance process are identified below.

- Sites where extensive utility mapping has been completed and/or where extensive intrusive activities have already been performed.
- Locations where facility layout is well documented and understood.
- Sites or portions of large sites (e.g., Astoria facility) where utilities are known not to exist currently or to not have ever existed throughout the life of the facility, property or site.

All circumstances where one or more steps of this process are not being implemented must be discussed with the Con Edison PM and must be duly documented. Regardless of whether or not exceptions are made during the utility clearance process, a Utility Clearance Checklist should always be completed for each site, in accordance with the terms outlined in Section 4.0 of this document.

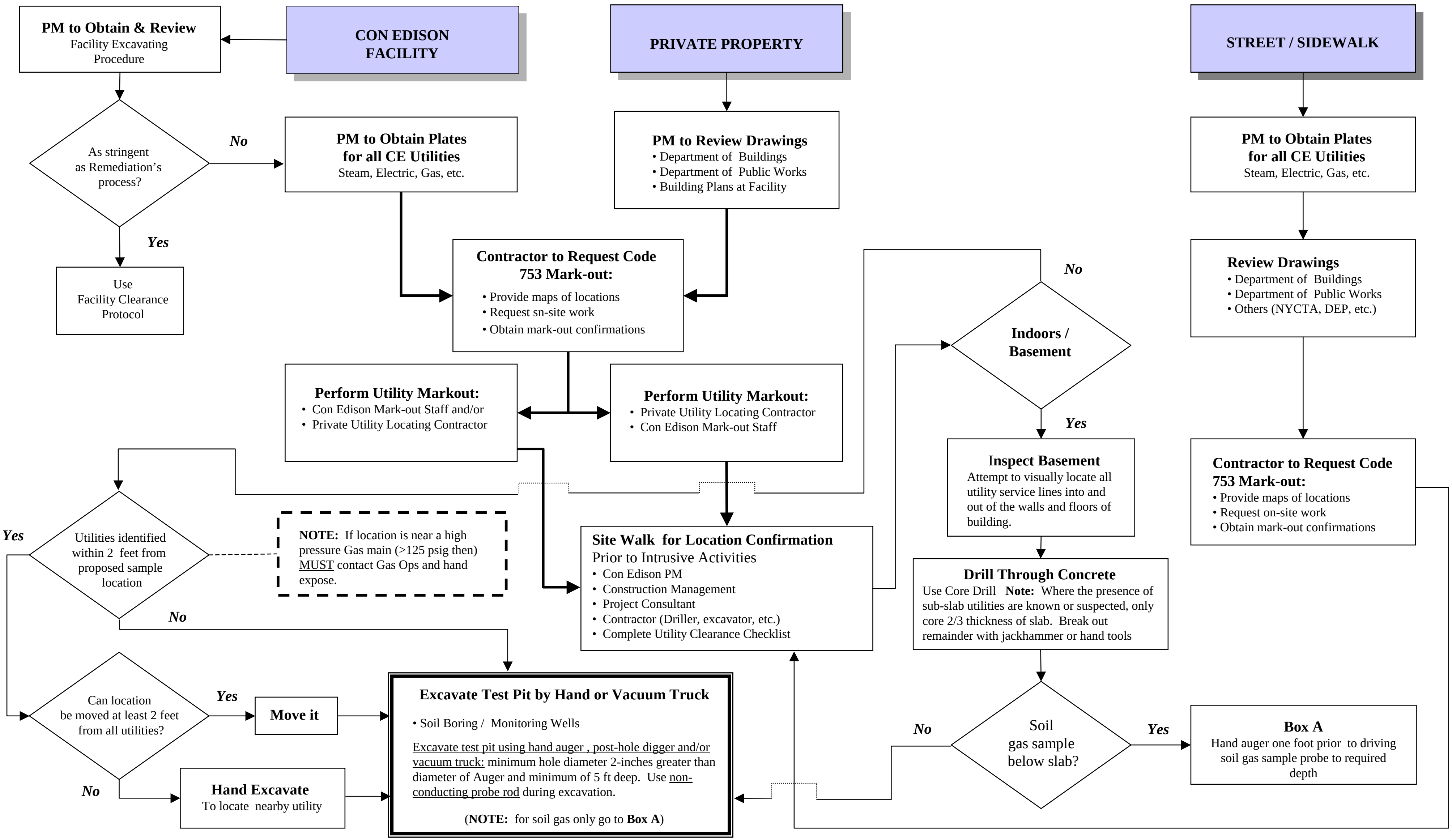
ATTACHMENT A

Utility Clearance Process Flow Chart

Utility Clearance Process During Intrusive Activities
E H & S – Remediation Group

10/08/03

Rev. 1



CON EDISON FACILITY

PM to Obtain & Review
Facility Excavating Procedure

As stringent as Remediation's process?

No

PM to Obtain Plates for all CE Utilities
Steam, Electric, Gas, etc.

Yes

Use Facility Clearance Protocol

PRIVATE PROPERTY

PM to Review Drawings
- Department of Buildings
- Department of Public Works
- Building Plans at Facility

Contractor to Request Code 753 Mark-out:
- Provide maps of locations
- Request sn-site work
- Obtain mark-out confirmations

Perform Utility Markout:
- Con Edison Mark-out Staff and/or
- Private Utility Locating Contractor

Perform Utility Markout:
- Private Utility Locating Contractor
- Con Edison Mark-out Staff

Site Walk for Location Confirmation
Prior to Intrusive Activities
- Con Edison PM
- Construction Management
- Project Consultant
- Contractor (Driller, excavator, etc.)
- Complete Utility Clearance Checklist

Utilities identified within 2 feet from proposed sample location

Yes

No

NOTE: If location is near a high pressure Gas main (>125 psig then) MUST contact Gas Ops and hand expose.

Can location be moved at least 2 feet from all utilities?

Yes

Move it

No

Hand Excavate
To locate nearby utility

Excavate Test Pit by Hand or Vacuum Truck
- Soil Boring / Monitoring Wells

Excavate test pit using hand auger , post-hole digger and/or vacuum truck: minimum hole diameter 2-inches greater than diameter of Auger and minimum of 5 ft deep. Use non-conducting probe rod during excavation.

(**NOTE:** for soil gas only go to **Box A**)

Indoors / Basement

No

Yes

Inspect Basement
Attempt to visually locate all utility service lines into and out of the walls and floors of building.

Drill Through Concrete
Use Core Drill **Note:** Where the presence of sub-slab utilities are known or suspected, only core 2/3 thickness of slab. Break out remainder with jackhammer or hand tools

Soil gas sample below slab?

No

Yes

Box A
Hand auger one foot prior to driving soil gas sample probe to required depth

STREET / SIDEWALK

PM to Obtain Plates for all CE Utilities
Steam, Electric, Gas, etc.

Review Drawings
- Department of Buildings
- Department of Public Works
- Others (NYCTA, DEP, etc.)

Contractor to Request Code 753 Mark-out:
- Provide maps of locations
- Request on-site work
- Obtain mark-out confirmations

ATTACHMENT B

Utility Clearance Process Checklist

CHECKLIST FOR INTRUSIVE FIELDWORK

PROJECT BACKGROUND INFORMATION

Site Name: **Job No.**

Site Address:

Con Edison Project Manager: **Phone:**

Con Edison Site Manager:

Consultant Project Manager: **Phone:**

Consultant Site Manager **Phone:**

Subcontractor (driller, excavation, etc):

Subcontractor's Contact Person: **Phone**

Meeting / Start Date **Time**

HEALTH AND SAFETY PLAN REVIEW

Name: **Organization:** **Date:**

Name: **Organization:** **Date:**

Name: **Organization:** **Date:**

Health and Safety Form Completed: **Date**

Site Drawings (yes/no/NA): **(Attach site figure with proposed boring locations)**

CODE 753 UTILITY MARK-OUT REQUESTED? Y / N

Called by: **Organization:**

Date: **Time** **Initials**

Reference #

Utility Drawings Received: (Attach copy of utility maps)

UTILITY INVENTORY

Above Ground Services:

Utility	Utility Company Name	Depth (ft)	Phone	Date Notified	Notification Method	Marked
Electric		NA				Y / N
Telephone		NA				Y / N
Cable		NA				Y / N
Overhead Supports		NA				Y / N
Traffic light cables		NA				Y / N

Drawings/Plates Obtained (List)

Notes:

CHECKLIST FOR INTRUSIVE FIELDWORK

UTILITY INVENTORY (continued)

Below Ground Services:

Drawings/Plates Obtained (List) ____________________

Utility	**Utility Company Name**	**Depth (ft)**	**Phone**	**Date Notified**	**Notification Method**	**Marked**
Electric						Y / N
Telephone						Y / N
Cable						Y / N
Gas						Y / N
Water						Y / N
UST System						Y / N
Storm						Y / N
Sanitary						Y / N
Steam						Y / N
Pipeline Companies						Y / N
Other (Tunnels, etc.)						Y / N

PRIVATE UTILITY LOCATING SERVICE RETAINED? **Y / N**

Date ______________ **Time** ______________ **Initials** ______________

Name of Locating Service: ____________________

Telephone #/ contact: ____________________

Name of Operator(s)/Type of sensing equipment used ____________________

METAL DETECTOR SURVEY

Drilling location cleared by ________________________ **(Consultant/Contractor) with a metal detecto**

Consultant / Contractor Name ______________ **By (initials):** ______________ **Date:** ______________

INTRUSIVE SAMPLING LOCATIONS MARKED, M-SCOPED AND CLEARED

Locations Marked by: ______________ Date(s): ______________

______________ Date(s): ______________

M-Scope performed by: ______________ Date: ______________

Conduct Site Walk and Complete Site Walk Table

ACKNOWLEDGEMENT

The parties listed on the attached Site Walk Sign-In Sheet have participated in a site walk at ________________________________ to review proposed intrusive sampling locations and to evaluate the presence, configuration and identification of utilities at this site, as marked out. The parties have agreed with the proposed activities that will be completed prior to conducting intrusive work. The utility clearance activities will be completed as summarized in Table A (attached).

ADDITIONAL COMMENTS / NOTES: ____________________

CHECKLIST FOR INTRUSIVE FIELDWORK

Site Walk Sign-In Sheet

Project Name: ______________________________

Date of Site Walk: ______________________________

Name:	Organization:	Phone No.

Utility Clearance
Site Walk Summary Table

Sampling Location	Nearest Utility		Depth	Clearance Required (Y/N)	Accepted Clearance Method	Rationale for Clearance Method	Depth of Clearance	Date Utility Cleared	Findings /Comments
	Distance	Type							

Signature of Site Walk Participants -

Remediation PM: ______________________________

Construction Management: ______________________________

Consultant PM: ______________________________

Contractor: ______________________________

Date Site Walk Conducted:

Vincent J. Soriano, Chief
New York City Department of Environmental Protection
Bureau of Water and Sewer Operations
Central Mapping and Records
59-17 Junction Boulevard, 12th Floor
Corona, New York 11368

UPDATED PROCEDURES FOR REQUESTING INFORMATION

Effective immediately, the guidelines listed below are to be followed when requesting information pertaining to the water and sewer system. Water information pertaining to water main size and location is processed by this office. Sewer information pertaining to requests for drainage plans (used in sewer design work, drainage work, a drainage plan will **not** tell you the location of the sewer), interceptors and schematic Inflow/Infiltration (I/I) maps are processed through this office. **Requests for information pertaining to the locations of sewers, which are derived from as built drawings, sewer house connections, and water house (tap) connections will not be processed by this office. You must contact the specific borough Permitting and Connection office. Also requests for flow tests are not processed in this office.** Requests for information can be mailed to the above address or faxed to (718) 595-5781. **Information is not given nor are requests taken over the telephone.** A taped message of instructions can be heard by dialing (718) 595-5779. Please do not leave requests at the end of this tape, as they will not be processed.

1) All requests must clearly clarify the locations and work that is being done. Specific limits or a clear site plan must be provided. Project limits marked or highlighted on a Hagstrom map, or references to address or block/lot will **not** be processed. Hagstroms are often illegible and our records are not filed by address and block and lot. You **must** submit a separate request for each borough. With the increasing amount of work being processed by the Records Unit a completed request form (a blank is attached) **must be attached to each request and be completely filled out, especially the description of work being done.**

2) All corporate requests **must be submitted on official company or agency letterhead.** Copies of letterhead submitted via fax are acceptable.

3) **All requests must be submitted to this office at least ten days before the work is to be started by your company/agency.** Complexity of a request, DEP emergencies to name two situations can cause a slight backlog and a delay in response time. There is also closer scrutiny in the information that is requested and released. While it is understood each job is important to the individual asking for the information, requests are processed in the order in which they are received. This office will make every attempt to meet your needs, but labeling a request an "emergency" or "need it ASAP" will not help the processing, and it is unfair to the other clients.

4) If you are faxing your request to our office please do not follow up with a hard copy request later on. With the amount of work performed, there have been instances where staff time is used processing the same request twice.

5) If you request to have your records picked up after the research is done rather than have them mailed, please check off the appropriate box on the request form. Our office will hold the package for TWO business days only, and then it will be automatically mailed out. However it is stressed for you to wait for someone from the Records Unit to call and tell you the information package is ready before you come down. This will save you a needless trip if the information is not yet available.

6) **Walk in requests are no longer accepted.**
7) Requests covering large areas can no longer be processed. We ask that you break them down and submit them separately for an area no larger than eight blocks. If you have numerous locations please prioritize them and submit the requests to us in the order for the areas you need first.

Please pass this along to colleagues in your company that might also make requests to this office. I thank you in advance for your cooperation.

Vincent J. Soriano

Vincent J. Soriano, Chief
BW&SO Mapping/Records

REV 7/02

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER AND SEWER OPERATIONS CENTRAL MAPPING AND RECORDS
59-17 JUNCTION BLVD. - 12TH FL. CORONA, N.Y. 11368 FAX: (718)595-5781

REQUEST FOR INFORMATION FORM

NAME ______________________________

FIRM/AGENCY ______________________________

ADDRESS ______________________________

CITY ______________ STATE ______________ ZIP ________

TELEPHONE # ______________ FAX # ______________

BOROUGH (check one)	PURPOSE OF REQUEST FOR WATER RECORDS (WORK BEING DONE)
BRONX ( )	DRILLING/BORING/EXCAVATION ( ) SURVEY ( )
BROOKLYN ( )	DESIGN ( ) PLANNING/ANALYSIS ( ) OTHER ( ) ________
MANHATTAN ( )	PURPOSE OF REQUEST FOR SEWER RECORDS
QUEENS ( )	SEWER DESIGN ( ) Provide latest adopted drainage plan
STATEN ISLAND ( )	unless otherwise noted for the following sewer type
	STORM ( ) SANITARY ( ) COMBINED ( )
	INFLOW/INFILTRATION ANALYSIS ( )
	INTERCEPTOR INFORMATION ( ) OTHER ( ) ________

IF YOU HAVE BEEN RETAINED BY A CITY, STATE OR FEDERAL AGENCY INDICATE NAME BELOW

____

AGENCY CONTRACT NUMBER ______________

PROVIDE A BRIEF DESCRIPTION OF THE PROJECT YOU ARE WORKING ON THAT REQUIRES THE ABOVE INFORMATION. For example, designing a new 10" sanitary sewer, excavation, drilling contract, etc. **NO REQUEST WILL BE PROCESSED WITHOUT AN EXPLANATION.**

____

____

IN HOUSE STAFF ONLY
PROJECT FOLDER ________ DATE LOANED ________ DATE RETURNED ________

LOCATION STREET NAME	FROM	TO

PLEASE CALL TO HAVE INFORMATION PICKED UP IN PERSON ( )
FOR OFFICE USE ONLY
DATE IN ________ DATE OUT ________ ASSIGNED TO ________
RECORDS SENT:

ATTACHMENT C

Instructions for Obtaining Drawings for Sewer and Water Utilities

From the NYC DEP

Steps for obtaining DEP water maps

1) Fill out a "Request for Information Form" for the NYC DEP Bureau of Water and Sewer Operations Central Mapping and Records. Specify the purpose of request and the street names. For faster result, indicate preference for picking up in person.
2) Fax the request form to NYC DEP at (718) 595-5781
3) If pick up requested, you will receive a phone call when the water maps are ready. The package can be picked up at 59-17 Junction Blvd., 12th Floor, Corona, NY 11368.
4) If not picked up after 2 business days, or if pick up was not requested, the package will be mailed to the address provided.

Note: These maps are based on the best information available for the water mains and appurtenances in the streets contiguous to the area specified. Water mains are normally installed at depths ranging from 42" to 48".

Steps for obtaining DEP sewer maps

1) Contact NYC DEP Queens borough office at 120-55 Queens Blvd., Kew Garden, NY 11424 at (718) 286-2600. [Teresa Lin]
2) Arrange an appointment or best time to stop by their office (1st Floor – Room 802). Office hours are Monday to Friday 8:00am – 4:00pm.
3) Prepare a sewer map request memo, using company letter head, justifying the reason for the request and signed by the project manager. Bring company ID card.
4) When arrive at the office, provide them with the request memo, then fill out a slip with applicant information, site location information, and the Index Map # from their hanging map for the specific streets locations.
5) Using the Index Map # or #s to get the index maps for sanitary, storm or combined sewers.
6) Find the streets on the index maps and record the stick numbers and/or file names marked on those streets.
7) Go to the map files room in the back of the office.
8) Look for the respective draws that hold each respective stick numbers. The maps are rolled tightly onto a specific numbered stick. Always look for the "Final Map". Photocopies can be made using their copying machine.
9) Roll the Map back tightly onto the respective stick and place it back to the correct drawer.
10) For the file names, look into the large drawers in the middle of the room. They should be in alphabetical order. Also, place the file back after use to the respective drawer.

Table 1 - Summary Table of Resources for Obtaining Subsurface Utility Plates and Drawings

Utility Type	County	Company	Organization	Name	Telephone Number
Electric	All	Con Edison	Electric Engineering	http://maps/AdvancedMappingSystem.htm(1)	
			For Questions contact:	John Ensemplare (Mgr. – B&Q)	(718) 802-5540
				Mike Mitchell (Mgr. – Manhattan)	(212) 460-1119
				Richard Mariani (Mgr. – Westchester)	(914) 925-6026
Gas	All	Con Edison	Gas Engineering	http://maps/steam.htm(1)	--
			For Questions contact:	Mike Verlizzo (Mgr.)	(718) 319-2357
Steam	All	Con Edison	Steam Engineering	http://maps/steam.htm(1)	--
			For Questions contact:	Tony Barbera	(212) 460-4843
Sewer /Water	NYC	NYC DEP /	Bureau of Water and Sewer Operations	Vincent Soriano/ Doug Greely	(718) 595-5330
Tunnels	Subway Crossing the East River	MTA	Outside Projects – Adjacent Work	Vasanth Battu/ Rajen Ydeshi / [If drilling in immediate vicinity of MTA structure, e.g., subway tunnel, car tunnel, etc., you will need submit a letter and plan drawing(s) to Mr. Ydeshi]	(646) 252-4473 (646) 252-3641
	Crossing the Hudson River	Port Authority of NY/NJ	Surveying	Richard Danko (rdanko@panynj.gov) Bill Kane (wkane@panynj.gov)	(201) 595-4841 (201) 595-4842

(1) “Maps” website listed is accessible on the Con Edison Intranet.

APPENDIX C

Safety Data Sheets

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

Benzene
BEN2200

Section 1 - Chemical Product and Company Identification 61

Material Name: Benzene **CAS Number:** 71-43-2
Chemical Formula: C_6H_6
Structural Chemical Formula: C_6H_6
EINECS Number: 200-753-7
ACX Number: X1001488-9
Synonyms: Benzene; BENZENE; (6)ANNULENE; BENZEEN; BENZEN; BENZIN; BENZINE; BENZOL; BENZOL 90; BENZOLE; BENZOLENE; BENZOLO; BICARBURET OF HYDROGEN; CARBON OIL; COAL NAPHTHA; CYCLOHEXATRIENE; EPA PESTICIDE CHEMICAL CODE 008801; FENZEN; MINERAL NAPHTHA; MOTOR BENZOL; NITRATION BENZENE; PHENE; PHENYL HYDRIDE; POLYSTREAM; PYROBENZOL; PYROBENZOLE
General Use: Manufacture of chemicals including styrene, dyes, and many other organic chemicals. Has been used in artificial leather, linoleum, oil cloth, airplane dopes, lacquers; as solvent for waxes, resins, oils etc.
May also be a minor component of gasoline, petrol.
Exposure should be minimized by use in closed systems.
Handling procedures and control measures should be evaluated for exposure before commencement of use in plant operations.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
benzene	71-43-2	99.9

OSHA PEL
TWA: 1 ppm; STEL: 5 ppm.

NIOSH REL
TWA: 0.1 ppm; STEL: 1 ppm.

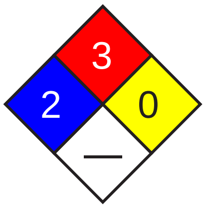
DFG (Germany) MAK
Skin.

ACGIH TLV
TWA: 0.5 ppm; STEL: 2.5 ppm; skin.

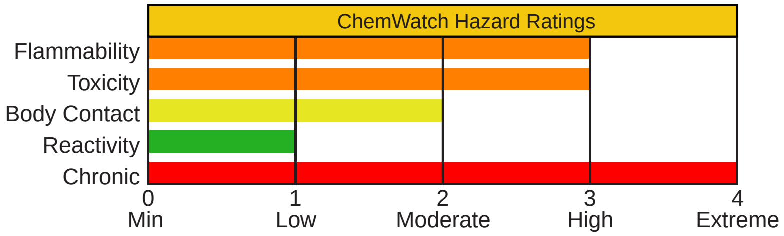
IDLH Level
500 ppm.

EU OEL
TWA: 1 ppm.

Section 3 - Hazards Identification



Fire Diamond



HMIS
③ Health
③ Flammability
⓪ Reactivity

ANSI Signal Word
Danger!

Flammable

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless liquid; sweet odor. Irritating to eyes/skin/respiratory tract. Toxic. Other Acute Effects: headache, dizziness, drowsiness. Absorbed through skin. Chronic Effects: dermatitis, leukemia, bone marrow damage. Carcinogen. Reproductive effects. Flammable.

Potential Health Effects

Target Organs: blood, central nervous system (CNS), bone marrow, eyes, upper respiratory system, skin
Primary Entry Routes: inhalation, skin contact
Acute Effects
Inhalation: The vapor is discomforting to the upper respiratory tract and lungs and may be harmful if inhaled.

If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Acute effects from inhalation of high concentrations of vapor are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache and dizziness, increased reaction time, fatigue and loss of coordination.

Inhalation hazard is increased at higher temperatures.

The symptoms of acute exposure to high vapor concentrations include confusion, dizziness, tightening of the leg muscles and pressure over the forehead followed by a period of excitement. If exposure continues the casualty quickly becomes stupefied and lapses into a coma with narcosis.

Effects of inhalation may include nausea, vomiting headache, dizziness, drowsiness, weakness, sometimes preceded by brief periods of exhilaration, or euphoria, irritability, malaise, confusion, ataxia, staggering, weak and rapid pulse, chest pain and tightness with breathlessness, pallor, cyanosis of the lips and fingertips and tinnitus. Severe exposures may produce blurred vision, shallow, rapid breathing, delirium, cardiac arrhythmias, unconsciousness, deep anesthesia, paralysis and coma characterized by motor restlessness, tremors and hyperreflexia (occasionally preceded by convulsions). Polyneuritis and persistent nausea, anorexia, muscular weakness, headache, drowsiness, insomnia and agitation may also occur. Two-three weeks after the exposure, nervous irritability, breathlessness and unsteady gait may still persist; cardiac distress and an unusual dicoloration of the skin may be evident for up to four weeks.

Hemotoxicity is not normally a feature of acute exposures although anemia, thrombocytopenia, petechial hemorrhage, and spontaneous internal bleeding have been reported. Fatal exposures may result from asphyxia, central nervous system depression, cardiac and respiratory failure and circulatory collapse; sudden ventricular fibrillation may also be fatal.

Death may be sudden or may be delayed for 24 hours. Central nervous system, respiratory or hemorrhagic complications may occur up to five days after the exposure and may be lethal; pathological findings include respiratory inflammation with edema, and lung hemorrhage, renal congestion, cerebral edema and extensive petechial hemorrhage in the brain, pleurae, pericardium, urinary tract, mucous membrane and skin.

Exposure to toxic levels has also produced chromosome damage.

Eye: The liquid is highly discomforting to the eyes, may be harmful following absorption and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.

The vapor is moderately discomforting to the eyes.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Skin: The liquid may produce skin discomfort following prolonged contact.

Defatting and/or drying of the skin may lead to dermatitis. Open cuts, abraded or irritated skin should not be exposed to this material.

Toxic effects may result from skin absorption.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterized by skin redness (erythema) and swelling (edema) which may progress to vesiculation, scaling and thickening of the epidermis. Histologically there may be intercellular edema of the spongy layer (spongiosis) and intracellular edema of the epidermis.

Ingestion: The liquid is discomforting to the gastrointestinal tract and may be harmful if swallowed.

Ingestion may result in nausea, pain, vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Carcinogenicity: NTP - Class 1, Known to be a carcinogen; IARC - Group 1, Carcinogenic to humans; OSHA - Listed as a carcinogen; NIOSH - Listed as carcinogen; ACGIH - Class A2, Suspected human carcinogen; EPA - Class A, Human carcinogen; MAK - Class A1, Capable of inducing malignant tumors as shown by experience with humans.

Chronic Effects: Liquid is an irritant and may cause burning and blistering of skin on prolonged exposure.

Chronic exposure may cause headache, fatigue, loss of appetite and lassitude with incipient blood effects including anemia and blood changes.

Benzene is a myelotoxicant known to suppress bone-marrow cell proliferation and to induce hematologic disorders in humans and animals.

Signs of benzene-induced aplastic anemia include suppression off leukocytes (leukopenia), red cells (anemia), platelets (thromocytopenia) or all three cell types (pancytopenia). Classic symptoms include weakness, purpura, and hemorrhage. The most significant toxic effect is insidious and often irreversible injury to the blood forming tissue.

Leukemia may develop.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air.

Lay patient down. Keep warm and rested.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor.

Eye Contact: Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

See DOT ERG

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).
Wash affected areas thoroughly with water (and soap if available).
Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center.
Do NOT induce vomiting. Give a glass of water.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: For acute or short-term repeated exposures to petroleum distillates or related hydrocarbons:

1.Primary threat to life from pure petroleum distillate ingestion and/or inhalation is respiratory failure.

2.Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO_2 <50 mm Hg or pCO_2 >50 mm Hg) should be intubated.

3.Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.

4.A chest x-ray should be taken immediately after stabilization of breathing and circulation to document aspiration and detect the presence of pneumothorax.

5.Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitization to catecholamines.
Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

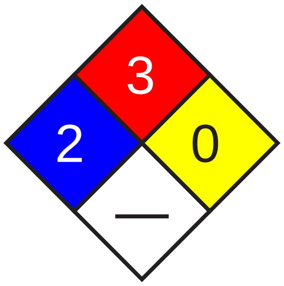
6.Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients.
Consider complete blood count. Evaluate history of exposure.

Section 5 - Fire-Fighting Measures

Flash Point: -11 °C Closed Cup
Autoignition Temperature: 562 °C
LEL: 1.3% v/v
UEL: 7.1% v/v

Extinguishing Media: Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide.
Water spray or fog - Large fires only.

See DOT ERG



Fire Diamond

General Fire Hazards/Hazardous Combustion Products: Liquid and vapor are highly flammable.
Severe fire hazard when exposed to heat, flame and/or oxidizers.
Vapor forms an explosive mixture with air.
Severe explosion hazard, in the form of vapor, when exposed to flame or spark. Vapor may travel a considerable distance to source of ignition.
Heating may cause expansion/decomposition with violent rupture of containers.
On combustion, may emit toxic fumes of carbon monoxide (CO).

Fire Incompatibility: Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or waterways. Consider evacuation.
Fight fire from a safe distance, with adequate cover.
If safe, switch off electrical equipment until vapor fire hazard removed.
Use water delivered as a fine spray to control fire and cool adjacent area.
Avoid spraying water onto liquid pools.
Do not approach containers suspected to be hot.
Cool fire-exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.
Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

Small Spills: Remove all ignition sources. Clean up all spills immediately.
Avoid breathing vapors and contact with skin and eyes.
Control personal contact by using protective equipment.
Contain and absorb small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.

See DOT ERG

Large Spills: Pollutant - contain spillage. Clear area of personnel and move upwind.
Contact fire department and tell them location and nature of hazard.

May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways. Consider evacuation.
No smoking, bare lights or ignition sources. Increase ventilation.
Stop leak if safe to do so. Water spray or fog may be used to disperse/absorb vapor. Contain spill with sand, earth or vermiculite.
Use only spark-free shovels and explosion proof equipment.
Collect recoverable product into labeled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect solid residues and seal in labeled drums for disposal.
Wash area and prevent runoff into drains.
If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area. Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, bare lights, heat or ignition sources.
When handling, DO NOT eat, drink or smoke.
Vapor may ignite on pumping or pouring due to static electricity.
DO NOT use plastic buckets. Ground and secure metal containers when dispensing or pouring product. Use spark-free tools when handling.
Avoid contact with incompatible materials.
Keep containers securely sealed. Avoid physical damage to containers.
Always wash hands with soap and water after handling.
Work clothes should be laundered separately.
Use good occupational work practices. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Recommended Storage Methods: Metal can; metal drum. Packing as recommended by manufacturer.
Check all containers are clearly labeled and free from leaks.

Storage Requirements: Store in original containers in approved flame-proof area.
No smoking, bare lights, heat or ignition sources.
DO NOT store in pits, depressions, basements or areas where vapors may be trapped. Keep containers securely sealed.
Store away from incompatible materials in a cool, dry well ventilated area.
Protect containers against physical damage and check regularly for leaks.
Observe manufacturer's storing and handling recommendations.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use in a well-ventilated area. Local exhaust ventilation usually required.
If risk of overexposure exists, wear NIOSH-approved respirator.
Correct fit is essential to obtain adequate protection. NIOSH-approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area.

Personal Protective Clothing/Equipment:

Eyes: Chemical goggles. Full face shield.
Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Nitrile gloves; Neoprene gloves.
Safety footwear.
Do NOT use this product to clean the skin.

Respiratory Protection:
Exposure Range >1 to 10 ppm: Air Purifying, Negative Pressure, Half Mask
Exposure Range >10 to 100 ppm: Air Purifying, Negative Pressure, Full Face
Exposure Range >100 to 1000 ppm: Supplied Air, Constant Flow/Pressure Demand, Full Face
Exposure Range >1000 to unlimited ppm: Self-contained Breathing Apparatus, Pressure Demand, Full Face
Cartridge Color: black
Note: must change cartridge at beginning of each shift

Other: Overalls. Eyewash unit. Barrier cream. Skin cleansing cream.

Glove Selection Index:

PE/EVAL/PE	Best selection
PVA	Best selection
TEFLON	Best selection

VITON	Best selection
VITON/NEOPRENE	Best selection
NITRILE+PVC	Poor to dangerous choice for other than short-term immersion
BUTYL	Poor to dangerous choice for other than short-term immersion
NITRILE	Poor to dangerous choice for other than short-term immersion
NEOPRENE	Poor to dangerous choice for other than short-term immersion
PVC	Poor to dangerous choice for other than short-term immersion
NATURAL RUBBER	Poor to dangerous choice for other than short-term immersion
BUTYL/NEOPRENE	Poor to dangerous choice for other than short-term immersion

Section 9 - Physical and Chemical Properties

Appearance/General Info: Clear, highly flammable liquid; floats on water. Characteristic aromatic odor. Highly volatile. Mixes with alcohol, chloroform, ether, carbon disulfide, carbon tetrachloride, glacial acetic acid, acetone and oils.

Physical State: Liquid
Odor Threshold: 4.68 ppm
Vapor Pressure (kPa): 9.95 at 20 °C
Vapor Density (Air=1): 2.77
Formula Weight: 78.12
Specific Gravity (H_2O=1, at 4 °C): 0.879 at 20 °C
Evaporation Rate: Fast

pH: Not applicable
pH (1% Solution): Not applicable.
Boiling Point: 80.1 °C (176 °F)
Freezing/Melting Point: 5.5 °C (41.9 °F)
Volatile Component (% Vol): 100
Water Solubility: 0.18 g/100 g of water at 25 °C

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid reaction with oxidizing agents.

Section 11 - Toxicological Information

Toxicity
Oral (man) LD_{Lo}: 50 mg/kg
Oral (rat) LD_{50}: 930 mg/kg
Inhalation (rat) LC_{50}: 10000 ppm/7h
Inhalation (human) LC_{Lo}: 2000 ppm/5m
Inhalation (man) TC_{Lo}: 150 ppm/1y - I
Inhalation (human) TC_{Lo}: 100 ppm
Reproductive effector in rats

Irritation
Skin (rabbit): 20 mg/24 hr - mod
Eye (rabbit): 2 mg/24 hr - SEVERE

See *RTECS* CY 1400000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to soil, it will be subject to rapid volatilization near the surface and that which does not evaporate will be highly to very highly mobile in the soil and may leach to groundwater. It may be subject to biodegradation based on reported biodegradation of 24% and 47% of the initial 20 ppm in a base-rich para-brownish soil in 1 and 10 weeks, respectively. It may be subject to biodegradation in shallow, aerobic groundwaters, but probably not under anaerobic conditions. If released to water, it will be subject to rapid volatilization; the half-life for evaporation in a wind-wave tank with a moderate wind speed of 7.09 m/sec was 5.23 hours; the estimated half-life for volatilization from a model river one meter deep flowing 1 m/sec with a wind velocity of 3 m/sec is estimated to be 2.7 hours at 20 °C. It will not be expected to significantly adsorb to sediment, bioconcentrate in aquatic organisms or hydrolyze. It may be subject to biodegradation based on a reported biodegradation half-life of 16 days in an aerobic river die-away test. In a marine ecosystem biodegradation occurred in 2 days after an acclimation period of 2 days and 2 weeks in the summer and spring, respectively, whereas no degradation occurred in winter. According to one experiment, it has a half-life of 17 days due to photodegradation which could contribute to removal in situations of cold water, poor nutrients, or other conditions less conductive to microbial degradation. If released to the atmosphere, it will exist predominantly in the vapor phase. Gas-phase will not be subject to direct photolysis but it will react with photochemically produced hydroxyl radicals with a half-life of 13.4 days calculated using an experimental rate constant for the reaction. The reaction time in polluted atmospheres which contain nitrogen oxides or sulfur dioxide is accelerated with the half-life being reported as 4-6 hours. Products of photooxidation include phenol, nitrophenols, nitrobenzene, formic acid, and peroxyacetyl nitrate. It is fairly soluble in water and is removed from the atmosphere in rain.

Ecotoxicity: LC$_{50}$ Clawed toad (3-4 wk after hatching) 190 mg/l/48 hr /Conditions of bioassay not specified; LC$_{50}$ Morone saxatilis (bass) 5.8 to 10.9 ppm/96 hr /Conditions of bioassay not specified; LC$_{50}$ Poecilia reticulata (guppy) 63 ppm/14 days /Conditions of bioassay not specified; LC$_{50}$ Salmo trutta (brown trout yearlings) 12 mg/l/1 hr (static bioassay); LD$_{50}$ Lepomis macrochirus (bluegill sunfish) 20 mg/l/24 to 48 hr /Conditions of bioassay not specified; LC$_{100}$ Tetrahymena pyriformis (ciliate) 12.8 mmole/l/24 hr /Conditions of bioassay not specified; LC$_{50}$ Cancer magister (crab larvae) stage 1, 108 ppm/96 hr /Conditions of bioassay not specified; LC$_{50}$ Crangon franciscorum (shrimp) 20 ppm/96 hr /Conditions of bioassay not specified

Henry's Law Constant: 5.3 x10^{-3}

BCF: eels 3.5

Biochemical Oxygen Demand (BOD): 1.2 lb/lb, 10 days

Octanol/Water Partition Coefficient: log K_{ow} = 2.13

Soil Sorption Partition Coefficient: K_{oc} = woodburn silt loam 31 to 143

Section 13 - Disposal Considerations

Disposal: Consult manufacturer for recycling options and recycle where possible.
Follow applicable federal, state, and local regulations.
Incinerate residue at an approved site.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Benzene
ID: UN1114
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: II - Medium Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: IB2, T4, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 202 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 L **Cargo aircraft only:** 60 L
Vessel Stowage: **Location:** B **Other:** 40

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Listed U019 Toxic Waste, Ignitable Waste
- **CERCLA 40 CFR 302.4:** Listed per CWA Section 311(b)(4), per RCRA Section 3001, per CWA Section 307(a), per CAA Section 112 10 lb (4.535 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
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Issue Date: 2006-06

Ethylbenzene
ETH3050

Section 1 - Chemical Product and Company Identification 61

Material Name: Ethylbenzene **CAS Number:** 100-41-4
Chemical Formula: C_8H_{10}
Structural Chemical Formula: $C_6H_5{\bullet}C_2H_5$
EINECS Number: 202-849-4
ACX Number: X1003016-1
Synonyms: AETHYLBENZOL; BENZENE,ETHYL-; EB; ETHYL BENZENE; ETHYLBENZEEN; ETHYLBENZENE; ETHYLBENZOL; ETILBENZENE; ETYLOBENZEN; PHENYLETHANE
General Use: Used in the manufacture of cellulose acetate, styrene and synthetic rubber; solvent or diluent; component of automotive and aviation gasoline.
Component of many petroleum hydrocarbon solvents, thinners.
The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
ethylbenzene	100-41-4	>95

OSHA PEL
TWA: 100 ppm; 435 mg/m^3.

ACGIH TLV
TWA: 100 ppm; STEL: 125 ppm.

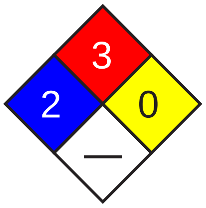
EU OEL
TWA: 100 ppm; STEL: 200 ppm.

NIOSH REL
TWA: 100 ppm (435 mg/m^3);
STEL: 125 ppm (545 mg/m^3).

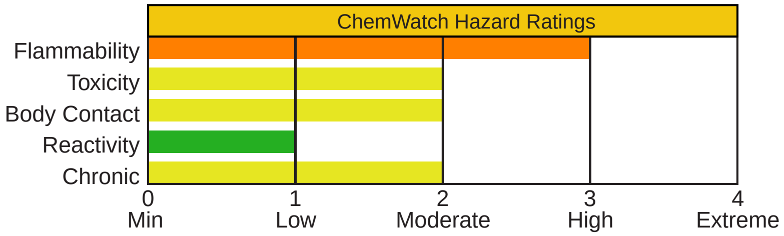
IDLH Level
800 ppm (10% LEL).

DFG (Germany) MAK
Skin.

Section 3 - Hazards Identification



Fire Diamond



HMIS
2 Health
3 Flammability
0 Reactivity

ANSI Signal Word

Warning!

Flammable

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless liquid; pungent odor. Irritating to eyes/skin/respiratory tract. Other Acute Effects: chest constriction, vertigo, narcosis, cramps, respiratory paralysis. Chronic Effects: fatigue, sleepiness, headache, blood disorders, lymphocytosis. Flammable.

Potential Health Effects

Target Organs: eyes, respiratory system, skin, central nervous system (CNS), blood
Primary Entry Routes: inhalation, skin contact, eye contact
Acute Effects
Inhalation: The vapor is discomforting to the upper respiratory tract.
Inhalation hazard is increased at higher temperatures.
Acute effects from inhalation of high concentrations of vapor are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache and dizziness, increased reaction time, fatigue and loss of coordination.

If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Inhalation of vapor may aggravate a pre-existing respiratory condition such as asthma, bronchitis, emphysema.

When humans were exposed to the 100 and 200 ppm for 8 hours about 45-65% is retained in the body. Only traces of unchanged ethyl benzene are excreted in expired air following termination of inhalation exposure.

Humans exposed to concentrations of 23-85 ppm excreted most of the retained dose in the urine (mainly as metabolites).

Guinea pigs that died from exposure had intense congestion of the lungs and generalized visceral hyperemia. Rats exposed for three days at 8700 mg/m^3 (2000 ppm) showed changes in the levels of dopamine and noradrenaline in various parts of the brain.

Eye: The liquid is highly discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.

The vapor is discomforting to the eyes.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Two drops of the material in to the conjunctival sac produced only slight irritation of the conjunctival membrane but no corneal injury.

Skin: The liquid is discomforting to the skin if exposure is prolonged and is capable of causing skin reactions which may lead to dermatitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterized by skin redness (erythema) and swelling (edema) which may progress to vesiculation, scaling and thickening of the epidermis. Histologically there may be intercellular edema of the spongy layer (spongiosis) and intracellular edema of the epidermis.

The mean rate of absorption of liquid ethyl benzene applied to 17.3 cm2 area of the forearm of seven volunteers for 10-15 minutes was determined to be 38 mg/cm2/hr. Immersion of the whole hand in aqueous solutions of ethyl benzene (112-156 mg/l) for 1 hour yielded mean absorption rates of 118 and 215.7 ug/cm2/hr. The rate of absorption is thus greater than that of aniline, benzene, nitrobenzene, carbon disulfide and styrene.

Repeated application of the undiluted product to the abdominal area of rabbits (10-20 applications over 2-4 weeks) resulted in erythema, edema and superficial necrosis. The material did not appear to be absorbed through the skin in sufficient quantity to produce outward signs of toxicity.

Ingestion: Considered an unlikely route of entry in commercial/industrial environments.

The liquid may produce considerable gastrointestinal discomfort and may be harmful or toxic if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Carcinogenicity: NTP - Not listed; IARC - Not listed; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Chronic Effects: Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes.

Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following.

Industrial workers exposed to a maximum level of ethyl benzene of 0.06 mg/l (14 ppm) reported headaches and irritability and tired quickly. Functional nervous system disturbances were found in some workers employed for over 7 years whilst other workers had enlarged livers.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air.

Lay patient down. Keep warm and rested.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor.

See
DOT
ERG

Eye Contact: Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

Ingestion: Rinse mouth out with plenty of water. DO NOT induce vomiting.

Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

Give water (or milk) to rinse out mouth. Then provide liquid slowly and as much as casualty can comfortably drink.

Transport to hospital or doctor without delay.

After first aid, get appropriate in-plant, paramedic, or community medical support.

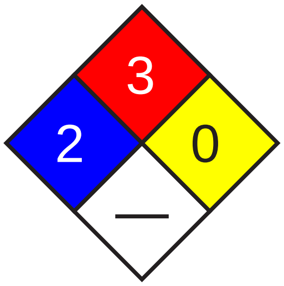
Note to Physicians: For acute or short-term repeated exposures to petroleum distillates or related hydrocarbons:

1. Primary threat to life from pure petroleum distillate ingestion and/or inhalation is respiratory failure.
2.Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO_2 <50 mm Hg or pCO_2 >50 mm Hg) should be intubated.
3.Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance
4.A chest x-ray should be taken immediately after stabilization of breathing and circulation to document aspiration and detect the presence of pneumothorax.
5.Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitization to catecholamines.
Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
6.Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients.

Section 5 - Fire-Fighting Measures

Flash Point: 12.8 °C Closed Cup
Autoignition Temperature: 432 °C
LEL: 1.6% v/v
UEL: 7% v/v
Extinguishing Media: Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide.
Water spray or fog - Large fires only.

See DOT ERG



Fire Diamond

General Fire Hazards/Hazardous Combustion Products: Liquid and vapor are flammable.
Moderate fire hazard when exposed to heat or flame.
Vapor forms an explosive mixture with air.
Moderate explosion hazard when exposed to heat or flame.
Vapor may travel a considerable distance to source of ignition.
Heating may cause expansion or decomposition leading to violent rupture of containers.
On combustion, may emit toxic fumes of carbon monoxide (CO).
May emit clouds of acrid smoke.
Fire Incompatibility: Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.
Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
If safe, switch off electrical equipment until vapor fire hazard removed.
Use water delivered as a fine spray to control fire and cool adjacent area.
Avoid spraying water onto liquid pools.
Do not approach containers suspected to be hot.
Cool fire-exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.

Section 6 - Accidental Release Measures

See DOT ERG

Small Spills: Remove all ignition sources. Clean up all spills immediately.
Avoid breathing vapors and contact with skin and eyes.
Control personal contact by using protective equipment.
Contain and absorb small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.
Large Spills: Clear area of personnel and move upwind.
Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
No smoking, bare lights or ignition sources. Increase ventilation.
Stop leak if safe to do so. Water spray or fog may be used to disperse/absorb vapor. Contain spill with sand, earth or vermiculite.
Use only spark-free shovels and explosion proof equipment.
Collect recoverable product into labeled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect solid residues and seal in labeled drums for disposal.
Wash area and prevent runoff into drains.
If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid generating and breathing mist. Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area. Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, bare lights, heat or ignition sources.
When handling, DO NOT eat, drink or smoke.
Vapor may ignite on pumping or pouring due to static electricity.
DO NOT use plastic buckets. Ground and secure metal containers when dispensing or pouring product. Use spark-free tools when handling.
Avoid contact with incompatible materials.
Keep containers securely sealed. Avoid physical damage to containers.
Always wash hands with soap and water after handling.
Work clothes should be laundered separately.
Use good occupational work practices. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Recommended Storage Methods: Metal can; metal drum. Packing as recommended by manufacturer.
Check all containers are clearly labeled and free from leaks.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build-up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear. Use in a well-ventilated area.
General exhaust is adequate under normal operating conditions.
If risk of overexposure exists, wear NIOSH-approved respirator.
Correct fit is essential to obtain adequate protection.
Provide adequate ventilation in warehouse or closed storage areas.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields; or as required, chemical goggles.
Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Barrier cream with polyethylene gloves or Nitrile gloves.
Protective footwear.

Respiratory Protection:
Exposure Range >100 to <800 ppm: Air Purifying, Negative Pressure, Half Mask
Exposure Range 800 to unlimited ppm: Self-contained Breathing Apparatus, Pressure Demand, Full Face
Cartridge Color: black

Other: Overalls. Eyewash unit.

Glove Selection Index:
VITON .... Best selection
TEFLON .... Best selection

Section 9 - Physical and Chemical Properties

Appearance/General Info: Clear highly flammable liquid; floats on water. Aromatic solvent odor. Soluble in alcohol, benzene, carbon tetrachloride and ether.

Physical State: Liquid
Odor Threshold: 8.7 to 870.0 mg/m^3
Vapor Pressure (kPa): 1.333 at 25.9 °C
Vapor Density (Air=1): 3.66
Formula Weight: 106.17
Specific Gravity (H_2O=1, at 4 °C): 0.8670 at 20 °C
Evaporation Rate: Fast

pH: Not applicable
pH (1% Solution): Not applicable.
Boiling Point: 136.2 °C (277 °F) at 760 mm Hg
Freezing/Melting Point: -95 °C (-139 °F)
Volatile Component (% Vol): 100
Water Solubility: 0.01% by weight

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid storage with oxidizers.

Section 11 - Toxicological Information

Toxicity

Oral (rat) LD_{50}: 3500 mg/kg
Inhalation (human) TC_{Lo}: 100 ppm/8h
Inhalation (rat) LC_{Lo}: 4000 ppm/4h
Intraperitoneal (mouse) LD_{50}: 2642 mg/kg~
Dermal (rabbit) LD_{50}: 17800 mg/kg~
Liver changes, utheral tract, effects on fertility, specific developmental abnormalities (musculoskeletal system) recorded.
NOTE: Substance has been shown to be mutagenic in various assays, or belongs to a family of chemicals producing damage or change to cellular DNA.

Irritation

Skin (rabbit): 15 mg/24h mild
Eye (rabbit): 500 mg - SEVERE

See *RTECS* DA 0700000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to the atmosphere, it exist predominantly in the vapor phase based on its vapor pressure where it will photochemically degrade by reaction with hydroxyl radicals (half-life 0.5 to 2 days) and partially return to earth in rain. It will not be subject to direct photolysis. Releases into water will decrease in concentration by evaporation and biodegradation. The time for this decrease and the primary loss processes will depend on the season, and the turbulence and microbial populations in the particular body of water. Representative half-lives are several days to 2 weeks. Some may be adsorbed by sediment but significant bioconcentration in fish is not expected to occur based upon its octanol/water partition coefficient. It is only adsorbed moderately by soil. It will not significantly hydrolyze in water or soil.

Ecotoxicity: LC_{50} Cyprinodon variegatus (sheepshead minnow) 275 mg/l 96 hr in a static unmeasured bioassay; LC_{50} Pimephales promelas (fathead minnow) 12.1 mg/l/96 hr (confidence limit 11.5 - 12.7 mg/l), flow-through bioassay with measured concentrations, 26.1 °C, dissolved oxygen 7.0 mg/l, hardness 45.6 mg/l calcium carbonate, alkalinity 43.0 mg/l; Toxicity threshold (cell multiplication inhibition test): Pseudomonas putida (bacteria) 12 mg/l ; LC_{50} Palaemonetes pugio (grass shrimp, adult) 14,400 ug/l/24 hr in a static unmeasured bioassay; LC_{50} Palaemonetes pugio (grass shrimp, larva) 10,200 ug/l/24 hr in a static unmeasured bioassay; Toxicity threshold (cell multiplication inhibition test): Microcystis aeruginosa (algae) 33 mg/l; Scenedesmus quadricauda (green algae) > 160 mg/l

Henry's Law Constant: 8.44×10^{-3}

BCF: goldfish 1.9

Biochemical Oxygen Demand (BOD): theoretical 2.8%, 5 days

Octanol/Water Partition Coefficient: $\log K_{ow} = 3.15$

Soil Sorption Partition Coefficient: $K_{oc} = 164$

Section 13 - Disposal Considerations

Disposal: Consult manufacturer for recycling options and recycle where possible.
Follow applicable federal, state, and local regulations.
Incinerate residue at an approved site.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Ethylbenzene
ID: UN1175
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: II - Medium Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: IB2, T4, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 202 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 L **Cargo aircraft only:** 60 L
Vessel Stowage: **Location:** B **Other:**

Section 15 - Regulatory Information

EPA Regulations:

RCRA 40 CFR: Not listed
CERCLA 40 CFR 302.4: Listed per CWA Section 311(b)(4), per CWA Section 307(a) 1000 lb (453.5 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
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Issue Date: 2006-06

Toluene
TOL2320

Section 1 - Chemical Product and Company Identification

Material Name: Toluene **CAS Number:** 108-88-3
Chemical Formula: C_7H_8
Structural Chemical Formula: $C_6H_5CH_3$
EINECS Number: 203-625-9
ACX Number: X1001512-0
Synonyms: ANTISAL 1A; BENZENE,METHYL-; CP 25; METHACIDE; METHANE,PHENYL-; METHYL BENZENE; METHYL BENZOL; METHYLBENZENE; METHYLBENZOL; PHENYL METHANE; PHENYLMETHANE; TOLUEEN; TOLUEN; TOLUENE; TOLUENO; TOLUOL; TOLUOLO; TOLU-SOL
General Use: Used as a solvent for paint, resins, lacquers inks & adhesives. Component of solvent blends and thinners; in gasoline and aviation fuel. Used in the manufacture of chemicals, dyes, explosives, benzoic acid.
Some grades of toluene may contain traces of xylene and benzene.
Odor threshold: 2 ppm approx. Odor is not a reliable warning property due to olfactory fatigue.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
toluene	108-88-3	> 99.5

OSHA PEL
TWA: 200 ppm; Ceiling: 300 ppm; 500 ppm, 10-minute maximum peak.

ACGIH TLV
TWA: 50 ppm; skin.

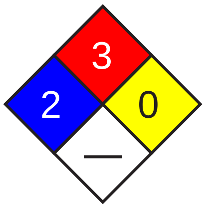
EU OEL
TWA: 192 mg/m^3 (50 ppm); STEL: 384 mg/m^3 (100 ppm).

NIOSH REL
TWA: 100 ppm (375 mg/m^3); STEL: 150 ppm (560 mg/m^3).

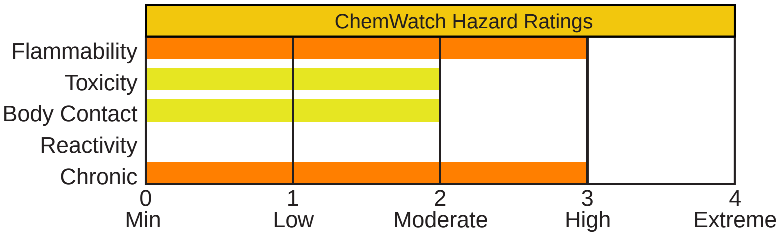
IDLH Level
500 ppm.

DFG (Germany) MAK
TWA: 50 ppm; PEAK: 200 ppm; skin.

Section 3 - Hazards Identification



Fire Diamond



HMIS	
2	Health
3	Flammability
0	Reactivity

ANSI Signal Word
Danger!

Flammable

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless liquid; sickly, sweet odor. Irritating to eyes/skin/respiratory tract. Other Acute Effects: weakness, headache, dizziness, confusion, insomnia. Chronic Effects: liver/kidney damage, may cause birth defects. Flammable.

Potential Health Effects

Target Organs: Skin, liver, kidneys, central nervous system.
Primary Entry Routes: Inhalation, skin contact/absorbtion.
Acute Effects
Inhalation: The vapor is highly discomforting to the upper respiratory tract.
Inhalation hazard is increased at higher temperatures.

Acute effects from inhalation of high concentrations of vapor are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache and dizziness, increased reaction time, fatigue and loss of coordination.

If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.

Eye: The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis.

Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated.

The vapor is discomforting to the eyes if exposure is prolonged.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Skin: The liquid may produce skin discomfort following prolonged contact.

Defatting and/or drying of the skin may lead to dermatitis and it is absorbed by skin.

Toxic effects may result from skin absorption.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterized by skin redness (erythema) and swelling (edema) which may progress to vesiculation, scaling and thickening of the epidermis. Histologically there may be intercellular edema of the spongy layer (spongiosis) and intracellular edema of the epidermis.

Ingestion: Considered an unlikely route of entry in commercial/industrial environments.

The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Class A4, Not classifiable as a human carcinogen; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Chronic Effects: Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes.

Chronic toluene habituation occurs following intentional abuse (glue-sniffing) or from occupational exposure. Ataxia, incoordination and tremors of the hands and feet (as a consequence of diffuse cerebral atrophy), headache, abnormal speech, transient memory loss, convulsions, coma, drowsiness, reduced color perception, frank blindness, nystagmus (rapid, involuntary eye-movements), decreased hearing leading to deafness and mild dementia have all been associated with chronic abuse.

Peripheral nerve damage, encephalopathy, giant axonopathy, electrolyte disturbances in the cerebrospinal fluid and abnormal computer tomographic (CT) scans are common amongst toluene addicts. Although toluene abuse has been linked with kidney disease, this does not commonly appear in cases of occupational toluene exposures. Cardiac and hematological toxicity are however associated with chronic toluene exposure. Cardiac arrhythmia, multifocal and premature ventricular contractions and supraventricular tachycardia are present in 20% of patients who abused toluene-containing paints.

Previous suggestions that chronic toluene inhalation produced human peripheral neuropathy have largely been discounted. However central nervous system (CNS) depression is well documented where blood toluene levels exceed 2.2 mg%. Toluene abusers can achieve transient circulating concentrations of 6.5 mg%. Amongst workers exposed for a median time of 29 years to toluene no subacute effects on neurasthenic complaints and pyschometric test results could be established.

The prenatal toxicity of very high toluene concentrations has been documented for several animal species and man. Malformations indicative of specific teratogenicity have not generally been found. The toxicity described in the literature takes the form of embryo death or delayed fetal growth and delayed skeletal system development. Permanent damage of children has been seen only when mothers had suffered from chronic intoxication as a result of "sniffing".

Section 4 - First Aid Measures

See DOT ERG

Inhalation: Remove to fresh air.

Lay patient down. Keep warm and rested.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor.

Eye Contact: Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center.
Do NOT induce vomiting. Give a glass of water.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Following acute or short-term repeated exposures to toluene:

1. Toluene is absorbed across to alveolar barrier, the blood/air mixture being 11.2/15.6 (at 37 °C) The order of toluene, in expired breath, is of the order of 18 ppm following sustained exposure to 100 ppm.
The tissue/blood proportion is 1/3 except in adipose where the proportion is 8/10.
2.Metabolism by microsomal mono-oxygenation, results in the production of hippuric acid. This may be detected in the urine in amounts between 0.5 and 2.5 g/24hr which represents, on average 0.8 gm/gm of creatinine.
The biological half life of hippuric acid is in the order of 1-2 hours.
3.Primary threat to life from ingestion and/or inhalation is respiratory failure.
4.Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO_2 <50 mm Hg or pCO_2 >50 mm Hg) should be intubated.
5.Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
6.A chest x-ray should be taken immediately after stabilization of breathing and circulation to document aspiration and detect the presence of pneumothorax.
7.Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitization to catecholamines.
Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
8.Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients.

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

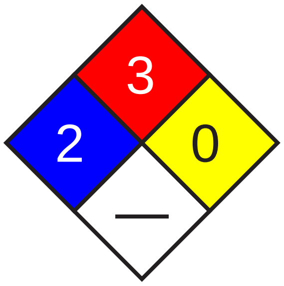
Determinant	Index	Sampling Time	Comments
Hippuric acid in urine	2.5 gm/gm creatinine	End of shift Last 4 hrs of shift	B,NS
Toluene in venous blood	1 mg/L	End of shift	SQ
Toluene in end-exhaled air		End of shift	SQ

NS: Non-specific determinant; also observed after exposure to other material
SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.
B: Background levels occur in specimens collected from subjects NOT exposed.

Section 5 - Fire-Fighting Measures

Flash Point: 4 °C Closed Cup
Autoignition Temperature: 480 °C
LEL: 1.2% v/v
UEL: 7.1% v/v
Extinguishing Media: Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide.
Water spray or fog - Large fires only.
General Fire Hazards/Hazardous Combustion Products: Liquid and vapor are highly flammable.
Severe fire hazard when exposed to heat, flame and/or oxidizers.
Vapor forms an explosive mixture with air.
Severe explosion hazard, in the form of vapor, when exposed to flame or spark. Vapor may travel a considerable distance to source of ignition.
Heating may cause expansion/decomposition with violent rupture of containers.
On combustion, may emit toxic fumes of carbon monoxide (CO) and carbon dioxide (CO_2).

See DOT ERG



Fire Diamond

Fire Incompatibility: Avoid contamination with strong oxidizing agents as ignition may result.
Nitric acid with toluene, produces nitrated compounds which are explosive.

Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways. Consider evacuation.
Fight fire from a safe distance, with adequate cover.
If safe, switch off electrical equipment until vapor fire hazard removed.
Use water delivered as a fine spray to control the fire and cool adjacent area. Avoid spraying water onto liquid pools.
Do not approach containers suspected to be hot.
Cool fire-exposed containers with water spray from a protective location.
If safe to do so, remove containers from path of fire.

Section 6 - Accidental Release Measures

Small Spills: Remove all ignition sources. Clean up all spills immediately.
Avoid breathing vapors and contact with skin and eyes.
Control personal contact by using protective equipment.
Contain and absorb small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.

See DOT ERG

Large Spills: Clear area of personnel and move upwind.
Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways. Consider evacuation.
No smoking, bare lights or ignition sources. Increase ventilation.
Stop leak if safe to do so. Water spray or fog may be used to disperse/absorb vapor. Contain spill with sand, earth or vermiculite.
Use only spark-free shovels and explosion proof equipment.
Collect recoverable product into labeled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect solid residues and seal in labeled drums for disposal.
Wash area and prevent runoff into drains.
If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area. Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, bare lights, heat or ignition sources.
When handling, DO NOT eat, drink or smoke.
Vapor may ignite on pumping or pouring due to static electricity.
DO NOT use plastic buckets. Ground and secure metal containers when dispensing or pouring product. Use spark-free tools when handling.
Avoid contact with incompatible materials.
Keep containers securely sealed. Avoid physical damage to containers.
Always wash hands with soap and water after handling.
Work clothes should be laundered separately.
Use good occupational work practices. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Recommended Storage Methods: Metal can; Metal drum; Metal safety cans. Packing as supplied by manufacturer.
Plastic containers may only be used if approved for flammable liquid.
Check that containers are clearly labeled and free from leaks.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use in a well-ventilated area; local exhaust ventilation may be required for safe working, i. e. , to keep exposures below required standards; otherwise, PPE is required.
General exhaust is adequate under normal operating conditions.
Local exhaust ventilation may be required in special circumstances.
If risk of overexposure exists, wear NIOSH-approved respirator. Correct fit is essential to ensure adequate protection.
Provide adequate ventilation in warehouses and enclosed storage areas.

In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields; chemical goggles. Full face shield.
DO NOT wear contact lenses. Contact lenses pose a special hazard; soft contact lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Wear chemical protective gloves, eg. PVC. Wear safety footwear.

Respiratory Protection:
Exposure Range >200 to <500 ppm: Air Purifying, Negative Pressure, Half Mask
Exposure Range 500 to unlimited ppm: Self-contained Breathing Apparatus, Pressure Demand, Full Face
Cartridge Color: black
Other: Overalls. Barrier cream. Eyewash unit.

Glove Selection Index:

PE/EVAL/PE	Best selection
VITON/CHLOROBUTYL	Best selection
VITON	Best selection
PVA	Best selection
TEFLON	Satisfactory; may degrade after 4 hours continuous immersion
SARANEX-23 2-PLY	Poor to dangerous choice for other than short-term immersion
CPE	Poor to dangerous choice for other than short-term immersion
VITON/NEOPRENE	Poor to dangerous choice for other than short-term immersion
SARANEX-23	Poor to dangerous choice for other than short-term immersion
NEOPRENE/NATURAL	Poor to dangerous choice for other than short-term immersion
NITRILE+PVC	Poor to dangerous choice for other than short-term immersion
NITRILE	Poor to dangerous choice for other than short-term immersion
BUTYL	Poor to dangerous choice for other than short-term immersion
PVC	Poor to dangerous choice for other than short-term immersion
NEOPRENE	Poor to dangerous choice for other than short-term immersion

Section 9 - Physical and Chemical Properties

Appearance/General Info: Clear highly flammable liquid with a strong aromatic odor; floats on water. Mixes with most organic solvents.

Physical State: Liquid
Odor Threshold: 2.14 ppm
Vapor Pressure (kPa): 2.93 at 20 °C
Vapor Density (Air=1): 3.2
Formula Weight: 92.14
Specific Gravity (H_2O=1, at 4 °C): 0.87 at 20 °C
Evaporation Rate: 2.4 (BuAc=1)

pH: Not applicable
pH (1% Solution): Not applicable.
Boiling Point: 111 °C (232 °F) at 760 mm Hg
Freezing/Melting Point: -95 °C (-139 °F)
Volatile Component (% Vol): 100
Water Solubility: < 1 mg/mL at 18 °C

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Segregate from strong oxidizers.

Section 11 - Toxicological Information

Toxicity
Oral (human) LD_{Lo}: 50 mg/kg
Oral (rat) LD_{50}: 636 mg/kg
Inhalation (human) TC_{Lo}: 100 ppm
Inhalation (man) TC_{Lo}: 200 ppm
Inhalation (rat) LC_{50}: > 26700 ppm/1h
Dermal (rabbit) LD_{50}: 12124 mg/kg
Reproductive effector in rats

Irritation
Skin (rabbit): 20 mg/24h-moderate
Skin (rabbit): 500 mg - moderate
Eye (rabbit): 0.87 mg - mild
Eye (rabbit): 2 mg/24h - SEVERE
Eye (rabbit): 100 mg/30sec - mild

See *RTECS* XS 5250000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to soil, it will be lost by evaporation from near-surface soil and by leaching to the groundwater. Biodegradation occurs both in soil and groundwater, but it is apt to be slow especially at high concentrations, which may be toxic to microorganisms. The presence of acclimated microbial populations may allow rapid biodegradation. It will not significantly hydrolyze in soil or water under normal environmental conditions. If released into water, its concentration will decrease due to evaporation and biodegradation. This removal can be rapid or take several weeks, depending on temperature, mixing conditions, and acclimation of microorganisms. It will not significantly adsorb to sediment or bioconcentrate in aquatic organisms. If released to the atmosphere, it will degrade by reaction with photochemically produced hydroxyl radicals (half-life 3 hr to slightly over 1 day) or be washed out in rain. It will not be subject to direct photolysis.

Ecotoxicity: LC_{50} Aedes aegypti-4th instar (mosquito larvae) 22 mg/l /Conditions of bioassay not specified; LC_{50} Cyprinodon variegatus (sheepshead minnow) 277-485 mg/l 96 hr /Conditions of bioassay not specified; LC_{50} Calandra granaria (grain weevil) 210 mg/l /in air; LC_{50} Cancer magister (crab larvae stage I) 28 ppm/96 hr /Conditions of bioassay not specified; LC_{50} Crangon franciscorum (shrimp) 4.3 ppm 96 hr /Conditions of bioassay not specified; LC_{50} Artemia salina (brine shrimp) 33 mg/l 24 hr /Conditions of bioassay not specified; LC_{50} Morone saxatilis (striped bass) 7.3 mg/l 96 hr /Conditions of bioassay not specified; LC_{50} Pimephales promelas (fathead minnows) 55-72 mg/l (embryos), 25-36 mg/l (1-day posthatch protolarvae), and 26-31 mg/l (30-day-old minnows)/ 96 hour /Conditions of bioassay not specified

Henry's Law Constant: 0.0067

BCF: eels 13.2

Biochemical Oxygen Demand (BOD): 0%, 5 days

Octanol/Water Partition Coefficient: log K_{ow} = 2.69

Soil Sorption Partition Coefficient: K_{oc} = silty loam 37

Section 13 - Disposal Considerations

Disposal: Consult manufacturer for recycling options and recycle where possible.
Follow applicable federal, state, and local regulations.
Incinerate residue at an approved site.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Toluene
ID: UN1294
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: II - Medium Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: IB2, T4, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 202 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 L **Cargo aircraft only:** 60 L
Vessel Stowage: **Location:** B **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Listed U220 Toxic Waste
- **CERCLA 40 CFR 302.4:** Listed per CWA Section 311(b)(4), per RCRA Section 3001, per CWA Section 307(a) 1000 lb (453.5 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Section 1 - Chemical Product and Company Identification 61

Material Name: Xylene **CAS Number:** 1330-20-7
Chemical Formula: C_8H_{10}
Structural Chemical Formula: $C_6H_4(CH_3)_2$
EINECS Number: 215-535-7
ACX Number: X1001166-8
Synonyms: BENZENE,DIMETHYL-; COMPONENT 1 (83%): XYLENES; COMPONENT 2 (17%): ETHYL BENZENE; DIMETHYLBENZENE; DIMETHYLBENZENES; EPA PESTICIDE CHEMICAL CODE 086802; KSYLEN; METHYL TOLUENE; METHYLTOLUENE; VIOLET 3; XILOLI; XYLENE; XYLENEN; XYLOL; XYLOLE
General Use: A strong solvent for general use in the manufacture of paints, varnishes, lacquers, thinners, inks, rubber, pesticides, herbicides and paint strippers.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
xylene	1330-20-7	> 95

OSHA PEL
TWA: 100 ppm; 435 mg/m^3.

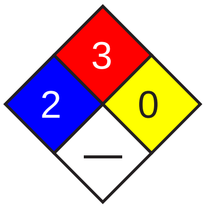
ACGIH TLV
TWA: 100 ppm; STEL: 150 ppm.

EU OEL
TWA: 50 ppm; STEL: 100 ppm.

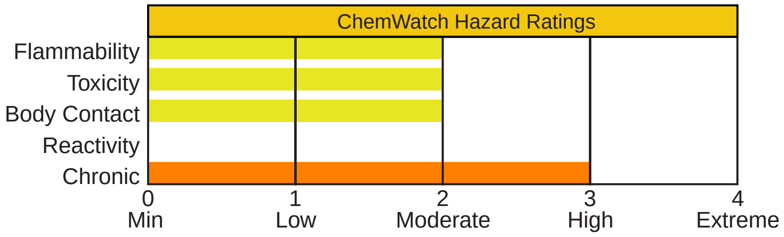
NIOSH REL
TWA: 100 ppm, 435 mg/m^3; STEL: 150 ppm, 655 mg/m^3.

DFG (Germany) MAK
TWA: 100 ppm; PEAK: 200 ppm; skin.

Section 3 - Hazards Identification



Fire Diamond



HMIS
② Health
③ Flammability
⓪ Reactivity

ANSI Signal Word
Warning!

Flammable

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Clear, sweet smelling liquid. Irritating to eyes/skin/respiratory tract. Other Acute Effects: dizziness, nausea, drowsiness. Chronic Effects: dermatitis, kidney/liver/peripheral nerve damage. May cause birth defects (animal data). Flammable.

Potential Health Effects

Target Organs: central nervous system (CNS), eyes, gastrointestinal (GI) tract, liver, kidneys, skin
Primary Entry Routes: inhalation, skin absorption (slight), eye contact, ingestion
Acute Effects
Inhalation: Xylene is a central nervous system depressant. The vapor is discomforting to the upper respiratory tract and may be harmful if inhaled.
Inhalation hazard is increased at higher temperatures.
Toxic effects are increased by consumption of alcohol.
Acute effects from inhalation of high concentrations of vapor are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache and dizziness, increased reaction time, fatigue and loss of coordination.

If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Headache, fatigue, lassitude, irritability and gastrointestinal disturbances (e.g., nausea, anorexia and flatulence) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted among workers. Transient memory loss, renal impairment, temporary confusion and some evidence of disturbance of liver function was reported in three workers overcome by gross exposure to xylene (10000 ppm). One worker died and autopsy revealed pulmonary congestion, edema, and focal alveolar hemorrhage.

Volunteers inhaling xylene at 100 ppm for 5 to 6 hours showed changes in manual coordination, reaction time and slight ataxia. Tolerance developed during the workweek but was lost over the weekend. Physical exercise may antagonize this effect. Xylene body burden in humans exposed to 100 or 200 ppm xylene in air depends on the amount of body fat with 4% to 8% of total absorbed xylene accumulating in human adipose tissues.

Eye: The liquid is highly discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.

The vapor is highly discomforting to the eyes.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Corneal changes have been reported in furniture polishers exposed to xylene.

Skin: The liquid is highly discomforting to the skin and may cause drying of the skin, which may lead to dermatitis and it is absorbed by the skin.

Toxic effects may result from skin absorption.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterized by skin redness (erythema) and swelling (edema) which may progress to vesiculation, scaling and thickening of the epidermis. Histologically there may be intercellular edema of the spongy layer (spongiosis) and intracellular edema of the epidermis.

Ingestion: Considered an unlikely route of entry in commercial/industrial environments.

The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Chronic Effects: Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes.

Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following.

Small excess risks of spontaneous abortion and congenital malformation was reported amongst women exposed to xylene in the first trimester of pregnancy. In all cases however the women had also been exposed to other substances.

Evaluation of workers chronically exposed to xylene has demonstrated a lack of genotoxicity. Exposure to xylene has been associated with increased risks of hemopoietic malignancies but, again simultaneous exposure to other substances (including benzene) complicate the picture. A long-term gavage study of mixed xylenes (containing 17% ethyl benzene) found no evidence of carcinogenic activity in rats and mice of either sex.

Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

Section 4 - First Aid Measures

See DOT ERG

Inhalation: Remove to fresh air.

Lay patient down. Keep warm and rested.

If available, administer medical oxygen by trained personnel.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor, without delay.

Eye Contact: Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center.

Do NOT induce vomiting. Give a glass of water.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: For acute or short-term repeated exposures to xylene:

1.Gastrointestinal absorption is significant with ingestions.

For ingestions exceeding 1-2 mL (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.

2.Pulmonary absorption is rapid with about 60-65% retained at rest.

3.Primary threat to life from ingestion and/or inhalation is respiratory failure.

4.Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO_2 <50 mm Hg or pCO_2 >50 mm Hg) should be intubated.

5.Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.

6.A chest x-ray should be taken immediately after stabilization of breathing and circulation to document aspiration and detect the presence of pneumothorax.

7.Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitization to catecholamines.

Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Methylhippuric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift.	

Section 5 - Fire-Fighting Measures

Flash Point: 25.6 °C

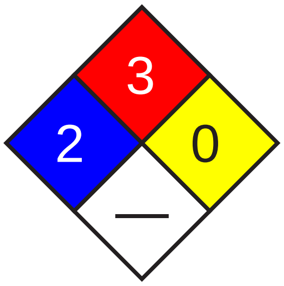
Autoignition Temperature: 241 °C

LEL: 1.0% v/v

UEL: 7.0% v/v

Extinguishing Media: Alcohol stable foam; dry chemical powder; carbon dioxide.
Water spray or fog - Large fires only.

See DOT ERG



Fire Diamond

General Fire Hazards/Hazardous Combustion Products: Liquid and vapor are flammable.
Moderate fire hazard when exposed to heat or flame.
Vapor forms an explosive mixture with air.
Moderate explosion hazard when exposed to heat or flame.
Vapor may travel a considerable distance to source of ignition.
Heating may cause expansion or decomposition leading to violent rupture of containers.
On combustion, may emit toxic fumes of carbon monoxide (CO).
Other combustion products include carbon dioxide (CO_2).

Fire Incompatibility: Avoid contamination with strong oxidizing agents as ignition may result.

Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
If safe, switch off electrical equipment until vapor fire hazard removed.
Use water delivered as a fine spray to control fire and cool adjacent area.
Avoid spraying water onto liquid pools.
Do not approach containers suspected to be hot.
Cool fire-exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.

Section 6 - Accidental Release Measures

Small Spills: Remove all ignition sources. Clean up all spills immediately.
Avoid breathing vapors and contact with skin and eyes.
Control personal contact by using protective equipment.
Contain and absorb small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.

See DOT ERG

Large Spills: Clear area of personnel and move upwind.
Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
No smoking, bare lights or ignition sources. Increase ventilation.

Stop leak if safe to do so. Water spray or fog may be used to disperse/absorb vapor. Contain spill with sand, earth or vermiculite.
Use only spark-free shovels and explosion proof equipment.
Collect recoverable product into labeled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect solid residues and seal in labeled drums for disposal.
Wash area and prevent runoff into drains.
If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid all personal contact, including inhalation.
Wear protective clothing when risk of overexposure occurs.
Use in a well-ventilated area. Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, bare lights or ignition sources.
Avoid generation of static electricity. DO NOT use plastic buckets.
Ground all lines and equipment. Use spark-free tools when handling.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling.
Work clothes should be laundered separately.
Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Recommended Storage Methods: Metal can; metal drum. Packing as recommended by manufacturer.
Check all containers are clearly labeled and free from leaks.
Plastic containers may only be used if approved for flammable liquids.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use in a well-ventilated area. Local exhaust ventilation may be required for safe working, i. e. , to keep exposures below required standards; otherwise, PPE is required.
CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build-up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear.
General exhaust is adequate under normal operating conditions.
Local exhaust ventilation may be required in specific circumstances.
If risk of overexposure exists, wear NIOSH-approved respirator.
Correct fit is essential to obtain adequate protection.
Provide adequate ventilation in warehouse or closed storage areas.
In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields; or as required, chemical goggles.
Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Barrier cream with polyethylene gloves; Butyl rubber gloves or Neoprene gloves or PVC gloves.
Safety footwear.
Do NOT use this product to clean the skin.

Other: Overalls. Impervious protective clothing.
Eyewash unit.
Ensure there is ready access to an emergency shower.

Glove Selection Index:

PE/EVAL/PE	Best selection
PVA	Best selection
VITON	Best selection
TEFLON	Best selection
PVDC/PE/PVDC	Poor to dangerous choice for other than short-term immersion
NATURAL+NEOPRENE	Poor to dangerous choice for other than short-term immersion
NEOPRENE/NATURAL	Poor to dangerous choice for other than short-term immersion
NITRILE+PVC	Poor to dangerous choice for other than short-term immersion
HYPALON	Poor to dangerous choice for other than short-term immersion
NAT+NEOPR+NITRILE	Poor to dangerous choice for other than short-term immersion
BUTYL	Poor to dangerous choice for other than short-term immersion
BUTYL/NEOPRENE	Poor to dangerous choice for other than short-term immersion

NITRILE.................................... Poor to dangerous choice for other than short-term immersion
NEOPRENE.............................. Poor to dangerous choice for other than short-term immersion
PVC... Poor to dangerous choice for other than short-term immersion

Section 9 - Physical and Chemical Properties

Appearance/General Info: Clear colorless flammable liquid with a strong aromatic odor; floats on water. Mixes with most organic solvents.

Physical State: Liquid
Odor Threshold: 5.00 x10^{-5} ppm
Vapor Pressure (kPa): 0.5 at 15 °C
Vapor Density (Air=1): 3.66 at 15 °C
Formula Weight: 106.18
Specific Gravity (H_2O=1, at 4 °C): 0.87 at 15 °C
Evaporation Rate: 0.7 Bu Ac=1

pH: Not applicable
pH (1% Solution): Not applicable.
Boiling Point: 137 °C (279 °F) to 140 °C (284 °F)
Freezing/Melting Point: -47 °C (-53 °F)
Volatile Component (% Vol): 100
Water Solubility: Practically insoluble in water

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid storage with oxidizers.

Section 11 - Toxicological Information

Toxicity

Oral (human) LD_{Lo}: 50 mg/kg
Oral (rat) LD_{50}: 4300 mg/kg
Inhalation (human) TC_{Lo}: 200 ppm
Inhalation (man) LC_{Lo}: 10000 ppm/6h
Inhalation (rat) LC_{50}: 5000 ppm/4h
Reproductive effector in rats

Irritation

Skin (rabbit):500 mg/24h moderate
Eye (human): 200 ppm irritant
Eye (rabbit): 87 mg mild
Eye (rabbit): 5 mg/24h SEVERE

See *RTECS* ZE 2100000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Most of the xylenes are released into the atmosphere where they may photochemically degrade by reaction with hydroxyl radicals (half-life 1-18 hr). The dominant removal process in water is volatilization. Xylenes are moderately mobile in soil and may leach into groundwater where they are known to persist for several years, despite some evidence that they biodegrade in both soil and groundwater. Bioconcentration is not expected to be significant.
Ecotoxicity: LC_{50} Rainbow trout 13.5 mg/l/96 hr /Conditions of bioassay not specified; LD_{50} Goldfish 13 mg/l/24 hr /Conditions of bioassay not specified
Henry's Law Constant: 0.22
BCF: estimated at 2.14 to 2.20
Octanol/Water Partition Coefficient: log K_{ow} = 3.12 to 3.20
Soil Sorption Partition Coefficient: K_{oc} = 48 to 68

Section 13 - Disposal Considerations

Disposal: Consult manufacturer for recycling options and recycle where possible.
Follow applicable federal, state, and local regulations.
Incinerate residue at an approved site.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Xylenes
ID: UN1307
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: II - Medium Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: IB2, T4, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 202 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 L **Cargo aircraft only:** 60 L
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Xylenes
ID: UN1307
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: III - Minor Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: B1, IB3, T2, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 203 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 60 L **Cargo aircraft only:** 220 L
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Listed U239 Ignitable Waste
CERCLA 40 CFR 302.4: Listed per CWA Section 311(b)(4), per RCRA Section 3001 100 lb (45.35 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Issue Date: 2006-06

m-Xylene
XYL1840

Section 1 - Chemical Product and Company Identification 61

Material Name: m-Xylene **CAS Number:** 108-38-3
Chemical Formula: C_8H_{10}
Structural Chemical Formula: $C_6H_4(CH_3)_2$
EINECS Number: 203-576-3
ACX Number: X1001540-4
Synonyms: BENZENE,1,3-DIMETHYL-; 1,3-DIMETHYLBENZENE; M-DIMETHYLBENZENE; M-METHYLTOLUENE; 1,3-XYLENE; M-XYLENE; M-XYLENE; META-XYLENE; M-XYLOL
General Use: Used as a general solvent in the manufacture of paints, varnishes, lacquers, thinners, inks, rubber, pesticides, herbicides and paint strippers.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
m-xylene	108-38-3	>95

OSHA PEL
TWA: 100 ppm; 435 mg/m^3.

ACGIH TLV
TWA: 100 ppm; STEL: 150 ppm.

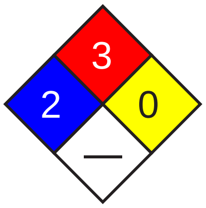
EU OEL
TWA: 50 ppm; STEL: 100 ppm.

NIOSH REL
TWA: 100 ppm (435 mg/m^3); STEL: 150 ppm (655 mg/m^3).

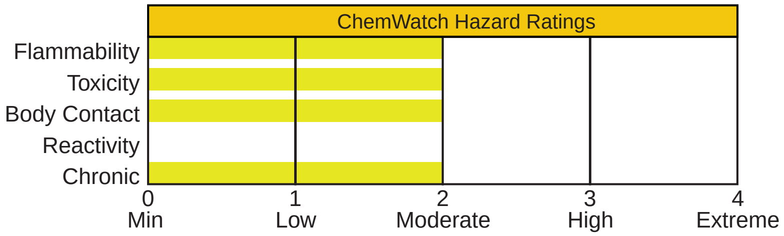
IDLH Level
900 ppm.

DFG (Germany) MAK
TWA: 100 ppm; PEAK: 200 ppm; skin.

Section 3 - Hazards Identification



Fire Diamond



HMIS
② Health
③ Flammability
⓪ Reactivity

ANSI Signal Word
Warning!


Flammable

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Clear, sweet smelling liquid. Irritating to eyes/skin/respiratory tract. Other Acute Effects: dizziness, nausea, drowsiness. Chronic Effects: dermatitis, kidney/liver/peripheral nerve damage. May cause birth defects (animal data). Flammable.

Potential Health Effects

Target Organs: central nervous system (CNS), eyes, gastrointestinal (GI) tract, liver, kidneys, skin
Primary Entry Routes: inhalation, skin absorption (slight), eye contact, ingestion
Acute Effects
Inhalation: Xylene is a central nervous system depressant. The vapor is discomforting to the upper respiratory tract and may be harmful if inhaled.
Inhalation hazard is increased at higher temperatures.
Toxic effects are increased by consumption of alcohol.
Acute effects from inhalation of high concentrations of vapor are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache and dizziness, increased reaction time, fatigue and loss of coordination.
If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Headache, fatigue, lassitude, irritability and gastrointestinal disturbances (e.g., nausea, anorexia and flatulence) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted amongst workers. Transient memory loss, renal impairment, temporary confusion and some evidence of disturbance of liver function was reported in three workers overcome by gross exposure to xylene (10000 ppm). One worker died and autopsy revealed pulmonary congestion, edema, and focal alveolar hemorrhage.

Volunteers inhaling xylene at 100 ppm for 5 to 6 hours showed changes in manual coordination, reaction time and slight ataxia. Tolerance developed during the workweek but was lost over the weekend. Physical exercise may antagonize this effect. Xylene body burden in humans exposed to 100 or 200 ppm xylene in air depends on the amount of body fat with 4% to 8% of total absorbed xylene accumulating in human adipose tissues.

Eye: The liquid is highly discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.

The vapor is highly discomforting to the eyes.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Corneal changes have been reported in furniture polishers exposed to xylene.

Skin: The liquid is highly discomforting to the skin and may cause drying of the skin, which may lead to dermatitis and it is absorbed by the skin.

Toxic effects may result from skin absorption.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic).

This form of dermatitis is often characterized by skin redness (erythema) and swelling (edema) which may progress to vesiculation, scaling and thickening of the epidermis.

Histologically there may be intercellular edema of the spongy layer (spongiosis) and intracellular edema of the epidermis.

Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

Ingestion: Considered an unlikely route of entry in commercial/industrial environments.

The liquid is highly discomforting and toxic if swallowed.

Ingestion may result in nausea, pain, vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Class A4, Not classifiable as a human carcinogen; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Chronic Effects: Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following.

Small excess risks of spontaneous abortion and congenital malformation was reported among women exposed to xylene in the first trimester of pregnancy. In all cases however the women had also been exposed to other substances.

Evaluation of workers chronically exposed to xylene has demonstrated a lack of genotoxicity. Exposure to xylene has been associated with increased risks of hemopoietic malignancies but, again simultaneous exposure to other substances (including benzene) complicate the picture. A long-term gavage study of mixed xylenes (containing 17% ethyl benzene) found no evidence of carcinogenic activity in rats and mice of either sex.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air.

Lay patient down. Keep warm and rested.

If available, administer medical oxygen by trained personnel.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor, without delay.

See
DOT
ERG

Eye Contact: Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center.

Do NOT induce vomiting. Give a glass of water.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: For acute or short-term repeated exposures to xylene:

1. Gastrointestinal absorption is significant with ingestions.

For ingestions exceeding 1-2 mL (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended.

The use of charcoal and cathartics is equivocal.

2.Pulmonary absorption is rapid with about 60-65% retained at rest.
3.Primary threat to life from ingestion and/or inhalation is respiratory failure.
4.Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO_2 <50 mm Hg or pCO_2 >50 mm Hg) should be intubated.
5.Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
6.A chest x-ray should be taken immediately after stabilization of breathing and circulation to document aspiration and detect the presence of pneumothorax.
7.Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitization to catecholamines.
Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

BIOLOGICAL EXPOSURE INDEX - BEI

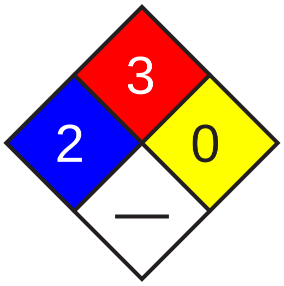
These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Methylhippuric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift.	

Section 5 - Fire-Fighting Measures

Flash Point: 27 °C Closed Cup
Autoignition Temperature: 527 °C
LEL: 1.1% v/v
UEL: 7.0% v/v
Extinguishing Media: Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide.
Water spray or fog - Large fires only.

See DOT ERG



Fire Diamond

General Fire Hazards/Hazardous Combustion Products: Liquid and vapor are flammable.
Moderate fire hazard when exposed to heat or flame.
Vapor forms an explosive mixture with air.
Moderate explosion hazard when exposed to heat or flame.
Vapor may travel a considerable distance to source of ignition.
Heating may cause expansion or decomposition leading to violent rupture of containers.
On combustion, may emit toxic fumes of carbon monoxide (CO).
Other combustion products include carbon dioxide (CO_2).
Fire Incompatibility: Avoid contamination with strong oxidizing agents as ignition may result.
Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
If safe, switch off electrical equipment until vapor fire hazard removed.
Use water delivered as a fine spray to control fire and cool adjacent area.
Avoid spraying water onto liquid pools.
Do not approach containers suspected to be hot.
Cool fire-exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.

Section 6 - Accidental Release Measures

See DOT ERG

Small Spills: Remove all ignition sources. Clean up all spills immediately.
Avoid breathing vapors and contact with skin and eyes.
Control personal contact by using protective equipment.
Contain and absorb small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.
Large Spills: Clear area of personnel and move upwind.
Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
No smoking, bare lights or ignition sources. Increase ventilation.
Stop leak if safe to do so. Water spray or fog may be used to disperse/absorb vapor. Contain spill with sand, earth or vermiculite.

Use only spark-free shovels and explosion proof equipment.
Collect recoverable product into labeled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect solid residues and seal in labeled drums for disposal.
Wash area and prevent runoff into drains.
If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid all personal contact, including inhalation.
Wear protective clothing when risk of overexposure occurs.
Use in a well-ventilated area. Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, bare lights or ignition sources.
Avoid generation of static electricity. DO NOT use plastic buckets.
Ground all lines and equipment. Use spark-free tools when handling.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling.
Work clothes should be laundered separately.
Use good occupational work practices. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Recommended Storage Methods: Metal can; metal drum. Packing as recommended by manufacturer.
Check all containers are clearly labeled and free from leaks.
Plastic containers may only be used if approved for flammable liquids.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use in a well-ventilated area. Local exhaust ventilation may be required for safe working, i. e. , to keep exposures below required standards; otherwise, PPE is required.
CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build-up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear.
General exhaust is adequate under normal operating conditions.
Local exhaust ventilation may be required in specific circumstances.
If risk of overexposure exists, wear NIOSH-approved respirator.
Correct fit is essential to obtain adequate protection.
Provide adequate ventilation in warehouse or closed storage areas.
In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields; or as required, chemical goggles.
Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Barrier cream with polyethylene gloves; Butyl rubber gloves or Neoprene gloves or PVC gloves.
Safety footwear.
Do NOT use this product to clean the skin.

Respiratory Protection:
Exposure Range >100 to <900 ppm: Air Purifying, Negative Pressure, Half Mask
Exposure Range 900 to unlimited ppm: Self-contained Breathing Apparatus, Pressure Demand, Full Face
Cartridge Color: black

Other: Overalls. Impervious protective clothing.
Eyewash unit.
Ensure there is ready access to an emergency shower.

Glove Selection Index:
PVA .... Best selection
VITON .... Best selection

Section 9 - Physical and Chemical Properties

Appearance/General Info: Clear, colorless flammable liquid with aromatic odor. Miscible in most organic solvents.
Odor threshold: 0.2 to 2 ppm. Vapor is heavier than air.

Physical State: Liquid
Odor Threshold: 4.00 x10^{13} mol/cc
Vapor Pressure (kPa): 0.5 at 15 °C

Vapor Density (Air=1): 3.66 at 15 °C
Formula Weight: 106.18
Specific Gravity (H_2O=1, at 4 °C): 0.87 at 15 °C

Evaporation Rate: 0.7 Bu Ac=1
pH: Not applicable
pH (1% Solution): Not applicable.
Boiling Point: 139.3 °C (283 °F)
Freezing/Melting Point: -47.8 °C (-54.04 °F)
Volatile Component (% Vol): 100
Water Solubility: Slight

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid storage with oxidizers.

Section 11 - Toxicological Information

Toxicity
Oral (rat) LD_{50}: 5000 mg/kg
Intraperitoneal (mouse) LD_{50}: 1739 mg/kg
Dermal (rabbit) LD_{50}: 14100 mg/kg

Effects on fertility, specific developmental abnormalities (craniofacial) recorded.

Irritation
Skin (rabbit): 0.01 mg/24h(open)
SEVERE
Skin (rabbit): 20 mg/24h - mod
Eye (rabbit): 5 mg/24h - SEVERE

See *RTECS* ZE 2275000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Most is released into the atmosphere where it may photochemically degrade by reaction with hydroxyl radicals (half-life 1-10 hr). The dominant removal process in water is volatilization. It is moderately mobile in soil and may leach into groundwater where it is known to persist for several years despite some evidence that it biodegrades in both soil and groundwater. Bioconcentration is not expected to be significant.
Ecotoxicity: LC_{50} Poecilia reticulata (guppy) 38 ppm/14 days /Conditions of bioassay not specified; LC_{100} Tetrahymena pyriformis (ciliate) 3.77 mmole/l/24 hr /Conditions of bioassay not specified; LC_{50} Crangon franciscorum (shrimp) 3.7 ppm/96 hr /Conditions of bioassay not specified; LD_{50} Goldfish 16 mg/l/24 hr /Modified ASTM D 1345 method; LC_{50} Morone saxatilis (striped bass) 9.2 ppm/96 hr /Conditions of bioassay not specified; LC_{50} Cancer magister (crab larvae-stage I) 12 ppm/96 hr /Conditions of bioassay not specified
Henry's Law Constant: 0.314
BCF: eels 1.37
Biochemical Oxygen Demand (BOD): 0 lb/lb, 5 days
Octanol/Water Partition Coefficient: log K_{ow} = 3.20

Section 13 - Disposal Considerations

Disposal: Consult manufacturer for recycling options and recycle where possible.
Follow applicable federal, state, and local regulations.
Incinerate residue at an approved site.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Xylenes
ID: UN1307
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: II - Medium Danger
Symbols:

Label Codes: 3 - Flammable Liquid
Special Provisions: IB2, T4, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 202 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 L **Cargo aircraft only:** 60 L

Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Xylenes

ID: UN1307

Hazard Class: 3 - Flammable and combustible liquid

Packing Group: III - Minor Danger

Symbols:

Label Codes: 3 - Flammable Liquid

Special Provisions: B1, IB3, T2, TP1

Packaging: **Exceptions:** 150 **Non-bulk:** 203 **Bulk:** 242

Quantity Limitations: **Passenger aircraft/rail:** 60 L **Cargo aircraft only:** 220 L

Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:

- **RCRA 40 CFR:** Not listed
- **CERCLA 40 CFR 302.4:** Listed per CWA Section 311(b)(4), per RCRA Section 3001 1000 lb (453.5 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

o-Xylene
XYL1000

Section 1 - Chemical Product and Company Identification 61

Material Name: o-Xylene **CAS Number:** 95-47-6
Chemical Formula: C_8H_{10}
Structural Chemical Formula: $C_6H_4(CH_3)_2$
EINECS Number: 202-422-2
ACX Number: X1001538-4
Synonyms: BENZENE,1,2-DIMETHYL-; 1,2-DIMETHYLBENZENE; O-DIMETHYLBENZENE; O-METHYLTOLUENE; 1,2-XYLENE; O-XYLENE; 2-XYLENE; O-XYLENE; ORTHO-XYLENE; O-XYLOL
General Use: Used as a general solvent in the manufacture of paints, varnishes, lacquers, thinners, inks, rubber, pesticides, herbicides and paint strippers.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
o-xylene	95-47-6	>95

OSHA PEL
TWA: 100 ppm; 435 mg/m^3.

ACGIH TLV
TWA: 100 ppm; STEL: 150 ppm.

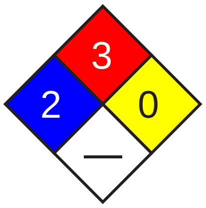
EU OEL
TWA: 50 ppm; STEL: 100 ppm.

NIOSH REL
TWA: 100 ppm (435 mg/m^3); STEL: 150 ppm (655 mg/m^3).

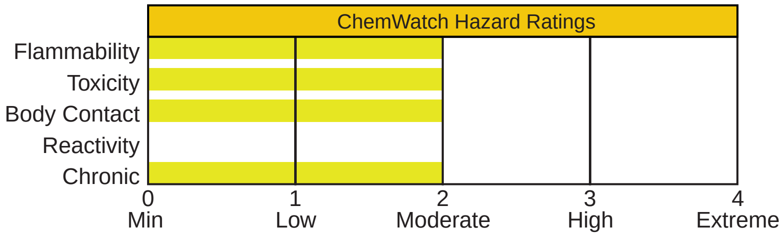
IDLH Level
900 ppm.

DFG (Germany) MAK
TWA: 100 ppm; PEAK: 200 ppm; skin.

Section 3 - Hazards Identification



Fire Diamond



HMIS
2 Health
3 Flammability
0 Reactivity

ANSI Signal Word
Warning!

Flammable

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Clear, sweet smelling liquid. Irritating to eyes/skin/respiratory tract. Other Acute Effects: dizziness, nausea, drowsiness. Chronic Effects: dermatitis, kidney/liver/peripheral nerve damage. May cause birth defects based on animal data. Flammable.

Potential Health Effects

Target Organs: central nervous system (CNS), eyes, gastrointestinal (GI) tract, liver, kidneys, skin
Primary Entry Routes: inhalation, skin absorption (slight), eye contact, ingestion
Acute Effects
Inhalation: Xylene is a central nervous system depressant. The vapor is discomforting to the upper respiratory tract and may be harmful if inhaled.
Inhalation hazard is increased at higher temperatures.
Toxic effects are increased by consumption of alcohol.
Acute effects from inhalation of high concentrations of vapor are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache and dizziness, increased reaction time, fatigue and loss of coordination.
If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Headache, fatigue, lassitude, irritability and gastrointestinal disturbances (e.g., nausea, anorexia and flatulence) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted among workers. Transient memory loss, renal impairment, temporary confusion and some evidence of disturbance of liver function was reported in three workers overcome by gross exposure to xylene (10000 ppm). One worker died and autopsy revealed pulmonary congestion, edema, and focal alveolar hemorrhage.

Volunteers inhaling xylene at 100 ppm for 5 to 6 hours showed changes in manual coordination, reaction time and slight ataxia. Tolerance developed during the workweek but was lost over the weekend. Physical exercise may antagonize this effect. Xylene body burden in humans exposed to 100 or 200 ppm xylene in air depends on the amount of body fat with 4% to 8% of total absorbed xylene accumulating in human adipose tissues.

Eye: The liquid is highly discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.

The vapor is highly discomforting to the eyes.

Corneal changes have been reported in furniture polishers exposed to xylene.

Skin: The liquid is highly discomforting to the skin and may cause drying of the skin, which may lead to dermatitis and it is absorbed by the skin.

Toxic effects may result from skin absorption.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

Ingestion: Considered an unlikely route of entry in commercial/industrial environments.

The liquid is highly discomforting and toxic if swallowed.

Ingestion may result in nausea, pain, vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Class A4, Not classifiable as a human carcinogen; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Chronic Effects: Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes.

Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following.

Small excess risks of spontaneous abortion and congenital malformation was reported among women exposed to xylene in the first trimester of pregnancy. In all cases however the women had also been exposed to other substances. Evaluation of workers chronically exposed to xylene has demonstrated a lack of genotoxicity. Exposure to xylene has been associated with increased risks of hemopoietic malignancies but, again simultaneous exposure to other substances (including benzene) complicate the picture. A long-term gavage study of mixed xylenes (containing 17% ethyl benzene) found no evidence of carcinogenic activity in rats and mice of either sex.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air.

Lay patient down. Keep warm and rested.

If available, administer medical oxygen by trained personnel.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor, without delay.

See DOT ERG

Eye Contact: Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center. Do NOT induce vomiting. Give a glass of water.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: For acute or short-term repeated exposures to xylene:

1.Gastrointestinal absorption is significant with ingestions.

For ingestions exceeding 1-2 mL (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.

2. Pulmonary absorption is rapid with about 60-65% retained at rest.

3. Primary threat to life from ingestion and/or inhalation is respiratory failure.

4. Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO_2 <50 mm Hg or pCO_2 >50 mm Hg) should be intubated.

5. Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.

6. A chest x-ray should be taken immediately after stabilization of breathing and circulation to document aspiration and detect the presence of pneumothorax.
7. Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitization to catecholamines.
Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

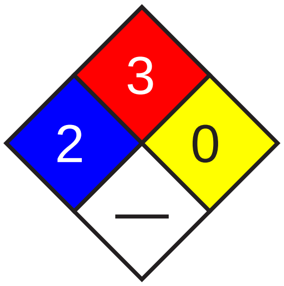
BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Methylhippuric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift.	

Section 5 - Fire-Fighting Measures

See DOT ERG



Fire Diamond

Flash Point: 32 °C Closed Cup
Autoignition Temperature: 463 °C
LEL: 1.0% v/v
UEL: 7% v/v
Extinguishing Media: Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide.
Water spray or fog - Large fires only.
General Fire Hazards/Hazardous Combustion Products: Liquid and vapor are flammable.
Moderate fire hazard when exposed to heat or flame.
Vapor forms an explosive mixture with air.
Moderate explosion hazard when exposed to heat or flame.
Vapor may travel a considerable distance to source of ignition.
Heating may cause expansion or decomposition leading to violent rupture of containers.
On combustion, may emit toxic fumes of carbon monoxide (CO).
Other combustion products include carbon dioxide (CO_2).
Fire Incompatibility: Avoid contamination with strong oxidizing agents as ignition may result.
Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
If safe, switch off electrical equipment until vapor fire hazard removed.
Use water delivered as a fine spray to control fire and cool adjacent area.
Avoid spraying water onto liquid pools.
Do not approach containers suspected to be hot.
Cool fire-exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.

Section 6 - Accidental Release Measures

See DOT ERG

Small Spills: Remove all ignition sources. Clean up all spills immediately.
Avoid breathing vapors and contact with skin and eyes.
Control personal contact by using protective equipment.
Contain and absorb small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.
Large Spills: Clear area of personnel and move upwind.
Contact fire department and tell them location and nature of hazard.
May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.
No smoking, bare lights or ignition sources. Increase ventilation.
Stop leak if safe to do so. Water spray or fog may be used to disperse/absorb vapor. Contain spill with sand, earth or vermiculite.
Use only spark-free shovels and explosion proof equipment.
Collect recoverable product into labeled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect solid residues and seal in labeled drums for disposal.
Wash area and prevent runoff into drains.
If contamination of drains or waterways occurs, advise emergency services.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid all personal contact, including inhalation.
Wear protective clothing when risk of overexposure occurs.
Use in a well-ventilated area. Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, bare lights or ignition sources.
Avoid generation of static electricity. DO NOT use plastic buckets.
Ground all lines and equipment. Use spark-free tools when handling.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling.
Work clothes should be laundered separately.
Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Recommended Storage Methods: Metal can; metal drum. Packing as recommended by manufacturer.
Check all containers are clearly labeled and free from leaks.
Plastic containers may only be used if approved for flammable liquids.
Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use in a well-ventilated area. Local exhaust ventilation may be required for safe working, i. e. , to keep exposures below required standards; otherwise, PPE is required.
CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build-up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear.
General exhaust is adequate under normal operating conditions.
Local exhaust ventilation may be required in specific circumstances.
If risk of overexposure exists, wear NIOSH-approved respirator.
Correct fit is essential to obtain adequate protection.
Provide adequate ventilation in warehouse or closed storage areas.
In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.
Personal Protective Clothing/Equipment:
Eyes: Safety glasses with side shields; or as required, chemical goggles.
Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.
Hands/Feet: Barrier cream with polyethylene gloves; Butyl rubber gloves or Neoprene gloves or PVC gloves.
Safety footwear.
Do NOT use this product to clean the skin.
Other: Overalls. Impervious protective clothing.
Eyewash unit.
Ensure there is ready access to an emergency shower.
Glove Selection Index:
PVA .... Best selection
VITON .... Best selection

Section 9 - Physical and Chemical Properties

Appearance/General Info: Clear, colorless flammable liquid with aromatic odor. Miscible in most organic solvents.
Odor threshold: 0.2 to 2 ppm.

Physical State: Liquid
Odor Threshold: 0.05 ppm
Vapor Pressure (kPa): 0.5 at 15 °C
Vapor Density (Air=1): 3.66 at 15 °C
Formula Weight: 106.18
Specific Gravity (H_2O=1, at 4 °C): 0.87 at 15 °C
Evaporation Rate: 0.7 Bu Ac=1

pH: Not applicable
pH (1% Solution): Not applicable.
Boiling Point: 144.4 °C (292 °F) at 760 mm Hg
Freezing/Melting Point: -25 °C (-13 °F)
Volatile Component (% Vol): 100
Water Solubility: 0.02% by weight

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid storage with oxidizers.

Section 11 - Toxicological Information

Toxicity

Inhalation (human) LC_{Lo}: 6125 ppm/12h
Intraperitoneal (mouse) LD_{50}: 1364 mg/kg
Paternal effects recorded.

Irritation

Nil reported

See *RTECS* ZE 2450000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Most is released into the atmosphere where it may photochemically degrade by reaction with hydroxyl radicals (half-life 1.5-15 hr). The dominant removal process in water is volatilization. It is moderately mobile in soil and may leach into groundwater where it has been known to be detectable for several years, although there is some evidence that it biodegrades in both soil and groundwater. Bioconcentration is not expected to be significant.

Ecotoxicity: LC_{50} Poecilia reticulata (guppy) 35 ppm/7 days /Conditions of bioassay not specified; LC_{50} Morone saxatilis (bass) 11.0 ppm/96 hr /Conditions of bioassay not specified; LC_{50} Cancer magister (crab larvae stage I) 6 ppm/96 hr /Conditions of bioassay not specified; LC_{50} Crangon franciscorum (shrimp) 1.3 ppm/96 hr /Conditions of bioassay not specified

Henry's Law Constant: 5.1×10^{-3}

BCF: eels 1.33

Biochemical Oxygen Demand (BOD): 0 lb/lb, 5 days

Octanol/Water Partition Coefficient: log $K_{ow} = 3.12$

Soil Sorption Partition Coefficient: K_{oc} = soils 48 to 68

Section 13 - Disposal Considerations

Disposal: Consult manufacturer for recycling options and recycle where possible.
Follow applicable federal, state, and local regulations.
Incinerate residue at an approved site.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Xylenes
ID: UN1307
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: II - Medium Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: IB2, T4, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 202 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 L **Cargo aircraft only:** 60 L
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Xylenes
ID: UN1307
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: III - Minor Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: B1, IB3, T2, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 203 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 60 L **Cargo aircraft only:** 220 L
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:

RCRA 40 CFR: Not listed

CERCLA 40 CFR 302.4: Listed per CWA Section 311(b)(4), per RCRA Section 3001 1000 lb (453.5 kg)

SARA 40 CFR 372.65: Listed

SARA EHS 40 CFR 355: Not listed

TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

p-Xylene
XYL1420

Section 1 - Chemical Product and Company Identification

61

Material Name: p-Xylene **CAS Number:** 106-42-3
Chemical Formula: C_8H_{10}
Structural Chemical Formula: $C_6H_4(CH_3)_2$
EINECS Number: 203-396-5
ACX Number: X1001539-1
Synonyms: BENZENE,1,4-DIMETHYL-; CHROMAR; 1,4-DIMETHYLBENZENE; P-DIMETHYLBENZENE; P-METHYLTOLUENE; SCINTILLAR; 1,4-XYLENE; P-XYLENE; 4-XYLENE; P-XYLENE; PARA-XYLENE; P-XYLOL
General Use: Used as a general solvent.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
p-xylene	106-42-3	100

OSHA PEL
TWA: 100 ppm; 435 mg/m^3.

ACGIH TLV
TWA: 100 ppm; STEL: 150 ppm.

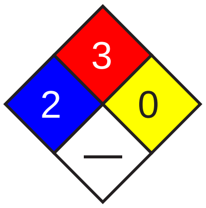
EU OEL
TWA: 50 ppm; STEL: 100 ppm.

NIOSH REL
TWA: 100 ppm (435 mg/m^3); STEL: 150 ppm (655 mg/m^3).

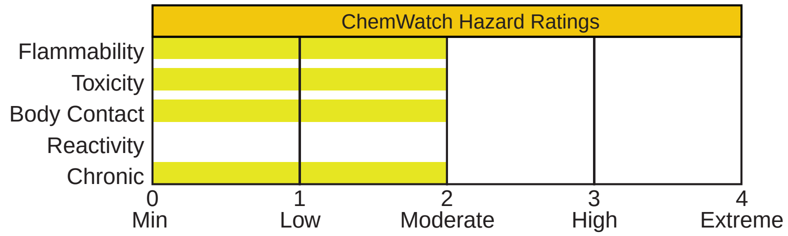
IDLH Level
900 ppm.

DFG (Germany) MAK
TWA: 100 ppm; PEAK: 200 ppm; skin.

Section 3 - Hazards Identification



Fire Diamond



HMIS
2 Health
3 Flammability
0 Reactivity

ANSI Signal Word
Warning!

Flammable

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Clear, sweet smelling liquid. Irritating to eyes/skin/respiratory tract. Other Acute Effects: dizziness, nausea, drowsiness. Chronic Effects: dermatitis, kidney/liver/peripheral nerve damage, may cause birth defects (animal data). Flammable.

Potential Health Effects

Target Organs: central nervous system (CNS), eyes, gastrointestinal (GI) tract, liver, kidneys, skin
Primary Entry Routes: inhalation, skin absorption (slight), eye contact, ingestion
Acute Effects
Inhalation: Xylene is a central nervous system depressant. The vapor is discomforting to the upper respiratory tract and may be harmful if inhaled.
Inhalation hazard is increased at higher temperatures.
Toxic effects are increased by consumption of alcohol.
Acute effects from inhalation of high concentrations of vapor are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache and dizziness, increased reaction time, fatigue and loss of coordination.
If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Headache, fatigue, lassitude, irritability and gastrointestinal disturbances (e.g., nausea, anorexia and flatulence) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted among workers. Transient memory loss, renal impairment, temporary confusion and some evidence of disturbance of liver function was reported in three workers overcome by gross exposure to xylene (10000 ppm). One worker died and autopsy revealed pulmonary congestion, edema, and focal alveolar hemorrhage.

Volunteers inhaling xylene at 100 ppm for 5 to 6 hours showed changes in manual coordination, reaction time and slight ataxia. Tolerance developed during the workweek but was lost over the weekend. Physical exercise may antagonize this effect. Xylene body burden in humans exposed to 100 or 200 ppm xylene in air depends on the amount of body fat with 4% to 8% of total absorbed xylene accumulating in human adipose tissues.

Eye: The liquid is highly discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.

The vapor is highly discomforting to the eyes.

Corneal changes have been reported in furniture polishers exposed to xylene.

Skin: The liquid is highly discomforting to the skin and may cause drying of the skin, which may lead to dermatitis and it is absorbed by the skin.

Toxic effects may result from skin absorption.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

Ingestion: Considered an unlikely route of entry in commercial/industrial environments.

The liquid is highly discomforting and toxic if swallowed.

Ingestion may result in nausea, pain, vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Class A4, Not classifiable as a human carcinogen; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Chronic Effects: Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes.

Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following.

Small excess risks of spontaneous abortion and congenital malformation was reported among women exposed to xylene in the first trimester of pregnancy. In all cases however the women had also been exposed to other substances. Evaluation of workers chronically exposed to xylene has demonstrated a lack of genotoxicity. Exposure to xylene has been associated with increased risks of hemopoietic malignancies but, again simultaneous exposure to other substances (including benzene) complicate the picture. A long-term gavage study of mixed xylenes (containing 17% ethyl benzene) found no evidence of carcinogenic activity in rats and mice of either sex.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air.

Lay patient down. Keep warm and rested.

If available, administer medical oxygen by trained personnel.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor, without delay.

See
DOT
ERG

Eye Contact: Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center. Do NOT induce vomiting. Give a glass of water.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: For acute or short-term repeated exposures to xylene:

1. Gastrointestinal absorption is significant with ingestions.

For ingestions exceeding 1-2 mL (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.

2.Pulmonary absorption is rapid with about 60-65% retained at rest.

3.Primary threat to life from ingestion and/or inhalation is respiratory failure.

4.Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO_2 <50 mm Hg or pCO_2 >50 mm Hg) should be intubated.

5.Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.

6.A chest x-ray should be taken immediately after stabilization of breathing and circulation to document aspiration and detect the presence of pneumothorax.

7.Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitization to catecholamines.

Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Methylhippuric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift.	

Section 5 - Fire-Fighting Measures

Flash Point: 27 °C Closed Cup

Autoignition Temperature: 528 °C

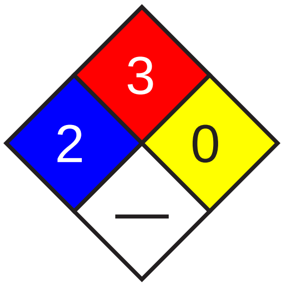
LEL: 1.1% v/v

UEL: 7.0% v/v

Extinguishing Media: Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide.

Water spray or fog - Large fires only.

See DOT ERG



Fire Diamond

General Fire Hazards/Hazardous Combustion Products: Liquid and vapor are flammable.

Moderate fire hazard when exposed to heat or flame.

Vapor forms an explosive mixture with air.

Moderate explosion hazard when exposed to heat or flame.

Vapor may travel a considerable distance to source of ignition.

Heating may cause expansion or decomposition leading to violent rupture of containers.

On combustion, may emit toxic fumes of carbon monoxide (CO).

Other combustion products include carbon dioxide (CO_2).

Fire Incompatibility: Avoid contamination with strong oxidizing agents as ignition may result.

Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.

May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.

If safe, switch off electrical equipment until vapor fire hazard removed.

Use water delivered as a fine spray to control fire and cool adjacent area.

Avoid spraying water onto liquid pools.

Do not approach containers suspected to be hot.

Cool fire-exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

Section 6 - Accidental Release Measures

Small Spills: Remove all ignition sources. Clean up all spills immediately.

Avoid breathing vapors and contact with skin and eyes.

Control personal contact by using protective equipment.

Contain and absorb small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.

See DOT ERG

Large Spills: Clear area of personnel and move upwind.

Contact fire department and tell them location and nature of hazard.

May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.

No smoking, bare lights or ignition sources. Increase ventilation.

Stop leak if safe to do so. Water spray or fog may be used to disperse/absorb vapor. Contain spill with sand, earth or vermiculite.

Use only spark-free shovels and explosion proof equipment.

Collect recoverable product into labeled containers for recycling.

Absorb remaining product with sand, earth or vermiculite.

Collect solid residues and seal in labeled drums for disposal.

Wash area and prevent runoff into drains.

If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid all personal contact, including inhalation.
Wear protective clothing when risk of overexposure occurs.
Use in a well-ventilated area. Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, bare lights or ignition sources.
Avoid generation of static electricity. DO NOT use plastic buckets.
Ground all lines and equipment. Use spark-free tools when handling.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling.
Work clothes should be laundered separately.
Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Recommended Storage Methods: Metal can; metal drum. Packing as recommended by manufacturer.
Check all containers are clearly labeled and free from leaks.
Plastic containers may only be used if approved for flammable liquids.
Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use in a well-ventilated area. Local exhaust ventilation may be required for safe working, i. e. , to keep exposures below required standards; otherwise, PPE is required.
CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build-up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear.
General exhaust is adequate under normal operating conditions.
If risk of overexposure exists, wear NIOSH-approved respirator.
Correct fit is essential to obtain adequate protection.
Provide adequate ventilation in warehouse or closed storage areas.
In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.
Personal Protective Clothing/Equipment:
Eyes: Safety glasses with side shields; or as required, chemical goggles.
Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.
Hands/Feet: Barrier cream with polyethylene gloves; Butyl rubber gloves or Neoprene gloves or PVC gloves.
Safety footwear.
Do NOT use this product to clean the skin.
Respiratory Protection:
Exposure Range >100 to <900 ppm: Air Purifying, Negative Pressure, Half Mask
Exposure Range 900 to unlimited ppm: Self-contained Breathing Apparatus, Pressure Demand, Full Face
Cartridge Color: black
Other: Overalls. Impervious protective clothing.
Eyewash unit.
Ensure there is ready access to an emergency shower.
Glove Selection Index:

PVA	Best selection
VITON	Best selection
NITRILE	Poor to dangerous choice for other than short-term immersion

Section 9 - Physical and Chemical Properties

Appearance/General Info: Clear, colorless liquid with sweet, aromatic odor. Miscible in most organic solvents. Odor threshold 0.05 ppm.

Physical State: Liquid
Odor Threshold: Detection 0.05 ppm
Vapor Pressure (kPa): 0.90 at 20 °C
Vapor Density (Air=1): 3.66 at 15 °C
Formula Weight: 106.18
Specific Gravity (H_2O=1, at 4 °C): 0.86
Evaporation Rate: 9.9 Ether=1
pH: Not applicable
pH (1% Solution): Not applicable.
Boiling Point: 138.37 °C (281 °F)
Freezing/Melting Point: 13.3 °C (55.94 °F)
Volatile Component (% Vol): 100
Water Solubility: Insoluble in water

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.

Storage Incompatibilities: Avoid storage with oxidizers.

Section 11 - Toxicological Information

Toxicity
Oral (rat) LD$_{50}$: 5000 mg/kg
Inhalation (rat) LC$_{50}$: 4550 ppm/4h

Irritation
Nil reported

See *RTECS* ZE 2625000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Most is released into the atmosphere where it may photochemically degrade by reaction with hydroxyl radicals (half-life 1.7-18 hr). The dominant removal process in water is volatilization. It is moderately mobile in soil and may leach into groundwater where it is known to persist for several years despite some evidence that it biodegrades in both soil and groundwater. Bioconcentration is not expected to be significant.

Ecotoxicity: LC$_{50}$ Poecilia reticulata (guppy) 35 ppm/7 day /Conditions of bioassay not specified; LC$_{50}$ Morone saxatilis (bass) 2.0 ppm/96 hr /Conditions of bioassay not specified; LC$_{100}$ Tetrahymena pyriformis (ciliate) 3.77 mmole/l/24 hr /Conditions of bioassay not specified; LD$_{50}$ Goldfish 18 mg/l/24 hr /Modified ASTM D 1345 method; LC$_{50}$ Crangon franciscorum (shrimp) 2.0 ppm/96 hr /Conditions of bioassay not specified

Henry's Law Constant: 0.314
BCF: eels 1.37
Biochemical Oxygen Demand (BOD): 0 lb/lb, 5 days
Octanol/Water Partition Coefficient: log K_{ow} = 3.15
Soil Sorption Partition Coefficient: K_{oc} = 3.15

Section 13 - Disposal Considerations

Disposal: Consult manufacturer for recycling options and recycle where possible.
Follow applicable federal, state, and local regulations.
Incinerate residue at an approved site.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Xylenes
ID: UN1307
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: II - Medium Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: IB2, T4, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 202 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 L **Cargo aircraft only:** 60 L
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Xylenes
ID: UN1307
Hazard Class: 3 - Flammable and combustible liquid
Packing Group: III - Minor Danger
Symbols:
Label Codes: 3 - Flammable Liquid
Special Provisions: B1, IB3, T2, TP1
Packaging: **Exceptions:** 150 **Non-bulk:** 203 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 60 L **Cargo aircraft only:** 220 L
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:

RCRA 40 CFR: Not listed
CERCLA 40 CFR 302.4: Listed per CWA Section 311(b)(4), per RCRA Section 3001 100 lb (45.35 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Section 1 - Chemical Product and Company Identification 61

Material Name: Acenaphthene **CAS Number:** 83-32-9
Chemical Formula: $C_{12}H_{10}$
Structural Chemical Formula: $C_{10}H_6(CH_2)_2$
EINECS Number: 201-469-6
ACX Number: X1001052-9
Synonyms: ACENAPHTHENE; ACENAPHTHYLENE,1,2-DIHYDRO-; 1,8-DIHYDROACENAPHTHALENE; 1,2-DIHYDROACENAPHTHYLENE; 1,8-DIHYDROACENAPHTHYLENE; 1,8-ETHYLENENAPHTHALENE; ETHYLENENAPHTHALENE; NAPHTHYLENEETHYLENE; PERI-ETHYLENE NAPHTHALENE; PERIETHYLENENAPHTHALENE
Derivation: By passing ethylene and benzene or naphthalene through a red hot tube; by heating tetrahydroacenaphthene with sulfur to 356 °F (180 °C); or by reacting acenaphthenone or acenaphthenequinone by high-pressure hydrogenation in decalin with nickel at 356 to 464 °F (180 to 240 °C). Occurs as a by-product in coal tar production during the high-temperature carbonization or coking of coal.
General Use: Used as an intermediate for dyes, pharmaceuticals, insecticides, fungicides, and plastics.

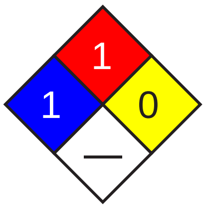
Section 2 - Composition / Information on Ingredients

Name	CAS	%
Acenaphthene	83-32-9	ca 98% wt

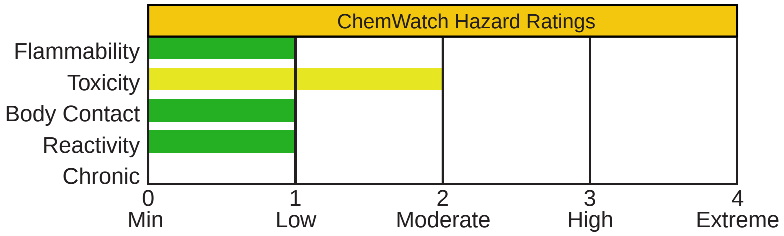
OSHA PEL **NIOSH REL**

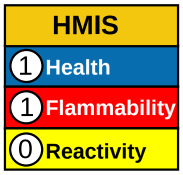
ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond





ANSI Signal Word

Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

White, needle-like crystals. Irritating to eyes/skin/respiratory tract. Also causes: vomiting if large amounts are ingested. Chronic: possible mutagenic activity (animal studies). Combustible.

Potential Health Effects

Target Organs: Eyes, skin, respiratory tract.
Primary Entry Routes: Inhalation, skin and eye contact.
Acute Effects
Inhalation: Irritation of the respiratory tract may occur.
Eye: Irritation may occur.
Skin: Irritation may occur.
Ingestion: Ingestion of large amounts may cause vomiting. Irritation of the gastrointestinal tract may occur.
Carcinogenicity: NTP - Not listed; IARC - Not listed; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Not listed; MAK - Not listed.
Medical Conditions Aggravated by Long-Term Exposure: Pre-existing skin disorders.
Chronic Effects: None reported.

Section 4 - First Aid Measures

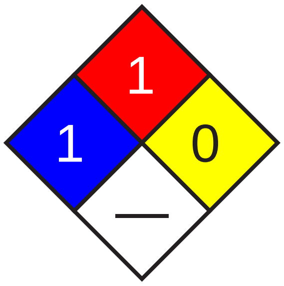
See DOT ERG

Inhalation: Remove exposed person to fresh air and support breathing as needed.
Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water. Consult a physician or ophthalmologist if pain or irritation persist.
Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water followed by a thorough soap and water wash.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water to dilute. Vomiting may be spontaneuos if large amounts are ingested.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: Treatment is symptomatic and supportive.

Section 5 - Fire-Fighting Measures

See DOT ERG

Flash Point: Combustible
Autoignition Temperature: None reported.
LEL: None reported.
UEL: None reported.
Flammability Classification: Combustible Solid
Extinguishing Media: Use dry chemical, carbon dioxide, water spray, fog, or foam.
General Fire Hazards/Hazardous Combustion Products: Carbon oxide(s).
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Fire Diamond

Section 6 - Accidental Release Measures

See DOT ERG

Spill/Leak Procedures: Notify safety personnel, isolate and ventilate area.
Small Spills: *Do not* sweep! Carefully scoop up or vacuum (with appropriate filter) and place in suitable containers.
Large Spills: Flush spills with water to containment area for later disposal. *Do not* release into sewers or waterways. Damp mop any residue.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Use only with ventilation adequate to prevent airborne hazards. *Do not* use near heat and ignition sources.
Never eat, drink, or smoke in work areas. Practice good personal hygiene after using acenaphthene, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.
Recommended Storage Methods: Store in a cool, dry, well-ventilated area away from heat, ignition sources and incompatibles (Sec. 10).
Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where possible, enclose all processes to prevent dust dispersion into work area. To prevent static sparks, electrically ground and bond all equipment used with and around acenaphthene. Provide general or local exhaust ventilation systems to maintain airborne concentrations at least as low as those given for *nuisance dusts*. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Administrative Controls: Consider periodic medical exams to determine if any irritation upon exposure to acenaphthene has occurred.
Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Launder before reuse. Remove acenaphthene from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: White, needle-like crystals.

Physical State: Solid

Odor Threshold: 0.5048 mg/m^3

Vapor Pressure (kPa): < 0.02 mm Hg at 68 °F (20 °C); 10 mm Hg at 268 °F (131 °C)

Formula Weight: 154.21

Specific Gravity (H_2O=1, at 4 °C): 1.0242 at (194 °F) 90 °C

Refractive Index: 1.6048 at 212 °F (100 °C)

Boiling Point: 531.5 °F (277.5 °C)

Freezing/Melting Point: 200.5 °F (93.6 °C)

Water Solubility: 100 mg/L

Other Solubilities: Soluble as 1 g/ 31 mL (ethanol), 56 mL (methanol), 25 mL (propanol), 2.5 mL (chloroform), 5 mL (benzene & toluene); 3.2 g/100 mL glacial acetic acid.

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Acenaphthene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization does not occur. Exposure to heat, ignition sources, and incompatibles.

Storage Incompatibilities: Acenaphthene reacts with molecular oxygen in the presence of alkali-earth metal bromides to form acenaphthequinone; reacts with ozone in the presence of alkali-earth metal hydroxides to form 1,8-naphthaldehyde carboxylic acid; and is oxidized to aromatic alcohols and ketones by reaction with transition metal catalysts.

Hazardous Decomposition Products: Thermal oxidative decomposition of acenaphthene can produce carbon oxide(s) and thick, acrid smoke.

Section 11 - Toxicological Information

Other Effects:

Microorganisms (species unspecified): 3 mg (-S9) caused mutation.

Rat, intraperitoneal, LD_{50}: 600 mg/kg.

See *RTECS* AB1000000, for additional data.

Section 12 - Ecological Information

Environmental Fate: In soil, acenaphthene will biodegrade under aerobic conditions with a half-life of 10 to 60 days. A soil absorption coefficient of 2065 to 3230 indicates slight mobility. In water, biodegradation will occur under aerobic conditions with a half-life of 1 to 25 days, as well as photolysis in direct sunlight. Volatilization is another means of removal with half- lives of 11 hr from a model river and 39 days from a model pond which considers the effect of adsorption. In air, acenaphthene reacts with photochemically-produced hydroxyl radicals with a half-life of 7.2 hr.

Ecotoxicity: *Pimephales promelas* (fathead minnow), LC_{50} = 1700 µg/L/72 hr, 1600 µg/L/96 hr;*Salmo gairdneri* (rainbow trout), LC_{50} = 1570 µg/L/24 hr, 1130 µg/l/48 hr, 800 µg/L/72 hr, 670 µg/L/96 hr.

Henry's Law Constant: 1.55 x 10^{-4} atm/m^3/mole at 77 °F (25 °C)

Octanol/Water Partition Coefficient: log K_{ow} = 3.92

Section 13 - Disposal Considerations

Disposal: Acenaphthene is a good candidate for rotary-kiln incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Environmentally hazardous substances, solid, n.o.s.
ID: UN3077
Hazard Class: 9 - Miscellaneous hazardous material
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 9 - Class 9
Special Provisions: 8, 146, B54, IB8, N20
Packaging: **Exceptions:** 155 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** No limit **Cargo aircraft only:** No limit
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Not listed
- **CERCLA 40 CFR 302.4:** Listed per CWA Section 307(a) 100 lb (45.35 kg)
- **SARA 40 CFR 372.65:** Not listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Material Safety Data Sheet Collection

Genium group inc.

1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

Acenaphthylene
ACE1300

Section 1 - Chemical Product and Company Identification

Material Name: Acenaphthylene **CAS Number:** 208-96-8

Chemical Formula: $C_{12}H_8$

EINECS Number: 205-917-1

ACX Number: X1001734-6

Synonyms: ACENAPHTHYLENE; CYCLOPENTA(DE)NAPHTHALENE

Derivation: Acenaphthylene is formed upon catalytic dehydration of acenaphthene. It was also extracted from oil furnace black. Not produced commercially.

General Use: Acenaphthylene is a constituent of coal tar and crude oil, a product of combustion, and can be released to the environment via natural fires associated with lightning, volcanic activity, and spontaneous combustion.

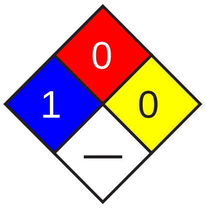
Section 2 - Composition / Information on Ingredients

Name	CAS	%
Acenaphthylene	208-96-8	ca 99+% wt

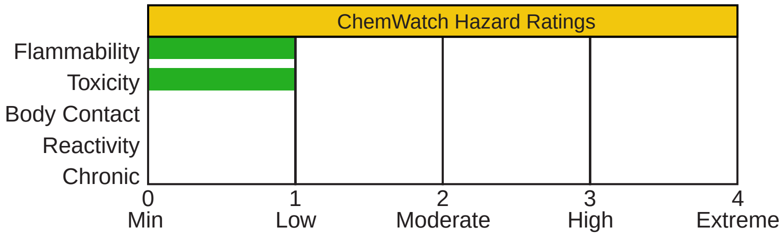
OSHA PEL **NIOSH REL**

ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond



HMIS

1 Health

0 Flammability

0 Reactivity

ANSI Signal Word

Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Yellow crystalline solid. Irritating to eyes/skin/respiratory tract. Chronic: mutation effects, possible kidney and bladder cancer.

Potential Health Effects

Target Organs: Skin, eyes, blood, and respiratory and autonomic nervous systems

Primary Entry Routes: Inhalation, ingestion, skin/eye contact

Acute Effects

Inhalation: Causes irritation of the respiratory system and mucous membranes.

Eye: Contact causes irritation.

Skin: Contact causes irritation and burning.

Ingestion: No acute effects reported.

Carcinogenicity: NTP - Not listed; IARC - Not listed; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Not listed; MAK - Not listed.

Medical Conditions Aggravated by Long-Term Exposure: Liver, kidney, and bladder damage.

Chronic Effects: Polycyclic aromatic hydrocarbons (PAH's) may cause coughing and bronchitis, eye photosensitivity, coal tar warts, erythema, dermal burns, acneiform lesions, and photosensitization of the skin. They may also cause leukoplakia, mild hepatotoxicity or mild nephrotoxicity (in animals), hematuria, and in rats - agranulocytosis, anemia, and pancytopenia. PAH's have been associated with kidney, bladder, lung, gastrointestinal tract, and skin cancer. PAH's may cross the placenta and are excreted in breast milk. Laboratory experiments have shown mutagenic effects.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician or ophthalmologist if pain, irritation, swelling, lacrimation, or photophobia persist.

Skin Contact: Quickly remove contaminated clothing. Rinse with flooding amounts of water. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water. *Do not* induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Arterial blood gases, pulmonary function, chest x-ray, and other monitoring may be indicated, based on the patient's presentation and the exposure characteristics. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. Inhalation exposure to PAH's may be complicated by exposure to other substances which produce acute respiratory and systemic effects. Treat according to clinical presentation and exposure history. If bronchospasm and wheezing occur, consider treatment with inhaled sympathomimetic agent. Carefully observe patients with inhalation exposure for the developments of any systemic signs or symptoms and administer symptomatic treatment as necessary.

Section 5 - Fire-Fighting Measures

Flash Point: Data not found.

Autoignition Temperature: Data not found.

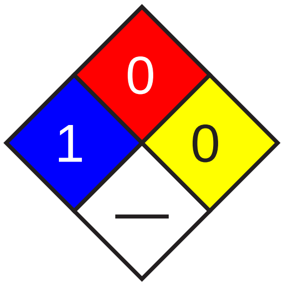
LEL: Data not found.

UEL: Data not found.

Extinguishing Media: Extinguish with water spray, carbon dioxide, dry chemical powder or appropriate foam.

General Fire Hazards/Hazardous Combustion Products: Toxic fumes of carbon monoxide and carbon dioxide can be released.

Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Fire Diamond

Section 6 - Accidental Release Measures

Spill/Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Cleanup personnel should protect against exposure (Sec. 8). Most commonly produced as a product of incineration or combustion.

Small Spills: Carefully sweep, scoop up, or vacuum (with a HEPA filter). Avoid raising dust.

Large Spills: For large spills, dike far ahead of spill for later disposal. *Do not* release into sewers or waterways.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Wear personal protective clothing and equipment to prevent vapor inhalation and contact with skin or eyes (Sec. 8). Avoid prolonged or repeated exposure.

Never eat, drink, or smoke in work areas. Workers subjected to skin contact with acenaphthylene should wash any areas of the body that may have contacted the material, whether or not contact actually occurred. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed containers in a cool, well-ventilated area away from heat, light, ignition sources, and incompatibles.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations to avoid dispersion into the work area. Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with this material. Train in work practices which minimize exposure. Identify areas in which exposure to acenaphthylene may occur by signs or other appropriate means and restrict access to these areas to authorized persons only. Routine monitoring and physical assessments (e.g., complete blood count, hepatic and renal function tests, chest x-ray and pulmonary function tests, dermal assessments) of individuals with significant exposure is recommended. Make available to employees exposed to acenaphthylene a complete history and physical examination with emphasis on the oral cavity, respiratory tract, bladder, and kidneys. Examine the skin for evidence of chronic disorders, for premalignant and malignant lesions, and evidence of hyperpigmentation or photosensitivity. Obtain a urinalysis including specific gravity, albumin, glucose, and a microscopic examination of centrifuged sediment, as well as a test for red blood cells. Also perform a complete blood count to search for leukemia and aplastic anemia. Employees having 5 or more years of exposure or who are 45 years of age or older should have a urinary cytology exam. Employees having 10 or more years of exposure or who are 45 year of age or older should have a sputum cytology examination, a 14" x 17" chest roentgenogram, and periodic measure of FVC and FEV (1 sec).

Personal Protective Clothing/Equipment: Wear chemically protective gloves, rubber boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear splash-proof chemical safety goggles with face shield (8 in. min), per OSHA eye- and face- protection regulations (29 CFR 1910.133). Contact lenses are not protective eye devices. Appropriate eye protection must be worn in conjunction with, or instead of, contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. The following recommendations are for coal tar pitch volatiles: For exposure to concentrations <= 2 mg/m^3, wear a chemical cartridge respirator with an organic vapor cartridge(s) and with a fume or high efficiency filter or any supplied-air respirator or any SCBA; for exposure to concentrations <= 10 mg/m^3, wear a chemical cartridge respirator with a full facepiece and an organic vapor cartridge(s) and with a fume or high efficiency filter, or a gas mask with a chin style or a front- or back- mounted organic vapor canister and with a full facepiece and a fume or high efficiency filter, or any supplied-air respirator with a full facepiece, helmet, or hood or any SCBA with a full facepiece; for exposure to concentrations <= 200 mg/m^3, wear a type C supplied-air respirator operated in pressure-demand or other positive-pressure or continuous flow mode, or a powered air-purifying respirator with an organic vapor cartridge and a high efficiency particulate filter; for exposure to concentrations <= 400 mg/m^3, wear a type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive-pressure mode, or with a full facepiece, helmet, or hood operated in continuous flow mode. For exposure to concentrations >= 400 mg/m^3 or for emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Place clothing contaminated with acenaphthylene in closed containers for storage until it can be discarded or laundered by someone informed of the hazards of working with acenaphthylene. Remove this material from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Yellow

Physical State: Crystalline solid; prisms from ether; plates from alcohol

Vapor Pressure (kPa): 9.12×10^{-4} mm Hg at 77 °F (25 °C)

Formula Weight: 152.20

Density: 0.8988 g/cm^3 at 16 °C/2°C

Boiling Point: 509 °F (265 °C) to 527 °F (275 °C)

Freezing/Melting Point: 194 °F (90 °C) to 197.6 °F (92 °C)

Ionization Potential (eV): 8.22 +/- 0.2 eV

Water Solubility: Slightly soluble; 3.93 mg/L distilled water at 77 °F (25 °C)

Other Solubilities: Very soluble in 95% ethanol, benzene, and ether.

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Acenaphthylene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Avoid contact with chemical incompatibles, heat, and sources of ignition.

Storage Incompatibilities: Include strong oxidizing agents.

Hazardous Decomposition Products: Thermal oxidative decomposition of acenaphthylene can produce toxic fumes of carbon monoxide and carbon dioxide.

Section 11 - Toxicological Information

Acute Oral Effects:
Mouse, oral, LD_{50}: 1760 mg/kg produced toxic effects of parasympathomimetic, respiratory depression, hemorrhage.

Other Effects:
Multiple Dose Toxicity Effects: Rat, inhalation, 500 µg/m^3 administered for 4 hours over 17 weeks intermittently produced toxic effects: lung, thorax, or respiration - structural or functional change in trachea or bronchi; lung, thorax, or respiration - bronchiolar dilation; nutritional and gross metabolic - weight loss or decreased weight gain.

Genetic Effects: Bacteria - *S Typhimurium*, 1 mmol/L/2 hr (-S9) induced mutations in microorganisms.

Human, lymphocyte, 15 mg/L induced mutations in mammalian somatic cells.

Rat, intraperitoneal, LD_{50}: 1700 mg/kg.

See *RTECS* AB1254000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Acenaphthylene is expected to biodegrade in the environment. It is not expected to hydrolyze or bioconcentrate in the environment, yet may undergo direct photolysis in sunlit environmental media. Volatilization from environmental waters may be important. It is expected to exist entirely in the vapor phase in ambient air. In the atmosphere, reactions with photochemically-produced hydroxyl radicals and ozone are likely to be important fate processes. Acenaphthylene is expected to have a low to slight mobility in soil. It could adsorb to, run off with, and bioaccumulate in, soil. In aquatic systems, it may partition from the water column to organic matter contained in sediments and suspended solids.

Ecotoxicity: Data not found.

Henry's Law Constant: 1.13×10^{-5} (calculated)

BCF: 2.11 (estimated)

Octanol/Water Partition Coefficient: log $K_{ow} = 4.07$

Soil Sorption Partition Coefficient: $K_{oc} = 950$ to 3315 (estimated)

Section 13 - Disposal Considerations

Disposal: Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber or consider chemical precipitation. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable federal, state, and local regulations. Handle empty containers carefully as hazardous residues may still remain. Triple rinse containers and dispose of wash wastewater appropriately.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Not specifically listed.

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Not listed
CERCLA 40 CFR 302.4: Listed per CWA Section 307(a) 5000 lb (2268 kg)
SARA 40 CFR 372.65: Not listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Section 1 - Chemical Product and Company Identification 61

Material Name: Anthracene **CAS Number:** 120-12-7
Chemical Formula: $C_{14}H_{10}$
Structural Chemical Formula: $(C_6H_4CH)_2$
EINECS Number: 204-371-1
ACX Number: X1001589-1
Synonyms: ANTHRACEN; ANTHRACENE; ANTHRACENE OIL; ANTHRACIN; COAL TAR PITCH VOLATILES:ANTHRACENE; GREEN OIL; P-NAPHTHALENE; PARANAPHTHALENE; PARANAPTHALENE; TETRA OLIVE N2G
Derivation: Occurs naturally in smoke (gasoline, coal, cigarette, etc.), charbroiled foods, and coal tar pitch volatiles. Obtained by distilling crude anthracene oil with alkali carbonate in iron retorts (phenanthrene is removed via carbon disulfide) *or* by salting out from crude anthracene oil and draining; the crude salts are then purified by pressing and the use of various solvents (phen-anthrene and carbazole are removed).
General Use: Used in chemical manufacture (phenanthrene, carbazole, anthraquinone), in calico printing; as a component of dyes, scintillation fluid, smoke screens; and in organic semi-conductor research.

Section 2 - Composition / Information on Ingredients

Name	**CAS**	**%**
Anthracene	120-12-7	ca 90 to 95% wt (commercial grade); 90 to 98% wt (technical grade)

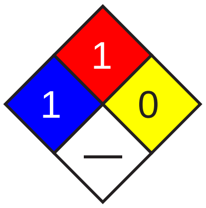
Trace Impurities: phenanthrene, carbazole, chrysene, pyridine (0.2%), iron (0.03%)

OSHA PEL

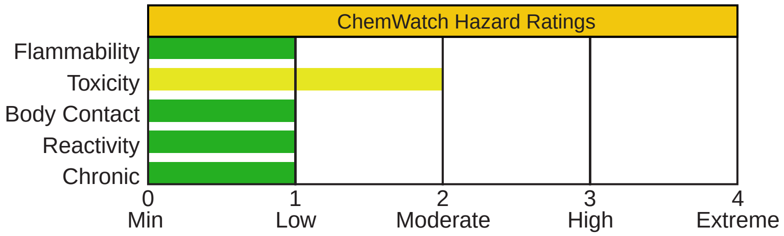
NIOSH REL

ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond



HMIS
① Health
① Flammability
⓪ Reactivity

ANSI Signal Word
Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless crystals with violet fluorescence (pure) or yellow crystals with green fluorescence. Irritating to eyes/skin/respiratory tract. Other Acute Effects: sun exposure can aggravate skin irritation and cause dermatitis. Combustible.

Potential Health Effects

Target Organs: Eyes, skin, respiratory and digestive tracts.
Primary Entry Routes: Inhalation, skin/eye contact
Acute Effects
Inhalation: Symptoms include irritation of the respiratory tract, headache, nausea and vomiting, loss of appetite, slowed reactions, and adynamia (lack or loss of strength due to disease or other outside agent). Acute symptoms disappear within several days of last exposure.
Eye: Irritation of the conjunctiva with burning, itching and watering.

Skin: Irritation with burning, itching, and edema (fluid build-up). Volunteers with a 2% crude tar solution applied to the skin showed anthracene absorption via blood tests.

Ingestion: Gastrointestinal tract irritation.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Medical Conditions Aggravated by Long-Term Exposure: Dermatitis.

Chronic Effects: Repeated skin contact can cause pigmentation of the skin with cornification of surface layers and telangioectasis (an abnormal dilatation of capillary vessels that often form small, raised, red, wart-like spots). Sensitization (including photo- sensitization) may also occur. Anthracene appears to concentrate in the fat and liver.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult an ophthalmologist if pain and irritation persist.

Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

See DOT ERG

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water to dilute. Vomiting may be spontaneous.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treatment is symptomatic and supportive.

Section 5 - Fire-Fighting Measures

Flash Point: 250 °F (121 °C), Closed Cup

Autoignition Temperature: 1004 °F (540 °C)

LEL: 0.6% v/v

UEL: Not reported.

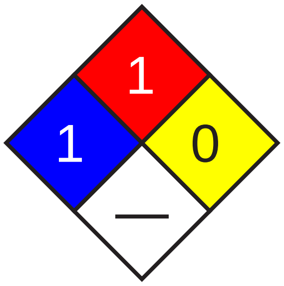
Flammability Classification: Combustible

See DOT ERG

Extinguishing Media: Use water spray, carbon dioxide, dry chemical, or foam.

General Fire Hazards/Hazardous Combustion Products: Include carbon oxide(s) and irritating, acrid smoke. May explode in air.

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Fire Diamond

Section 6 - Accidental Release Measures

Spill/Leak Procedures: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Cleanup personnel should protect against inhalation and skin/eye contact.

Small Spills: Carefully scoop up or vacuum (with appropriate filter) and place in suitable containers for disposal.

Large Spills: Use water to flush large spills to containment area for later disposal. Do not release into sewers or waterways. Damp mop any residue.

See DOT ERG

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: *Do not* use near heat or flame. Wear appropriate PPE.

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using anthracene, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. Skin cleansers (ex. 55% kaolin, 25% neutral soap, 20% bran) are recommended.

Recommended Storage Methods: Store in a cool, dry, well-ventilated area away from heat, ignition sources, and incompatibles (Sec. 10).

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: To prevent static sparks, electrically ground and bond equipment used with and around anthracene. Enclosure of equipment and mechanization of processes will aid in exposure control. Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Consider preplacement and periodic medical exams of exposed workers with emphasis on the skin.

Personal Protective Clothing/Equipment: Limit work in sunlight as much as possible to prevent photosensitization. Photoprotective creams or pastes must be applied to bare skin regions. Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Polyvinyl chloride is a suitable material for PPE. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For any detectable concentration, use a SCBA or supplied-air respirator with a full facepiece and operated in pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes and place in closed containers until laundered. Remove anthracene from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Colorless crystals with a violet fluorescence (pure), yellow crystals with a green fluorescence (due to tetracene and naphthacene).

Physical State: Solid

Vapor Pressure (kPa): 1mm Hg at 293 °F (145 °C)

Formula Weight: 178.22

Density: 1.25 g/cm^3 at 80.6 °F (27 °C)

Boiling Point: 644 °F (340 °C)

Freezing/Melting Point: 423 °F (217 °C)

Water Solubility: 1.29 mg/L at 77 °F/25 °C (*distilled water*), 0.6 mg/L at 77 °F/25 °C (*salt water*)

Other Solubilities: 1 g in 67 mL absolute alcohol, 70 mL methanol, 62 mL benzene, 85 mL chloroform, 200 mL ether, 31 mL carbon disulfide, 86 mL carbon tetrachloride, and 125 mL toluene. Also soluble in acetone.

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Anthracene darkens upon exposure to sunlight (transformed to *para*-anthracene). Hazardous polymerization *does not* occur. Exposure to heat, ignition sources, sunlight, and incompatibles.

Storage Incompatibilities: Include calcium hypochlorite (exothermic), fluorine (explodes), chromic acid, and calcium oxychloride.

Hazardous Decomposition Products: Thermal oxidative decomposition of anthracene can produce carbon oxide(s) and acrid, irritating smoke.

Section 11 - Toxicological Information

Acute Oral Effects:

Mouse, oral, LD: > 17 g/kg caused fatty liver degeneration.

Irritation Effects:

Mouse, skin: 118 µg caused mild irritation.

Other Effects:

Rat, oral: 20 g/kg intermittently for 79 weeks caused liver tumors.

Genetic Effects - Rat, liver cell: 300 µmoL caused DNA damage.

See *RTECS* CA9350000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to soil, anthracene is expected to absorb strongly and not leach to groundwater. It will not hydrolyze, but may be subject to biodegradation, the rate of which depends on soil type. In water, anthracene is subject to direct photolysis near the surface and undergoes significant biodegradation. Biodegradation in water is faster with increased temperature, increased oxygen, and acclimated microbes. Evaporation may also be significant with an estimated half-life range of 4.3 to 5.9 days from a river 1 m deep, flowing 1 m/sec, with a wind velocity of 3 m/sec. In the air, photolysis and reaction with photochemically-produced hydroxyl radicals (half-life: 1.67 days). Vapor phase anthracene is expected to degrade faster than particle-sorbed anthracene. A K_{oc} of 26,000 suggests anthracene is relatively immobile in soil and unlikely to leach to groundwater; it will absorb strongly to soil.

Ecotoxicity: *Leponis macrochirus* (bluegill sunfish), LC_{50} = 11.9 µg/L/96 hr; *Rana pipiens* (leopard frog), LC_{50} = 0.065 ppm/30 min & 0.025 ppm/5 hr. BCF (bioconcentration factor): goldfish (162), rainbow trout (4400-9200). Bioconcentration occurs most heavily in organisms which lack the enzyme microsomal oxidase. Anthracene can become concentrated on the waxy surface of some plant leaves and fruits.

Octanol/Water Partition Coefficient: log K_{ow} = 4.45 (calc.)

Section 13 - Disposal Considerations

Disposal: Anthracene is a waste chemical stream constituent which may be subjected to ultimate disposal by controlled incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Environmentally hazardous substances, solid, n.o.s.
ID: UN3077
Hazard Class: 9 - Miscellaneous hazardous material
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 9 - Class 9
Special Provisions: 8, 146, B54, IB8, N20
Packaging: **Exceptions:** 155 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** No limit **Cargo aircraft only:** No limit
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Not listed
- **CERCLA 40 CFR 302.4:** Listed per CWA Section 307(a) 5000 lb (2268 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Material Safety Data Sheet Collection

Genium group inc.

1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

Benz[a]anthracene
BEN2040

Section 1 - Chemical Product and Company Identification 61

Material Name: Benz[a]anthracene **CAS Number:** 56-55-3
Chemical Formula: $C_{18}H_{12}$
EINECS Number: 200-280-6
ACX Number: X1002793-9
Synonyms: B(A)A; BA; BAA; 1,2-BENZ(A)ANTHRACENE; 1,2-BENZANTHRACENE; BENZ(A)ANTHRACENE; BENZANTHRACENE; BENZ[A]ANTHRACENE; 1,2-BENZANTHRAZEN; 1,2-BENZANTHRENE; BENZANTHRENE; 1,2-BENZOANTHRACENE; BENZO(A)ANTHRACENE; BENZOANTHRACENE; 2,3-BENZOPHENANTHRENE; BENZO(A)PHENANTHRENE; BENZO(B)PHENANTHRENE; 2,3-BENZPHENANTHRENE; NAPHTHANTHRACENE; TETRAPHENE
General Use: research chemistry

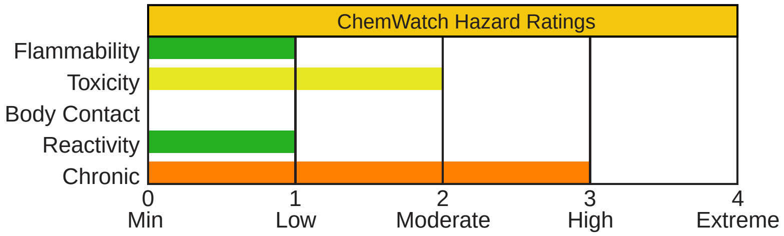
Section 2 - Composition / Information on Ingredients

Name	CAS	%
benz[a]anthracene	56-55-3	>98

OSHA PEL **NIOSH REL**

ACGIH TLV
Exposure by all routes should be carefully controlled to levels as low as possible.

Section 3 - Hazards Identification



ANSI Signal Word

Danger!

Poison

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless plates. May cause irritation. Poison. Other Acute Effects: may be fatal if inhaled, swallowed, or absorbed through skin. Chronic Effects: may cause heritable genetic damage; may alter genetic material. Carcinogen. Will burn.

Potential Health Effects

Target Organs: No data found.
Primary Entry Routes: accidental skin and eye contact, inhalation of generated dusts
Acute Effects
Inhalation: The dust is harmful and discomforting to the upper respiratory tract. Persons with impaired respiratory function, airway diseases, or conditions such as emphysema or chronic bronchitis may incur further disability if excessive concentrations of particulate are inhaled.
Eye: The dust may be discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/ or other transient eye damage/ ulceration.
Skin: The material may be mildly discomforting to the skin. Open cuts and abraded or irritated skin should not be exposed to this material. Toxic effects may result from skin absorption.

Ingestion: The solid/dust is discomforting to the gastrointestinal tract and harmful if swallowed. Considered an unlikely route of entry in commercial/industrial environments.

Carcinogenicity: NTP - Class 2B, Reasonably anticipated to be a carcinogen, sufficient evidence of carcinogenicity from studies in experimental animals; IARC - Group 2A, Probably carcinogenic to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Class A2, Suspected human carcinogen; EPA - Class B2, Probable human carcinogen based on animal studies; MAK - Class A2, Unmistakably carcinogenic in animal experimentation only.

Chronic Effects: Cited in many publications and by a number of regulatory authorities as a suspected human carcinogen. Subcutaneous injection produces sarcomas (soft tissue growths) in rats and mice. When administered by gavage benz[a]anthracene induced papillomas to the forestomach in mice and hamsters and mammary tumors in female rats.

Section 4 - First Aid Measures

See
DOT
ERG

Inhalation: • If dust is inhaled, remove to fresh air.
- Encourage patient to blow nose to ensure clear breathing passages.
- Rinse mouth with water. Consider drinking water to remove dust from throat.
- Seek medical attention if irritation or discomfort persist.
- If fumes or combustion products are inhaled, remove to fresh air.
- Lay patient down. Keep warm and rested.
- Other measures are usually unnecessary.

Eye Contact: • Immediately hold the eyes open and flush with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention if pain persists or recurs.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: • Immediately remove all contaminated clothing, including footwear (after rinsing with water).
- Wash affected areas thoroughly with water (and soap if available).
- Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center. If more than 15 minutes from a hospital:
- INDUCE vomiting with IPECAC SYRUP, or fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. NOTE: Wear a protective glove when inducing vomiting by mechanical means.
- SEEK MEDICAL ATTENTION WITHOUT DELAY.
- In the meantime, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically.

Section 5 - Fire-Fighting Measures

See
DOT
ERG

Flash Point: Not available; probably combustible

Extinguishing Media: Foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide. Water spray or fog - Large fires only.

General Fire Hazards/Hazardous Combustion Products: • Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space, as dust may form an explosive mixture with air and any source of ignition, e.g., flame or spark, will cause fire or explosion.
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Fire Incompatibility: Avoid contamination with oxidizing agents i.e., nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Fire-Fighting Instructions: • Contact fire department and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or waterways.
- Use fire fighting procedures suitable for surrounding fire.
- Do not approach containers suspected to be hot.
- Cool fire-exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

- Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

See DOT ERG

Small Spills: • Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up.
- Place in clean drum then flush area with water.

Large Spills: • Clear area of personnel and move upwind.
- Contact fire department and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or waterways.
- No smoking, bare lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse/absorb vapor.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and reusing.
- If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: • Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Do not allow material to contact humans, exposed food or food utensils.
- Avoid smoking, bare lights or ignition sources.
- When handling, DO NOT eat, drink or smoke.
- Avoid contact with incompatible materials.
- Keep containers securely sealed when not in used.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Working clothes should be laundered separately. Launder contaminated clothing before reuse.
- Follow good occupational work practices.
- Observe manufacturer's storage/handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Recommended Storage Methods: Glass container. Plastic container. Metal can. Metal drum. Check that all containers are clearly labeled and free from leaks.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Local exhaust ventilation usually required. If risk of overexposure exists, wear NIOSH-approved respirator. Provide adequate ventilation in warehouse or closed storage area.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields or chemical goggles. Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Wear chemical protective gloves, e.g. PVC. Wear safety footwear.

Other: • Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Light yellow to tan crystalline powder.

Physical State: colorless plates

Vapor Pressure (kPa): 5 x10^{-9} torr at 20 °C

Formula Weight: 228.29

Evaporation Rate: Half life 89 hours

Boiling Point: Sublimes at 435 °C (815 °F)

Freezing/Melting Point: 162 °C (323.6 °F)

Volatile Component (% Vol): Negligible

Water Solubility: 0.014 mg/L in Water at 25 °C

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.

Storage Incompatibilities: Avoid reaction with oxidizing agents.

Section 11 - Toxicological Information

Toxicity

Intravenous (rat) LD_{50}: > 200 mg/kg

Irritation

Nil reported

See *RTECS* CV9275000, for additional data.

Section 12 - Ecological Information

Environmental Fate: When released into water it will rapidly become adsorbed to sediment or particulate matter in the water column, and bioconcentrate into aquatic organisms. In the unadsorbed state, it will degrade by photolysis in a matter of hours to days. Its slow desorption from sediment and particulate matter will maintain a low concentration in the water. Because it is strongly adsorbed to soil it will remain in the upper few centimeters of soil and not leach into groundwater. It will very slowly biodegrade when colonies of microorganisms are acclimated but this is too slow a process (half-life ca 1 year to be significant). In the atmosphere it will be transported long distances and will probably be subject to photolysis and photooxidation although there is little documentation about the rate of these processes in the literature.

Ecotoxicity: Algae: Anabaena flos-aquae 2w EC_{50} growth +0.014 mg/l NOEC growth +0.003 mg/l

BCF: daphnia 4.0

Octanol/Water Partition Coefficient: log K_{ow} = 5.61

Soil Sorption Partition Coefficient: K_{oc} = sediments 55 to 1.87 x10^{6}

Section 13 - Disposal Considerations

Disposal: • Recycle wherever possible or consult manufacturer for recycling options.
• Follow applicable local, state, and federal regulations.
• Bury residue in an authorized landfill.
• Recycle containers if possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: I - Great Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB7
Packaging: **Exceptions:** None **Non-bulk:** 211 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 kg **Cargo aircraft only:** 50 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: II - Medium Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP2, IP4
Packaging: **Exceptions:** None **Non-bulk:** 212 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 25 kg **Cargo aircraft only:** 100 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP3
Packaging: **Exceptions:** 153 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** 100 kg **Cargo aircraft only:** 200 kg
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Listed U018 Toxic Waste
- **CERCLA 40 CFR 302.4:** Listed per RCRA Section 3001, per CWA Section 307(a) 10 lb (4.535 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Benzo[%i/i%]fluoranthene
BEN4520

Issue Date: 2006-06

Section 1 - Chemical Product and Company Identification

Material Name: Benzo[%i/**i%]fluoranthene** **CAS Number:** 205-99-2
Chemical Formula: $C_{20}H_{12}$
EINECS Number: 205-911-9
ACX Number: X1004486-7
Synonyms: B B F; B E F; B (B) F; B(B)F; B(E)F; BBF; BEF; 3,4-BENZ(E)ACEPHENANTHRYLENE; BENZ(E)ACEPHENANTHRYLENE; 2,3-BENZFLUORANTHENE; 3,4-BENZFLUORANTHENE; BENZO(B) FLUORANTHENE; BENZO[%I/**I%]FLUORANTHENE; 2,3-BENZOFLUORANTHENE; 3,4-BENZOFLUORANTHENE; BENZO(B)FLUORANTHENE; BENZO(E)FLUORANTHENE; BENZO[B]FLUORANTHENE; 2,3-BENZOFLUORANTHRENE**
Derivation: No manufacturing information available; found in coal tar, coke oven emissions, cigarette smoke and automobile exhaust. There is no commercial production of this compound in the U.S.
General Use: Used as a research chemical.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
Benzo[%i/**i%]fluoranthene**	**205-99-2**	**ca 100% wt**

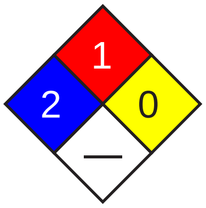
(Note that, except when in the form of a laboratory research chemical, benzo[%i/i%]fluoranthene is typically found in mixtures with other PAHs (polycyclic aromatic hydrocarbons), such as coal tar pitch).

OSHA PEL

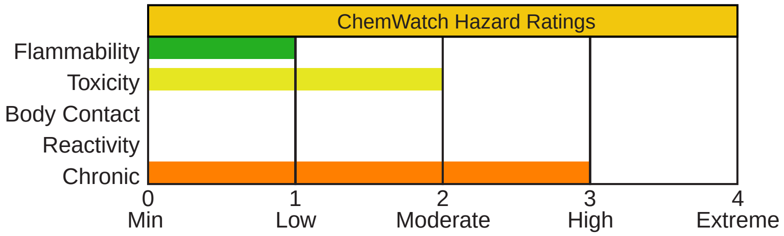
NIOSH REL

ACGIH TLV
Exposure by all routes should be carefully controlled to levels as low as possible.

Section 3 - Hazards Identification



Fire Diamond



HMIS
② Health
① Flammability
⓪ Reactivity

ANSI Signal Word
Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless needles. May be irritating to eyes/skin/respiratory tract. Possible human carcinogen and mutagen.

Potential Health Effects

Target Organs: Eyes, skin, respiratory system, gastrointestinal (GI) system, blood, liver, kidneys
Primary Entry Routes: Inhalation, ingestion, skin and/or eye contact/absorption
Acute Effects
Inhalation: Irritation may result from inhalation of benzo[%i/**i%]fluoranthene dust or fumes.**
Eye: Contact may result in irritation.
Skin: Contact may cause irritation.
Ingestion: None reported.

Carcinogenicity: NTP - Class 2B, Reasonably anticipated to be a carcinogen, sufficient evidence of carcinogenicity from studies in experimental animals; IARC - Group 2B, Possibly carcinogenic to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Class A2, Suspected human carcinogen; EPA - Class B2, Probable human carcinogen based on animal studies; MAK - Class A2, Unmistakably carcinogenic in animal experimentation only.

Medical Conditions Aggravated by Long-Term Exposure: None reported.

Chronic Effects: Although there is no direct epidemiological evidence linking benzo[%i/**i%]fluoranthene with cancer, it is frequently a component of mixtures associated with human cancer. Epidemiological studies demonstrate increased incidence of cancer (skin, lung, urinary tract, GI system) with exposure to mixed PAHs and substances that contain them. Coal tar pitch volatiles are reported to cause an excess of bronchitis. In animal studies, benzo[%i/i%]fluoranthene has been found to be tumorigenic and mutagenic.**

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult a physician or ophthalmologist if pain and/or irritation develop.

Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

See
DOT
ERG

Note to Physicians: Treat overexposure symptomatically and supportively. Medical surveillance may be necessary for high exposures (skin, mouth, GI, respiratory system). Animal testing suggests a synergism (combined effect greater than sum of parts) of mutagenicity between benzo[%i/**i%]fluoranthene and other PAHs.**

Section 5 - Fire-Fighting Measures

Flash Point: Probable combustible solid

Autoignition Temperature: None reported.

LEL: None reported.

UEL: None reported.

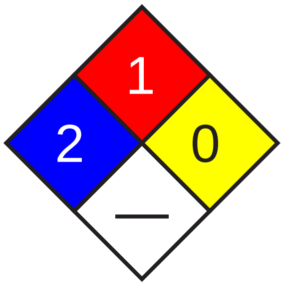
Flammability Classification: Probable combustible solid

Extinguishing Media: Use water spray; carbon dioxide, dry chemical powder or appropriate foam.

General Fire Hazards/Hazardous Combustion Products: Heating benzo[%i/**i%]fluoranthene to decomposition can produce carbon monoxide (CO) and carbon dioxide (CO_2).**

Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

See
DOT
ERG



Fire Diamond

Section 6 - Accidental Release Measures

Spill/Leak Procedures: Notify safety personnel, isolate area and deny entry. Remove sources of ignition, and provide maximum ventilation.

Small Spills: Vacuum or carefully scoop up material and deposit in sealed containers. Absorb liquid containing benzo[%i/**i%]fluoranthene with vermiculite, earth, sand or similar material.**

Large Spills: Dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways. Stay upwind and have cleanup personnel protect against inhalation and contact.

See
DOT
ERG

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid dust inhalation, and skin and eye contact. Avoid sunlight exposure of contaminated skin. Use only with ventilation sufficient to reduce airborne concentrations as low as possible. Wear protective gloves, goggles, and clothing (see Sec. 8). Keep away from heat and ignition sources.

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed container in cool, well-ventilated area, away from heat, ignition sources and incompatibles (see Sec. 10). Periodically inspect stored materials.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Work with benzo[%i/**i%]fluoranthene only under an exhaust hood. Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.**

Administrative Controls: Have employees with potential for exposure submit to preplacement and periodic medical examinations with emphasis on oral cavity (including sputum cytology), respiratory tract, skin (chronic disorders, lesions), blood (complete count), bladder and kidneys (urinalysis: specific gravity, albumin, glucose, microscopic examination of sediment; urinary cytology). Repeat medical exam on an annual basis, or on a semi-annual basis for employees 45 years or older or with 10 or more years of exposure to pitch volatiles. Periodically inspect lab atmospheres, and surfaces such as walls, floors, and benches and interior of fume hoods and air ducts for contamination. Post appropriate signs and labels on doors leading to areas where benzo[%i/**i%]fluoranthene is used.**

Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Wear splash-proof chemical safety goggles, and face shield (8-inch minimum), per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For any detectable concentration (of coal tar pitch volatiles) use SCBA with full facepiece operated in pressure-demand or other positive pressure mode, or supplied-air respirator with full facepiece operated in pressure-demand or other positive pressure mode in combination with auxiliary SCBA operated in pressure-demand or other positive pressure mode; escape, air purifying full face respirator (gas mask) with a chin-style or a front- or back-mounted organic vapor canister and with a full facepiece and a fume or high-efficiency filter, or escape-type SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Colorless needles

Physical State: Solid

Vapor Pressure (kPa): 5 x10^{-7} mm Hg at 68 °F (20 °C)

Formula Weight: 252.32

Freezing/Melting Point: 334.4 °F (168 °C)

Water Solubility: 0.0012 mg/L

Other Solubilities: 95% ethanol: <1 mg/mL at 66 °F (19 °C); acetone: 10-50 mg/mL at 66 °F (19 °C); benzene: slightly soluble; DMSO: 10-50 mg/mL at 66 °F (19 °C).

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Benzo[%i/**i%]fluoranthene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Heat, sunlight.**

Storage Incompatibilities: Include strong oxidizing agents.

Hazardous Decomposition Products: Thermal oxidative decomposition of benzo[%i/**i%]fluoranthene will produce carbon monoxide (CO) and carbon dioxide** (CO_2)**.**

Section 11 - Toxicological Information

Other Effects:
Tumorgenicity, mouse, skin: 88 ng/kg/120 weeks intermittently produced toxic effects: tumorigenic - carcinogenic by RTECS criteria; skin and appendages - tumors; tumorigenic - tumors at site of application.
Hamster, lung cells: 100 µg/L produced morphological transformation.
Mouse, skin: 4037 µg/kg/20 days intermittently produced toxic effects: tumorigenic - equivocal tumorigenic agent by RTECS criteria; skin and appendages - tumors.
Rat, intraperitoneal: 100 mg/kg resulted in DNA adducts.
Mouse, skin: 72 mg/kg/60 weeks intermittently produced toxic effects: tumorigenic - equivocal tumorigenic agent by RTECS criteria; skin and appendages - tumors; tumorigenic - tumors at site of application.
Rat, intraperitoneal: 100 mg/kg induced sister chromatid exchange.
Rat, implant: 5 mg/kg produced toxic effects: tumorigenic - equivocal tumorigenic agent by RTECS criteria; lungs, thorax, or respiration - tumors; tumorigenic - tumors at site of application.
Human, lymphocyte cells: 55 µg/L produced mutation.

See *RTECS* CU1400000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Benzo[%i**/i%]fluoranthene has a low vapor pressure and Henry's Law Constant, and will not readily evaporate from water or soil. In surface water, it will partition from the water column to suspended sediments. Limited bioconcentration in aquatic organisms may occur (polychaete worms, BCF = 9.1); however, fish have an enzyme (microsomal oxidase) capable of rapidly metabolizing PAHs. Photolysis, photo-oxidation, and volatilization of dissolved benzo[%i/i%]fluoranthene may occur, but adsorption to suspended sediments is expected to inhibit these processes. Release to the soil may result in some biodegradation. Photolysis is not expected to be significant after release to soil. In the atmosphere it is likely to be adsorbed to particulate matter, and will be subject to wet and dry deposition. In the atmosphere, benzo[%i/i%]fluoranthene will rapidly degrade by reaction with photochemically produced hydroxyl radicals (half life 1.00 day). A high K_{oc} indicates significant sorption and low mobility in the soil column.**
Ecotoxicity: Evidence suggests that PAHs in lake bottom sediments may cause tumors in fish.
Henry's Law Constant: 1.38 x10^{-4} atm-m^3/mole, estimated
Octanol/Water Partition Coefficient: log K_{ow} = 6.124
Soil Sorption Partition Coefficient: K_{oc} = 5.88, estimated

Section 13 - Disposal Considerations

Disposal: Benzo[%i**/i%]fluoranthene is a good candidate for rotary kiln incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.**

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Environmentally hazardous substances, solid, n.o.s.
ID: UN3077
Hazard Class: 9 - Miscellaneous hazardous material
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 9 - Class 9
Special Provisions: 8, 146, B54, IB8, N20
Packaging: **Exceptions:** 155 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** No limit **Cargo aircraft only:** No limit
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Listed
CERCLA 40 CFR 302.4: Listed per CWA Section 307(a) 1 lb (0.454 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Not listed

Section 16 - Other Information

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Benzo(a)pyrene
BEN5560

Issue Date: 2006-06

Section 1 - Chemical Product and Company Identification 61

Material Name: Benzo(a)pyrene **CAS Number:** 50-32-8
Chemical Formula: $C_{20}H_{12}$
EINECS Number: 200-028-5
ACX Number: X1002798-4
Synonyms: B(A)P; BAP; BENZO(D,E,F)CHRYSENE; 3,4-BENZOPIRENE; 1,2-BENZOPYRENE; 3,4-BENZOPYRENE; 6,7-BENZOPYRENE; BENZO(A)PYRENE; 3,4-BENZPYREN; 3,4-BENZ(A)PYRENE; 3,4-BENZPYRENE; BENZ(A)PYRENE; BENZ[A]PYRENE; 3,4-BENZYLPYRENE; 3,4-BENZYPYRENE; 3,4-BP; BP; COAL TAR PITCH VOLATILES: BENZO(A)PYRENE
Derivation: Synthesized from pyrene and succinic anhydride.
General Use: Benzo(a)pyrene is no longer used or produced commercially in the US. In its pure form, benzo(a)pyrene may be used as a research laboratory reagent. It also occurs in combustion products of coal, oil, petroleum, wood and other biological matter; in motor vehicle and other gasoline and diesel engine exhaust; in charcoal-broiled foods; in cigarette smoke and general soot and smoke of industrial, municipal, and domestic origin. It occurs naturally in crude oils, shale oils, coal tars, gases and fly ash from active volcanoes and forest fires.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
Benzo(a)pyrene	50-32-8	ca 100% wt

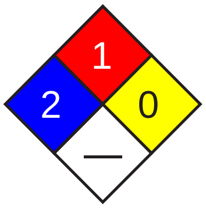
Except in laboratories, benzo(a)pyrene is usually mixed with other coal tar pitch chemicals. Consider exposure limits for coal tar pitch volatiles as a guideline. However, because benzo(a)pyrene is considered a probable carcinogen to humans, it is recommended that exposures to carcinogens be limited to the lowest feasible concentration.

OSHA PEL
TWA: 0.2 mg/m^3.

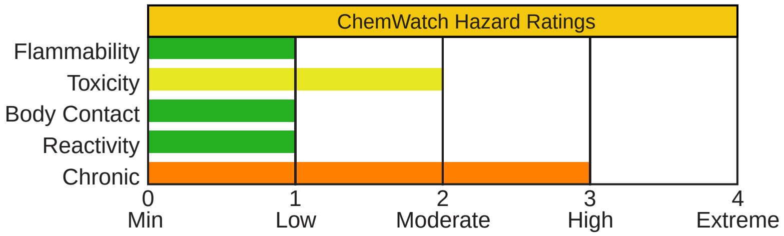
NIOSH REL

ACGIH TLV
Exposure by all routes should be carefully controlled to levels as low as possible.

Section 3 - Hazards Identification



Fire Diamond



HMIS
② Health
① Flammability
⓪ Reactivity

ANSI Signal Word
Warning!

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Pale yellow, crystalline solid or powder. Irritating to skin, eyes, respiratory tract. Chronic Effects: carcinogen, mutagen. Handle with extreme caution!

Potential Health Effects

Target Organs: Respiratory system, bladder, kidneys, skin.
Primary Entry Routes: Inhalation, ingestion.

Acute Effects

Inhalation: Respiratory tract irritation. Pregnant women may be especially susceptible to exposure effects of benzo(a)pyrene; exposure may damage the fetus. In general, polyaromatic hydrocarbons such as benzo(a)pyrene tend to localize primarily in body fat and fatty tissues (for ex. breasts) and are excreted in breast milk. Benzo(a)pyrene may also affect the male reproductive system (testes and sperm).

Eye: Irritation and/or burns on contact.

Skin: Irritation with burning sensation, rash, and redness; dermatitis on prolonged exposure. Sunlight enhances effects (photosensitization).

Ingestion: None reported.

Carcinogenicity: NTP - Class 2B, Reasonably anticipated to be a carcinogen, sufficient evidence of carcinogenicity from studies in experimental animals; IARC - Group 2A, Probably carcinogenic to humans; OSHA - Not listed; NIOSH - Listed as carcinogen; ACGIH - Class A2, Suspected human carcinogen; EPA - Class B2, Probable human carcinogen based on animal studies; MAK - Class A2, Unmistakably carcinogenic in animal experimentation only.

Medical Conditions Aggravated by Long-Term Exposure: Respiratory system, bladder, kidney, and skin disorders.

Chronic Effects: Inhalation: Cough and bronchitis. Eye: Photosensitivity and irritation. Skin: Skin changes such as thickening, darkening, pimples, loss of color, reddish areas, thinning of the skin, and warts. Sunlight enhances effects (photosensitization). Other: Gastrointestinal (GI) effects include leukoplakia (a pre-cancerous condition characterized by thickened white patches of epithelium on mucous membranes, especially of the mouth). Cancer of the lung, skin, kidneys, bladder, or GI tract is also possible. Smoking in combination with exposure to benzo(a)pyrene increases the chances of developing lung cancer. Persons with a high degree of inducibility of the enzyme aryl hydrocarbon hydroxylase may be a high risk population.

Section 4 - First Aid Measures

See DOT ERG

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of tepid water for at least 15 min. Consult an ophthalmologist if irritation or pain persist.

Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water (less than 15 min). Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water to dilute. Inducing vomiting is not necessary since benzo(a)pyrene has a low acute toxicity and therefore, is generally an unnecessary procedure. Consider activated charcoal/cathartic.

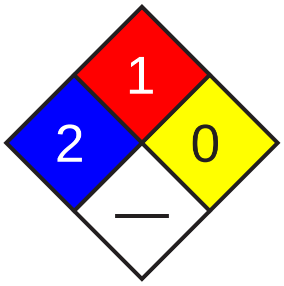
After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Monitor CBC and arterial blood gases, conduct liver, renal, and pulmonary function tests (if respiratory tract irritation is present), and urinalysis. Biological monitoring techniques testing for metabolites in blood or urine, or DNA adducts in blood or tissues are useful for epidemiological studies that determine if exposure has occurred. Because neither normal nor toxic levels have been established, those techniques may not be useful for evaluating individual patients.

Special Precautions/Procedures: Emergency personnel should protect against exposure.

Section 5 - Fire-Fighting Measures

See DOT ERG



Fire Diamond

Flash Point: None reported. Benzo(a)pyrene may burn, but does *not* readily ignite.

Autoignition Temperature: None reported.

LEL: None reported.

UEL: None reported.

Extinguishing Media: For small fires, use dry chemical, sand, water spray, or foam. For large fires, use water spray, fog, or foam.

General Fire Hazards/Hazardous Combustion Products: Carbon monoxide and carbon dioxide.

Fire-Fighting Instructions: Isolate hazard and deny entry. If feasible and without undue risk, move containers from fire hazard area. Otherwise, cool fire-exposed containers with water spray until well after fire is extinguished. Do not release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode and full protective clothing.

Section 6 - Accidental Release Measures

See DOT ERG

Spill/Leak Procedures: Notify safety personnel of large spills, remove heat and ignition sources, and provide adequate ventilation. Cleanup personnel should protect against dust inhalation and skin or eye contact. Clean up spills promptly.

Small Spills: Carefully scoop up spilled material and place into appropriate containers for disposal. For liquid spills, take up with a noncombustible, inert absorbent and place into appropriate containers for disposal.

Large Spills: For large spills, dike far ahead of liquid spill or contain dry spill for later disposal. Do not release into sewers or waterways. *Do not* dry sweep! Use a vacuum with a HEPA filter or a wet method to reduce dust. After cleanup is complete, thoroughly decontaminate all surfaces. *Do not* reuse contaminated cleaning materials.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Handle with extreme caution and take all necessary measures to avoid exposure to benzo(a)pyrene because it is a carcinogen and mutagen. Follow good personal hygiene procedures and thoroughly wash hands with soap and water after handling. Use safety pipettes for all pipetting.

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed and properly labeled containers in a cool, well-ventilated area.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use a Class I, Type B, biological safety hood when working with benzo(a)pyrene in a laboratory. Decrease the rate of air extraction, so that benzo(a)pyrene can be handled without powder being blown around the hood. Keep glove boxes under negative pressure. Use vertical laminar-flow, 100% exhaust, biological safety cabinets for containment of in vitro procedures. The exhaust air flow should be sufficient to provide an inward air flow at the face opening of the cabinet. Ensure contaminated air sheaths that are under positive pressure are leak-tight. Never use horizontal laminar-flow hoods or safety cabinets where filtered air is blown across the working area towards the operator. Test cabinets before work begins to ensure they are functioning properly. Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Consider preplacement and periodic medical examinations with emphasis on the oral cavity, bladder, kidneys, skin, and respiratory tract. Conduct urinalysis including specific gravity, albumin, glucose, and microscopic examination of centrifuged sediment for red blood cells. Also, include 14" x 17" chest roentgenogram, FVC + FEV1, and CBC to detect any leukemia or aplastic anemia. It is recommended that this exam be repeated on an annual basis and semiannual basis for employees 45 yr of age or older or with 10 or more years of exposure to coal tar pitch volatiles. Train workers about the hazards of benzo(a)pyrene and the necessary protective measures to prevent exposure. Periodically inspect lab atmospheres, surfaces such as walls, floors, and benches, and interior of fume hoods and air ducts for contamination. Post appropriate signs and labels on doors leading into areas where benzo(a)pyrene is used.

Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. In animal laboratories, wear protective suits (disposable, one-piece and close-fitting at ankles and wrists), gloves, hair covering, and overshoes. In chemical laboratories, wear gloves and gowns. Wear protective eyeglasses or chemical safety, gas-proof goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. The following respirator recommendations are for coal tar pitch volatiles. For any unknown concentration, wear any SCBA with a full facepiece and operated in a pressure- demand or other positive pressure mode, or any supplied-air respirator with a full facepiece and operated in a pressure-demand or other positive pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive pressure mode. For escape, wear any air-purifying full facepiece respirator (gas mask) with a chin-style or front- or back-mounted organic vapor canister having a high-efficiency particulate filter, or any appropriate escape-type SCBA. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Shower and change clothes after exposure or at the end of the workshift. Separate contaminated work clothes from street clothes. Launder before reuse. Remove benzo(a)pyrene from your shoes and clean personal protective equipment. Use procedures to ensure laundry personnel are not exposed. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Pale yellow monoclinic needles with a faint, aromatic odor.
Physical State: Solid
Vapor Pressure (kPa): >1 mm Hg at 68 °F (20 °C)
Formula Weight: 252.30
Specific Gravity (H_2O=1, at 4 °C): 1.351
Boiling Point: >680 °F (>360 °C); 590 °F (310 °C) at 10 mm Hg
Freezing/Melting Point: 354 °F (179 °C)
Water Solubility: Insoluble; 0.0038 mg (+/- 0.00031 mg) in 1 L at 77 °F (25 °C)
Other Solubilities: Ether, benzene, toluene, xylene, concentrated hydrosulfuric acid; sparingly soluble in alcohol, methanol.

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Benzo(a)pyrene is stable at room temperature in closed containers under normal storage and handling conditions. It undergoes photo-oxidation when exposed to sunlight or light in organic solvents and is also oxidized by chromic acid and ozone. Hazardous polymerization cannot occur. Avoid heat and ignition sources and incompatibles.
Storage Incompatibilities: Strong oxidizers (chlorine, bromine, fluorine) and oxidizing chemicals (chlorates, perchlorates, permanganates, and nitrates).
Hazardous Decomposition Products: Thermal oxidative decomposition of benzo(a)pyrene can produce carbon monoxide and carbon dioxide.

Section 11 - Toxicological Information

Acute Oral Effects:
Rat, oral: 15 mg/kg produced gastrointestinal and musculoskeletal tumors.
Irritation Effects:
Mouse: 14 µg caused mild irritation.
Other Effects:
Rat, oral: 40 mg/kg on the 14th day of pregnancy caused changes in the extra embryonic structures.
Rat, oral: 2 g/kg administered 28 days prior to mating and 1-22 days of pregnancy produced a stillbirth.
Tumorgenicity, mouse, oral: 75 mg/kg administered to the female during the 12- 14 day of pregnancy produced biochemical and metabolic effects on the newborn.
Mouse, inhalation: 200 ng/m^3/6 hr administered intermittently over 13 weeks produced tumors of the lungs.
Human, HeLa cell: 1500 nmol/L caused DNA inhibition.
Human, lung cell: 1 µmol/L caused DNA damage.
Human, liver cell: 100 nmol/L caused DNA damage.
Rabbit, skin: 17 mg/kg administered intermittently over 57 weeks produced tumors of the skin and appendages.

See *RTECS* DJ3675000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to water, benzo(a)pyrene adsorbs very strongly to particulate matter and sediments, bioconcentrates in aquatic organisms which cannot metabolize it, but does not hydrolyze. Direct photolysis at the water surface, evaporation, or biodegradation may be important, but adsorption may significantly retard these processes. Adsorption to particulates may also retard direct photolysis when benzo(a)pyrene is released to air. Benzo(a)pyrene may be removed from air by reaction with nitrogen dioxide (half-life, 7 days) or ozone (half-life, 37 min), or photochemically produced hydroxyl radicals (estimated half-life, 21.49 hr). It will adsorb very strongly to the soil. Although it is not expected to appreciably leach to the groundwater, groundwater samples indicate that it can be transported there. It is not expected to significantly evaporate or hydrolyze from soils and surfaces. However, it may be subject to appreciable biodegradation in soils. It will adsorb very strongly to the soil. Although it is not expected to appreciably leach to the groundwater, groundwater samples indicate that it can be transported there. It is not expected to significantly evaporate or hydrolyze from soils and surfaces. However, it may be subject to appreciable biodegradation in soils.
Ecotoxicity: Oysters, BCF (bioconcentration factor): 3000; rainbow trout, BCF: 920; *Daphnia pulex*, BCF: 13,000.
BCF: Some marine organisms such as phytoplankton, certain zooplankton, scallops (*Placopecten sp*), snails (*Litternia littorea*), and mussels (*Mytilus edulis*) lack a metabolic detoxification enzyme system to metabolize benzo(a)pyrene and therefore, tend to accumulate benzo(a)pyrene. Humic acid in solution may decrease bioconcentration.
Octanol/Water Partition Coefficient: log K_{ow} = 6.04

Section 13 - Disposal Considerations

Disposal: Small quantities: 10 mL of a solution containing 0.3 mol/L of potassium permanganate and 3 mol/L of sulfuric acid will degrade 5 mg of benzo(a)pyrene. Also, can treat with sodium dichromate in strong sulfuric acid (1-2 days). Benzo(a)pyrene is also a good candidate for fluidized bed incineration at a temperature range of 842 to 1796 °F (450 to 980 °C) or rotary kiln incineration at 820 to 1600°C. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Environmentally hazardous substances, solid, n.o.s.
ID: UN3077
Hazard Class: 9 - Miscellaneous hazardous material
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 9 - Class 9
Special Provisions: 8, 146, B54, IB8, N20
Packaging: **Exceptions:** 155 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** No limit **Cargo aircraft only:** No limit
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Listed U022 Toxic Waste
- **CERCLA 40 CFR 302.4:** Listed per RCRA Section 3001, per CWA Section 307(a) 1 lb (0.454 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Material Safety Data Sheet Collection

Genium group inc.

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Issue Date: 2006-06

Benzo(g,h,i)perylene
BEN5400

Section 1 - Chemical Product and Company Identification 61

Material Name: Benzo(g,h,i)perylene **CAS Number:** 191-24-2
Chemical Formula: $C_{22}H_{12}$
EINECS Number: 205-883-8
ACX Number: X1007822-5
Synonyms: BENZO (G,H,I) PERYLENE; BENZO(GHI)PERYLENE; BENZO[GHI]PERYLENE; 1,12-BENZOPERYLENE; BENZO(G,H,I)PERYLENE; 1,12-BENZPERYLENE
Derivation: Combustion product of wood, coal, oil, propane, and diesel fuels.
General Use: Used for scientific research. There is no commercial production of this compound.

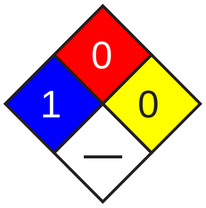
Section 2 - Composition / Information on Ingredients

Name	**CAS**	**%**
Benzo(g,h,i)perylene	191-24-2	

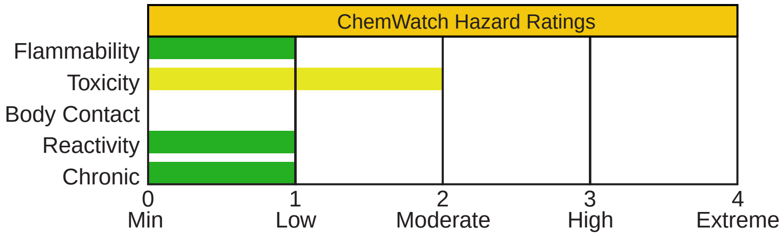
OSHA PEL **NIOSH REL**

ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond



HMIS
1 Health
0 Flammability
0 Reactivity

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Yellowish-green leaflets or plates. Acute toxicity is probably low in humans but it may produce chronic effects. Questionable carcinogen. Mutation data reported.

Potential Health Effects

Target Organs: Skin, eyes
Primary Entry Routes: Inhalation, skin/eye contact, skin absorption, ingestion
Acute Effects
Inhalation: The toxicological properties of benzo(g,h,i)perylene have not been thoroughly investigated. In general, polynuclear aromatic hydrocarbons (PAHs) have a low order of acute toxicity in humans, but can produce a variety of non-cancer effects with chronic exposure.
Eye: Effects unknown.
Skin: May be absorbed through skin.
Ingestion: Effects unknown.
Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.
Medical Conditions Aggravated by Long-Term Exposure: None reported.
Chronic Effects: Polynuclear aromatic hydrocarbons (PAH's) may produce chronic effects such as eye photosensitivity and irritation; respiratory irritation with cough and bronchitis; leukoplakia; skin irritation, "coal tar warts" (precancerous lesions enhanced by UV light exposure), redness, dermal burns, photosensitivity, and acneiform lesions; mild kidney and liver toxicity (animals). Some, but not all, PAHs are carcinogens.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult a physician or ophthalmologist if pain or irritation persist.

Skin Contact: Quickly remove contaminated clothing. Rinse with flooding amounts of water. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water. *Do not* induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Section 5 - Fire-Fighting Measures

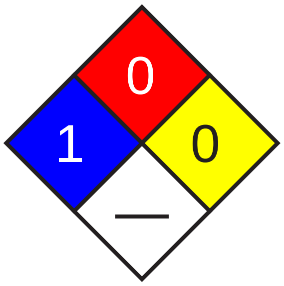
Flash Point: Data not found.

Autoignition Temperature: Data not found.

Extinguishing Media: Extinguish with water spray, carbon dioxide, dry chemical powder or appropriate foam.

General Fire Hazards/Hazardous Combustion Products: Toxic fumes of carbon monoxide and carbon dioxide.

Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Fire Diamond

Section 6 - Accidental Release Measures

Spill/Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Cleanup personnel should protect against exposure (Sec. 8).

Small Spills: If in solid form, *do not* sweep! Carefully scoop up or vacuum (with a HEPA filter). Avoid raising dust. Absorb liquid spill with an inert, noncombustible absorbent such as sand or vermiculite.

Large Spills: For large spills, dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Wear personal protective clothing and equipment to prevent dust inhalation and contact with skin or eyes (Sec. 8).

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed containers in a cool, well-ventilated area away from heat, light, ignition sources, and incompatibles.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations to avoid dust dispersion into the work area. Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with this material. Train in work practices which minimize exposure. Consider preplacement and periodic medical exams with emphasis on liver and kidney functions, complete blood count, chest X-ray, pulmonary function tests, and skin and oral cavity examinations.

Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not protective eye devices. Appropriate eye protection must be worn instead of, or in conjunction with, contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, cartridge change schedules, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Yellowish-green; fluorescent
Physical State: Solid; leaflets or plates
Vapor Pressure (kPa): 1 x 10^{-10} mm Hg at 77 °F (25 °C)
Formula Weight: 276.34
Boiling Point: 1022 °F (550 °C)
Freezing/Melting Point: 530.6 °F (277 °C)
Ionization Potential (eV): 7.15 eV

Water Solubility: Insoluble; 2.5 - 2.7 x 10^{-4} mg/L at 77 °F (25 °C)
Other Solubilities: Soluble in 1,4-dioxane, dichloromethane, benzene, and acetone

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Benzo(g,h,i)perylene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Avoid contact with chemical incompatibles, heat, and sources of ignition.

Storage Incompatibilities: Include strong oxidizing agents. Reacts with NO and NO_2 to form nitro derivatives.

Hazardous Decomposition Products: Thermal oxidative decomposition of benzo(g,h,i)perylene can produce toxic fumes of carbon dioxide and carbon monoxide.

Section 11 - Toxicological Information

Other Effects:

Genetic Effects: *S Typhimurium*, 2 µg/plate/48 hours (-S9) induced mutation.
Mouse, skin, 40 µmol/kg induced DNA damage.
Human, lymphocyte cell, 80 µg/L induced mutations in mammalian somatic cells.

See *RTECS* DI6200500, for additional data.

Section 12 - Ecological Information

Environmental Fate: Benzo(g,h,i)perylene biodegrades slowly in the environment, with a half-life range in aerobic soil from 600 to 650 days. It is not expected to hydrolyze. In aquatic systems it partitions from the water column to organic matter contained in sediments and suspended solids. It also has the potential to bioconcentrate in aquatic systems. Volatilization from shallow, fast-moving waters may be important. In the atmosphere, the vapor phase reaction with photochemically-produced hydroxyl radicals with a half-life of 2 hours may be an important fate process. However, benzo(g,h,i)perylene is expected to exist almost entirely in the particulate phase in ambient air, though it may undergo direct photolysis in the atmosphere. Benzo(g,h,i)perylene is expected to be highly immobile in soil. Log K_{ow}: 6.58 - 6.63

Ecotoxicity: Data not found.
Henry's Law Constant: 2.66 x 10^{-7} atm-m^3/mol
BCF: 64,000, estimated
Soil Sorption Partition Coefficient: K_{oc} = > 1 x 10^6

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable federal, state, and local regulations. Handle empty containers carefully as hazardous residues may still remain. Triple rinse containers and dispose of wash wastewater appropriately.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Not specifically listed.

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Not listed
CERCLA 40 CFR 302.4: Listed per CWA Section 307(a) 5000 lb (2268 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Not listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
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1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

Benzo[k]fluoranthene
BEN4680

Section 1 - Chemical Product and Company Identification 61

Material Name: Benzo[k]fluoranthene **CAS Number:** 207-08-9
Chemical Formula: $C_{20}H_{12}$
EINECS Number: 205-916-6
ACX Number: X1004488-1
Synonyms: B; B (K) F; B K F; 8,9-BENZFLUORANTHENE; BENZO(K) FLUORANTHENE; 11,12-BENZO(K)FLUORANTHENE; 11,12-BENZOFLUORANTHENE; 8,9-BENZOFLUORANTHENE; BENZO(K)FLUORANTHENE; BENZO[K]FLUORANTHENE; 11,12-BENZOFLURANTHENE; 2,3,1',8'-BINAPHTHYLENE; 2,3,1',8'-BINAPTHYLENE; BKF; DIBENZO(B,JK)FLUORENE
General Use: there is no commerical use of this compound

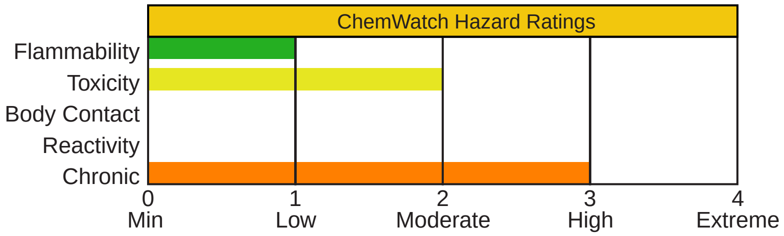
Section 2 - Composition / Information on Ingredients

Name	CAS	%
benzo[k]fluoranthene	207-08-9	>98

OSHA PEL **NIOSH REL**

ACGIH TLV

Section 3 - Hazards Identification



ANSI Signal Word

Warning!

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Pale yellow needles. Irritating to eyes/skin/respiratory tract. Toxic. Probable human carcinogen. Will burn.

Potential Health Effects

Target Organs: eyes, skin, respiratory system
Primary Entry Routes: skin contact/absorption, inhalation of generated dust
Acute Effects
Inhalation: The dust may be discomforting to the upper respiratory tract. Persons with impaired respiratory function, airway diseases, or conditions such as emphysema or chronic bronchitis may incur further disability if excessive concentrations of particulate are inhaled.
Eye: The material is moderately discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/ or other transient eye damage/ ulceration.
Skin: The material may be mildly discomforting to the skin. Open cuts and abraded or irritated skin should not be exposed to this material. The material may accentuate any pre-existing skin condition.
Ingestion: Considered an unlikely route of entry in commercial/industrial environments. The material is moderately discomforting and harmful if swallowed in large quantity.
Carcinogenicity: NTP - Listed; IARC - Group 2B, Possibly carcinogenic to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class B2, Probable human carcinogen based on animal studies; MAK - Not listed.
Chronic Effects: When injected into pulmonary tissue of female rats benzo[k]fluoranthene induced squamous cell carcinomas. Topical administration initiated skin tumors in female mice whilst subcutaneous injection induced local sarcomas in mice of both sexes. Although there is no adequate data available to evaluate carcinogenicity of PAHs in

humans, there are a number of epidemiologic and mortality studies to show increased incidences of cancer in humans exposed to mixtures of PAHs. Lung and genitourinary cancer mortality amongst coke oven workers and skin tumors in workers exposed to creosote are examples.

Section 4 - First Aid Measures

See DOT ERG

Inhalation: • If dust is inhaled, remove to fresh air.
- Encourage patient to blow nose to ensure clear breathing passages.
- Rinse mouth with water. Consider drinking water to remove dust from throat.
- Seek medical attention if irritation or discomfort persist.

Eye Contact: • Immediately hold the eyes open and flush with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention if pain persists or recurs.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: • Immediately remove all contaminated clothing, including footwear (after rinsing with water).
- Wash affected areas thoroughly with water (and soap if available).
- Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center. If more than 15 minutes from a hospital:
- INDUCE vomiting with IPECAC SYRUP, or fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. NOTE: Wear a protective glove when inducing vomiting by mechanical means.
- SEEK MEDICAL ATTENTION WITHOUT DELAY.
- In the meantime, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically.

Section 5 - Fire-Fighting Measures

See DOT ERG

Flash Point: Not available; probably combustible

Extinguishing Media: Foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide. Water spray or fog - Large fires only.

General Fire Hazards/Hazardous Combustion Products: • Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space, as dust may form an explosive mixture with air and any source of ignition, e.g., flame or spark, will cause fire or explosion.
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. Combustion products include carbon dioxide (CO_2).

Fire Incompatibility: Avoid contamination with strong oxidizing agents as ignition may result.

Fire-Fighting Instructions: • Use water delivered as a fine spray to control fire and cool adjacent area.
- Do not approach containers suspected to be hot.
- Cool fire-exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

See DOT ERG

Small Spills: • Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up.
- Place spilled material in clean, dry, sealable, labeled container.

Large Spills: • Clear area of personnel and move upwind.
- Contact fire department and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or waterways.

- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Neutralize/decontaminate residue.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and reusing.
- If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: • Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, bare lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Follow good occupational work practices.
- Observe manufacturer's storage and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Recommended Storage Methods: Metal can. Metal drum. Check that all containers are clearly labeled and free from leaks.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear NIOSH-approved respirator. Provide adequate ventilation in warehouse or closed storage areas.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses, safety glasses with side shields, or chemical goggles. Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Wear general protective gloves, e.g. light weight rubber gloves.

Other: Overalls; impervious protective clothing. Eyewash unit.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Yellow powder.

Physical State: pale yellow needles

Vapor Pressure (kPa): 0.0000000000959 mm Hg at 25 °C

Vapor Density (Air=1): > 1

Formula Weight: 252.32

Boiling Point: 480 °C (896 °F) at 760 mm Hg

Freezing/Melting Point: 217 °C (422.6 °F)

Water Solubility: Insoluble in Water

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.

Storage Incompatibilities: Avoid storage with oxidizers.

Section 11 - Toxicological Information

Tumors at site of application.
NOTE: Substance has been shown to be mutagenic in various assays, or belongs to a family of chemicals producing damage or change to cellular DNA.

See *RTECS* DF6350000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Its presence in distant places indicates that it is reasonably stable in the atmosphere and capable of long distant transport. Atmospheric losses are caused by gravitational settling and rainout. On land it is strongly adsorbed to soil and remains in the upper soil layers and should not leach into groundwater. Biodegradation may occur but will be very slow (half-life ca 2 years with acclimated microorganisms). It will get into surface water from dust and precipitation in addition to runoff and effluents. In the water it will sorb to sediment and particulate matter in the water column. It would be expected to bioconcentrate in fish and seafood.
Ecotoxicity: No data found.
Henry's Law Constant: estimated at 4.2 x10^8
BCF: fish 4.97
Octanol/Water Partition Coefficient: log K_{ow} = 6.84
Soil Sorption Partition Coefficient: K_{oc} = nearly 1 x10^6

Section 13 - Disposal Considerations

Disposal: • Consult manufacturer for recycling options and recycle where possible.
• Follow applicable local, state, and federal regulations.
• Incinerate residue at an approved site.
• Recycle containers if possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: I - Great Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB7
Packaging: **Exceptions:** None **Non-bulk:** 211 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 kg **Cargo aircraft only:** 50 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: II - Medium Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP2, IP4
Packaging: **Exceptions:** None **Non-bulk:** 212 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 25 kg **Cargo aircraft only:** 100 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP3
Packaging: **Exceptions:** 153 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** 100 kg **Cargo aircraft only:** 200 kg
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Listed

CERCLA 40 CFR 302.4: Listed per CWA Section 307(a) 5000 lb (2268 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Not listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Section 1 - Chemical Product and Company Identification

Material Name: Chrysene **CAS Number:** 218-01-9
Chemical Formula: $C_{18}H_{12}$
EINECS Number: 205-923-4
ACX Number: X1001743-5
Synonyms: BENZO (A) PHENANTHRENE; BENZO[A|PHENANTHRENE; 1,2-BENZOPHENANTHRENE; BENZO(A)PHENANTHRENE; 1,2-BENZPHENANTHRENE; BENZ(A)PHENANTHRENE; CHRYSENE; COAL TAR PITCH VOLATILES: CHRYSENE; 1,2,5,6-DIBENZONAPHTHALENE
Derivation: Distilled from coal tar, coal tar pitch. A small amount is produced from the distillation or pyrolysis of many fats and oils. By heating hydrogen and acetylene. Chrysene is not produced commercially in the U.S. (except as a laboratory research chemical).
General Use: Used in organic synthesis; as a research chemical. Occurs in cigarette smoke.

Section 2 - Composition / Information on Ingredients

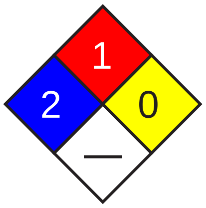
Name	CAS	%
No data found.		

OSHA PEL
TWA: 0.2 mg/m^3.

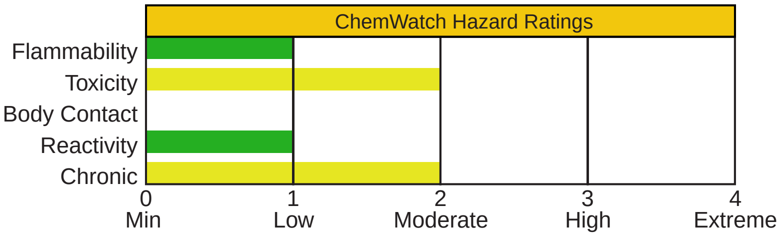
NIOSH REL

ACGIH TLV
Exposure by all routes should be carefully controlled to levels as low as possible.

Section 3 - Hazards Identification



Fire Diamond



HMIS
2 Health
1 Flammability
0 Reactivity

ANSI Signal Word

Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless to white crystals with reddish-blue fluorescence. May be irritating to eyes/skin/respiratory tract. Also causes: may be absorbed through skin. May be cancer-causing in humans. Combustible.

Potential Health Effects

Target Organs: Eyes, skin, respiratory system
Primary Entry Routes: Skin absorption
Acute Effects *There is no human evidence available for the acute health effects of chrysene alone. There is, however, considerable data indicating that it is carcinogenic in humans. Based on the chemical properties of chrysene, as a polynuclear aromatic hydrocarbon, the following acute effects may occur.*
Inhalation: May cause irritation.
Eye: . May cause irritation.
Skin: May cause irritation or be absorbed.
Ingestion: None reported.
Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Listed as carcinogen; ACGIH - Class A3, Animal carcinogen; EPA - Class B2, Probable human carcinogen based on animal studies; MAK - Class A2, Unmistakably carcinogenic in animal experimentation only.

Medical Conditions Aggravated by Long-Term Exposure: None reported.

Chronic Effects: Animal data indicate that chronic exposure to chrysene and other coal tar pitch volatiles probably causes cancer. May also cause respiratory, skin, or eye irritation; cough, bronchitis, photosensitivity, "coal tar warts" (precancerous lesions enhanced by UV light exposure), erythema (skin inflammation), dermal burns, acneiform lesions, hematuria (blood in urine). May alter genetic material. Exposure to PAH's is believed to cause leukoplakia (precancerous patches on the tongue), lip and oral cavity cancers, and bladder cancer.

Section 4 - First Aid Measures

See DOT ERG

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician or ophthalmologist if pain, irritation, swelling, or photophobia persist.

Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: For high exposures, medical surveillance (skin, mouth, GI tract, respiratory system) may be necessary.

Section 5 - Fire-Fighting Measures

See DOT ERG

Flash Point: Combustible solid

Autoignition Temperature: None reported.

LEL: None reported.

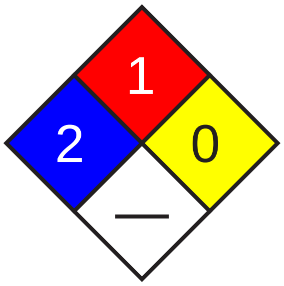
UEL: None reported.

Flammability Classification: Combustible solid

Extinguishing Media: Use water spray, carbon dioxide, dry chemical powder or appropriate foam.

General Fire Hazards/Hazardous Combustion Products: Acrid smoke and fumes, including carbon monoxide and carbon dioxide.

Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Fire Diamond

Section 6 - Accidental Release Measures

See DOT ERG

Spill/Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Tag container as defective and return to supplier. Use spark-proof tools and explosion-proof equipment.

Small Spills: *Do not* sweep! Carefully scoop up or vacuum (with a HEPA filter). Absorb liquid spill with an inert, noncombustible absorbent such as sand or vermiculite.

Large Spills: Large spills of chrysene are unlikely. *Do not* release into sewers or waterways.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid dust inhalation and skin and eye contact. Use only with adequate ventilation to maintain concentrations at nonhazardous levels (see Sec. 2). Wear personal protective clothing and equipment to prevent contact with skin and eyes (see Sec. 8). Practice good personal hygiene procedures to prevent inadvertently ingesting this material.

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed containers in a cool, well-ventilated area away from heat, ignition sources, and incompatibles.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations to avoid dust dispersion into the work area. Ventilate at the site of chemical release. To prevent static sparks, electrically ground and bond all containers and equipment. Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PEL (see Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with this material. Train in work practices which minimize exposure. Consider preplacement and periodic medical exams with emphasis on the skin and lungs.

Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Air purifying respirators may be adequate for handling small amounts of chrysene in a laboratory setting. For unlimited exposure ranges, wear a pressure-demand, full-face SCBA. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Launder clothing separately before reuse. Remove this material from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Colorless to white rhombic plates with reddish-blue fluorescence.

Physical State: Solid

Vapor Pressure (kPa): 6.3 x10^{-7} mm Hg; 6.3 x10^{-9} mm Hg at 68 °F (20 °C)

Formula Weight: 228.28

Specific Gravity (H_2O=1, at 4 °C): 1.274 at 20 °C/4 °C

Refractive Index: 2610

Boiling Point: 838 °F (448 °C); sublimes easily in a vacuum

Freezing/Melting Point: 489 °F (254 °C) to 496 °F (258 °C)

Ionization Potential (eV): 7.59 +/- 0.2 eV

Water Solubility: Insoluble (0.0018 mg/kg)

Other Solubilities: Slightly soluble in 95% ethanol, acetone, carbon disulfide, ether, glacial acetic acid. Soluble in hot benzene, toluene.

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Chrysene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Avoid contact with chemical incompatibles, heat and ignition sources.

Storage Incompatibilities: Include strong oxidizers.

Hazardous Decomposition Products: Thermal oxidative decomposition of chrysene can produce acrid smoke and fumes, including carbon monoxide and carbon dioxide.

Section 11 - Toxicological Information

Acute Skin Effects:

Mouse, skin: 192 µmol/kg produced DNA adducts.

Mouse, skin, TD_{Lo}: 3600 µg/kg.

Other Effects:

Tumorgenicity, mouse, skin: 23 mg/kg; toxic effects: tumorigenic - neoplastic by RTECS criteria; skin and appendages - tumors.

Human, lymphocyte: 6 µmol/L produced mutation.

Mouse, intraperitoneal, LD_{50}: >320 mg/kg.

Tumorigenic Effects: Mouse, skin, 3600 mg/kg for 30 weeks, intermittent; toxic effects: tumorigenic - equivocal tumorigenic agent by RTECS criteria; skin and appendages - tumors.

Hamster, intraperitoneal: 900 mg/24 hr induced sister chromatid exchange.

Bacteria, *S typhimurium*: 5 mg/plate (-S9) produced mutation.

See *RTECS* GC0700000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to water, it will adsorb very strongly to sediments and particulate matter, but will not hydrolyze or appreciably evaporate. It will bioconcentrate in species which lack microsomal oxidase. Calculated BCF: 4,230. K_{ow} indicates bioaccumulation, which could cause food-chain contamination. It will not hydrolyze or appreciably evaporate from soils or surfaces. The estimated biodegradation half-life in soil is 7 years. The estimated half-life of any gas phase in the atmosphere is 1.25 hours as a result of reaction with photochemically produced hydroxyl radicals. It will be subject to near-surface, direct photolysis with a half-life of 4.4 hours computed for exposure to sunlight at mid-day in midsummer at latitude 40°N. If released to air, it will be subject to direct photolysis, although adsorption to particulates may affect the rate of this process. If released to soil it will be expected to adsorb very strongly to the soil and will not be expected to leach appreciably to groundwater.

Ecotoxicity: *Anabaena flos-aquae* (algae), 2 weeks, EC_{35} growth: +/- 0.002 mg/L. *Daphnia magna* (crustaceans), 2 hr, LC_{50}: 1.9 mg/L. *Rana pipiens* (amphibians), 24 hr, LC_{50}: >6.7 mg/L. *Neanthes arenaceodentata* (fishes), 96 hr, LC_{50}: >1 mg/L.

Henry's Law Constant: 9.4×10^{-8}

Octanol/Water Partition Coefficient: $\log K_{ow} = 5.61$ to 5.91

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations. One method is to dissolve or mix the material with a combustible solvent and burn in an incinerator equipped with an afterburner and scrubber. Handle empty containers carefully as hazardous residues may still remain. Triple rinse containers and dispose of wash wastewater appropriately.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Environmentally hazardous substances, solid, n.o.s.
ID: UN3077
Hazard Class: 9 - Miscellaneous hazardous material
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 9 - Class 9
Special Provisions: 8, 146, B54, IB8, N20
Packaging: **Exceptions:** 155 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** No limit **Cargo aircraft only:** No limit
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Listed U050 Toxic Waste
- **CERCLA 40 CFR 302.4:** Listed per RCRA Section 3001, per CWA Section 307(a) 100 lb (45.35 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Dibenz[a,h]acridine
DIB1110

Issue Date: 2006-06

Section 1 - Chemical Product and Company Identification 61

Material Name: Dibenz[a,h]acridine **CAS Number:** 226-36-8
Chemical Formula: $C_{21}H_{13}N$
ACX Number: X1008491-4
Synonyms: 7-AZADIBENZ(A,H)ANTHRACENE; DB(A,H)AC; 1,2,5,6-DIBENZACRIDINE; 1,2:5,6-DIBENZACRIDINE; DIBENZ(A,D)ACRIDINE; DIBENZ(A,H)ACRIDINE; DIBENZ[A,H]ACRIDINE; DIBENZ(AH)ACRIDINE; 1,2,5,6-DIBENZOACRIDINE; 1,2,5,6-DINAPHTHACRIDINE
General Use: Available as a laboratory reference standard material for cancer research. Found in cigarette smoke condensate, coal combustion emissions, petroleum refinery incinerator emissions and coal tar pitch.

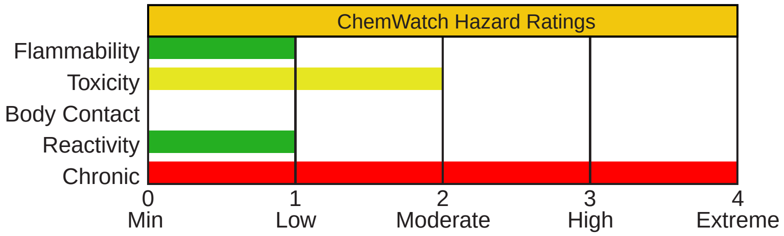
Section 2 - Composition / Information on Ingredients

Name	CAS	%
dibenz[a,h]acridine	226-36-8	>98

OSHA PEL **NIOSH REL**

ACGIH TLV

Section 3 - Hazards Identification



ANSI Signal Word

Warning!

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Yellow crystals. May cause irritation to eyes/skin. Other Acute Effects: may be harmful by inhalation, ingestion, skin absorption.

Potential Health Effects

Target Organs: No data found.
Primary Entry Routes: accidental skin and eye contact and inhalation of generated dusts
Acute Effects
Inhalation: The dust is harmful and discomforting to the upper respiratory tract.
Persons with impaired respiratory function, airway diseases, or conditions such as emphysema or chronic bronchitis may incur further disability if excessive concentrations of particulate are inhaled.
Eye: The dust may be discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to windburn), temporary impairment of vision and/ or other transient eye damage/ ulceration.
Skin: The material may be mildly discomforting to the skin. Open cuts and abraded or irritated skin should not be exposed to this material.
Toxic effects may result from skin absorption.
Ingestion: The solid/dust is discomforting to the gastrointestinal tract and harmful if swallowed.
Considered an unlikely route of entry in commercial/industrial environments.
Carcinogenicity: NTP - Listed; IARC - Group 2B, Possibly carcinogenic to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Not listed; MAK - Not listed.
Chronic Effects: Although there is no adequate data available to evaluate carcinogenicity of PAHs in humans, there are a number of epidemiologic and mortality studies to show increased incidences of cancer in humans exposed to

mixtures of PAHs. Lung and genitourinary cancer mortality amongst coke oven workers and skin tumors in workers exposed to creosote are examples.

Section 4 - First Aid Measures

See DOT ERG

Inhalation: • If dust is inhaled, remove to fresh air.
- Encourage patient to blow nose to ensure clear breathing passages.
- Rinse mouth with water. Consider drinking water to remove dust from throat.
- Seek medical attention if irritation or discomfort persist.
- If fumes or combustion products are inhaled, remove to fresh air.
- Lay patient down. Keep warm and rested.
- Other measures are usually unnecessary.

Eye Contact: If this product comes in contact with the eyes:
- Immediately hold the eyes open and flush with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention if pain persists or recurs.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: If product comes in contact with the skin:
- Immediately remove all contaminated clothing, including footwear (after rinsing with water).
- Wash affected areas thoroughly with water (and soap if available).
- Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center. If swallowed, and if more than 15 minutes from a hospital:
- Induce vomiting with Ipecac syrup, or fingers down the back of the throat, only if conscious. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Note: Wear a protective glove when inducing vomiting by mechanical means.
- Seek medical attention without delay.
- In the meantime, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically.

Section 5 - Fire-Fighting Measures

See DOT ERG

Extinguishing Media: Foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide. Water spray or fog - Large fires only.

General Fire Hazards/Hazardous Combustion Products: • Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space, as dust may form an explosive mixture with air and any source of ignition, i.e., flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. Combustion products include nitrogen oxides (NO_x).

Fire Incompatibility: Avoid contamination with oxidizing agents i.e., nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Fire-Fighting Instructions: • Contact fire department and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or waterways.
- Use fire fighting procedures suitable for surrounding fire.
- Do not approach containers suspected to be hot.
- Cool fire-exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

See DOT ERG

Small Spills: • Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up.
- Place in clean drum then flush area with water.

Large Spills: • Clear area of personnel and move upwind.
- Contact fire department and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or waterways.
- No smoking, bare lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse/absorb vapor.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and reusing.
- If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: • Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- Do not enter confined spaces until atmosphere has been checked.
- Do not allow material to contact humans, exposed food or food utensils.
- Avoid smoking, bare lights or ignition sources.
- When handling, do not eat, drink or smoke.
- Avoid contact with incompatible materials.
- Keep containers securely sealed when not in used.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before reuse.
- Observe manufacturer's storage/handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Recommended Storage Methods: Glass container. Plastic container. Metal can. Metal drum. Packing as recommended by manufacturer. Check that all containers are clearly labeled and free from leaks.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Supplied-air type respirator may be required in special circumstances. An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields. Chemical goggles. Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Wear chemical protective gloves, e.g. PVC. Wear safety footwear.

Other: • Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Off-white powder.

Physical State: yellow crystals
Vapor Pressure (kPa): negligible
Formula Weight: 279.35
pH: not applicable
pH (1% Solution): not applicable

Boiling Point: 524 °C (975.2 °F)
Freezing/Melting Point: 226 °C (438.8 °F)
Volatile Component (% Vol): negligible
Water Solubility: immiscible

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid reaction with oxidizing agents.

Section 11 - Toxicological Information

Toxicity
Subcutaneous (rat) LD_{50}: 50 mg/kg

Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

Irritation
Skin (mouse): 0.014 mg - mild

See *RTECS* HN0875000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Exists solely in the particulate phase in the ambient atmosphere based on an estimated vapor pressure of 7.93 $x10^{-10}$mm Hg. It may photolyze directly in the atmosphere as it can absorb light above 290 nm. Particulate phase may be removed physically from air by wet and dry deposition. If released to soil, it is expected to be immobile based on measured K_{oc}values of 55,167 for adsorption to an organic rich sludge and 79,400 for adsorption to microbial biomass. An estimated K_{oc}value of 27,000 was calculated from an estimated log K_{ow}. Volatilization of this compound from soil surfaces is unlikely based on an estimated Henry's Law constant of 1.9 $x10^{-9}$atm-cu m/mol. It may photolyze on soil surfaces. Biodegradation of this compound in soil may occur slowly. In water, it is expected to bind strongly to particulate matter and sediment in the water column based on its measured K_{oc}value. It may biodegrade slowly; using three activated sludges from municipal treatment plants, up to 4.6% of the theoretical oxygen uptake was reached after 144 hours using 2500 mg activated sludge. Using 5000 mg activated sludge, up to 17.3% of the theoretical oxygen uptake was reached after 144 hours. It was highly bioconcentrated in Daphnia pulex with a measured BCF of 3500 but in fathead minnows, a measured BCF of approximately 100 indicates that these fish rapidly metabolize this compound. Volatilization from water surfaces is unlikely based on its estimated Henry's Law constant.
Ecotoxicity: No data found.
Henry's Law Constant: estimated at 1.9 $x10^{-9}$
BCF: fathead minnow 100
Octanol/Water Partition Coefficient: log $K_{ow} = 5.60$
Soil Sorption Partition Coefficient: $K_{oc} = 5.5167\ x10^{4}$

Section 13 - Disposal Considerations

Disposal: • Recycle wherever possible or consult manufacturer for recycling options.
• Follow applicable local, state, and federal regulations.
• Bury residue in an authorized landfill.
• Recycle containers if possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: I - Great Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB7
Packaging: **Exceptions:** None **Non-bulk:** 211 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 kg **Cargo aircraft only:** 50 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: II - Medium Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP2, IP4
Packaging: **Exceptions:** None **Non-bulk:** 212 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 25 kg **Cargo aircraft only:** 100 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP3
Packaging: **Exceptions:** 153 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** 100 kg **Cargo aircraft only:** 200 kg
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Listed
- **CERCLA 40 CFR 302.4:** Not listed
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Not listed

Section 16 - Other Information

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

Fluoranthene
BEN4760

Section 1 - Chemical Product and Company Identification

Material Name: Fluoranthene **CAS Number:** 206-44-0
Chemical Formula: $C_{16}H_{10}$
EINECS Number: 205-912-4
ACX Number: X1001738-4
Synonyms: 1,2-BENZACENAPHTHENE; BENZENE,1,2-(1,8-NAPHTHALENEDIYL)-; BENZENE,1,2-(1,8-NAPHTHYLENE)-; BENZO (J,K) FLUORENE; BENZO(J,K)FLUORENE; BENZO(JK)FLUORENE; FLUORANTHENE; IDRYL; 1,2-(1,8-NAPHTHALENE)BENZENE; 1,2-(1,8-NAPHTHALENEDIYL)BENZENE; 1,2-(1,8-NAPHTHYLENE)BENZENE
Derivation: Fluoranthene is derived from coal tar and from the pyrolytic processing of organic raw materials such as coal or petroleum at high temperatures.
General Use: Fluoranthene is a constituent of coal tar and petroleum derived asphalt used as a lining material to protect the interior of steel and ductile-iron potable water pipes and storage tanks; used as a research chemical and medication.

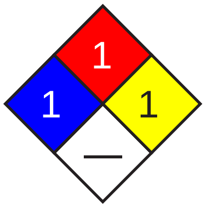
Section 2 - Composition / Information on Ingredients

Name	CAS	%
Fluoranthene	206-44-0	ca 98% wt

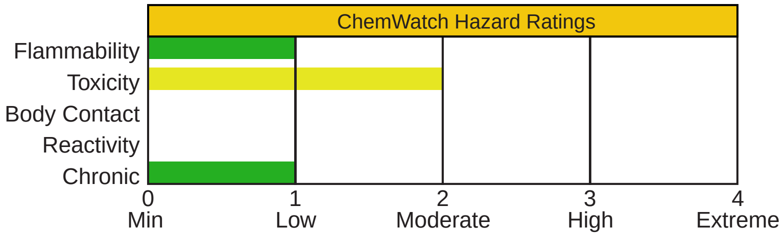
OSHA PEL **NIOSH REL**

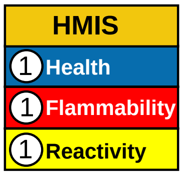
ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond





HMIS
1 Health
1 Flammability
1 Reactivity

ANSI Signal Word

Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless to pale yellow solid. Irritating to eyes/skin/respiratory tract. Chronic: mutagenic and tumorigenic effects, possible kidney/bladder cancer. Combustible.

Potential Health Effects

Target Organs: Eyes, skin, and respiratory system
Primary Entry Routes: Inhalation, skin/eye contact, ingestion
Acute Effects Note: In general, polynuclear aromatic hydrocarbons (PAH's) have a low order of acute toxicity in humans. The following effects from exposure are based on analogy to phenol and coal tar.
Inhalation: Causes irritation of the mucous membranes and upper respiratory tract.
Eye: Contact causes eye irritation and burning.
Skin: Contact causes skin irritation and burning.
Ingestion: Causes nausea, tachycardia, cardiac arrhythmias, pulmonary edema, and respiratory arrest.
Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.
Medical Conditions Aggravated by Long-Term Exposure: Persons with existing skin disorders may be more susceptible to the effects of coal tar pitches.

Chronic Effects: Cough and bronchitis, photosensitivity of the eyes and skin, coal tar warts, erythema, and acneiform lesions, leukoplakia, mild hepatotoxicity, and hematuria. Laboratory experiments have shown mutagenic and tumorigenic effects. Some PAH's have been associated with kidney, skin, bladder, lung, and gastrointestinal cancers. PAH's may cross the placenta and are excreted in breast milk in animals.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician or ophthalmologist if pain, irritation, swelling, lacrimation, or photophobia persist.

Skin Contact: Quickly remove contaminated clothing. Rinse with flooding amounts of water. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water. *Do not* induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Monitor arterial blood gases, pulmonary function, and chest x-ray for patients with significant exposure. If cough or difficulty breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. If bronchospasm and wheezing occur, consider treatment with inhaled sympathomimetic agents. Inhalation exposure to PAH's may be complicated by exposure to other substances which produce acute respiratory and systemic effects. Treat according to clinical presentation and exposure history. Treat dermal irritation or burns with standard topical therapy. Patients developing dermal hypersensitivity may require treatment with systemic or topical corticosteroids or antihistamines.

Section 5 - Fire-Fighting Measures

Flash Point: Data not found.

Autoignition Temperature: Data not found.

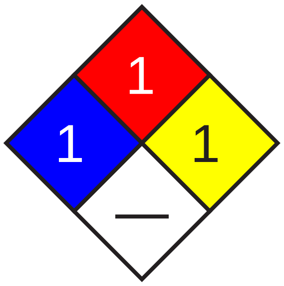
LEL: Data not found.

UEL: Data not found.

Extinguishing Media: Extinguish with water spray, carbon dioxide, dry chemical powder or appropriate foam.

General Fire Hazards/Hazardous Combustion Products: Emits toxic fumes of carbon monoxide and carbon dioxide.

Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Fire Diamond

Section 6 - Accidental Release Measures

Spill/Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Cleanup personnel should protect against exposure (Sec. 8).

Small Spills: If in solid form, *do not* sweep! Spills of hot coal tar may be covered with sand. Carefully scoop up or vacuum (with a HEPA filter).

Large Spills: For large spills, dike far ahead of spill for later disposal. *Do not* release into sewers or waterways.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Wear personal protective clothing and equipment to prevent vapor inhalation and contact with skin or eyes (Sec. 8). To prevent skin absorption of coal tar products, *do not* use solvents to clean hands. Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed containers in a cool, well-ventilated area away from heat, light, ignition sources, and incompatibles. Control storage conditions to prevent overheating and pressure buildup in containers of coal tar products. Design and operate transfer and storage systems to prevent blockage by condensed coal tar products.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations to avoid vapor dispersion into the work area. Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with this material. Train in work practices which minimize exposure. Institute a complete respiratory protection program which includes regular training, maintenance, inspection, cleaning, and evaluation. Make available to employees exposed to coal tar pitch volatiles a complete history and physical examination with emphasis on the oral cavity, respiratory tract, bladder, and kidneys. Examine the skin for evidence of chronic disorders, for premalignant and malignant lesions, and evidence of hyperpigmentation or photosensitivity. Obtain a urinalysis including specific gravity, albumin, glucose, and a microscopic examination of centrifuged sediment, as well as a test for red blood cells. Also perform a complete blood count to search for leukemia and aplastic anemia. Employees having 5 or more years of exposure or who are 45 years of age or older should have a urinary cytology exam. Employees having 10 or more years of exposure or who are 45 year of age or older should have a sputum cytology examination, a 14" x 17" chest roentgenogram, and periodic measure of FVC and FEV (1 sec).

Personal Protective Clothing/Equipment: Wear chemically protective gloves, aprons, and gauntlets to prevent any skin contact. Employees handling drums, cans, or other large containers of coal tar products shall wear impervious shoes or boots with safety toe caps. Protect leather safety shoes with impervious coverings such as rubbers. Wear cup type or rubber-framed chemical safety goggles with a full length, plastic face shield (20 cm min.), per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not protective eye devices. Appropriate eye protection must be worn instead of contact lenses. *Do not* wear contacts while working with fluoranthene.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For exposure to concentrations <= 2 mg/m^3, wear a chemical cartridge respirator with an organic vapor cartridge(s) and with a fume or high efficiency filter or any supplied-air respirator or any SCBA; for exposure to concentrations <= 10 mg/m^3, wear a chemical cartridge respirator with a full facepiece and an organic vapor cartridge(s) and with a fume or high efficiency filter, or a gas mask with a chin style or a front- or back- mounted organic vapor canister and with a full facepiece and a fume or high efficiency filter, or any supplied-air respirator with a full facepiece, helmet, or hood or any SCBA with a full facepiece; for exposure to concentrations <= 200 mg/m^3, wear a type C supplied-air respirator operated in pressure-demand or other positive-pressure or continuous flow mode, or a powered air- purifying respirator with an organic vapor cartridge and a high efficiency particulate filter; for exposure to concentrations <= 400 mg/m^3 , wear a type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive-pressure mode, or with a full facepiece, helmet, or hood operated in continuous flow mode. For exposure to concentrations >= 400 mg/m^3 or for emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes and place in a closed container in the change room. Launder daily before reuse. Remove this material from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Colorless to pale yellow
Physical State: Solid; needles or plates from alcohol
Vapor Pressure (kPa): 0.01 mm Hg at 68 °F (20 °C)
Formula Weight: 202.2
Density: 1.252 g/mL at 0°C/4°C
Specific Gravity (H_2O=1, at 4 °C): 1.252
Boiling Point: 707 °F (375 °C)
Freezing/Melting Point: 230 °F (110 °C)
Ionization Potential (eV): 7.95 +/- 0.3 eV
Water Solubility: Insoluble; 0.20 to 0.26 mg/L
Other Solubilities: Soluble in acetic acid, benzene, carbon disulfide, chloroform, and ether; at 72 °F (22 °C): 5-10 mg/mL 95% ethanol, >= 100 mg/mL acetone, and >= 100 mg/mL DMSO

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Fluoranthene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Avoid contact with chemical incompatibles, heat, and sources of ignition.

Storage Incompatibilities: Include strong oxidizing agents.

Hazardous Decomposition Products: Thermal oxidative decomposition of fluoranthene can produce toxic fumes of carbon monoxide and carbon dioxide.

Section 11 - Toxicological Information

Acute Oral Effects:
Rat, oral, LD_{50}: 2 g/kg.
Acute Skin Effects:
Rabbit, skin, LD_{50}: 3180 mg/kg.
Other Effects:

Multiple Dose Toxicity Effects: Rat, oral, 67500 mg/kg administered for 90 days intermittently produced toxic effects: kidney, ureter, and bladder - changes in tubules (including acute renal failure, acute tubular necrosis); blood - normocytic anemia, changes in leukocyte (WBC) count.

Genetic Effects: Bacteria, *S Typhimurium*, 5 µg/plate (-S9) induced mutations in microorganisms.
Human, lymphocyte, 2 µmol/L induced mutations in mammalian somatic cells.
Hamster, ovary, 9 mg/L induced sister chromatid exchange.
Rat, embryo, 50 mg/L induced morphological transformation.

Mouse, skin, 280 mg/kg administered for 58 weeks intermittently produced toxic effects: tumorigenic - equivocal tumorigenic agent by RTECS criteria; skin and appendages - tumors; tumorigenic - tumors at site of application.

See *RTECS* LL4025000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Fluoranthene degrades slowly in soil. When released to water, fluoranthene is expected to bioconcentrate into aquatic organisms. In the unadsorbed state it will degrade by photolysis. It appears to be stable in sediment for decades or more. Biodegradation in a few years in the presence of acclimated organisms is expected to occur. Fluoranthene released in the atmosphere will photodegrade in the free state. Fluoranthene will rapidly become adsorbed to sediment and particulate matter in the water column. Fluoranthene adsorbs strongly to soil. It is expected to remain in the upper layers of soil. However, it has been detected in groundwater samples, which demonstrates that it can be transported there by some other process. log K_{ow}: 4.90
Ecotoxicity: *Lepomis macrochirus*/ LC_{50}: 4.0 mg/L/96 hr
BCF: 2.58 (rainbow trout)
Soil Sorption Partition Coefficient: $K_{oc} = 6.6x10^4$

Section 13 - Disposal Considerations

Disposal: Fluoranthene is a good candidate for disposal by rotary kiln or fluidized bed forms of incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable federal, state, and local regulations. Handle empty containers carefully as hazardous residues may still remain. Triple rinse containers and dispose of wash wastewater appropriately.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Not specifically listed.

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Listed U120 Toxic Waste
CERCLA 40 CFR 302.4: Listed per RCRA Section 3001, per CWA Section 307(a) 100 lb (45.35 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
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Issue Date: 2006-06

Fluorene
FLU3100

Section 1 - Chemical Product and Company Identification

Material Name: Fluorene

CAS Number: 86-73-7

Chemical Formula: $C_{13}H_{10}$

EINECS Number: 201-695-5

ACX Number: X1003048-3

Synonyms: 2,3-BENZINDENE; O-BIPHENYLENEMETHANE; O-BIPHENYLMETHANE; ALPHA-DIPHENYLENEMETHANE; DIPHENYLENEMETHANE; ALPHA-DIPHENYLENEMETHANE-9H-FLUORENE; 9H-FLUORENE; FLUORENE; METHANE,DIPHENYLENE-; 2,2'-METHYLENEBIPHENYL

Derivation: Fluorene is derived from coal tar; from acetylene and hydrogen in a red-hot tube; from charcoal by boiling and fuming with HNO_3; from 2,2'-dibromodiphenylmethane on boiling with hydrazine hydrate in the presence of palladium; or by reduction of diphenylene ketone with zinc.

General Use: Fluorene is used in the formation of polyradicals for resins, and in resinous products and dyestuffs. Derivatives of fluorene show activity as herbicides and growth regulators.

Section 2 - Composition / Information on Ingredients

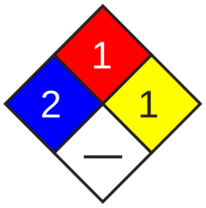
Name	CAS	%
Fluorene	86-73-7	ca 98% wt

OSHA PEL

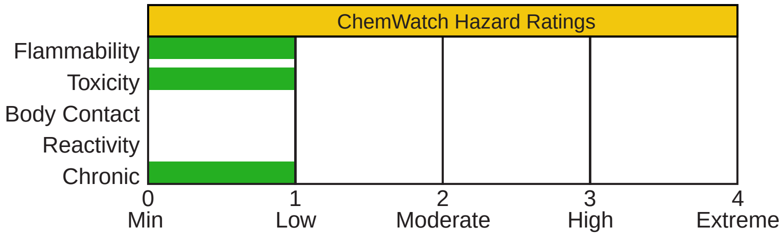
NIOSH REL

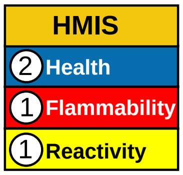
ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond





ANSI Signal Word

Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Dazzling white leaflets or flakes, fluorescent when impure. Irritating to eyes/skin/respiratory tract. Chronic effects: mutation effects. Combustible.

Potential Health Effects

Target Organs: Skin, eyes, respiratory system

Primary Entry Routes: Inhalation and skin/eye contact

Acute Effects The toxicological properties of fluorene have not been thoroughly investigated. The following effects are for those of polycyclic aromatic hydrocarbons (PAHs) in general.

Inhalation: Causes irritation to the respiratory system.

Eye: Contact causes irritation.

Skin: Contact causes irritation.

Ingestion: Causes irritation.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Medical Conditions Aggravated by Long-Term Exposure: None reported.

Chronic Effects: Include photosensitivity and irritation of the eyes; irritation of the respiratory system with cough, bronchitis, and chance of bronchogenic cancer; leukoplakia and cancers of the lip and oral cavity; dermal burns, "coal tar warts" (precancerous lesions enhanced by UV light exposure), erythema, acneiform lesions, and irritation; mild hepatoxicity; hematuria; and an increased chance of cancer of the skin, kidney, bladder, lung and gastrointestinal tract. Fluorinated PAHs may cross the placenta.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. Administer 100% humidified supplemental oxygen with assisted ventilation as required. If bronchospasm and wheezing occur, consider treatment with inhaled sympathomimetic agents.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician or ophthalmologist if pain, irritation, swelling, lacrimation or photophobia persist.

Skin Contact: Quickly remove contaminated clothing. Rinse with flooding amounts of water. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. Treat dermal irritation or burns with a standard topical therapy. Patients developing dermal hypersensitivity reactions may require treatment with systemic or topical corticosteroids or antihistamines. Avoid direct exposure of affected skin to sunlight and UV sources.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water. *Do not* induce vomiting. Gastric lavage and routine use of cathartics are not recommended.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Chronic effects, particularly cancer, are more common than acute toxicity. Acute respiratory effects in persons are typically due to other toxic agents at the worksite. Carefully observe patients with inhalation exposure for the development of any systemic signs or symptoms and administer symptomatic treatment as necessary. Monitor arterial blood gases, pulmonary function, and chest x-ray for patients with significant exposure.

Section 5 - Fire-Fighting Measures

Flash Point: Data not found; combustible

Autoignition Temperature: Data not found.

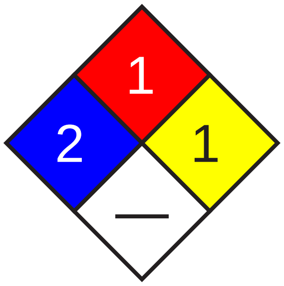
LEL: Data not found.

UEL: Data not found.

Extinguishing Media: Extinguish with water spray, carbon dioxide, dry chemical or appropriate foam.

General Fire Hazards/Hazardous Combustion Products: When heated to decomposition it emits acrid smoke and toxic fumes of carbon monoxide and carbon dioxide.

Fire-Fighting Instructions: *Do not* breathe the dust. *Do not* release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Wear protective clothing including rubber boots and heavy rubber gloves to prevent contact with skin and eyes.



Fire Diamond

Section 6 - Accidental Release Measures

Spill/Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Cleanup personnel should protect against exposure (Sec. 8).

Small Spills: If in solid form, *do not* sweep! Avoid raising dust. Carefully scoop up or vacuum (with a HEPA filter). Absorb liquid spill with an inert, noncombustible absorbent such as sand or vermiculite. Wash spill site after material pickup is complete.

Large Spills: For large spills, dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Wear personal protective clothing and equipment to prevent dust inhalation and contact of solid or liquid with skin or eyes (Sec. 8).

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed containers in a cool, well-ventilated area away from heat, light, ignition sources, and incompatibles.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations to avoid dust dispersion into the work area. Provide local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with this material. Train in work practices which minimize exposure. Consider preplacement and periodic medical exams including a complete blood count, hepatic and renal function test, dermal assessments, chest x-ray and pulmonary function tests.

Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not protective eye devices. Appropriate eye protection must be worn instead of, or in conjunction with, contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For 'normal' uses an air-purifying toxic dust* mask for particulates, and an organic vapor with toxic dust* pre-filters for vapors, dusts, and mists (* = purple or magenta color cartridge). Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: White. Fluorescent when impure.

Physical State: Solid; crystalline powder or small crystalline plates; leaflets or flakes from alcohol. Sublimes easily in high vacuum.

Vapor Pressure (kPa): 0.013 mm Hg at 68 °F (20 °C)

Formula Weight: 166.21

Density: 1.202 g/mL

Specific Gravity (H_2O=1, at 4 °C): 1.203 at 0 °C/4 °C

Boiling Point: 563 °F (295 °C) (decomposes)

Freezing/Melting Point: 237 to 241 °F (114 to 116 °C)

Ionization Potential (eV): 7.89 +/-0.2 eV

Water Solubility: Insoluble; 1.98 mg/kg

Other Solubilities: Freely soluble in glacial acetic acid; soluble in hot 95% ethanol, acetone, benzene, carbon disulfide, carbon tetrachloride, ether, pyridine, and toluene.

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Fluorene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Avoid contact with chemical incompatibles, heat, and sources of ignition. Avoid heating to decomposition.

Storage Incompatibilities: Include strong oxidizing agents.

Hazardous Decomposition Products: Thermal oxidative decomposition of fluorene can produce acrid smoke and toxic fumes of carbon monoxide and carbon dioxide.

Section 11 - Toxicological Information

Other Effects:

Genetic Effects: Mouse, lymphocyte, 150 µmol/L induced DNA damage.
Mouse, lymphocyte, 19500 nmol/L (+S9) induced mutations in microorganisms.
Mouse, lymphocyte, 584 µmol/L induced mutations in mammalian somatic cells.
Hamster, lung, 25 mg/L induced cytogenetic analysis.
Mouse, mammary gland, 1 µg/L induced morphological transformation.
Mouse, intraperitoneal, LD_{50}: >2 g/kg.

See *RTECS* LL5670000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to the atmosphere, fluorene will exist primarily in the vapor phase where it will degrade readily by photochemically produced hydroxyl radicals (estimated half-life of 29 hr). If released to soil or water, fluorene will biodegrade readily (aerobically) in the presence of acclimated microbes; microbial adaptation is an important fate process. Biodegradation can be slow in pristine soils or waters (or under conditions of limited oxygen). Strong adsorption to soil and water sediment is an important transport process. Log K_{ow}: 4.18 to 4.38

Ecotoxicity: TL_m *Neanthes arenaceodentata* LC_{50}/1.0 ppm/96 hr at 72 °F (22 °C) in a static bioassay, seawater
Henry's Law Constant: 0.0001
BCF: 1288 (fathead minnow)
Soil Sorption Partition Coefficient: K_{oc} = log 3.70 to 4.21

Section 13 - Disposal Considerations

Disposal: Dissolve or mix fluorene with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. The particle-bound portion of polycyclic aromatic hydrocarbons (PAH) can be removed by sedimentation, flocculation, and filtration processes. The remaining dissolved polynuclear aromatic hydrocarbons usually require oxidation for partial removal/transformation. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable federal, state, and local regulations. Handle empty containers carefully as hazardous residues may still remain. Triple rinse containers and dispose of wash wastewater appropriately.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Not specifically listed.

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Not listed
CERCLA 40 CFR 302.4: Listed per CWA Section 307(a) 5000 lb (2268 kg)
SARA 40 CFR 372.65: Not listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
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Indeno[1,2,3-cd]pyrene
IND3480

Issue Date: 2006-06

Section 1 - Chemical Product and Company Identification 61

Material Name: Indeno[1,2,3-cd]pyrene **CAS Number:** 193-39-5
Chemical Formula: $C_{22}H_{12}$
EINECS Number: 205-893-2
ACX Number: X1004975-9
Synonyms: IDENO(1,2,3-CD)PYRENE; INDENO(1,2,3-C,D) PYRENE; INDENO(1,2,3-CD)PYRENE; INDENO[1,2,3-CD]PYRENE; INDENO(1,2,3-C,D)PYRENE; INDENOPYRENE; IP; 1,10-(1,2-PHENYLENE)PYRENE; 1,10-(O-PHENYLENE)PYRENE; 1,10-(ORTHO-PHENYLENE)PYRENE; 2,3-O-PHENYLENEPYRENE; 2,3-ORTHO-PHENYLENEPYRENE; 2,3-PHENYLENEPYRENE; O-PHENYLENEPYRENE; ORTHO-PHENYLENEPYRENE
General Use: Laboratory standard used in cancer research. Found in automotive and diesel exhaust, cigarette smoke condensate, benzene and pyrene pyrolysis products, soot, coal tar and coal tar pitch and petroleum asphalt.

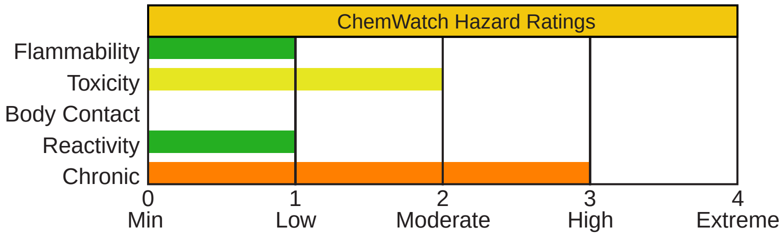
Section 2 - Composition / Information on Ingredients

Name	CAS	%
indeno[1,2,3-cd]pyrene	193-39-5	>98

OSHA PEL **NIOSH REL**

ACGIH TLV

Section 3 - Hazards Identification



☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Yellow plates or needles. May cause irritation to eyes/skin. Also causes: may be harmful by inhalation, ingestion, or skin absorption.

Potential Health Effects

Target Organs: No data found.
Primary Entry Routes: accidental skin and eye contact and inhalation of generated dusts
Acute Effects
Inhalation: The dust is harmful and discomforting to the upper respiratory tract.
Persons with impaired respiratory function, airway diseases, or conditions such as emphysema or chronic bronchitis may incur further disability if excessive concentrations of particulate are inhaled.
Eye: The dust may be discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to windburn), temporary impairment of vision and/ or other transient eye damage/ ulceration.
Skin: The material may be mildly discomforting to the skin. Open cuts and abraded or irritated skin should not be exposed to this material.
Toxic effects may result from skin absorption.
Ingestion: The solid/dust is discomforting to the gastrointestinal tract and harmful if swallowed.
Considered an unlikely route of entry in commercial/industrial environments.
Carcinogenicity: NTP - Listed; IARC - Group 2B, Possibly carcinogenic to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class B2, Probable human carcinogen based on animal studies; MAK - Not listed.

Chronic Effects: The so-called polycyclic aromatic hydrocarbons (PAHs) comprise a large family; some members occur in coal tar, tobacco smoke, petroleum and air pollution. Some substituted derivatives have been identified, in animal studies, as amongst the most highly active carcinogens.

Section 4 - First Aid Measures

See DOT ERG

Inhalation: • If dust is inhaled, remove to fresh air.
- Encourage patient to blow nose to ensure clear breathing passages.
- Rinse mouth with water. Consider drinking water to remove dust from throat.
- Seek medical attention if irritation or discomfort persist.
- If fumes or combustion products are inhaled, remove to fresh air.
- Lay patient down. Keep warm and rested.
- Other measures are usually unnecessary.

Eye Contact: If this product comes in contact with the eyes:
- Immediately hold the eyes open and flush with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention if pain persists or recurs.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: If product comes in contact with the skin:
- Immediately remove all contaminated clothing, including footwear (after rinsing with water).
- Wash affected areas thoroughly with water (and soap if available).
- Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center. If swallowed, and if more than 15 minutes from a hospital:
- Induce vomiting with Ipecac syrup, or fingers down the back of the throat, only if conscious. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Note: Wear a protective glove when inducing vomiting by mechanical means.
- Seek medical attention without delay.
- In the meantime, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically.

Section 5 - Fire-Fighting Measures

See DOT ERG

Extinguishing Media: Foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide. Water spray or fog - Large fires only.

General Fire Hazards/Hazardous Combustion Products: • Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space, as dust may form an explosive mixture with air and any source of ignition, i.e., flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Fire Incompatibility: Avoid contamination with oxidizing agents i.e., nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Fire-Fighting Instructions: • Contact fire department and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or waterways.
- Use fire fighting procedures suitable for surrounding fire.
- Do not approach containers suspected to be hot.
- Cool fire-exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

See DOT ERG

Small Spills: • Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up.
- Place in clean drum then flush area with water.

Large Spills: • Clear area of personnel and move upwind.
- Contact fire department and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or waterways.
- No smoking, bare lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse/absorb vapor.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and reusing.
- If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: • Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- Do not enter confined spaces until atmosphere has been checked.
- Do not allow material to contact humans, exposed food or food utensils.
- Avoid smoking, bare lights or ignition sources.
- When handling, do not eat, drink or smoke.
- Avoid contact with incompatible materials.
- Keep containers securely sealed when not in used.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before reuse.
- Observe manufacturer's storage/handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Recommended Storage Methods: Glass container. Plastic container. Metal can. Metal drum. Packing as recommended by manufacturer. Check that all containers are clearly labeled and free from leaks.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Supplied-air type respirator may be required in special circumstances. An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields. Chemical goggles. Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Wear chemical protective gloves, e.g. PVC. Wear safety footwear.

Other: • Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Off-white powder.
Physical State: yellow plates or needles
Vapor Pressure (kPa): 1.0 x10^{-1} mm Hg
Vapor Density (Air=1): not applicable
Formula Weight: 276.34
Evaporation Rate: not applicable
pH: not applicable
pH (1% Solution): not applicable
Boiling Point: 530 °C (986 °F)
Freezing/Melting Point: 162.5 °C (324.5 °F) to 164 °C (327.2 °F)
Volatile Component (% Vol): negligible
Water Solubility: 0.062 mg/L water

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid reaction with oxidizing agents.

Section 11 - Toxicological Information

Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

See *RTECS* NK9300000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to soil it will sorb strongly (estimated K_{oc}= 20,146) and hence is not expected to leach. No information was found about volatilization from, hydrolysis in, or biodegradation in soil. Released to water it will sorb strongly to suspended particulate matter, biota and sediments. Although there is a high potential to bioconcentrate in most aquatic organisms, it may not in fish since fish contain microsomal oxidase, which allows polyaromatic hydrocarbons to be metabolized. No information was found about volatilization, photolysis, hydrolysis, or biodegradation in water. It will probably be persistent in the aquatic environment and concentrate in sediments. Almost all released to the atmosphere will be sorbed to particulate matter; thus its atmospheric fate will primarily depend on physical processes such as dry and wet deposition. However, a computer-estimated half-life in the vapor phase is about 20 hours due to reaction with photochemically produced hydroxyl radicals.
Ecotoxicity: No data found.
Henry's Law Constant: 5.89 x10^{-10}
BCF: estimated at 5.9407 x10^{4}
Octanol/Water Partition Coefficient: log K_{ow} = 6.584
Soil Sorption Partition Coefficient: K_{oc} = 2.0146 x10^{4}

Section 13 - Disposal Considerations

Disposal: • Recycle wherever possible or consult manufacturer for recycling options.
• Follow applicable local, state, and federal regulations.
• Bury residue in an authorized landfill.
• Recycle containers if possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: I - Great Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB7
Packaging: **Exceptions:** None **Non-bulk:** 211 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 kg **Cargo aircraft only:** 50 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: II - Medium Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP2, IP4
Packaging: **Exceptions:** None **Non-bulk:** 212 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 25 kg **Cargo aircraft only:** 100 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP3
Packaging: **Exceptions:** 153 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** 100 kg **Cargo aircraft only:** 200 kg
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Listed U137 Toxic Waste
CERCLA 40 CFR 302.4: Listed per RCRA Section 3001, per CWA Section 307(a) 100 lb (45.35 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Naphthalene
NAP1620

Issue Date: 2006-06

Section 1 - Chemical Product and Company Identification

Material Name: Naphthalene

CAS Number: 91-20-3

Chemical Formula: $C_{10}H_8$

EINECS Number: 202-049-5

ACX Number: X1001294-7

Synonyms: ALBOCARBON; CAMPHOR TAR; DEZODORATOR; FAULDING NAPHTHALENE FLAKES; MIGHTY 150; MIGHTY RD1; MOTH BALLS; MOTH FLAKES; MOTHBALLS; NAFTALEN; NAPHTHALENE; NAPHTHALIN; NAPHTHALINE; NAPHTHENE; TAR CAMPHOR; WHITE TAR

Derivation: From coal tar; from petroleum fractions after various catalytic processing operations.

General Use: Used as a moth repellent, an antiseptic, toilet bowl deodorant, heat transfer agent, fungicide, smokeless powder, cutting fluid, lubricant, wood preservative; an intermediate for naphthol, phthalic anhydride, chlorinated naphthalenes, Tertralin, Decalin, naphthyl and naphthol derivatives, and dyes; in synthetic resins, synthetic tanning, textile chemicals, scintillation counters, and emulsion breakers.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
Naphthalene	91-20-3	ca 100% wt.

Grade - By melting point, 165 °F (74 °C) min (crude) to greater than 174 °F (79 °C) (refined); scintillation 176-177 °F (80-81 °C)

OSHA PEL
TWA: 10 ppm; 50 mg/m^3.

ACGIH TLV
TWA: 10 ppm; STEL: 15 ppm; skin.

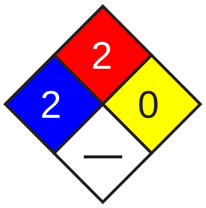
EU OEL
TWA: 10 ppm.

NIOSH REL
TWA: 10 ppm (50 mg/m^3); STEL: 15 ppm (75 mg/m^3).

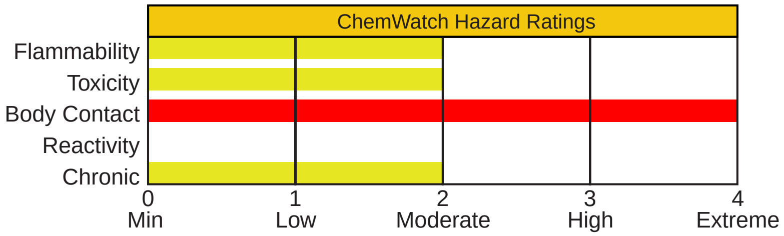
IDLH Level
250 ppm.

DFG (Germany) MAK
Skin.

Section 3 - Hazards Identification



Fire Diamond



HMIS
② Health
② Flammability
⓪ Reactivity

ANSI Signal Word

Warning!

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

White crystalline solid; "moth ball" or coal-tar odor. Irritating to eyes/skin/respiratory tract. Toxic by ingestion. Combustible solid. Dust may form explosive mixtures in air.

Potential Health Effects

Target Organs: Blood (red blood cell effects), eyes, skin, central nervous system (CNS), liver and kidneys

Primary Entry Routes: Inhalation, skin absorption, skin and/or eye contact

Acute Effects

Inhalation: Vapor inhalation causes headache, confusion, nausea, sometimes vomiting, loss of appetite, extensive sweating, dysuria (painful urination), hematuria (blood in the urine), and hemolysis (destruction of red blood cells).

Eye: Irritation, conjunctivitis, and corneal injury upon prolonged contact.

Skin: Irritation and hypersensitivity dermatitis.

Ingestion: Unlikely. However, ingestion causes irritation of the mouth and stomach, hemolytic anemia with hepatic and renal lesions and vesical congestion, kidney failure, hematuria, jaundice, depression of CNS, nausea, vomiting, abdominal pain, blue face, lips, or hands, rapid and difficult breathing, headache, confusion, excitement, malaise, fever, perspiration, urinary tract pain, dizziness, convulsions, coma, and death. Symptoms may appear 2 to 4 hours after exposure.

Carcinogenicity: NTP - Not listed; IARC - Not listed; OSHA - Not listed; NIOSH - Not listed; ACGIH - Class A4, Not classifiable as a human carcinogen; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Medical Conditions Aggravated by Long-Term Exposure: Diseases of the blood, liver and kidneys; individuals with a hereditary deficiency of the enzyme glucose-6-phosphate dehydrogenase in red blood cells are particularly susceptible to the hemolytic properties of naphthalene metabolites.

Chronic Effects: May cause optical neuritis, corneal injuries, cataracts, kidney damage. There are two reports of naphthalene crossing the placenta in humans.

Section 4 - First Aid Measures

See DOT ERG

Inhalation: Remove exposed person to fresh air and support breathing as needed. Contact a physician immediately if symptoms of systemic poisoning are present.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician or ophthalmologist if pain, irritation, swelling, or photophobia persist.

Skin Contact: Quickly remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area thoroughly with soap and water. For reddened or blistered skin, consult a physician. Contact a physician immediately if symptoms of systemic poisoning are present.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the conscious and alert person drink 1 to 2 glasses of water, then induce vomiting. Contact a physician immediately.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Obtain baseline CBC, electrolytes, liver and renal function rests, glucose-6-phosphatase dehydrogenase level, urinalysis, and benzidine dipstick to check for hemoglobinuria. Urinary metabolite, 1-naphthol or mercapturic acid, may help confirm the diagnosis.

Section 5 - Fire-Fighting Measures

See DOT ERG

Flash Point: 174 °F (79 °C) OC; 190 °F (88 °C) CC

Autoignition Temperature: 979 °F (526 °C)

LEL: 0.9% v/v

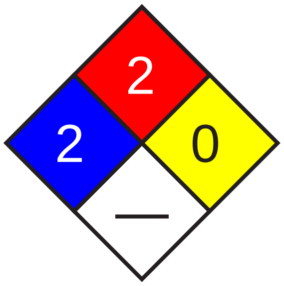
UEL: 5.9% v/v

Flammability Classification: Combustible solid

Extinguishing Media: Use dry chemical, foam, carbon dioxide (CO_2), or water spray. Water or foam may cause frothing. Use water spray to keep fire-exposed containers cool.

General Fire Hazards/Hazardous Combustion Products: Toxic vapors including carbon monoxide. Volatile solid that gives off flammable vapors when heated. Dust may explode in air if an ignition source is provided.

Fire-Fighting Instructions: Move containers from the fire area if it can be done without risk. Otherwise cool fire-exposed containers until well after the fire is extinguished. Do not release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Wear full protective clothing. Structural clothing is permeable, remain clear of smoke, water fall out, and water run off.



Fire Diamond

Section 6 - Accidental Release Measures

See DOT ERG

Spill/Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Stop leak if you can do it without risk. Use spark-proof tools and explosion proof equipment. Cleanup personnel should wear personal protective equipment to protect against exposure.

Small Spills: Do not sweep! Carefully scoop up or vacuum (with a HEPA filter). Absorb liquid spill with an inert, noncombustible absorbent such as sand or vermiculite.

Large Spills: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: To avoid vapor inhalation use only with ventilation sufficient to reduce airborne concentrations to nonhazardous levels. Avoid skin and eye contact. Wear personal protective clothing and equipment to prevent any contact with skin and eyes (see Sec. 8). Practice good personal hygiene procedures to prevent inadvertently ingesting this material.

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Store in tightly closed, explosion-proof containers in a cool, well-ventilated area away from heat, ignition sources, and incompatibles (see Sec. 10). May be stored under nitrogen gas. Protect containers against physical damage. Use monitoring equipment to measure the extent of vapor present in any storage facility containing naphthalene because of potential fire and explosion hazards.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations to avoid vapor and dust dispersion into the work area. Ventilate at the site of chemical release. During the fractional distillation of naphthalene and in any operation entailing the heating or volatilization of naphthalene, enclosed apparatus should be employed. Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with naphthalene. Train in work practices which minimize exposure. Consider preplacement and periodic medical exams with emphasis on the eyes, skin, liver, kidneys, CBC (RBC count, WBC count, differential count of a stained smear, hemoglobin, and hematocrit), and urinalysis including at a minimum specific gravity, albumin, glucose, and a microscopic examination on centrifuged sediment.

Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Teflon is recommended. *Do not* use butyl rubber, natural rubber, neoprene or polyvinyl chloride. Wear chemical dust-proof safety goggles and face shield, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Launder before reuse. Remove naphthalene from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: White volatile flakes, cakes, cubes, spheres, or powder; strong coal-tar or moth ball odor.

Physical State: Crystalline solid

Odor Threshold: < 0.3 ppm

Vapor Pressure (kPa): 0.05 mm Hg at 68 °F (20 °C); 1.0 mm Hg at 127 °F (53 °C)

Formula Weight: 128.2

Density: 1.145 g/cm^3 at 68 °F (20 °C)

Boiling Point: 424 °F (218 °C)

Freezing/Melting Point: 176 °F (80.2 °C)

Water Solubility: Insoluble [31.7 mg/L at 68 °F (20 °C)]

Other Solubilities: Benzene, absolute alcohol; very soluble in ether, chloroform, carbon disulfide, hydronaphthalenes, fixed and volatile oils

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Naphthalene is stable at room temperature in closed containers under normal storage and handling conditions. It volatilizes at room temperature. Hazardous polymerization cannot occur. Exposure to heat and ignition sources, incompatibles.

Storage Incompatibilities: Include aluminum chloride, benzoyl chloride, chromic acid, chromium trioxide, oxidizers. Explosive reaction with dinitrogen pentaoxide. Melted naphthalene will attack some forms of plastics.

Hazardous Decomposition Products: Thermal oxidative decomposition of naphthalene can produce toxic fumes including carbon monoxide.

Section 11 - Toxicological Information

Acute Oral Effects:
Rat, oral, LD_{50}: 490 mg/kg.
Mouse, oral, LD_{50}: 533 mg/kg.
Human (child), oral, LD_{Lo}: 100 mg/kg.

Acute Inhalation Effects:
Rat, inhalation, LC_{50}: >340 mg/m^3 produced lacrimation and somnolence.

Irritation Effects:
Rabbit, eye, standard Draize test: 100 mg produced mild irritation.
Rabbit, skin, open Draize test: 495 mg produced mild irritation.

Other Effects:
Rat, oral: 4500 mg/kg administered on gestational days 6-15 produced fetotoxicity and other developmental abnormalities.
Man, unreported, LD_{Lo}: 74 mg/kg.
Mouse, inhalation: 30 ppm/6 hr/2 yr administered intermittently produced toxic effects: tumorigenic - neoplastic by RTECS criteria; lungs, thorax, or respiration - tumors.
Hamster, ovary: 15 mg/L induced sister chromatid exchange.

See *RTECS* QJ0525000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to the atmosphere, naphthalene rapidly photodegrades with a half-life of 3-8 hr. Volatilization, photolysis, adsorption, and biodegradation are important loss mechanisms for naphthalene discharged into water. Depending on local conditions, the half-lives range from a couple of days to a few months. If released on land, it is adsorbed moderately to soil, undergoes biodegradation; but in some cases biodegradation may still occur if conditions are aerobic. Bioconcentration occurs to a moderate extent, but is a temporary problem since depuration and metabolism readily proceed in aquatic organisms.

Ecotoxicity: *Oncorhynchus gorbuscha* (pink salmon): 1.37 ppm/96 hr at 39 °F (4 °C). *Pimephales promelas* (fathead minnow): 7.76 mg/L/24 hr.

Octanol/Water Partition Coefficient: log $K_{ow} = 3.30$

Section 13 - Disposal Considerations

Disposal: Consider rotary kiln or fluidized bed incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations. Handle empty containers carefully as hazardous residues may still remain.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Naphthalene, crude *or* Naphthalene, refined
ID: UN1334
Hazard Class: 4.1 - Flammable solid
Packing Group: III - Minor Danger
Symbols:
Label Codes: 4.1 - Flammable Solid
Special Provisions: A1, IB8, IP3
Packaging: **Exceptions:** 151 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** 25 kg **Cargo aircraft only:** 100 kg
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
RCRA 40 CFR: Listed U165 Toxic Waste
CERCLA 40 CFR 302.4: Listed per CWA Section 311(b)(4), per RCRA Section 3001, per CWA Section 307(a) 100 lb (45.35 kg)
SARA 40 CFR 372.65: Listed
SARA EHS 40 CFR 355: Not listed
TSCA: Listed

Section 16 - Other Information

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

Phenanthrene
PHE1330

Section 1 - Chemical Product and Company Identification

Material Name: Phenanthrene **CAS Number:** 85-01-8
Chemical Formula: $C_{14}H_{10}$
Structural Chemical Formula: $(C_6H_4CH)_2$
EINECS Number: 201-581-5
ACX Number: X1001897-8
Synonyms: COAL TAR PITCH VOLATILES: PHENANTHRENE; PHENANTHREN; PHENANTHRENE; PHENANTRIN
Derivation: A polynuclear aromatic hydrocarbon found as a component of coal tar pitch volatiles (products of bituminous coal distillation). Produced from toluene, bibenzil, 9-methyl fluorene or stilbene by passage through red hot tubes or by diene synthesis of 1-vinyl naphthalene and maleic anhydride.
General Use: Used in the manufacture of dyestuffs and explosives; in biological research or drug synthesis.

Section 2 - Composition / Information on Ingredients

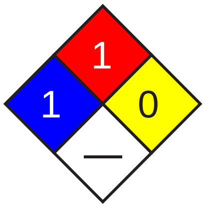
Name	CAS	%
Phenanthrene	85-01-8	ca 100 % wt

OSHA PEL

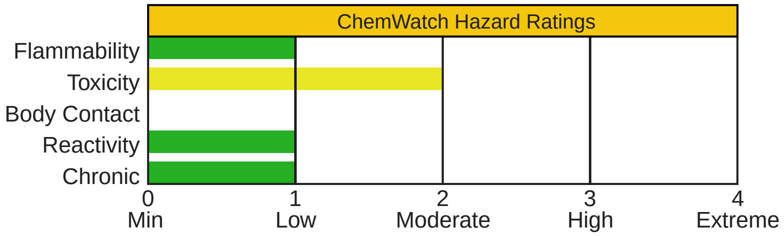
NIOSH REL

ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond



HMIS
1 Health
1 Flammability
0 Reactivity

ANSI Signal Word
Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Shiny crystals; faint, aromatic odor. Acute Effects: skin photosensitization. Combustible. Reacts dangerously with oxidizers.

Potential Health Effects

Target Organs: Skin.
Primary Entry Routes: Skin contact.
Acute Effects
Inhalation: Effects not reported.
Eye: Effects not reported.
Skin: Can cause photosensitization of the skin.
Ingestion: Effects not reported.
Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.
Medical Conditions Aggravated by Long-Term Exposure: Skin disorders.
Chronic Effects: None reported.

Section 4 - First Aid Measures

See DOT ERG

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.

Skin Contact: *Quickly* remove contaminated clothing. Rinse exposed area with flooding amounts of water to remove loose material and then move quickly to a soap and water wash. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treatment is symptomatic and supportive.

Section 5 - Fire-Fighting Measures

Flash Point: 340 °F (171 °C), Open Cup

LEL: Not reported.

UEL: Not reported.

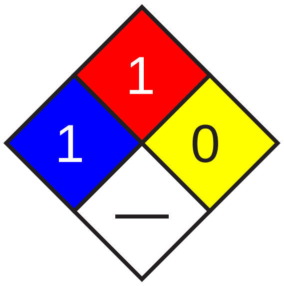
Flammability Classification: Class IIIB Combustible liquid

Extinguishing Media: Use dry chemical or carbon dioxide; water spray or foam may cause frothing.

General Fire Hazards/Hazardous Combustion Products: Carbon oxides (CO_x) and acrid smoke

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

See DOT ERG



Fire Diamond

Section 6 - Accidental Release Measures

See DOT ERG

Spill/Leak Procedures: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Shut off ignition sources. Cleanup personnel should protect against skin contact.

Small Spills: To avoid dust generation, *do not* sweep! Carefully scoop up or vacuum (with appropriate filter). Damp mop residue.

Large Spills: Flush large spill to containment area for later disposal. Do not release into sewers or waterways. Mop up any residue.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Use nonsparking tools to open containers.
Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Recommended Storage Methods: Prevent physical damage to containers. Store in a cool, dry, well-ventilated area away from heat, ignition sources, and strong oxidizers.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: To prevent static sparks, electrically ground and bond all equipment used with and around phenanthrene. Provide general or local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Consider preplacement and periodic medical exams of exposed workers with emphasis on the skin.

Personal Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. The following respirator recommendation is for *coal-tar pitch volatiles*: For any detectable concentration, use a SCBA or supplied-air respirator (with auxiliary SCBA) with a full facepiece and operated in pressure-demand or other positive pressure mode. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Colorless, shiny crystals with a faint, aromatic odor.

Physical State: Solid

Odor Threshold: 0.055 to 0.06 mg/m^3

Vapor Pressure (kPa): 1 mm Hg at 244.76 °F (118.2 °C); 400 mm Hg at 586.4 (308 °C)

Formula Weight: 178.22

Density: 1.179 g/L at 77 °F (25 °C)

Refractive Index: 1.59427

Boiling Point: 644 °F (340 °C)

Freezing/Melting Point: 213 °F (101 °C)

Water Solubility: 1.6 mg/L at 59 °F (15 °C)

Other Solubilities: 1 g in: 2.4 mL toluene, 2.4 mL carbon tetrachloride, 2 mL benzene, 1 mL carbon disulfide, 25 mL absolute alcohol, 60 mL cold 95% alcohol, 10 mL boiling 95% alcohol and 3.3 mL anhydrous ether. Also soluble in glacial acetic acid, chloroform, and hot pyridine.

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Phenanthrene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization does not occur. Phenanthrene dust generation and exposure to heat ignition sources, or oxidizers.

Storage Incompatibilities: Strong oxidizers.

Hazardous Decomposition Products: Thermal oxidative decomposition of phenanthrene can produce carbon oxide(s).

Section 11 - Toxicological Information

Acute Oral Effects:

Mouse, oral, LD_{50}: 700 mg/kg.

Other Effects:

Tumorgenicity, mouse, skin: 71 mg/kg produced tumors at site of application.

Genetic Effects - Rat, liver cell: 3 mmol/L caused DNA damage.

Human, lymphocyte: 100 µmol/L caused mutation.

See *RTECS* SF7175000, for additional data.

Section 12 - Ecological Information

Environmental Fate: If released to soil, some phenanthrene may biodegrade but the majority will bind to the soil without much leaching to groundwater. Volatilization is not expected to be significant. In water, it will adhere to particulates and sediment. Photolysis may occur near the surface producing toxic substances. Photolysis/photooxidation half-life = 8.4 hr. In the air, it will react with photochemically generated hydroxyl radicals (half-life = 1.67 days). Phenanthrene absorbs strongly to soil and sediment in water.

Ecotoxicity: *Neanhes arenaceodentata*, TL_m = 0.6 ppm/96 hr, sea water at 71.6 °F (22 °C)

Octanol/Water Partition Coefficient: log K_{ow} = 4.57

Section 13 - Disposal Considerations

Disposal: For treatment of phenanthrene contaminated water, the particulate bound portion can be removed by sedimentation, flocculation, and filtration. Chlorination is not recommended as it has been shown to produce mutagenic substances. The dissolved portion requires oxidation for partial removal. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Shipping Name and Description: Environmentally hazardous substances, solid, n.o.s.
ID: UN3077
Hazard Class: 9 - Miscellaneous hazardous material
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 9 - Class 9
Special Provisions: 8, 146, B54, IB8, N20
Packaging: **Exceptions:** 155 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** No limit **Cargo aircraft only:** No limit
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Not listed
- **CERCLA 40 CFR 302.4:** Listed per CWA Section 307(a) 5000 lb (2268 kg)
- **SARA 40 CFR 372.65:** Listed
- **SARA EHS 40 CFR 355:** Not listed
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser’s purposes are necessarily the purchaser’s responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser’s intended purpose or for consequences of its use.

Material Safety Data Sheet Collection
Genium group inc.
1171 RiverFront Center, Amsterdam, NY 12010
(518) 842-4111

Issue Date: 2006-06

Pyrene
PYR1640

Section 1 - Chemical Product and Company Identification

Material Name: Pyrene **CAS Number:** 129-00-0
Chemical Formula: $C_{16}H_{10}$
EINECS Number: 204-927-3
ACX Number: X1001901-7
Synonyms: BENZO(DEF)PHENANTHRENE; BENZO(D,E,F)PHENANTHRENE; COAL TAR PITCH VOLATILES:PYRENE; PYREN; BETA-PYRENE; PYRENE; PYRENE
General Use: Laboratory reference standard.
Occurs in coal tar or in destructive hydrogenation of hard coals.

Section 2 - Composition / Information on Ingredients

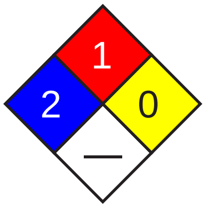
Name	CAS	%
pyrene	129-00-0	>98

OSHA PEL
TWA: 0.2 mg/m^3; as particulate polycyclical aromatic hydrocarbon.

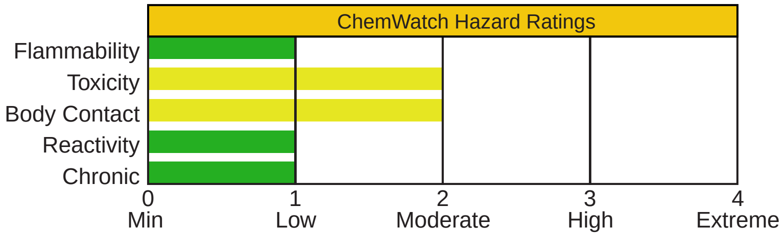
NIOSH REL
TWA: 0.1 mg/m^3, cyclohexane-extractable fraction; as particulate polycyclic aromatic hydrocarbon.

ACGIH TLV

Section 3 - Hazards Identification



Fire Diamond



HMIS
2 Health
1 Flammability
0 Reactivity

ANSI Signal Word

Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Colorless solid. Irritating to eyes/skin/respiratory tract. Also causes: conjunctival irritation, dermal irritation, ingestion may irritate and burn esophagus/gastrointestinal tract.

Potential Health Effects

Target Organs: skin, eyes, respiratory system
Primary Entry Routes: inhalation, ingestion, skin contact
Acute Effects
Inhalation: The dust may be discomforting to the upper respiratory tract and may be fatal if inhaled.
Persons with impaired respiratory function, airway diseases, and conditions such as emphysema or chronic bronchitis may incur further disability if excessive concentrations of particulate are inhaled.
Animal inhalation studies have demonstrated hepatic, pulmonary and intragastric pathologic changes. The levels of neutrophil, leukocyte and erythrocytes decreased.
Eye: The dust may be discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.
Skin: The material may be mildly discomforting to the skin.
Open cuts, abraded or irritated skin should not be exposed to this material.
Toxic effects may result from skin absorption.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterized by skin redness (erythema) and swelling (edema) which may progress to vesiculation, scaling and thickening of the epidermis. Histologically there may be intercellular edema of the spongy layer (spongiosis) and intracellular edema of the epidermis.

Skin application resulted in hyperemia (blood engorgement), weight loss and hematopoietic (blood cell development) changes. Contact dermatitis was also evident.

Ingestion: The solid/dust is discomforting to the gastrointestinal tract and harmful if swallowed.

Considered an unlikely route of entry in commercial/industrial environments.

Carcinogenicity: NTP - Not listed; IARC - Group 3, Not classifiable as to carcinogenicity to humans; OSHA - Not listed; NIOSH - Not listed; ACGIH - Not listed; EPA - Class D, Not classifiable as to human carcinogenicity; MAK - Not listed.

Chronic Effects: Chronic exposure to pyrene results increase in blood leukocytes (leukocytosis).

The so-called polycyclic aromatic hydrocarbons (PAHs) comprise a large family; some members occur in coal tar, tobacco smoke, petroleum and air pollution. Some substituted derivatives have been identified, in animal studies, as amongst the most highly active carcinogens.

Rodent species are sensitive to some PAHs with skin application producing cancerous growths. Injection produces soft tissue tumors (sarcomas) in rats and mice.

Administration of PAHs to Rhesus monkey on the other hand has not yet proved successful in yielding tumors and there is inadequate date to support the proposition that individual PAHs produce cancer in humans. There are however a number of epidemiology and mortality studies that show increased incidence of cancer in humans exposed to mixtures of PAHs. Evidence exists of lung and genito-urinary cancer mortality amongst coke-oven workers and skin tumors in workers exposed to creosote. Exposures to other chemical mixtures containing PAHs such as cigarette smoke, coal tar, coal tar pitch and bitumens, have been associated with increased incidences of lung cancer in humans. Anthracene, the basic unit on which most PAHs are built, is not carcinogenic whereas benz[a]anthracene appears to have weak carcinogenicity. Additions of other benzene rings to select positions on the benz[a]anthracene skeleton results in agents with powerful carcinogenicity (e.g. dibenz[a,h]anthracene and benz[a]pyrene). Further substitution of methyl groups in position on the rings enhances carcinogenicity (7,12 dimethylbenz[a]anthracene is one of the most powerful PAH carcinogens known). Biotransformation to produce soluble metabolites suitable for excretion appears to transform some PAHs to reactive electrophiles (as epoxides) which bind to DNA. Initiation of carcinogenesis is thought to rely upon such interactions.

Section 4 - First Aid Measures

See
DOT
ERG

Inhalation: Remove to fresh air.

Encourage patient to blow nose to ensure clear breathing passages. Rinse mouth with water.

Consider drinking water to remove dust from throat.

Lay patient down. Keep warm and rested.

Seek medical attention if irritation or discomfort persist.

Eye Contact: Immediately hold the eyes open and flush with fresh running water.

Ensure irrigation under the eyelids by occasionally lifting upper and lower lids. If pain persists or recurs seek medical attention.

Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

Ingestion: Contact a Poison Control Center.

If more than 15 minutes from a hospital, induce vomiting, preferably using Ipecac Syrup APF.

Note: DO NOT INDUCE VOMITING in an unconscious person.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically.

Section 5 - Fire-Fighting Measures

See
DOT
ERG

Flash Point: Not available; probably combustible

Extinguishing Media: Foam, dry chemical powder, BCF (where regulations permit), carbon dioxide.

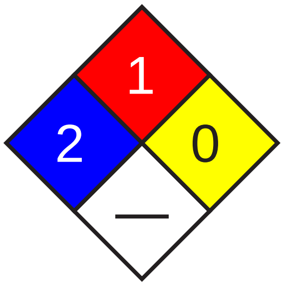
Water spray or fog - Large fires only.

General Fire Hazards/Hazardous Combustion Products: Solid which exhibits difficult combustion or is difficult to ignite.

Avoid generating dust, particularly clouds of dust in a confined or unventilated space.

Dust may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion.

Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. Build-up of electrostatic charge may be prevented by bonding and grounding.



Fire Diamond

Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Fire Incompatibility: Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard.

Wear breathing apparatus plus protective gloves for fire only. Prevent, by any means available, spillage from entering drains or waterways.

Use fire fighting procedures suitable for surrounding area.

Do not approach containers suspected to be hot.

Cool fire-exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

Small Spills: Clean up all spills immediately. Avoid contact with skin and eyes.

Wear protective clothing, gloves, safety glasses and dust respirator.

Use dry clean-up procedures and avoid generating dust.

Vacuum up or sweep up. Place in clean drum then flush area with water.

Large Spills: Clear area of personnel and move upwind.

Contact fire department and tell them location and nature of hazard.

Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or waterways.

No smoking, bare lights or ignition sources. Increase ventilation.

Stop leak if safe to do so.

Water spray or fog may be used to disperse/absorb vapor.

Contain or absorb spill with sand, earth or vermiculite.

Collect recoverable product into labeled containers for recycling.

Collect solid residues and seal in labeled drums for disposal.

Wash area and prevent runoff into drains.

After clean-up operations, decontaminate and launder all protective clothing and equipment before storing and reusing.

If contamination of drains or waterways occurs, advise emergency services.

See DOT ERG

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid all personal contact, including inhalation.

Wear protective clothing when risk of overexposure occurs.

Use in a well-ventilated area. Prevent concentration in hollows and sumps.

DO NOT enter confined spaces until atmosphere has been checked.

DO NOT allow material to contact humans, exposed food or food utensils.

Avoid smoking, bare lights or ignition sources. When handling, DO NOT eat, drink or smoke. Avoid contact with incompatible materials.

Keep containers securely sealed when not in used. Avoid physical damage to containers. Always wash hands with soap and water after handling. Working clothes should be laundered separately.

Launder contaminated clothing before reuse.

Use good occupational work practices. Observe manufacturer's storing/handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Recommended Storage Methods: Glass container; plastic container.

Metal can; metal drum. Packing as recommended by manufacturer.

Check all containers are clearly labeled and free from leaks.

Regulatory Requirements: Follow applicable OSHA regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Local exhaust ventilation usually required.

If risk of overexposure exists, wear NIOSH-approved respirator.

Correct fit is essential to obtain adequate protection. NIOSH-approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area.

Personal Protective Clothing/Equipment:

Eyes: Safety glasses with side shields; chemical goggles.

Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hands/Feet: Wear chemical protective gloves, eg. PVC. Wear safety footwear.

Other: Overalls. PVC apron. PVC protective suit may be required if exposure severe.
Eyewash unit. Ensure there is ready access to a safety shower.

Section 9 - Physical and Chemical Properties

Appearance/General Info: Colorless crystalline solid when pure. Contamination by tetracene results in slight yellowing. Solid and solutions have slight blue fluorescence.

Physical State: Divided solid
Vapor Pressure (kPa): Negligible
Formula Weight: 202.24
Specific Gravity (H_2O=1, at 4 °C): 1.271
pH: Not applicable
pH (1% Solution): Not applicable

Boiling Point: 393 °C (739 °F) at 760 mm Hg
Freezing/Melting Point: 156 °C (312.8 °F)
Volatile Component (% Vol): Negligible
Water Solubility: 0.135 mg/L (+ or - 0005 mg/L) in water

Section 10 - Stability and Reactivity

Stability/Polymerization/Conditions to Avoid: Product is considered stable. Hazardous polymerization will not occur.
Storage Incompatibilities: Avoid reaction with oxidizing agents.

Section 11 - Toxicological Information

Toxicity
Oral (rat) LD_{50}: 2700 mg/kg
Inhalation (rat) LC_{50}: 170 mg/m^3
Oral (mouse) LD_{50}: 800 mg/kg
Intraperitoneal (mouse) LD_{50}: 514 mg/kg
Conjunctival irritation, excitement and muscle contraction recorded.
NOTE: Substance has been shown to be mutagenic in various assays, or belongs to a family of chemicals producing damage or change to cellular DNA.

Irritation
Skin (rabbit): 500 mg/24h - mild

See *RTECS* UR 2450000, for additional data.

Section 12 - Ecological Information

Environmental Fate: Although environmental concentrations are highest near sources, its presence in places distant from primary sources indicates that it is reasonably stable in the atmosphere and capable of long distance transport. When released to air it may be subject to direct photolysis, although adsorption to particulates apparently can retard this process. Half-lives for reaction of vapor phase with atmospheric pollutants are: O3, 0.67 days, NO2, 14 days; estimated half-life for reaction with photochemically produced hydroxyl radicals is 1.12 days. If released to water, it will adsorb very strongly to sediments and particulate matter, bioconcentrate in aquatic organisms slightly to moderately, but will not hydrolyze. It may be subject to significant biodegradation, and direct photolysis may be important near the surface of waters. Evaporation may be important with a half-life of 4.8 to 39.2 days predicted for evaporation from a river 1 m deep, flowing at 1 m/sec with a wind velocity of 3 m/sec; half-life for evaporation from a model pond was 1176 days. Adsorption to sediments and particulates will limit evaporation. If released to soil it will be expected to adsorb very strongly to the soil and will not be expected to appreciably leach to the groundwater, although its presence in groundwater illustrates that it can be transported there. It will not be expected to hydrolyze or significantly evaporate from soils and surfaces. It may be subject to appreciable biodegradation in soils.
Ecotoxicity: TL_m (Median threshold limit) Mosquito fish 0.0026 mg/l/96 hr at 24-27 °C in a static bioassay
Henry's Law Constant: calculated at 5.42 $x10^{-5}$
BCF: rainbow trout 72
Octanol/Water Partition Coefficient: log K_{ow} = 4.88
Soil Sorption Partition Coefficient: K_{oc} = soils 57 to 764

Section 13 - Disposal Considerations

Disposal: Recycle wherever possible or consult manufacturer for recycling options.
Follow applicable federal, state, and local regulations.
Bury residue in an authorized landfill.
Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - Transport Information

DOT Hazardous Materials Table Data (49 CFR 172.101):

Note: This material has multiple possible HMT entries. Choose the appropriate one based on state and condition of specific material when shipped.

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: I - Great Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB7
Packaging: **Exceptions:** None **Non-bulk:** 211 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 5 kg **Cargo aircraft only:** 50 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: II - Medium Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP2, IP4
Packaging: **Exceptions:** None **Non-bulk:** 212 **Bulk:** 242
Quantity Limitations: **Passenger aircraft/rail:** 25 kg **Cargo aircraft only:** 100 kg
Vessel Stowage: **Location:** B **Other:**

Shipping Name and Description: Toxic solids, organic, n.o.s.
ID: UN2811
Hazard Class: 6.1 - Poisonous materials
Packing Group: III - Minor Danger
Symbols: G - Technical Name Required
Label Codes: 6.1 - Poison *or* Poison Inhalation Hazard *if inhalation hazard, Zone A or B*
Special Provisions: IB8, IP3
Packaging: **Exceptions:** 153 **Non-bulk:** 213 **Bulk:** 240
Quantity Limitations: **Passenger aircraft/rail:** 100 kg **Cargo aircraft only:** 200 kg
Vessel Stowage: **Location:** A **Other:**

Section 15 - Regulatory Information

EPA Regulations:
- **RCRA 40 CFR:** Not listed
- **CERCLA 40 CFR 302.4:** Listed per CWA Section 307(a)
- **SARA 40 CFR 372.65:** Not listed
- **SARA EHS 40 CFR 355:** Listed
  - **RQ:** 5000 lb
  - **TPQ:** 1000/10000 lb
- **TSCA:** Listed

Section 16 - Other Information

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Genium Group, Inc. extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.

APPENDIX D

Bloodborne Pathogen Standard Operating Procedures

Standard Operating Procedure: Bloodborne Pathogens

I. Scope and Application

ARCADIS is committed to operate in a manner that will protect the health and safety of its employees and will abide by applicable state and federal agency regulations. In order to protect employees of the Firm from the hazards posed by bloodborne pathogens (BBP), this procedure presents health and safety requirements for personnel who may be exposed to these hazards, particularly voluntary first aid and cardiopulmonary resuscitation (CPR) care providers. In order to meet the requirements of Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulation (CFR) 1910.1030, at least one person on a project site will be adequately trained in first aid and CPR and in the requirements of the Bloodborne Pathogens Standard as listed in 29 CFR 1910.1030, and in the contents of this procedure. This procedure serves as ARCADIS Exposure Control Plan.

II. Personnel Qualifications

The following outlines the **responsibilities** of various personnel:

Officers/Division Heads/Project Managers

1. Verify that affected staff have received the appropriate training and equipment and are properly identified and addressed within a project work plan, site health and safety plan (HASP) and/or other project documents.

2. Verify that employees designated as First-aiders have experience, training, and authority to fulfill the requirements of the position.

3. Verify that first-aid and personal protective equipment is available for use by affected employees.

Corporate Health and Safety (CHS)

1. Review and revise this procedure as required to meet regulatory requirements.

2. Provide technical assistance regarding BBP and universal precautions.

3. Audit project specific excavation activities for compliance with this procedure.

4. Review and revise, as appropriate, site-specific health and safety plans to include requirements for first-aid, emergency response and activities that could result in exposure to BBP.

Corporate Training Division

1. Provide certified Red Cross (or equivalent) approved First-aid, CPR and BBP training.

2. Maintain training records and distribute training certification documents.

Affected Employees:

Employees Trained in First-Aid and CPR or, with potential exposure to BBP (working in a Sanitary Sewer or other setting with potential exposure)

1. Must be capable of recognizing existing or predictable hazards and working conditions associated with BBP exposure

2. Understand universal precautions all safety requirements outlined in this SOP and 29 CFR 1910.1030 to be utilized during activities with potential exposure to BBP.

3. Attend annual CPR and BBP refresher training.

4. Notify CHS of any potential exposure BBP exposure incidents and receive appropriate vaccinations or document refusal.

III. Equipment List

The following are specific personal protective equipment (PPE) items that shall be utilized when administering first aid, rescue breathing, CPR or other activities which may present a potential exposure to BBP (inspect all PPE prior to use to ensure it is intact and in good working order):

- Hand protection (i.e., latex or nitrile surgical gloves). Do not reuse gloves once removed; use different gloves for each patient/activity. After use, remove gloves from top to bottom inside-out, not allowing unprotected skin to contact the exterior of the gloves;

- Eye protection (i.e., safety glasses, goggles); and

- Appropriate mouthpiece or ventilation barrier device.

IV. Cautions

All employees have the potential for exposure to bloodborne pathogens. ARCADIS policy requires employees that work on Hazwoper sites or are involved in Confined Space Entry will receive First-Aid and CPR (FA/CPR) training. All employees that are FA/CPR trained must also receive bloodborne pathogens training.

Any employees that believe they may be at risk of exposure to bloodborne pathogens must follow the requirement of this procedure.

V. Health and Safety Considerations

Means of Transmission

The primary activity that may expose site employees to bloodborne pathogens is the response and care of on-site personal injuries or decontamination of equipment/surfaces contaminated by blood or other potentially infectious materials during an incident. Employees could be subject to bloodborne pathogens during rendering of first aid or CPR by accidental exposure due to:

1. Punctures through the skin with a contaminated sharp object;

2. Contact with blood or blood-contaminated objects which may permit absorption through open or broken skin (i.e., cuts, scratches, rashes); or

3. Blood splashes to the eyes, nose, or mouth.

Workers can reduce their risk of exposure by implementing the work practices outlined in this plan before, during, and after responding to emergency medical incidents involving personal injuries.

VI. Procedure

This procedure is designed to limit occupational exposure of site workers to blood materials and body fluids which may contain infectious pathogenic agents. The contents of this procedure are intended to protect employees trained in first aid and CPR who may administer medical assistance to site workers. The following definitions apply to this procedure:

Definitions:

Bloodborne Pathogens

Bloodborne pathogens (BBP) are agents (i.e., bacteria, virus, fungi) found in blood, blood components, and certain body fluids. Exposure may result from direct contact with blood and body fluids, or contact with materials, objects, or surfaces that have had contact with blood or body fluids. Bloodborne pathogens are capable of causing human disease or death to unprotected people who come into contact with blood or blood-affected items. Diseases caused by bloodborne pathogens include, but are not limited to, hepatitis B virus (HBV), human immunodeficiency virus (HIV), hepatitis C, malaria, and syphilis.

Exposure

Any contact with blood or body fluids, or contact with equipment/surfaces contaminated by blood or other potentially infectious materials, is considered exposure. Significant exposure involves contact or absorption of blood or blood-contaminated objects through open or broken skin (i.e., cuts, scratches, rashes); punctures through the skin with a contaminated sharp object; or blood splashes to the eyes, nose, or mouth.

Hepatitis B Virus (HBV)

HBV is the major bloodborne pathogenic hazard that first aid/CPR care providers are likely to encounter. The HBV can remain infectious for up to 10 days even in dried blood. The virus adversely affects 8,000 to 10,000 workers annually, resulting in approximately 200 deaths each year.

HBV Exposure Symptoms

Hepatitis means "inflammation of the liver" and can cause severe liver damage or cirrhosis. Exposure symptoms include fever, fatigue, nausea, vomiting, muscle aches, loss of appetite, and jaundice (yellowing of the eyes or skin). Hepatitis diagnosis is difficult because some symptoms are similar to the flu and may remain mild for an extended period of time. Presently, no cure exists for hepatitis. It can be prevented with a vaccination.

Human Immunodeficiency Virus (HIV)

HIV attacks and deteriorates the body's immune system and eventually weakens it to the point that infection sets in, causing the disease Acquired Immune Deficiency Syndrome (AIDS). HIV is transmitted through contact with blood and body fluids. HIV is not transmitted by touching or working with people who are HIV-positive.

HIV Exposure Symptoms

HIV can lead to suppression of the immune system to a degree sufficient to permit the onset of neurological problems, cancer, pneumonia, and death. People may carry the virus for many years without experiencing any symptoms. Upon development, symptoms may include weight loss, skin lesions, dry cough, fever, fatigue, diarrhea, or swelling of the lymph glands. Presently, no cure exists for HIV or AIDS, and no vaccination is currently available.

Voluntary First Aid Provider

An individual trained in first aid/CPR who may be called on to render first aid/CPR.

Procedure Implementation

All ARCADIS employees will implement the following controls during work activities that may result in exposure to bloodborne pathogens or infectious materials.

Protective Measures

The establishment of work practice controls is an integral part of an effective exposure control plan. These work practices are designed to protect employees from reasonably foreseeable occupational exposures to bloodborne pathogens from blood and other potentially infectious material. The work practice controls outlined in this section are applicable to the administration of first aid in emergency situations and subsequent cleanup.

Universal Precautions

Universal precautions is an approach to infection control which operates on the assumption that all human blood, bodily fluids, and sharps or other medical waste are to be treated as if they are known to be contaminated with HIV, HBV, or other infectious diseases. Universal precautions shall be implemented whenever there exists a foreseeable potential for contact with blood or bodily fluids.

Work Practice Controls

Work practice controls shall be instituted whenever foreseeable potential contact with, or exposure to, blood and bodily fluid exists. Examples of situations in which these controls are to be implemented include, but are not limited to, accidents or injuries in which administration of first aid is required; application of bandages to minor cuts and abrasions of another person; and contact with sores, wounds, or broken skin. Working in a sanitary sewer or other project sites may also present a potential exposure to BBP.

Since many work sites are in remote locations, providing hand-washing facilities is difficult. For instances where hand-washing facilities cannot be provided, ARCADIS will provide employees with antiseptic towelettes or an antiseptic hand cleaner and clean cloth or paper towels.

The following are specific work practice controls that shall be implemented to control exposure to BBP:

- Open wounds or cuts will be promptly bandaged.
- Wash hands and face as soon as possible after administering first aid or CPR. If wash facilities are not readily available, disposable one-time use towelettes are acceptable.
- PPE must be removed immediately upon leaving the work area and placed in an appropriate container for storage, washing, decontamination, or disposal.
- No eating, drinking, or smoking is allowed in any work area where a potential exists for occupational exposure to bloodborne pathogens.
- Non-disposable equipment or materials that have or may have blood or infectious fluid contact must be washed immediately after their use. A fresh solution of bleach and water (1 to 10%) is recommended for proper decontamination.
- Any clothing that comes in contact with blood or infectious fluids shall be removed as soon as possible after administering first aid or CPR. Clothing must be placed in an appropriate container for storage until it can be laundered.
- No personal clothing that comes in contact with blood or infectious fluids shall be laundered offsite.
- Equipment first-aid kits with two pairs of surgical gloves and CPR mouth pieces.

If a ARCADIS employee believes that they have been exposed to BBP through administration of First-Aid/CPR or contact with infectious materials they will be offered a Hepatitis B vaccine at no cost. All incidents of potential exposure should be reported on the ARCADIS Near-Miss/Incident Investigation Form.

Minimization of Contact

Direct contact with blood and bodily fluids should be kept to an absolute minimum, as required in a particular situation. In situations where direct contact is likely, PPE shall be worn to help prevent infection.

Based on professional judgment, an employee may choose to temporarily forego the use of PPE if he determines that the use of PPE will further jeopardize his well-being or that of the injured worker. This limited application must be carefully evaluated by the employee.

VII. Waste Management

Disposable items that have or may have blood contact must be bagged separately from other trash. These wastes must be placed in leak-proof containers or bags and labeled as a “BIOHAZARD.”

Wastes used in medical emergency treatment (i.e., gloves, towels, gauze) must be disposed in an infectious waste container(s). The container will be replaced as needed; if the outside of the container becomes contaminated, an additional outside container will be used.

The waste will remain onsite in approved container(s) until an approved disposal facility capable of receiving medical wastes is identified. Disposal of the infectious waste container(s) shall be in accordance with applicable local, state, and federal regulations.

VIII. Data Recording and Management

Documentation of the exposure incident shall be recorded as soon as possible and include the route(s) of exposure, the circumstances surrounding the incident, identification of the source individuals, and identification of potentially exposed persons. Additionally, each incident involving voluntary first aid providers shall be placed on the "first aid incident list" attached to the location OSHA Log of Occupational Injuries and Illnesses.

Medical records for employees must include documentation of HBV vaccination status, medical follow-up, post-exposure testing, and a medical professional's written evaluation.

IX. Quality Assurance

Incident Reporting

An incident that occurs as a result of rendering emergency medical care will be reported to the health and safety staff and recorded on the OSHA 300 log as OSHA if applicable.

X. References

Code of Federal Regulations 29 CFR 1910.1030 – Bloodborne Pathogens

APPENDIX E

Air Monitoring Log

Real Time Exposure Monitoring Data Collection Form

Document all air monitoring conducted on the Site below. Keep this form with the project file.

Site Name: ______________________ Date: ______________

Instrument: ______________ Model: ______________ Serial #: ______________

Calibration Method: (Material used settings, etc.)	
Calibration Results:	
Calibrated By:	

Activity Being Monitored	Compounds/Hazards Monitored	Time	Reading	Action Required? Y/N

Describe Any Actions Taken as a Result of this Air Monitoring and Why (does it match Table 5-1):

____

____

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