

MID BLOCK #57 PROJECT

MANHATTAN, NEW YORK

Remedial Action Work Plan

NYSDEC BCP Number: C231062

Prepared for:

DURST DEVELOPMENT L.L.C.

57 SANDWICH LLC

57 MINI LLC

MID BLOCK #57 LLC

NATIONS DEVELOPER 57 LLC

DEVCO NATIONS LLC

Prepared by:

Remedial Engineering, P.C.

209 Shafter Street

Islandia, New York 11749

631-232-2600

JULY 2009

CERTIFICATIONS

I, Charles McGuckin, P.E., am currently a registered professional engineer licensed by the State of New York. I have primary direct responsibility for implementation of the remedial program for the Mid Block #57 Project Site (NYSDEC BCA Index No. A2-0611-1008 Site No. C231062).

I certify that the Site description presented in this RAWP is identical to the Site descriptions presented in the Brownfield Cleanup Agreement for the Mid Block #57 Project and related amendments.

I certify that this plan includes proposed use restrictions, Institutional Controls, Engineering Controls, and plans for all operation and maintenance requirements applicable to the Site and provision for development of an Environmental Easement to be created and recorded pursuant ECL 71-3605 [if Track 1 is not achieved]. This RAWP requires that all affected local governments, as defined in ECL 71-3603, will be notified that such Environmental Easement has been recorded. This RAWP requires that a Site Management Plan must be submitted by the Applicants for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, for approval by the Department [if Track 1 is not achieved].

I certify that this RAWP has a plan for transport and disposal of all soil, fill, fluids and other material removed from the property under this Plan, and that all transport and disposal will be performed in accordance with all local, State and Federal laws and requirements. All exported material will be taken to facilities licensed to accept this material in full compliance with all Federal, State, and local laws.

I certify that this RAWP has a plan for import of all soils and other material from off-Site and that all activities of this type will be in accordance with all local, State and Federal laws and requirements.

I certify that that this RAWP has a plan for nuisance control during the remediation and all invasive development work, including a dust, odor and vector suppression plan and that such plan is sufficient to control dust, odors and vectors and will prevent nuisances from occurring.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law.

NYS Professional Engineer #

Date

Signature

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

FINAL REMEDIAL ACTION WORK PLAN

TABLE OF CONTENTS

Table of Contents

CERTIFICATIONS	i
FINAL REMEDIAL ACTION WORK PLAN	iii
TABLE OF CONTENTS	iii
LIST OF ACRONYMS	x
EXECUTIVE SUMMARY	xiv
Site Description/Physical Setting/Site History	xiv
Summary of the Remedial Investigation	xv
Qualitative Human Health Exposure Assessment	xvi
Summary of the Remedy	xvi
1.0 INTRODUCTION	1
1.1 Site Location and Description	2
1.2 Contemplated Redevelopment Plan.....	2
1.3 Description of Surrounding Property.....	3
1.3.1 Adjoining Property	3
1.3.2 General Surrounding Area.....	4
2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS	4
2.1 Summary Remedial Investigations Performed	5
2.1.1 Soil Boring and Sampling.....	5
2.1.2 Soil Vapor Sampling.....	6
2.1.3 Water-Level Measurements and Groundwater Sampling.....	8
2.1.4 Chemical Analytical Work Performed	10
2.1.5 Subsurface Geophysical Survey	10
2.1.6 Documentation and Summary of RI Findings	10
2.2 Significant Threat	11

2.3 Site History	11
2.3.1 Airborne Express Facility	11
2.3.2 Potamkin Toyota Service Facility	12
2.3.3 The Copacabana Facility	12
2.3.4 Dynasty Auto Body Facility	12
2.3.5 Site Ownership.....	13
2.3.6 Site Investigation and Remediation History	13
2.3.7 Sanborn Maps	16
2.4 Geological Conditions	16
2.4.1 Geology.....	16
2.4.2 Hydrogeology	17
2.5 Contamination Conditions	17
2.5.1 Conceptual Model of Site Contamination	17
2.5.2 Description of Areas of Concern	17
2.5.3 Identification of Standards, Criteria and Guidance	18
2.5.4 Soil/Fill Contamination	20
2.5.5 On-Site and Off-Site Groundwater Contamination	24
2.5.6 On-Site Soil Vapor Contamination.....	26
2.6 Environmental and Public health assessments	27
2.6.1 Qualitative Human Health Exposure Assessment	27
2.7 Remedial Action Objectives	29
2.7.1 Groundwater	30
2.7.2 Soil.....	30
3.0 Description of Remedial Action plan	31
3.1 Evaluation Criteria.....	32
3.1.1 Overall Protection of Human Health and the Environment.....	32
3.1.2 Compliance with Remedial Goals, SCGs and RAOs	32
3.1.3 Long-term Effectiveness and Permanence	33
3.1.4 Reduction in Toxicity, Mobility or Volume through Treatment	33
3.1.5 Short-term Effectiveness	33
3.1.6 Implementability.....	34
3.1.7 Cost.....	34

3.1.8 Compatibility with Land Use.....	34
3.2 On-Site Soil Remedial Alternative 1	34
3.2.1 Description.....	34
3.2.2 Evaluation	44
3.3 On-Site Soil Remedial Alternative 2	47
3.3.1 Description.....	47
3.3.2 Evaluation	51
3.4 Selected Soil Remedial Alternative	55
3.5 Preferred Remedy Land Use Factor Evaluation	56
3.5.1 Zoning.....	56
3.5.2 Applicable Comprehensive Community Master Plans or Land Use Plans	56
3.5.3 Surrounding Property Uses.....	56
3.5.4 Citizen Participation	57
3.5.5 Environmental Justice Concerns.....	57
3.5.6 Land Use Designations	57
3.5.7 Population Growth Patterns.....	57
3.5.8 Accessibility to Existing Infrastructure	57
3.5.9 Proximity to Cultural Resources.....	57
3.5.10 Proximity to Natural Resources.....	57
3.5.11 Off-Site Groundwater Impacts	57
3.5.12 Proximity to Floodplains	58
3.5.13 Geography and Geology of the Site.....	58
3.5.14 Current Institutional Controls.....	58
3.6 Summary of Selected Remedial Actions	58
4.0 Remedial Action Program	59
4.1 Governing Documents	60
4.1.1 Site Specific Health and Safety Plan (HASP)	60
4.1.2 Quality Assurance Project Plan (QAPP)	61
4.1.3 Construction Quality Assurance Plan (CQAP).....	62
4.1.4 Soil/Materials Management Plan (SoMP)	62
4.1.5 Stormwater Pollution and Prevention Plan (SWPPP)	63
4.1.6 Community Air Monitoring Plan (CAMP).....	63

4.1.7 Contractors Site Operations Plan (SOP);.....	63
4.1.8 Community Participation Plan (CPP).....	64
4.2 General Remedial construction information.....	64
4.2.1 Project Organization	65
4.2.2 Remedial Engineer.....	65
4.2.3 Remedial Action Construction Schedule.....	65
4.2.4 Work Hours	66
4.2.5 Site Security.....	66
4.2.6 Traffic Control	66
4.2.7 Contingency Plan.....	67
4.2.8 Worker Training and Monitoring	67
4.2.9 Agency Approvals	67
4.2.10 NYSDEC BCP Signage.....	67
4.2.11 Pre-Construction Meeting with NYSDEC.....	68
4.2.12 Emergency Contact Information.....	68
4.2.13 Remedial Action Costs	68
4.3 Site Preparation.....	68
4.3.1 Mobilization.....	68
4.3.2 Erosion and Sedimentation Controls	69
4.3.3 Stabilized Construction Entrance(s)	70
4.3.4 Utility Marker and Easements Layout.....	70
4.3.5 Sheet piling and Shoring.....	70
4.3.6 Equipment and Material Staging	70
4.3.7 Decontamination Area	71
4.3.8 Site Fencing	71
4.3.9 Demobilization	71
4.4 Reporting	71
4.4.1 Daily Reports	71
4.4.2 Monthly Reports	72
4.4.3 Other Reporting	73
4.4.4 Complaint Management Plan	73
4.4.5 Deviations from the Remedial Action Work Plan.....	73

5.0 Remedial Action: Material Removal from Site	74
5.1 Soil Cleanup Objectives	77
5.2 Remedial Performance Evaluation (End-Point Sampling)	77
5.2.1 End-Point Sampling Frequency	77
5.2.2 Methodology	78
5.2.3 Reporting of Results	78
5.2.4 QA/QC	79
5.2.5 DUSR	79
5.2.6 Reporting of End-Point Data in FER	79
5.3 Estimated Material Removal Quantities	80
5.4 Soil/Materials Management Plan	80
5.4.1 Soil Screening Methods	81
5.4.2 Stockpile Methods	81
5.4.3 Materials Excavation and Load Out	81
5.4.4 Materials Transport Off-Site	83
5.4.5 Materials Disposal Off-Site	84
5.4.6 Materials Re-use On-Site	86
5.4.7 Fluids Management	86
5.4.8 Demarcation of Residuals Management Zone	87
5.4.9 Backfill from Off-Site Sources	88
5.4.10 Stormwater Pollution Prevention	89
5.4.11 Contingency Plan	89
5.4.12 Community Air Monitoring Plan	90
5.4.13 Odor, Dust and Nuisance Control Plan	90
6.0 Residual Contamination to Remain On-site	92
7.0 Engineering Controls	93
7.1 Composite Cover System	93
7.2 Vapor Barrier	94
7.3 Active Ventilation System	94
7.4 Operation, Maintenance and Monitoring Of Engineering Controls	94
7.5 Groundwater Monitoring	95

8.0 Institutional Controls	95
8.1 Environmental easement.....	96
8.2 Site Management Plan	98
9.0 Final Engineering Report.....	99
9.1 Certifications.....	101
10.0 Schedule.....	102

TABLES

1. Summary of Sampling Locations
2. Groundwater Gauging Data, August 14, 2007
3. Summary of Volatile Organic Compounds Detected in Soil as Compared to Part 375 Unrestricted SCOs
4. Summary of Semivolatile Organic Compounds Detected in Soil as Compared to Part 375 Unrestricted SCOs
5. Summary of Metals Detected in Soil as Compared to Part 375 Unrestricted SCOs
6. Summary of Polychlorinated Biphenyl Compounds Detected in Soil
7. Summary of Volatile Organic Compounds in Soil Using Toxicity Characteristic Leachate Procedure
8. Summary of Semivolatile Organic Compounds in Soil Using Toxicity Characteristic Leachate Procedure
9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure
10. Summary of Pesticides in Soil Using Toxicity Characteristic Leachate Procedure
11. Summary of Volatile Organic Compounds in Soil Vapor Samples
12. Summary of Volatile Organic Compounds Detected in Groundwater
13. Summary of Semivolatile Organic Compounds Detected in Groundwater
14. Summary of Metals Detected in Groundwater
15. Summary of Polychlorinated Biphenyls Detected in Groundwater
16. Summary of Pesticides Detected in Groundwater
17. Summary of Volatile Organic Compounds Detected in Soil as Compared to Part 375 Restricted-Residential SCOs
18. Summary of Semivolatile Organic Compounds Detected in Soil as Compared to Part 375 Restricted-Residential SCOs
19. Summary of Metals Detected in Soil as Compared to Part 375 Restricted-Residential SCOs

FIGURES

1. Site Location Map
2. Site Plan
3. Site Plan with Soil, Groundwater and Soil Vapor Sampling Locations
4. Groundwater Elevation Contour Map
5. Summary of VOCs Detected in Soil Vapor
6. Summary of VOCs Detected in Groundwater in Excess of AWQSGVs

FIGURES (Continued)

7. Summary of SVOCs Detected in Groundwater in Excess of AWQSGVs
8. Summary of Metals Detected in Groundwater in Excess of AWQSGVs
9. Remedial Alternative 1
10. Remedial Alternative 2
11. Site Plan with alpha-numeric grid

PLATES

1. Summary of VOCs Detected in Soil in Excess of Part 375 Unrestricted SCOs
2. Summary of SVOCs Detected in Soil in Excess of Part 375 Unrestricted SCOs
3. Summary of Metals Detected in Soil in Excess of Part 375 Unrestricted SCOs
4. Summary of VOCs Detected in Soil in Excess of Part 375 Restricted-Residential SCOs
5. Summary of SVOCs Detected in Soil in Excess of Part 375 Restricted-Residential SCOs
6. Summary of Metals Detected in Soil in Excess of Part 375 Restricted-Residential SCOs

APPENDICES

- A. Site Metes and Bounds
- B. Proposed Development Plan
- C. Soil Boring Logs
- D. Significant Threat Notice (To be Included after Receipt from NYSDEC)
- E. Mueser Rutledge Third Supplemental Geotechnical Investigation
- F. Sanborn Maps
- G. Health and Safety Plan
- H. Zoning Map
- I. Community Participation Plan
- J. Remediation Schedule
- K. Remedial Alternative 2 Cost Estimate

LIST OF ACRONYMS

Acronym	Definition
ARARs	Applicable or Relevant and Appropriate Requirements
ASP	Analytical Services Protocol
ATC	ATC Associates, Incorporated
AWQSGVs	Ambient Water Quality Standards and Guidance Values
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bls	Below land surface
BSA	New York City Board of Standards and Appeals
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
C&D	Construction and Demolition
CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Certificate of Completion
COCs	Compounds of Concern
CPP	Community Participation Plan
CQAP	Construction Quality Assurance Plan
CRZ	Contamination Reduction Zone
CY	Cubic Yards
DER	Division of Environmental Remediation
DO	Dissolved Oxygen
DRO	Diesel Range Organics
DSHM	Division of Solid and Hazardous Materials
DSNY	New York City Department of Sanitation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law

Acronym	Definition
EDD	Electronic data deliverable
EZ	Exclusion Zone
FDNY	New York City Fire Department
FER	Final Engineering Report
FS	Feasibility Study
FSI	Focused Subsurface Investigation
GCI	GCI Environmental Advisory, Inc.
GRA	General Response Action
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operation Worker
HDPE	High Density Polyethylene
HRO	Heavy Range Organics
IHWDS	Inactive Hazardous Waste Disposal Site
IC	Institutional Control
IRM	Interim remedial measures
L/min	Liters per minute
mg/kg	Milligrams per kilogram, equal to 1,000 µg/kg
µg/kg	Micrograms per kilogram, equal to 0.001 mg/kg
µg/L	Micrograms per liter
MS	Matrix Spike
MSDs	Matrix Spike Duplicates
MTBE	Methyl tertiary butyl-ether
MW	Monitoring well
NYCDEP	New York City Department of Environmental Protection
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OM&M	Operation, Maintenance and Monitoring
ORP	Oxidation Reduction Potential

Acronym	Definition
OSHA	Occupational Safety and Health Administration
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
PCE	Tetrachloroethene
PID	Photoionization detector
PPE	Personal Protection Equipment
ppm	Parts per million, equivalent to mg/kg
PVC	Polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RSCOs	Recommended Soil Cleanup Objectives
SCGs	Standards, Criteria and Guidance
SCOs	Soil Cleanup Objective
SF	Square feet
SMP	Site Management Plan
SoMP	Soil Management Plan
SOP	Site Operations Plan
SPH	Separate-Phase Petroleum Hydrocarbon
STARS	Spill Technology and Remediation Series
SVE	Soil Vapor Extraction
SVOCs	Semivolatile Organic Compounds
SWPPP	Stormwater Pollution Prevention Plan
SZ	Support Zone
TAL	Target Analyte List
TAGM	Technical and Administrative Guidance Memorandum
TBCs	To Be Considered
TCE	Trichloroethene

Acronym	Definition
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substance Control Act
USCS	United Soil Classification System
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

EXECUTIVE SUMMARY

DURST DEVELOPMENT L.L.C., 57 SANDWICH LLC, 57 MINI LLC, MID BLOCK #57 LLC, NATIONS DEVELOPER 57 LLC, and DEVCO NATIONS LLC (collectively the “Applicants”) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) dated April 27, 2009, to investigate, remediate, and develop a 1.4-acre property located at 615-649 West 57th Street in the Borough of Manhattan, New York City, New York. The Applicants have been accepted into the Brownfield Cleanup Program (BCP) as a “Volunteer” for the Site identified as the Mid Block #57 Project (BCP site number C231062).

The proposed Site redevelopment plan consists of construction of a pre-kindergarten through 12th grade school, along with ground level commercial retail space. When completed, the Site will contain subgrade parking and a five-story above ground building.

Site Description/Physical Setting/Site History

The Site is an approximately 60,000 square foot vacant lot located in the middle of the block bordered by 57th Street, 58th Street, 11th Avenue, and 12th Avenue. The Site formerly contained an Airborne Express parcel warehouse and vehicular maintenance building (631-649 West 57th Street), a Potamkin Toyota auto service repair facility (623-629 West 57th Street), the Copacabana Night Club (615-621 West 57th Street), and Dynasty Auto Body Facility (616-618 West 58th Street).

East of the Site and bordering 11th Avenue is The Helena, an active rental residential tower with market and affordable housing, and Manhattan Mini Storage. The Helena is located at 601 West 57th Street (southeast corner of block) and Manhattan Mini Storage is located at 847-853 Eleventh Avenue (northeast corner of block). West of the Site is a portion of the former Airborne Express parcel warehouse and the Artkraft Strauss Building located at 830 12th Avenue.

Historic storage, transfer, and usage of petroleum products and chlorinated solvents on Site have resulted in impacts to soil, soil vapor, and groundwater.

Summary of the Remedial Investigation

A Remedial Investigation (RI) was performed in August, September, and October 2007. The phased investigation included three rounds of soil and groundwater sampling, during which 23 soil borings were completed, 12 soil vapor samples were collected, 23 soil samples were collected, and 12 groundwater samples were collected from onsite and offsite monitoring wells and soil borings. Additional precharacterization and supplemental sampling events were conducted in March 2008 and July 2009 to refine the Site delineation.

The results of the investigation indicated that onsite soil is contaminated with petroleum-related VOCs and SVOCs in excess of the 6 NYCRR Sub-part 375.6 (Part 375) unrestricted and restricted residential SCOs across the Site. Metals attributed to urban fill were detected in excess of the Part 375 unrestricted and restricted residential SCOs. Concentrations of VOCs, SVOCs, and metals in soil require remediation.

The investigation also indicated that the chlorinated volatile organic compound tetrachloroethene was detected in soil vapor in the southeast portion of the Airborne Express property at concentrations that require monitoring to determine whether concentrations in sub-slab vapor have changed.

Onsite and offsite groundwater is impacted with low levels of VOCs in excess of the AWQSGVs. Groundwater remediation is not recommended due to the low concentrations relative to the SCOs and the lack of groundwater use in the area. If groundwater dewatering is necessary during any future construction activities, then groundwater treatment or offsite disposal would be necessary.

Qualitative Human Health Exposure Assessment

A Qualitative Human Health Exposure Assessment was conducted as part of the RI. A summary of the findings are:

- Probable sources of contamination in soil and groundwater at the Site were spills or leaks from former clusters of USTs containing petroleum, direct discharge to the ground of chlorinated solvents associated with historical operations of the Site that included vehicular maintenance and metalworking, and historical fill placed on the Site.
- The contaminants at the Site exist in the form of residual material adsorbed to soil particles in the saturated and unsaturated zones and compounds dissolved in groundwater. The leaching of contaminants from soil serves as an ongoing source of contamination to groundwater beneath portions of the Site. In addition, VOCs are migrating through volatilization of compounds into soil vapor.
- Potential onsite receptors include occupational workers, construction workers, visitors, or trespassers. Future onsite receptors are expected to also include residents, guests, and students based on the potential future use of the property. The potential offsite receptors include offsite workers, visitors, residents, and trespassers.
- Contaminated soil is limited to specific areas of the Site and at depths below the immediate surface as indicated by subsurface and surficial soil samples collected as part of the RI. However, there is the potential for direct exposure to contaminated soil by anyone digging in the contaminated area.
- VOCs are migrating through volatilization of compounds into soil vapor in the vicinity of the former Airborne Express building. There is no potential for migration of VOCs into indoor air because there are no existing buildings onsite. If buildings are constructed in this area of the Site in the future (without source removal prior to construction), site workers, or future residents, guests, or students could be exposed to contaminants via the indoor air inhalation route of exposure.

The potential and completed exposure pathways will be addressed by this RAWP through source removal and engineering and institutional controls.

Summary of the Remedy

The components of the selected remedy are as follows:

1. Excavation of soil/fill exceeding Part 375 Restricted Residential Soil Cleanup Objectives (SCOs) from land surface to 15 feet below land surface (ft bls). Excavation of soil will be conducted deeper than 15 ft bls to remove potential sources of contamination to groundwater. Additional excavation of bedrock and soils may be necessary to construct the proposed building foundation;
2. Groundwater remediation during construction activities consisting of excavation dewatering, treatment and off-site disposal;

3. Site Monitoring of airborne VOCs and particulates in accordance with a NYSDEC approved Community Air Monitoring Plan (CAMP) for all intrusive and soil handling activities;
4. Implementation of proper dust and odor suppression techniques for all intrusive and soil handling activities;
5. Import of materials to be used for backfill and cover in compliance with : (1) the Part 375 unrestricted SCOs, (2) all Federal, State and local rules and regulations for handling and transport of material;
6. Implementation of a Soil Erosion and Sediment Control Plan;
7. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
8. Collection and analysis of end-point soil samples to evaluate the performance of the remedy with respect to attainment of Part 375 Restricted Residential and Protection of Groundwater SCOs;
9. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
10. Installation of a vapor barrier below the proposed building bottom slab and outside foundation walls to prevent potential vapor migration, if any, from the underlying and adjacent soils not removed as part of this remedy.
11. Installation, operation and maintenance of an active ventilation system in the building basement designed to meet NYCDOB requirements and provide further protection from potential accumulation of VOCs in the basement in the unlikely breach of the sub-slab vapor barrier;
12. Construction and maintenance of an engineered cover consisting of asphalt covered roads, concrete covered sidewalks, and concrete building slabs to prevent human exposure to residual contaminated soil/fill remaining under the Site;
13. Publication of a Site Management Plan for long term management of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting; and
14. Recording of an Environmental Easement, including Institutional Controls, to prevent future exposure to any residual contamination remaining at the Site.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

DURST DEVELOPMENT L.L.C., 57 SANDWICH LLC, 57 MINI LLC, MID BLOCK #57 LLC, NATIONS DEVELOPER 57 LLC, and DEVCO NATIONS LLC (collectively the “Applicants”) entered into a [Brownfield Cleanup Agreement \(BCA\)](#) with the [New York State Department of Environmental Conservation \(NYSDEC\)](#) dated April 27, 2009, to investigate and remediate a 1.4-acre property located at 615-649 West 57th Street in the Borough of Manhattan, New York City, [New York](#) (Site). The Applicants have been accepted into the [Brownfield Cleanup Program \(BCP\)](#) as a “Volunteer” for the Site, identified as the Mid Block #57 Project (BCP site number C231062).

The proposed Site redevelopment plan consists of construction five-story school comprising grades pre-kindergarten through 12th grade, along with sub-grade parking and ground level commercial retail space. Refer to the Mid Block #57 Project [BCP Application for additional details](#).

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the [Remedial Investigation \(RI\)](#), and supplemental investigations performed between August 2007 and July 2009. It provides an evaluation of a [Track 1 cleanup](#) and [Track 2 restricted residential Remedial Action alternative](#), their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in DER-10 and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The [NYSDEC](#) and [New York State Department of Health \(NYSDOH\)](#) have not yet made a determination whether this Site poses a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

A formal Remedial Design document will not be prepared.

1.1 SITE LOCATION AND DESCRIPTION

The Site is located in the Borough of Manhattan, New York City, New York and is identified as Block 1105, Lots 5, 14, 19 and 43 on the New York City Tax Map. A Site Location Map (Figure 1) shows the Site location. The Site is situated on an approximately 1.4-acre area bounded by 58th Street to the north, 57th Street to the south, the eastern limits of tax lot 43 to the east, and bisects tax lot 5 to the west with the western limits of the Site located 250 feet east of 12th Avenue (see Figure 2). A boundary map is attached to the BCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419. The 1.4-acre property is fully described in Appendix A – Metes and Bounds. A global positioning system coordinate for the starting point is included.

The Site is an approximately 60,000 square foot vacant lot partially paved with asphalt and concrete. The Site formerly contained an Airborne Express parcel warehouse and vehicular maintenance building (631-649 West 57th Street), a Potamkin Toyota auto service repair facility (623-629 West 57th Street), the Copacabana Night Club (615-621 West 57th Street), and Dynasty Auto Body Facility (616-618 West 58th Street) (Figure 2). All of the aforementioned facilities on the property were demolished and this portion of the Site is currently a vacant open lot. A small section (50 feet by 80 feet) of the southeast corner of the Site is currently being used as a parking lot for The Helena, an active residential tower described below.

East of the Site and bordering 11th Avenue is The Helena, an active rental residential tower with market and affordable housing, and Manhattan Mini Storage. The Helena is located at 601 West 57th Street (southeast corner of block) and Manhattan Mini Storage is located at 847-853 Eleventh Avenue (northeast corner of block). West of the Site is a portion of the former Airborne Express parcel warehouse and the Artkraft Strauss Building located at 830 12th Avenue.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The Remedial Action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for this assessment.

However, the Remedial Action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan.

The proposed redevelopment plan is for construction of a five-story school comprising grades pre-kindergarten through 12th grade and ancillary use thereto, including cafeteria, gymnasium and auditorium, or such other educational use. The school premises will occupy five stories, plus a mechanical penthouse and a cellar that will comprise approximately 242,000 gross square feet. There will also be approximately 16,330 gross square feet of retail premises, occupying a portion of the first floor, and 58,700 gross square feet of below-grade parking facilities, occupying the remainder of the cellar with access through the ground floor. The proposed redevelopment plan is provided in Appendix B.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The following sections provide a summary of the surrounding properties, including all adjoining properties and the general surrounding area.

1.3.1 Adjoining Property

The land use surrounding the Site is a combination of commercial, light industrial, and residential areas. The Hudson River is located approximately one quarter mile to the west of the Site on the opposite side of the 12th Avenue.

Sensitive receptors, including schools, daycare facilities, and hospitals, are not located on adjoining properties. Provided below is a description of the adjoining properties.

East: East of the Mid Block property and bordering 11th Avenue is The Helena, an active residential tower located at 601 West 57th Street (southeast corner of the city block), and Manhattan Mini Storage, located at 847-853 11th Avenue (northeast corner of the city block).

West: West of the Mid Block property is a strip of vacant and undeveloped land followed further to the west, along 12th Avenue (830 12th Avenue), by the former Artkraft Strauss Company Building, a two-story warehouse where signs and billboards were formerly manufactured for Times Square. The first floor is currently being used by the Chashama Arts Organization for artists' studio space and the second floor is currently vacant.

North: West of the Mid Block property, across West 58th Street and occupying the entire city block between 11th and 12th Avenues, is the West 59th Street Station, a steam generation plant operated by Consolidated Edison of New York.

South: South of the Mid Block property, across West 57th Street, is a parking garage currently operated by the Garage Management Company (622 West 57th Street) and a car repair shop known as Jamies Foreign Car Service Ltd. (642 West 57th Street). The NYC Department of Sanitation (DSNY) Manhattan Community Districts 4/4A/7 Vehicle Storage and Maintenance Facility (650 West 57th Street) abuts the parking garage to the west and south. Two car stores (Infinity of Manhattan and Lexus of Manhattan) adjoin the parking garage to the east (608 West 57th Street and 1129 11th Avenue, respectively). A commercial/office building is located at the northeast corner of this city block (600 West 57th Street).

1.3.2 General Surrounding Area

According to New York City zoning maps (last revised on February 28, 2007), the general area surrounding the Site is divided into commercial and manufacturing zoning classifications. A zoning overlay known as the Special Clinton District encompasses the Site and a large area to the south and east (i.e., the Clinton neighborhood, alternatively known as Hell's kitchen or Midtown West).

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation (RI) Work Plan dated December 3, 2007. The investigation was conducted between August 2007 and October 2007. The RI was submitted to NYSDEC on December 3, 2007 and has not yet been approved by NYSDEC.

2.1 SUMMARY REMEDIAL INVESTIGATIONS PERFORMED

Roux Associates completed a phased RI of soil, groundwater, and soil vapor associated with the release of petroleum and tetrachloroethene (PCE) at the former Airborne Express, Potamkin, Copacabana, and Dynasty Auto properties on West 57th Street in Manhattan, New York. The RI was performed in August, September, and October 2007. Additional precharacterization and supplemental sampling events were conducted in March 2008 and July 2009 to refine the Site delineation. The phased investigation included four rounds of soil and groundwater sampling, during which the following was performed:

- 60 soil borings were completed;
- 12 soil vapor samples were collected and submitted for laboratory analysis;
- 465 soil samples were collected and submitted for laboratory analysis; and
- 12 groundwater samples were collected from four monitoring wells, seven soil borings, and one SVE well (not including duplicate samples) and submitted for laboratory analysis.

A summary of the sampling locations and analyses performed is provided in Table 1.

2.1.1 Soil Boring and Sampling

Sixty soil borings were completed during the 2007 RI and 2008 Precharacterization sampling rounds. Four hundred and sixty-five soil samples (not including duplicates) were analyzed during the RI and precharacterization rounds. Prior to subsurface activity, soil boring locations were cleared for utilities using vacuum/hand clearing or ground-penetrating radar and electromagnetic tracing. Soil samples were collected using a Geoprobe direct push sampler, via test pits and from hollow stem auger drilling. Geoprobe soil samples were collected in five-foot increments to the completion depth indicated in the Soil Boring Logs (Appendix C). Each five-foot increment was collected in dedicated acetate sleeves. The acetate sleeve was laid on a piece of polyethylene sheeting and opened. Soil samples in the acetate sleeve were separated into two-foot sections and screened with a PID. Following the PID screening, a portion of soil from each two-foot section was placed into pre-cleaned sample jars and placed on ice in a cooler at 4°C. All remaining soils were visually characterized according to the Unified Soils Classification System (USCS) and placed into zip-lock plastic storage bags and homogenized. The bags were

allowed to stand for approximately 30 minutes and the bag headspace was monitored for organic vapors with a PID.

Soil samples were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, and Target Analyte List (TAL) metals. Waste characterization analysis consisting of Toxicity Characteristic Leachate Procedure (TCLP) VOCs, TCLP SVOCs, TCLP metals, TCLP pesticides, Total Petroleum Hydrocarbons (TPH) diesel range organics (DRO) and TCL polychlorinated biphenyls (PCBs) was conducted for select soil borings. Table 1 provides the list of all the soil samples and the analytic testing conducting on each soil sample.

Analytical results for soil samples were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Residential SCOs for the Protection of Public Health presented in 6 NYCRR Subpart 375-6.

2.1.2 Soil Vapor Sampling

Twelve soil vapor samples were collected from the former Airborne Express, Potamkin, Copacabana, and Dynasty Auto properties. The soil vapor samples were collected from dedicated soil vapor collection borings installed adjacent to the soil borings used for soil sample collection and from former soil vapor extraction (SVE) wells that remain on the Airborne Express property. No indoor air or ambient air samples were collected for analysis since all soil vapor sample locations were collected from the open undeveloped lot.

Twelve soil vapor samples were collected during the RI in August 2007 and October 2007, as summarized below:

Date	Designation	Location	Type
10/31/07	SV-7	Airborne Express – north adjacent to SB-12	soil vapor from soil boring
10/31/07	SV-8	Potamkin – adjacent to SB-18	soil vapor from soil boring
10/31/07	SV-9	Potamkin – adjacent to SB-21	soil vapor from soil boring

Date	Designation	Location	Type
10/31/07	SV-10	Potamkin – adjacent to SB-22	soil vapor from soil boring
10/31/07	SV-11	Copacabana – adjacent to SB-27	soil vapor from soil boring
10/31/07	SV-12	Dynasty Auto – adjacent to SB-20	soil vapor from soil boring
8/17/07	SVE-1	Airborne Express	soil vapor from SVE well
8/17/07	SVE-2	Airborne Express	soil vapor from SVE well
8/17/07	SVE-3	Airborne Express	soil vapor from SVE well
8/17/07	SVE-4	Airborne Express	soil vapor from SVE well
8/17/07	SVE-5	Airborne Express	soil vapor from SVE well
8/17/07	SVE-6	Airborne Express	soil vapor from SVE well

All sampling locations were selected by Roux Associates during the RI.

Six soil vapor samples (SV-7 through SV-12) were collected from soil borings on the former Airborne Express, Potamkin, Copacabana, and Dynasty Auto properties. The six soil vapor borings were located approximately 5 feet adjacent to soil borings that were used by Roux Associates for soil sampling during the RI (Figure 3). The six soil vapor sample locations were chosen to collect soil vapor samples from representative areas of the Site where PID readings from soil boring screening indicated that volatile hydrocarbons were present in the soil samples.

For the six soil vapor samples collected from soil borings, a Geoprobe® rod equipped with a Geoprobe® soil vapor sampling connector and a disposable drive point was advanced 4.5 to 5 feet into the ground. At each location, a temporary soil vapor sampling port consisting of a six-inch long stainless steel screen was advanced to the bottom of the Geoprobe® rod with a polyethylene sampling tube running to the surface. The annular space around the screen was

filled with sand and a surface seal consisting of bentonite and/or modeling clay was installed to prevent ambient air intrusion. Following installation, the location was covered with an enclosure that was flooded with helium tracer gas as a quality assurance/quality control measure to verify that the soil vapor samples were not compromised by inadvertent introduction of ambient air into the sample.

In addition, six soil vapor samples were collected from former two-inch diameter soil vapor extraction (SVE) wells on the Airborne Express property. For these six soil vapor samples (SVE-1 through SVE-6), a polyethylene sampling tube was inserted into the SVE well to the desired sample depth (2 feet above the water table). The annular space surrounding the sampling tube within the SVE well was sealed to prevent ambient air intrusion into the well. The integrity of the sampling location was tested using helium as a tracer gas.

For all twelve soil vapor samples, sampling tubing from each sampling point was connected to a disposable three-way stopcock. Tubing from one of the stopcock ports led to a vacuum pump and tubing from the other stopcock port led to a pre-evacuated six-liter Summa canister supplied by the laboratory. The stopcock valve isolated the pump and the Summa canister. Initially, the valve leading to the Summa canister was closed and the valve leading to the vacuum pump was open. The soil vapor sampling location was purged of approximately three tubing volumes using the vacuum pump set at a rate equal to or less than 0.2 liters per minute. Following purging, the valve leading to the pump was closed, the pump turned off, and the valve leading to the Summa canister was opened. Each sample was collected in a pre-evacuated six-liter Summa canister with a regulator supplied by the laboratory. The Summa canister was allowed to collect the sample over a 1-hour period. Once the Summa canister was filled, the valve on the canister was closed and the canister disconnected from the sampling tubing. Soil vapor samples collected during the RI were analyzed for TCL VOCs using USEPA method TO 15.

2.1.3 Water-Level Measurements and Groundwater Sampling

Water-level measurements from six existing monitoring wells (MW-2, MW-3, MW-6, MW-7, MW-8 and MW-9) were performed on February 25, 2009 as part of the quarterly groundwater monitoring program (Table 2). Quarterly groundwater gauging and sampling has been conducted from October 2000 through June 2009 to comply with the NYSDEC Spills Group

requirements for Spill Number 9810172. The groundwater gauging results and measuring point elevations obtained from the topographic survey were used to prepare a Groundwater Elevation Contour Map, included as Figure 4.

During the 2007 RI, groundwater samples were collected from existing monitoring wells, select soil borings (AX-2, AX-3, SB-12, SB-13, SB-21, SB-22, and SB-27), and one former SVE well (GW-Potamkin). Of these samples, one monitoring well was located hydraulically upgradient (MW-7), all soil borings, were located on site, and two monitoring wells were located hydraulically downgradient (MW-3 and MW-2).

Groundwater samples were collected using low-flow (minimal drawdown) procedures during the RI. Prior to sample collection, each point was purged at low-flow evacuation rates of 0.1 to 0.5 liters per minute (L/min) using a peristaltic pump. Flow rates were adjusted to maintain a drawdown of less than 0.3 feet during purging, where possible. Groundwater samples were collected at the same flow rate as purging using the same device as was used for purging. VOC samples were collected first and put directly into pre-preserved sample containers.

Groundwater samples collected for metals analyses from AX-2, AX-3, GW Potamkin, SB-12, SB-13, SB-21, SB-22, and SB-27 were field filtered to remove suspended sediment by pumping groundwater directly through a disposable in-line 0.45 micron cartridge filter.

All RI groundwater samples were analyzed for TCL VOCs, TCL SVOCs, and TAL metals except for GW-Potamkin, which was analyzed for TCL VOCs and TAL metals only due to insufficient sample volume. In addition, groundwater samples collected from monitoring wells MW-2, MW-3, MW-5A, and MW-7 were analyzed for TCL pesticides and TCL PCBs. Subsequent water samples collected during quarterly groundwater monitoring were analyzed for STARS list VOCs only.

Analytical results for groundwater samples were compared to the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs), presented in the June 1998 Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards

and Guidance Values and Groundwater Effluent Limitations, and an April 2000 Addendum to the June 1998 Division of Water Technical and Operational Guidance Series (1.1.1).

2.1.4 Chemical Analytical Work Performed

Table 1 provides a summary of all samples performed during the RI, including matrices, analytes, samples identification numbers, and date sampled.

2.1.5 Subsurface Geophysical Survey

A subsurface geophysical survey was conducted October 24 and 26, 2007 on the former Potamkin, Copacabana, and Dynasty Auto properties by NAEVA Geophysics Inc. of Congers, New York. The purpose of the geophysical survey was to search for suspected underground storage tanks (USTs) that may have remained following demolition of the site structures and to delineate detectable subsurface utilities prior to the soil boring sampling. The geophysical survey identified several electromagnetic anomalies that could potentially represent underground storage tanks or subsurface metallic objects. The geophysical survey was presented in the RI Summary Report.

2.1.6 Documentation and Summary of RI Findings

Provided in Figure 3 is a Site Plan showing soil, groundwater and soil vapor sampling locations from the RI. Tables 3 through 16 provide the RI analytical results for all soil, groundwater and soil vapor samples collected during the RI. [Below is a summary of RI findings.](#)

The results of the investigation indicated that onsite soil is contaminated with petroleum-related VOCs and SVOCs in excess of the Part 375 unrestricted and restricted residential SCOs across the Site. Metals attributed to urban fill were detected in excess of the Part 375 unrestricted and restricted residential SCOs. Concentrations of VOCs, SVOCs, and metals in soil require remediation.

The investigation also indicated that the chlorinated volatile organic compound PCE was detected in soil vapor in the southeast portion of the Airborne Express property at concentrations that require monitoring to determine whether concentrations in sub-slab vapor have changed.

Onsite and offsite groundwater is impacted with low levels of VOCs in excess of the AWQSGVs. Groundwater remediation is not recommended due to the low concentrations relative to the SCOs and the lack of groundwater use in the area. If groundwater dewatering is necessary during any future construction activities, then groundwater treatment or offsite disposal would be necessary.

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH have not yet determined whether this Site poses a significant threat to human health and the environment. Notice of the determination will be provided for public review. A copy of the notice will be included in Appendix D upon receipt from NYSDEC.

2.3 SITE HISTORY

The following describes the operational history of the site parcels, moving from the Airborne Express parcel on the west side of the block to the Dynasty Auto Body on the east side of the Site. All of the buildings on these parcels have been demolished.

2.3.1 Airborne Express Facility

The Airborne Express Facility, 631-649 West 57th Street, was an L-shaped, two-story concrete building used for parcel receiving, routing, and delivery. This facility was located in the central portion of the Site. The structure, built in 1916, originally housed the Colt Stewart Co. Chrysler Service Station. United Parcel Service, Inc. occupied the building by 1940. A gasoline leak was reported in 1948 and, as a result, the New York City Fire Department (FDNY) ordered hydrostatic tightness testing on the USTs. The tests were performed and the tanks passed to the FDNY's satisfaction. The FDNY also directed the occupant to "clean oil separator" and "repair floor drains and keep same clean." A notarized sworn statement, dated October 1963, from Gas Service Maintenance, on behalf of Don Allen Pontiac, states that the Gas Service Maintenance "discontinued use of 6 underground buried tanks; removed all gasoline and filled with water; and capped, and sealed and cemented all lines." A crankcase waste oil tank was reportedly installed in 1964, although its size and location are unknown. The building was demolished in 2001.

Airborne Express Facility, 640-648 West 57th Street, was a paved parking area occupied by Airborne Express vehicles. The parking area was located on the north side of the Airborne Express Parcel. It was originally part of the S. E. Kellar Lumber Company. A 1926 Sanborn fire insurance map identifies a single story “Auto Repair Shop” at the location. In 1972, this lot, along with the Airborne building noted above, was occupied by New York Telephone, which, according to the GCI Environmental Advisory (GCI) Phase I, installed two (2) USTs located in the area of the present Airborne parking area.

2.3.2 Potamkin Toyota Service Facility

Potamkin Toyota Service Facility, 622 West 58th Street, 623-629 West 57th Street, was a three-story building utilized for car service (ground floor) and auto storage. This facility was located in the central portion of the Site. The building occupied the former site of Lieberman and Sanford Iron Works, which was housed in a steel-framed skeleton shed built prior to 1907. By 1951, Bell Transportation System operated a garage and repair facility at the Site in a building constructed in 1928. The Sanborn maps of the early 1990s describe use of this site as a “Taxi Garage and Repair.” The GCI Phase I stated that there may have been up to 13 USTs beneath the Potamkin Service Area floor, including a 4,000-gallon waste oil tank, which was reportedly recently cleaned out and taken out of service. The building was demolished in 2001.

2.3.3 The Copacabana Facility

The Copacabana Facility, 615-621 West 57th Street, was a single-story building that traversed the block between 57th Street and 58th Street. This facility was located in the east-central portion of the Site. The Copacabana property was also part of the lumberyard in the early part of the century. The 58th Street side was a wooden storage building in 1926, while the 57th Street side was part of a garage. In 1980, both sections apparently were garages. The Copacabana was first identified in the 1995 Sanborn map and occupied the structures depicted as garages in the 1980 Sanborn map. Two 550-gallon gasoline tanks were identified as buried at the 58th Street side of the building as early as the 1926 Sanborn map. The building was demolished in 2001.

2.3.4 Dynasty Auto Body Facility

The Dynasty Auto Body Facility, 616-618 West 58th Street, occupied a small two-story wood framed building east of the Copacabana. This property was originally part of a “rented stalls and

wagon yard” in 1907. An auto repair shop is shown on the 1926 Sanborn map, with notation of two buried 550-gallon gasoline tanks. This facility was reportedly used as an auto body repair and painting facility since at least 1980. The building was demolished in 2001.

2.3.5 Site Ownership

The Site has been continuously owned by the Four Plus Corporation since 1938. Durst Development L.L.C. is lessee pursuant to the Ground Lease between Four Plus Corporation and the JP Morgan Chase Bank (f/k/a Chase Manhattan Bank), as Trustee; and Waldo Hutchins, III, as Trustee, and Elizabeth Appleby Gezelschap (now George Endicott), as Trustee; and Durst Development L.L.C., dated February 1, 1999.

The 99 year ground lease provides the following:

“Landlord does hereby demise and lease to Tenant and Tenant does hereby hire and take from Landlord, the Premises, together with all easements, appurtenances and other rights and privileges now or hereafter belonging or appertaining to the Premises”

In addition, “Landlord shall deliver possession of the Premises to Tenant on the Commencement Date, subject to the Title Matters and Existing Leases.”

Pursuant to these sections of the ground lease, Durst Development L.L.C. is in physical possession and has full access to the site to perform any remedial actions required by NYSDEC under the BCP.

2.3.6 Site Investigation and Remediation History

The following section provides a summary of the investigation and remediation history of areas that include the Site.

2.3.6.1 GCI Phase I

A Phase I report, conducted in June 1998 by GCI Environmental Advisory, Inc., (GCI) indicated that several properties on the Site were used for automotive and truck sales and service. Multiple

USTs were noted and, therefore, a subsurface soil and groundwater investigation was recommended to determine if contamination was present in the vicinity of the USTs.

2.3.6.2 Focused Subsurface Investigation

ATC Associates, Inc. (ATC) conducted a Focused Subsurface Investigation (FSI) in December 1998 to implement the recommendations of the Phase I. The ATC FSI identified areas of soil and groundwater contamination attributed to historical petroleum releases from multiple onsite existing and previously removed gasoline USTs, waste oil USTs, and historic fill. The ATC FSI estimated that approximately 20,600 tons of petroleum contaminated soil were present under the Site, with the largest quantity of petroleum contaminated soils present under the former Potamkin and Airborne Express properties. Petroleum-contaminated groundwater was also documented under the Airborne Express and Potamkin properties. In addition to petroleum-related VOCs and SVOCs, lead, mercury, arsenic, chromium and cadmium were identified in soil and groundwater onsite.

NYSDEC spill number 9810172 was opened on November 12, 1998 as a result of the ATC FSI. The spill number is still currently open and quarterly groundwater monitoring is being conducted to address NYSDEC requirements.

The ATC FSI recommended an RI to delineate the extent of soil and groundwater contamination.

2.3.6.3 ATC Remedial Investigation

ATC conducted an RI dated March 24, 2000 for the entire block bordered by 57th Street, 58th Street, 11th Avenue, and 12th Avenue, which includes properties beyond the limits of the Site as defined in this RAWP.

Seven of the eleven soil samples collected from borings located on the Airborne Express, Copacabana, Potamkin Service, and Dynasty Auto Body facilities resulted in the identification of petroleum-contaminated soil above the NYSDEC STARS Memo Alternative Guidance Values.

Groundwater samples also indicated that VOCs were present in excess of the Ambient Water Quality Standards and Guidance Values (AWQSGVs) in three of the five monitoring wells

sampled, namely MW-1, MW-3, and MW-5. No separate phase product was observed during the ATC Remedial Investigation.

Multiple confirmed and suspected gasoline, fuel oil, and waste oil USTs were shown on Figure 2 of the ATC RI. These USTs were shown in the Artkraft Strauss Building, in the northeast corner of the Airborne Express Parking Lot, in the Airborne Express building, in the Potamkin Service facility, and east of the mid-block property in the former Goodyear Service Area.

The ATC RI recommended quarterly groundwater sampling, soil screening, and segregation during future construction activities, source removal for petroleum contaminated soil, and cleaning and disposal of USTs.

2.3.6.4 Geotechnical Investigation

The Third Supplemental Geotechnical Investigation (Geotechnical Investigation), dated January 16, 2003 and prepared by Mueser Rutledge Consulting Engineers, was prepared to provide The Durst Organization with foundation design and construction recommendations prior to the construction of The Helena residential tower on the southeast side of the block. The Geotechnical Investigation was conducted on The Helena, Manhattan Mini Storage, Artkraft Strauss, Former Airborne Express, Potamkin Toyota Service, Copacabana, and Dynasty Auto Body Properties. All of the soil borings in the Geotechnical Investigation identified fill over sand/till stratum, all underlain by decomposed rock/bedrock. A complete copy of the Mueser Rutledge Geotechnical Investigation is provided in Appendix E.

2.3.6.5 UST Closure Report

A UST Closure Report, dated August 5, 2003 and prepared by ATC, documented the abandonment and removal of 31 USTs from the Former Airborne Express, Potamkin Toyota Service, Copacabana, and Dynasty Auto Body Properties. The UST Closure activities were conducted by ATC between January and April 2002 in accordance with the NYSDEC-approved Revised Remedial Action Plan dated April 27, 2001. The UST closure activities resulted in the excavation and offsite disposal of approximately 452 cubic yards (CY) of petroleum contaminated soil from the Site. Approximately 10,200 gallons of petroleum/water mixture and six (6) 55-gallon drums of residual waste were removed from the tanks and disposed prior to

UST removal. Inspection of the USTs and system piping revealed that some of the removed USTs contained evidence of holes. ATC collected endpoint soil samples from each area of contamination excavated. The endpoint soil samples' analytical results indicated that elevated levels of VOCs, SVOCs, and metals were detected above the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCOs). Petroleum-contaminated soils remained onsite after the UST removal and were slated to be addressed during future remedial activities.

2.3.7 Sanborn Maps

Historic [Sanborn Maps](#) from 1892, 1907, 1926, 1951, 1976, 1978 1979, 1980, 1982, 1985, 1987, 1988, 1991, 1992, 1993, 1994, 1995, and 1996 [were reviewed prior to preparation of the RAWP](#) and are provided in Appendix F. Former operations, processes and building structures identified from the Sanborn Maps were summarized for the former Airborne Express, Potamkin Toyota, Copacabana and Dynasty Auto Body Facilities in Sections 2.3.1 through 2.3.4.

2.4 GEOLOGICAL CONDITIONS

2.4.1 Geology

The Site contains shallow occurring (approximately 3 to 17 ft bls) and steeply sloped bedrock (towards the Hudson River) in the eastern portion of the block between 11th Avenue and the former Potamkin property and more gently sloped and deeper bedrock (42 to 52 ft bls) occurring west of the Potamkin property to 12th Avenue. The bedrock is characterized as hard weathered gray mica schist, granite, and gneiss. The bedrock is directly overlain by urban fill varying in thickness from 12 to 25 feet on the eastern portion of the Site. On the western portion of the Site, the bedrock is overlain by a 15-foot thick sand/till layer, followed by a 20-foot thick organic silty clay layer, followed by a 20-foot thick fill layer to ground surface.

According to the Mueser Rutledge Geotechnical Investigation Boring Location Plan (Appendix E; Drawing B-1), the historic (pre-1892 Sanborn map) limits of the Hudson River shoreline bisect the Site in the former Potamkin and Copacabana properties. A large quantity of urban fill was likely used to fill in the shoreline on the western half of the Site.

Four [geologic sections are shown in](#) Appendix E, [Figures](#) GS-1, GS-2, GS-3, and GS-4 from the Mueser Rutledge Geotechnical Investigation.

2.4.2 Hydrogeology

The soil boring logs presented in Appendix C and the Mueser Rutledge Geotechnical Investigation (Appendix E) provide a summary of the site hydrogeology. In general, site groundwater flows in a west/northwesterly direction towards the Hudson River. The groundwater levels measured on February 25, 2009 are provided in Table 2.

[A groundwater flow map is shown in Figure 4.](#)

2.5 CONTAMINATION CONDITIONS

The following sections provide a summary of the Site contamination identified during the RI.

2.5.1 Conceptual Model of Site Contamination

Site soil, soil vapor and groundwater are contaminated with petroleum-related VOCs in excess of the Part 375 unrestricted SCOs. Metals linked with urban fill have also been detected in excess of the Part 375 unrestricted SCOs. Petroleum disposal is likely attributable to leaks over time associated with one or more of the 31 former USTs that were removed from the Site as part of the 2002 UST Closure; leaks over time from underground piping associated with the USTs; or surface spills over time associated with fuel transfer or vehicular maintenance activities.

2.5.2 Description of Areas of Concern

Petroleum related compounds identified in Site soil and groundwater and PCE identified in soil vapor were predominately found in the central and western portions of the Site where the former Airborne Express and Potamkin Toyota Facilities were located.

One NYSDEC spill number (9810172) was opened on November 12, 1998 as a result of an investigation conducted on the former Airborne Express and Potamkin properties. The spill number is still currently open and quarterly groundwater monitoring is being conducted to address NYSDEC requirements.

2.5.3 Identification of Standards, Criteria and Guidance

SCGs are promulgated requirements (“standards” and “criteria”) and non-promulgated guidance (“guidance”) that govern activities that may affect the environment and are used by the DER at various stages in the investigation and remediation of a site. SCGs incorporate both the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986’s (CERCLA) concept of “applicable or relevant and appropriate requirements” (ARARs) and the United States Environmental Protection Agency’s (USEPA) “to be considered” (TBCs) category of non-enforceable criteria or guidance. SCGs applicable to the Site are as follows:

SCGs for Soil

The SCGs for soil were developed to remediate impacts that are the result of historic releases based on a restricted residential use scenario and the reasonably anticipated future use of the Site as a school with ground level retail. Based on the anticipated future use, the appropriate SCGs for soil would be the restricted residential cleanup criteria, consistent with the criteria contained in the 6 NYCRR Part 375 Regulations. The selection of the appropriate SCG for soil will be determined based upon the results of the alternatives analysis presented in Section 3.1.

The SCGs for the protection of groundwater are applicable to soils deeper than 15 ft bls under a Track 2 or Track 4 cleanup scenario. These SCGs are applicable to remove potential sources of contamination to groundwater for restricted use remedies.

In addition, the unrestricted use criteria presented in the Part 375 Regulations are used in this RAWP to evaluate an unrestricted use remedial alternative, as required for the alternatives analysis portion of this document.

SCGs for soil for the protection of ecological resources were considered, however, were determined to be not applicable based on site-specific conditions. In accordance with the Part 375 Regulations, protection of ecological resources soil cleanup objectives do not and/or will not apply to sites or portions of sites where the condition of the land (e.g., paved, covered by impervious surfaces, buildings and other structures) precludes the existence of an ecological resource that constitutes an important component of the environment. At this site, the majority

of on-site areas are either paved or covered by buildings, therefore, use of SCGs for protection of ecological resources is not applicable.

In addition to the Part 375 Regulations, the following SCGs apply to soil:

- 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes (November 1998);
- 6 NYCRR Part 364 – NYS Waste Transporter Permits;
- 6 NYCRR Part 360 and Part 364 – NYS Solid Waste Management Requirements; and
- 6 NYCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998).

SCGs for Groundwater

Based upon the evaluation of the current groundwater data, the following SCGs for the groundwater were identified:

- New York State Groundwater Quality Standards – 6 NYCRR Part 703; and
- NYSDEC Ambient Water Quality Standards and Guidance Values – TOGS 1.1.1.

SCGs for Soil Vapor

The following SCGs for the soil vapor were identified:

- NYSDOH Indoor Air Sampling & Analysis Guidance (August 8, 2001 or subsequent update); and
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (draft October 2006).

In addition, the following guidance documents are applicable to the Site for all media:

- NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation - December 2002 (or later version if available);
- NYSDEC Draft Brownfield Cleanup Program Guide – May 2004; and
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan.

- NYSDEC Generic Remedial Action Work Plan Template – May 2007.

2.5.4 Soil/Fill Contamination

Tables 3 through 6 summarize soil sampling analytical data obtained during the RI and subsequent sampling for VOCs, SVOCs, metals, and PCBs, respectively. Soil data was compared with the NYSDEC Part 375 (NYCRR Subpart 375-6) Remedial Program SCOs. Soil data was evaluated against the unrestricted SCOs.

Tables 7 through 10 summarize the soil sampling analytical data obtained during the RI and subsequent sampling from TCLP analysis of VOCs, SVOCs, metals, and pesticides.

2.5.4.1 VOCs in Soil

A summary of VOCs detected with concentrations above the Part 375 Unrestricted SCOs is provided below and on Plate 1. Table 3 provides the complete sampling results for VOCs in soil. A review of the soil sampling VOC results indicated that several petroleum-related compounds were detected at concentrations above the unrestricted SCOs, as summarized below:

Analyte	Part 375 Unrestricted Use Cleanup Objectives (µg/kg)	No. of Samples Analyzed	No. of Detections Above Part 375 Unrestricted Use Cleanup Objectives	Range in Concentration Above Part 375 Unrestricted Use Cleanup Objectives (µg/kg)	Sample with Maximum Detection
1,2,4-Trimethylbenzene	3,600	59	10	5,090-317,000	SB-18R (19.5-20 ft bls)
1,3,5-Trimethylbenzene	8,400	59	7	19,000-110,000	SB-18R (19.5-20 ft bls)
Acetone	50	150	19	51.3-614	D-3S (6-7 ft bls)
Benzene	60	153	35	60.2-6,030	SB-18R (19.5-20 ft bls)
Ethylbenzene	1,000	153	24	1,190-275,000	A-4D (10-20 ft bls)
Methylene Chloride	50	150	2	150-3,800	AX-2 (15-17.5 ft bls)

Analyte	Part 375 Unrestricted Use Cleanup Objectives (µg/kg)	No. of Samples Analyzed	No. of Detections Above Part 375 Unrestricted Use Cleanup Objectives	Range in Concentration Above Part 375 Unrestricted Use Cleanup Objectives (µg/kg)	Sample with Maximum Detection
n-Butylbenzene	12,000	59	7	12,100-23,000	SB-13 (15-17.5 ft bls)
n-Propylbenzene	3,900	59	13	5,100-64,300	SB-18R (19.5-20 ft bls)
Toluene	700	153	13	835-70,000	AX-2 (15-17.5 ft bls)
Xylenes (total)	260	153	41	280-1,380,000	A-4D (10-20 ft bls)

Concentrations in micrograms per kilogram (µg/kg)

ft bls – feet below land surface

Number of samples analyzed does not include duplicate samples or quality assurance/quality control samples.

Although detected in excess of the Part 375 Unrestricted SCOs on 19 of the 150 samples, acetone is not considered a contaminant of concern for this Site. This is due to the fact that acetone is a commonly used laboratory cleanser, was never detected in combination with any petroleum related VOCs in soil, and has never been detected in groundwater on Site.

2.5.4.2 SVOCs in Soil

A summary of SVOCs detected with concentrations above the Part 375 Unrestricted SCOs is provided below and on Plate 2. Table 4 provides the complete sampling results for SVOCs in soil.

Six SVOCs were detected in multiple soil samples at concentrations above the unrestricted SCOs. There were no other SVOCs detected above the unrestricted SCOs in soil samples collected at the Site.

Analyte	Part 375 Unrestricted Use Cleanup Objectives (µg/kg)	No. of Samples Analyzed	No. of Detections Above Part 375 Unrestricted Use Cleanup Objectives	Range in Concentration Above Part 375 Unrestricted Use Cleanup Objectives (µg/kg)	Sample with Maximum Detection
Benzo(a)anthracene	1,000	117	29	1,070-5,770	LB-4 (1-3 ft bls)
Benzo(a)pyrene	1,000	117	25	1,100-3,800	LB-4 (1-3 ft bls)
Benzo(b)fluoranthene	1,000	117	25	1,160-4,760	LB-4 (13-19 ft bls)
Benzo(k)fluoranthene	800	117	12	923-3,070	C-6S (0-10 ft bls)
Chrysene	1000	117	23	1,060-5,530	C-2S (0-10 ft bls)
Dibenzo(a,h)anthracene	330	117	9	370-910	LB-4 (1-3 ft bls)
Indeno(1,2,3-cd)pyrene	500	117	21	520-2,340	LB-4 (1-3 ft bls)
Naphthalene	12000	117	4	14,000-38,000	SB-18 (12.5-15 ft bls)

Concentrations in micrograms per kilogram (µg/kg)

ft bls – feet below land surface

Number of samples analyzed does not include duplicate samples or quality assurance/quality control samples.

2.5.4.3 Metals in Soil

A summary of metals detected with concentrations above the Part 375 Unrestricted SCOs is provided below and on Plate 3. Table 5 provides the complete sampling results for metals in soil.

Multiple metals were detected in soil samples at concentrations above the Unrestricted SCOs. The most frequent exceedances of the unrestricted SCOs are for mercury (exceeded SCOs in 67 of the 81 samples) and lead (exceeded SCOs in 63 of the 81 samples).

Analyte	Part 375 Unrestricted Use Cleanup Objectives (mg/kg)	No. of Samples Analyzed	No. of Detections Above Part 375 Unrestricted Use Cleanup Objectives	Range in Concentration Above Part 375 Unrestricted Use Cleanup Objectives (mg/kg)	Sample with Maximum Detection
Arsenic	13	117	12	14-82.2	C-3D (10-20 ft bls)
Barium	350	117	4	410-792	B-5D (10-20 ft bls)
Copper	50	117	37	50.2-504	LB-10 (0-4 ft bls)
Lead	63	117	78	65.3-4,420	A-4R (21.5-22 ft bls)
Mercury	0.18	117	84	0.19-46.3	LB-4 (13-19 ft bls)
Nickel	30	117	2	39.9-61.5	A-2R (20-20.5 ft bls)
Selenium	3.9	117	3	4.0-5.0	C-4S (0-10 ft bls)
Trivalent Chromium	30	31	2	47.1-65.8	LB-10 (0-4 ft bls)
Zinc	109	117	48	120-1,250	C-4S (0-10 ft bls)

Concentrations in milligrams per kilogram (mg/kg)

ft bls – feet below land surface

Number of samples analyzed does not include duplicate samples or quality assurance/quality control samples.

2.5.4.4 PCBs in Soil

Table 6 provides the sampling results for PCBs in soil. No PCBs were detected from the samples analyzed.

2.5.4.5 TCLP Results

Tables 7 through 10 provide the TCLP results for VOCs, SVOCs, metals, and pesticides, respectively. No exceedances of the United States Environmental Protection Agency (USEPA) regulatory levels were detected in any of the four soil samples subjected to TCLP analysis.

2.5.5 On-Site and Off-Site Groundwater Contamination

Tables 12 through 16 summarize groundwater sampling analytical data obtained during the RI for VOCs, SVOCs, metals, PCBs, and pesticides, respectively. Groundwater data was compared with the NYSDEC AWQSGVs. Provided below is a summary of the analytical data.

2.5.5.1 VOCs in Groundwater

A summary of VOCs detected with concentrations above the NYSDEC AWQSGVs is provided below and on Figure 6. Table 12 provides the complete sampling results for VOCs in groundwater. Free-phase petroleum product has not been identified on-Site.

Benzene was the most frequently detected compound in excess of the AWQSGVs.

Analyte	NYSDEC AWQSGVs (µg/L)	No. of Samples Analyzed	No. of Detections Above AWQSGVs	Range in Concentration Above AWQSGVs (µg/L)	Sample with Maximum Detection
1,2,4-Trimethylbenzene	5	14	7	12-2,400	SB-27
1,3,5-Trimethylbenzene	5	14	6	23.2-630	SB-27
Benzene	1	18	13	3.8-1,500	SB-12
Ethylbenzene	5	18	9	6.2-2,000	SB-27
Isopropylbenzene	5	14	11	22-492	MW-9
Methylene Chloride	5	12	1	5.1	SB-13
n-Butylbenzene	5	14	5	5.8-85	SB-12
n-Propylbenzene	5	14	11	9.9-908	MW-9
p-Isopropyltoluene	5	6	1	10.9	MW-9
sec-Butylbenzene	5	14	10	6.3-220	SB-27
Toluene	5	18	6	6.1-300	SB-27
Xylenes(total)	5	18	11	12-4,900	SB-27

Concentrations in micrograms per liter (µg/L).

Number of samples analyzed does not include duplicate samples or quality assurance/quality control samples.

2.5.5.2 SVOCs in Groundwater

A summary of SVOCs detected with concentrations above the NYSDEC AWQSGVs is provided below and on Figure 7. Table 13 provides the complete sampling results for SVOCs in groundwater.

Analyte	NYSDEC AWQSGVs (µg/L)	No. of Samples Analyzed	No. of Detections Above AWQSGVs	Range in Concentration Above AWQSGVs (µg/L)	Sample with Maximum Detection
Benzo(a)pyrene	ND	11	3	1-8.3	SB-12
Chrysene	0.002	11	3	1.4-10	SB-12
Naphthalene	10	11	3	56-190	SB-27
Phenol	1	11	1	12	SB-12

Concentrations in micrograms per liter (µg/L).

Number of samples analyzed does not include duplicate samples or quality assurance/quality control samples.

2.5.5.3 Metals in Groundwater

A summary of metals detected with concentrations above the NYSDEC AWQSGVs is provided below and on Figure 8. Table 14 provides the complete sampling results for metals in groundwater.

The analytical data indicates that field filtering the groundwater samples resulted in a marked reduction in the number of exceedances of the AWQSGVs. The only metals that exceeded the AWQSGVs in the field filtered samples were manganese and sodium.

Metals concentrations identified in unfiltered samples are attributed to suspended sediment and are not indicative of dissolved metals concentrations. As a result, metals are not considered contaminants of concern in groundwater.

	Analyte	NYSDEC AWQSGVs (µg/L)	No. of Samples Analyzed	No. of Detections Above AWQSGVs	Range in Concentration Above AWQSGVs (µg/L)	Sample with Maximum Detection
Filtered	Manganese	300	8	8	370-1,300	SB-22
	Sodium	20,000	8	8	50,000-330,000	SB-12

	Analyte	NYSDEC AWQSGVs (µg/L)	No. of Samples Analyzed	No. of Detections Above AWQSGVs	Range in Concentration Above AWQSGVs (µg/L)	Sample with Maximum Detection
Unfiltered	Arsenic	25	9	2	25-38	SB-21
	Chromium	50	9	3	58-94.6	MW-5A
	Copper	200	9	1	270	MW-5A
	Lead	25	9	6	33.2-900	SB-21
	Manganese	300	9	8	531-1,600	SB-27
	Mercury	0.7	9	5	0.82-11.9	MW-5A
	Sodium	20,000	9	9	53,000-2,840,000	MW-2

Concentrations in micrograms per liter (µg/L).

Number of samples analyzed does not include duplicate samples or quality assurance/quality control samples.

2.5.5.4 PCBs in Groundwater

Table 15 provides the sampling results for PCBs in groundwater. No PCBs were detected from the four samples analyzed.

2.5.5.5 Pesticides in Groundwater

Table 16 provides the sampling results for pesticides in groundwater. No pesticides were detected from the four samples analyzed.

2.5.6 On-Site Soil Vapor Contamination

Provided below is a summary of detected VOCs in the 12 soil vapor samples. A summary of VOCs detected in soil vapor is also provided on Figure 5 and Table 11. A breakdown of the VOCs detected in the soil vapor samples follows this summary table.

Analyte	No. of Samples Analyzed	No. of Detections	Range in Concentration (µg/m ³)	Sample with Maximum Detection
1,1,1-Trichloroethane	12	1	7.6	SV-12
1,2,4-Trimethylbenzene	12	8	7.9-37,600	SV-10
1,3,5-Trimethylbenzene	12	4	70.8-17,600	SV-10
2-Propanol	12	1	55.6	SV-11
4-Ethyltoluene	12	4	12-8,950	SV-10

Analyte	No. of Samples Analyzed	No. of Detections	Range in Concentration ($\mu\text{g}/\text{m}^3$)	Sample with Maximum Detection
Acetone	12	4	7.4-278	SV-8
Benzene	12	2	690-831	SV-8
Cyclohexane	12	5	209-16,500	SV-7
Dichlorodifluoromethane	12	3	14-658	SV-11
Ethanol	12	1	269	SV-11
Ethylbenzene	12	3	491-6,690	SV-10
Heptane	12	6	6.1-30,300	SV-7
Hexane	12	8	16-18,600	SV-9
Isooctane	12	12	34-1,30,000	SV-9
Methylene Chloride	12	1	893	SV-11
Propylene	12	1	325	SV-8
t-Butyl Alcohol	12	2	4.5-5.2	SVE-6
Tetrachloroethene (PCE)	12	7	18-240	SVE-3
Toluene	12	7	3.2-3000	SV-8
Trichloroethene (TCE)	12	1	6.4	SV-12
Trichlorofluoromethane	12	3	65.2-674	SV-11
Xylenes (total)	12	9	6.5-21,400	SV-10

$\mu\text{g}/\text{m}^3$ – micrograms per cubic meter

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

The objective of the qualitative exposure assessment is to describe how human and environmental receptors may be exposed to site contaminants based upon the site-specific conditions and to assess whether there are any complete or potentially complete exposure pathways.

As discussed above, the contaminants of concern (COCs) at the Site include petroleum related VOCs and SVOCs, chlorinated solvents (i.e., PCE and TCE), and several metals (i.e., lead and

mercury). These COCs were detected in soil, groundwater, and/or soil vapor at concentrations exceeding their respective NYSDEC standards or guidance values. The NYSDEC Class GA AWQSGVs were developed to be protective of public health based upon consideration of groundwater as a potential source of drinking water. This exposure scenario is not applicable to the Site given the current land use and the reasonably anticipated land use at the Site. As specified in ECL Article 27-1415(2), the exposure assessment should consider the current conditions, as well as the reasonably anticipated future land use of the Site and the affected offsite areas, and the reasonably anticipated future groundwater use.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant source; (2) contaminant release and transport mechanisms; (3) a receptor population; (4) a point of exposure; and (5) a route of exposure. The following paragraphs provide an overview discussion of exposure pathways that may potentially exist associated with the Site.

Contaminant Sources

The probable sources of contamination in soil and groundwater at the Site were spills or leaks from former clusters of USTs containing petroleum, direct discharge to the ground of chlorinated solvents associated with historical operations of the Site that included vehicular maintenance and metalworking, and historical fill placed on the Site.

Contaminant Release and Transport Mechanisms

The contaminants at the Site exist in the form of residual material adsorbed to soil particles in the saturated and unsaturated zones and compounds dissolved in groundwater. The leaching of contaminants from soil serves as an ongoing source of contamination to groundwater beneath portions of the Site. In addition, VOCs are migrating through volatilization of compounds into soil vapor.

Receptor Population

The potential onsite receptors include occupational workers, construction workers, visitors, or trespassers. Future onsite receptors are expected to also include residents, guests, retail

customers/workers, and students based on the potential future use of the property. The potential offsite receptors include offsite workers, visitors, residents, and trespassers.

Potential Points and Routes of Exposure

Contaminated soil is limited to specific areas of the Site and at depths below the immediate surface as indicated by subsurface and surficial soil samples collected as part of the RI. However, there is the potential for direct exposure to contaminated soil by anyone digging in the contaminated area.

The Site and surrounding community are supplied by public sources of drinking water which meets all State and Federal standards for drinking water quality. As such, there is no potential for exposure to site contaminants from the public sources of drinking water. Although it has not been conclusively verified, it is highly unlikely that there are any private wells located near the Site.

In the area of the former Airborne Express building, volatilization of VOCs has been demonstrated. There is no potential for migration of VOCs into indoor air because there are currently no existing buildings onsite. If buildings are constructed in this area of the Site in the future (without source removal prior to construction), site workers or future residents, guests, or students could be exposed to contaminants via the indoor air inhalation route of exposure.

2.7 REMEDIAL ACTION OBJECTIVES

As described in Section 3.8 of Part 375, the goal of the remedy selection process in the BCP is to select a remedy for a site that is fully protective of public health and the environment, taking into account the current, intended, and reasonably anticipated future land use of the site.

The remedial goals for soil at the Site are to meet the restricted residential criteria for on-site areas. The remedial goals for the groundwater are to obtain mass reductions of VOCs in on-site groundwater and mitigate off-site impacts to NYSDEC Water Quality Standards for Class GA groundwater, to the extent practicable. Consistent with Part 375, the proposed remedies for the Site will be fully protective of public health and the environment, taking into account the current, intended, and potential future land use.

According to Section 3.8 of Part 375, for Track 1 cleanup remedies:

- the remedial program shall achieve a cleanup level that will allow the Site to be used for any purpose without restrictions;
- the soil component of the remedial program shall achieve the unrestricted soil cleanup objectives for all soils above bedrock; and
- reliance upon long-term institutional control/engineering controls to address exposure and achieve the RAOs for the site is not allowed, except one that allows for a groundwater use restriction if a Volunteer has taken steps to reduce groundwater contamination to asymptotic levels.

According to Section 3.8 of Part 375, for Track 2 cleanup remedies:

- a generic table is utilized to identify soil cleanup objectives for restricted use remedies;
- restrictions can be placed on the use of the site and on the use of site groundwater;
- reliance upon institutional control/engineering controls to address soil exposure and achieve the RAOs for the site are allowed; and
- a groundwater use restriction may be placed upon the site.

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for this Site.

2.7.1 Groundwater

RAOs for Public Health Protection

- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Remove the source of ground or surface water contamination.

2.7.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

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

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

The following is a detailed description of the alternatives analysis and remedy selection process to address impacted on-site soil from historic releases. The on-site areas are defined as areas within the limits of the Mid Block #57 Project, which is shown on Figure 2.

In accordance with Section 3.8 of Part 375, this section of the RAWP was prepared in accordance with Section 4.3[c] of DER-10. As required, a minimum of two remedial alternatives (one being an unrestricted use scenario) are evaluated, as follows:

- One alternative that will achieve unrestricted use relative to on-site soil without the use of institutional or engineering controls; and
- One alternative assuming a restricted residential cleanup scenario for on-site areas (which is more protective than the current commercially zoned use and reasonably anticipated future use), coupled with the use of institutional and engineering controls.

The following remedial action alternatives for the media of concern were developed based upon the remedial goals and RAOs identified in Section 2.6:

Remedial Alternative 1: Track 1 Unrestricted cleanup: Excavation and off-site disposal of soil exceeding the unrestricted use criteria presented in the Part 375 Regulations at any depth above or below the water table for all on-site areas impacted from historic releases; and backfill of excavated areas as necessary for the construction of the proposed building foundation. Groundwater remediation consisting of excavation dewatering, treatment, and off-site disposal, with *in situ* treatment.

Remedial Alternative 2: Track 2 Restricted Residential cleanup: Excavation of soil/fill exceeding Part 375 Restricted Residential Soil Cleanup Objectives (SCOs) from land surface to 15 feet below land surface (ft bls). Excavation of soil deeper than 15 ft bls to remove potential sources to groundwater; Groundwater remediation consisting of excavation dewatering, treatment, and off-site disposal, with *in situ* treatment. Backfill of excavated areas as necessary for the construction of the

proposed building foundation; and institutional and engineering controls.

3.1 EVALUATION CRITERIA

Each alternative was evaluated based on the following eight evaluation criteria presented in Section 4.1 of the Draft DER-10 Technical Guidance and/or Part 375:

- Overall protection of public health and the environment;
- Compliance with SCGs;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume with treatment;
- Short-term effectiveness;
- Implementability;
- Cost; and
- Compatibility with land use.

Each of the criteria is described below. In addition, DER-10 and Part 375 require that the remedy be evaluated on the basis of Community Acceptance. In accordance with NYSDEC guidance, the proposed remedy will be evaluated for community acceptance once the public notice is issued and the public comment period is completed.

3.1.1 Overall Protection of Human Health and the Environment

Description of Criteria

From DER-10: “This criterion is an evaluation of the remedy’s ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls. The remedy’s ability to achieve each of the RAOs is evaluated.”

3.1.2 Compliance with Remedial Goals, SCGs and RAOs

Description of Criteria

From DER-10: “Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. All SCGs for the site will be listed

along with a discussion of whether or not the remedy will achieve compliance. For those SCGs that will not be met, provide a discussion and evaluation of the impacts of each and whether waivers are necessary.”

3.1.3 Long-term Effectiveness and Permanence

Description of Criteria

From DER-10: “This criteria evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated:

- The magnitude of the remaining risks (i.e., will there be any significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals);
- The adequacy of the engineering and institutional controls intended to limit the risk;
- The reliability of these controls; and
- The ability of the remedy to continue to meet RAOs in the future.”

3.1.4 Reduction in Toxicity, Mobility or Volume through Treatment

Description of Criteria

From DER-10: “The remedy’s ability to reduce the toxicity, mobility or volume of site contamination is evaluated. Preference should be given to remedies that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the Site.”

3.1.5 Short-term Effectiveness

Description of Criteria

From DER-10: “The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are evaluated. A discussion of how the identified adverse impacts and health risks to the community or workers at the site will be controlled and the effectiveness of the controls should be presented. Provide a discussion of engineering controls that will be used to mitigate short-term impacts (i.e., dust control measures). The length of time needed to achieve the remedial objectives is also estimated.”

3.1.6 Implementability

Description of Criteria

From DER-10: “The technical and administrative feasibility of implementing the remedy is evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.”

3.1.7 Cost

Description of Criteria

From DER-10: “Capital, operation, maintenance and monitoring costs are estimated for the remedy and presented on a present worth basis.”

3.1.8 Compatibility with Land Use

Description of Criteria

From Part 375: Preliminary information regarding the land use factor was submitted as part of the application. The Department accepted this initial determination of use by approval of the application. This preliminary determination is confirmed and updated as necessary during the remedy selection process. Current, intended, or reasonably anticipated future land uses of the site and its surroundings must be considered in the selection of the remedy.

3.2 ON-SITE SOIL REMEDIAL ALTERNATIVE 1

The following sections provide a description of Remedial Alternative 1. An evaluation based on the specific evaluation criteria is also presented below.

3.2.1 Description

Figure 12 shows the areas to be addressed under Remedial Alternative 1. Remedial Alternative 1 includes the following remedial elements:

- Mobilization and Site Preparation;
- Permitting;
- Storm Water Management and Erosion Control;

- Vapor, Odor, and Dust Control;
- Excavation and off-site disposal of soil exceeding the unrestricted use criteria presented in the Part 375 Regulations at any depth above and below the water table for soil impacted from historic releases;
- Temporary Staging and Stockpiling;
- Waste Characterization Sampling;
- Dewatering and Groundwater Treatment;
- Traffic Control;
- Off-site Disposal and Equipment Decontamination;
- End-point Sampling;
- Backfill of the excavated areas, as necessary to build the proposed building foundation with imported soil meeting the unrestricted use criteria presented in the Part 375 Regulations;
- Interim Site Restoration; and
- Health and Safety and Community Air Monitoring.

Each of these elements is discussed in greater detail below.

3.2.1.1 Mobilization and Site Preparation

Prior to commencing the remediation construction activities, the Remediation and General Contractor will perform the following mobilization and Site preparation activities:

- Identification and markout of all aboveground and underground utilities;
- De-energizing, turning off and disconnecting existing subsurface utility services known to be present in the work area (e.g., water, gas, electric and sewer);
- Mobilization of remediation equipment and materials;
- Employ traffic control measures;
- Work zone demarcation;
- Installation of erosion control devices in accordance with the Soil Erosion and Sediment Control Plan;

- Conduct pre-construction survey prepared by a land surveyor licensed by the State of New York
- Removal of asphalt pavement;
- Installation of perimeter air monitoring system;
- Installation of temporary facilities;
- Installation of dewatering and water treatment system; and
- Installation of the decontamination facilities.

The detailed description of the mobilization and site preparation activities and responsibilities will be presented in the Contractors' Site Operations Plan.

3.2.1.2 Permitting

The Remediation and General Contractor will be responsible for obtaining federal, state and New York City permits required for remediation prior to mobilization. At a minimum, the permits will include a New York City Building Department permit, Foundation permit and a New York City Department of Environmental Protection (NYCDEP) sewer discharge permit. The permit conditions will be complied with and copies of the permits will be maintained at the Site.

3.2.1.3 Storm Water Management and Erosion Control

A stormwater pollution and prevention plan (SWPPP), discussed in Sections 4.1.5 and 5.4.10, will be prepared and implemented. All necessary measures to manage stormwater and temporarily control erosion will be employed. Soil erosion and sediment control measures will be installed prior to the implementation of the remediation and will be maintained throughout the duration of all remedial construction activities, as appropriate. Hay bales and/or silt fences will be placed by the Contractor to control sediment around the disturbed area/excavations or other work areas. Erosion and sediment control measures (i.e., hay bales, silt fences, etc.) will be used to protect any storm water drain in proximity to the construction activities.

In addition, the entrance and adjacent street areas will be swept and/or cleaned, as necessary, throughout the work day, and at the end of the workday, to keep the streets free of soil or other debris generated from the work site during the duration of all excavation activities.

3.2.1.4 Vapor, Odor and Dust Control

Vapor, odor and dust control measures will also be instituted, as necessary, to prevent any vapors, odors, or dust from migrating offsite and impacting the surrounding community. During the course of construction, odor suppressant and water will be used on an as-needed basis during excavation activities to control the dust, vapors, and/or odors generated. In addition, each entrance/egress point for trucks will be furnished with a stabilized construction entrance for the purpose of keeping trucks and equipment clean of soil and other materials during site remediation and redevelopment. The vapor odor and dust control measures will be specified in the Contractor's Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP).

Dust (particulate matter) will be controlled at the Site in accordance with the site specific CAMP, the NYSDEC Technical and Administrative Guidance Memorandum #4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (TAGM 4031), and all federal, state and local requirements. The Contractor will be required to maintain all excavations, stockpiles, and all other work areas to minimize dust that would cause a hazard or nuisance to others.

Vapor, odor and dust will be monitored in accordance with the requirements of the Contractor's HASP, the CAMP, and the NYSDEC TAGM 4031. Based on the results of the monitoring, the Contractor will implement necessary measures to control dust to acceptable levels, including but not limited to, one or more of the following measures:

1. Misting equipment and excavation fences;
2. Spraying water (using atomizer) on buckets during excavation and dumping;
3. Hauling materials in tarped or lined containers;
4. Reducing speed of vehicles moving through the construction area;
5. Covering excavated material stockpiles and/or portions of the stockpile, as necessary, throughout the day and after excavation activities cease each day; and
6. Stopping work.

3.2.1.5 Excavation

A comparison of the available data to the unrestricted use criteria presented in the Part 375 Regulations was conducted for this alternative and a summary of the soil sampling locations and exceedances the unrestricted use criteria is provided on Plates 1 through 3. Based on the results of the RI, the impacted zone is located within the upper 25 feet of fill. Remedial Alternative 1 would require the excavation of all contaminated on-Site soils from land surface to bedrock and end-point soil sampling to demonstrate removal of all soils in excess of the Track 1 Unrestricted SCOs. For the purpose of estimating the Remedial Alternative 1 excavation volume, an excavation depth of 25 feet bls is assumed. There are considerable physical limitations within the Site that will most likely hinder the excavation activities, including but not limited to:

- the presence of cribbing and boulders under 57th and 58th streets, which limit the options for excavation support and increase the cost for deep excavations and dewatering;
- the presence of organic clays and silts at the bottom of the 25 foot excavation, making dewatering difficult at this elevation;
- the depth to bedrock, which varies across the site but is shallower than the excavation depth on the eastern half of the site; and
- the shallow depth to groundwater, which will require a significant dewatering and groundwater treatment system to access and remove the contaminated fill located below the water table.

The estimated volume of soil to be removed to achieve unrestricted use on-site would be approximately 55,000 cubic yards.

The final horizontal and vertical limits of the excavation will be surveyed. The excavation and soil handling portion of this alternative is estimated to require 14 months to complete.

3.2.1.6 Temporary Staging and Stockpiling

All impacted materials are to be stored in stockpiles lined and covered with a single layer of minimum 6-mil plastic sheeting. Stockpiles will be routinely inspected and torn or damaged sheeting covers will be promptly replaced. Soil stockpiles at street grade will be encircled with silt fence or hay bales to protect adjacent properties.

3.2.1.7 Waste Characterization Sampling

Soil samples have been collected and analyzed for waste characterization, based upon the sample frequency and analytical requirements of the potential disposal facilities. The samples have been analyzed for the following:

- Target compound list (TCL) VOCs and SVOCs according to USEPA Methods SW-846 8260 and 8270, respectively;
- TPH for gasoline and diesel range organics (by Method SW-846 8015B);
- TAL metals by Method SW-846 6010;
- PCBs by Method 8082; and
- The full list of toxicity characteristics leaching procedure (TCLP) analyses (metals, VOCs, SVOCs, pesticides, and herbicides).

3.2.1.8 Dewatering and Groundwater Treatment

Dewatering will be required during excavation and foundation construction activities to facilitate work below the groundwater table. Extracted groundwater will either be containerized for offsite disposal or be treated as necessary to meet NYCDEP requirements, and discharged to the NYCDEP sewer system. A secant wall, drainage sumps, and/or perimeter well points will be required to maintain dry conditions with the excavation. The groundwater will be extracted through the use of drainage sumps and/or perimeter well points to maintain dry conditions within the excavation. Drainage sumps will be installed within the excavation, as necessary, to dewater the excavation area. The water from the drainage sumps will be pumped to either an onsite wastewater storage tank or an onsite treatment system. The Remediation Contractor will identify, in the Contractor's Site Operations Plan (SOP), the means and methods for dewatering and treatment.

If required, the treatment system may entail a settling tank, oil/water separator, bag filters and carbon filter vessels, respectively. The effluent from the treatment system will be discharged to the NYCDEP sewer system under a sewer discharge permit that will be obtained from the NYCDEP following the submission of information regarding the proposed treatment system. The effluent from the treatment system will be sampled as required by NYCDEP. If wastewater

is to be disposed of offsite, it will be stored onsite in an approved water storage tank pending characterization and transport for proper offsite disposal.

If the excavated soil contains free liquids, it may require rendering to satisfy the moisture content requirements of the selected disposal facility. The paint filter test using USEPA Method 9095 and/or visual observation may be used to determine if the excavated soil contains free liquids. The excavated soil will be rendered with stabilized soil from the excavation and/or kiln dust. The Remediation Contractor will identify the means and methods of soil stabilization to meet disposal requirements in the Contractor's SOP.

The quantity of groundwater to be extracted and treated will be determined based upon the following factors:

- duration of excavation/foundation work below the water table;
- depth of excavation beneath the water table;
- permeability of the support of excavation used; and
- hydrogeologic factors including hydraulic permeability, hydraulic gradient and rate of recharge into the excavation.

In addition to the extraction and treatment through dewatering, *in situ* groundwater treatment may be conducted in the open excavation following source removal. The means and methods for *in situ* groundwater treatment will be submitted to NYSDEC for review prior to implementation.

The extracted and treated groundwater will serve a beneficial role in reducing the toxicity, mobility and volume of contaminated groundwater beneath the Site.

3.2.1.9 Traffic Control

The Remediation Contractor/General Contractor will be responsible for providing all necessary personnel and materials (i.e., traffic lanes, safety cones) to control traffic entering and exiting the Site and for coordinating traffic control measures, as necessary. Detailed traffic control procedures will be developed when preparing the Contractor's HASP and Contractor's SOP.

3.2.1.10 Off-Site Disposal and Equipment Decontamination

All impacted soil excavated from the Site and other remediation-derived waste will be transported and disposed of in accordance with all applicable federal, state, and local regulations. The remediation-derived waste that will be generated during the construction activities include:

- Soil impacted from historic releases;
- Personal Protective Equipment (PPE);
- Dewatering groundwater; and
- Decontamination water, if any is generated.

A majority of the soil shall be disposed as non-hazardous petroleum contaminated waste. Some soil may be disposed as hazardous waste due to TCLP Metals exceedances shown on Table 9.

Haul vehicles for bulk soil will be secured with appropriate covers prior to exiting the construction area to prevent a release of waste. PPE waste generated during the implementation of the remedy will be consolidated and stored in appropriate bulk containers and temporarily staged at the designated waste storage area. Any full or partially filled containers will be appropriately labeled.

All wastewater that is generated from equipment decontamination will be managed utilizing one of the following options:

- wastewater will be treated, if applicable and discharged to the New York City public sewer system in accordance with NYCDEP requirements, which include, at a minimum, correctly filing the necessary permits; or
- wastewater will be disposed of off site at an approved disposal facility, pending quantity of wastewater generated.

3.2.1.11 End-point Sampling

End-point bottom soil sampling (at a frequency of one sample per 2,500 square feet of bottom area) would be conducted for constituents that exceeded the unrestricted use criteria in previous sampling events to confirm that the unrestricted criteria were met. End-point sampling will only be conducted for soil and will not be conducted for areas where the excavation extends down to a bedrock bottom. Constituents or groups of constituents that did not exceed the criteria in

previous investigations would not be sampled for. Areas that appear more heavily impacted, if any, will be given sampling preference. If the end-point bottom soil sample results indicate that concentrations of target constituents are detected below the unrestricted use criteria, the excavation activities will be considered complete. However, if concentrations of target constituents are detected at a level above the unrestricted use criteria, the excavation activities, including additional end-point bottom soil sampling, will continue deeper until these conditions are met or to the maximum depth reasonably attainable.

End-point sidewall soil samples (at a frequency of one sample per 50 linear feet or at least one sample per sidewall) would be conducted for the unrestricted use criteria. Areas that appear more heavily impacted, if any, will be given sampling preference. If the end-point sidewall soil sample results indicate that concentrations of target constituents are detected below the unrestricted use criteria, the excavation activities will be considered complete. However, if concentrations of target constituents are detected at a level above the unrestricted use criteria, the excavation activities, including additional end-point sidewall soil sampling, will continue until these conditions are met or to the extent feasible due to excavation limitations associated with underground utilities, building foundations, and sidewalk or property boundaries.

The locations of the end-point samples will be surveyed.

End-point samples will be submitted to Accutest Laboratories of Dayton, New Jersey. Category B laboratory data deliverables, as defined in the analytical services protocol (ASP), will be requested. In addition, a Data Usability Summary Report (DUSR) will be prepared by a party independent from the laboratory performing the analysis in accordance with Appendix 2B of DER-10.

3.2.1.12 Backfilling

When excavation and removal of the impacted soil is complete, the excavation will be backfilled as necessary to prepare the Site for the building foundation installation. All soil backfill material (off-site common fill material and topsoil) will meet the requirements of the unrestricted use criteria presented in the Part 375 Regulations. The backfill material will be free of extraneous debris or solid waste. The source of the fill must be documented by the supplier, including the

location where the fill was obtained and a brief history of the site that is the source of the fill. A minimum of one grab sample must be collected and analyzed per source and analyzed for VOCs, SVOCs, metals, PCBs, herbicides and pesticides. Analytical results will be submitted to the NYSDEC prior to use of the backfill.

The following material may be imported, without chemical testing, to be used as backfill beneath pavement, buildings or as part of the final site cover, provided, that it contains less than 10% by weight material which would pass through a size 200 sieve and consists of rock or stone, consisting of virgin material from a permitted mine or quarry; or recycled concrete or brick from a Department registered construction and demolition debris processing facility which conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002).

3.2.1.13 Interim Site Restoration

After subsurface excavation and foundation activities are completed, the work area will be restored, as appropriate, to conduct the next phase of work. Once interim site restoration activities have been completed, all temporary work zone barriers, soil erosion, and sedimentation controls and remedial construction equipment will be removed. The Contractor will then decontaminate all equipment in the established decontamination area prior to removal from the Site.

3.2.1.14 Health and Safety and Community Air Monitoring

All remedial construction activities will be performed in a manner consistent with 29CFR 1910 and 1926. Each consultant and contractor on site will operate under a site-specific HASP for the project. The HASP will be readily available during the work. During all phases of Site work, the Contractor will monitor safety and health conditions and fully enforce the site-specific HASP. The Contractor will be responsible for monitoring general Site conditions and for safety hazards. Specifically, monitoring will be performed to verify that all requirements of the Occupational Safety and Health Administration, as outlined on 29 CFR Part 1910 and 1926, are adhered to. The HASP for the Site is provided in Appendix G.

Ambient air will be monitored at the site perimeter throughout the course of the work for particulate matter and VOCs in accordance with the CAMP. During the course of the work, the Contractor will take abatement measures, as directed or as otherwise necessary, to minimize the levels of particulates at the limits of the work.

3.2.2 Evaluation

The following sections provide an evaluation of Remedial Alternative 1 based on the seven specific evaluation criteria.

3.2.2.1 Overall Protection of Human Health and the Environment

Alternative 1 will be protective of human health and the environment by eliminating the concentrations in soil of constituents due to the historic releases through source removal. The potential for human and environmental exposure to these constituents on-site will be eliminated by excavation of the impacted soil with concentrations in excess of the unrestricted use criteria, disposing of impacted material off-site, backfilling the area with material meeting the unrestricted use criteria, and construction of the proposed development's building slab, adjacent surface covers, vapor barrier and restricting groundwater use.

During site-preparation work (e.g., excavation of subsurface soil) for remedial purposes (e.g., construction of building foundation, etc.) and other construction purposes, subsurface workers may be exposed to impacted soil and groundwater. Potential worker exposure to soil and groundwater during excavation activities will be mitigated through the required Occupational Safety and Health Administration (OSHA) training and appropriate health and safety plans (HASPs). Any potential environmental exposure will be mitigated by engineering controls implemented during construction.

3.2.2.2 Compliance with Remedial Goals, SCGs and RAOs

SCGs for the proposed remedy are presented in Section 2.5.3 and RAOs are presented in Section 2.7. Alternative 1 will achieve compliance with the remedial goals, SCGs and RAOs for on-site areas, with exception to groundwater and soil vapor, which would require engineering controls to mitigate potential exposure routes. Soil will achieve compliance with the remedial goals, SCGs and RAOs for on-site areas through source removal.

3.2.2.3 Long-term Effectiveness and Permanence

Alternative 1 removes all soil that was impacted by the historic releases. Therefore, incremental risk from soil impacts is eliminated.

Based upon the Site's location in an urban area and the presence of impacted groundwater and soil vapor on adjacent properties, long term engineering and institutional controls will be necessary for Alternative 1 to ensure long term effectiveness and permanence. These engineering and institutional controls, in the form of a vapor barrier below the bottom slab and outside foundation walls, the engineered cover composite system consisting of the proposed building's bottom slab, adjacent surface covers, and a groundwater use restriction will be necessary to prevent any potential exposure from on-site and off-site sources of soil vapor and groundwater.

Assuming the long term engineering and institutional controls are implemented, Alternative 1 will continue to meet RAOs in the future, thus providing a permanent long-term solution for the Site.

3.2.2.4 Reduction in Toxicity, Mobility or Volume through Treatment

By removing all soil with concentrations that exceeded the unrestricted use criteria, Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil and reduce the toxicity, mobility, and volume of contaminants within on-Site soil vapor. In addition, the installation of excavation support sheeting and the removal and treatment of groundwater via dewatering will reduce the toxicity, mobility and volume of impacted groundwater on Site.

3.2.2.5 Short-term Effectiveness

The health and environmental risks associated with implementation of Alternative 1 are minimal for the following reasons:

- The excavation and handling of soil (i.e., urban fill) may pose a potential risk to onsite workers through direct contact with the soil, airborne particulates (dust), odors and organic vapors, and physical risks associated with the depth of excavation. However, potential short-term exposure to onsite workers will be addressed with a HASP and

mitigated through use of appropriate personal protective equipment (PPE), conducting air monitoring, and implementing dust and vapor suppression activities.

- Possible environmental risks to the community during the excavation and handling of soil include the potential for odors, dust and organic vapors resulting from the disturbance of soil and the uncontrolled migration of impacted soil by onsite workers and vehicles. In addition, other potential impacts to the community could include construction-related noise, vibrations and traffic. Community air monitoring activities will be conducted during all excavation and soil handling activities to identify the need for perimeter controls. In addition, decontamination procedures will minimize the potential for offsite migration of impacted soil beyond the Site boundary. An approved truck traffic plan will minimize disturbance to the local roads and community.

3.2.2.6 Implementability

The materials, equipment, and personnel associated with the implementation of Alternative 1 are commercially available and have been proven effective and reliable for remediation of the media of concern. However, due to off-site environmental conditions (e.g., contaminated soil, groundwater and soil vapor on adjacent properties), short term engineering and institutional controls may be necessary for this Site following soil removal. In addition, the deeper excavation for Alternative 1 will impact the excavation support design, which would significantly impact the cost and schedule of the project. These issues provide challenges to the implementability of Alternative 1.

3.2.2.7 Cost

The construction and equipment costs associated with Alternative 1 are estimated at approximately \$20,750,000. The following assumptions were made to develop this cost estimate:

- It is anticipated that long-term Operation, Maintenance and Monitoring (OM&M) will be required for the engineering and institutional controls;
- Excavations will be to a depth of 25 feet bls and approximately 15 feet into the water table;
- CAMP monitoring is necessary for 14 months;
- Dewatering with water treatment is necessary for eight months; and
- Excavations will be larger than necessary to construct the building foundation, to meet the unrestricted use criteria for all end-point samples.

3.2.2.8 Compatibility with Land Use

The current and reasonably anticipated future zoning of on-site areas is commercial with a small portion of the site in a M1-5 manufacturing zone. A New York City Board of Standards and Appeals (BSA) special permit pursuant to Zoning Resolution Section 73-19 to permit the school to operate in the M1-5 portion of the site is currently being pursued to operate the school in the manufacturing zone.

The anticipated future use of the Site is a school with commercial retail space on the ground floor. Following implementation of the remedy, the Site will be restored to unrestricted use conditions, which will exceed the cleanup standards for future commercial land use. A groundwater use restriction will be implemented to prevent future exposure to impacted groundwater.

3.3 ON-SITE SOIL REMEDIAL ALTERNATIVE 2

The following sections provide a description of Remedial Alternative 2. An evaluation based on the specific evaluation criteria is also presented below.

3.3.1 Description

Figure 13 shows the areas to be addressed under Remedial Alternative 2. Remedial Alternative 2 includes the following remedial elements:

- Mobilization and Site Preparation;
- Permitting;
- Storm Water Management and Erosion Control;
- Vapor, Odor, and Dust Control;
- Excavation and off-site disposal of soil exceeding the restricted residential use criteria for on-site areas impacted from historic releases;
- Excavation of hot spot soil for exceeding of the protection of groundwater criteria for on-site areas deeper than fifteen feet below land surface;
- Temporary Staging and Stockpiling;
- Waste Characterization Sampling;
- Dewatering and Groundwater Treatment;

- Traffic Control;
- Off-site Disposal and Equipment Decontamination;
- End-point Sampling;
- Backfill of the excavated areas, as necessary to build the proposed building foundation with imported soil meeting the unrestricted use criteria presented in the Part 375 Regulations;
- Site Restoration; and
- Health and Safety and Community Air Monitoring.

Each of these elements is discussed in greater detail below.

3.3.1.1 Mobilization and Site Preparation

Mobilization and site preparation will be the same as described in Section 3.2.1.1.

3.3.1.2 Permitting

Permitting will be the same as described in Section 3.2.1.2.

3.3.1.3 Storm Water Management and Erosion Control

Storm water management and erosion control will be the same as described in Section 3.2.1.3.

3.3.1.4 Vapor, Odor and Dust Control

Vapor, odor and dust control will be the same as described in Section 3.2.1.4.

3.3.1.5 Excavation

A comparison of the available data to the restricted residential use criteria presented in the Part 375 Regulations was conducted for this alternative and the locations and exceedances of the restricted residential use criteria for VOCs, SVOCs and Metals in soil are provided on Plates 4 through 6, respectively.

Since the proposed development will require a sitewide excavation to a depth of 15 ft bls, this means that all of the soil shallower than 15 ft bls with concentrations in excess of the restricted residential use criteria will be excavated and disposed off-site during development. In addition

to the excavation required to prepare the Site for development, select hot spots deeper than 15 ft bls will require excavation to meet the protection of groundwater criteria.

Known areas with exceedances of the protection of groundwater criteria extend to approximately 20 to 21 ft bls as shown on Figure 10.

The hot spots are defined by VOCs and SVOCs with concentrations in excess of the protection of groundwater criteria. Acetone and metals were not used to define the limits of hot spot soil excavation because they are not compounds of concern and were not detected in groundwater. Therefore, they do not serve as sources to groundwater contamination.

The estimated soil volume to be removed to achieve Track 2 restricted residential use on-site would be approximately 46,000 cubic yards (CY). The estimated excavation volume includes soil removal to prepare the foundation for development, including excavation for concrete piers, pile caps, elevator pits, in addition to hot spot soil removal for areas extending deeper than 15 ft bls.

Due to the shallow bedrock that varies from 3 ft bls to 18 ft bls on the eastern portion of the site, approximately 6,500 CY of bedrock will be excavated to prepare the foundation. Bedrock removal is not included in the estimated soil volumes noted above.

The final horizontal and vertical limits of the excavation will be surveyed. The excavation and soil handling portion of this alternative is estimated to require six months to complete.

3.3.1.6 Temporary Staging and Stockpiling

Temporary staging and stockpiling will be the same as described in Section 3.2.1.6.

3.3.1.7 Waste Characterization Sampling

Waste characterization sampling will be the same as described in Section 3.2.1.7.

3.3.1.8 Dewatering and Groundwater Treatment

Dewatering will be the same as described in Section 3.2.1.8, with the exception that the construction dewatering and groundwater treatment and disposal for Remedial Alternative 2 will be implemented to facilitate the excavation of soils exceeding the restricted residential and protection of groundwater criteria. As a result, the dewatering duration will be significantly shorter for Remedial Alternative 2 than for Remedial Alternative 1 because a secant wall excavation support system is not required.

In addition to the extraction and treatment through dewatering, *in situ* groundwater treatment may be conducted in the open excavation following source removal. The means and methods for *in situ* groundwater treatment will be submitted to NYSDEC for review prior to implementation.

3.3.1.9 Traffic Control

Traffic control will be the same as described in Section 3.2.1.9.

3.3.1.10 Off-Site Disposal and Equipment Decontamination

Off-site disposal and equipment decontamination will be the same as described in Section 3.2.1.10.

3.3.1.11 End-point Sampling

End-point bottom soil sampling (at a frequency of one sample per 2,500 square feet of bottom area) would be conducted for constituents that exceeded the protection of groundwater criteria for excavations extending deeper than 15 ft bls. End-point sampling will only be conducted for soil and will not be conducted for areas where the excavation extends down to a bedrock bottom. Constituents or groups of constituents that did not exceed the criteria in previous investigations would not be sampled for. Areas that appear more heavily impacted, if any, will be given sampling preference. If the end-point bottom soil sample results indicate that concentrations of target constituents are detected below the protection of groundwater criteria, the excavation activities will be considered complete. However, if concentrations of target constituents are detected at a level above the protection of groundwater criteria, the excavation activities, including additional end-point bottom soil sampling, will continue deeper until these conditions are met or to the maximum depth reasonably attainable.

End-point sidewall soil samples (at a frequency of one sample per 50 linear feet or at least one sample per sidewall) would be conducted for the protection of groundwater criteria. Areas that appear more heavily impacted, if any, will be given sampling preference. If the end-point sidewall soil sample results indicate that concentrations of target constituents are detected below the protection of groundwater criteria, the excavation activities will be considered complete. However, if concentrations of target constituents are detected at a level above the protection of groundwater criteria, the excavation activities, including additional end-point sidewall soil sampling, will continue until these conditions are met or to the extent feasible due to excavation limitations associated with underground utilities, building foundations and sidewalk or property boundaries.

The locations of the end-point samples will be surveyed.

End-point samples will be submitted to Accutest Laboratories of Dayton, New Jersey. Category B laboratory data deliverables, as defined in the analytical services protocol (ASP), will be requested. In addition, a Data Usability Summary Report (DUSR) will be prepared by a party independent from the laboratory performing the analysis in accordance with Appendix 2B of DER-10.

3.3.1.12 Backfilling

Backfilling will be the same as presented in Section 3.2.1.12.

3.3.1.13 Interim Site Restoration

Interim site restoration will be the same as described in Section 3.2.1.13.

3.3.1.14 Health and Safety and Community Air Monitoring

Health and safety and community air monitoring will be the same as described in Section 3.2.1.14.

3.3.2 Evaluation

The following sections provide a detailed evaluation of Remedial Alternative 2 based on the specific evaluation criteria.

3.3.2.1 Overall Protection of Human Health and the Environment

Alternative 2 will be protective of human health and the environment by removing all soil that was impacted above the restricted residential and protection of groundwater criteria by the historic on-site releases. The potential for human and environmental exposure to these constituents on-site will be mitigated by excavation of the impacted soil with concentrations in excess of the restricted residential and protection of groundwater criteria, disposing of impacted material off-site, backfilling the area with material meeting the unrestricted use criteria, and construction of the proposed development's building slab, adjacent surface covers, vapor barrier and restricting groundwater use.

During site-preparation work (e.g., excavation of subsurface soil) for remedial purposes (e.g., construction of building foundation, etc.) and other construction purposes, subsurface workers may be exposed to impacted soil and groundwater. Potential worker exposure to soil and groundwater during excavation activities will be mitigated through the required Occupational Safety and Health Administration (OSHA) training and appropriate health and safety plans (HASPs). Any potential environmental exposure will be mitigated by engineering controls implemented during construction.

3.3.2.2 Compliance with Remedial Goals, SCGs and RAOs

SCGs for the proposed remedy are presented in Section 2.5.3 and RAOs are presented in Section 2.7. Alternative 2 will achieve compliance with the remedial goals, SCGs and RAOs for on-site areas. Soil will achieve compliance with the remedial goals, SCGs and RAOs for on-site areas through source removal. Groundwater will achieve compliance with the remedial goals, SCGs and RAOs for on-site areas through source removal and treatment via dewatering, and use restriction. Soil vapor will achieve compliance with the remedial goals, SCGs and RAOs for on-site areas through source removal and the installation of an exterior vapor barrier for all sub-grade foundation structures.

3.3.2.3 Long-Term Effectiveness and Permanence

Alternative 2 removes all soil on-site that was impacted above the restricted residential criteria by the historic releases. Alternative 2 returns the Site to conditions that are compatible with the

zoning and reasonably anticipated future use of the Site as a school with ground level commercial retail space.

Based upon the Site's location in an urban area with contaminants in soil at concentrations in excess of the unrestricted use scenario, and impacted groundwater and soil vapor on adjacent properties, long term engineering and institutional controls will be necessary for Alternative 2 to ensure long term effectiveness and permanence. These engineering and institutional controls, in the form of a vapor barrier below the bottom slab and outside foundation walls, the engineered cover composite system consisting of the proposed building's bottom slab, adjacent surface covers, and a groundwater use restriction will be necessary to prevent exposure from sources of soil vapor and groundwater.

With the engineering and institutional controls, Alternative 2 will continue to meet RAOs in the future, thus providing a permanent long-term solution for the Site.

3.3.2.4 Reduction in Toxicity, Mobility or Volume through Treatment

By removing all soil impacted above the restricted residential use criteria, Alternative 2 will reduce the toxicity, mobility, and volume of contaminants at the Site. In addition, deeper hot spot soil excavation will remove future sources to groundwater. The installation of excavation support sheeting and the removal and treatment of groundwater via dewatering will reduce the toxicity, mobility and volume of impacted groundwater on Site.

3.3.2.5 Short-term Effectiveness

The health and environmental risks associated with implementation of Alternative 2 are minimal for the following reasons:

- The excavation and handling of soil (i.e., urban fill) may pose a potential risk to onsite workers through direct contact with the soil, airborne particulates (dust), odors and organic vapors, and physical risks associated with the depth of excavation. However, potential short-term exposure to onsite workers will be addressed with a HASP and mitigated through use of appropriate personal protective equipment (PPE), conducting air monitoring, and implementing dust and vapor suppression activities.
- Possible environmental risks to the community during the excavation and handling of soil include the potential for odors, dust and organic vapors resulting from the disturbance of soil and the uncontrolled migration of impacted soil by onsite workers and vehicles. In

addition, other potential impacts to the community could include construction-related noise, vibrations and traffic. Community air monitoring activities will be conducted during all excavation and soil handling activities to identify the need for perimeter controls. In addition, decontamination procedures will minimize the potential for offsite migration of impacted soil beyond the Site boundary. An approved truck traffic plan will minimize disturbance to the local roads and community.

3.3.2.6 Implementability

The labor, equipment, materials and supplies for the implementation of Alternative 2 are commercially available and have been proven effective and reliable for remediation of the media of concern at the Site under similar circumstances. Alternative 2 is implementable through source removal combined with engineering and institutional controls under a restricted residential cleanup. It is not anticipated that future remedial action following the proposed remedial construction will be required.

3.3.2.7 Cost

The construction and equipment costs associated with Alternative 2 are estimated at approximately \$14,600,000. The following assumptions were made to develop this cost estimate:

- It is anticipated that long-term Operation, Maintenance and Monitoring (OM&M) will be required for groundwater monitoring since the remedy will leave residual soil contamination in excess of the unrestricted SCOs;
- Hot spot soil excavations will be dependent upon the depth and locations of previously identified soil with concentrations in excess of the protection of groundwater SCOs;
- CAMP monitoring will be necessary for six months;
- Dewatering will be necessary for six months; and
- Excavations will be smaller than required to meet the Alternative 1 unrestricted residential use criteria for all end-point samples.

3.3.2.8 Compatibility with Land Use

The current and reasonably anticipated future zoning of the Site is commercial with a portion of the site in a manufacturing zone. A New York City Board of Standards and Appeals (BSA) special permit pursuant to Zoning Resolution Section 73-19 to permit the school to operate in the

M1-5 portion of the site is currently being pursued to operate the school in the manufacturing zone.

The present and reasonably anticipated future use of the Site is a school with commercial ground level retail. Following implementation of the remedy, the Site will be restored to restricted residential use conditions, thereby exceeding the cleanup standards for future commercial land use. A groundwater use restriction will be implemented to prevent future exposure to impacted groundwater.

3.4 SELECTED SOIL REMEDIAL ALTERNATIVE

Remedial Alternative 2 was selected for implementation in on-site areas since it adequately meets each of the evaluation criteria, is more easily implemented than Alternative 1, and is the most appropriate for the future intended use. Due to numerous site-specific constrictions (contaminated soil, groundwater and soil vapor on adjacent properties), and the corresponding need for engineering and institutional controls, completion of Alternative 1 is not practical under an unrestricted use scenario.

In summary, Alternative 2:

- Is protective of public health and the environment;
- Complies with the appropriate Track 2 restricted residential criteria for soil;
- Removes groundwater source areas by complying with the protection of groundwater SCOs;
- Provides long-term effectiveness and permanence through source removal, *in situ* treatment, and engineering and institutional controls;
- Reduces the toxicity, mobility, or volume of impacted material through source removal;
- Provides short-term effectiveness, including minimal impacts to workers or the surrounding neighborhood through the implementation of engineering controls during construction;
- Is readily implemented, as opposed to Alternative 1;
- Can be implemented at a significantly lower cost than Alternative 1; and
- Is compatible with land use.

Alternative 2 is consistent with the approach for a restricted residential use scenario described in the Part 375 Regulations.

3.5 PREFERRED REMEDY LAND USE FACTOR EVALUATION

As described in Section 3.3, the preferred Remedial Alternative 2 proposes source removal for the excavation and off-site disposal of soil exceeding the restricted residential use criteria.

A land use factor evaluation of the preferred Remedial Alternative 2 is provided below based on the following criteria as required by Article 27, Title 14 of the Environmental Conservation Law 27-1415.

3.5.1 Zoning

As described in the Mid Block #57 Project BCP Application, Attachment I, “the proposed school building will be constructed partially in a C4-7 commercial zone where it is permitted as-of-right, and partially in an M1-5 manufacturing zone where it is not permitted as-of-right (see zoning map, Appendix H). The Applicants are presently seeking a New York City Board of Standards and Appeals (BSA) special permit pursuant to Zoning Resolution Section 73-19 to permit the school to operate in the M1-5 portion of the site.”

3.5.2 Applicable Comprehensive Community Master Plans or Land Use Plans

The proposed development has been discussed with the local Community Board 4 and has received a very positive and favorable response. Community Board 4 will hold a public hearing in accordance with the New York City Department of Planning’s Uniform Land Use Review Procedure.

3.5.3 Surrounding Property Uses

From Section 1.3.1, land use surrounding the Site is a combination of commercial, light industrial, and residential areas. The presence of a school in a commercially zoned parcel is consistent with the surrounding property uses.

3.5.4 Citizen Participation

Citizen participation will be pursued throughout the remedial process in accordance with the BCP guide.

3.5.5 Environmental Justice Concerns

There are no environmental justice concerns for this Site.

3.5.6 Land Use Designations

There are no federal or state land use designations pertaining to this Site.

3.5.7 Population Growth Patterns

Population growth patterns support the proposed use for the Site.

3.5.8 Accessibility to Existing Infrastructure

The Site's location in Manhattan is immediately accessible to existing infrastructure. The close proximity of the West Side Highway to the Site will be beneficial during soil removal and enable Contractor access.

3.5.9 Proximity to Cultural Resources

The Site contains cultural resources within ½ mile (see Attachment J of the BCP Application). Cultural resources will not be endangered by the Remedial Alternative.

3.5.10 Proximity to Natural Resources

The Site contains natural resources within ½ mile (see Attachment J of the BCP Application). Natural resources will not be endangered by the Remedial Alternative.

3.5.11 Off-Site Groundwater Impacts

Onsite and offsite groundwater is impacted with low levels of VOCs in excess of the AWQSGVs for Class GA Groundwater. By removing the source of contaminated on-Site soil in excess of the restricted residential and protection of groundwater criteria, *in situ* groundwater treatment, and the installation of sheeting which will retard groundwater migration, Remedial Alternative 2

will reduce the toxicity, mobility, and volume of contaminants, and thereby mitigate off-Site groundwater impacts.

3.5.12 Proximity to Floodplains

The Site is within ¼ mile of the 100 year and 500 year floodplain due to its proximity to the Hudson River (see Attachment J of the BCP Application).

3.5.13 Geography and Geology of the Site

The removal of subsurface fill material and bedrock will be required to implement the preferred Remedial Alternative 2. The proposed development's design will take into account the geography and geology of the Site.

3.5.14 Current Institutional Controls.

There are currently no institutional controls on the property.

3.6 SUMMARY OF SELECTED REMEDIAL ACTIONS

The Remedial Action will consist of the following remedial elements:

1. [Excavation of soil/fill exceeding Track 2](#) restricted residential and protection of groundwater [SCOs listed in](#) Tables 17 through 19 and shown in Plates 4, 5 and 6;
2. Groundwater remediation during construction activities consisting of excavation dewatering, treatment and disposal, and *in situ* treatment;
3. Site Monitoring of airborne VOCs and particulates in accordance with a NYSDEC approved Community Air Monitoring Plan (CAMP) for all intrusive and soil handling activities;
4. Implementation of proper dust and odor suppression techniques for all intrusive and soil handling activities;
5. [Import of materials to be used for backfill and cover in compliance with : \(1\) the Subpart 375-6 unrestricted SCOs, \(2\) all Federal, State and local rules and regulations for handling and transport of material;](#)
6. Implementation of a Soil Erosion and Sediment Control Plan;
7. [Screening for indications of contamination \(by visual means, odor, and monitoring with PID\) of all excavated soil during any intrusive Site work;](#)

8. Collection and analysis of end-point soil samples to evaluate the performance of the remedy with respect to attainment of Track 2 restricted residential and protection of groundwater SCOs;
9. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
10. Installation of a vapor barrier below the proposed building bottom slab and outside foundation walls to prevent potential vapor migration, if any, from the underlying and adjacent soils not removed as part of this remedy.
11. Installation, operation and maintenance of an active ventilation system in the building basement designed to meet NYCDOB requirements and provide further protection from potential accumulation of VOCs in the basement in the unlikely breach of the sub-slab vapor barrier;
12. Construction and maintenance of a engineered cover consisting of asphalt covered roads, concrete covered sidewalks, and concrete building slabs to prevent human exposure to residual contaminated soil/fill remaining under the Site;
13. Publication of a Site Management Plan for long term management of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting;
14. Recording of an Environmental Easement, including Institutional Controls, to prevent future exposure to any residual contamination remaining at the Site (the Environmental Easement is discussed in Section 9.1);
15. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. All deviations from the RAWP will be promptly reported to NYSDEC for approval and fully explained in the FER.

4.0 REMEDIAL ACTION PROGRAM

The following sections provide a summary of the remedial action, including governing documents, general remedial construction information, Site preparation, and reporting requirements.

4.1 GOVERNING DOCUMENTS

Governing documents for this RAWP are introduced herein and are discussed generally. Some governing documents noted below will be developed with the aid of the Project's Construction Manager and foundation/earthwork subcontractors, whom are to be decided based upon future bidding and therefore, not included herein. This Plan review and approval process from the project subcontractors is essential to ensure that the key elements of the plans are properly implemented and receive total buy in. Key highlights of all plans are included here. Copies of all available plans are included in full within the Appendix.

The following project plans are discussed in the sections below:

- Site Specific Health and Safety Plan
- Quality Assurance Project Plan
- Construction Quality Assurance Plan
- Soil/Materials Management Plan
- Stormwater Pollution Prevention Plan
- Community Air Monitoring Plan
- Contractors Site Operations Plan
- Community Participation Plan

4.1.1 Site Specific Health and Safety Plan (HASP)

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal Occupational Safety and Health Administration (OSHA). As defined in the health and safety plan (HASP), all Site workers conducting intrusive activities in the exclusion zone will be required to have 40-hour Hazardous Waste Operation Worker (HAZWOPER) training in accordance with the referenced regulations

The Applicants are preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an appropriate Health and Safety Plan and for the appropriate performance of work according to that plan and applicable laws. The Site-Specific HASP, provided in Appendix G, will be used to protect all personnel working on the Site, as well as any Site visitors. The HASP shall be readily available at all times. The Excavation/Remedial Contractor performing the work will also be

responsible for preparing their own Site-specific HASP or adopting the HASP provided in Appendix G as their own. During all phases of work, the Excavation/Remedial Contractor shall monitor health and safety conditions and fully enforce all provisions of the Site-specific HASP. The Excavation/Remedial Contractor shall also be responsible for monitoring general Site conditions and for safety hazards. Specifically, monitoring will be performed to verify that all requirements of 29 CFR 1910 and 1926 are adhered to.

The Health and Safety Plan (HASP) and requirements defined in this Remedial Action Work Plan pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

As provided in the HASP, Site controls will be established to limit potential exposure to impacted materials. A support zone (SZ), contamination reduction zone (CRZ), and an exclusion zone (EZ) will be established to define specific areas of personal protective equipment (PPE) requirements. Site worker decontamination procedures will be adhered to when leaving the EZ. Personnel decontamination procedures will be conducted within the CRZ. Control zones and PPE requirements are defined in the HASP (Appendix A).

Health and safety monitoring, including both worker and community monitoring, will be performed during all work activities. All monitoring activities will be performed in accordance with the NYSDEC TAGM 4031-Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (NYSDEC, 1989), the New York State Department of Health (NYSDOH) protocol for Community Air Monitoring (NYSDEC, 2002), and HASP for the Site.

The Site Safety Coordinator will be identified upon selection of an Excavation/Remedial Contractor. A resume will be provided to NYSDEC prior to the start of remedial construction.

Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses.

4.1.2 Quality Assurance Project Plan (QAPP)

A Quality Assurance Project Plan (QAPP) provides a detailed description of site specific sampling and analytical methods and sample handling procedures for end-point soil sampling. The elements are provided in Section 5.2.

4.1.3 Construction Quality Assurance Plan (CQAP)

The Construction Quality Assurance Plan (CQAP) for all construction activities provides a detailed description of the observation and testing activities that will be used to monitor construction quality and confirm that remedy construction is in conformance with the remediation objectives and specifications. The CQAP will be prepared by the selected Excavation/Remedial Contractor and will include the following.

- Responsibilities and authorities of the organizations and key personnel involved in the design and construction of the remedy.
- Qualifications of the quality assurance personnel that demonstrate that they possess the proper training and experience necessary to fulfill project-specific responsibilities.
- The observations and tests that will be used to monitor construction and the frequency of performance of such activities.
- The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for implementing corrective measures as addressed in the plans and specifications.
- Requirements for project coordination meetings between Applicants and their representatives, the Construction Manager, Excavation/Remedial Contractor, foundation subcontractors, and other involved parties.
- Description of the reporting requirements for quality assurance activities including such items as daily summary reports, schedule of data submissions, inspection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation.
- Description of the final documentation retention provisions.

4.1.4 Soil/Materials Management Plan (SoMP)

The Soil/Materials Management Plan (SoMP) includes detailed plans for managing all soils/materials that are disturbed at the Site, including excavation, handling, storage, transport, and disposal. The SoMP also includes all of the controls that will be applied to these efforts to assure effective, nuisance-free performance in compliance with all applicable Federal, State and local laws and regulations. The SoMP is provided in Section 5.4.

4.1.5 Stormwater Pollution and Prevention Plan (SWPPP)

The erosion and sediment controls will be in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control.

Hay bales and/or silt fence will be placed by the remedial contractor at locations upgradient of excavation areas, within the perimeter plywood fencing, to control storm water runoff and surface water from entering or exiting the excavation. These control measures will be installed prior to initiating the soil excavation. Stormwater and collected surface water will be managed as discussed in Sections 5.4.7 and 5.4.10.

4.1.6 Community Air Monitoring Plan (CAMP)

All soil handling components of the remedial action will require air monitoring. The air monitoring program will be implemented during all intrusive remedial actions to measure the concentration of particulates in ambient air in the work zone.

The Community Air Monitoring Program (CAMP) will be developed in accordance with the NYSDOH Generic Community Air Monitoring Plan contained in Appendix 1A of the draft DER-10 (NYSDEC, 2002). The CAMP includes real-time continuous air monitoring at the Site's downwind perimeter for VOCs and particulates. Implementation and management procedures are specified within the CAMP. During all phases of work, the Excavation/Remedial Contractor will be responsible for mitigating any vapor and particulate issues, via suppression techniques defined in the CAMP.

4.1.7 Contractors Site Operations Plan (SOP);

A Contractors Site Operations Plan (SOP) will be developed with the selected Excavation/Remedial Contractor. The SOP will compile all of the aforementioned project plans into one document and will include a Contingency Plan as described in Section 4.2.7.

The Remediation Engineer shall review all plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and shall confirm that they are in compliance with this RAWP. The Remediation Engineer is responsible to ensure that all later document submittals for this remedial project, including contractor and

sub-contractor document submittals, are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.8 Community Participation Plan (CPP)

A Community Participation Plan (CPP) was filed with NYSDEC concurrent to submission of the BCP Application.

A certification of mailing will be sent by the Applicants to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

The approved Community Participation Plan for this project is attached in Appendix I.

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

The New York Public Library
Columbus Branch Library
742 10th Avenue
New York, New York 10019
(212) 586-5098

Mon: 12-8; Tue: 10-6; Wed: 12-8; Thu: 10-6; Fri: 10-6; Sat: 10-5; Sun: closed

4.2 GENERAL REMEDIAL CONSTRUCTION INFORMATION

The following sections discuss general remedial construction information related to the Mid Block #57 Project including project organization, remedial engineer responsibilities, work schedule, and worker requirements and responsibilities.

4.2.1 Project Organization

The Excavation/Remediation contractor has not been selected to date. Once established, a listing of key personnel involved in the Remedial Action will be provided to the NYSDEC.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be Charles McGuckin, P.E. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Mid Block #57 Project Site (NYSDEC BCA Index No.. A2-0611-1008 Site No. C231062). The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of back fill material, and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The Remedial Engineer will review all pre-remedial plans submitted by contractors for compliance with this Remedial Action Work Plan and will certify compliance in the Final Remediation Report.

The Remedial Engineer will provide the certifications listed in Section 9.1 in the Final Engineering Report.

4.2.3 Remedial Action Construction Schedule

A preliminary project schedule developed by the Hunter Roberts Construction Group (project construction manager) is provided in Appendix J. A revised schedule will be prepared and submitted following development and finalization of work sequencing with the Excavation/Remedial Contractor.

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency. DEC will be notified by the Applicants of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

Security for the work, equipment, materials, supplies, facilities, personnel, and incidentals will be provided throughout the performance of the work at the Site. The Site will be surrounded by perimeter fencing in accordance with the New York City construction and building code requirements. The fences and gates will be closed and locked when there is no activity on the Site and any breaks or gaps will be repaired immediately. Any equipment that will operate after normal working hours will include the appropriate automatic shutoffs and/or alarms to prevent unsafe operation. Temporary fencing will supplement the perimeter fencing to delineate and secure the area of ongoing remediation activities within the Site such as soil stockpiles, and health and safety exclusion zones.

All personnel and visitors will be required to sign-in upon entering the Site and sign-out upon leaving. A sign-in/sign-out sheet will be maintained at the Site. To restrict access during remediation activities, warning signs and barrier tape will be installed at certain locations, such as open excavations.

The Site security, control, and access measures will be described in more detail in the SOP.

4.2.6 Traffic Control

The truck route for ingress and egress will be determined by the Applicants, Excavation/Remedial Contractor, and Project Manager in accordance with the NYSDEC approved Contractors SOP. The route will be selected based on the existing access roads and an effort to limit transportation of work vehicles through neighboring residential and commercial areas.

4.2.7 Contingency Plan

A contingency plan describes procedures to be conducted in the event of an emergency, or the remedial work fails to meet any of its objectives or otherwise fails to protect human health or the environment. This plan shall address the recommended procedures after encountering an unknown UST. The Excavation/Remedial Contractor will prepare and submit a Contingency Plan prior to commencement of the remedial action.

4.2.8 Worker Training and Monitoring

As discussed in Section 4.1.1, all Site workers conducting intrusive activities in the exclusion zone will be required to have 40-hour HAZWOPER training in accordance with the referenced regulations.

4.2.9 Agency Approvals

The Applicants have addressed all SEQRA requirements for this Site. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The planned end use for the Site shall be in conformance with the proposed zoning for the property as determined by New York City Department of Planning. [or: Evidence to show that the planned use conforms to zoning designations will be provided to the NYSDEC prior to issuance of a COC.] A Certificate of Completion will not be issued for the project unless conformance with zoning designation is demonstrated.

A complete list of all local, regional, and national governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work will be provided to NYSDEC. This list includes a citation of the law, statute, or code to be complied with, the originating agency, and a contact name and phone number in that agency. This list will be updated in the Final Engineering Report.

4.2.10 NYSDEC BCP Signage

A project sign will be erected at the main entrance to the Site prior to the start of any remedial activities. The sign will indicate that the project is being performed under the New York State

Brownfield Cleanup Program. The sign will meet the detailed specifications provided by the NYSDEC Project Manager.

4.2.11 Pre-Construction Meeting with NYSDEC

A pre-construction meeting will be conducted prior to the start of the remediation activities. This meeting will be attended by Applicants' representatives, the Contractor, the Remedial Engineer, and the NYSDEC. The meeting agenda will include: personnel roles, work hours, schedule, communications, training requirements, site preparation work status, and a discussion of upcoming activities with a focus on related environmental concerns of the NYSDEC.

4.2.12 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the HASP. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.13 Remedial Action Costs

The total estimated cost of the Remedial Action components of the Mid Block #57 Project is \$14,600,000. An itemized and detailed summary of estimated costs for all remedial activity is attached as Appendix K. This will be revised based on actual costs and submitted as an Appendix to the Final Engineering Report.

4.3 SITE PREPARATION

Site preparation activities will include: identification of unmapped utilities, utility relocation (if required); Site survey for pre-existing conditions, establishment of temporary construction facilities, security and perimeter fencing inspection and installation (as necessary). The preparatory tasks are described in more detail below.

4.3.1 Mobilization

As described in Section 3.2.1.1, prior to commencing the remediation construction activities, the Remediation and General Contractor will perform the following mobilization and Site preparation activities:

- Identification and markout of all aboveground and underground utilities;

- De-energizing, turning off and disconnecting existing subsurface utility services known to be present in the work area (e.g., water, gas, electric and sewer);
- Mobilization of remediation equipment and materials;
- Traffic control measures;
- Work zone demarcation;
- Installation of erosion control devices in accordance with the Soil Erosion and Sediment Control Plan;
- Conduct pre-construction survey prepared by a land surveyor licensed by the State of New York
- Asphalt pavement removal;
- Installation of perimeter air monitoring system;
- Installation of temporary facilities;
- Installation of dewatering and water treatment system; and
- Installation of the decontamination facilities.

The detailed description of the mobilization and site preparation activities and responsibilities will be presented in the Contractors' Site Operations Plan.

4.3.2 Erosion and Sedimentation Controls

Soil erosion and sediment control measures for management of storm water will be installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control consistent with the SWPPP discussed in Section 4.1.5 and stormwater and collected surface water discussed in Sections 5.4.7 and 5.4.10. Hay bales and/or silt fence will be placed by the remedial contractor at locations upgradient of excavation areas, within the perimeter fencing, to control storm water runoff and surface water from entering or exiting the excavation. These control measures will be installed prior to initiating the soil excavation.

4.3.3 Stabilized Construction Entrance(s)

Stabilized construction entrances will be installed at all points of vehicle ingress and egress to the Site. The truck wash and the stone-based egress path will be continuous so that trucks do not get recontaminated prior to departure from the Site.

4.3.4 Utility Marker and Easements Layout

The Applicants and their contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The Applicants and their contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Applicants and their contractors must obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site will be investigated by the Applicants and their contractors. The utility survey shall assess and determine if any risks or impediments to the planned work under this Remedial Action Work Plan are posed by utilities or easements on the Site.

4.3.5 Sheet piling and Shoring

Appropriate management of structural stability of on-Site or off-Site structures during on-Site activities include excavation is the sole responsibility of the Applicants and their contractors. The Applicants and their contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The Applicants and their contractors must obtain any local, State or Federal permits or approvals that may be required to perform work under this Plan. Further, the Applicants and their contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved Plan.

4.3.6 Equipment and Material Staging

All equipment and work materials will be staged in a location noted in the Contractors SOP.

4.3.7 Decontamination Area

A temporary decontamination pad will be constructed to decontaminate trucks and other vehicles/equipment leaving the Site. The decontamination pad will be constructed using 60-mil high density polyethylene (HDPE) liner with perimeter berms, sloped to a low-lying sump to contain any liquids. The decontamination pad will be sized to accommodate the largest construction vehicle used and located prior to the stabilized construction egress.

4.3.8 Site Fencing

A temporary chain-link fencing will be installed around the perimeter of the Site. The perimeter fencing will be eight feet in height, with two double access gates to allow ingress and egress of construction vehicles.

4.3.9 Demobilization

Following the completion of all remedial activities, the Site will be prepared for the subsequent construction activities required for the development project. All temporary structures not required for the subsequent construction work will be removed. Materials used in constructing the waste staging area (e.g., plastic sheeting, haybales) will be removed and disposed properly. Soil underlying the plastic sheeting in the waste staging area will be inspected for any visual staining or evidence of waste materials. Any impacts to the soil in this area will be removed and disposed as well. All equipment will be decontaminated prior to leaving the Site.

4.4 REPORTING

[All daily and monthly Reports will be included in the Final Engineering Report.](#) The following sections provide a summary of reports that will be prepared and maintained throughout the remedial action.

4.4.1 Daily Reports

Daily activity reports will be prepared and maintained on site for compilation and record management.

[Daily reports will be submitted](#) electronically to [NYSDEC and NYSDOH Project Managers](#) on a weekly basis as required by the agencies [and will include:](#)

- Date and weather;
- A summary of work activities performed;
- A summary of samples collected;
- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- An explanation of notable Site conditions.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions **shall** be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

Daily Reports will include a description of daily activities keyed to an alpha-numeric map for the Site that identifies work areas. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

A Site map that shows a predefined alpha-numeric grid for use in identifying locations described in reports submitted to NYSDEC is attached in Figure 18.

The NYSDEC assigned project number will appear on all reports.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within one week following the end of the month of the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e., tons of material exported and imported, etc.);

- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area, and Site structures before, during, and after remediation. Photos will be submitted to NYSDEC on CD or other acceptable electronic media and will be sent to NYSDEC's Project Manager (2 copies) and to NYSDOH's Project Manager (1 copy). CD's will have a label and a general file inventory structure that separates photos into directories and sub-directories according to logical Remedial Action components. A photo log keyed to photo file ID numbers will be prepared to provide explanation for all representative photos. Photos will be submitted as an Appendix to the Final Engineering Report.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained by the Remedial Engineer at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

Any complaints received from the public regarding nuisances or other site conditions will be communicated within 24-hours to NYSDEC and NYSDOH, investigated and remedied, if required.

4.4.5 Deviations from the Remedial Action Work Plan

Any required deviations from this RAWP will be discussed by Applicants' representatives with the NYSDEC. At that time, the reasons for necessary deviations from the approved RAWP will

be explained and the effect of the required deviations on the overall remedy will be evaluated. If the deviation is deemed to be a significant change to the RAWP by the NYSDEC, a description and reasons for the proposed change will be emailed to the NYSDEC Project Manager for review and written approval.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

Soil Excavation

The Site will be excavated to remove all soil with concentrations in excess of the restricted residential and protection of groundwater SCO's noted in Section 5.1 and accommodate the proposed building foundation. This work will be conducted after the New York City Department of Buildings has issued a building permit and foundation permit for the Site.

Foundation piles will be installed by the Foundation Contractor retained for the building construction. Following the pile installation, the Remediation Contractor will perform the excavation activities. Note that limited shallow soil excavation (above the groundwater table) may be performed prior to pile installation. The actual sequencing of the foundation pile installation and excavation activities will be based on the final residential building design documents and/or the SOP. The excavation and pile installation will be conducted in a manner that protects the integrity of the adjacent structures. Soil excavation will generally be conducted using traditional excavation equipment. If any underground utilities or other subsurface piping are encountered, the excavation will be performed by hand.

All excavation work will be performed in accordance with the Contractor's SOP (including the Site-specific HASP, CAMP, and CQAP). The depth of soil to be excavated and disposed off-site to meet the restricted residential SCO's varies from ground surface to 15 feet bls. In addition, hot spots soil excavation will be conducted deeper than 15 feet bls to remove potential sources to groundwater. The excavation required for construction of the proposed development will be dependent upon the foundation and sheeting and shoring design, which is yet to be completed.

Soil excavation activities will also be performed for the installation of pile caps, elevator pits, and any other subsurface structures and utilities. Because the excavation of the soil will involve removing soil from below the groundwater table, hydraulic control measures (i.e., excavation

dewatering system) will be required to manage groundwater. Wastewater resulting from site dewatering will be disposed in the public sewers in accordance with NYCDEP permitting procedures, which may require pretreatment, or will be disposed of off-Site at an approved disposal facility, pending quantity of wastewater generated.

All trucks removing material from the Site will be loaded on-Site and properly decontaminated before leaving the Site.

During the excavation activities, any existing subsurface structures will be demolished and removed when encountered to the extent required to construct the building foundation. The debris will be managed as discussed in the Section 5.4.5. Subsurface obstructions/conditions that may be encountered include former piles, and large pieces of demolition debris. This material, if encountered, will be managed as described below and disposed of in accordance with all federal, state, and local regulations. If encountered within the excavation area, these materials will be cut or broken into lengths or pieces suitable for offsite disposal in accordance with approved disposal facility requirements. If this type of debris is not visually impacted, it will be disposed of as construction and demolition debris (C&D) at an approved licensed C&D disposal facility. If the debris is visually impacted, it will be either decontaminated (if possible) and managed as non-impacted C&D, or sampled for waste characterization purposes and disposed of at an appropriate approved facility. Any portion of former piles or structures that extend below the depth of the proposed excavation will be cut off and capped with concrete or clean backfill material prior to the installation of the vapor barrier.

Excavated material slated for off-site disposal will be temporarily staged on site and disposed in accordance with the Soil and Materials Management Plan discussed in Section 5.4. It is estimated that approximately 46,000 cubic yards of excavated material will require off-site disposal.

Following excavation, end-point soil samples will be collected in accordance with the remedial performance evaluation described in Section 5.2.

Groundwater

Dewatering will be required during excavation and foundation construction activities to facilitate work below the groundwater table. Extracted groundwater will either be containerized for offsite disposal or be treated as necessary to meet NYCDEP requirements, and discharged to the NYCDEP sewer system. The groundwater will be extracted through the use of drainage sumps and/or perimeter well points to maintain dry conditions within the excavation. Drainage sumps will be installed within the excavation, as necessary, to dewater the excavation area. The water from the drainage sumps will be pumped to either an onsite wastewater storage tank or an onsite treatment system. The Remediation Contractor will identify, in the Contractor's SOP, the means and methods for dewatering and treatment.

If required, the treatment system may entail a settling tank, oil/water separator, bag filters, and carbon filter vessels, respectively. The effluent from the treatment system will be discharged to the NYCDEP sewer system under a sewer discharge permit that will be obtained from the NYCDEP following the submission of information regarding the proposed treatment system. The effluent from the treatment system will be sampled as required by NYCDEP. If wastewater is to be disposed of offsite, it will be stored onsite in an approved water storage tank pending characterization and transport for proper offsite disposal.

The quantity of groundwater to be extracted and treated will be determined based upon the following factors:

- Duration of excavation/foundation work below the water table;
- Depth of excavation beneath the water table; and
- Hydrogeologic factors including hydraulic permeability, hydraulic gradient, and rate of recharge into the excavation.

The extracted and treated groundwater will serve a beneficial role in reducing the toxicity, mobility, and volume of contaminated groundwater beneath the Site.

In addition to the extraction and treatment through dewatering, *in situ* groundwater treatment may be conducted in the open excavation following source removal. The means and methods for *in situ* groundwater treatment will be submitted to NYSDEC for review prior to implementation.

Provided below is a more detailed description of the remedial action, including the soil cleanup objectives, remedial performance evaluation, estimated material removal quantities, and Soil and Materials Management Plan.

5.1 SOIL CLEANUP OBJECTIVES

The Track 2 restricted residential Soil Cleanup Objectives for this Site are listed in Tables 17 through 19 for VOCs, SVOCs, and Metals, respectively.

Soil and materials management on-Site and off-Site will be conducted in accordance with the Soil Management Plan as described below.

Tables 17 through 19 also summarize all soil samples that exceed the SCOs proposed for this Remedial Action. Spider maps that show all soil samples that exceed the SCOs proposed for this Remedial Action are shown in Plates 4 through 6.

If encountered during excavation, UST closures will, at a minimum, conform to criteria defined in DER-10. Additional, USTs are not expected to be encountered due to the prior UST removal efforts documented in Section 2.3.6.5.

5.2 REMEDIAL PERFORMANCE EVALUATION (END-POINT SAMPLING)

End-point sampling and reporting will be conducted in accordance with the DER-10 and Section 3.3.1.11 and is discussed in the sections below.

5.2.1 End-Point Sampling Frequency

End-point bottom sampling (at a frequency of one sample per 2,500 square feet of excavation bottom area shown in Figure 13 in accordance with the guidance provided in NYSDEC DER-10 Section 5.4 for excavations 20 to 300 feet in perimeter) would be conducted for constituents that exceeded the protection of groundwater criteria for excavations extending deeper than 15 ft bls. Areas that appear more heavily impacted, if any, will be given sampling preference. End-point

soil samples will not be collected from areas where the excavation extends down to a bedrock bottom.

End-point sidewall samples (at a frequency of one sample per 50 linear feet or at least one sample per sidewall) would be conducted for the protection of groundwater criteria. Areas that appear more heavily impacted, if any, will be given sampling preference. If the end-point sidewall soil sample results indicate that concentrations of target constituents are detected below the protection of groundwater criteria, the excavation activities will be considered complete. However, if concentrations of target constituents are detected at a level above the protection of groundwater criteria, the excavation activities, including additional end-point sidewall soil sampling, will continue until these conditions are met or to the extent feasible due to excavation limitations associated with underground utilities, building foundations and sidewalk or property boundaries.

Once clean end points are obtained, excavation will continue, where warranted, to the excavation depths consistent with the requirements of the foundation design.

5.2.2 Methodology

Each sample will be inspected for visual evidence of contamination (i.e., staining, presence of petroleum or odors) and field screened for VOCs using a portable photoionization detector (PID). Soil samples to be submitted for analysis will be homogenized, placed in a laboratory sample jar, and transported to the laboratory in an iced container. Samples will be submitted for analysis for VOCs, SVOCs, and Metals. Laboratory analysis will be performed by a NYSDEC-approved laboratory using USEPA SW846 Method 8260 for TCL VOCs, USEPA SW846 Method 8270 for TCL SVOCs, and USEPA SW846 Method 6010 for TAL Metals.

5.2.3 Reporting of Results

The laboratory will report analytical results in Analytical Services Protocol (ASP) Category B deliverable packages. An electronic data deliverable (EDD) will also be provided by the laboratory.

All end-point sample data generated for the Remedial Action will be logged in a database and organized to facilitate data review and evaluation. The electronic dataset will include the data flags provided in accordance with USEPA Laboratory Data Validation Functional Guidelines for Evaluating Organic Analysis and Inorganic Analyses, as well as additional comments of the data review for ASP/CLP analyses. The data flags include such items as: 1) concentration below required detection limit, 2) estimated concentration due to poor recovery below required detection limit, 3) estimated concentration due to poor spike recovery, and 4) concentration of chemical also found in laboratory blank.

5.2.4 QA/QC

Quality control (QC) samples serve as checks on both the sampling and measurements systems and assist in determining the overall data quality with regard to representation, accuracy, and precision. Field duplicates and matrix spike samples are analyzed to assess the quality of the data resulting from the field sampling. Field duplicate samples are individual portions of the same field sample. These samples can be used to estimate the overall precision of the data collection activity. Sampling error can be estimated by the comparison of field sample result and duplicated sample result. During end-point sampling, one field duplicate sample will be collected for each 20 grab samples collected. Matrix spike and matrix spike duplicates are used to evaluate analytical accuracy and precision, respectively. MS/MSDs will be analyzed by the laboratory at a frequency of one per preparation batch.

5.2.5 DUSR

A Data Usability Summary Report (DUSR) will be prepared to evaluate the end-point samples by a party independent from the laboratory performing the analysis in accordance with Appendix 2B of DER-10.

5.2.6 Reporting of End-Point Data in FER

Chemical labs used for all end-point sample results and contingency sampling will be NYSDOH ELAP certified.

End point sampling, including bottom and side-wall sampling, will be performed in accordance with DER-10 sample frequency requirements. Side-wall samples will be collected a minimum of

every 50 linear feet. Bottom samples will be collected at a rate of one for every 2,500 square feet. The FER will provide a tabular and map summary of all end-point sample results and exceedances of SCOs.

5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES

The estimated quantity of material removed from the Site will be governed by the minimum quantity of soil to:

1. Remove all on-Site soil with VOC, SVOC, and Metals concentrations in excess of the Subpart 375-6 restricted residential (shallower than 15 ft bls) and protection of groundwater SCOs (deeper than 15 ft bls); and
2. Prepare the Site foundation for construction of the proposed redevelopment project.

The depth of soil to be excavated and disposed off-site to meet the restricted residential SCOs is 15 feet bls. The depth of soil to be excavated and disposed off-site to meet the protection of groundwater SCOs for hot spot excavations is approximately 20 feet bls. The excavation required for construction of the proposed development will be dependent upon the foundation and sheeting and shoring design, which is yet to be completed. Maps showing the extent of materials to be removed, imported, or re-used on Site for construction of the proposed development will be provided to NYSDEC in the Contractor's SOP and/or SoMP.

The estimated quantity of soil/fill to be removed from the Site to meet the restricted residential and protection of groundwater SCOs is approximately 46,000 cubic yards. The estimated quantity of soil to be imported into the Site for backfill and cover soil is 100 cubic yards. The estimated quantity of soil/fill expected to be re-used/relocated on Site is 100 cubic yards.

The estimated quantity of construction wastewater (e.g., extracted and treated groundwater, decontamination water, runoff etc.) to be removed from the Site is 200,000 gallons. This volume will be highly dependent upon the construction duration, excavation depth, and weather during the construction period.

5.4 SOIL/MATERIALS MANAGEMENT PLAN

The following sections provide the Soil Management Plan to be implemented during the Remedial Action.

5.4.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (Residual Contamination Zone). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the COC.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the Final Engineering Report.

Screening will be performed by qualified environmental professionals. Resumes will be provided for all personnel responsible for field screening (i.e., those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

5.4.2 Stockpile Methods

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 NYSDEC.

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.

At grade, soil stockpiles will be encircled with silt fences to prevent off-site runoff. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

A dedicated water truck equipped with a water cannon will be available on-Site for dust control.

5.4.3 Materials Excavation and Load Out

The Remediation Engineer or a qualified environmental professional under his supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The Applicants and their contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the Site will be investigated by the Applicants and their Contractors. The utility survey shall assess and determine if any risks or impediments to the planned work under this Remedial Action Work Plan are posed by utilities or easements on the Site.

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

A truck wash will be operated on-Site. The Remediation Engineer will be responsible for ensuring that all outbound trucks are inspected and will be washed at the truck wash, as required to remove loose soils before leaving the Site until the remedial construction is complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking.

The Remediation Engineer will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site -derived materials.

The Applicants and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The Remedial Engineer will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this Remedial Action Work Plan.

Each hotspot and structure to be remediated (USTs, vaults and associated piping, transformers, etc.) will be removed and end-point remedial performance sampling completed before excavations related to Site development commence proximal to the hotspot or structure.

Development-related grading cuts and fills will not be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

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

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. The survey information will be shown on maps to be reported in the Final Engineering Report.

5.4.4 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Truck transport routes will be determined with the Construction Manager and Remediation Contractor and provided to NYSDEC prior to construction. All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes.

Proposed in-bound and out-bound truck routes to the Site will be provided to NYSDEC for review prior to construction. The most appropriate route shall 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; (g) community input [where necessary]

Trucks will be prohibited 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 in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

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

All trucks will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

5.4.5 Materials Disposal Off-Site

The disposal locations will be established at a later date and will be reported to the NYSDEC Project Manager.

The total quantity of material expected to be disposed off-Site was discussed in Section 5.3.

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to NYSDEC's Project Manager. Unregulated off-Site management of materials from this Site is prohibited without formal NYSDEC approval.

Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer or the Applicants to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and (2) a letter from all

receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Non-hazardous historic fill and contaminated soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2

Historical fill and contaminated soils from the Site are prohibited from being disposed at Part 360-16 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the Division of Solid & Hazardous Materials (DSHM) in NYSDEC to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DSHM. This material is prohibited from being sent or redirected to a Part 360-16 Registration Facility. In this case, as dictated by DSHM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-Site or off-Site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported.

The Final Engineering Report will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

Bill of Lading system or equivalent will be used for off-Site movement of non-hazardous wastes and contaminated soils. This information will be reported in the Final Engineering Report.

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

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

Waste characterization will be performed for off-Site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt.

5.4.6 Materials Re-use On-Site

Chemical criteria for on-Site re-use of material have been approved by NYSDEC. This criteria is the Subpart 375-6 unrestricted use SCOs. The Remedial Engineer will ensure that procedures defined for materials re-use in this RAWP are followed and that unacceptable material will not remain on-Site.

Acceptable demolition material proposed for re-use on-Site, if any, will be sampled for asbestos.

Concrete crushing or processing on-Site is prohibited.

NYSDEC review and approval of specially designed self-contained misting devices for dust control may be requested by the Remedial Engineer. If dust-free operations are not achieved with such devices, this approval will be revoked by NYSDEC.

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

Contaminated on-Site material, including historic fill and contaminated soil, removed for grading or other purposes will not be re-used within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. This will be expressed in the final Site Management Plan.

5.4.7 Fluids Management

Construction wastewater will be generated from personnel/equipment decontamination and run-off/run-on in bermed soil stockpile and excavation areas. Construction wastewater will be collected and stored on-site in leak-tight drums, vacuum trucks or temporary storage tanks. The wastewater will be sampled and submitted for analysis for disposal/discharge characterization.

Based on the laboratory analytical results, the construction wastewater will be disposed off-site at a permitted disposal/recycling facility or discharged to the public sewer system, if approved in writing by the New York City Department of Environmental Protection (NYCDEP). The remedial contractor will acquire any required permits.

All liquids that are not directly containerized and disposed offsite in vacuum trucks will be stored in temporary on-site tanks to await disposal. Containers used for storing construction wastewater will conform to both federal and state requirements. All storage tanks or containers will be decontaminated following disposal/discharge of wastewater.

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by NYCDEP.

Dewatered fluids will not be recharged back to the land surface or subsurface of the Site. Dewatering fluids will be managed off-Site.

Discharge of water generated during remedial construction to surface waters (i.e., a local pond, stream, or river) is prohibited without a SPDES permit.

5.4.8 Demarcation of Residuals Management Zone

After the completion of soil removal and any other invasive remedial activities and prior to backfilling, a land survey will be performed by a New York State licensed surveyor. The survey will define the top elevation of residual contaminated soils. The proposed development's concrete structural floor slab subbase will serve as the top of the 'Residuals Management Zone', the zone that requires adherence to special conditions for disturbance of contaminated residual soils defined in the Site Management Plan. The survey will measure the grade of residual contaminated soils before the placement of cover soils, pavement and sub-soils, structures, or other materials. This survey will constitute the physical and written record of the upper surface of the 'Residuals Management Zone' in the Site Management Plan. A map showing the survey results will be included in the Final Engineering Report and the Site Management Plan.

5.4.9 Backfill from Off-Site Sources

Clean fill will be imported onto the Site as necessary for utility bedding material and foundation sub-base. This material will meet the specifications of the geotechnical engineer, Remedial Engineer, and Redevelopment Construction Documents. The source approval process will require a review of the following information:

1. Sources of backfill material
 - Past usage of backfill material source site origin
 - Source area background check
2. Chemical sampling data
 - Source analytical data to confirm that material meets the unrestricted SCOs
 - Frequency to be determined by Remedial Engineer

re-useAll materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site.

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

The Final Engineering Report will include the following certification by the Remedial Engineer: “I certify that all import of soils from off-Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.”

All imported soils will meet NYSDEC approved backfill or cover soil quality objectives for this Site. Non-compliant soils will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved Remedial Action Work Plan or its approval by NYSDEC should be construed as an approval for this purpose.

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

Solid waste will not be imported onto the Site.

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

5.4.10 Stormwater Pollution Prevention

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

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

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

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

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

Silt fencing or hay bales will be installed around stockpile areas, around sewer inlets, where applicable, and the downgradient perimeter of construction area.

5.4.11 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. as described in Section 5.5 of DER-10. Chemical analytical work will be for full scan parameters (TAL metals; TCL VOCs and SVOCs, TCL pesticides and PCBs). These analyses will not be limited to Spill Technology and Remediation Series (STARS) parameters where tanks are identified without prior approval by NYSDEC. Analyses will not be otherwise limited without NYSDEC approval.

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

5.4.12 Community Air Monitoring Plan

Each of the components of the Remedial Action will require air monitoring. These activities include excavation and handling of petroleum-impacted material and historic urban fill impacted with metals (i.e., arsenic, copper, lead mercury, and zinc). The air monitoring program will be implemented during all intrusive remedial actions to provide a measure of protection for the downwind community from potential airborne contaminant releases as a direct result of investigative or remedial work activities.

A CAMP will be developed in accordance with the NYSDOH Generic Community Air Monitoring Plan contained in Appendix 1A of the DER-10. The CAMP will include real-time continuous air monitoring at the Site's downwind perimeter for VOCs and particulates. Implementation and management procedures will be specified within the CAMP. During all phases of work, the remedial contractor will be responsible for mitigating any vapor and particulate issues, via suppression techniques defined in the CAMP.

A map showing the location of fixed and mobile sampling stations will be provided in the CAMP.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report.

5.4.13 Odor, Dust and Nuisance Control Plan

Dust will be controlled by spraying a water mist over the work area if perimeter action levels established in the CAMP are exceeded. The water mist will be generated by connecting a misting device to a hose, which will be connected to any potable water source. The degree to which these measures will be used will depend on particulate levels in ambient air at the Site perimeter as determined through implementation of the CAMP.

As necessary, a foam unit to suppress vapors and odors that are generated during the soil excavations will be employed. The foam unit, such as a Rusmar PFU-400, includes a self-contained 400-gallon tank for mixing foam concentrate. Foam will be applied, if warranted, to stockpiled soil and excavation sidewalls in an effort to maintain work zone and perimeter air monitoring criteria established in the HASP and CAMP. Tarps will also be employed to suppress vapor and odors from stockpiled soil in the staging area.

The Final Engineering Report will include the following certification by the Remedial Engineer: “I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan.”

5.4.13.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-Site. Specific odor control methods to be used on a routine basis will include assigning a dedicated air monitoring technician to monitor odors, active removal of separate phase hydrocarbons (SPH) within excavations if encountered, backfilling excavations in a timely manner, and maintaining covers over stockpiled impacted soils. If nuisance odors are identified, work in that particular work area will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Applicants’ Remedial Engineer, who is responsible for certifying the Final Engineering Report.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils 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.

5.4.13.2 Dust Control Plan

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

- Dust suppression will be achieved through the use of a dedicated on-Site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling.

5.4.13.3 Other Nuisances

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

A plan will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to NYCDEP noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

Since residual contaminated soil and groundwater, and potentially contaminated soil vapor will exist beneath the Site after the remedy is complete, Engineering and Institutional Controls (ECs and ICs) are required to protect human health and the environment. These ECs and ICs are described hereafter. Long-term management of EC/ICs and of residual contamination will be executed under a Site specific Site Management Plan (SMP) that will be developed and included in the FER.

ECs and environmental monitoring will be implemented to protect public health and the environment by appropriately managing residual contamination. The Controlled Property (the Site) will have three primary EC systems. These are:

1. A composite cover system consisting of asphalt covered roads, concrete covered sidewalks, and concrete building slabs;
2. A vapor barrier below the proposed concrete building slabs and on the external foundation sidewalls; and

3. An active ventilation system in the building's basement designed to meet NYCDOB requirements and to provide further protection from potential accumulation of VOCs in the basement area in the unlikely event of a breach in the vapor barrier.

Environmental monitoring will be performed through:

1. groundwater monitoring in accordance with the open NYSDEC Spill Number 9810172 requirements.

The FER will report residual contamination on the Site in tabular and map form. This will include presentation of exceedances of both Track 1 and Track 2 sites.

7.0 ENGINEERING CONTROLS

This section provides a detailed description of the methods for implementation of the engineering controls, including the composite cover system, vapor barrier and basement mechanical venting system.

7.1 COMPOSITE COVER SYSTEM

Exposure to residual contaminated soils will be prevented by an engineered, composite cover system that will be built on the Site. This composite cover system will be comprised of asphalt covered roads, concrete covered sidewalks, and concrete building slabs.

The proposed composite cover system design will be reviewed with NYSDEC to come to agreement on the:

- Conceptual remedial approach
- General cover design and installation plan
- System OM&M requirements

A Soil [and Underground Structure] Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual contamination are disturbed after the Remedial Action is complete. The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

7.2 VAPOR BARRIER

As part of the proposed remedy, a vapor barrier membrane will be installed to mitigate the potential migration of vapors associated with residual waste in the subsurface soil. Additionally, the vapor barrier may function as the waterproof membrane for the building foundation. The vapor barrier will be installed in segments as the excavation progresses beneath the foundation slab and around the foundation walls. A layer of clean fill material or a mud slab will be poured on the floor of the excavation to create a clean, regular surface on which the vapor barrier will be installed. During installation of the vapor barrier and prior to installing the concrete for the structural slab, the vapor barrier will be inspected to insure that the vapor barrier was properly installed and that any damage caused during the installation was repaired. The vapor barrier will consist of a minimum of 10 mil poly sheeting or approved equal product depending on the concrete forming application and waterproofing requirements.

The Remedial Contractor will provide detailed design and specifications of the selected vapor barrier in the SOP, including provisions for protecting and maintaining the integrity of the vapor barrier during remediation and construction activities. The barrier membrane design must consider utility and mechanical connections and other penetrations that will affect the integrity of the vapor barrier and/or structural slab and foundation walls to mitigate the potential for a preferential pathway for vapor migration.

7.3 ACTIVE VENTILATION SYSTEM

After construction of the building foundation is completed, an active ventilation system will be installed in the building's basement as part of the building mechanical system. The active ventilation system will be designed by the Mechanical Engineer to meet NYCDOB requirements. The active ventilation system will provide further protection from potential accumulation of VOCs in the basement area in the unlikely event of a breach in the sub-slab vapor barrier. Performance of the active ventilation system will be monitored and documented as part of the annual engineering report and annual engineering control certification.

7.4 OPERATION, MAINTENANCE AND MONITORING OF ENGINEERING CONTROLS

The engineering controls will include the composite cover system (asphalt covered roads, concrete covered sidewalks, and concrete building slabs), vapor barrier, an active ventilation

system in the basement as part of the building mechanical system. The inspection of the engineering controls will be limited to inspection of the foundation floor and sidewalls in the basement level of the proposed building and inspection of the active ventilation system. The active ventilation system will be inspected to verify that the fans that provide fresh air to the building basement are in good operating condition and that the volume of air being exhausted or supplied by the fans is in compliance with design volumes and air changes that will be specified in the SMP. Any cracks in the foundation floor or sidewalls will be addressed according to the procedures to be detailed in an OM&M plan that will be prepared upon completion of the construction phase of the remedy. An annual certification signed by a Professional Engineer licensed in the state of New York will be submitted to the NYSDEC to confirm that the building foundation is intact and that the ventilation system is operational.

7.5 GROUNDWATER MONITORING

Groundwater monitoring will be conducted in accordance with NYSDEC requirements to address Spill Number 9810172. Groundwater monitoring currently includes quarterly groundwater sampling of existing on-site and off-site monitoring wells (MW-2, MW-3, MW-6, and MW-7) for benzene, toluene, ethylbenzene, and xylene (collectively identified as BTEX) and methyl tertiary butyl-ether (MTBE). Groundwater monitoring activities will continue, as determined by NYSDEC, until residual groundwater concentrations are found to be below NYSDEC standards or have become asymptotic. Monitoring will continue until permission to discontinue is granted in writing by NYSDEC. Monitoring activities shall be outlined in the Monitoring Plan of the SMP.

8.0 INSTITUTIONAL CONTROLS

After the remedy is complete, the Site will have residual contamination remaining in place. Engineering Controls (ECs) for the residual contamination have been incorporated into the remedy to render the overall Site remedy protective of public health and the environment. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan. These elements are described in this Section. A Site -specific Environmental Easement will be recorded with New York County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the

environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

8.1 ENVIRONMENTAL EASEMENT

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. If the Site will have residual contamination after completion of all Remedial Actions than an Environmental Easement is required. As part of this remedy, an Environmental Easement approved by NYSDEC will be filed and recorded with the New York County Clerk. The Environmental Easement will be submitted as part of the Final Remediation Report.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement must be recorded with the New York County Clerk before the Certificate of Completion can be issued by NYSDEC. A series of Institutional Controls are required under this remedy to implement, maintain and monitor these Engineering Control systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to residential use(s) only. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan, which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;

- All Engineering Controls must be operated and maintained as specified in this SMP;
- A composite cover system consisting of asphalt covered roads, concrete covered sidewalks, and concrete building slabs must be inspected, certified and maintained as required in the SMP;
- The foundation floor and sidewalls must be inspected, certified and maintained as required in the SMP;
- The active ventilation system must be inspected, certified and maintained as required in the SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- On-Site environmental monitoring devices, including but not limited to, [groundwater monitor wells and soil vapor probes], must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP; and
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these Institutional Controls for the Site is mandated by the Environmental Easement and will be implemented under the Site Management Plan (discussed in the next section). The Controlled Property (Site) will also have a series of Institutional Controls in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;
- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the Site Management Plan;
- The Controlled Property may be used for restricted residential use only, provided the long-term Engineering and Institutional Controls included in the Site Management Plan are employed;
- The Controlled Property may not be used for a higher level of use, such as unrestricted use without an amendment or extinguishment of this Environmental Easement;

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

8.2 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial Action. The Site Management Plan is submitted as part of the FER but will be written in a manner that allows its removal and use as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the Site Management Plan are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to

NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated (December 2002), and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Site Management Plan will be based on a calendar year and will be due for submission to NYSDEC by March 1 of the year following the reporting period.

The Site Management Plan in the Final Remediation Report will include a monitoring plan for groundwater at the down-gradient Site perimeter to evaluate Site -wide performance of the remedy.

No exclusions for handling of residual contaminated soils will be provided in the Site Management Plan (SMP). All handling of residual contaminated material will be subject to provisions contained in the SMP.

9.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) and Certificate Of Completion (COC) will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the Final Engineering Report review.

The Final Remediation Report will include written and photographic documentation of all remedial work performed under this remedy.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The Final Engineering Report will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

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

9.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The certification will be signed by the Remedial Engineer [Charles McGuckin, P.E.] who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I, Charles McGuckin, P.E., am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the Mid Block #57 Project Site (NYSDEC BCA Index No. A2-0611-1008 Site No. C231062).

I certify that the Site description presented in this FER is identical to the Site descriptions presented in the Environmental Easement, the Site Management Plan, and the Brownfield Cleanup Agreement for Mid Block #57 Project and related amendments.

I certify that the Remedial Action Work Plan dated [month day 2008] and Stipulations [if any] in a letter dated [month day year] and approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with.

I certify that the remedial activities were observed by qualified environmental professionals under my supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and all operation and maintenance requirements applicable to the Site are contained in an Environmental Easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. A Site Management Plan has been submitted by the Applicants for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by the NYSDEC.

I certify that the export of all contaminated soil, fill, water or other material from the property was performed in accordance with the Remedial Action Work Plan, and were taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that all import of soils from off-Site, including source approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.

I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the Remedial Action Work Plan.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law.

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

10.0 SCHEDULE

A preliminary project schedule developed by the Hunter Roberts Construction Group (project construction manager) for the Linden School is provided in Appendix J. The remedial components of the work will occur primarily under the tasks described in line items 46 through 48, which include mobilization, excavation/sheeting, and foundation work. A revised schedule will be prepared and submitted following development and finalization of work sequencing with the Excavation/Remedial Contractor.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Joshua B. Levine, P.E.
Senior Engineer

REMEDIAL ENGINEERING, P.C.

Charles McGuckin, P.E.
Principal Engineer

Table 1. Summary of Sampling Locations, Remedial Action Work Plan
Mid Block #57 Project, Manhattan, New York.

Matrix	Sample Location	Sample Depth (ft)	Sample Date	Analytes							
				TCL-VOCs	BTEX Only	TCL-SVOCs	TAL-Metals	FULL TCLP	TCLP-Metals only	PCBs	VOCs TO-15
Soil	LB-3R	21.5-22	7/7/2009	x		x	x				
Soil	LB-3R	23.5-24	7/7/2009	x		x	x				
Soil	LB-3R- above bedrock	35-35.5	7/7/2009	x		x	x				
Soil	A-4R	21.5-22	7/7/2009	x		x	x				
Soil	A-4R	23.5-24	7/7/2009	x		x	x				
Soil	LB-2R	22.5-23	7/7/2009	x		x	x				
Soil	LB-2R	24.5-25	7/7/2009	x		x	x				
Soil	A-3R	22.5-23	7/7/2009	x		x	x				
Soil	A-3R	24.5-25	7/7/2009	x		x	x				
Soil	A-2R	20-20.5	7/7/2009	x		x	x				
Soil	A-2R	22-22.5	7/7/2009	x		x	x				
Soil	B-3R	23.5-24	7/8/2009	x		x	x				
Soil	B-3R	25.5-26	7/8/2009	x		x	x				
Soil	C-3R	17.5-18	7/8/2009	x		x	x				
Soil	C-3R	19.5-20	7/8/2009	x		x	x				
Soil	LB-7R	19-19.5	7/8/2009	x		x	x				
Soil	LB-7R	21.5-22	7/8/2009	x		x	x				
Soil	D-3R	15.5-16	7/8/2009	x		x	x				
Soil	D-3R	17.5-18	7/8/2009	x		x	x				
Soil	SB-13R	17.5-18	7/8/2009	x		x	x				
Soil	SB-13R	19.5-20	7/8/2009	x		x	x				
Soil	D-4R	18.5-19	7/8/2009	x		x	x				
Soil	D-4R	20.5-21	7/8/2009	x		x	x				
Soil	AX-2R	20-20.5	7/8/2009	x		x	x				
Soil	AX-2R	22.5-23	7/8/2009	x		x	x				
Soil	AX-1R	19.5-20	7/9/2009	x		x	x				
Soil	AX-1R	21.5-22	7/9/2009	x		x	x				
Soil	AX-1R at bedrock	35.5-36	7/9/2009	x		x	x				
Soil	SB-18R	19.5-20	7/9/2009	x		x	x				
Soil	SB-18R	21.5-22	7/9/2009	x		x	x				
Soil	SB-18R at bedrock	30-30.5	7/9/2009	x		x	x				
Soil	AX-1	15-17.5	9/11/2007	x		x	x				
Soil	AX-2	15-17.5	9/11/2007	x		x	x				
Soil	AX-2 DUP	15-17.5	9/11/2007	x		x	x				
Soil	AX-3	10-12.5	9/12/2007	x		x	x				
Soil	AX-4	15-20	9/12/2007	x		x	x				
Soil	AX-5	12.5-15	9/12/2007	x		x	x				
Soil	SB-11	14-15	10/24/2007	x		x	x	x		x	
Soil	SB-12	12-14	10/25/2007	x		x	x				
Soil	SB-13	15-17.5	10/25/2007	x		x	x	x		x	
Soil	SB-14	0-2	10/25/2007	x		x	x				
Soil	SB-15	0-2	10/25/2007	x		x	x				
Soil	SB-16	0-2	10/29/2007	x		x	x				
Soil	SB-17	2-4	10/29/2007	x		x	x				
Soil	SB-18	12.5-15	10/25/2007	x		x	x	x		x	
Soil	SB-19	15-18	10/26/2007	x		x	x				
Soil	SB-20	2.5-5	10/26/2007	x		x	x				
Soil	SB-20 DUP	2.5-5	10/26/2007	x		x	x				
Soil	SB-21	7.5-10	10/26/2007	x		x	x	x		x	
Soil	SB-22	4-5	10/29/2007	x		x	x				
Soil	SB-23	1-3	10/26/2007	x		x	x				
Soil	SB-24	2-5	10/26/2007	x		x	x				
Soil	SB-25	5-7.5	10/26/2007	x		x	x				

Table 1. Summary of Sampling Locations, Remedial Action Work Plan
Mid Block #57 Project, Manhattan, New York.

Matrix	Sample Location	Sample Depth (ft)	Sample Date	Analytes							
				TCL-VOCs	BTEX Only	TCL-SVOCs	TAL-Metals	FULL TCLP	TCLP-Metals only	PCBs	VOCs TO-15
Soil	SB-26	7-9	10/29/2007	x		x	x				
Soil	SB-27	7.5-10	10/26/2007	x		x	x				
Soil	SB-28	12-14	10/29/2007	x		x	x				
Soil	SW-2S	0-5	3/10/2008	x		x	x		x	x	
Soil	SW-2S	3-4	3/10/2008	x							
Soil	SW-3S	0-5	3/10/2008	x		x	x		x	x	
Soil	SW-3S	4-5	3/10/2008	x							
Soil	LB-1	1-7	1/31/2008	x		x	x	x		x	
Soil	A-2S	0-10	3/7/2008	x		x	x		x	x	
Soil	A-2S	8-10	3/7/2008	x							
Soil	LB-1	13-19	1/31/2008	x		x	x	x		x	
Soil	A-2D	15-16	3/7/2008		x						
Soil	A-2D	16-17	3/8/2008		x						
Soil	A-2D	10-20	3/7/2008					x		x	
Soil	A-2D	15-16	3/7/2008		x						
Soil	LB-2	2-6	1/29/2008	x		x	x			x	
Soil	A-3S	0-10	3/7/2008	x		x	x		x	x	
Soil	A-3S	8-10	3/7/2008	x							
Soil	LB-2	10-17	1/29/2008	x		x	x	x		x	
Soil	A-3D	10-20	3/7/2008	x		x	x			x	
Soil	A-3D	16-17	3/7/2008	x							
Soil	LB-2	23-25	2/1/2008	x		x	x	x		x	
Soil	LB-3	0-6	2/1/2008	x		x	x			x	
Soil	LB-3	6-11	1/29/2008	x		x	x			x	
Soil	A-4S	5-6	3/5/2008	x		x				x	
Soil	A-4S	0-10	3/5/2008						x		
Soil	LB-3	11-17	1/29/2008	x		x	x			x	
Soil	A-4D	10-11	3/5/2008	x							
Soil	A-4D	10-20	3/5/2008	x		x	x			x	
Soil	LB-3	23-27	2/1/2008	x		x	x	x		x	
Soil	A-5D	13-14	3/6/2008	x							
Soil	LB-4	1-3	1/31/2008	x		x	x			x	
Soil	LB-4	3-7	1/24/2008	x		x	x			x	
Soil	LB-4	9-11	1/31/2008	x		x	x			x	
Soil	A-6S	0-10	3/6/2008						x	x	
Soil	LB-4	13-19	1/24/2008	x		x	x			x	
Soil	LB-5	2-6	2/1/2008	x		x	x			x	
Soil	A-7S	0-10	3/7/2008	x		x	x		x	x	
Soil	A-7S	6-7	3/7/2008	x		x					
Soil	B-2S	0-10	3/7/2008	x		x	x		x	x	
Soil	B-2S	9-10	3/7/2008	x							
Soil	B-2D	10-20	3/7/2008						x	x	
Soil	B-3S	0-10	3/7/2008	x		x	x		x	x	
Soil	B-3S	9-10	3/7/2008	x							
Soil	B-3D	10-20	3/7/2008	x		x	x		x	x	
Soil	B-3D	18-19	3/7/2008	x							
Soil	B-4S	0-10	3/6/2008	x		x	x		x	x	
Soil	B-4S	7-8	3/6/2008	x							
Soil	B-4D	10-20	3/6/2008						x	x	
Soil	B-4D	18-19	3/6/2008	x							
Soil	B-5S	0-10	3/6/2008	x		x	x		x	x	
Soil	B-5S	8-9	3/6/2008	x							
Soil	B-5D	10-20	3/6/2008	x		x	x		x	x	

Table 1. Summary of Sampling Locations, Remedial Action Work Plan
Mid Block #57 Project, Manhattan, New York.

Matrix	Sample Location	Sample Depth (ft)	Sample Date	Analytes							
				TCL-VOCs	BTEX Only	TCL-SVOCs	TAL-Metals	FULL TCLP	TCLP-Metals only	PCBs	VOCs TO-15
Soil	B-5D	17-18	3/6/2008	x							
Soil	LB-6	1-3	2/1/2008	x		x	x			x	
Soil	LB-6	5-9	1/28/2008	x		x	x			x	
Soil	B-6S	0-10	3/6/2008						x	x	
Soil	LB-6	12-16	1/28/2008	x		x	x	x		x	
Soil	B-7S	0-10	3/7/2008						x	x	
Soil	C-2S	0-10	3/5/2008	x		x	x		x	x	
Soil	C-2S	9-10	3/5/2008	x							
Soil	C-2D	16-17	3/5/2008	x							
Soil	C-2D	10-20	3/5/2008							x	
Soil	LB-7	1-5	2/1/2008	x		x	x			x	
Soil	C-3S	0-10	3/5/2008							x	
Soil	LB-7	9-13	1/15/2008	x		x	x	x		x	
Soil	C-3D	18-19	3/5/2008	x							
Soil	C-3D	10-20	3/5/2008	x		x	x		x	x	
Soil	LB-7	20-25	1/15/2008	x		x	x			x	
Soil	C-4S	0-10	3/5/2008	x		x	x		x	x	
Soil	C-4D	10-20	3/5/2008		x			x		x	
Soil	C-5S	0-10	3/5/2008	x		x	x		x	x	
Soil	C-5S	8-9	3/5/2008	x							
Soil	C-5D	18-19	3/5/2008	x							
Soil	C-5D	10-20	3/5/2008	x		x	x		x	x	
Soil	C-6S	0-10	3/4/2008	x		x	x		x	x	
Soil	C-6S	9-10	3/4/2008	x							
Soil	LB-8	3-9	1/25/2008	x		x	x			x	
Soil	C-7S	0-10	3/4/2008						x	x	
Soil	D-2S	0-10	3/3/2008	x		x	x		x	x	
Soil	D-2D	10-20	3/3/2008				x		x	x	
Soil	LB-9	0-6	2/1/2008	x		x	x			x	
Soil	LB-9	6-8	1/15/2008	x		x	x	x		x	
Soil	D-3S	0-10	3/3/2008	x		x	x			x	
Soil	D-3S	6-7	3/3/2008	x							
Soil	LB-9	10-12	1/14/2008	x		x	x	x		x	
Soil	D-3D	10-20	3/4/2008	x		x	x			x	
Soil	D-3D	16-17	3/4/2008	x							
Soil	LB-10	0-4	2/1/2008	x		x	x			x	
Soil	LB-10	4-8	1/24/2008	x		x	x			x	
Soil	LB-10	8-12	1/22/2008	x		x	x			x	
Soil	D-4D	10-28	3/4/2008	x		x	x		x	x	
Soil	D-4D	15-16	3/4/2008	x							
Soil	LB-10	20-27	2/1/2008	x		x	x			x	
Soil	LB-10	22-27	1/22/2008	x		x	x			x	
Soil	LB-10	25-27	1/24/2008	x		x	x			x	
Soil	LB-11	8-10	2/1/2008	x		x	x			x	
Soil	D-5S	0-10	3/4/2008	x		x	x		x	x	
Soil	D-5S	2-3	3/4/2008	x							
Soil	D-5S	3-4	3/4/2008	x							
Soil	D-5S	4-5	3/5/2008	x							
Soil	D-5S	5-6	3/4/2008	x							
Soil	D-5S	6-7	3/4/2008	x							
Soil	D-5S	7-8	3/4/2008	x							
Soil	LB-11	12-20	1/23/2008	x		x	x			x	
Soil	D-5D	10-20	3/4/2008	x		x	x		x	x	

Table 1. Summary of Sampling Locations, Remedial Action Work Plan
Mid Block #57 Project, Manhattan, New York.

Matrix	Sample Location	Sample Depth (ft)	Sample Date	Analytes							
				TCL-VOCs	BTEX Only	TCL-SVOCs	TAL-Metals	FULL TCLP	TCLP-Metals only	PCBs	VOCs TO-15
Soil	D-5D	15-16	3/4/2008	x							
Soil	D-6S	3-4	3/4/2008	x			x		x	x	
Soil	D-7S	0-3	3/4/2008						x	x	
Groundwater	AX-2	na	9/11/2007	x		x	x				
Groundwater	AX-3	na	9/12/2007	x		x	x				
Groundwater	MW-2	na	8/14/2007	x		x	x			x	
Groundwater	MW-3	na	8/15/2007	x		x	x			x	
Groundwater	MW-5A	na	8/15/2007	x		x	x			x	
Groundwater	MW-7	na	8/14/2007	x		x	x			x	
Groundwater	SB-12	na	10/30/2007	x		x	x				
Groundwater	SB-13	na	10/26/2007	x		x	x				
Groundwater	SB-21	na	10/30/2007	x		x	x				
Groundwater	SB-22	na	10/29/2007	x		x	x				
Groundwater	SB-27	na	10/29/2007	x		x	x				
Groundwater	GW-Potamkin	na	10/30/2007	x			x				
Soil Vapor	SV-7	na	10/31/2007								x
Soil Vapor	SV-8	na	10/31/2007								x
Soil Vapor	SV-9	na	10/31/2007								x
Soil Vapor	SV-10	na	10/31/2007								x
Soil Vapor	SV-11	na	10/31/2007								x
Soil Vapor	SV-12	na	10/31/2007								x
Soil Vapor	SVE-1	na	8/17/2007								x
Soil Vapor	SVE-2	na	8/17/2007								x
Soil Vapor	SVE-3	na	8/17/2007								x
Soil Vapor	SVE-4	na	8/17/2007								x
Soil Vapor	SVE-5	na	8/17/2007								x
Soil Vapor	SVE-6	na	8/17/2007								x

1. "x" indicates that the sample was analyzed for the respective parameter list.
2. "x*" indicates that the sample was analyzed for a portion of the parameter list (missing some parameters due to insufficient sample volume).

Table 2. Summary of Groundwater Gauging, February 25, 2009,
Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Well ID#	Measuring Point Elevation (feet above datum)	Depth to Bottom (feet bmp)	Depth to Water February 25, 2009 (feet bmp)	Groundwater Elevation February 25, 2009 (feet above datum)
MW-2	6.76	22.07	8.54	-1.78
MW-3	11.34	23.82	10.54	0.80
MW-6	7.11	20.4	6.38	0.73
MW-7	23.68	26.5	18.87	4.81
MW-8	NA	19.67	13.99	NA
MW-9	NA	20.26	16.26	NA

Note:

 bmp - below measuring point
 datum - Manhattan datum equal to 2.75 feet above National Geodetic Vertical Datum (NGVD).

Table 3. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Unrestricted Use Soil Cleanup Objectives	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S			A-2D						A-2DD			A-3S			A-3D			A-3DD					
			A-2S	A-2S	LB-1	AX-3	AX-4	AX-4R	AX-4R	LB-1	A-2D	A-2D	A-2R	A-2R	AX-4R	A-3S	A-3S	LB-2	A-3D	A-3D	LB-2	A-3R	A-3R	LB-2R	LB-2	LB-2R
			3/7/2008	3/7/2008	1/31/2008	9/12/2007	9/12/2007	7/10/2009	7/10/2009	1/31/2008	3/7/2008	A-2D	7/7/2009	7/7/2009	7/10/2009	3/7/2008	3/7/2008	1/29/2008	3/7/2008	A-3D	1/29/2008	7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009
			0-10	8-10	1-7	10-12.5	15-20	15-15.5	17-17.5	13-19	15-16	16-17	20-20.5	22.5-23	36.5-37	0-10	8-10	2-6	10-20	16-17	10-17	22.5-23	24.5-25	22.5-23	23-25	24.5-25
1,1,1-Trichloroethane	680		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	7 U	8.2 U	7.6 U	7.3 U	7.6 U
1,1,1,2-Tetrachloroethane	--		6.3 U	390 U	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	6.4 U	480 U	NA	41 U	580 U	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	--		6.3 U	390 U	5.5 U	NA	NA	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
1,1,2-Trichloroethane	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
1,1-Dichloroethane	270		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	7 U	8.2 U	7.6 U	7.3 U	7.6 U
1,1-Dichloroethene	330		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	7 U	8.2 U	7.6 U	7.3 U	7.6 U
1,2,3-Trichloropropane	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3600		NA	NA	NA	81	1300	5650	0.54 J	NA	NA	NA	7.3 U	7.3 U	8 U	NA	NA	NA	NA	NA	NA	1.5 J	8.2 U	7.6 U	NA	7.6 U
1,2-Dichlorobenzene	1100		6.3 U	390 U	NA	35 U	820 U	300 U	5.5 U	NA	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	NA	41 U	580 U	NA	7 U	8.2 U	7.6 U	NA	7.6 U
1,2-Dichloroethane	20		1.3 U	77 U	1.1 U	35 U	820 U	60 U	1.1 U	1 U	NA	NA	1.5 U	1.5 U	1.6 U	1.3 U	96 U	1.6 U	8.3 U	120 U	1.4 U	1.4 U	1.6 U	1.5 U	1.5 U	1.5 U
1,2-Dichloroethene (total)	--		NA	NA	5.5 U	NA	NA	NA	NA	5.2 U	NA	NA	NA	NA	NA	NA	NA	8.2 U	NA	NA	6.9 U	NA	NA	NA	7.3 U	NA
1,2-Dichloropropane	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
1,3,5-Trimethylbenzene	8400		NA	NA	NA	29	570	2410	2.2 J	NA	NA	NA	7.3 U	7.3 U	8 U	NA	NA	NA	NA	NA	NA	1.1 J	0.71 J	1.3 J	NA	7.6 U
1,3-Dichlorobenzene	2400		6.3 U	390 U	NA	35 U	820 U	300 U	5.5 U	NA	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	NA	41 U	580 U	NA	7 U	8.2 U	7.6 U	NA	7.6 U
1,3-Dichloropropane	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1800		6.3 U	390 U	NA	35 U	820 U	300 U	5.5 U	NA	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	NA	41 U	580 U	NA	7 U	8.2 U	7.6 U	NA	7.6 U
1,4-Dioxane	100		NA	NA	NA	3500 U	41000 U	7600 U	140 U	NA	NA	NA	180 U	180 U	200 U	NA	NA	NA	NA	NA	NA	170 U	200 U	190 U	NA	190 U
2-Butanone (MEK)	120		13 U	770 U	11 U	35 U	820 U	600 U	11 U	10 U	NA	NA	15 U	15 U	16 U	13 U	960 U	16 U	83 U	1200 U	14 U	14 U	16 U	15 U	15 U	15 U
2-Chloroethyl vinyl ether	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--		NA	NA	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	NA	NA	8.2 U	NA	NA	6.9 U	NA	NA	NA	7.3 U	NA
4-Isopropyltoluene	--		NA	NA	NA	12	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	6.4 U	480 U	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
Acetone	50		13 U	770 U	14.4	170 U	4100 U	600 U	21.9	29.6	NA	NA	88	18.7	37	13 U	960 U	36.9	83 U	1200 U	149	27.9	49.2	44.8	81.8	35.8
Acrolein	--		NA	NA	NA	170 U	4100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	--		63 U	3900 U	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	64 U	4800 U	NA	410 U	5800 U	NA	NA	NA	NA	NA	NA
Benzene	60		1.3 U	86.8	0.88 J	6.9 U	380	144	0.82 J	1 U	84 U	97.3	0.83 J	1.5 U	1.6 U	1.3 U	947	2.5	8.3 U	958	9.4	1.4 U	0.76 J	0.63 J	1.5 U	1.5 U
Benzyl Alcohol	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
Bromoform	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
Bromomethane	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
Carbon disulfide	--		NA	NA	1.5 J	35 U	820 U	NA	NA	0.58 J	NA	NA	NA	NA	NA	NA	NA	2.5 J	NA	NA	2.3 J	NA	NA	NA	NA	5.6 J
Carbon tetrachloride	760		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	7 U	8.2 U	7.6 U	7.3 U	7.6 U
Chlorobenzene	1100		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	7 U	8.2 U	7.6 U	7.3 U	7.6 U
Chloroethane	--		NA	NA	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	NA	NA	8.2 U	NA	NA	6.9 U	NA	NA	NA	7.3 U	NA
Chloroform	370		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	7 U	8.2 U	7.6 U	7.3 U	7.6 U
Chloromethane	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U	NA	NA	NA	7.3 U	NA
cis-1,2-Dichloroethene	250		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	7.3 U	7.3 U	8 U	6.4 U	480 U									

Table 3. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:	A-4S				A-4D			A-4DD						A-5S	A-5D	A-6S					A-6D		A-7S		
Unrestricted Use		Sample Designation:	A-4S	LB-3	LB-3	SB-22	A-4D	A-4D	LB-3	A-4R	A-4R	LB-3	LB-3R	LB-3R	LB-3R	SB-23	A-5D	LB-4	LB-4	LB-4	SB-25	SB-27	LB-4	SB-28	A-7S	A-7S	LB-5
Soil Cleanup Objectives		Sample Date:	3/5/2008	2/1/2008	1/29/2008	10/29/2007	3/5/2008	3/5/2008	1/29/2008	7/7/2009	7/7/2009	2/1/2008	7/7/2009	7/7/2009	7/9/2009	10/26/2007	3/6/2008	1/31/2008	1/24/2008	1/31/2008	10/26/2007	10/26/2007	1/24/2008	10/29/2007	3/7/2008	3/7/2008	2/1/2008
(Concentrations in µg/kg)		Sample Depth (ft bls):	5-6	0-6	6-11	4-5	10-11	10-20	11-17	21.5-22	23.5-24	23-27	21-21.5	23.5-24	35-35.5	1-3	13-14	1-3	3-7	9-11	5-7.5	7.5-10	13-19	12-14	0-10	6-7	2-6
1,1,1-Trichloroethane	680		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	7.3 U	390 U	7.7 U	5.2 U	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
1,1,1,2-Tetrachloroethane	--		450 U	NA	NA	750 U	570 U	13000 U	NA	NA	NA	NA	NA	NA	NA	6.2 U	370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA
1,1,2,2-Tetrachloroethane	--		450 U	7 U	350 U	NA	570 U	13000 U	400 U	NA	NA	7.3 U	NA	NA	NA	NA	370 U	5.6 U	4.9 U	6.6 U	NA	NA	6.6 U	NA	6 U	1000 U	5.9 U
1,1,2-Trichloroethane	--		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	7.3 U	NA	NA	NA	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
1,1-Dichloroethane	270		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	7.3 U	390 U	7.7 U	5.2 U	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
1,1-Dichloroethene	330		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	7.3 U	390 U	7.7 U	5.2 U	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
1,2,3-Trichloropropane	--		NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA
1,2,4-Trimethylbenzene	3600		NA	NA	NA	46000	NA	NA	NA	272	7.2 U	NA	235 J	7.7 U	5.2 U	1.2 U	NA	NA	NA	NA	17	7600	NA	40	NA	NA	NA
1,2-Dichlorobenzene	1100		450 U	NA	NA	750 U	570 U	13000 U	NA	7.7 U	7.2 U	NA	390 U	7.7 U	5.2 U	6.2 U	370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA
1,2-Dichloroethane	20		91 U	1.4 U	70 U	750 U	110 U	2600 U	79 U	1.5 U	1.4 U	1.5 U	79 U	1.5 U	1 U	6.2 U	74 U	1.1 U	0.99 U	1.3 U	5.7 U	820 U	1.3 U	6.1 U	1.2 U	210 U	1.2 U
1,2-Dichloroethene (total)	--		NA	7 U	350 U	NA	NA	NA	400 U	NA	NA	7.3 U	NA	NA	NA	NA	NA	5.6 U	4.9 U	6.6 U	NA	NA	6.6 U	NA	NA	NA	5.9 U
1,2-Dichloropropane	--		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	7.3 U	NA	NA	NA	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
1,3,5-Trimethylbenzene	8400		NA	NA	NA	19000	NA	NA	NA	114	7.2 U	NA	101 J	7.7 U	5.2 U	1.2 U	NA	NA	NA	NA	6.8	1900	NA	22	NA	NA	NA
1,3-Dichlorobenzene	2400		450 U	NA	NA	750 U	570 U	13000 U	NA	7.7 U	7.2 U	NA	390 U	7.7 U	5.2 U	6.2 U	370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA
1,3-Dichloropropane	--		NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA
1,4-Dichlorobenzene	1800		450 U	NA	NA	750 U	570 U	13000 U	NA	7.7 U	7.2 U	NA	390 U	7.7 U	5.2 U	6.2 U	370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA
1,4-Dioxane	100		NA	NA	NA	38000 U	NA	NA	NA	190 U	180 U	NA	9800 U	190 U	130 U	310 U	NA	NA	NA	NA	290 U	41000 U	NA	300 U	NA	NA	NA
2-Butanone (MEK)	120		910 U	14 U	700 U	750 U	1100 U	26000 U	790 U	15 U	14 U	15 U	790 U	15 U	10 U	6.2 U	740 U	11 U	9.9 U	13 U	5.7 U	820 U	13 U	6.1 U	12 U	2100 U	12 U
2-Chloroethyl vinyl ether	--		NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA
2-Hexanone	--		NA	7 U	350 U	750 U	NA	NA	400 U	NA	NA	7.3 U	NA	NA	NA	6.2 U	NA	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	NA	NA	5.9 U
4-Isopropyltoluene	--		NA	NA	NA	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U	NA	NA	NA	NA	1.1 U	1000	NA	6.6	NA	NA	NA
4-Methyl-2-pentanone	--		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	7.3 U	NA	NA	NA	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
Acetone	50		910 U	14 U	700 U	3800 U	1100 U	26000 U	790 U	42.6	12.8 J	82.7	790 U	27	10 U	31 U	740 U	11 U	33	34.9	78	4100 U	48.5	61	12 U	2100 U	16.4
Acrolein	--		NA	NA	NA	7500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 U	NA	NA	NA	NA	29 U	8200 U	NA	30 U	NA	NA	NA
Acrylonitrile	--		4500 U	NA	NA	750 U	5700 U	130000 U	NA	NA	NA	NA	NA	NA	NA	6.2 U	3700 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	60 U	10000 U	NA
Benzene	60		91 U	4.8	60.2 J	150 U	2540	2600 U	504	7.6	1.4 U	1.9	52.6 J	1.5 U	1 U	1.2 U	74 U	1.1 U	1.6	2.3	1.1 U	160 U	2.8	6.8	0.97 J	210 U	1.2 U
Benzyl Alcohol	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	7.3 U	NA	NA	NA	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
Bromoform	--		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	7.3 U	NA	NA	NA	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
Bromomethane	--		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	7.3 U	NA	NA	NA	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
Carbon disulfide	--		NA	7 U	350 U	750 U	NA	NA	400 U	NA	NA	5.5 J	NA	NA	NA	6.2 U	NA	5.6 U	1.3 J	6.6 U	26	820 U	1.7 J	4.1 J	NA	NA	5.9 U
Carbon tetrachloride	760		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	7.3 U	390 U	7.7 U	5.2 U	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
Chlorobenzene	1100		450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	7.3 U	390 U	7.7 U	5.2 U	6.2 U	370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U
Chloroethane	--		NA	7 U	350 U	750 U	NA	NA	40																		

Table 3. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:	B-2S		B-2D	B-3S		B-3D		B-3DD		B-4S		B-4D				B-4DD				B-5S		B-5D			
Parameter (Concentrations in µg/kg)	Unrestricted Use	Sample Designation:	B-2S	B-2S	AX-5	B-3S	B-3S	B-3D	B-3D	B-3R	B-3R	B-4S	B-4S	B-4D	AX-1R	AX-1R	AX-2	AX-1R	AX-1R	AX-2R	AX-2R	B-5S	B-5S	B-5D	B-5R	B-5D	
	Soil Cleanup Objectives	Sample Date: Sample Depth (ft bls):	3/7/2008	3/7/2008	9/12/2007	3/7/2008	3/7/2008	3/7/2008	3/7/2008	7/8/2009	7/8/2009	3/6/2008	3/6/2008	3/6/2008	9/11/2007	7/9/2009	9/11/2007	7/9/2009	7/9/2009	7/8/2009	7/8/2009	7/10/2009	3/6/2008	3/6/2008	3/6/2008	7/10/2009	3/6/2008
			0-10	9-10	12.5-15	0-10	9-10	10-20	18-19	23.5-24	25.5-26	0-10	7-8	18-19	15-17.5	19.5-20	15-17.5	21.5-22	35.5-36	20-20.5	22.5-23	22.5-23	0-10	8-9	10-20	16-16.5	17-18
1,1,1-Trichloroethane	680		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,1,1,2-Tetrachloroethane	--		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,1,2,2-Tetrachloroethane	--		7.5 U	450 U	NA	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	NA	NA	NA	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,1,2-Trichloroethane	--		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,1-Dichloroethane	270		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,1-Dichloroethene	330		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,2,3-Trichloropropane	--		NA	NA	36 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	7900 U	NA	8400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3600		NA	NA	36	NA	NA	NA	NA	7.7 U	7.2 U	NA	NA	NA	300000	397	280000	3.2 J	5.2 U	5090	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
1,2-Dichlorobenzene	1100		7.5 U	3720	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,2-Dichloroethane	20		1.5 U	89 U	36 U	1.3 U	100 U	2.7 U	99 U	1.5 U	1.4 U	1.4 U	210 U	290 U	7900 U	2.6 U	8400 U	1.4 U	1 U	100 U	1.4 U	1.3 U	1.5 U	120 U	1.5 U	1.3 U	100 U
1,2-Dichloroethene (total)	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	--		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,3,5-Trimethylbenzene	8400		NA	NA	29	NA	NA	NA	NA	7.7 U	7.2 U	NA	NA	NA	89000	137	60000	1.8 J	5.2 U	1770	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
1,3-Dichlorobenzene	2400		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,3-Dichloropropane	--		NA	NA	36 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	7900 U	NA	8400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1800		7.5 U	429 J	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,4-Dioxane	100		NA	NA	36000 U	NA	NA	NA	NA	190 U	180 U	NA	NA	NA	400000 U	320 U	420000 U	170 U	130 U	13000 U	170 U	160 U	NA	NA	NA	160 U	NA
2-Butanone (MEK)	120		15 U	890 U	36 U	20.7	1000 U	27 U	990 U	15 U	14 U	5.2 J	2100 U	2900 U	7900 U	26 U	8400 U	14 U	10 U	1000 U	14 U	13 U	15 U	1200 U	15 U	13 U	1000 U
2-Chloroethyl vinyl ether	--		NA	NA	36 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	7900 U	NA	8400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--		NA	NA	36 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	7900 U	NA	8400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	--		NA	NA	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	11000	NA	8400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	--		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Acetone	50		18.7	890 U	180 U	77.3	1000 U	34.5	990 U	39.8	58.3	14 U	2100 U	2900 U	40000 U	26 U	42000 U	58.9	10 U	1000 U	35.2	21.5	15 U	1200 U	15 U	13 U	1000 U
Acrolein	--		NA	NA	180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	40000 U	NA	42000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	--		75 U	4500 U	36 U	64 U	5200 U	130 U	4900 U	NA	NA	71 U	11000 U	15000 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	74 U	6000 U	77 U	NA	5200 U
Benzene	60		3.6	445	35	1.3 U	2480	12.7	1220	1.5 U	1.4 U	8.8	511	3880	3600	9.1	1700 U	1.4 U	1 U	105	1.4 U	1.3 U	1.5 U	120 U	1.5 U	1.3 U	100 U
Benzyl Alcohol	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Bromoform	--		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Bromomethane	--		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Carbon disulfide	--		NA	NA	36 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	7900 U	NA	8400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	760		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
Chlorobenzene	1100		7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U	7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	<				

Table 3. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:			B-6S		B-6D	B-7S	C-2S		C-2D		C-3S		C-3D					C-3DD			C-4S		C-4D		
Parameter (Concentrations in µg/kg)	Unrestricted Use	Sample Designation:	LB-6	LB-6	SB-26	LB-6	SB-24	C-2S	C-2S	C-2D	SB-11	LB-7	SB-21	C-3D	C-3D	C-3R	LB-7	LB-7R	C-3R	LB-7	LB-7R	C-4S	C-4S	C-4D	SB-18	SB-18R	
	Soil Cleanup Objectives	Sample Date:	2/1/2008	1/28/2008	10/29/2007	1/28/2008	10/26/2007	3/5/2008	3/5/2008	3/5/2008	10/24/2007	2/1/2008	10/26/2007	3/5/2008	3/5/2008	7/8/2009	1/15/2008	7/8/2009	7/8/2009	1/15/2008	7/8/2009	3/5/2008	3/5/2008	3/5/2008	10/25/2007	7/9/2009	
		Sample Depth (ft bls):	1-3	5-9	7-9	12-16	2-5	0-10	9-10	16-17	14-15	1-5	7.5-10	10-20	18-19	17.5-18	9-13	19-19.5	20-20.5	20-25	21-21.5	0-10	9-10	18-19	12.5-15	19.5-20	
1,1,1-Trichloroethane	680		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	1700 U	370 U	290 U	7.7 U	6.6 U	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
1,1,1,2-Tetrachloroethane	--		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	460 U	NA	NA	NA	NA	NA	NA	9.6 U	540 U	NA	16000 U	NA	
1,1,2,2-Tetrachloroethane	--		6.3 U	6.8 U	NA	6.6 U	NA	6 U	420 U	140 U	NA	6.1 U	NA	45 U	460 U	NA	370 U	NA	NA	6.6 U	NA	9.6 U	540 U	NA	NA	NA	
1,1,2-Trichloroethane	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	NA	370 U	NA	NA	6.6 U	NA	9.6 U	540 U	NA	16000 U	NA	
1,1-Dichloroethane	270		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	1700 U	370 U	290 U	7.7 U	6.6 U	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
1,1-Dichloroethene	330		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	1700 U	370 U	290 U	7.7 U	6.6 U	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
1,2,3-Trichloropropane	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16000 U	NA	
1,2,4-Trimethylbenzene	3600		NA	NA	32	NA	9.1	NA	NA	NA	180	NA	65000	NA	NA	870 J	NA	61500	1.2 J	NA	2.5 J	NA	NA	NA	220000	317000	
1,2-Dichlorobenzene	1100		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	460 U	1700 U	NA	290 U	7.7 U	NA	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
1,2-Dichloroethane	20		1.3 U	1.4 U	6.1 U	1.3 U	5.5 U	1.2 U	85 U	29 U	750 U	1.2 U	780 U	9.1 U	92 U	330 U	75 U	59 U	1.5 U	1.3 U	1.5 U	1.9 U	110 U	NA	16000 U	740 U	
1,2-Dichloroethene (total)	--		6.3 U	6.8 U	NA	6.6 U	NA	NA	NA	NA	NA	6.1 U	NA	NA	NA	NA	370 U	NA	NA	6.6 U	NA	NA	NA	NA	NA	NA	
1,2-Dichloropropane	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	NA	370 U	NA	NA	6.6 U	NA	9.6 U	540 U	NA	16000 U	NA	
1,3,5-Trimethylbenzene	8400		NA	NA	11	NA	4.5	NA	NA	NA	150 U	NA	28000	NA	NA	523 J	NA	20100	1 J	NA	2.1 J	NA	NA	NA	70000	110000	
1,3-Dichlorobenzene	2400		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	460 U	1700 U	NA	290 U	7.7 U	NA	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
1,3-Dichloropropane	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16000 U	NA	
1,4-Dichlorobenzene	1800		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	460 U	1700 U	NA	290 U	7.7 U	NA	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
1,4-Dioxane	100		NA	NA	300 U	NA	270 U	NA	NA	NA	38000 U	NA	39000 U	NA	NA	42000 U	NA	7300 U	190 U	NA	190 U	NA	NA	NA	81000 U	92000 U	
2-Butanone (MEK)	120		13 U	14 U	6.1 U	13 U	5.5 U	12 U	850 U	290 U	750 U	12 U	780 U	91 U	920 U	3300 U	750 U	590 U	15 U	13 U	15 U	19 U	1100 U	NA	16000 U	7400 U	
2-Chloroethyl vinyl ether	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16000 U	NA	
2-Hexanone	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	NA	NA	NA	750 U	6.1 U	780 U	NA	NA	NA	370 U	NA	NA	6.6 U	NA	NA	NA	NA	16000 U	NA	
4-Isopropyltoluene	--		NA	NA	1.2 U	NA	1.1 U	NA	NA	NA	410	NA	4100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8000	NA	
4-Methyl-2-pentanone	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	NA	370 U	NA	NA	6.6 U	NA	9.6 U	540 U	NA	16000 U	NA	
Acetone	50		30.4	14 U	55	34.3	27 U	31	850 U	290 U	3800 U	21.3	3900 U	91 U	920 U	3300 U	750 U	590 U	44.8	88.2	39.8	19 U	1100 U	NA	81000 U	7400 U	
Acrolein	--		NA	NA	30 U	NA	27 U	NA	NA	NA	7500 U	NA	7800 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	81000 U	NA	
Acrylonitrile	--		NA	NA	6.1 U	NA	5.5 U	60 U	4200 U	1400 U	750 U	NA	780 U	450 U	4600 U	NA	NA	NA	NA	NA	NA	96 U	5400 U	NA	16000 U	NA	
Benzene	60		1.3 U	1.4 U	2.1	1.3 U	1.1 U	1.2 U	85 U	38.3	150 U	3.6	160 U	182	968	150 J	77.3	59 U	1.1 J	30.4	0.78 J	19.2	911	530	3200 U	6030	
Benzyl Alcohol	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Bromodichloromethane	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	NA	370 U	NA	NA	6.6 U	NA	9.6 U	540 U	NA	16000 U	NA	
Bromoform	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	NA	370 U	NA	NA	6.6 U	NA	9.6 U	540 U	NA	16000 U	NA	
Bromomethane	--		6.3 U	6.8 U	6.1 U	6.6 U	1.1 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	NA	370 U	NA	NA	6.6 U	NA	9.6 U	540 U	NA	16000 U	NA	
Carbon disulfide	--		6.3 U	1.7 J	6.1 U	1.1 J	5.5 U	NA	NA	NA	750 U	6.1 U	780 U	NA	NA	NA	370 U	NA	NA	6.6 U	NA	NA	NA	NA	16000 U	NA	
Carbon tetrachloride	760		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	1700 U	370 U	290 U	7.7 U	6.6 U	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
Chlorobenzene	1100		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	1700 U	370 U	290 U	7.7 U	6.6 U	7.6 U	9.6 U	540 U	NA	16000 U	3700 U	
Chloroethane	--		6.3 U	6.8 U	6.1 U	6.6 U	1.1 U	NA	NA	NA	750 U	6.1 U	780 U	NA	NA	NA	370 U	NA	NA	6.6 U	NA	NA	NA	NA	16000 U	NA	
Chloroform	370		6.3 U	0.7 J	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	460 U	1700 U	370 U	290 U	7.7 U	6.6 U	7.6 U	9.6 U	540 U	NA	16000 U	370.	

Table 3. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Unrestricted Use Soil Cleanup Objectives	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	C-4DD		C-5S		C-5D		C-6S		C-6D	C-7S		D-2S	D-2D	D-3S				D-3D					D-4S		
			SB-18R	SB-18R	C-5S	C-5S	C-5D	C-5D	C-6S	C-6S	SB-19	LB-8	SB-20	D-2S	SB-12	D-3S	D-3S	LB-9	LB-9	D-3D	D-3R	D-3D	D-3R	LB-9	LB-10	LB-10	LB-10
			7/9/2009	7/9/2009	3/5/2008	3/5/2008	3/5/2008	3/5/2008	3/4/2008	3/4/2008	3/3/2008	10/26/2007	10/26/2007	3/3/2008	10/25/2007	3/3/2008	3/3/2008	2/1/2008	1/15/2008	3/4/2008	7/8/2009	3/4/2008	7/8/2009	1/24/2008	2/1/2008	1/24/2008	1/22/2008
1,1,1-Trichloroethane	680		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U
1,1,1,2-Tetrachloroethane	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	6.1 U	740 U	5.6 U	420 U	NA	NA	48 U	NA	770 U	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	NA	5.5 U	NA	6.1 U	NA	5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U
1,1,2-Trichloroethane	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U
1,1-Dichloroethane	270		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U
1,1-Dichloroethene	330		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U
1,2,3-Trichloropropane	--		NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	5.8 U	NA	740 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3600		2.2 J	3.1 J	NA	NA	NA	NA	NA	NA	4.2	NA	37	NA	2500	NA	NA	NA	NA	NA	381 J	NA	6.6 U	NA	NA	NA	NA
1,2-Dichlorobenzene	1100		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	6.1 U	740 U	5.6 U	420 U	NA	NA	48 U	780 U	770 U	6.6 U	NA	NA	NA	NA
1,2-Dichloroethane	20		1.3 U	1.1 U	1.8 U	89 U	13 U	120 U	1.4 U	93 U	6.2 U	1.1 U	5.8 U	1.2 U	740 U	1.1 U	84 U	1.3 U	1.3 U	9.5 U	160 U	150 U	1.3 U	5.3 U	1.3 U	1.2 U	1.2 U
1,2-Dichloroethene (total)	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5 U	NA	NA	NA	NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	5.9 U
1,2-Dichloropropane	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U
1,3,5-Trimethylbenzene	8400		1.5 J	5.9	NA	NA	NA	NA	NA	NA	1.9	NA	26	NA	1000	NA	NA	NA	NA	NA	366 J	NA	6.6 U	NA	NA	NA	NA
1,3-Dichlorobenzene	2400		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	6.1 U	740 U	5.6 U	420 U	NA	NA	48 U	780 U	770 U	6.6 U	NA	NA	NA	NA
1,3-Dichloropropane	--		NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	5.8 U	NA	740 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1800		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	6.1 U	740 U	5.6 U	420 U	NA	NA	48 U	780 U	770 U	6.6 U	NA	NA	NA	NA
1,4-Dioxane	100		160 U	140 U	NA	NA	NA	NA	NA	NA	310 U	NA	290 U	NA	37000 U	NA	NA	NA	NA	NA	19000 U	NA	160 U	NA	NA	NA	NA
2-Butanone (MEK)	120		13 U	11 U	18 U	890 U	130 U	1200 U	14 U	930 U	6.2 U	11 U	5.8 U	12 U	740 U	11 U	840 U	13 U	13 U	95 U	1600 U	1500 U	13 U	53 U	13 U	12 U	12 U
2-Chloroethyl vinyl ether	--		NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	5.8 U	NA	740 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--		NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	5.5 U	5.8 U	NA	740 U	NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	5.9 U
4-Isopropyltoluene	--		NA	NA	NA	NA	NA	NA	NA	NA	16	NA	8.6	NA	210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U
Acetone	50		43.3	16.4	18 U	890 U	130 U	1200 U	14 U	930 U	28 J	11 U	29 U	12 U	3700 U	11 U	614 J	13 U	103	95 U	1600 U	1500 U	52.8	507	13 U	12 U	59.2
Acrolein	--		NA	NA	NA	NA	NA	NA	NA	NA	31 U	NA	29 U	NA	7400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	--		NA	NA	91 U	4400 U	630 U	6100 U	68 U	4700 U	6.2 U	NA	5.8 U	61 U	740 U	56 U	4200 U	NA	NA	480 U	NA	7700 U	NA	NA	NA	NA	NA
Benzene	60		1.3 U	0.56 J	1.8 U	134	14.2	343	1.4 U	93 U	1.2 U	1.1 U	1.2 U	1.2 U	150 U	1.1 U	84 U	1.3 U	1.3 U	79.2	191	3390	0.59 J	28.7	1.3 U	6	212
Benzyl Alcohol	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U
Bromoform	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U
Bromomethane	--		NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	1.2 U	5.5 U	1.2 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U
Carbon disulfide	--		NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	5.5 U	5.8 U	NA	740 U	NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	1.8 J
Carbon tetrachloride	760		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U
Chlorobenzene	1100		6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	6.1 U	740 U	5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U
Chloroethane	--		NA	NA	NA	NA	NA	NA	NA	NA	1.2 U	5.5 U	1.2 U	NA	740 U	NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	5.9 U
Ch																											

Table 3. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:	D-4D						D-4DD				D-5S										D-5D		
Parameter	Unrestricted Use	Sample Designation:	D-4D	D-4D	D-4R	SB-13	SB-13R	SB-13R	D-4R	LB-10	LB-10	LB-10	D-5S	D-5S	D-5S	D-5S	D-5S	D-5S	SB-14	SB-15	LB-11	D-5D	D-5D	LB-11	
(Concentrations in µg/kg)	Soil Cleanup Objectives	Sample Date:	3/4/2008	3/4/2008	7/8/2009	10/25/2007	7/8/2009	7/8/2009	7/8/2009	2/1/2008	1/22/2008	1/24/2008	3/4/2008	3/4/2008	3/4/2008	3/4/2008	3/4/2008	3/4/2008	10/25/2007	10/25/2007	2/1/2008	3/4/2008	3/4/2008	1/23/2008	
		Sample Depth (ft bls):	10-28	15-16	18.5-19	15-17.5	17.5-18	19.5-20	20.5-21	20-27	22-27	25-27	0-10	2-3	3-4	4-5	5-6	6-7	7-8	0-2	0-2	8-10	10-20	15-16	12-20
1,1,1-Trichloroethane	680		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
1,1,1,2-Tetrachloroethane	--		35 U	590 U	NA	890 U	NA	NA	NA	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA
1,1,2,2-Tetrachloroethane	--		35 U	590 U	NA	NA	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	NA	NA	5.9 U	7.4 U	490 U	5.8 U
1,1,2-Trichloroethane	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
1,1-Dichloroethane	270		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
1,1-Dichloroethene	330		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
1,2,3-Trichloropropane	--		NA	NA	NA	890 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3600		NA	NA	754 J	390	264 J	6.8 U	7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	67	NA	NA	NA	NA
1,2-Dichlorobenzene	1100		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA
1,2-Dichloroethane	20		7.1 U	120 U	210 U	890 U	89 U	1.4 U	1.6 U	1.9 U	2 U	1.4 U	1.2 U	83 U	100 U	130 U	1.2 U	1.2 U	75 U	5.7 U	5.7 U	1.2 U	1.5 U	98 U	1.2 U
1,2-Dichloroethene (total)	--		NA	NA	NA	NA	NA	NA	NA	9.3 U	10 U	7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9 U	NA	NA	5.8 U
1,2-Dichloropropane	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
1,3,5-Trimethylbenzene	8400		NA	NA	211 J	650	103 J	6.8 U	7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9	22	NA	NA	NA	NA
1,3-Dichlorobenzene	2400		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA
1,3-Dichloropropane	--		NA	NA	NA	890 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA
1,4-Dichlorobenzene	1800		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA
1,4-Dioxane	100		NA	NA	26000 U	45000 U	11000 U	170 U	200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	280 U	290 U	NA	NA	NA	NA
2-Butanone (MEK)	120		71 U	1200 U	2100 U	890 U	890 U	14 U	16 U	17.4 J	20 U	14 U	12 U	830 U	1000 U	1300 U	12 U	12 U	750 U	5.7 U	5.7 U	12 U	15 U	980 U	12 U
2-Chloroethyl vinyl ether	--		NA	NA	NA	890 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA
2-Hexanone	--		NA	NA	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	5.9 U	NA	NA	5.8 U
4-Isopropyltoluene	--		NA	NA	NA	180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	3.2	NA	NA	NA	NA
4-Methyl-2-pentanone	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
Acetone	50		71 U	1200 U	2100 U	4500 U	890 U	33.6	48.7	103	37.2	45.2	12 U	830 U	1000 U	1300 U	12 U	12 U	750 U	28 U	29 U	15.7	15 U	980 U	12 U
Acrolein	--		NA	NA	NA	8900 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28 U	29 U	NA	NA	NA	NA
Acrylonitrile	--		350 U	5900 U	NA	890 U	NA	NA	NA	NA	NA	NA	59 U	4100 U	5100 U	6400 U	58 U	59 U	3700 U	5.7 U	5.7 U	NA	74 U	4900 U	NA
Benzene	60		7.1 U	615	381	210	155	1.4 U	1.6 U	3.6	8.8	2.1	1.2 U	83 U	100 U	130 U	1.2 U	1.2 U	75 U	1.1 U	1.1 U	1.2 U	1.5 U	187	1.2 U
Benzyl Alcohol	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
Bromoform	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
Bromomethane	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	1.1 U	5.9 U	7.4 U	490 U	5.8 U
Carbon disulfide	--		NA	NA	NA	890 U	NA	NA	NA	3.9 J	6.9 J	4.4 J	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	5.9 U	NA	NA	5.8 U
Carbon tetrachloride	760		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
Chlorobenzene	1100		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
Chloroethane	--		NA	NA	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	NA	NA	NA	NA	NA	NA	NA	5.7 U	1.1 U	5.9 U	NA	NA	5.8 U
Chloroform	370		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
Chloromethane	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
cis-1,2-Dichloroethene	250		35 U	590 U	1000 U	890 U	440 U	6.8 U	7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U
cis-1,3-Dichloropropene	--		35 U	590 U	NA	890 U	NA	NA	NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U</									

Table 3. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375 Unrestricted Use Soil Cleanup Objectives	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	D-6S		D-7S	SW-2S		SW-3S	
			D-6S	SB-16	SB-17	SW-2S	SW-2S	SW-3S	SW-3S
			3/4/2008 3-4	10/29/2007 0-2	10/29/2007 2-4	3/10/2008 0-5	3/10/2008 3-4	3/10/2008 0-5	3/10/2008 4-5
1,1,1-Trichloroethane	680		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1,1,2-Tetrachloroethane	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1,2,2-Tetrachloroethane	--		370 U	NA	NA	6.8 U	510 U	6.1 U	1200 U
1,1,2-Trichloroethane	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1-Dichloroethane	270		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1-Dichloroethene	330		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,2,3-Trichloropropane	--		NA	6 U	5.6 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3600		NA	37	5.9	NA	NA	NA	NA
1,2-Dichlorobenzene	1100		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,2-Dichloroethane	20		74 U	6 U	5.6 U	1.4 U	100 U	1.2 U	250 U
1,2-Dichloroethene (total)	--		NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,3,5-Trimethylbenzene	8400		NA	13	3.4	NA	NA	NA	NA
1,3-Dichlorobenzene	2400		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,3-Dichloropropane	--		NA	6 U	5.6 U	NA	NA	NA	NA
1,4-Dichlorobenzene	1800		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
1,4-Dioxane	100		NA	300 U	280 U	NA	NA	NA	NA
2-Butanone (MEK)	120		740 U	6 U	5.6 U	14 U	1000 U	12 U	2500 U
2-Chloroethyl vinyl ether	--		NA	6 U	5.6 U	NA	NA	NA	NA
2-Hexanone	--		NA	6 U	5.6 U	NA	NA	NA	NA
4-Isopropyltoluene	--		NA	1.2 U	1.1 U	NA	NA	NA	NA
4-Methyl-2-pentanone	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Acetone	50		393 J	34	22 J	15.7	1000 U	51.3	2500 U
Acrolein	--		NA	30 U	28 U	NA	NA	NA	NA
Acrylonitrile	--		3700 U	6 U	5.6 U	68 U	5100 U	61 U	12000 U
Benzene	60		74 U	1.2 U	1.1 U	1.4 U	100 U	1.2 U	737
Benzyl Alcohol	--		NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Bromoform	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Bromomethane	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Carbon disulfide	--		NA	6 U	5.6 U	NA	NA	NA	NA
Carbon tetrachloride	760		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Chlorobenzene	1100		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Chloroethane	--		NA	6 U	5.6 U	NA	NA	NA	NA
Chloroform	370		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Chloromethane	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
cis-1,2-Dichloroethene	250		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
cis-1,3-Dichloropropene	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Dibromochloromethane	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Dichlorodifluoromethane	--		NA	6 U	5.6 U	NA	NA	NA	NA
Ethylbenzene	1000		74 U	15	2.3	0.95 J	100 U	0.96 J	908
Freon 113	--		NA	6 U	5.6 U	NA	NA	NA	NA
Isopropylbenzene	--		NA	3	1.1 U	NA	NA	NA	NA
Methylene chloride	50		370 U	19 B	12 B	6.8 U	510 U	6.1 U	1200 U
MTBE	930		NA	1.2 U	1.1 U	NA	NA	NA	NA
n-Butylbenzene	12000		NA	2.3	1.1 U	NA	NA	NA	NA
n-Propylbenzene	3900		NA	6.7	1.1 U	NA	NA	NA	NA
o-Xylene	--		NA	23	4.6	NA	NA	NA	NA
sec-Butylbenzene	11000		NA	1.2 U	1.1 U	NA	NA	NA	NA
Styrene	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
t-Butyl Alcohol	--		NA	30 U	28 U	NA	NA	NA	NA
t-Butylbenzene	5900		NA	1.2 U	1.1 U	NA	NA	NA	NA
Tetrachloroethene	1300		53.4 J	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Toluene	700		74 U	4.9	1.7	1.5	100 U	0.8 J	592
trans-1,2-Dichloroethene	190		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
trans-1,3-Dichloropropene	--		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Trichloroethene	470		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Trichlorofluoromethane	--		NA	6 U	5.6 U	NA	NA	NA	NA
Vinyl chloride	20		370 U	6 U	5.6 U	6.8 U	510 U	6.1 U	1200 U
Xylenes (total)	260		150 U	60	11	4.9	200 U	6	1790

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 4. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Unrestricted Use Soil Cleanup Objectives (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S		A-2D					A-2DD			A-3S		A-3D		A-3DD					A-4S			A-4D	
			A-2S	LB-1	AX-3	AX-4	AX-4R	AX-4R	LB-1	A-2R	A-2R	AX-4R	A-3S	LB-2	A-3D	LB-2	A-3R	A-3R	LB-2R	LB-2	LB-2R	LB-3	LB-3	SB-22	A-4D	LB-3
			3/7/2008	1/31/2008	9/12/2007	9/12/2007	7/10/2009	7/10/2009	1/31/2008	7/7/2009	7/7/2009	7/10/2009	3/7/2008	1/29/2008	3/7/2008	1/29/2008	7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009	2/1/2008	1/29/2008	10/29/2007	3/5/2008	1/29/2008
			0-10	1-7	10-12.5	15-20	15-15.5	17-17.5	13-19	20-20.5	22.5-23	36.5-37	0-10	2-6	10-20	10-17	22.5-23	24.5-25	22.5-23	23-25	24.5-25	0-6	6-11	4-5	10-20	11-17
1,2,4-Trichlorobenzene	--		81 U	76 U	460 U	440 U	NA	NA	80 U	NA	NA	NA	78 U	80 U	110 U	95 U	NA	NA	NA	100 U	NA	81 U	82 U	400 U	100 U	87 U
1,2-Dichlorobenzene	1100		81 U	76 U	460 U	440 U	300 U	5.5 U	80 U	7.3 U	7.3 U	8 U	78 U	80 U	110 U	95 U	7 U	8.2 U	7.6 U	100 U	7.6 U	81 U	82 U	NA	100 U	87 U
1,2-Diphenylhydrazine	--		NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400 U	NA	NA
1,3-Dichlorobenzene	2400		81 U	76 U	35 U	820 U	300 U	5.5 U	80 U	7.3 U	7.3 U	8 U	78 U	80 U	110 U	95 U	7 U	8.2 U	7.6 U	100 U	7.6 U	81 U	82 U	NA	100 U	87 U
1,4-Dichlorobenzene	1800		81 U	76 U	35 U	820 U	300 U	5.5 U	80 U	7.3 U	7.3 U	8 U	78 U	80 U	110 U	95 U	7 U	8.2 U	7.6 U	100 U	7.6 U	81 U	82 U	NA	100 U	87 U
2,2-oxybis (1-chloropropane)	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U	81 U	82 U	400 U	100 U	87 U
2,4,5-Trichlorophenol	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
2,4,6-Trichlorophenol	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
2,4-Dichlorophenol	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
2,4-Dimethylphenol	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
2,4-Dinitrophenol	--		810 U	760 U	1200 U	1100 U	630 U	650 U	800 U	810 U	890 U	850 U	780 U	800 U	1100 U	950 U	860 U	900 U	980 U	1000 U	880 U	810 U	820 U	1000 U	1000 U	870 U
2,4-Dinitrotoluene	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U	81 U	82 U	400 U	100 U	87 U
2,6-Dinitrotoluene	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U	81 U	82 U	400 U	100 U	87 U
2-Chloronaphthalene	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U	81 U	82 U	400 U	100 U	87 U
2-Chlorophenol	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
2-Methylnaphthalene	--		NA	76 U	460 U	450	1030	65 U	38.7 J	20.3 J	89 U	85 U	NA	57.7 J	NA	89.6 J	86 U	90 U	98 U	100 U	88 U	217	2340	3200	NA	28800
2-Methylphenol	330		81 U	190 U	460 U	440 U	63 U	65 U	200 U	81 U	89 U	85 U	78 U	200 U	110 U	240 U	86 U	90 U	98 U	260 U	88 U	200 U	82 U	400 U	100 U	220 U
2-Nitroaniline	--		NA	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	NA	200 U	NA	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	NA	220 U
2-Nitrophenol	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
3&4-Methylphenol	--		81 U	190 U	NA	NA	63 U	65 U	200 U	81 U	89 U	85 U	78 U	200 U	110 U	240 U	86 U	90 U	98 U	260 U	88 U	200 U	82 U	NA	100 U	220 U
3,3-Dichlorobenzidine	--		200 U	190 U	1200 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
3-Nitroaniline	--		NA	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	NA	200 U	NA	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	NA	220 U
4,6-Dinitro-2-methylphenol	--		810 U	760 U	1200 U	1100 U	630 U	650 U	800 U	810 U	890 U	850 U	780 U	800 U	1100 U	950 U	860 U	900 U	980 U	1000 U	880 U	810 U	820 U	1000 U	1000 U	870 U
4-Bromophenyl phenyl ether	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U	81 U	82 U	400 U	100 U	87 U
4-Chloro-3-methylphenol	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
4-Chloroaniline	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	260 U	220 U
4-Chlorophenyl phenyl ether	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U	81 U	82 U	400 U	100 U	87 U
4-Methylphenol	330		NA	NA	460 U	440 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400 U	NA	NA
4-Nitroaniline	--		NA	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	NA	200 U	NA	240 U	220 U	230 U	240 U	260 U	220 U	200 U	210 U	400 U	NA	220 U
4-Nitrophenol	--		810 U	760 U	460 U	440 U	320 U	330 U	800 U	400 U	450 U	430 U	780 U	800 U	1100 U	950 U	430 U	450 U	490 U	1000 U	440 U	810 U	820 U	400 U	1000 U	870 U
Acenaphthene	20000																									

Table 4. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:	A-4DD						A-5S	A-6S					A-6D		A-7S		B-2S	B-2D	B-3S	B-3D	B-3DD		B-4S	
Parameter	Unrestricted Use Soil Cleanup Objectives	Sample Designation: Sample Date: Sample Depth (ft bls):	A-4R 7/7/2009 21.5-22	A-4R 7/7/2009 23.5-24	LB-3R 7/7/2009 21-21.5	LB-3 2/1/2008 23-27	LB-3R 7/7/2009 23.5-24	LB-3R 7/9/2009 35-35.5	SB-23 10/26/2007 1-3	LB-4 1/31/2008 1-3	LB-4 1/24/2008 3-7	LB-4 1/31/2008 9-11	SB-25 10/26/2007 5-7.5	SB-27 10/26/2007 7.5-10	LB-4 1/24/2008 13-19	SB-28 10/29/2007 12-14	A-7S 3/7/2008 0-10	LB-5 2/1/2008 2-6	B-2S 3/7/2008 0-10	AX-5 9/12/2007 12.5-15	B-3S 3/7/2008 0-10	B-3D 3/7/2008 10-20	B-3R 7/8/2009 23.5-24	B-3R 7/8/2009 25.5-26	B-4S 3/6/2008 0-10	
1,2,4-Trichlorobenzene	--		NA	NA	NA	98 U	NA	NA	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U	73 U	79 U	77 U	480 U	79 U	85 U	NA	NA	81 U	
1,2-Dichlorobenzene	1100		7.7 U	7.2 U	390 U	98 U	7.7 U	5.2 U	NA	79 U	150 U	84 U	NA	NA	510 U	NA	73 U	79 U	77 U	480 U	79 U	85 U	7.7 U	7.2 U	81 U	
1,2-Diphenylhydrazine	--		NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	380 U	440 U	NA	410 U	NA	NA	NA	36 U	NA	NA	NA	NA	NA	
1,3-Dichlorobenzene	2400		7.7 U	7.2 U	390 U	98 U	7.7 U	5.2 U	NA	79 U	150 U	84 U	NA	NA	510 U	NA	73 U	79 U	77 U	36 U	79 U	85 U	7.7 U	7.2 U	81 U	
1,4-Dichlorobenzene	1800		7.7 U	7.2 U	390 U	98 U	7.7 U	5.2 U	NA	79 U	150 U	84 U	NA	NA	510 U	NA	73 U	79 U	77 U	36 U	79 U	85 U	7.7 U	7.2 U	81 U	
2,2-oxybis (1-chloropropane)	--		92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U	73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	
2,4,5-Trichlorophenol	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
2,4,6-Trichlorophenol	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
2,4-Dichlorophenol	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
2,4-Dimethylphenol	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	258	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
2,4-Dinitrophenol	--		920 U	860 U	780 U	980 U	920 U	620 U	1000 U	790 U	1500 U	840 U	960 U	1100 U	5100 U	1000 U	730 U	790 U	770 U	1200 U	790 U	850 U	900 U	880 U	810 U	
2,4-Dinitrotoluene	--		92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U	73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	
2,6-Dinitrotoluene	--		92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U	73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	
2-Chloronaphthalene	--		92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U	73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	
2-Chlorophenol	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
2-Methylnaphthalene	--		53.5 J	86 U	69.8 J	98 U	92 U	62 U	410 U	1130	102 J	84 U	380 U	460	2130	410 U	NA	48.5 J	NA	480 U	NA	NA	90 U	88 U	NA	
2-Methylphenol	330		92 U	86 U	78 U	240 U	92 U	62 U	410 U	216	380 U	84 U	380 U	440 U	1300 U	410 U	73 U	200 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	
2-Nitroaniline	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	NA	200 U	NA	480 U	NA	NA	220 U	220 U	NA	
2-Nitrophenol	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
3&4-Methylphenol	--		132	86 U	78 U	240 U	92 U	62 U	NA	608	380 U	84 U	NA	NA	1300 U	NA	73 U	200 U	77 U	NA	79 U	85 U	90 U	88 U	81 U	
3,3-Dichlorobenzidine	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	1200 U	200 U	210 U	220 U	220 U	200 U	
3-Nitroaniline	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	NA	200 U	NA	480 U	NA	NA	220 U	220 U	NA	
4,6-Dinitro-2-methylphenol	--		920 U	860 U	780 U	980 U	920 U	620 U	1000 U	790 U	1500 U	840 U	960 U	1100 U	5100 U	1000 U	730 U	790 U	770 U	1200 U	790 U	850 U	900 U	880 U	810 U	
4-Bromophenyl phenyl ether	--		92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U	73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	
4-Chloro-3-methylphenol	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
4-Chloroaniline	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	
4-Chlorophenyl phenyl ether	--		92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U	73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	
4-Methylphenol	330		NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	380 U	440 U	NA	410 U	NA	NA	NA	480 U	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--		230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U	NA	200 U	NA	480 U	NA	NA	220 U	220 U	NA	
4-Nitrophenol	--		460 U	430 U	390 U	980 U	460 U	310 U	410 U	790 U	1500 U	840 U	380 U	440 U	5100 U	410 U	730 U	790 U	770 U	480 U	790 U	850 U	450 U	440 U	810 U	
Acenaphthene	20000		39.2 J	43 U	44.5	98 U	46 U	31 U	130 J	534	110 J	87.4	320 J	440 U	919	45 J	98.9	145	77 U	140 J	120	17.2 J	45 U	44 U	23.5 J	
Acenaphthylene	100000		50.1	43 U	39 U	98 U	46 U	31 U	170 J	1950	83.5 J	94.6	330 J	440 U	488 J	61 J	64.9 J	17.6 J	77 U	480 U	79 U	85 U	45 U	44 U	81 U	
Aniline	--		NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	380 U	440 U	NA	410 U	NA	NA	NA	480 U	NA	NA	NA	NA	NA	
Anthracene	100000		165</																							

Table 4. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:	B-4D				B-4DD					B-5S	B-5D		B-6S			B-6D	B-7S	C-2S	C-2D	C-3S	
Parameter	Unrestricted Use	Sample Designation:	AX-1	AX-1R	AX-2	AX-2 DUP	AX-1R	AX-1R	AX-2R	AX-2R	AX-2R	B-5S	B-5D	B-5R	LB-6	LB-6	SB-26	LB-6	SB-24	C-2S	SB-11	LB-7	SB-21
(Concentrations in µg/kg)	Soil Cleanup Objectives	Sample Date: Sample Depth (ft bls):	9/11/2007	7/9/2009	9/11/2007	9/11/2007	7/9/2009	7/9/2009	7/8/2009	7/8/2009	7/10/2009	3/6/2008	3/6/2008	7/10/2009	2/1/2008	1/28/2008	10/29/2007	10/26/2008	10/26/2007	3/5/2008	10/24/2007	2/1/2008	10/26/2007
	(µg/kg)		15-17.5	19.5-20	15-17.5	15-17.5	21.5-22	35.5-36	20-20.5	22.5-23	22.5-23	0-10	10-20	16-16.5	1-3	5-9	7-9	12-16	2-5	0-10	14-15	1-5	7.5-10
1,2,4-Trichlorobenzene	--		2100 U	NA	4500 U	2300 U	NA	NA	NA	NA	NA	87 U	92 U	NA	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U
1,2-Dichlorobenzene	1100		2100 U	13 U	4500 U	2300 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	87 U	92 U	6.6 U	78 U	84 U	NA	86 U	NA	77 U	NA	83 U	NA
1,2-Diphenylhydrazine	--		7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U
1,3-Dichlorobenzene	2400		7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	87 U	92 U	6.6 U	78 U	84 U	NA	86 U	NA	77 U	NA	83 U	NA
1,4-Dichlorobenzene	1800		7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	87 U	92 U	6.6 U	78 U	84 U	NA	86 U	NA	77 U	NA	83 U	NA
2,2-oxybis (1-chloropropane)	--		2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U
2,4,5-Trichlorophenol	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
2,4,6-Trichlorophenol	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
2,4-Dichlorophenol	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
2,4-Dimethylphenol	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
2,4-Dinitrophenol	--		5300 U	670 U	11000 U	5700 U	810 U	630 U	870 U	840 U	830 U	870 U	920 U	770 U	780 U	840 U	1000 U	860 U	920 U	770 U	1000 U	830 U	3100 U
2,4-Dinitrotoluene	--		2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U
2,6-Dinitrotoluene	--		2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U
2-Chloronaphthalene	--		2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U
2-Chlorophenol	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
2-Methylnaphthalene	--		15000	545	6700	9700	81 U	63 U	85.2 J	84 U	83 U	NA	NA	77 U	100	42.3 J	410 U	86 U	370 U	NA	400 U	42.6 J	12000
2-Methylphenol	330		2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	200 U	210 U	410 U	210 U	370 U	53.9 J	400 U	210 U	1200 U
2-Nitroaniline	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	NA	NA	190 U	200 U	210 U	410 U	210 U	370 U	NA	400 U	210 U	1200 U
2-Nitrophenol	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
3&4-Methylphenol	--		NA	67 U	NA	NA	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	200 U	210 U	NA	210 U	NA	247	NA	210 U	NA
3,3-Dichlorobenzidine	--		5300 U	170 U	11000 U	5700 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
3-Nitroaniline	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	NA	NA	190 U	200 U	210 U	410 U	210 U	370 U	NA	400 U	210 U	1200 U
4,6-Dinitro-2-methylphenol	--		5300 U	670 U	11000 U	5700 U	810 U	630 U	870 U	840 U	830 U	870 U	920 U	770 U	780 U	840 U	1000 U	860 U	920 U	770 U	1000 U	830 U	3100 U
4-Bromophenyl phenyl ether	--		2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U
4-Chloro-3-methylphenol	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
4-Chloroaniline	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U
4-Chlorophenyl phenyl ether	--		2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U
4-Methylphenol	330		2100 U	NA	4500 U	2300 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U
4-Nitroaniline	--		2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	NA	NA	190 U	200 U	210 U	410 U	210 U	370 U	NA	400 U	210 U	1200 U
4-Nitrophenol	--		2100 U	340 U	4500 U	2300 U	410 U	310 U	430 U	420 U	410 U	870 U	920 U	380 U	780 U	840 U	410 U	860 U	370 U	770 U	400 U	830 U	1200 U
Acenaphthene	20000		2100 U	1120	4500 U	2300 U	41 U	31 U	43 U	42 U	41 U	67.9 J	417	38 U	76.1 J	140	410 U	65.5 J	370 U	1250	190 J	47.4 J	1200 U
Acenaphthylene	100000		2100 U	347	4500 U	2300 U	41 U	31 U	43 U	42 U	41 U	45.1 J	148	38 U	150	66.1 J	410 U	86 U	370 U	145	69 J	83 U	1200 U
Aniline	--		2100 U	NA	4500 U	2300 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U
Anthracene	100000		340 J	2900	860 J	2300 U	34.6 J	31 U	43 U	42 U	41 U	184	953	38 U	259	449	410 U	58.7 J	370 U	4600	260 J	97	1200 U
Benzidine	--		5300 U	NA	11000 U	5700 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U
Benzo(a)anthracene	1000		1700 J	3450	1600 J	230 J	85.8	32	43 U	42 U	41 U	612	1500	100									

Table 4. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:	C-3D				C-3DD			C-4S	C-4D		C-4DD		C-5S	C-5D	C-6S	C-6D	C-7S			D-2S	D-2D	D-3S	D-3S	
Parameter	Unrestricted Use	Sample Designation:	C-3D	C-3R	LB-7	LB-7R	C-3R	LB-7	LB-7R	C-4S	SB-18	SB-18R	SB-18R	SB-18R	C-5S	C-5D	C-6S	SB-19	SB-20	SB-20 DUP	LB-8	D-2S	SB-12	D-3S	LB-9	
(Concentrations in µg/kg)	Soil Cleanup Objectives	Sample Date: Sample Depth (ft bls):	3/5/2008 10-20	7/8/2009 17.5-18	1/15/2008 9-13	7/8/2009 19-19.5	7/8/2009 20-20.5	1/15/2008 20-25	7/9/2009 21-21.5	3/5/2008 0-10	10/25/2007 12.5-15	7/9/2009 19.5-20	7/9/2009 21.5-22	7/9/2009 30-30.5	3/5/2008 0-10	3/5/2008 10-20	3/4/2008 0-10	10/25/2007 15-18	10/26/2007 2.5-5	10/26/2007 2.5-5	39472 3-9	3/3/2008 0-10	10/25/2007 12-14	3/3/2008 0-10	1/15/2008 6-8	
1,2,4-Trichlorobenzene	--		87 U	NA	160 U	NA	NA	160 U	NA	92 U	4300 U	NA	NA	NA	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U
1,2-Dichlorobenzene	1100		87 U	1700 U	160 U	290 U	7.7 U	160 U	7.6 U	92 U	NA	3700 U	6.5 U	5.6 U	92 U	99 U	80 U	NA	NA	NA	160 U	75 U	NA	75 U	80 U	160 U
1,2-Diphenylhydrazine	--		NA	NA	NA	NA	NA	NA	NA	NA	4300 U	NA	NA	NA	NA	NA	NA	410 U	1200 U	1900 U	NA	NA	2000 U	NA	NA	NA
1,3-Dichlorobenzene	2400		87 U	1700 U	160 U	290 U	7.7 U	160 U	7.6 U	92 U	NA	3700 U	6.5 U	5.6 U	92 U	99 U	80 U	NA	NA	NA	160 U	75 U	NA	75 U	80 U	160 U
1,4-Dichlorobenzene	1800		87 U	1700 U	160 U	290 U	7.7 U	160 U	7.6 U	92 U	NA	3700 U	6.5 U	5.6 U	92 U	99 U	80 U	NA	NA	NA	160 U	75 U	NA	75 U	80 U	160 U
2,2-oxybis (1-chloropropane)	--		87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U
2,4,5-Trichlorophenol	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
2,4,6-Trichlorophenol	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
2,4-Dichlorophenol	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
2,4-Dimethylphenol	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
2,4-Dinitrophenol	--		870 U	670 U	1600 U	620 U	840 U	1600 U	860 U	920 U	11000 U	700 U	740 U	640 U	920 U	990 U	800 U	1000 U	2900 U	4800 U	1600 U	750 U	5000 U	750 U	800 U	1600 U
2,4-Dinitrotoluene	--		87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U
2,6-Dinitrotoluene	--		87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U
2-Chloronaphthalene	--		87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U
2-Chlorophenol	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
2-Methylnaphthalene	--		NA	194	1470	3670	84 U	169	86 U	NA	35000	7960	74 U	64 U	NA	NA	NA	410 U	1200 U	1900 U	80.5 J	NA	12000	NA	122	120 J
2-Methylphenol	330		87 U	67 U	410 U	62 U	84 U	390 U	86 U	92 U	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	390 U	75 U	2000 U	75 U	200 U	410 U
2-Nitroaniline	--		NA	170 U	410 U	150 U	210 U	390 U	220 U	NA	4300 U	180 U	190 U	160 U	NA	NA	NA	410 U	1200 U	1900 U	390 U	NA	2000 U	NA	200 U	410 U
2-Nitrophenol	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
3&4-Methylphenol	--		87 U	67 U	410 U	62 U	84 U	390 U	86 U	92 U	NA	70 U	74 U	64 U	92 U	99 U	80 U	NA	NA	NA	390 U	75 U	NA	75 U	200 U	410 U
3,3-Dichlorobenzidine	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
3-Nitroaniline	--		NA	170 U	410 U	150 U	210 U	390 U	220 U	NA	4300 U	180 U	190 U	160 U	NA	NA	NA	410 U	1200 U	1900 U	390 U	NA	2000 U	NA	200 U	410 U
4,6-Dinitro-2-methylphenol	--		870 U	670 U	1600 U	620 U	840 U	1600 U	860 U	920 U	11000 U	700 U	740 U	640 U	920 U	990 U	800 U	1000 U	2900 U	4800 U	1600 U	750 U	5000 U	750 U	800 U	1600 U
4-Bromophenyl phenyl ether	--		87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U
4-Chloro-3-methylphenol	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
4-Chloroaniline	--		220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U
4-Chlorophenyl phenyl ether	--		87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U
4-Methylphenol	330		NA	NA	NA	NA	NA	NA	NA	NA	4300 U	NA	NA	NA	NA	NA	NA	410 U	1200 U	1900 U	NA	NA	2000 U	NA	NA	NA
4-Nitroaniline	--		NA	170 U	410 U	150 U	210 U	390 U	220 U	NA	4300 U	180 U	190 U	160 U	NA	NA	NA	410 U	1200 U	1900 U	390 U	NA	2000 U	NA	200 U	410 U
4-Nitrophenol	--		870 U	330 U	1600 U	310 U	420 U	1600 U	430 U	920 U	4300 U	350 U	370 U	320 U	920 U	990 U	800 U	410 U	1200 U	1900 U	1600 U	750 U	2000 U	750 U	800 U	1600 U
Acenaphthene	20000		471	39.7																						

Table 4. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell:				D-3D			D-4S			D-4D					D-4DD				D-5S				D-5D		D-6S	
Parameter (Concentrations in µg/kg)	Unrestricted Use Soil Cleanup Objectives (µg/kg)	Sample Designation: Sample Date: Sample Depth (ft bls):	D-3D	D-3R	D-3R	LB-9	LB-10	LB-10	D-4D	D-4R	SB-13	SB-13R	SB-13R	D-4R	LB-10	LB-10	LB-10	D-5S	SB-14	SB-15	LB-11	D-5D	LB-11	D-6S	SB-16			
			3/4/2008	7/8/2009	7/8/2009	1/24/2008	2/1/2008	1/24/2008	1/22/2008	3/4/2008	7/8/2009	10/25/2007	7/8/2009	7/8/2009	7/8/2009	2/1/2008	1/22/2008	1/24/2008	3/4/2008	10/25/2007	10/25/2007	2/1/2008	3/4/2008	1/23/2008	3/4/2008	10/29/2007		
			10-20	15.5-16	17.5-18	10-12	0-4	4-8	8-12	10-28	18.5-19	15-17.5	17.5-18	19.5-20	20.5-21	20-27	22-27	25-27	0-10	0-2	0-2	8-10	10-20	12-20	3-4	0-2		
1,2,4-Trichlorobenzene	--		84 U	NA	NA	530 U	81 U	160 U	180 U	94 U	NA	2400 U	NA	NA	NA	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U		
1,2-Dichlorobenzene	1100		84 U	780 U	6.6 U	530 U	81 U	160 U	180 U	94 U	1000 U	NA	440 U	6.8 U	7.8 U	110 U	180 U	190 U	78 U	NA	NA	150 U	82 U	160 U	78 U	NA		
1,2-Diphenylhydrazine	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	2400 U	NA	NA	NA	NA	NA	NA	NA	380 U	380 U	NA	NA	NA	NA	400 U		
1,3-Dichlorobenzene	2400		84 U	780 U	6.6 U	530 U	81 U	160 U	180 U	94 U	1000 U	NA	440 U	6.8 U	7.8 U	110 U	180 U	190 U	78 U	NA	NA	150 U	82 U	160 U	78 U	NA		
1,4-Dichlorobenzene	1800		84 U	780 U	6.6 U	530 U	81 U	160 U	180 U	94 U	1000 U	NA	440 U	6.8 U	7.8 U	110 U	180 U	190 U	78 U	NA	NA	150 U	82 U	160 U	78 U	NA		
2,2-oxybis (1-chloropropane)	--		84 U	73 U	76 U	530 U	81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U		
2,4,5-Trichlorophenol	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
2,4,6-Trichlorophenol	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
2,4-Dichlorophenol	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
2,4-Dimethylphenol	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
2,4-Dinitrophenol	--		840 U	730 U	760 U	5300 U	810 U	1600 U	1800 U	940 U	760 U	6000 U	790 U	760 U	860 U	1100 U	1800 U	1900 U	780 U	950 U	960 U	1500 U	820 U	1600 U	780 U	990 U		
2,4-Dinitrotoluene	--		84 U	73 U	76 U	530 U	81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U		
2,6-Dinitrotoluene	--		84 U	73 U	76 U	530 U	81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U		
2-Chloronaphthalene	--		84 U	73 U	76 U	530 U	81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U		
2-Chlorophenol	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
2-Methylnaphthalene	--		NA	178	76 U	530 U	81 U	160 U	180 U	NA	1380	12000	236	76 U	86 U	93.3 J	180 U	190 U	NA	380 U	380 U	150 U	NA	160 U	NA	400 U		
2-Methylphenol	330		84 U	73 U	76 U	530 U	200 U	410 U	450 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	460 U	480 U	78 U	380 U	380 U	150 U	82 U	400 U	78 U	400 U		
2-Nitroaniline	--		NA	180 U	190 U	1300 U	200 U	410 U	450 U	NA	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	NA	380 U	380 U	380 U	NA	400 U	NA	400 U		
2-Nitrophenol	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
3&4-Methylphenol	--		84 U	73 U	76 U	530 U	200 U	410 U	450 U	94 U	76 U	NA	79 U	76 U	86 U	77.4 J	460 U	480 U	78 U	NA	NA	150 U	82 U	400 U	78 U	NA		
3,3-Dichlorobenzidine	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
3-Nitroaniline	--		NA	180 U	190 U	1300 U	200 U	410 U	450 U	NA	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	NA	380 U	380 U	380 U	NA	400 U	NA	400 U		
4,6-Dinitro-2-methylphenol	--		840 U	730 U	760 U	5300 U	810 U	1600 U	1800 U	940 U	760 U	6000 U	790 U	760 U	860 U	1100 U	1800 U	1900 U	780 U	950 U	960 U	1500 U	820 U	1600 U	780 U	990 U		
4-Bromophenyl phenyl ether	--		84 U	73 U	76 U	530 U	81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U		
4-Chloro-3-methylphenol	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
4-Chloroaniline	--		210 U	180 U	190 U	1300 U	200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U		
4-Chlorophenyl phenyl ether	--		84 U	73 U	76 U	530 U	81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U		
4-Methylphenol	330		NA	NA	NA	NA	NA	NA	NA	NA	NA	2400 U	NA	NA	NA	NA	NA	NA	NA	380 U	380 U	NA	NA	NA	NA	400 U		
4-Nitroaniline	--		NA	180 U	190 U	1300 U	200 U	410 U	450 U	NA	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	NA	380 U	380 U	380 U	NA	400 U	NA	400 U		
4-Nitrophenol	--		840 U	360 U	380 U	5300 U	810 U	1600 U	1800 U	940 U	380 U	2400 U	400 U	380 U	430 U	1100 U	1800 U	1900 U	780 U	380 U	380 U	1500 U	820 U	1600 U	780 U	400 U		
Acenaphthene	20000		114																									

Table 4. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375 Unrestricted Use Soil Cleanup Objectives (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	D-7S	SW-2S	SW-3S
			SB-17	SW-2S	SW-3S
			10/29/2007	3/10/2008	3/10/2008
			2-4	0-5	0-5
1,2,4-Trichlorobenzene	--		370 U	79 U	79 U
1,2-Dichlorobenzene	1100		NA	79 U	79 U
1,2-Diphenylhydrazine	--		370 U	NA	NA
1,3-Dichlorobenzene	2400		NA	79 U	79 U
1,4-Dichlorobenzene	1800		NA	79 U	79 U
2,2-oxybis (1-chloropropane)	--		370 U	79 U	79 U
2,4,5-Trichlorophenol	--		370 U	200 U	200 U
2,4,6-Trichlorophenol	--		370 U	200 U	200 U
2,4-Dichlorophenol	--		370 U	200 U	200 U
2,4-Dimethylphenol	--		370 U	200 U	200 U
2,4-Dinitrophenol	--		940 U	790 U	790 U
2,4-Dinitrotoluene	--		370 U	79 U	79 U
2,6-Dinitrotoluene	--		370 U	79 U	79 U
2-Chloronaphthalene	--		370 U	79 U	79 U
2-Chlorophenol	--		370 U	200 U	200 U
2-Methylnaphthalene	--		370 U	NA	NA
2-Methylphenol	330		370 U	79 U	79 U
2-Nitroaniline	--		370 U	NA	NA
2-Nitrophenol	--		370 U	200 U	200 U
3&4-Methylphenol	--		NA	79 U	79 U
3,3-Dichlorobenzidine	--		370 U	200 U	200 U
3-Nitroaniline	--		370 U	NA	NA
4,6-Dinitro-2-methylphenol	--		940 U	790 U	790 U
4-Bromophenyl phenyl ether	--		370 U	79 U	79 U
4-Chloro-3-methylphenol	--		370 U	200 U	200 U
4-Chloroaniline	--		370 U	200 U	200 U
4-Chlorophenyl phenyl ether	--		370 U	79 U	79 U
4-Methylphenol	330		370 U	NA	NA
4-Nitroaniline	--		370 U	NA	NA
4-Nitrophenol	--		370 U	790 U	790 U
Acenaphthene	20000		140 J	153	15.8 J
Acenaphthylene	100000		77 J	212	18.4 J
Aniline	--		370 U	NA	NA
Anthracene	100000		360 J	416	41.5 J
Benzidine	--		370 U	NA	NA
Benzo(a)anthracene	1000		1400	1480	179
Benzo(a)pyrene	1000		1300	1170	185
Benzo(b)fluoranthene	1000		1700	1120	166
Benzo(g,h,i)perylene	100000		870	678	126
Benzo(k)fluoranthene	800		630	1160	142
Benzoic acid	--		940 U	NA	NA
Bis(2-chloroethoxy)methane	--		370 U	79 U	79 U
Bis(2-chloroethyl)ether	--		370 U	79 U	79 U
Bis(2-chloroisopropyl)ether	--		NA	NA	NA
Bis(2-ethylhexyl)phthalate	--		110 J	106	79 U
Butyl benzylphthalate	--		66 J	3650	79 U
Carbazole	--		170 J	NA	NA
Chrysene	1000		1200	1760	197
Dibenzo(a h)anthracene	330		250 J	274	41.1 J
Dibenzofuran	7000		370 U	NA	NA
Diethyl phthalate	--		370 U	79 U	79 U
Dimethyl phthalate	--		370 U	79 U	79 U
Di-n-butyl phthalate	--		370 U	79 U	79 U
Di-n-octyl phthalate	--		370 U	445	79 U
Fluoranthene	100000		2400	3320	323
Fluorene	30000		120 J	378	79 U
Hexachlorobenzene	330		370 U	79 U	79 U
Hexachlorobutadiene	--		370 U	79 U	79 U
Hexachlorocyclopentadiene	--		370 U	790 U	790 U
Hexachloroethane	--		370 U	200 U	200 U
Indeno(1,2,3-cd)pyrene	500		800	680	116
Isophorone	--		370 U	79 U	79 U
Naphthalene	12000		96 J	719	19.8 J
Nitrobenzene	--		370 U	79 U	79 U
n-Nitrosodimethylamine	--		940 U	NA	NA
n-Nitroso-di-n-propylamine	--		370 U	79 U	79 U
n-Nitrosodiphenylamine	--		370 U	200 U	200 U
Pentachlorophenol	800		940 U	400 U	390 U
Phenanthrene	100000		1700	5290	214
Phenol	330		370 U	79 U	79 U
Pyrene	100000		3000	3520	427

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 5. Summary of Metals in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S		A-2D					A-2DD			A-3S		A-3D		A-3DD				
Parameter (Concentrations in mg/kg)	Unrestricted Use		A-2S	LB-1	AX-3	AX-4	AX-4R	AX-4R	LB-1	A-2R	A-2R	AX-4R	A-3S	LB-2	A-3D	LB-2	A-3R	A-3R	LB-2R	LB-2	LB-2R
	Soil Cleanup Objectives		3/7/2008	1/31/2008	9/12/2007	9/12/2007	7/10/2009	7/10/2009	39478	7/7/2009	7/7/2009	7/10/2009	3/7/2008	1/29/2008	3/7/2008	1/29/2008	7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009
	(mg/kg)		0-10	1-7	10-12.5	15-20	15-15.5	17-17.5	13-19	20-20.5	22.5-23	36.5-37	0-10	2-6	10-20	10-17	22.5-23	24.5-25	22.5-23	23-25	24.5-25
Aluminum	--	NA	9700	6100	8000	13100	7440	10200	10200	15800	15900	NA	8610	NA	9440	16700	15000	17400	14100	15100	
Antimony	--	2.5 U	2.4 U	2.9	2.6 U	2.2 U	2.2 U	2.4 U	3.1	3 U	2.9 U	2.4 U	2.4 U	3.2 U	2.7 U	2.8 U	2.9 U	3.2 U	3.1 U	3 U	
Arsenic	13	3.3	4.5	22	4.9	2.2 U	3.5	2.7	15.2	9.7	8.2	8	5.7	6.1	7	12.7	9.7	14.8	8	9.5	
Barium	350	85.6	234	200	140	196	87	105	102	40.6	41.4	223	207	116	170	81	38.8	148	35.1	37	
Beryllium	7.2	0.83	0.6 U	0.83 U	0.79 U	0.54 U	0.56 U	0.59 U	0.65 U	1.2	0.86	0.67	0.6 U	0.8 U	0.68 U	0.8	0.88	0.88	0.77 U	0.88	
Cadmium	2.5	0.62 U	0.6 U	0.83 U	0.79 U	0.54 U	0.56 U	0.59 U	1.3 U	0.74 U	0.73 U	0.61 U	1.2	0.8 U	0.68 U	0.71 U	0.73 U	0.79	0.77 U	0.74 U	
Calcium	--	NA	5650	32000	8400	18600	3170	7980	11100	3310	4410	NA	22800	NA	22100	7750	2890	8190	4010	3260	
Chromium	--	16.1	28.9	16	17	24.3	17.4	16.8	60.3	28.4	29.6	14.9	15.5	21.8	13.4	34.7	27.9	40.5	25.9	27.5	
Cobalt	--	NA	8	8.4	8.9	13.6	7.4	9.5	21.2	11.7	11	NA	7	NA	6.8 U	10.6	10.9	11.8	9.2	10.7	
Copper	50	30.8	34.9	110	54	32.4	19.3	23.6	61.6	15.8	14.7	54.5	39.8	45.6	45.7	51	12.5	57.2	13.4	13.4	
Hexavalent Chromium	1	1.2 U	1.1 U	NA	NA	NA	NA	1.2 U	NA	NA	NA	1.2 U	1.2 U	1.7 U	1.4 U	NA	NA	NA	1.5 U	NA	
Iron	--	NA	16600	22000	16000	23200	14400	18900	77900	31000	31600	NA	21700	NA	12300	27900	28900	29200	27300	29700	
Lead	63	144	124	4400	120	266	57.7	66.8	298	14.7	12.6	603	284	392	429	146	11.6	397	12.8	11.9	
Magnesium	--	NA	3420	2400	4700	7440	3090	4160	7120	7090	7430	NA	3000	NA	2690	6780	6960	6320	6070	7000	
Manganese	1600	NA	341	330	210	352	176	270	650	1220	581	NA	1030	NA	165	359	567	340	573	648	
Mercury	0.18	0.54	0.43	2.9	0.56	0.14	0.24	0.11	0.76	0.045 U	0.047 U	1.5	0.56	5.3	1.2	1	0.051 U	2.7	0.05 U	0.05 U	
Nickel	30	14.1	14.6	20	19	26.3	12.9	17.1	61.5	25.5	25.5	12.5	22.4	18	11.6	25.8	23.6	28	20.4	23.7	
Potassium	--	NA	2770	1700	5000	7810	4280	4570	4570	3680	3730	NA	2250	NA	1400 U	3550	3630	3460	3050	3650	
Selenium	3.9	2.5 U	2.4 U	2.5 U	2.4 U	2.2 U	2.2 U	2.4 U	5.2 U	3 U	2.9 U	2.4 U	2.4 U	3.2 U	2.7 U	2.8 U	4	3.2 U	3.1 U	3 U	
Silver	2	1.2 U	1.2 U	2.1 U	2 U	1.1 U	1.1 U	1.2 U	1.3 U	1.5 U	1.5 U	1.2 U	1.2 U	1.6 U	1.4 U	1.4 U	1.5 U	1.6 U	1.5 U	1.5 U	
Sodium	--	NA	1200 U	460	330 U	1100 U	1100 U	1200 U	2600 U	1800	2070	NA	1200 U	NA	1400 U	1400 U	1990	1600 U	1830	1690	
Thallium	--	1.2 U	1.2 U	1.7 U	1.6 U	1.1 U	1.1 U	1.2 U	2.6 U	1.5 U	1.5 U	1.2 U	1.2 U	1.6 U	1.4 U	1.4 U	1.5 U	1.6 U	1.5 U	1.5 U	
Trivalent Chromium	30	NA	28.9	NA	NA	NA	NA	16.8	NA	NA	NA	NA	15.5	NA	13.4	NA	NA	NA	25.9	NA	
Vanadium	--	21	19.8	21	22	32.8	14.3	24.2	34.3	33.1	33.7	18.9	18.2	20.3	19.2	32.8	32.6	37.9	29.6	31.7	
Zinc	109	94.4	288	120	160	144	61.2	60.2	85.5	71.2	67.9	277	448	754	96.1	147	64.1	170	63.6	66	

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 5. Summary of Metals in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-4S			A-4D		A-4DD						A-5S	A-6S					A-6D	
Parameter (Concentrations in mg/kg)	Unrestricted Use		LB-3	LB-3	SB-22	A-4D	LB-3	A-4R	A-4R	LB-3R	LB-3	LB-3R	LB-3R	SB-23	LB-4	LB-4	LB-4	SB-25	SB-27	LB-4	SB-28
	Soil Cleanup Objectives		2/1/2008	1/29/2008	10/29/2007	3/5/2008	1/29/2008	7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009	7/9/2009	10/26/2007	1/31/2008	1/24/2008	1/31/2008	10/26/2007	10/26/2007	1/24/2008	10/29/2007
	(mg/kg)		0-6	6-11	4-5	10-20	11-17	21.5-22	23.5-24	21-21.5	23-27	23.5-24	35-35.5	1-3	1-3	3-7	9-11	5-7.5	7.5-10	13-19	12-14
Aluminum	--	7030	12500	6300	NA	5420	12400	14600	8610	13200	16000	5540	5800	6800	5970	7120	5800	7300	5070	3900	
Antimony	--	2.5 U	2.4 U	2.4 U	3.1 U	2.5 U	3.1 U	2.8 U	2.7 U	2.8 U	3 U	2.2 U	2.5 U	2.4 U	2.3 U	2.7 U	2.3 U	2.6 U	2.6 U	2.4 U	
Arsenic	13	9.1	6	3.5	11.2	8.6	14.7	8.4	9.4	9	7.5	2.2 U	8	5.4	5	4.6	5.9	8.8	10	4.9	
Barium	350	169	103	76	243	156	149	38.9	239	32.9	40.8	50.6	150	102	91.4	132	190	100	124	130	
Beryllium	7.2	0.64 U	0.61 U	0.72 U	0.76 U	0.62 U	0.81	0.79	0.66 U	0.71 U	0.93	0.55 U	0.74 U	0.61 U	0.57 U	0.67 U	0.69 U	0.79 U	0.64 U	0.73 U	
Cadmium	2.5	1.2	0.61 U	0.72 U	0.76 U	0.62 U	0.77 U	0.71 U	0.66 U	0.71 U	0.76 U	0.55 U	0.74 U	0.61 U	0.57 U	0.67 U	0.69 U	0.79 U	0.64 U	0.73 U	
Calcium	--	24200	6790	2800	NA	8040	15800	4160	12000	7100	3830	1340	8700	28500	18200	16400	52000	4100	14700	22000	
Chromium	--	47.1	17.4	13	18	12	25.7	27.2	29	23.3	29.3	12.1	16	21.5	12.3	17.4	15	18	21.4	9.6	
Cobalt	--	7.3	7.9	5.7	NA	6.2 U	10.9	10.4	6.6 U	9	11.4	5.5 U	7.9	6.1 U	5.7 U	6.7 U	5.7	6.5	6.4 U	3 U	
Copper	50	35.2	26.6	28	42.7	124	57.3	13.8	77.7	14.5	14.4	11.4	62	45.1	58.7	93.7	84	24	62.2	53	
Hexavalent Chromium	1	1.2 U	1.2 U	NA	1.5 U	1.3 U	NA	NA	NA	1.5 U	NA	NA	NA	1.2 U	1.1 U	NA	NA	NA	1.3 U	NA	
Iron	--	23100	20900	14000	NA	12000	28200	29800	22000	25300	31000	10100	16000	12200	12400	12500	12000	15000	11400	8100	
Lead	63	547	170	92	411	257	4420	15.8	392	10.1	12.7	6.1	290	100	116	120	190	19	723	160	
Magnesium	--	3070	2860	2100	NA	996	5300	6910	2290	5670	7080	2210	2100	8410	3580	3610	4400	3200	2200	1800	
Manganese	1600	265	431	190	NA	128	275	551	368	479	643	365	200	206	186	172	190	190	209	120	
Mercury	0.18	0.45	2.5	0.44	1.1	0.93	3	0.049 U	2.6	0.056	0.046 U	0.032 U	1.5	0.3	0.34	0.26	0.41	0.11 U	46.3	0.37	
Nickel	30	13.5	13.4	12	27.3	12.3	25.3	23.9	17	19.4	25.1	10	15	14.6	11.1	15.5	13	14	8.4	7.4	
Potassium	--	2060	1220	860	NA	1200 U	2340	3460	1300 U	2830	3660	1800	1200	1730	2080	2620	1800	2300	1300 U	740	
Selenium	3.9	2.5 U	2.4 U	2.2 U	3.1 U	2.5 U	3.1 U	2.8 U	2.7 U	2.8 U	3 U	2.2 U	2.2 U	2.4 U	2.3 U	2.7 U	2.1 U	2.4 U	2.6 U	2.2 U	
Silver	2	1.3 U	1.2 U	1.8 U	1.5 U	1.2 U	1.5 U	1.4 U	1.3 U	1.4 U	1.5 U	1.1 U	1.9 U	1.2 U	1.1 U	1.3 U	1.7 U	2 U	1.3 U	1.8 U	
Sodium	--	1300 U	1200 U	300 U	NA	1200 U	1500 U	1540	1300 U	1400 U	1500 U	1100 U	310 U	1200 U	1100 U	1300 U	360	330 U	1300 U	300 U	
Thallium	--	1.3 U	1.2 U	1.4 U	1.5 U	1.2 U	1.5 U	1.4 U	1.3 U	1.4 U	1.5 U	1.1 U	1.5 U	1.2 U	1.1 U	1.3 U	1.4 U	1.6 U	1.3 U	1.5 U	
Trivalent Chromium	30	47.1	17.4	NA	NA	12	NA	NA	NA	23.3	NA	NA	NA	21.5	12.3	NA	NA	NA	21.4	NA	
Vanadium	--	22	24.3	17	34.2	18.6	31.6	31.4	18.8	27.1	33.3	16.6	22	23.8	15.6	21.5	16	24	14.7	12 U	
Zinc	109	852	98.8	71	122	268	284	64.4	426	60.1	70.8	25.5	180	90.7	87.7	112	130	38	84.7	310	

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 5. Summary of Metals in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-7S		B-2S	B-2D	B-3S	B-3D	B-3DD		B-4S	B-4D				B-4DD					B-5S
Unrestricted Use	Soil Cleanup Objectives (mg/kg)		A-7S	LB-5	B-2S	AX-5	B-3S	B-3D	B-3R	B-3R	B-4S	AX-1	AX-1R	AX-2	AX-2 DUP	AX-1R	AX-1R	AX-2R	AX-2R	AX-2R	B-5S
Parameter			3/7/2008	2/1/2008	3/7/2008	9/12/2007	3/7/2008	3/7/2008	7/8/2009	7/8/2009	3/6/2008	9/11/2007	7/9/2009	9/11/2007	9/11/2007	7/9/2009	7/9/2009	7/8/2009	7/8/2009	7/10/2009	3/6/2008
(Concentrations in mg/kg)			0-10	2-6	0-10	12.5-15	0-10	10-20	23.5-24	25.5-26	0-10	15-17.5	19.5-20	15-17.5	15-17.5	21.5-22	35.5-36	20-20.5	22.5-23	22.5-23	0-10
Aluminum	--	NA	6170	NA	5200	NA	NA	14700	15100	NA	4500	4800	4500	4400	14400	6200	12600	13100	10600	NA	
Antimony	--	2.3 U	2.4 U	2.3 U	2.9 U	2.4 U	2.6 U	3 U	2.9 U	2.4 U	8.7	2.3 U	2.7 U	2.7 U	2.8 U	2.2 U	3 U	2.9 U	2.4 U	2.7 U	
Arsenic	13	4	2.9	3.9	7.2	2.8	6.8	9.4	8.1	9.6	14	3.8	12	22	5.6	2.2 U	8	7.2	7.5	15.2	
Barium	350	142	76.1	75.6	160	71.2	172	36.1	40.2	268	200	46.4	140	300	71.8	66.4	41.6	33.2	25.7	258	
Beryllium	7.2	0.98	0.61 U	0.82	0.86 U	0.76	0.82	0.81	0.79	0.59 U	0.76 U	0.57 U	0.81 U	0.82 U	0.71 U	0.55 U	0.75 U	0.75	0.62	0.68 U	
Cadmium	2.5	0.57 U	0.61 U	1	0.86 U	0.59 U	0.64 U	0.75 U	0.73 U	0.62	0.76 U	0.57 U	0.81 U	0.82 U	0.71 U	0.55 U	0.75 U	0.72 U	0.6 U	0.68 U	
Calcium	--	NA	9320	NA	6000	NA	NA	3090	3030	NA	19000	3710	15000	11000	2780	1360	2710	3150	2200	NA	
Chromium	--	20.3	11.8	14.9	14	17.1	18.2	28.9	27.6	16	20	24.7	16	20	28	16.8	24.2	26	19.9	19.5	
Cobalt	--	NA	6.1 U	NA	6.1	NA	NA	10.3	10.6	NA	13	5.7 U	5.6	5.9	9.7	5.9	9.4	9.3	8.1	NA	
Copper	50	45.7	26.1	32.7	38	23.6	28.5	12.5	14.3	62.3	450	16.1	93	100	35.2	17.7	18.2	11.4	9.7	105	
Hexavalent Chromium	1	1.1 U	1.2 U	1.2 U	NA	1.2 U	1.3 U	NA	NA	1.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3 U	
Iron	--	NA	12000	NA	13000	NA	NA	29800	28800	NA	36000	12200	15000	19000	26300	11700	26200	27400	22300	NA	
Lead	63	95.2	56.3	62.3	280	39	244	10.6	11.7	577	470	65.3	240	980	89.1	12.1	26.4	10.4	8.4	688	
Magnesium	--	NA	3320	NA	1600	NA	NA	6990	7030	NA	2200	2110	1300	1100	5730	2480	5400	6060	4820	NA	
Manganese	1600	NA	260	NA	170	NA	NA	585	500	NA	240	151	160	240	296	239	404	602	380	NA	
Mercury	0.18	0.19	0.25	0.41	2.1	0.2	1	0.046 U	0.047 U	1.1	2.4	0.29	2.9	2.4	1.3	0.071	0.25	0.042 U	0.038 U	4.3	
Nickel	30	17.4	11.6	16.1	16	14.7	16.4	24	24	14.8	19	14.3	15	20	24.3	11.3	22.3	21.4	19.4	19.2	
Potassium	--	NA	1570	NA	960	NA	NA	3630	3680	NA	1000	1220	680 U	680 U	2870	1960	2780	3090	2390	NA	
Selenium	3.9	2.3 U	2.4 U	2.3 U	2.6 U	2.4 U	2.6 U	3 U	2.9 U	3.9	2.3 U	2.3 U	2.4 U	2.7	2.8 U	2.2 U	3 U	2.9 U	2.4 U	2.7	
Silver	2	1.1 U	1.2 U	1.2 U	2.1 U	1.2 U	1.3 U	1.5 U	1.5 U	1.2 U	1.9 U	1.1 U	2 U	2.1 U	1.4 U	1.1 U	1.5 U	1.4 U	1.2 U	1.4 U	
Sodium	--	NA	1200 U	NA	400	NA	NA	2060	2210	NA	380	1100 U	360	340 U	1400 U	1100 U	1500 U	1400 U	1200 U	NA	
Thallium	--	1.1 U	1.2 U	1.2 U	1.7 U	1.2 U	1.3 U	1.5 U	1.5 U	1.2 U	1.5 U	1.1 U	1.6 U	1.6 U	1.4 U	1.1 U	1.5 U	1.4 U	1.2 U	1.4 U	
Trivalent Chromium	30	NA	11.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Vanadium	--	25	21.1	17.6	22	19	22.2	31.3	32	22.2	29	11.9	18	21	29.3	18.6	27	28.7	23.1	22.1	
Zinc	109	96	63.9	238	160	58.3	89.7	66.5	65.3	266	510	54.9	250	300	89.6	23.1	66.8	59.5	50.8	278	

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 5. Summary of Metals in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	B-5D		B-6S				B-6D	B-7S	C-2S	C-2D		C-3S			C-3D			
Parameter (Concentrations in mg/kg)	Unrestricted Use		B-5D	B-5R	B-6S	LB-6	LB-6	SB-26	LB-6	SB-24	C-2S	C-2D	SB-11	C-3S	LB-7	SB-21	C-3D	C-3R	LB-7	LB-7R
	Soil Cleanup Objectives		3/6/2008	7/10/2009	3/6/2008	2/1/2008	1/28/2008	10/29/2007	1/28/2008	10/26/2007	3/5/2008	3/5/2008	10/24/2007	3/5/2008	2/1/2008	10/26/2007	3/5/2008	7/8/2009	1/15/2008	7/8/2009
	(mg/kg)		10-20	16-16.5	0-10	1-3	5-9	7-9	12-16	2-5	0-10	10-20	14-15	0-10	1-5	7.5-10	10-20	17.5-18	9-13	19-19.5
Aluminum	--		NA	7930	NA	9620	7040	8700	10200	4100	NA	NA	11000	NA	6840	6700	NA	7320	3850	13100
Antimony	--		2.7 U	2.7 U	NA	2.4 U	2.7 U	2.4 U	2.6 U	2.2 U	2.4 U	NA	2.4 U	NA	2.5 U	2.5 U	2.5 U	2.3 U	2.6 U	2.2 U
Arsenic	13		17.6	7.9	NA	4.8	3.7	7.9	3.6	2.2 U	3.1	NA	5.3	NA	3.8	3.9	82.2	8.6	2.6	4.2
Barium	350		792	313	124	135	56.4	110	69.9	62	91.5	94.5	410	111	77.6	99	134	261	85.5	76.5
Beryllium	7.2		0.67 U	0.68 U	NA	0.6 U	0.67 U	0.73 U	0.66 U	0.66 U	0.6 U	NA	0.72 U	NA	0.64 U	0.75 U	0.63 U	0.61	0.64 U	0.55 U
Cadmium	2.5		0.67 U	0.68 U	NA	0.6 U	0.67 U	0.73 U	0.66 U	0.66 U	0.6 U	NA	0.72 U	NA	0.64 U	0.75 U	0.63 U	0.58 U	0.64 U	0.55 U
Calcium	--		NA	11700	NA	14600	13200	2400	4300	2100	NA	NA	3500	NA	9330	4100	NA	4610	17700	2450
Chromium	--		27.9	17.9	NA	18.5	10.6	19	18.3	8	14.8	NA	28	NA	13.6	15	25.2	16.6	8.9	17.3
Cobalt	--		NA	8	NA	8.2	6.7 U	6.7	8.7	3.9	NA	NA	9.8	NA	6.4 U	6.1	NA	5.8 U	6.4 U	6.8
Copper	50		300	119	NA	50.4	34.1	26	31	8.6	29.8	NA	38	NA	25.3	34	62.2	129	19.5	17.2
Hexavalent Chromium	1		1.4 U	NA	NA	1.2 U	1.3 U	NA	1.3 U	NA	1.1 U	NA	NA	NA	1.2 U	NA	1.3 U	NA	1.3 U	NA
Iron	--		NA	27400	NA	15700	11000	30000	16900	8400	NA	NA	21000	NA	11500	15000	NA	8740	9940	16900
Lead	63		1220	449	NA	95.9	43.3	49	60.4	12	45	NA	290	NA	129	170	167	792	523	37.8
Magnesium	--		NA	1270	NA	4400	3070	2400	4250	2600	NA	NA	5400	NA	2720	2200	NA	1100	1520	2510
Manganese	1600		NA	222	NA	248	148	890	182	220	NA	NA	200	NA	147	380	NA	106	140	170
Mercury	0.18		4	7.1	NA	0.56	0.12	0.21	0.26	0.092 U	0.27	NA	0.59	NA	0.12	5.2	1.5	1.4	2.8	0.26
Nickel	30		20.5	19.5	NA	15.9	10.3	12	19.9	7.5	22.6	NA	23	NA	13.8	11	24.5	14.3	8	12.7
Potassium	--		NA	1400 U	NA	3460	1820	610 U	2140	2700	NA	NA	3900	NA	1920	1100	NA	1200 U	1300 U	1100 U
Selenium	3.9		4.9	2.7 U	NA	2.4 U	2.7 U	2.2 U	2.6 U	2 U	2.4 U	NA	2.2 U	NA	2.5 U	2.2 U	2.5 U	2.3 U	2.6 U	2.2 U
Silver	2		1.3 U	1.4 U	NA	1.2 U	1.3 U	1.8 U	1.3 U	1.6 U	1.2 U	NA	1.8 U	NA	1.3 U	1.9 U	1.3 U	1.2 U	1.3 U	1.1 U
Sodium	--		NA	1400 U	NA	1200 U	1300 U	300 U	1300 U	270 U	NA	NA	330	NA	1300 U	320	NA	1200 U	1300 U	1100 U
Thallium	--		1.3 U	1.4 U	NA	1.2 U	1.3 U	1.5 U	1.3 U	1.3 U	1.2 U	NA	1.4 U	NA	1.3 U	1.5 U	1.3 U	1.2 U	1.3 U	1.1 U
Trivalent Chromium	30		NA	NA	NA	18.5	10.6	NA	18.3	NA	NA	NA	NA	NA	13.6	NA	NA	NA	8.9	NA
Vanadium	--		25.4	20.7	26	23.7	14.4	22	20.9	11 U	16.3	24.7	34	23.8	16.8	20	24.8	25.3	10.4	24.4
Zinc	109		369	245	NA	87.3	54.1	80	66.5	39	71.4	NA	220	NA	89	64	93.8	86.9	44.6	42.1

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 5. Summary of Metals in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls)	C-3DD			C-4S	C-4D		C-4DD		C-5S	C-5D	C-6S	C-6D	C-7S				D-2S	D-2D	D-3S		
Parameter (Concentrations in mg/kg)	Unrestricted Use		C-3R	LB-7	LB-7R	C-4S	SB-18	SB-18R	SB-18R	SB-18R	C-5S	C-5D	C-6S	SB-19	C-7S	LB-8	SB-20	SB-20 DUP	D-2S	SB-12	D-3S	LB-9	LB-9
	Soil Cleanup Objectives		7/8/2009	1/15/2008	7/8/2009	3/5/2008	10/25/2007	7/9/2009	7/9/2009	7/9/2009	3/5/2008	3/5/2008	3/4/2008	10/26/2007	3/4/2008	1/25/2008	10/26/2007	10/26/2007	3/3/2008	10/25/2007	3/3/2008	2/1/2008	1/15/2008
	(mg/kg)		20-20.5	20-25	21-21.5	0-10	12.5-15	19.5-20	21.5-22	30-30.5	0-10	10-20	0-10	15-18	0-10	3-9	2.5-5	2.5-5	0-10	12-14	0-10	0-6	6-8
Aluminum	--	14400	10600	14800	NA	6000	4300	12100	6400	NA	NA	NA	8000	NA	5440	8900	6900	NA	7300	NA	8030	7230	
Antimony	--	3 U	2.4 U	3.1 U	2.7 U	2.6 U	2.4 U	2.5 U	2.2 U	2.8 U	2.9 U	2.3 U	2.5 U	NA	2.4 U	2.3 U	2.3 U	8.8	2.4 U	2.4 U	2.3 U	2.5 U	
Arsenic	13	8.5	17.6	8.1	12.7	11	5.4	7	2.4	8.4	11.9	11	8.6	NA	5.2	4.6	2.3 U	35.9	4.7	2.9	4.9	6.6	
Barium	350	38.8	187	36.2	250	190	140	36.8	40.7	179	324	134	160	109	85	180	110	64.2	100	79.9	112	84	
Beryllium	7.2	0.83	0.66	0.84	0.66 U	0.78 U	0.61 U	0.71	0.54 U	0.71 U	0.88	0.59 U	0.74 U	NA	0.61 U	0.7 U	0.7 U	0.55 U	0.71 U	0.6 U	0.58 U	0.64 U	
Cadmium	2.5	0.75 U	0.61 U	0.76 U	1.5	0.78 U	0.61 U	0.62 U	0.54 U	0.71 U	0.73 U	0.59 U	0.74 U	NA	0.61 U	0.7 U	0.7 U	1.4	0.71 U	0.6 U	0.58 U	0.64 U	
Calcium	--	3310	9280	2760	NA	8200	10300	2470	678	NA	NA	NA	31000	NA	28800	78000	68000	NA	3900	NA	23300	6660	
Chromium	--	27.4	21.3	27.1	18.1	14	13.4	23	13	17.2	15.5	14.1	15	NA	11	16	10	15.9	14	13	20.8	15.8	
Cobalt	--	10.2	8.2	10.6	NA	6.7	6.1 U	8.3	5.4 U	NA	NA	NA	4.1	NA	6.1 U	4.3	3.8	NA	6.1	NA	8.4	6.8	
Copper	50	14.5	45.1	13	48.8	61	104	11.3	8.3	43.9	42.7	49.8	78	NA	49.6	39	20	37.7	32	16.6	22.3	23	
Hexavalent Chromium	1	NA	1.2 U	NA	1.4 U	NA	NA	NA	NA	1.4 U	1.5 U	1.2 U	NA	NA	1.2 U	NA	NA	1.1 U	NA	1.1 U	1.2 U	1.2 U	
Iron	--	29900	17700	30600	NA	17000	15900	24200	10900	NA	NA	NA	15000	NA	12400	11000	9100	NA	14000	NA	13800	20600	
Lead	63	16.3	221	11.3	432	540	137	12.3	3.1	200	283	332	260	NA	164	72	38	945	100	39.4	48.4	195	
Magnesium	--	6970	3180	7050	NA	1300	2720	5290	1960	NA	NA	NA	3100	NA	3000	4500	3400	NA	3300	NA	3550	2730	
Manganese	1600	607	251	623	NA	170	214	582	128	NA	NA	NA	230	NA	192	190	170	NA	160	NA	148	181	
Mercury	0.18	0.059	1.7	0.044 U	2.4	1.1	2.2	0.042 U	0.034 U	0.66	3.1	1.6	3.3	NA	0.68	0.6	0.21	0.69	1.4	0.079	0.41	1.2	
Nickel	30	23	18.6	23.3	17.3	15	12	19	9.1	17.5	20.6	14.3	12	NA	10	11	11	39.9	14	11.1	13.3	15.1	
Potassium	--	3430	1770	3520	NA	1000	1200 U	2770	1440	NA	NA	NA	1600	NA	1300	1600	1200	NA	2400	NA	1720	1680	
Selenium	3.9	3 U	2.4 U	3.1 U	5	2.3 U	2.4 U	2.5 U	2.2 U	2.8 U	3.1	2.6	2.2 U	NA	2.4 U	2.1 U	2.1 U	2.2 U	2.1 U	2.4 U	2.3 U	2.5 U	
Silver	2	1.5 U	1.2 U	1.5 U	1.3 U	1.9 U	1.2 U	1.2 U	1.1 U	1.4 U	1.5 U	1.2 U	1.9 U	NA	1.2 U	1.7 U	1.7 U	1.1 U	1.8 U	1.2 U	1.2 U	1.3 U	
Sodium	--	2040	1200 U	1700	NA	320 U	1200 U	1200 U	1100 U	NA	NA	NA	900	NA	1200 U	600	440	NA	300 U	NA	1200 U	1300 U	
Thallium	--	1.5 U	1.2 U	1.5 U	1.3 U	1.6 U	1.2 U	1.2 U	1.1 U	1.4 U	1.5 U	1.2 U	1.5 U	NA	1.2 U	1.4 U	1.4 U	1.1 U	1.4 U	1.2 U	1.2 U	1.3 U	
Trivalent Chromium	30	NA	21.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	20.8	15.8	
Vanadium	--	31.3	24.9	31.3	23.9	23	16.9	26.1	17.3	26.8	32.4	18.2	24	17	21.4	21	15	16.6	19	16	24.1	17.3	
Zinc	109	78.2	140	98.2	1250	240	106	54.7	17.3	108	989	166	180	NA	108	170	110	775	64	88.3	106	62.5	

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 5. Summary of Metals in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	D-3D				D-4S			D-4D					D-4DD				D-5S			
Unrestricted Use	Soil Cleanup Objectives (mg/kg)		D-3D	D-3R	D-3R	LB-9	LB-10	LB-10	LB-10	D-4D	D-4R	SB-13	SB-13R	SB-13R	D-4R	LB-10	LB-10	LB-10	D-5S	SB-14	SB-15	LB-11
Parameter			3/4/2008	7/8/2009	7/8/2009	1/24/2008	2/1/2008	1/24/2008	1/22/2008	3/4/2008	7/8/2009	10/25/2007	7/8/2009	7/8/2009	7/8/2009	2/1/2008	1/22/2008	1/24/2008	3/4/2008	10/25/2007	10/25/2007	2/1/2008
(Concentrations in mg/kg)			10-20	15.5-16	17.5-18	10-12	0-4	4-8	8-12	10-28	18.5-19	15-17.5	17.5-18	19.5-20	20.5-21	20-27	22-27	25-27	0-10	0-2	0-2	8-10
Aluminum	--	NA	6450	14500	7790	4780	4280	6000	NA	9040	4500	5560	13600	14000	14300	11700	11200	NA	4000	7400	5760	
Antimony	--	2.6 U	2.6 U	2.6 U	2.9 U	2.5 U	2.4 U	2.7 U	2.9 U	2.6 U	2.9 U	2.9 U	2.6 U	2.9 U	3.1 U	2.8 U	2.8 U	2.3 U	2.3 U	4.9	2.3 U	
Arsenic	13	5.7	9.9	9.9	7.8	8	2.8	6.6	8.5	8.3	9.3	6.8	6.8	15.3	12.1	7.3	8.2	7	5.7	20	2.3 U	
Barium	350	126	246	86	139	540	52.8	138	199	244	220	185	34.5	36.8	174	109	37.8	138	98	130	45.7	
Beryllium	7.2	0.66 U	0.71	0.65	0.71 U	0.63 U	0.6 U	0.68 U	0.9	0.93	0.86 U	0.72 U	0.74	0.78	0.78 U	0.7 U	0.71 U	0.57 U	0.68 U	0.69 U	0.57 U	
Cadmium	2.5	0.66 U	0.66 U	0.64 U	0.71 U	0.63 U	0.6 U	0.68 U	0.73 U	0.64 U	0.86 U	0.72 U	0.64 U	0.72 U	0.78 U	0.7 U	0.71 U	0.57 U	0.68 U	0.69 U	0.57 U	
Calcium	--	NA	4990	6650	3750	77300	58000	7940	NA	8070	40000	9060	2430	2750	4460	4160	2070	NA	15000	12000	60500	
Chromium	--	14.9	12.1	29.3	14	65.8	10.9	10.2	11.9	13.7	9.9	11.1	24.3	25.8	29.7	24.6	21	18.2	17	16	7.9	
Cobalt	--	NA	7.9	9.6	7.1 U	6.3 U	6 U	6.8 U	NA	9.6	5.7	7.2 U	9.3	10.5	9.9	7.7	7.6	NA	4.5	7.3	5.7 U	
Copper	50	25.8	38.1	46.1	141	504	30.1	46.2	67.7	45.2	360	51.6	12	12.9	50.2	38.4	10.2	50.6	29	57	17	
Hexavalent Chromium	1	1.3 U	NA	NA	1.4 U	1.2 U	1.2 U	1.3 U	1.4 U	NA	NA	NA	NA	NA	1.6 U	1.4 U	1.5 U	1.2 U	NA	NA	1.1 U	
Iron	--	NA	22500	26100	13900	12700	12500	11200	NA	10200	15000	10400	25400	29900	26500	21800	23700	NA	12000	28000	6720	
Lead	63	130	816	134	200	377	80.7	470	168	198	190	175	11.2	11.1	333	218	11.3	250	160	790	7.6	
Magnesium	--	NA	1030	7240	1520	1840	2310	695	NA	789	890	1200	5710	5910	4730	4300	4560	NA	2600	3200	16600	
Manganese	1600	NA	208	288	142	184	126	122	NA	134	190	139	492	499	346	262	427	NA	220	260	133	
Mercury	0.18	0.82	0.71	1.7	0.89	0.68	0.52	0.76	1.9	0.96	0.51	1.3	0.041 U	0.046 U	1.4	1.9	0.043 U	2.7	4.3	0.73	0.049	
Nickel	30	14.6	17.2	23	13.8	16.7	9.7	14.4	19.7	23	11	12.5	21.4	22.9	22.8	18	16.8	16.6	10	18	5.1	
Potassium	--	NA	1300 U	2970	1400 U	1300 U	1830	1400 U	NA	1300 U	990	1400 U	3060	3150	2710	2330	2440	NA	780	1900	1620	
Selenium	3.9	2.6 U	3.4	2.6 U	2.9 U	2.5 U	2.4 U	2.7 U	3.5	2.6 U	2.6 U	2.9 U	2.6 U	2.9 U	3.4	2.8 U	2.8 U	2.3 U	2 U	2.1 U	2.3 U	
Silver	2	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.2 U	1.7	1.5 U	1.3 U	2.1 U	1.4 U	1.3 U	1.4 U	1.6 U	1.4 U	1.4 U	1.1 U	1.7 U	1.7 U	1.1 U	
Sodium	--	NA	1300 U	1300 U	1400 U	1300 U	1200 U	1400 U	NA	1300 U	840	1400 U	1300 U	1400 U	1600 U	1400 U	1400 U	NA	280 U	290 U	1100 U	
Thallium	--	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.2 U	1.4 U	1.5 U	1.3 U	1.7 U	1.4 U	1.3 U	1.4 U	1.6 U	1.4 U	1.4 U	1.1 U	1.4 U	1.4 U	1.1 U	
Trivalent Chromium	30	NA	NA	NA	14	65.8	10.9	10.2	NA	NA	NA	NA	NA	NA	29.7	24.6	21	NA	NA	NA	7.9	
Vanadium	--	20	22.1	29.6	20	16.5	15.2	23.4	24.2	26.5	26	18.6	28	31	34.2	26.8	26.3	19.3	17	20	12.4	
Zinc	109	64.1	159	135	143	521	89.4	67.9	97.9	65.7	130	92.4	59.3	63.3	194	123	50.2	141	98	150	17.3	

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 5. Summary of Metals in Soil as Compared to Part 375 Unrestricted SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Part 375		Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	D-5D		D-6S		D-7S	SW-2S	SW-3S
Parameter (Concentrations in mg/kg)	Unrestricted Use		D-5D	LB-11	D-6S	SB-16	SB-17	SW-2S	SW-3S
	Soil Cleanup Objectives		3/4/2008	1/23/2008	3/4/2008	10/29/2007	10/29/2007	3/10/2008	3/10/2008
	(mg/kg)		10-20	12-20	3-4	0-2	2-4	0-5	0-5
Aluminum	--		NA	7020	NA	7100	7000	NA	NA
Antimony	--		2.5 U	2.5 U	2.4 U	2.4 U	2.2 U	2.4 U	2.4 U
Arsenic	13		6.5	2.5 U	4.3	2.5	3.7	3.8	4.7
Barium	350		126	41.5	187	680	110	159	120
Beryllium	7.2		0.63 U	0.63 U	0.6 U	0.71 U	0.67 U	1.2	0.94
Cadmium	2.5		0.63 U	0.63 U	0.6 U	0.71 U	0.67 U	0.6 U	0.6 U
Calcium	--		NA	3650	NA	78000	71000	NA	NA
Chromium	--		14.5	13.3	14.6	11	9.6	22.7	17.2
Cobalt	--		NA	6.3 U	NA	8	5.3	NA	NA
Copper	50		64.1	117	36.4	23	23	29.6	27.1
Hexavalent Chromium	1		1.2 U	1.2 U	1.6	NA	NA	1.2 U	1.2 U
Iron	--		NA	13000	NA	10000	8300	NA	NA
Lead	63		208	28.5	88.8	55	38	82.2	104
Magnesium	--		NA	2460	NA	15000	3800	NA	NA
Manganese	1600		NA	229	NA	190	150	NA	NA
Mercury	0.18		1.4	0.18	0.31	0.36	0.13	0.13	0.29
Nickel	30		15	12.8	13.3	10	9.6	15.7	13.2
Potassium	--		NA	1630	NA	740	1200	NA	NA
Selenium	3.9		2.5 U	2.5 U	2.4 U	2.1 U	2 U	2.4 U	2.4 U
Silver	2		1.3 U	1.3 U	1.2 U	1.8 U	1.7 U	1.2 U	1.2 U
Sodium	--		NA	1300 U	NA	300 U	630	NA	NA
Thallium	--		1.3 U	1.3 U	1.2 U	1.4 U	1.3 U	1.2 U	1.2 U
Trivalent Chromium	30		NA	13.3	NA	NA	NA	NA	NA
Vanadium	--		18.2	17	14.9	17	20	23	19.9
Zinc	109		111	36.3	178	530	73	127	110

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective
NA - Not analyzed by laboratory

Table 6. Summary of Polychlorinated Biphenyl Compounds in Soil, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375 Unrestricted Use Soil Cleanup Objectives (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S		A-2D		A-3S		A-3D		A-3DD	A-4S		
			A-2S	LB-1	A-2D	LB-1	A-3S	LB-2	A-3D	LB-2	LB-2	A-4S	LB-3	LB-3
			3/7/2008	1/31/2008	3/7/2008	1/31/2008	3/7/2008	1/29/2008	3/7/2008	1/29/2008	2/1/2008	3/5/2008	2/1/2008	1/29/2008
			0-10	1-7	10-20	13-19	0-10	2-6	10-20	10-17	23-25	0-10	0-6	6-11
Aroclor-1016	--		39 U	38 U	46 U	39 U	39 U	40 U	54 U	140 U	51 U	40 U	40 U	41 U
Aroclor-1221	--		39 U	38 U	46 U	39 U	39 U	40 U	54 U	140 U	51 U	40 U	40 U	41 U
Aroclor-1232	--		39 U	38 U	46 U	39 U	39 U	40 U	54 U	140 U	51 U	40 U	40 U	41 U
Aroclor-1242	--		39 U	38 U	46 U	39 U	39 U	40 U	54 U	140 U	51 U	40 U	40 U	41 U
Aroclor-1248	--		39 U	38 U	46 U	39 U	39 U	40 U	54 U	140 U	51 U	40 U	40 U	41 U
Aroclor-1254	--		39 U	38 U	46 U	39 U	39 U	40 U	54 U	140 U	51 U	40 U	40 U	41 U
Aroclor-1260	--		39 U	38 U	46 U	39 U	39 U	40 U	54 U	140 U	51 U	40 U	40 U	41 U
Aroclor-1262	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs:	100		0	0	0	0	0	0	0	0	0	0	0	0

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective

Table 6. Summary of Polychlorinated Biphenyl Compounds in Soil, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375 Unrestricted Use Soil Cleanup Objectives (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-4D		A-4DD	A-6S				A-6D	A-7S		B-2S	B-2D	B-3S	B-3D
			A-4D	LB-3	LB-3	A-6S	LB-4	LB-4	LB-4	LB-4	A-7S	LB-5	B-2S	B-2D	B-3S	B-3D
			3/5/2008	1/29/2008	2/1/2008	3/6/2008	1/31/2008	1/24/2008	1/31/2008	1/24/2008	3/7/2008	2/1/2008	3/7/2008	3/7/2008	3/7/2008	3/7/2008
			10-20	11-17	23-27	0-10	1-3	3-7	9-11	13-19	0-10	2-6	0-10	10-20	0-10	10-20
Aroclor-1016	--		51 U	43 U	49 U	40 U	39 U	37 U	42 U	42 U	37 U	39 U	39 U	39 U	39 U	42 U
Aroclor-1221	--		51 U	43 U	49 U	40 U	39 U	37 U	42 U	42 U	37 U	39 U	39 U	39 U	39 U	42 U
Aroclor-1232	--		51 U	43 U	49 U	40 U	39 U	37 U	42 U	42 U	37 U	39 U	39 U	39 U	39 U	42 U
Aroclor-1242	--		51 U	43 U	49 U	103	39 U	37 U	42 U	42 U	37 U	39 U	39 U	39 U	39 U	42 U
Aroclor-1248	--		51 U	43 U	49 U	40 U	39 U	37 U	42 U	42 U	37 U	39 U	39 U	39 U	39 U	42 U
Aroclor-1254	--		51 U	43 U	49 U	156	39 U	37 U	42 U	42 U	37 U	39 U	39 U	39 U	39 U	42 U
Aroclor-1260	--		51 U	43 U	49 U	40 U	39 U	37 U	42 U	42 U	37 U	39 U	39 U	39 U	39 U	42 U
Aroclor-1262	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs:	100		0	0	0	259	0	0	0	0	0	0	0	0	0	0

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective

Table 6. Summary of Polychlorinated Biphenyl Compounds in Soil, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375 Unrestricted Use Soil Cleanup Objectives (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	B-4S	B-4D	B-5S	B-5D	B-6S			B-6D	B-7S	C-2S	C-2D		
			B-4S	B-4D	B-5S	B-5D	B-6S	LB-6	LB-6	LB-6	B-7S	C-2S	C-2D	SB-11	
			3/6/2008	3/6/2008	3/6/2008	3/6/2008	3/6/2008	2/1/2008	1/28/2008	1/28/2008	1/28/2008	3/7/2008	3/5/2008	3/5/2008	10/30/2007
			0-10	10-20	0-10	10-20	0-10	1-3	5-9	12-16	0-10	0-10	10-20	14-15	
Aroclor-1016	--		41 U	46 U	44 U	46 U	38 U	39 U	42 U	120 U	38 U	38 U	NA	31 U	
Aroclor-1221	--		41 U	46 U	44 U	46 U	38 U	39 U	42 U	120 U	38 U	38 U	NA	31 U	
Aroclor-1232	--		41 U	46 U	44 U	46 U	38 U	39 U	42 U	120 U	38 U	38 U	NA	31 U	
Aroclor-1242	--		41 U	46 U	44 U	46 U	38 U	39 U	42 U	120 U	38 U	38 U	NA	31 U	
Aroclor-1248	--		41 U	46 U	44 U	46 U	38 U	39 U	42 U	120 U	38 U	38 U	NA	31 U	
Aroclor-1254	--		41 U	46 U	44 U	46 U	38 U	39 U	42 U	120 U	56.3	38 U	NA	31 U	
Aroclor-1260	--		41 U	46 U	44 U	46 U	38 U	39 U	42 U	120 U	38 U	38 U	NA	31 U	
Aroclor-1262	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 U	
Total PCBs:	100		0	0	0	0	0	0	0	0	56.3	0	0	0	

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective

Table 6. Summary of Polychlorinated Biphenyl Compounds in Soil, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375	Precharacterization Cell:	C-3S			C-3D		C-3DD	C-4S	C-4D		C-5S	C-5D	C-6S	C-7S	
	Unrestricted Use	Sample Designation:	C-3S	LB-7	SB-21	C-3D	LB-7	LB-7	C-4S	C-4D	SB-18	C-5S	C-5D	C-6S	C-7S	LB-8
	Soil Cleanup Objectives	Sample Date:	3/5/2008	2/1/2008	10/30/2007	3/5/2008	1/15/2008	1/15/2008	3/5/2008	3/5/2008	10/30/2007	3/5/2008	3/5/2008	3/4/2008	3/4/2008	1/25/2008
	(µg/kg)	Sample Depth (ft bls):	0-10	1-5	7.5-10	10-20	9-13	20-25	0-10	10-20	12.5-15	0-10	10-20	0-10	0-10	3-9
Aroclor-1016	--		39 U	42 U	32 U	43 U	41 U	41 U	45 U	46 U	35 U	46 U	49 U	40 U	38 U	39 U
Aroclor-1221	--		39 U	42 U	32 U	43 U	41 U	41 U	45 U	46 U	35 U	46 U	49 U	40 U	38 U	39 U
Aroclor-1232	--		39 U	42 U	32 U	43 U	41 U	41 U	45 U	46 U	35 U	46 U	49 U	40 U	38 U	39 U
Aroclor-1242	--		39 U	42 U	32 U	43 U	41 U	41 U	45 U	46 U	35 U	46 U	49 U	40 U	38 U	39 U
Aroclor-1248	--		39 U	42 U	32 U	43 U	41 U	41 U	45 U	46 U	35 U	46 U	49 U	40 U	38 U	39 U
Aroclor-1254	--		39 U	42 U	32 U	43 U	41 U	41 U	45 U	46 U	35 U	46 U	49 U	40 U	38 U	39 U
Aroclor-1260	--		39 U	42 U	32 U	43 U	41 U	41 U	45 U	46 U	35 U	46 U	49 U	40 U	38 U	39 U
Aroclor-1262	--		NA	NA	32 U	NA	NA	NA	NA	NA	35 U	NA	NA	NA	NA	NA
Total PCBs:	100		0	0	0	0	0	0	0	0	0	0	0	0	0	0

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective

Table 6. Summary of Polychlorinated Biphenyl Compounds in Soil, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375	Precharacterization Cell:	D-2S	D-2D	D-3S				D-3D	D-4S				D-4D	
	Unrestricted Use	Sample Designation:	D-2S	D-2D	D-3S	LB-9	LB-9	LB-9	D-3D	D-4S	LB-10	LB-10	LB-10	D-4D	SB-13
	Soil Cleanup Objectives	Sample Date:	3/3/2008	3/3/2008	3/3/2008	2/1/2008	1/15/2008	1/24/2008	3/4/2008	3/4/2008	2/1/2008	1/24/2008	1/22/2008	3/4/2008	10/30/2007
	(µg/kg)	Sample Depth (ft bls):	0-10	10-20	0-10	0-6	6-8	10-12	10-20	0-10	0-4	4-8	8-12	10-28	15-17.5
Aroclor-1016	--		37 U	37 U	38 U	41 U	42 U	45 U	42 U	NA	41 U	41 U	45 U	46 U	37 U
Aroclor-1221	--		37 U	37 U	38 U	41 U	42 U	45 U	42 U	NA	41 U	41 U	45 U	46 U	37 U
Aroclor-1232	--		37 U	37 U	38 U	41 U	42 U	45 U	42 U	NA	41 U	41 U	45 U	46 U	37 U
Aroclor-1242	--		37 U	37 U	38 U	41 U	42 U	45 U	42 U	NA	41 U	41 U	45 U	46 U	37 U
Aroclor-1248	--		37 U	37 U	38 U	41 U	42 U	45 U	42 U	NA	41 U	41 U	45 U	46 U	37 U
Aroclor-1254	--		37 U	37 U	38 U	41 U	42 U	45 U	42 U	NA	41 U	41 U	45 U	46 U	37 U
Aroclor-1260	--		37 U	37 U	38 U	41 U	42 U	45 U	42 U	NA	41 U	41 U	45 U	46 U	37 U
Aroclor-1262	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U
Total PCBs:	100		0	0	0	0	0	0	0	0	0	0	0	0	0

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective

Table 6. Summary of Polychlorinated Biphenyl Compounds in Soil, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Part 375 Unrestricted Use Soil Cleanup Objectives (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	D-4DD			D-5S		D-5D		D-6S	D-7S	SW-2S	SW-3S
			LB-10	LB-10	LB-10	D-5S	LB-11	D-5D	LB-11	D-6S	D-7S	SW-2S	SW-3S
			2/1/2008	1/22/2008	1/24/2008	3/4/2008	2/1/2008	3/4/2008	1/23/2008	3/4/2008	3/4/2008	3/10/2008	3/10/2008
			20-27	22-27	25-27	0-10	8-10	10-20	12-20	3-4	0-3	0-5	0-5
Aroclor-1016	--		160 U	46 U	49 U	39 U	38 U	41 U	40 U	38 U	37 U	39 U	40 U
Aroclor-1221	--		160 U	46 U	49 U	39 U	38 U	41 U	40 U	38 U	37 U	39 U	40 U
Aroclor-1232	--		160 U	46 U	49 U	39 U	38 U	41 U	40 U	38 U	37 U	39 U	40 U
Aroclor-1242	--		160 U	46 U	49 U	39 U	38 U	41 U	40 U	38 U	37 U	39 U	40 U
Aroclor-1248	--		160 U	46 U	49 U	39 U	38 U	41 U	40 U	38 U	37 U	39 U	40 U
Aroclor-1254	--		160 U	46 U	49 U	39 U	38 U	41 U	40 U	38 U	37 U	39 U	40 U
Aroclor-1260	--		160 U	46 U	49 U	39 U	38 U	41 U	40 U	38 U	37 U	39 U	40 U
Aroclor-1262	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs:	100		0	0	0	0	0	0	0	0	0	0	0

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Standard available
NYSDEC - New York State Department of Environmental Conservation
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Soil Cleanup Objective

Table 7. Summary of Volatile Organic Compounds in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	A-2S	A-2D		A-3D	A-3DD	A-4DD	B-6D	C-2D
		Sample Designation:	LB-1	A-2D	LB-1	LB-2	LB-2	LB-3	LB-6	SB-11
		Sample Date: Sample Depth (ft bls):	1/31/2008 1-7	3/7/2008 10-20	1/31/2008 13-19	1/29/2008 10-17	2/1/2008 23-25	2/1/2008 23-27	1/28/2008 12-16	10/30/2007 14-15
1,1-Dichloroethene	--		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-Dichloroethane	--		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,4-Dichlorobenzene	7.5		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
2-Butanone (MEK)	--		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.005 U
Benzene	0.5		0.005 U	0.005 U	0.005 U	0.004 J	0.005 U	0.005 U	0.005 U	0.001 U
Carbon tetrachloride	0.5		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chlorobenzene	100		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chloroform	6		0.005 U	0.005 U	0.005 U	0.005 U	0.003 J	0.005 U	0.005 U	0.026
Tetrachloroethene	0.7		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Trichloroethene	0.5		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U
Vinyl chloride	0.2		0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.005 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

Table 7. Summary of Volatile Organic Compounds in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	C-3S	C-3D	C-3DD	C-4D		D-3S	D-3D	D-4D
		Sample Designation:	SB-21	LB-7	LB-7	C-4D	SB-18	LB-9	LB-9	SB-13
		Sample Date: Sample Depth (ft bls):	10/30/2007 7.5-10	1/15/2008 9-13	1/15/2008 20-25	3/5/2008 10-20	10/30/2007 12.5-15	1/15/2008 6-8	1/24/2008 10-12	10/30/2007 15-17.5
1,1-Dichloroethene	--		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-Dichloroethane	--		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,4-Dichlorobenzene	7.5		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
2-Butanone (MEK)	--		0.005 U	0.1 U	0.1 U	0.1 U	0.005 U	0.1 U	0.1 U	0.005 U
Benzene	0.5		0.0061	0.0043 J	0.005 U	0.0163	0.0033	0.005 U	0.0061	0.008
Carbon tetrachloride	0.5		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chlorobenzene	100		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chloroform	6		0.029	0.005 U	0.005 U	0.0045 J	0.025	0.0088	0.005 U	0.037
Tetrachloroethene	0.7		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Trichloroethene	0.5		0.001 U	0.005 U	0.005 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
Vinyl chloride	0.2		0.005 U	0.025 U	0.025 U	0.025 U	0.005 U	0.025 U	0.025 U	0.005 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

Table 8. Summary of Semivolatile Organic Compounds in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	A-2S	A-2D		A-3D	A-3DD	A-4DD	B-6D	C-2D
		Sample Designation:	LB-1	A-2D	LB-1	LB-2	LB-2	LB-3	LB-6	SB-11
		Sample Date: Sample Depth (ft bls):	1/31/2008 1-7	3/7/2008 10-20	1/31/2008 13-19	1/29/2008 10-17	2/1/2008 23-25	2/1/2008 23-27	1/28/2008 12-16	10/30/2007 14-15
1,4-Dichlorobenzene	7.5		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA
2,4,5-Trichlorophenol	400		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
2,4,6-Trichlorophenol	2		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
2,4-Dinitrotoluene	0.13		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
2-Methylphenol	--		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
3&4-Methylphenol	--		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
4-Methylphenol	--		NA	NA	NA	NA	NA	NA	NA	0.04 U
Hexachlorobenzene	0.13		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
Hexachlorobutadiene	--		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
Hexachloroethane	--		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
Nitrobenzene	2		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U
Pentachlorophenol	100		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U
Pyridine	5		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 8. Summary of Semivolatile Organic Compounds in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	C-3S	C-3D	C-3DD	C-4D		D-3S	D-3D	D-4D
		Sample Designation:	SB-21	LB-7	LB-7	C-4D	SB-18	LB-9	LB-9	SB-13
		Sample Date: Sample Depth (ft bls):	10/30/2007 7.5-10	1/15/2008 9-13	1/15/2008 20-25	3/5/2008 10-20	10/30/2007 12.5-15	1/15/2008 6-8	1/24/2008 10-12	10/30/2007 15-17.5
1,4-Dichlorobenzene	7.5		NA	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U	NA
2,4,5-Trichlorophenol	400		0.04 U	0.05 U	0.05 U	0.05 U	0.04 U	0.05 U	0.05 U	0.04 U
2,4,6-Trichlorophenol	2		0.04 U	0.05 U	0.05 U	0.05 U	0.04 U	0.05 U	0.05 U	0.04 U
2,4-Dinitrotoluene	0.13		0.04 U	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.02 U	0.04 U
2-Methylphenol	--		0.04 U	0.05 U	0.05 U	0.05 U	0.04 U	0.05 U	0.05 U	0.04 U
3&4-Methylphenol	--		NA	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA
4-Methylphenol	--		0.04 U	NA	NA	NA	0.04 U	NA	NA	0.04 U
Hexachlorobenzene	0.13		0.04 U	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.02 U	0.04 U
Hexachlorobutadiene	--		0.04 U	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.02 U	0.04 U
Hexachloroethane	--		0.04 U	0.05 U	0.05 U	0.05 U	0.04 U	0.05 U	0.05 U	0.04 U
Nitrobenzene	2		0.04 U	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.02 U	0.04 U
Pentachlorophenol	100		0.1 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.2 U	0.1 U
Pyridine	5		0.04 U	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.02 U	0.04 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S		A-2D		A-3S	A-3D	A-3DD
			A-2S	LB-1	A-2D	LB-1	A-3S	LB-2	LB-2
			3/7/2008 0-10	1/31/2008 1-7	3/7/2008 10-20	1/31/2008 13-19	3/7/2008 0-10	1/29/2008 10-17	2/1/2008 23-25
Arsenic	5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Barium	100		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	1		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Lead	5		11.4	0.5 U	0.5 U	0.5 U	2.1	0.5 U	0.5 U
Mercury	0.2		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	--		NA	NA	NA	NA	NA	NA	NA
Selenium	1		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Silver	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			A-4S	A-4DD	A-6S	A-7S	B-2S	B-2D	B-3S
USEPA Sample Designation:			A-4S	LB-3	A-6S	A-7S	B-2S	B-2D	B-3S
Parameter	Regulatory	Sample Date:	3/5/2008	2/1/2008	3/6/2008	3/7/2008	3/7/2008	3/7/2008	3/7/2008
(Concentrations in mg/L)	Levels (mg/L)	Sample Depth (ft bls):	0-10	23-27	0-10	0-10	0-10	10-20	0-10
Arsenic	5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Barium	100		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	1		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Lead	5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52	0.5 U
Mercury	0.2		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00039	0.0002 U
Nickel	--		NA	NA	NA	NA	NA	NA	NA
Selenium	1		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Silver	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	B-3D	B-4S	B-4D	B-5S	B-5D	B-6S	B-6D
		Sample Designation:	B-3D	B-4S	B-4D	B-5S	B-5D	B-6S	LB-6
		Sample Date: Sample Depth (ft bls):	3/7/2008 10-20	3/6/2008 0-10	3/6/2008 10-20	3/6/2008 0-10	3/6/2008 10-20	3/6/2008 0-10	1/28/2008 12-16
Arsenic	5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Barium	100		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	1		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.012
Lead	5		0.5 U	0.56	0.53	24.6	3.9	0.5 U	0.5 U
Mercury	0.2		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	--		NA	NA	NA	NA	NA	NA	NA
Selenium	1		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Silver	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	B-7S	C-2S	C-2D	C-3S	C-3D		C-3DD
		Sample Designation:	B-7S	C-2S	SB-11	SB-21	C-3D	LB-7	LB-7
		Sample Date: Sample Depth (ft bls):	3/7/2008 0-10	3/5/2008 0-10	10/30/2007 14-15	10/30/2007 7.5-10	3/5/2008 10-20	1/15/2008 9-13	1/15/2008 20-25
Arsenic	5		0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.5 U	0.5 U
Barium	100		1 U	1 U	0.51	0.79	1 U	1 U	1 U
Cadmium	1		0.005 U	0.005 U	0.05 U	0.05 U	0.005 U	0.005 U	0.005 U
Chromium	5		0.01 U	0.01 U	0.2 U	0.2 U	0.01 U	0.01 U	0.01 U
Lead	5		0.5 U	0.5 U	0.15 U	0.6	0.5 U	4.5	2.3
Mercury	0.2		0.0002 U	0.0002 U	0.0007 U	0.0007 U	0.0002 U	0.0002 U	0.0002 U
Nickel	--		NA	NA	0.2 U	0.2 U	NA	NA	NA
Selenium	1		0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.5 U	0.5 U
Silver	5		0.01 U	0.01 U	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			C-4S	C-4D		C-5S	C-5D	C-6S	C-7S
Parameter (Concentrations in mg/L)	USEPA	Sample Designation:	C-4S	C-4D	SB-18	C-5S	C-5D	C-6S	C-7S
	Regulatory	Sample Date:	3/5/2008	3/5/2008	10/30/2007	3/5/2008	3/5/2008	3/4/2008	3/4/2008
	Levels (mg/L)	Sample Depth (ft bls):	0-10	10-20	12.5-15	0-10	10-20	0-10	0-10
Arsenic	5		0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U
Barium	100		1 U	1 U	0.68	1 U	1 U	1 U	1 U
Cadmium	1		0.005 U	0.005 U	0.05 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	5		0.01 U	0.01 U	0.2 U	0.01 U	0.01 U	0.01 U	0.01 U
Lead	5		0.87	3.8	1.5	31.2	2.1	0.5 U	0.5 U
Mercury	0.2		0.0002 U	0.0002 U	0.0007 U	0.0002 U	0.0002 U	0.00038	0.0008 U
Nickel	--		NA	NA	0.2 U	NA	NA	NA	NA
Selenium	1		0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U
Silver	5		0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	D-2S	D-2D	D-3S	D-3D	D-4D	
		Sample Designation:	D-2S	D-2D	LB-9	LB-9	D-4D	SB-13
		Sample Date: Sample Depth (ft bls):	3/3/2008 0-10	3/3/2008 10-20	1/15/2008 6-8	1/24/2008 10-12	3/4/2008 10-28	10/30/2007 15-17.5
Arsenic	5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
Barium	100		1 U	1 U	1 U	1 U	1 U	0.69
Cadmium	1		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.05 U
Chromium	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.2 U
Lead	5		0.5 U	0.5 U	1.6	0.5 U	0.93	0.66
Mercury	0.2		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0007 U
Nickel	--		NA	NA	NA	NA	NA	0.2 U
Selenium	1		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
Silver	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 9. Summary of Metals in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	D-5S	D-5D	D-6S	D-7S	SW-2S	SW-3S
		Sample Designation:	D-5S	D-5D	D-6S	D-7S	SW-2S	SW-3S
		Sample Date:	3/4/2008	3/4/2008	3/4/2008	3/4/2008	3/10/2008	3/10/2008
		Sample Depth (ft bls):	0-10	10-20	3-4	0-3	0-5	0-5
Arsenic	5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Barium	100		1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	1		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	5		0.01 U	0.01 U	0.015	0.01 U	0.026	0.01 U
Lead	5		0.5 U	2.9	0.5 U	0.5 U	0.5 U	0.5 U
Mercury	0.2		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	--		NA	NA	NA	NA	NA	NA
Selenium	1		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Silver	5		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

-- - No USEPA Regulatory Standard available

NA - Not analyzed by laboratory

Table 10. Summary of Pesticides in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	Precharacterization Cell:	A-2S	A-2D		A-3D	A-3DD	A-4DD	B-6D
		Sample Designation: Sample Date: Sample Depth (ft bls):	LB-1 1/31/2008 1-7	A-2D 3/7/2008 10-20	LB-1 1/31/2008 13-19	LB-2 1/29/2008 10-17	LB-2 2/1/2008 23-25	LB-3 2/1/2008 23-27	LB-6 1/28/2008 12-16
2,4-D	10		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chlordane	0.03		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Endrin	0.02		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
gamma-BHC (Lindane)	0.4		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Heptachlor	0.008		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Heptachlor epoxide	0.008		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Methoxychlor	10		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Silvex (2,4,5-TP)	1		0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Toxaphene	0.5		0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

Table 10. Summary of Pesticides in Soil Using Toxicity Characteristic Leachate Procedure, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			C-2D	C-3S	C-3D	C-3DD	C-4D		D-3S	D-3D	D-4D
Parameter	USEPA Regulatory Levels (mg/L)	Sample Designation: Sample Date: Sample Depth (ft bls):	SB-11 10/30/2007 14-15	SB-21 10/30/2007 7.5-10	LB-7 1/15/2008 9-13	LB-7 1/15/2008 20-25	C-4D 3/5/2008 10-20	SB-18 10/30/2007 12.5-15	LB-9 1/15/2008 6-8	LB-9 1/24/2008 10-12	SB-13 10/30/2007 15-17.5
2,4-D	10		0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.002 U	0.005 U	0.005 U	0.002 U
Chlordane	0.03		0.001 U	0.001 U	0.005 U	0.005 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
Endrin	0.02		0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U
gamma-BHC (Lindane)	0.4		0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U
Heptachlor	0.008		0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U
Heptachlor epoxide	0.008		0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U
Methoxychlor	10		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Silvex (2,4,5-TP)	1		0.002 U	0.002 U	0.0015 U	0.0015 U	0.0015 U	0.002 U	0.0015 U	0.0015 U	0.002 U
Toxaphene	0.5		0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U

U - Indicates that the compound was analyzed for but not detected

mg/L - Milligrams per liter

USEPA - United States Environmental Protection Agency

ft bls - Feet below land surface

Table 11. Summary of Volatile Organic Compounds in Soil Vapor Samples, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter	Sample Designation:	SV-7	SV-8	SV-9	SV-10	SV-11	SV-12	SVE-1	SVE-2	SVE-3
	Sample Date:	10/31/2007	10/31/2007	10/31/2007	10/31/2007	10/31/2007	10/31/2007	8/17/2007	8/17/2007	8/17/2007
(Concentrations in $\mu\text{g}/\text{m}^3$)										
1,1,1-Trichloroethane		520 U	650 U	1400 U	520 U	53 U	7.6 J	600 U	8.7 U	110 U
1,1,2,2-Tetrachloroethane		660 U	820 U	1700 U	660 U	67 U	11 U	760 U	11 U	140 U
1,1,2-Trichloroethane		520 U	650 U	1400 U	520 U	53 U	8.7 U	600 U	8.7 U	110 U
1,1-Dichloroethane		390 U	490 U	1000 U	390 U	40 U	6.5 U	450 U	6.5 U	85 U
1,1-Dichloroethene		380 U	480 U	990 U	380 U	39 U	6.3 U	440 U	6.3 U	83 U
1,2,4-Trichlorobenzene		710 U	890 U	1900 U	710 U	73 U	12 U	820 U	12 U	160 U
1,2,4-Trimethylbenzene		1410	22700	1200 U	37600	48 U	46	540 U	9.8	100 U
1,2-Dibromoethane		740 U	920 U	1900 U	740 U	75 U	12 U	850 U	12 U	160 U
1,2-Dichlorobenzene		580 U	720 U	1500 U	580 U	59 U	9.6 U	660 U	9.6 U	130 U
1,2-Dichloroethane		390 U	490 U	1000 U	390 U	40 U	6.5 U	450 U	6.5 U	85 U
1,2-Dichloropropane		440 U	550 U	1200 U	440 U	45 U	7.4 U	510 U	7.4 U	97 U
1,3,5-Trimethylbenzene		1040	16400	1200 U	17600	48 U	70.8	540 U	7.9 U	100 U
1,3-Butadiene		210 U	270 U	550 U	210 U	22 U	3.5 U	240 U	3.5 U	46 U
1,3-Dichlorobenzene		580 U	720 U	1500 U	580 U	59 U	9.6 U	660 U	9.6 U	130 U
1,4-Dichlorobenzene		580 U	720 U	1500 U	580 U	59 U	9.6 U	660 U	9.6 U	130 U
1,4-Dioxane		350 U	430 U	900 U	350 U	35 U	5.8 U	400 U	5.8 U	76 U
2-Butanone (MEK)		280 U	350 U	740 U	280 U	29 U	4.7 U	320 U	4.7 U	62 U
2-Chlorotoluene		500 U	620 U	1300 U	500 U	51 U	8.3 U	570 U	8.3 U	110 U
2-Hexanone		390 U	490 U	1000 U	390 U	40 U	6.5 U	450 U	6.5 U	86 U
2-Propanol		240 U	290 U	610 U	240 U	55.6	3.9 U	270 U	3.9 U	52 U
3-Chloropropene		300 U	380 U	780 U	300 U	31 U	5 U	340 U	5 U	66 U
4-Ethyltoluene		470 J	6150	1200 U	8950	48 U	12	540 U	7.9 U	100 U
4-Methyl-2-pentanone		390 U	490 U	1000 U	390 U	40 U	6.6 U	450 U	6.6 U	86 U
Acetone		230 U	278 J	590 U	230 U	23 U	3.8 U	260 U	3.8 U	50 U
Benzene		310 U	831	800 U	690	31 U	5.1 U	350 U	5.1 U	67 U
Benzyl Chloride		490 U	620 U	1300 U	490 U	51 U	8.2 U	570 U	8.2 U	110 U
Bromodichloromethane		640 U	800 U	1700 U	640 U	66 U	11 U	740 U	11 U	140 U
Bromoethene		420 U	520 U	1100 U	420 U	43 U	7 U	480 U	7 U	92 U
Bromoform		990 U	1200 U	2600 U	990 U	100 U	17 U	1100 U	17 U	220 U
Bromomethane		370 U	470 U	970 U	370 U	38 U	6.2 U	430 U	6.2 U	82 U
Carbon disulfide		300 U	370 U	780 U	300 U	31 U	5 U	340 U	5 U	65 U
Carbon tetrachloride		600 U	750 U	1600 U	600 U	62 U	10 U	690 U	10 U	130 U
Chlorobenzene		440 U	550 U	1200 U	440 U	45 U	7.4 U	510 U	7.4 U	97 U
Chloroethane		250 U	320 U	660 U	250 U	26 U	4.2 U	290 U	4.2 U	55 U
Chloroform		470 U	590 U	1200 U	470 U	48 U	7.8 U	540 U	7.8 U	100 U
Chloromethane		200 U	250 U	520 U	200 U	20 U	3.3 U	230 U	3.3 U	43 U
cis-1,2-Dichloroethene		380 U	480 U	990 U	380 U	39 U	6.3 U	440 U	6.3 U	83 U
cis-1,3-Dichloropropene		440 U	540 U	1100 U	440 U	44 U	7.3 U	500 U	7.3 U	95 U
Cyclohexane		16500	774	4440	2230	209	5.5 U	380 U	5.5 U	72 U
Dibromochloromethane		820 U	1000 U	2100 U	820 U	83 U	14 U	940 U	14 U	180 U
Dichlorodifluoromethane		470 U	590 U	1200 U	470 U	658	32	540 U	7.9 U	100 U

Table 11. Summary of Volatile Organic Compounds in Soil Vapor Samples, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter	Sample Designation:	SV-7	SV-8	SV-9	SV-10	SV-11	SV-12	SVE-1	SVE-2	SVE-3
	Sample Date:	10/31/2007	10/31/2007	10/31/2007	10/31/2007	10/31/2007	10/31/2007	8/17/2007	8/17/2007	8/17/2007
(Concentrations in $\mu\text{g}/\text{m}^3$)										
Ethanol		450 U	580 U	1200 U	450 U	269	7.5 U	510 U	7.5 U	100 U
Ethyl Acetate		350 U	430 U	900 U	350 U	35 U	5.8 U	400 U	5.8 U	76 U
Ethylbenzene		491	3980	1100 U	6690	43 U	6.9 U	480 U	6.9 U	91 U
Freon 113		740 U	920 U	1900 U	740 U	75 U	12 U	840 U	12 U	160 U
Freon 114		670 U	840 U	1700 U	670 U	68 U	11 U	770 U	11 U	150 U
Heptane		30300	13000	6640	9470	54.5	6.6 U	450 U	6.6 U	86 U
Hexachlorobutadiene		1000 U	1300 U	2700 U	1000 U	100 U	17 U	1200 U	17 U	220 U
Hexane		13900	3270	18600	8420	176	5.6 U	1730	40.5	74 U
Isooctane		49000	39800	130000	36400	4720	34	96200	6350	110000
Methylene chloride		330 U	420 U	870 U	330 U	893	5.6 U	380 U	5.6 U	73 U
MTBE		350 U	430 U	900 U	350 U	35 U	5.8 U	400 U	5.8 U	76 U
Propylene		410 U	325 J	1100 U	410 U	43 U	6.9 U	460 U	6.9 U	91 U
Styrene		410 U	510 U	1100 U	410 U	42 U	6.8 U	470 U	6.8 U	89 U
t-Butyl Alcohol		290 U	360 U	760 U	290 U	30 U	4.9 U	330 U	4.9 U	64 U
Tetrachloroethene		650 U	810 U	1700 U	650 U	170	197	750 U	185	240
Tetrahydrofuran		280 U	350 U	740 U	280 U	29 U	4.7 U	320 U	4.7 U	62 U
Toluene		388	3000	940 U	1560	49.7	3.2 J	410 U	6 U	79 U
trans-1,2-Dichloroethene		380 U	480 U	990 U	380 U	39 U	6.3 U	440 U	6.3 U	83 U
trans-1,3-Dichloropropene		440 U	540 U	1100 U	440 U	44 U	7.3 U	500 U	7.3 U	95 U
Trichloroethene		520 U	640 U	1300 U	520 U	53 U	6.4 J	590 U	8.6 U	110 U
Trichlorofluoromethane		540 U	670 U	1400 U	540 U	674	159	620 U	9 U	120 U
Vinyl Acetate		340 U	420 U	880 U	340 U	34 U	5.6 U	390 U	5.6 U	74 U
Vinyl chloride		250 U	310 U	640 U	250 U	25 U	4.1 U	280 U	4.1 U	54 U
Xylenes (total)		4860	19400	1100 U	21400	35 J	12	480 U	16	91 U

J - Estimated value

U - Compound was analyzed for but not detected

 $\mu\text{g}/\text{m}^3$ - Micrograms per cubic meter

Table 11. Summary of Volatile Organic Compounds in Soil Vapor Samples, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter	Sample Designation:	SVE-4	SVE-5	SVE-6
	Sample Date:	8/17/2007	8/17/2007	8/17/2007
(Concentrations in $\mu\text{g}/\text{m}^3$)				
1,1,1-Trichloroethane		8.7 U	8.7 U	8.7 U
1,1,2,2-Tetrachloroethane		11 U	11 U	11 U
1,1,2-Trichloroethane		8.7 U	8.7 U	8.7 U
1,1-Dichloroethane		6.5 U	6.5 U	6.5 U
1,1-Dichloroethene		6.3 U	6.3 U	6.3 U
1,2,4-Trichlorobenzene		12 U	12 U	12 U
1,2,4-Trimethylbenzene		7.9	9.3	11
1,2-Dibromoethane		12 U	12 U	12 U
1,2-Dichlorobenzene		9.6 U	9.6 U	9.6 U
1,2-Dichloroethane		6.5 U	6.5 U	6.5 U
1,2-Dichloropropane		7.4 U	7.4 U	7.4 U
1,3,5-Trimethylbenzene		7.9 U	7.9 U	7.9 U
1,3-Butadiene		3.5 U	3.5 U	3.5 U
1,3-Dichlorobenzene		9.6 U	9.6 U	9.6 U
1,4-Dichlorobenzene		9.6 U	9.6 U	9.6 U
1,4-Dioxane		5.8 U	5.8 U	5.8 U
2-Butanone (MEK)		4.7 U	4.7 U	4.7 U
2-Chlorotoluene		8.3 U	8.3 U	8.3 U
2-Hexanone		6.5 U	6.5 U	6.5 U
2-Propanol		3.9 U	3.9 U	3.9 U
3-Chloropropene		5 U	5 U	5 U
4-Ethyltoluene		7.9 U	7.9 U	7.9 U
4-Methyl-2-pentanone		6.6 U	6.6 U	6.6 U
Acetone		7.4	7.4	16
Benzene		5.1 U	5.1 U	5.1 U
Benzyl Chloride		8.2 U	8.2 U	8.2 U
Bromodichloromethane		11 U	11 U	11 U
Bromoethene		7 U	7 U	7 U
Bromoform		17 U	17 U	17 U
Bromomethane		6.2 U	6.2 U	6.2 U
Carbon disulfide		5 U	5 U	5 U
Carbon tetrachloride		10 U	10 U	10 U
Chlorobenzene		7.4 U	7.4 U	7.4 U
Chloroethane		4.2 U	4.2 U	4.2 U
Chloroform		7.8 U	7.8 U	7.8 U
Chloromethane		3.3 U	3.3 U	3.3 U
cis-1,2-Dichloroethene		6.3 U	6.3 U	6.3 U
cis-1,3-Dichloropropene		7.3 U	7.3 U	7.3 U
Cyclohexane		5.5 U	5.5 U	5.5 U
Dibromochloromethane		14 U	14 U	14 U
Dichlorodifluoromethane		7.4 J	7.9 U	14

Table 11. Summary of Volatile Organic Compounds in Soil Vapor Samples, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter	Sample Designation:	SVE-4	SVE-5	SVE-6
	Sample Date:	8/17/2007	8/17/2007	8/17/2007
(Concentrations in $\mu\text{g}/\text{m}^3$)				
Ethanol		7.5 U	7.5 U	7.5 U
Ethyl Acetate		5.8 U	5.8 U	5.8 U
Ethylbenzene		6.9 U	6.9 U	6.9 U
Freon 113		12 U	12 U	12 U
Freon 114		11 U	11 U	11 U
Heptane		6.6 U	6.6 U	6.1 J
Hexachlorobutadiene		17 U	17 U	17 U
Hexane		5.6 U	5.6 U	16
Isooctane		137	345	486
Methylene chloride		5.6 U	5.6 U	5.6 U
MTBE		5.8 U	5.8 U	5.8 U
Propylene		6.9 U	6.9 U	6.9 U
Styrene		6.8 U	6.8 U	6.8 U
t-Butyl Alcohol		4.9 U	4.5 J	5.2
Tetrachloroethene		20	18	75.9
Tetrahydrofuran		4.7 U	4.7 U	4.7 U
Toluene		6 U	3.8 J	6.4
trans-1,2-Dichloroethene		6.3 U	6.3 U	6.3 U
trans-1,3-Dichloropropene		7.3 U	7.3 U	7.3 U
Trichloroethene		8.6 U	8.6 U	8.6 U
Trichlorofluoromethane		9 U	9 U	65.2
Vinyl Acetate		5.6 U	5.6 U	5.6 U
Vinyl chloride		4.1 U	4.1 U	4.1 U
Xylenes (total)		6.5 J	6.9	15

J - Estimated value

U - Compound was analyzed for but not detected

 $\mu\text{g}/\text{m}^3$ - Micrograms per cubic meter

Table 12. Summary of Volatile Organic Compounds in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

	NYSDEC	Sample Designation:	AX-2	AX-2 DUP	AX-3	GW-Potamkin	MW-2	MW-2	MW-2 DUP	MW-3	MW-3	MW-5A	MW-5ADUP	MW-6	MW-7	MW-7	MW-8	MW-9	SB-12	SB-13	SB-13DUP	SB-21
Parameter	AWQSGVs ¹	Sample Date:	9/11/2007	9/11/2007	9/12/2007	10/30/2007	8/14/2007	2/25/2009	2/25/2009	8/15/2007	2/25/2009	8/15/2007	8/15/2007	2/25/2009	8/14/2007	2/25/2009	2/25/2009	2/25/2009	10/30/2007	10/26/2007	10/26/2007	10/30/2007
(Concentrations in µg/L)	(µg/L)																					
1,1,1-Trichloroethane	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
1,1,2,2-Tetrachloroethane	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
1,1,2-Trichloroethane	1		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
1,1-Dichloroethane	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
1,1-Dichloroethene	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
1,2,3-Trichloropropane	0.04		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
1,2,4-Trimethylbenzene	5		3	2.4	12	1 U	NA	5 U	5 U	NA	157	NA	NA	0.55 J	NA	5 U	3.3 J	33.1	94	1 U	1 U	870
1,2-Dichlorobenzene	3		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
1,2-Dichloroethane	0.6		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
1,2-Dichloropropane	1		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
1,3,5-Trimethylbenzene	5		2	1 U	2.9	2.9	NA	5 U	5 U	NA	23.2	NA	NA	5 U	NA	5 U	6.9 J	25 U	53	1 U	1 U	330
1,3-Dichlorobenzene	3		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
1,3-Dichloropropane	5		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
1,4-Dichlorobenzene	3		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
1,4-Dioxane	--		250 U	250 U	250 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12000 U	250 U	250 U	1200 U
2-Butanone (MEK)	--		10 U	5 U	5 U	5 U	10 U	NA	NA	10 U	NA	10 U	10 U	NA	10 U	NA	NA	NA	250 U	5 U	5 U	25 U
2-Chloroethylvinylether	--		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
2-Hexanone	50		10 U	5 U	5 U	5 U	5 U	NA	NA	5 U	NA	5 U	5 U	NA	5 U	NA	NA	NA	250 U	5 U	5 U	25 U
4-Isopropyltoluene	--		1 U	1 U	1.4	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 U	1 U	1.3	9.1
4-Methyl-2-pentanone	--		5 U	5 U	5 U	5 U	5 U	NA	NA	5 U	NA	5 U	5 U	NA	5 U	NA	NA	NA	250 U	5 U	5 U	25 U
Acetone	50		25 U	25 U	30	25 U	10 U	NA	NA	10 U	NA	10 U	10 U	NA	10 U	NA	NA	NA	1200 U	18 J	25 U	120 U
Acrolein	5		25 U	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2500 U	25 U	25 U	120 U
Acrylonitrile	5		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
Benzene	1		1 U	1 U	3.8	46	1 U	1 U	1 U	20.3	40.2	20.7	11.8	19.8	1 U	1 U	612	51.9	1500	20	18	100
Bromodichloromethane	50		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Bromoform	50		5 U	5 U	5 U	5 U	4 U	NA	NA	4 U	NA	4 U	4 U	NA	4 U	NA	NA	NA	250 U	5 U	5 U	25 U
Bromomethane	5		5 U	5 U	5 U	5 U	2 U	NA	NA	2 U	NA	2 U	2 U	NA	2 U	NA	NA	NA	250 U	5 U	5 U	25 U
Carbon disulfide	--		5 U	1.2 J	5 U	5 U	2 U	NA	NA	2 U	NA	2 U	2 U	NA	2 U	NA	NA	NA	250 U	5 U	5 U	25 U
Carbon tetrachloride	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Chlorobenzene	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Chloroethane	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Chloroform	7		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Chloromethane	--		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
cis-1,2-Dichloroethene	--		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
cis-1,3-Dichloropropene	--		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Dibromochloromethane	50		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Dichlorodifluoromethane	5		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
Ethylbenzene	5		6.2	6.9	4.2	2.4	1 U	1 U	1 U	66.1	83.1	1.4	1 U	2.1	1 U	1 U	43.4	161	100	12	10	1000
Freon 113	--		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
Isopropylbenzene	5		1 U	1 U	22	67	NA	2 U	2 U	NA	106	NA	NA	78.8	NA	2 U	335	492	340	30	24	87
Methylene chloride	5		5 U	5 U	5 U	5 U	2 U	NA	NA	2 U	NA	2 U	2 U	NA	2 U	NA	NA	NA	250 U	5.1 B	2.5 JB	25 U
MTBE	--		1.2	1.3	1 U	1 U	1 U	0.56 J	0.54 J	1.1	1 U	11.7	13.5	1 U	1 U	1 U	5 U	5 U	50 U	29	28	7.8
Naphthalene	10		NA	NA	NA	NA	NA	5 U	5 U	NA	18.6	NA	NA	5 U	NA	5 U	8.9 J	9.1 J	NA	NA	NA	NA
n-Butylbenzene	5		1 U	1 U	3.1	1 U	NA	5 U	5 U	NA	3.3 J	NA	NA	5 U	NA	5 U	63	55.3	85	5.8	5.6	5 U
n-Propylbenzene	5		1 U	1 U	9.9	100	NA	5 U	5 U	NA	76.1	NA	NA	41.8	NA	5 U	695	908	790	53	42	170
o-Xylene	--		1 U	1 U	1.3	3.3	NA	1 U	1 U	NA	20.3	NA	NA	0.6 J	NA	1 U	5.3	4.9 J	50 U	1.4	1.5	180
p-Isopropyltoluene	5		NA	NA	NA	NA	NA	5 U	5 U	NA	4.6 J	NA	NA	0.7 J	NA	5 U	4.1 J	10.9 J	NA	NA	NA	NA
sec-Butylbenzene	5		1 U	1 U	6.3	10	NA	5 U	5 U	NA	11.6	NA	NA	8.1	NA	5 U	39.3	57.5	56	4.5	3.6	16
Styrene	5		5 U	5 U	5 U	5 U	5 U	NA	NA	5 U	NA	5 U	5 U	NA	5 U	NA	NA	NA	250 U	5 U	5 U	25 U
t-Butyl Alcohol	--		25 U	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1200 U	25 J	27	120 U
tert-Butylbenzene	5		1 U	1 U	1 U	1 U	NA	5 U	5 U	NA	2.8 J	NA	NA	2.6 J	NA	5 U	25 U	25 U	50 U	1 U	1 U	5 U
Tetrachloroethene	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Toluene	5		1 U	1 U	1.3	2.5	1 U	1 U	1 U	6.1	8.9	1.2	0.91 J	0.86 J	1 U	1 U	44.4	1.6 J	54	2.3	2	38
trans-1,2-Dichloroethene	--		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
trans-1,3-Dichloropropene	--		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Trichloroethene	5		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	5 U
Trichlorofluoromethane	5		5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	5 U	5 U	25 U
Vinyl chloride	2		5 U	5 U	5 U	5 U	1 U	NA	NA	1 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	250 U	5 U	5 U	25 U
Xylenes (total)	5		13	15	13	3.1	1 U	1 U	1 U	73.9	117	2.9	2.9	5.2	1 U	1 U	32.6	13.8	110	4.2	4.1	1500

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
J - Estimated Value
U - Compound was analyzed for but not detected
DUP - Duplicate
-- No NYSDEC AWQSGV available
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
NA - Compound was not analyzed by laboratory

Table 12. Summary of Volatile Organic Compounds in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs ¹ (µg/L)	Sample Designation: Sample Date:	SB-22 10/29/2007	SB-27 10/29/2007	FB-091207 9/12/2007	TB 9/10/2007	FB-102607 10/26/2007	FB-103007-SOIL 10/30/2007	FB-103007-WATER 10/30/2007
1,1,1-Trichloroethane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	0.04		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trimethylbenzene	5		13	2400	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	3		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,3,5-Trimethylbenzene	5		4.3	630	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	3		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichloropropane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	3		5 U	250 U	5 U	5 U	5 U	5 U	5 U
1,4-Dioxane	--		250 U	12000 U	250 U	250 U	250 U	250 U	250 U
2-Butanone (MEK)	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinylether	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50		5 U	250 U	5 U	5 U	5 U	5 U	5 U
4-Isopropyltoluene	--		1 U	50 U	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-pentanone	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Acetone	50		25 U	1200 U	25 U	25 U	25 U	25 U	25 U
Acrolein	5		25 U	2500 U	25 U	25 U	25 U	25 U	25 U
Acrylonitrile	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Benzene	1		11	240	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	50		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Chloroform	7		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	50		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5		3.7	2000	1 U	1 U	1 U	1 U	1 U
Freon 113	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	5		28	280	1 U	1 U	1 U	1 U	1 U
Methylene chloride	5		3.8 J	250 U	5 U	5 U	2.1 JB	2 J	2.3 J
MTBE	--		6.8	50 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	10		NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	5		7.6	50 U	1 U	1 U	1 U	1 U	1 U
n-Propylbenzene	5		39	370	1 U	1 U	1 U	1 U	1 U
o-Xylene	--		3.3	56	1 U	1 U	1 U	1 U	1 U
p-Isopropyltoluene	5		NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	5		10	220	1 U	1 U	1 U	1 U	1 U
Styrene	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
t-Butyl Alcohol	--		25 U	1200 U	25 U	25 U	25 U	25 U	25 U
tert-Butylbenzene	5		1 U	50 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Toluene	5		2	300	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	--		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5		1 U	250 U	5 U	5 U	5 U	1 U	1 U
Trichlorofluoromethane	5		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Vinyl chloride	2		5 U	250 U	5 U	5 U	5 U	5 U	5 U
Xylenes (total)	5		12	4900	2 U	2 U	2 U	2 U	2 U

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
J - Estimated Value
U - Compound was analyzed for but not detected
DUP - Duplicate
-- No NYSDEC AWQSGV available
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
NA - Compound was not analyzed by laboratory

Table 13. Summary of Semivolatile Organic Compounds in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	AX-2 9/11/2007	AX-2 DUP 9/11/2007	AX-3 9/12/2007	MW-2 8/14/2007	MW-3 8/15/2007	MW-5A 8/15/2007	MW-5ADUP 8/15/2007	MW-7 8/14/2007	SB-12 10/30/2007	SB-13 10/26/2007	SB-13DUP 10/26/2007	SB-21 10/30/2007	SB-22 10/29/2007
1,2,4-Trichlorobenzene	5		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
1,2-Dichlorobenzene	3		5 U	5 U	5 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	--		10 U	11 U	11 U	NA	NA	NA	NA	NA	11 U	11 U	10 U	10 U	10 U
1,3-Dichlorobenzene	3		5 U	5 U	5 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3		5 U	5 U	5 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	NA	NA	NA	NA	NA
2,2-oxybis (1-chloropropane)	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	--		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	--		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2,4-Dichlorophenol	5		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2,4-Dimethylphenol	50		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2,4-Dinitrophenol	10		25 U	28 U	26 U	23 U	22 U	23 U	23 U	22 U	28 U	26 U	25 U	25 U	25 U
2,4-Dinitrotoluene	5		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
2,6-Dinitrotoluene	5		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
2-Chloronaphthalene	10		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2-Chlorophenol	--		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2-Methylnaphthalene	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	120	11 U	10 U	32	10 U
2-Methylphenol	--		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2-Nitroaniline	5		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
2-Nitrophenol	--		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
3&4-Methylphenol	--		NA	NA	NA	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	NA	NA	NA	NA	NA
3,3-Dichlorobenzidine	--		25 U	28 U	26 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
3-Nitroaniline	5		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	--		25 U	28 U	26 U	23 U	22 U	23 U	23 U	22 U	28 U	26 U	25 U	25 U	25 U
4-Bromophenyl phenyl ether	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	--		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
4-Chloroaniline	5		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
4-Methylphenol	--		10 U	11 U	11 U	NA	NA	NA	NA	NA	11 U	11 U	10 U	10 U	10 U
4-Nitroaniline	5		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
4-Nitrophenol	--		10 U	11 U	11 U	23 U	22 U	23 U	23 U	22 U	11 U	11 U	10 U	10 U	10 U
Acenaphthene	20		1.3 J	1.2 J	3.1 J	2.3 U	0.82 J	2.3 U	2.3 U	2.2 U	8.8 J	11 U	10 U	10 U	4.8 J
Acenaphthylene	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	1.9 J	11 U	10 U	10 U	10 U
Aniline	--		10 U	11 U	11 U	NA	NA	NA	NA	NA	11 U	11 U	10 U	10 U	10 U
Anthracene	50		10 U	11 U	1.3 J	2.3 U	0.46 J	2.3 U	2.3 U	2.2 U	10 J	11 U	10 U	10 U	10 U
Benzidine	5		25 U	28 U	26 U	NA	NA	NA	NA	NA	11 U	11 U	10 U	10 U	10 U
Benzo(a)anthracene	--		10 U	11 U	11 U	2.3 U	1.2 J	2.3 U	2.3 U	2.2 U	11 J	11 U	10 U	10 U	10 U
Benzo(a)pyrene	ND		10 U	11 U	11 U	2.3 U	1 J	2.3 U	2.3 U	2.2 U	8.3 J	11 U	10 U	10 U	10 U
Benzo(b)fluoranthene	--		10 U	11 U	11 U	2.3 U	1.2 J	2.3 U	2.3 U	2.2 U	9.9 J	11 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	4.7 J	11 U	10 U	10 U	10 U
Benzo(k)fluoranthene	--		10 U	11 U	11 U	2.3 U	0.93 J	2.3 U	2.3 U	2.2 U	4 J	11 U	10 U	10 U	10 U
Benzoic acid	--		25 U	28 U	26 U	NA	NA	NA	NA	NA	56 U	53 U	50 U	50 U	10 U
Bis(2-chloroethoxy)methane	5		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	1		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	5		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	2.5 J	11 U	10 U	10 U	10 U
Butyl benzylphthalate	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Carbazole	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	9.5 J	11 U	10 U	10 U	10 U
Chrysene	0.002		10 U	11 U	11 U	2.3 U	1.4 J	2.3 U	2.3 U	2.2 U	10 J	11 U	10 U	10 U	10 U
Dibenzo(a h)anthracene	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	1.6 J	11 U	10 U	10 U	10 U

Table 13. Summary of Semivolatile Organic Compounds in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	AX-2 9/11/2007	AX-2 DUP 9/11/2007	AX-3 9/12/2007	MW-2 8/14/2007	MW-3 8/15/2007	MW-5A 8/15/2007	MW-5ADUP 8/15/2007	MW-7 8/14/2007	SB-12 10/30/2007	SB-13 10/26/2007	SB-13DUP 10/26/2007	SB-21 10/30/2007	SB-22 10/29/2007
Dibenzofuran	--		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	6.7 J	11 U	10 U	10 U	10 U
Diethyl phthalate	50		10 U	11 U	1.3 J	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Dimethyl phthalate	50		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Di-n-butyl phthalate	50		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Di-n-octyl phthalate	--		25 U	28 U	26 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	28 U	26 U	25 U	25 U	10 U
Fluoranthene	50		10 U	11 U	2.4 J	2.3 U	4.2	2.3 U	2.3 U	2.2 U	28	11 U	10 U	10 U	10 U
Fluorene	50		10 U	11 U	2.4 J	2.3 U	0.56 J	2.3 U	2.3 U	2.2 U	11 J	11 U	10 U	10 U	3.5 J
Hexachlorobenzene	0.04		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Hexachlorobutadiene	0.5		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	5		10 U	11 U	11 U	23 U	22 U	23 U	23 U	22 U	11 U	11 U	10 U	10 U	10 U
Hexachloroethane	5		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	--		10 U	11 U	11 U	2.3 U	0.43 J	2.3 U	2.3 U	2.2 U	3.9 J	11 U	10 U	10 U	10 U
Isophorone	50		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
Naphthalene	10		10 U	11 U	2.1 J	2.3 U	4.6	2.3 U	2.3 U	2.2 U	56	2.3 J	1 J	80	3.3 J
Nitrobenzene	0.4		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
n-Nitrosodimethylamine	--		10 U	11 U	11 U	NA	NA	NA	NA	NA	11 U	11 U	10 U	10 U	10 U
n-Nitroso-di-n-propylamine	--		10 U	11 U	11 U	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	11 U	11 U	10 U	10 U	10 U
n-Nitrosodiphenylamine	50		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	11 U	11 U	10 U	10 U	10 U
Pentachlorophenol	1		25 U	28 U	26 U	23 U	22 U	23 U	23 U	22 U	28 U	26 U	25 U	25 U	25 U
Phenanthrene	50		10 U	11 U	5.3 J	2.3 U	0.87 J	2.3 U	2.3 U	2.2 U	38	11 U	10 U	10 U	3.7 J
Phenol	1		10 U	11 U	11 U	5.7 U	5.6 U	5.7 U	5.7 U	5.4 U	12	11 U	10 U	10 U	10 U
Pyrene	50		10 U	11 U	2.7 J	2.3 U	6.9	2.3 U	2.3 U	2.2 U	25	11 U	10 U	10 U	10 U

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
DUP - Duplicate
J - Estimated Value
U - Compound was analyzed for but not detected
-- No NYSDEC AWQSGV available
Note:
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs
NA - Compound was not analyzed by laboratory
ND - Not detected

Table 13. Summary of Semivolatile Organic Compounds in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	SB-27 10/29/2007	FB-102607 10/26/2007	FB-103007-SOIL 10/30/2007	FB-103007-WATER 10/30/2007
1,2,4-Trichlorobenzene	5		10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	3		NA	NA	NA	NA
1,2-Diphenylhydrazine	--		10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	3		NA	NA	NA	NA
1,4-Dichlorobenzene	3		NA	NA	NA	NA
2,2-oxybis (1-chloropropane)	--		10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	--		10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	--		10 U	10 U	10 U	10 U
2,4-Dichlorophenol	5		10 U	10 U	10 U	10 U
2,4-Dimethylphenol	50		10 U	10 U	10 U	10 U
2,4-Dinitrophenol	10		25 U	25 U	25 U	25 U
2,4-Dinitrotoluene	5		10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	5		10 U	10 U	10 U	10 U
2-Chloronaphthalene	10		10 U	10 U	10 U	10 U
2-Chlorophenol	--		10 U	10 U	10 U	10 U
2-Methylnaphthalene	--		62	10 U	10 U	10 U
2-Methylphenol	--		10 U	10 U	10 U	10 U
2-Nitroaniline	5		10 U	10 U	10 U	10 U
2-Nitrophenol	--		10 U	10 U	10 U	10 U
3&4-Methylphenol	--		NA	NA	NA	NA
3,3-Dichlorobenzidine	--		10 U	10 U	10 U	10 U
3-Nitroaniline	5		10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	--		25 U	25 U	25 U	25 U
4-Bromophenyl phenyl ether	--		10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	--		10 U	10 U	10 U	10 U
4-Chloroaniline	5		10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	--		10 U	10 U	10 U	10 U
4-Methylphenol	--		24	10 U	10 U	10 U
4-Nitroaniline	5		10 U	10 U	10 U	10 U
4-Nitrophenol	--		10 U	10 U	10 U	10 U
Acenaphthene	20		4.7 J	10 U	10 U	10 U
Acenaphthylene	--		10 U	10 U	10 U	10 U
Aniline	--		10 U	10 U	10 U	10 U
Anthracene	50		2.5 J	10 U	10 U	10 U
Benzidine	5		10 U	10 U	10 U	10 U
Benzo(a)anthracene	--		3.2 J	10 U	10 U	10 U
Benzo(a)pyrene	ND		2.2 J	10 U	10 U	10 U
Benzo(b)fluoranthene	--		2.9 J	10 U	10 U	10 U
Benzo(g,h,i)perylene	--		1.1 J	10 U	10 U	10 U
Benzo(k)fluoranthene	--		1.1 J	10 U	10 U	10 U
Benzoic acid	--		50 U	51 U	50 U	50 U
Bis(2-chloroethoxy)methane	5		10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	1		10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	5		3.2 J	10 U	10 U	10 U
Butyl benzylphthalate	--		10 U	10 U	10 U	10 U
Carbazole	--		3.7 J	10 U	10 U	10 U
Chrysene	0.002		2.7 J	10 U	10 U	10 U
Dibenzo(a h)anthracene	--		10 U	10 U	10 U	10 U

Table 13. Summary of Semivolatile Organic Compounds in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	SB-27 10/29/2007	FB-102607 10/26/2007	FB-103007-SOIL 10/30/2007	FB-103007-WATER 10/30/2007
Dibenzofuran	--		10 U	10 U	10 U	10 U
Diethyl phthalate	50		10 U	10 U	10 U	10 U
Dimethyl phthalate	50		10 U	10 U	10 U	10 U
Di-n-butyl phthalate	50		10 U	10 U	10 U	10 U
Di-n-octyl phthalate	--		25 U	25 U	25 U	25 U
Fluoranthene	50		7.4 J	10 U	10 U	10 U
Fluorene	50		4.3 J	10 U	10 U	10 U
Hexachlorobenzene	0.04		10 U	10 U	10 U	10 U
Hexachlorobutadiene	0.5		10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	5		10 U	10 U	10 U	10 U
Hexachloroethane	5		10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	--		10 U	10 U	10 U	10 U
Isophorone	50		10 U	10 U	10 U	10 U
Naphthalene	10		190	10 U	10 U	10 U
Nitrobenzene	0.4		10 U	10 U	10 U	10 U
n-Nitrosodimethylamine	--		10 U	10 U	10 U	10 U
n-Nitroso-di-n-propylamine	--		10 U	10 U	10 U	10 U
n-Nitrosodiphenylamine	50		10 U	10 U	10 U	10 U
Pentachlorophenol	1		25 U	25 U	25 U	25 U
Phenanthrene	50		9.1 J	10 U	10 U	10 U
Phenol	1		10 U	10 U	10 U	10 U
Pyrene	50		6.9 J	10 U	10 U	10 U

NYSDEC - New York State Department of Environmental Conservatio
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
DUP - Duplicate
J - Estimated Value
U - Compound was analyzed for but not detected
-- No NYSDEC AWQSGV available
Note:
Bold data indicates that parameter was detected above the NYSDEC A
NA - Compound was not analyzed by laboratory
ND - Not detected

Table 14. Summary of Metals in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	AX-2 9/11/2007 Filtered	AX-2 DUP 9/11/2007 Filtered	AX-3 9/12/2007 Filtered	GW-Potamkin 10/30/2007 Filtered	MW-2 8/14/2007 Unfiltered	MW-3 8/15/2007 Unfiltered	MW-5A 8/15/2007 Unfiltered
Aluminum	--		180 U	180 U	180 U	350	200 U	4020	14600
Antimony	3		12 U	12 U	12 U	12 U	6 U	6 U	6 U
Arsenic	25		7.5 U	7.5 U	7.5 U	7.5 U	8 U	21.1	19.6
Barium	1000		200	180	140	220	320	255	598
Beryllium	3		4 U	4 U	4 U	4 U	1 U	1 U	1.4
Cadmium	5		3.5 U	3.5 U	3.5 U	3.5 U	4 U	4 U	4 U
Calcium	--		160000	140000	120000	210000	219000	149000	142000
Chromium	50		50 U	50 U	50 U	50 U	10 U	10.2	94.6
Cobalt	--		20 U	20 U	20 U	20 U	50 U	50 U	50 U
Copper	200		50 U	50 U	50 U	50 U	25 U	27.7	270
Iron	--		550	280	11000	560	930	59400	48100
Lead	25		4 U	4 U	4 U	4 U	3 U	33.2	486
Magnesium	--		15000	14000	7300	20000	263000	35500	16800
Manganese	300		420	370	370	650	537	1370	531
Mercury	0.7		0.7 U	0.7 U	0.7 U	0.7 U	0.2 U	0.82	11.9
Nickel	100		50 U	50 U	50 U	50 U	40 U	40 U	40 U
Potassium	--		14000	14000	27000	21000	135000	39400	27500
Selenium	10		40 U	40 U	40 U	40 U	10 U	10 U	10 U
Silver	50		20 U	20 U	20 U	20 U	10 U	10 U	10 U
Sodium	20000		53000	50000	50000	54000	2840000	387000	88300
Thallium	0.5		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vanadium	--		50 U	50 U	50 U	50 U	50 U	50 U	66.3
Zinc	2000		50 U	52	50 U	64	20 U	128	768

U - Indicates that the compound was analyzed for but not detected

µg/L - Micrograms per liter

DUP - Duplicate

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

Note:

Bold data indicates that parameter was detected

above the NYSDEC AWQSGVs

Table 14. Summary of Metals in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	MW-5ADUP 8/15/2007 Unfiltered	MW-7 8/14/2007 Unfiltered	SB-12 10/30/2007 Unfiltered	SB-12 10/30/2007 Filtered	SB-13 10/26/2007 Unfiltered	SB-13 10/26/2007 Filtered	SB-13DUP 10/26/2007 Unfiltered
Aluminum	--		23200	200 U	16000	180 U	260	180 U	260
Antimony	3		7.1	6 U	12 U	12 U	12 U	12 U	12 U
Arsenic	25		32.3	8 U	17	10	7.5 U	7.5 U	7.5 U
Barium	1000		927	200 U	550	320	300	310	310
Beryllium	3		2.1	1 U	4 U	4 U	4 U	4 U	4 U
Cadmium	5		4 U	4 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Calcium	--		161000	24600	160000	160000	110000	120000	120000
Chromium	50		139	10 U	50 U	50 U	50 U	50 U	50 U
Cobalt	--		50 U	50 U	20 U	20 U	20 U	20 U	20 U
Copper	200		364	25 U	89	50 U	50 U	50 U	50 U
Iron	--		98600	100 U	76000	47000	6900	7100	7100
Lead	25		707	3 U	180	4 U	7	4 U	10
Magnesium	--		19800	5000 U	99000	100000	18000	19000	18000
Manganese	300		669	30.4	1500	1200	960	1000	1000
Mercury	0.7		11.7	0.2 U	1.4	0.7 U	0.7 U	0.7 U	0.7 U
Nickel	100		61.2	40 U	50 U	50 U	50 U	50 U	50 U
Potassium	--		30600	10500	61000	62000	19000	20000	19000
Selenium	10		14.2	10 U	40 U	40 U	40 U	40 U	40 U
Silver	50		10 U	10 U	20 U	20 U	20 U	20 U	20 U
Sodium	20000		96800	212000	310000	330000	150000	150000	150000
Thallium	0.5		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vanadium	--		111	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	2000		1220	20 U	160	50 U	60	54	71

U - Indicates that the compound was analyzed for but not detected

µg/L - Micrograms per liter

DUP - Duplicate

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

Note:

Bold data indicates that parameter was detected

above the NYSDEC AWQSGVs

Table 14. Summary of Metals in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	SB-13DUP 10/26/2007 Filtered	SB-21 10/30/2007 Unfiltered	SB-21 10/30/2007 Filtered	SB-22 10/29/2007 Unfiltered	SB-22 10/29/2007 Filtered	SB-27 10/29/2007 Unfiltered	SB-27 10/29/2007 Filtered
Aluminum	--		180 U	20000	180 U	3500	180 U	23000	540
Antimony	3		12 U	12 U	12 U	12 U	12 U	12 U	12 U
Arsenic	25		7.5 U	38	7.5 U	7.6	7.5 U	25	17
Barium	1000		320	880	190	590	510	480	160
Beryllium	3		4 U	4 U	4 U	4 U	4 U	4 U	4 U
Cadmium	5		3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Calcium	--		120000	120000	98000	77000	79000	230000	240000
Chromium	50		50 U	62	50 U	50 U	50 U	58	50 U
Cobalt	--		20 U	20 U	20 U	20 U	20 U	20 U	20 U
Copper	200		50 U	160	50 U	120	50 U	130	50 U
Iron	--		6600	37000	3200	9200	3800	61000	1400
Lead	25		4 U	900	4 U	130	4 U	320	11
Magnesium	--		19000	14000	12000	11000	11000	35000	35000
Manganese	300		1000	1100	680	1300	1300	1600	590
Mercury	0.7		0.7 U	10	0.7 U	0.7 U	0.7 U	0.96	0.7 U
Nickel	100		50 U	50 U	50 U	50 U	50 U	56	50 U
Potassium	--		20000	14000	12000	11000	11000	25000	26000
Selenium	10		40 U	40 U	40 U	40 U	40 U	40 U	40 U
Silver	50		20 U	20 U	20 U	20 U	20 U	20 U	20 U
Sodium	20000		160000	92000	98000	94000	100000	53000	58000
Thallium	0.5		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vanadium	--		50 U	72	50 U	50 U	50 U	58	50 U
Zinc	2000		50 U	760	50 U	120	50 U	360	78

U - Indicates that the compound was analyzed for but not detected

µg/L - Micrograms per liter

DUP - Duplicate

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

Note:

Bold data indicates that parameter was detected

above the NYSDEC AWQSGVs

Table 14. Summary of Metals in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: FB-091107 F Sample Date: 9/12/2007 Filtered	FB-102607 10/26/2007 Unfiltered	FB-102607 10/26/2007 Filtered	FB-103007-SOIL 10/30/2007 Unfiltered	FB-103007-WATER 10/30/2007 Unfiltered	FB-103007-WATER 10/30/2007 Filtered
Aluminum	--	180 U	180 U	180 U	2000 U	180 U	180 U
Antimony	3	12 U	12 U	12 U	20 U	12 U	12 U
Arsenic	25	7.5 U	7.5 U	7.5 U	20 U	7.5 U	7.5 U
Barium	1000	50 U	50 U	50 U	100 U	50 U	50 U
Beryllium	3	4 U	4 U	4 U	6 U	4 U	4 U
Cadmium	5	3.5 U	3.5 U	3.5 U	6 U	3.5 U	3.5 U
Calcium	--	2000 U	2000 U	2000 U	10000 U	2000 U	2000 U
Chromium	50	50 U	50 U	50 U	50 U	50 U	50 U
Cobalt	--	20 U	20 U	20 U	25 U	20 U	20 U
Copper	200	50 U	50 U	50 U	50 U	50 U	50 U
Iron	--	280 U	280 U	280 U	2000 U	280 U	280 U
Lead	25	4 U	4 U	4 U	50 U	4 U	4 U
Magnesium	--	2000 U	2000 U	2000 U	5000 U	2000 U	2000 U
Manganese	300	40 U	40 U	40 U	100 U	40 U	40 U
Mercury	0.7	0.7 U	0.7 U	0.7 U	0.5 U	0.7 U	0.7 U
Nickel	100	50 U	50 U	50 U	50 U	50 U	50 U
Potassium	--	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U
Selenium	10	40 U	40 U	40 U	18 U	40 U	40 U
Silver	50	20 U	20 U	20 U	15 U	20 U	20 U
Sodium	20000	5000 U	5000 U	5000 U	2500 U	5000 U	5000 U
Thallium	0.5	10 U	10 U	10 U	12 U	10 U	10 U
Vanadium	--	50 U	50 U	50 U	100 U	50 U	50 U
Zinc	2000	50 U	50 U	50 U	100 U	50 U	50 U

U - Indicates that the compound was analyzed for but not detected

µg/L - Micrograms per liter

DUP - Duplicate

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water-Quality Standards and Guidance Values

Note:

Bold data indicates that parameter was detected

above the NYSDEC AWQSGVs

Table 15. Summary of Polychlorinated Biphenyl Compounds in Groundwater, Remedial Action Work Plan
Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	MW-2 8/14/2007	MW-3 8/15/2007	MW-5A 8/15/2007	MW-5ADUP 8/15/2007	MW-7 8/14/2007
Aroclor-1016	--		0.58 U	0.56 U	0.52 U	0.5 U	0.6 U
Aroclor-1221	--		0.58 U	0.56 U	0.52 U	0.5 U	0.6 U
Aroclor-1232	--		0.58 U	0.56 U	0.52 U	0.5 U	0.6 U
Aroclor-1242	--		0.58 U	0.56 U	0.52 U	0.5 U	0.6 U
Aroclor-1248	--		0.58 U	0.56 U	0.52 U	0.5 U	0.6 U
Aroclor-1254	--		0.58 U	0.56 U	0.52 U	0.5 U	0.6 U
Aroclor-1260	--		0.58 U	0.56 U	0.52 U	0.5 U	0.6 U
Total PCBs	0.09		0	0	0	0	0

Notes:

NYSDEC AWQSGV for Total PCBs (sum of the Aroclors) is 0.09 µg/L

U - Compound was analyzed for but not detected

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water Quality Standards and Guidance Values

DUP - Duplicate sample

PCBs - Polychlorinated Biphenyls

Table 16. Summary of Pesticides in Groundwater, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: Sample Date:	MW-2 8/14/2007	MW-3 8/15/2007	MW-5A 8/15/2007	MW-5ADUP 8/15/2007	MW-7 8/14/2007
4,4'-DDD	0.3		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
4,4'-DDE	0.2		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
4,4'-DDT	0.2		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Aldrin	0		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
alpha-BHC	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
alpha-Chlordane	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
beta-BHC	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
delta-BHC	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Dieldrin	0.004		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Endosulfan I	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Endosulfan II	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Endosulfan sulfate	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Endrin aldehyde	5		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Endrin ketone	--		0.058 U	0.056 U	0.052 U	0.05 U	0.06 U
Endrin	0		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
gamma-BHC (Lindane)	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
gamma-Chlordane	--		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Heptachlor epoxide	0.03		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Heptachlor	0.04		0.023 U	0.022 U	0.021 U	0.02 U	0.024 U
Methoxychlor	35		0.058 U	0.056 U	0.052 U	0.05 U	0.06 U
Toxaphene	0.06		0.29 U	0.28 U	0.26 U	0.25 U	0.3 U

Notes:

U - Compound was analyzed for but not detected

µg/L - Micrograms per liter

NYSDEC - New York State Department of Environmental Conservation

AWQSGVs - Ambient Water Quality Standards and Guidance Values

DUP - Duplicate sample

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S			A-2D						A-2DD			A-3S			A-3D			
				A-2S	A-2S	LB-1	AX-3	AX-4	AX-4R	AX-4R	LB-1	A-2D	A-2D	AX-4R	A-2R	A-2R	A-3S	A-3S	LB-2	A-3D	A-3D	LB-2
				3/7/2008	3/7/2008	1/31/2008	9/12/2007	9/12/2007	7/10/2009	7/10/2009	1/31/2008	3/7/2008	3/7/2008	7/10/2009	7/7/2009	7/7/2009	3/7/2008	3/7/2008	1/29/2008	3/7/2008	3/7/2008	1/29/2008
				0-10	8-10	1-7	10-12.5	15-20	15-15.5	17-17.5	13-19	15-16	16-17	36.5-37	20-20.5	22.5-23	0-10	8-10	2-6	10-20	16-17	10-17
1,1,1-Trichloroethane	100000	680		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
1,1,1,2-Tetrachloroethane	--	--		6.3 U	390 U	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	6.4 U	480 U	NA	41 U	580 U	NA
1,1,2,2-Tetrachloroethane	--	--		6.3 U	390 U	5.5 U	NA	NA	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
1,1,2-Trichloroethane	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
1,1-Dichloroethane	26000	270		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
1,1-Dichloroethene	100000	330		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
1,2,3-Trichloropropane	--	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	52000	3600		NA	NA	NA	81	1300	5650	0.54 J	NA	NA	NA	8 U	7.3 U	7.3 U	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	100000	1100		6.3 U	390 U	NA	35 U	820 U	300 U	5.5 U	NA	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	NA	41 U	580 U	NA
1,2-Dichloroethane	3100	20		1.3 U	77 U	1.1 U	35 U	820 U	60 U	1.1 U	1 U	NA	NA	1.6 U	1.5 U	1.5 U	1.3 U	96 U	1.6 U	8.3 U	120 U	1.4 U
1,2-Dichloroethene (total)	--	--		NA	NA	5.5 U	NA	NA	NA	NA	5.2 U	NA	NA	NA	NA	NA	NA	NA	8.2 U	NA	NA	6.9 U
1,2-Dichloropropane	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
1,3,5-Trimethylbenzene	52000	8400		NA	NA	NA	29	570	2410	2.2 J	NA	NA	NA	8 U	7.3 U	7.3 U	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	49000	2400		6.3 U	390 U	NA	35 U	820 U	300 U	5.5 U	NA	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	NA	41 U	580 U	NA
1,3-Dichloropropane	--	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	13000	1800		6.3 U	390 U	NA	35 U	820 U	300 U	5.5 U	NA	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	NA	41 U	580 U	NA
1,4-Dioxane	13000	100		NA	NA	NA	3500 U	41000 U	7600 U	140 U	NA	NA	NA	200 U	180 U	180 U	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	100000	120		13 U	770 U	11 U	35 U	820 U	600 U	11 U	10 U	NA	NA	16 U	15 U	15 U	13 U	960 U	16 U	83 U	1200 U	14 U
2-Chloroethyl vinyl ether	--	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	--		NA	NA	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	NA	NA	8.2 U	NA	NA	6.9 U
4-Isopropyltoluene	--	--		NA	NA	NA	12	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Acetone	100000	50		13 U	770 U	14.4	170 U	4100 U	600 U	21.9	29.6	NA	NA	37	88	18.7	13 U	960 U	36.9	83 U	1200 U	149
Acrolein	--	--		NA	NA	NA	170 U	4100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	--	--		63 U	3900 U	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	64 U	4800 U	NA	410 U	5800 U	NA
Benzene	4800	60		1.3 U	86.8	0.88 J	6.9 U	380	144	0.82 J	1 U	84 U	97.3	1.6 U	0.83 J	1.5 U	1.3 U	947	2.5	8.3 U	958	9.4
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Bromoform	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Bromomethane	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Carbon disulfide	--	--		NA	NA	1.5 J	35 U	820 U	NA	NA	0.58 J	NA	NA	NA	NA	NA	NA	NA	2.5 J	NA	NA	2.3 J
Carbon tetrachloride	2400	760		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Chlorobenzene	100000	1100		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Chloroethane	--	--		NA	NA	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	NA	NA	8.2 U	NA	NA	6.9 U
Chloroform	49000	370		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Chloromethane	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
cis-1,2-Dichloroethene	100000	250		6.3 U	390 U	5.5 U	35 U	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
cis-1,3-Dichloropropene	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Dibromochloromethane	--	--		6.3 U	390 U	5.5 U	35 U	820 U	NA	NA	5.2 U	NA	NA	NA	NA	NA	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
Dichlorodifluoromethane	--	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	41000	1000		2.2	39.2 J	1 J	23	910	1190	1.1 U	1.3	84 U	84 U	1.6 U	0.56 J	1.1 J	1.3 U	552	1.5 J	150	739	22.3
Freon 113	--	--		NA	NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	--	--		NA	NA	NA	290	9200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	100000	50		6.3 U	390 U	5.5 U	47 B	820 U	300 U	5.5 U	5.2 U	NA	NA	8 U	7.3 U	7.3 U	6.4 U	480 U	8.2 U	41 U	580 U	6.9 U
MTBE	100000	930		NA	NA	NA	6.9 U	160 U	60 U	1.1 U	NA	NA	NA	1.6 U	1.5 U	1.5 U	NA	NA	NA	NA	NA	NA
n-Butylbenzene	100000	12000		NA	NA	NA	120	17000	3950	5.5 U	NA	NA	NA	8 U	7.3 U							

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
— No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-3DD					A-4S				A-4D			A-4DD						A-5S
				A-3R	A-3R	LB-2R	LB-2	LB-2R	A-4S	LB-3	LB-3	SB-22	A-4D	A-4D	LB-3	A-4R	A-4R	LB-3R	LB-3	LB-3R	LB-3R	SB-23
				7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009	3/5/2008	2/1/2008	1/29/2008	10/29/2007	3/5/2008	3/5/2008	1/29/2008	7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009	7/9/2009	10/26/2007
				22.5-23	24.5-25	22.5-23	23-25	24.5-25	5-6	0-6	6-11	4-5	10-11	10-20	11-17	21.5-22	23.5-24	21-21.5	23-27	23.5-24	35-35.5	1-3
1,1,1-Trichloroethane	100000	680		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
1,1,1,2-Tetrachloroethane	--	--		NA	NA	NA	NA	NA	450 U	NA	NA	750 U	570 U	13000 U	NA	NA	NA	NA	NA	NA	NA	6.2 U
1,1,2,2-Tetrachloroethane	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	NA	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	NA
1,1,2-Trichloroethane	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
1,1-Dichloroethane	26000	270		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
1,1-Dichloroethene	100000	330		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
1,2,3-Trichloropropane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U
1,2,4-Trimethylbenzene	52000	3600		1.5 J	8.2 U	7.6 U	NA	7.6 U	NA	NA	NA	46000	NA	NA	NA	272	7.2 U	235 J	NA	7.7 U	5.2 U	1.2 U
1,2-Dichlorobenzene	100000	1100		7 U	8.2 U	7.6 U	NA	7.6 U	450 U	NA	NA	750 U	570 U	13000 U	NA	7.7 U	7.2 U	390 U	NA	7.7 U	5.2 U	6.2 U
1,2-Dichloroethane	3100	20		1.4 U	1.6 U	1.5 U	1.5 U	1.5 U	91 U	1.4 U	70 U	750 U	110 U	2600 U	79 U	1.5 U	1.4 U	79 U	1.5 U	1.5 U	1 U	6.2 U
1,2-Dichloroethene (total)	--	--		NA	NA	NA	7.3 U	NA	NA	7 U	350 U	NA	NA	NA	400 U	NA	NA	NA	7.3 U	NA	NA	NA
1,2-Dichloropropane	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
1,3,5-Trimethylbenzene	52000	8400		1.1 J	0.71 J	1.3 J	NA	7.6 U	NA	NA	NA	19000	NA	NA	NA	114	7.2 U	101 J	NA	7.7 U	5.2 U	1.2 U
1,3-Dichlorobenzene	49000	2400		7 U	8.2 U	7.6 U	NA	7.6 U	450 U	NA	NA	750 U	570 U	13000 U	NA	7.7 U	7.2 U	390 U	NA	7.7 U	5.2 U	6.2 U
1,3-Dichloropropane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U
1,4-Dichlorobenzene	13000	1800		7 U	8.2 U	7.6 U	NA	7.6 U	450 U	NA	NA	750 U	570 U	13000 U	NA	7.7 U	7.2 U	390 U	NA	7.7 U	5.2 U	6.2 U
1,4-Dioxane	13000	100		170 U	200 U	190 U	NA	190 U	NA	NA	NA	38000 U	NA	NA	NA	190 U	180 U	9800 U	NA	190 U	130 U	310 U
2-Butanone (MEK)	100000	120		14 U	16 U	15 U	15 U	15 U	910 U	14 U	700 U	750 U	1100 U	26000 U	790 U	15 U	14 U	790 U	15 U	15 U	10 U	6.2 U
2-Chloroethyl vinyl ether	--	--		NA	NA	NA	NA	NA	NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U
2-Hexanone	--	--		NA	NA	NA	7.3 U	NA	NA	7 U	350 U	750 U	NA	NA	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
4-Isopropyltoluene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U
4-Methyl-2-pentanone	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Acetone	100000	50		27.9	49.2	44.8	81.8	35.8	910 U	14 U	700 U	3800 U	1100 U	26000 U	790 U	42.6	12.8 J	790 U	82.7	27	10 U	31 U
Acrolein	--	--		NA	NA	NA	NA	NA	NA	NA	NA	7500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 U
Acrylonitrile	--	--		NA	NA	NA	NA	NA	4500 U	NA	NA	750 U	5700 U	130000 U	NA	NA	NA	NA	NA	NA	NA	6.2 U
Benzene	4800	60		1.4 U	0.76 J	0.63 J	1.5 U	1.5 U	91 U	4.8	60.2 J	150 U	2540	2600 U	504	7.6	1.4 U	52.6 J	1.9	1.5 U	1 U	1.2 U
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Bromoform	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Bromomethane	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Carbon disulfide	--	--		NA	NA	NA	5.6 J	NA	NA	7 U	350 U	750 U	NA	NA	400 U	NA	NA	NA	5.5 J	NA	NA	6.2 U
Carbon tetrachloride	2400	760		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
Chlorobenzene	100000	1100		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
Chloroethane	--	--		NA	NA	NA	7.3 U	NA	NA	7 U	350 U	750 U	NA	NA	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Chloroform	49000	370		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
Chloromethane	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
cis-1,2-Dichloroethene	100000	250		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
cis-1,3-Dichloropropene	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Dibromochloromethane	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Dichlorodifluoromethane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U
Ethylbenzene	41000	1000		2.8	2.3	3	1.6	1.1 J	2730	8	4850	2300	167000	275000	45000	7.2	1.4 U	76.9 J	13.2	1.5 U	1 U	1.2 U
Freon 113	--	--		NA	NA	NA	NA	NA	NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U
Isopropylbenzene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U
Methylene chloride	100000	50		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	1.3 JB	18 B
MTBE	100000	930		1.4 U	1.6 U	1.5 U	NA	1.5 U	NA	NA	NA	150 U	NA	NA	NA	1.5 U	1.4 U	79 U	NA	1.5 U	1 U	1.2 U
n-Butylbenzene	100000	12000		7 U	8.2 U	7.6 U	NA	7.6 U	NA	NA	NA	3000	NA	NA	NA	7.7 U	7.2 U	1010	NA	7.7 U	5.2 U	1.2 U
n-Propylbenzene	100000	3900		1.4 J	0.91 J	2.6 J	NA	7.6 U	NA	NA	NA	5100	NA	NA	NA	4.4 J	7.2 U	1650	NA	7.7 U	5.2 U	1.2 U
o-Xylene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U
sec-Butylbenzene	100000	11000		7 U	8.2 U	7.6 U	NA	7.6 U	NA	NA	NA	1700	NA	NA	NA	4.9 J	7.2 U	584	NA	7.7 U	5.2 U	1.2 U
Styrene	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
t-Butyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	3800 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 U
t-Butylbenzene	100000	5900		7 U	8.2 U	7.6 U	NA	7.6 U	NA	NA	NA	150 U	NA	NA	NA	7.7 U	7.2 U	390 U	NA	7.7 U	5.2 U	1.2 U
Tetrachloroethene	19000	1300		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	1.1 J	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
Toluene	100000	700		0.55 J	0.77 J	0.66 J	1.5 U	1.5 U	104	8.6	194	150 U	5550	38600	1600	4.5	1.4 U	40.6 J	1.1 J	1.5 U	1 U	1.2 U
trans-1,2-Dichloroethene	100000	190		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
trans-1,3-Dichloropropene	--	--		NA	NA	NA	7.3 U	NA	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	NA	NA	NA	7.3 U	NA	NA	6.2 U
Trichloroethene	21000	470		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
Trichlorofluoromethane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	750 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U
Vinyl chloride	900	20		7 U	8.2 U	7.6 U	7.3 U	7.6 U	450 U	7 U	350 U	750 U	570 U	13000 U	400 U	7.7 U	7.2 U	390 U	7.3 U	7.7 U	5.2 U	6.2 U
Xylenes (total)	100000	1600		10.4	4.4	4.5	4.1	3.3	8940	31.2	18100	12000	447000	1380000	175000	337	2.9 U	189	37.1	3.1 U	2.1 U	2.5 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-5D	A-6S					A-6D		A-7S			B-2S		B-2D	B-3S		B-3D	
				A-5D	LB-4	LB-4	LB-4	SB-25	SB-27	LB-4	SB-28	A-7S	A-7S	LB-5	B-2S	B-2S	AX-5	B-3S	B-3S	B-3D	B-3D
				3/6/2008	1/31/2008	1/24/2008	1/31/2008	10/26/2007	10/26/2007	1/24/2008	10/29/2007	3/7/2008	3/7/2008	2/1/2008	3/7/2008	3/7/2008	9/12/2007	3/7/2008	3/7/2008	3/7/2008	3/7/2008
				13-14	1-3	3-7	9-11	5-7.5	7.5-10	13-19	12-14	0-10	6-7	2-6	0-10	9-10	12.5-15	0-10	9-10	10-20	18-19
1,1,1-Trichloroethane	100000	680		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
1,1,1,2-Tetrachloroethane	--	--		370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
1,1,2,2-Tetrachloroethane	--	--		370 U	5.6 U	4.9 U	6.6 U	NA	NA	6.6 U	NA	6 U	1000 U	5.9 U	7.5 U	450 U	NA	6.4 U	520 U	13 U	490 U
1,1,2-Trichloroethane	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
1,1-Dichloroethane	26000	270		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
1,1-Dichloroethene	100000	330		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
1,2,3-Trichloropropane	--	--		NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA	NA	NA	36 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	52000	3600		NA	NA	NA	NA	17	7600	NA	40	NA	NA	NA	NA	NA	36	NA	NA	NA	NA
1,2-Dichlorobenzene	100000	1100		370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA	7.5 U	3720	36 U	6.4 U	520 U	13 U	490 U
1,2-Dichloroethane	3100	20		74 U	1.1 U	0.99 U	1.3 U	5.7 U	820 U	1.3 U	6.1 U	1.2 U	210 U	1.2 U	1.5 U	89 U	36 U	1.3 U	100 U	2.7 U	99 U
1,2-Dichloroethene (total)	--	--		NA	5.6 U	4.9 U	6.6 U	NA	NA	6.6 U	NA	NA	NA	5.9 U	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
1,3,5-Trimethylbenzene	52000	8400		NA	NA	NA	NA	6.8	1900	NA	22	NA	NA	NA	NA	NA	29	NA	NA	NA	NA
1,3-Dichlorobenzene	49000	2400		370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
1,3-Dichloropropane	--	--		NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA	NA	NA	36 U	NA	NA	NA	NA
1,4-Dichlorobenzene	13000	1800		370 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	6 U	1000 U	NA	7.5 U	429 J	36 U	6.4 U	520 U	13 U	490 U
1,4-Dioxane	13000	100		NA	NA	NA	NA	290 U	41000 U	NA	300 U	NA	NA	NA	NA	NA	3600 U	NA	NA	NA	NA
2-Butanone (MEK)	100000	120		740 U	11 U	9.9 U	13 U	5.7 U	820 U	13 U	6.1 U	12 U	2100 U	12 U	15 U	890 U	36 U	20.7	1000 U	27 U	990 U
2-Chloroethyl vinyl ether	--	--		NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA	NA	NA	36 U	NA	NA	NA	NA
2-Hexanone	--	--		NA	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	NA	NA	5.9 U	NA	NA	36 U	NA	NA	NA	NA
4-Isopropyltoluene	--	--		NA	NA	NA	NA	1.1 U	1000	NA	6.6	NA	NA	NA	NA	NA	40	NA	NA	NA	NA
4-Methyl-2-pentanone	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Acetone	100000	50		740 U	11 U	33	34.9	78	4100 U	48.5	61	12 U	2100 U	16.4	18.7	890 U	180 U	77.3	1000 U	34.5	990 U
Acrolein	--	--		NA	NA	NA	NA	29 U	8200 U	NA	30 U	NA	NA	NA	NA	NA	180 U	NA	NA	NA	NA
Acrylonitrile	--	--		3700 U	NA	NA	NA	5.7 U	820 U	NA	6.1 U	60 U	10000 U	NA	75 U	4500 U	36 U	64 U	5200 U	130 U	4900 U
Benzene	4800	60		74 U	1.1 U	1.6	2.3	1.1 U	160 U	2.8	6.8	0.97 J	210 U	1.2 U	3.6	445	35	1.3 U	2480	12.7	1220
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Bromoform	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Bromomethane	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Carbon disulfide	--	--		NA	5.6 U	1.3 J	6.6 U	26	820 U	1.7 J	4.1 J	NA	NA	5.9 U	NA	NA	36 U	NA	NA	NA	NA
Carbon tetrachloride	2400	760		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Chlorobenzene	100000	1100		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Chloroethane	--	--		NA	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	NA	NA	5.9 U	NA	NA	36 U	NA	NA	NA	NA
Chloroform	49000	370		370 U	5.6 U	0.96 J	6.6 U	5.7 U	820 U	1.2 J	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Chloromethane	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
cis-1,2-Dichloroethene	100000	250		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
cis-1,3-Dichloropropene	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Dibromochloromethane	--	--		370 U	5.6 U	4.9 U	6.6 U	5.7 U	820 U	6.6 U	6.1 U	6 U	1000 U	5.9 U	7.5 U	450 U	36 U	6.4 U	520 U	13 U	490 U
Dichlorodifluoromethane	--	--		NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA	NA	NA	36 U	NA	NA	NA	NA
Ethylbenzene	41000	1000		54.2 J	2.1	1.3	3.9	8.3	610	2.4	2.3	8.2	210 U	1.2 U	89.2	32100	39	1.3 U	12900	2.9	1880
Freon 113	--	--		NA	NA	NA	NA	5.7 U	820 U	NA	6.1 U	NA	NA	NA	NA	NA	36 U	NA	NA	NA	NA
Isopropylbenzene	--	--		NA	NA	NA	NA	1.1 U	880	NA	4.2	NA	NA	NA	NA	NA	560	NA	NA	NA	NA
Methylene chloride	100000	50		370 U	5.6 U	4.9 U	6.6 U	28 B	820 U	6.6 U	6.2 B	6 U	1000 U	5.9 U	7.5 U	450 U	150 B	6.4 U	520 U	13 U	490 U
MTBE	100000	930		NA	NA	NA	NA	1.1 U	160 U	NA	1.2 U	NA	NA	NA	NA	NA	7.1 U	NA	NA	NA	NA
n-Butylbenzene	100000	12000		NA	NA	NA	NA	1.1 U	410	NA	3	NA	NA	NA	NA	NA	750	NA	NA	NA	NA
n-Propylbenzene	100000	3900		NA	NA	NA	NA	3.4	1300	NA	1.2 U	NA	NA	NA	NA	NA	1200	NA	NA	NA	NA
o-Xylene	--	--		NA	NA	NA	NA	11	770	NA	58	NA	NA	NA	NA	NA	23	NA	NA	NA	NA

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	B-3DD		B-4S		B-4D					B-4DD					B-5S		B-5D		
				B-3R	B-3R	B-4S	B-4S	B-4D	AX-1	AX-1R	AX-2	AX-2 DUP	AX-1R	AX-1R	AX-2R	AX-2R	AX-2R	B-5S	B-5S	B-5D	B-5R	B-5D
				7/8/2009 23.5-24	7/8/2009 25.5-26	3/6/2008 0-10	3/6/2008 7-8	3/6/2008 18-19	9/11/2007 15-17.5	7/9/2009 19.5-20	9/11/2007 15-17.5	9/11/2007 15-17.5	7/9/2009 21.5-22	7/9/2009 35.5-36	7/8/2009 20-20.5	7/8/2009 22.5-23	7/10/2009 22.5-23	3/6/2008 0-10	3/6/2008 8-9	3/6/2008 10-20	7/10/2009 16-16.5	3/6/2008 17-18
1,1,1-Trichloroethane	100000	680		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,1,1,2-Tetrachloroethane	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,1,2,2-Tetrachloroethane	--	--		NA	NA	7.1 U	1100 U	1500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,1,2-Trichloroethane	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,1-Dichloroethane	26000	270		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,1-Dichloroethene	100000	330		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,2,3-Trichloropropane	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	52000	3600		7.7 U	7.2 U	NA	NA	NA	300000	397	280000	79000	3.2 J	5.2 U	5090	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
1,2-Dichlorobenzene	100000	1100		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,2-Dichloroethane	3100	20		1.5 U	1.4 U	1.4 U	210 U	290 U	7900 U	2.6 U	8400 U	860 U	1.4 U	1 U	100 U	1.4 U	1.3 U	1.5 U	120 U	1.5 U	1.3 U	100 U
1,2-Dichloroethene (total)	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
1,3,5-Trimethylbenzene	52000	8400		7.7 U	7.2 U	NA	NA	NA	89000	137	60000	26000	1.8 J	5.2 U	1770	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
1,3-Dichlorobenzene	49000	2400		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,3-Dichloropropane	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	13000	1800		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
1,4-Dioxane	13000	100		190 U	180 U	NA	NA	NA	400000 U	320 U	420000 U	43000 U	170 U	130 U	13000 U	170 U	160 U	NA	NA	NA	160 U	NA
2-Butanone (MEK)	100000	120		15 U	14 U	5.2 J	2100 U	2900 U	7900 U	26 U	8400 U	860 U	14 U	10 U	1000 U	14 U	13 U	15 U	1200 U	15 U	13 U	1000 U
2-Chloroethyl vinyl ether	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	--	--		NA	NA	NA	NA	NA	11000	NA	8400	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Acetone	100000	50		39.8	58.3	14 U	2100 U	2900 U	40000 U	26 U	42000 U	4300 U	58.9	10 U	1000 U	35.2	21.5	15 U	1200 U	15 U	13 U	1000 U
Acrolein	--	--		NA	NA	NA	NA	NA	40000 U	NA	42000 U	4300 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	--	--		NA	NA	71 U	11000 U	15000 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	74 U	6000 U	77 U	NA	5200 U
Benzene	4800	60		1.5 U	1.4 U	8.8	511	3880	3600	9.1	1700 U	1100	1.4 U	1 U	105	1.4 U	1.3 U	1.5 U	120 U	1.5 U	1.3 U	100 U
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Bromoform	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Bromomethane	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Carbon disulfide	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	2400	760		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
Chlorobenzene	100000	1100		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
Chloroethane	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	49000	370		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
Chloromethane	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
cis-1,2-Dichloroethene	100000	250		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
cis-1,3-Dichloropropene	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Dibromochloromethane	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Dichlorodifluoromethane	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	41000	1000		1.5 U	1.4 U	2.9	261	36900	110000	215	120000	51000	1.3 J	1 U	2570	1.4 U	1.3 U	1.5 U	120 U	0.87 J	1.3 U	100 U
Freon 113	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	--	--		NA	NA	NA	NA	NA	17000	NA	18000	9100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	100000	50		7.7 U	3.5 J	7.1 U	1100 U	1500 U	7900 U	13 U	3800 J	860 U	6.8 U	1.3 JB	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
MTBE	100000	930		1.5 U	1.4 U	NA	NA	NA	1600 U	2.6 U	1700 U	170 U	1.4 U	1 U	100 U	1.4 U	1.3 U	NA	NA	NA	1.3 U	NA
n-Butylbenzene	100000	12000		7.7 U	7.2 U	NA	NA	NA	15000	25.1	14000	6200	6.8 U	5.2 U	350 J	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
n-Propylbenzene	100000	3900		7.7 U	7.2 U	NA	NA	NA	52000	117	58000	26000	6.8 U	5.2 U	1550	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
o-Xylene	--	--		NA	NA	NA	NA	NA	180000	NA	3400	1600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	100000	11000		7.7 U	7.2 U	NA	NA	NA	7200	13.7	7000	3900	6.8 U	5.2 U	178 J	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
Styrene	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
t-Butyl Alcohol	--	--		NA	NA	NA	NA	NA	40000 U	NA	42000 U	4300 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
t-Butylbenzene	100000	5900		7.7 U	7.2 U	NA	NA	NA	1700 U	1.9 J	1700 U	170 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	NA	NA	NA	6.6 U	NA
Tetrachloroethene	19000	1300		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
Toluene	100000	700		1.5 U	1.4 U	1.1 J	210 U	1410	70000	19.5	2500	2000	1.3 J	1 U	138	0.42 J	1.3 U	1.5 U	120 U	1.5 U	1.3 U	100 U
trans-1,2-Dichloroethene	100000	190		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
trans-1,3-Dichloropropene	--	--		NA	NA	7.1 U	1100 U	1500 U	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	7.4 U	600 U	7.7 U	NA	520 U
Trichloroethene	21000	470		7.7 U	7.2 U	3.4 J	340 J	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
Trichlorofluoromethane	--	--		NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	900	20		7.7 U	7.2 U	7.1 U	1100 U	1500 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	7.4 U	600 U	7.7 U	6.6 U	520 U
Xylenes (total)	100000	1600		3.1 U	2.9 U	8.4	1480	7890	400000	829	240000	79000	5.8	2.1 U	6940	0.67 J	2.5 U	3 U	240 U	0.89 J	2.6 U	55.8 J

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	B-6S			B-6D	B-7S	C-2S		C-2D		C-3S		C-3D					C-3DD		
				LB-6	LB-6	SB-26	LB-6	SB-24	C-2S	C-2S	C-2D	SB-11	LB-7	SB-21	C-3D	C-3R	C-3D	LB-7	LB-7R	C-3R	LB-7	LB-7R
				2/1/2008	1/28/2008	10/29/2007	1/28/2008	10/26/2007	3/5/2008	3/5/2008	3/5/2008	10/24/2007	2/1/2008	10/26/2007	3/5/2008	7/8/2009	3/5/2008	1/15/2008	7/8/2009	7/8/2009	1/15/2008	7/8/2009
				1-3	5-9	7-9	12-16	2-5	0-10	9-10	16-17	10/24/2007	1-5	7.5-10	10-20	17.5-18	18-19	9-13	19-19.5	20-20.5	20-25	21-21.5
1,1,1-Trichloroethane	100000	680		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
1,1,1,2-Tetrachloroethane	--	--		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	NA	460 U	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	--	--		6.3 U	6.8 U	NA	6.6 U	NA	6 U	420 U	140 U	NA	6.1 U	NA	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
1,1,2-Trichloroethane	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
1,1-Dichloroethane	26000	270		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
1,1-Dichloroethene	100000	330		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
1,2,3-Trichloropropane	--	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	52000	3600		NA	NA	32	NA	9.1	NA	NA	NA	180	NA	65000	NA	870 J	NA	NA	61500	1.2 J	NA	2.5 J
1,2-Dichlorobenzene	100000	1100		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	1700 U	460 U	NA	290 U	7.7 U	NA	7.6 U
1,2-Dichloroethane	3100	20		1.3 U	1.4 U	6.1 U	1.3 U	5.5 U	1.2 U	85 U	29 U	750 U	1.2 U	780 U	9.1 U	330 U	92 U	75 U	59 U	1.5 U	1.3 U	1.5 U
1,2-Dichloroethene (total)	--	--		6.3 U	6.8 U	NA	6.6 U	NA	NA	NA	NA	NA	6.1 U	NA	NA	NA	NA	370 U	NA	NA	6.6 U	NA
1,2-Dichloropropane	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
1,3,5-Trimethylbenzene	52000	8400		NA	NA	11	NA	4.5	NA	NA	NA	150 U	NA	28000	NA	523 J	NA	NA	20100	1 J	NA	2.1 J
1,3-Dichlorobenzene	49000	2400		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	1700 U	460 U	NA	290 U	7.7 U	NA	7.6 U
1,3-Dichloropropane	--	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	13000	1800		NA	NA	6.1 U	NA	5.5 U	6 U	420 U	140 U	750 U	NA	780 U	45 U	1700 U	460 U	NA	290 U	7.7 U	NA	7.6 U
1,4-Dioxane	13000	100		NA	NA	300 U	NA	270 U	NA	NA	NA	38000 U	NA	39000 U	NA	42000 U	NA	NA	7300 U	190 U	NA	190 U
2-Butanone (MEK)	100000	120		13 U	14 U	6.1 U	13 U	5.5 U	12 U	850 U	290 U	750 U	12 U	780 U	91 U	3300 U	920 U	750 U	590 U	15 U	13 U	15 U
2-Chloroethyl vinyl ether	--	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	NA	NA	NA	750 U	6.1 U	780 U	NA	NA	NA	370 U	NA	NA	6.6 U	NA
4-Isopropyltoluene	--	--		NA	NA	1.2 U	NA	1.1 U	NA	NA	NA	410	NA	4100	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
Acetone	100000	50		30.4	14 U	55	34.3	27 U	31	850 U	290 U	3800 U	21.3	3900 U	91 U	3300 U	920 U	750 U	590 U	44.8	88.2	39.8
Acrolein	--	--		NA	NA	30 U	NA	27 U	NA	NA	NA	7500 U	NA	7800 U	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	--	--		NA	NA	6.1 U	NA	5.5 U	60 U	4200 U	1400 U	750 U	NA	780 U	450 U	NA	4600 U	NA	NA	NA	NA	NA
Benzene	4800	60		1.3 U	1.4 U	2.1	1.3 U	1.1 U	1.2 U	85 U	38.3	150 U	3.6	160 U	182	150 J	968	77.3	59 U	1.1 J	30.4	0.78 J
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
Bromoform	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
Bromomethane	--	--		6.3 U	6.8 U	6.1 U	6.6 U	1.1 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
Carbon disulfide	--	--		6.3 U	1.7 J	6.1 U	1.1 J	5.5 U	NA	NA	NA	750 U	6.1 U	780 U	NA	NA	NA	370 U	NA	NA	6.6 U	NA
Carbon tetrachloride	2400	760		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
Chlorobenzene	100000	1100		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
Chloroethane	--	--		6.3 U	6.8 U	6.1 U	6.6 U	1.1 U	NA	NA	NA	750 U	6.1 U	780 U	NA	NA	NA	370 U	NA	NA	6.6 U	NA
Chloroform	49000	370		6.3 U	0.7 J	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
Chloromethane	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
cis-1,2-Dichloroethene	100000	250		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
cis-1,3-Dichloropropene	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
Dibromochloromethane	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
Dichlorodifluoromethane	--	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	41000	1000		2.2	0.76 J	18	0.7 J	1.1 U	1.4	85 U	137	150 U	31.4	18000	976	890	1090	6290	3560	2.6	271	3.1
Freon 113	--	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	--	--		NA	NA	2.9	NA	1.1 U	NA	NA	NA	760	NA	5100	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	100000	50		6.3 U	6.8 U	15 B	6.6 U	12 B	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
MTBE	100000	930		NA	NA	1.2 U	NA	1.1 U	NA	NA	NA	150 U	NA	160 U	NA	330 U	NA	NA	59 U	1.1 J	NA	1.5
n-Butylbenzene	100000	12000		NA	NA	1.6	NA	1.1 U	NA	NA	NA	3100	NA	5500	NA	21200	NA	NA	2890	7.7 U	NA	7.6 U
n-Propylbenzene	100000	3900		NA	NA	8.7	NA	1.1 U	NA	NA	NA	3000	NA	15000	NA	57200	NA	NA	9530	2.9 J	NA	0.9 J
o-Xylene	--	--		NA	NA	22	NA	3	NA	NA	NA	150 U	NA	26000	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	100000	11000		NA	NA	1.2 U	NA	1.1 U	NA	NA	NA	1300	NA	2400	NA	10000	NA	NA	1290	7.7 U	NA	7.6 U
Styrene	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
t-Butyl Alcohol	--	--		NA	NA	30 U	NA	27 U	NA	NA	NA	3800 U	NA	3900 U	NA	NA	NA	NA	NA	NA	NA	NA
t-Butylbenzene	100000	5900		NA	NA	1.2 U	NA	1.1 U	NA	NA	NA	150 U	NA	160 U	NA	356 J	NA	NA	290 U	7.7 U	NA	7.6 U
Tetrachloroethene	19000	1300		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	2.1 J	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
Toluene	100000	700		1.2 J	0.64 J	9.1	0.76 J	1.1 U	2	85 U	30.9	150 U	4	1700	85.7	262 J	610	121	76.5	0.86 J	7.1	0.65 J
trans-1,2-Dichloroethene	100000	190		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
trans-1,3-Dichloropropene	--	--		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	NA	460 U	370 U	NA	NA	6.6 U	NA
Trichloroethene	21000	470		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
Trichlorofluoromethane	--	--		NA	NA	6.1 U	NA	5.5 U	NA	NA	NA	750 U	NA	780 U	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	900	20		6.3 U	6.8 U	6.1 U	6.6 U	5.5 U	6 U	420 U	140 U	750 U	6.1 U	780 U	45 U	1700 U	460 U	370 U	290 U	7.7 U	6.6 U	7.6 U
Xylenes (total)	100000	1600		5	2 J	68	1.5 J	5.8	5.7	170 U	148	300 U	37.5	55000	444	2650	1920	9740	17600	9.2	173	6.5

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	C-4S		C-4D			C-4DD		C-5S		C-5D		C-6S		C-6D	C-7S			D-2S	D-2D
				C-4S	C-4S	C-4D	SB-18	SB-18R	SB-18R	SB-18R	C-5S	C-5S	C-5D	C-5D	C-6S	C-6S	SB-19	LB-8	SB-20	SB-20 DUP	D-2S	SB-12
				3/5/2008	3/5/2008	3/5/2008	10/25/2007	7/9/2009	7/9/2009	7/9/2009	3/5/2008	3/5/2008	3/5/2008	3/5/2008	3/4/2008	3/4/2008	10/26/2007	1/25/2008	10/26/2007	10/26/2007	3/3/2008	10/25/2007
				0-10	9-10	18-19	12.5-15	19.5-20	21.5-22	30-30.5	0-10	8-9	10-20	18-19	0-10	9-10	15-18	3-9	10/26/2007	10/26/2007	0-10	12-14
1,1,1-Trichloroethane	100000	680		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
1,1,1,2-Tetrachloroethane	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	5.8 U	6.1 U	740 U
1,1,2,2-Tetrachloroethane	—	—		9.6 U	540 U	NA	NA	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	NA	5.5 U	NA	NA	6.1 U	NA
1,1,2-Trichloroethane	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
1,1-Dichloroethane	26000	270		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
1,1-Dichloroethene	100000	330		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
1,2,3-Trichloropropane	—	—		NA	NA	NA	16000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	5.8 U	5.8 U	NA	740 U
1,2,4-Trimethylbenzene	52000	3600		NA	NA	NA	220000	317000	2.2 J	3.1 J	NA	NA	NA	NA	NA	NA	4.2	NA	37	7.8	NA	2500
1,2-Dichlorobenzene	100000	1100		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	5.8 U	6.1 U	740 U
1,2-Dichloroethane	3100	20		1.9 U	110 U	NA	16000 U	740 U	1.3 U	1.1 U	1.8 U	89 U	13 U	120 U	1.4 U	93 U	6.2 U	1.1 U	5.8 U	5.8 U	1.2 U	740 U
1,2-Dichloroethene (total)	—	—		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5 U	NA	NA	NA	NA
1,2-Dichloropropane	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
1,3,5-Trimethylbenzene	52000	8400		NA	NA	NA	70000	110000	1.5 J	5.9	NA	NA	NA	NA	NA	NA	1.9	NA	26	6	NA	1000
1,3-Dichlorobenzene	49000	2400		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	5.8 U	6.1 U	740 U
1,3-Dichloropropane	—	—		NA	NA	NA	16000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	5.8 U	5.8 U	NA	740 U
1,4-Dichlorobenzene	13000	1800		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	NA	5.8 U	5.8 U	6.1 U	740 U
1,4-Dioxane	13000	100		NA	NA	NA	810000 U	92000 U	160 U	140 U	NA	NA	NA	NA	NA	NA	310 U	NA	290 U	290 U	NA	37000 U
2-Butanone (MEK)	100000	120		19 U	1100 U	NA	16000 U	7400 U	13 U	11 U	18 U	890 U	130 U	1200 U	14 U	930 U	6.2 U	11 U	5.8 U	5.8 U	12 U	740 U
2-Chloroethyl vinyl ether	—	—		NA	NA	NA	16000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	NA	5.8 U	5.8 U	NA	740 U
2-Hexanone	—	—		NA	NA	NA	16000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	5.5 U	5.8 U	5.8 U	NA	740 U
4-Isopropyltoluene	—	—		NA	NA	NA	8000	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	NA	8.6	1.8	NA	210
4-Methyl-2-pentanone	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Acetone	100000	50		19 U	1100 U	NA	81000 U	7400 U	43.3	16.4	18 U	890 U	130 U	1200 U	14 U	930 U	28 J	11 U	29 U	29 U	12 U	3700 U
Acrolein	—	—		NA	NA	NA	81000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 U	NA	29 U	29 U	NA	7400 U
Acrylonitrile	—	—		96 U	5400 U	NA	16000 U	NA	NA	NA	91 U	4400 U	630 U	6100 U	68 U	4700 U	6.2 U	NA	5.8 U	5.8 U	61 U	740 U
Benzene	4800	60		19.2	911	530	3200 U	6030	1.3 U	0.56 J	1.8 U	134	14.2	343	1.4 U	93 U	1.2 U	1.1 U	1.2 U	1.2 U	1.2 U	150 U
Benzyl Alcohol	—	—		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Bromoform	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Bromomethane	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	1.2 U	5.5 U	1.2 U	1.2 U	6.1 U	740 U
Carbon disulfide	—	—		NA	NA	NA	16000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	5.5 U	5.8 U	5.8 U	NA	740 U
Carbon tetrachloride	2400	760		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Chlorobenzene	100000	1100		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Chloroethane	—	—		NA	NA	NA	16000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U	5.5 U	1.2 U	1.2 U	NA	740 U
Chloroform	49000	370		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Chloromethane	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
cis-1,2-Dichloroethene	100000	250		9.6 U	540 U	NA	16000 U	3700 U	6.5 U	5.6 U	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
cis-1,3-Dichloropropene	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Dibromochloromethane	—	—		9.6 U	540 U	NA	16000 U	NA	NA	NA	9.1 U	440 U	63 U	610 U	6.8 U	470 U	6.2 U	5.5 U	5.8 U	5.8 U	6.1 U	740 U
Dichlorodifluoromethane	—	—		NA	NA	NA	16000 U	NA	NA													

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	D-3S				D-3D					D-4S			D-4D					
				D-3S	D-3S	LB-9	LB-9	D-3D	D-3R	D-3D	D-3R	LB-9	LB-10	LB-10	LB-10	D-4D	D-4D	D-4R	SB-13	SB-13R	SB-13R
				3/3/2008 0-10	3/3/2008 6-7	2/1/2008 0-6	1/15/2008 6-8	3/4/2008 10-20	7/8/2009 15.5-16	3/4/2008 16-17	7/8/2009 17.5-18	1/24/2008 10-12	2/1/2008 0-4	1/24/2008 4-8	1/22/2008 8-12	3/4/2008 10-28	3/4/2008 15-16	7/8/2009 18.5-19	10/25/2007 15-17.5	7/8/2009 17.5-18	7/8/2009 19.5-20
1,1,1-Trichloroethane	100000	680		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
1,1,1,2-Tetrachloroethane	--	--		5.6 U	420 U	NA	NA	48 U	NA	770 U	NA	NA	NA	NA	NA	35 U	590 U	NA	890 U	NA	NA
1,1,2,2-Tetrachloroethane	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	NA	NA	NA
1,1,2-Trichloroethane	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
1,1-Dichloroethane	26000	270		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
1,1-Dichloroethene	100000	330		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
1,2,3-Trichloropropane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	890 U	NA	NA
1,2,4-Trimethylbenzene	52000	3600		NA	NA	NA	NA	NA	381 J	NA	6.6 U	NA	NA	NA	NA	NA	NA	754 J	390	264 J	6.8 U
1,2-Dichlorobenzene	100000	1100		5.6 U	420 U	NA	NA	48 U	780 U	770 U	6.6 U	NA	NA	NA	NA	35 U	590 U	1000 U	890 U	440 U	6.8 U
1,2-Dichloroethane	3100	20		1.1 U	84 U	1.3 U	1.3 U	9.5 U	160 U	150 U	1.3 U	5.3 U	1.3 U	1.2 U	1.2 U	7.1 U	120 U	210 U	890 U	89 U	1.4 U
1,2-Dichloroethene (total)	--	--		NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	5.9 U	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
1,3,5-Trimethylbenzene	52000	8400		NA	NA	NA	NA	NA	366 J	NA	6.6 U	NA	NA	NA	NA	NA	NA	211 J	650	103 J	6.8 U
1,3-Dichlorobenzene	49000	2400		5.6 U	420 U	NA	NA	48 U	780 U	770 U	6.6 U	NA	NA	NA	NA	35 U	590 U	1000 U	890 U	440 U	6.8 U
1,3-Dichloropropane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	890 U	NA	NA
1,4-Dichlorobenzene	13000	1800		5.6 U	420 U	NA	NA	48 U	780 U	770 U	6.6 U	NA	NA	NA	NA	35 U	590 U	1000 U	890 U	440 U	6.8 U
1,4-Dioxane	13000	100		NA	NA	NA	NA	NA	19000 U	NA	160 U	NA	NA	NA	NA	NA	NA	26000 U	45000 U	11000 U	170 U
2-Butanone (MEK)	100000	120		11 U	840 U	13 U	13 U	95 U	1600 U	1500 U	13 U	53 U	13 U	12 U	12 U	71 U	1200 U	2100 U	890 U	890 U	14 U
2-Chloroethyl vinyl ether	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	890 U	NA	NA
2-Hexanone	--	--		NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	5.9 U	NA	NA	NA	890 U	NA	NA
4-Isopropyltoluene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180 U	NA	NA
4-Methyl-2-pentanone	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
Acetone	100000	50		11 U	614 J	13 U	103	95 U	1600 U	1500 U	52.8	507	13 U	12 U	59.2	71 U	1200 U	2100 U	4500 U	890 U	33.6
Acrolein	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8900 U	NA	NA
Acrylonitrile	--	--		56 U	4200 U	NA	NA	480 U	NA	7700 U	NA	NA	NA	NA	NA	350 U	5900 U	NA	890 U	NA	NA
Benzene	4800	60		1.1 U	84 U	1.3 U	1.3 U	79.2	191	3390	0.59 J	28.7	1.3 U	6	212	7.1 U	615	381	210	155	1.4 U
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
Bromoform	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
Bromomethane	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
Carbon disulfide	--	--		NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	1.8 J	NA	NA	NA	890 U	NA	NA
Carbon tetrachloride	2400	760		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
Chlorobenzene	100000	1100		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
Chloroethane	--	--		NA	NA	6.5 U	6.5 U	NA	NA	NA	NA	27 U	6.6 U	6.1 U	5.9 U	NA	NA	NA	890 U	NA	NA
Chloroform	49000	370		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
Chloromethane	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
cis-1,2-Dichloroethene	100000	250		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
cis-1,3-Dichloropropene	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
Dibromochloromethane	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
Dichlorodifluoromethane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	890 U	NA	NA
Ethylbenzene	41000	1000		0.57 J	84 U	6.1	3.3	32.1	647	1960	0.96 J	45.6	0.82 J	26.3	40.4	7.1 U	1280	849	12000	217	1.4 U
Freon 113	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	890 U	NA	NA
Isopropylbenzene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12000	NA	NA
Methylene chloride	100000	50		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	1.5 J	35 U	590 U	1000 U	890 U	440 U	6.8 U
MTBE	100000	930		NA	NA	NA	NA	NA	160 U	NA	3.1	NA	NA	NA	NA	NA	NA	210 U	180 U	89 U	15.1
n-Butylbenzene	100000	12000		NA	NA	NA	NA	NA	10500	NA	6.6 U	NA	NA	NA	NA	NA	NA	12100	23000	1430	6.8 U
n-Propylbenzene	100000	3900		NA	NA	NA	NA	NA	27500	NA	2.1 J	NA	NA	NA	NA	NA	NA	29200	38000	3890	6.8 U
o-Xylene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	380	NA	NA
sec-Butylbenzene	100000	11000		NA	NA	NA	NA	NA	4760	NA	6.6 U	NA	NA	NA	NA	NA	NA	5920	7200	656	6.8 U
Styrene	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
t-Butyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4500 U	NA	NA
t-Butylbenzene	100000	5900		NA	NA	NA	NA	NA	193 J	NA	6.6 U	NA	NA	NA	NA	NA	NA	255 J	180 U	60.7 J	6.8 U
Tetrachloroethene	19000	1300		5.6 U	420 U	6.5 U	0.96 J	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	6.2 J	489 J	1000 U	890 U	440 U	6.8 U
Toluene	100000	700		1.1 U	84 U	1.3 U	1.4	13.5	146 J	835	1.3 U	11.1	1.3 U	8.4	20	7.1 U	1050	223	230	237	1.4 U
trans-1,2-Dichloroethene	100000	190		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
trans-1,3-Dichloropropene	--	--		5.6 U	420 U	6.5 U	6.5 U	48 U	NA	770 U	NA	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	NA	890 U	NA	NA
Trichloroethene	21000	470		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
Trichlorofluoromethane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	890 U	NA	NA
Vinyl chloride	900	20		5.6 U	420 U	6.5 U	6.5 U	48 U	780 U	770 U	6.6 U	27 U	6.6 U	6.1 U	5.9 U	35 U	590 U	1000 U	890 U	440 U	6.8 U
Xylenes (total)	100000	1600		0.71 J	170 U	3.1	9.4	68.6	891	4550	2.7	62	1.9 J	75.5	39.1	13.1 J	1700	2190	1300	521	2.7 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	D-4DD				D-5S										D-5D			D-6S	
				D-4R	LB-10	LB-10	LB-10	D-5S	D-5S	D-5S	D-5S	D-5S	D-5S	D-5S	SB-14	SB-15	LB-11	D-5D	D-5D	LB-11	D-6S	SB-16
				7/8/2009 20.5-21	2/1/2008 20-27	1/22/2008 22-27	1/24/2008 25-27	3/4/2008 0-10	3/4/2008 2-3	3/4/2008 3-4	3/4/2008 4-5	3/4/2008 5-6	3/4/2008 6-7	3/4/2008 7-8	10/25/2007 0-2	10/25/2007 0-2	2/1/2008 8-10	3/4/2008 10-20	3/4/2008 15-16	1/23/2008 12-20	3/4/2008 3-4	10/29/2007 0-2
1,1,1-Trichloroethane	100000	680		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
1,1,1,2-Tetrachloroethane	--	--		NA	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA	370 U	6 U
1,1,2,2-Tetrachloroethane	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	NA	NA	5.9 U	7.4 U	490 U	5.8 U	370 U	NA
1,1,2-Trichloroethane	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
1,1-Dichloroethane	26000	270		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
1,1-Dichloroethene	100000	330		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
1,2,3-Trichloropropane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA	NA	6 U
1,2,4-Trimethylbenzene	52000	3600		7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	67	NA	NA	NA	NA	NA	37
1,2-Dichlorobenzene	100000	1100		7.8 U	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA	370 U	6 U
1,2-Dichloroethane	3100	20		1.6 U	1.9 U	2 U	1.4 U	1.2 U	83 U	100 U	130 U	1.2 U	1.2 U	75 U	5.7 U	5.7 U	1.2 U	1.5 U	98 U	1.2 U	74 U	6 U
1,2-Dichloroethene (total)	--	--		NA	9.3 U	10 U	7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9 U	NA	NA	5.8 U	NA	NA
1,2-Dichloropropane	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
1,3,5-Trimethylbenzene	52000	8400		7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9	22	NA	NA	NA	NA	NA	13
1,3-Dichlorobenzene	49000	2400		7.8 U	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA	370 U	6 U
1,3-Dichloropropane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA	NA	6 U
1,4-Dichlorobenzene	13000	1800		7.8 U	NA	NA	NA	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	NA	7.4 U	490 U	NA	370 U	6 U
1,4-Dioxane	13000	100		200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	280 U	290 U	NA	NA	NA	NA	NA	300 U
2-Butanone (MEK)	100000	120		16 U	17.4 J	20 U	14 U	12 U	830 U	1000 U	1300 U	12 U	12 U	750 U	5.7 U	5.7 U	12 U	15 U	980 U	12 U	740 U	6 U
2-Chloroethyl vinyl ether	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA	NA	6 U
2-Hexanone	--	--		NA	9.3 U	10 U	7 U	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	5.9 U	NA	NA	5.8 U	NA	6 U
4-Isopropyltoluene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	3.2	NA	NA	NA	NA	NA	1.2 U
4-Methyl-2-pentanone	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Acetone	100000	50		48.7	103	37.2	45.2	12 U	830 U	1000 U	1300 U	12 U	12 U	750 U	28 U	29 U	15.7	15 U	980 U	12 U	393 J	34
Acrolein	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28 U	29 U	NA	NA	NA	NA	NA	30 U
Acrylonitrile	--	--		NA	NA	NA	NA	59 U	4100 U	5100 U	6400 U	58 U	59 U	3700 U	5.7 U	5.7 U	NA	74 U	4900 U	NA	3700 U	6 U
Benzene	4800	60		1.6 U	3.6	8.8	2.1	1.2 U	83 U	100 U	130 U	1.2 U	1.2 U	75 U	1.1 U	1.1 U	1.2 U	1.5 U	187	1.2 U	74 U	1.2 U
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Bromoform	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Bromomethane	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	1.1 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Carbon disulfide	--	--		NA	3.9 J	6.9 J	4.4 J	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	5.9 U	NA	NA	5.8 U	NA	6 U
Carbon tetrachloride	2400	760		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Chlorobenzene	100000	1100		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Chloroethane	--	--		NA	9.3 U	10 U	7 U	NA	NA	NA	NA	NA	NA	NA	5.7 U	1.1 U	5.9 U	NA	NA	5.8 U	NA	6 U
Chloroform	49000	370		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Chloromethane	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
cis-1,2-Dichloroethene	100000	250		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
cis-1,3-Dichloropropene	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Dibromochloromethane	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Dichlorodifluoromethane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA	NA	6 U
Ethylbenzene	41000	1000		1.6 U	5.6	3.8	2.9	1.2 U	83 U	100 U	130 U	1.2 U	1.2 U	75 U	1.8	18	1.1 J	1.5 U	55.5 J	1.2 U	74 U	15
Freon 113	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA	NA	6 U
Isopropylbenzene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	3.4	NA	NA	NA	NA	NA	3
Methylene chloride	100000	50		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	20 B	10 B	5.9 U	7.4 U	490 U	5.8 U	370 U	19 B
MTBE	100000	930		14.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	1.1 U	NA	NA	NA	NA	NA	1.2 U
n-Butylbenzene	100000	12000		7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9	9.8	NA	NA	NA	NA	NA	2.3
n-Propylbenzene	100000	3900		7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.9	9.7	NA	NA	NA	NA	NA	6.7
o-Xylene	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2	38	NA	NA	NA	NA	NA	23
sec-Butylbenzene	100000	11000		7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	1.9	NA	NA	NA	NA	NA	1.2 U
Styrene	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
t-Butyl Alcohol	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28 U	29 U	NA	NA	NA	NA	NA	30 U
t-Butylbenzene	100000	5900		7.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	1.1 U	NA	NA	NA	NA	NA	1.2 U
Tetrachloroethene	19000	1300		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	1.7 J	5.9 U	7.4 U	490 U	5.8 U	53.4 J	6 U
Toluene	100000	700		1.6 U	1.4 J	2 U	1.4 U	1.2 U	83 U	100 U	130 U	1.2 U	1.2 U	75 U	1.6	11	0.57 J	1.5 U	61.2 J	1.2 U	74 U	4.9
trans-1,2-Dichloroethene	100000	190		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
trans-1,3-Dichloropropene	--	--		NA	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Trichloroethene	21000	470		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Trichlorofluoromethane	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 U	5.7 U	NA	NA	NA	NA	NA	6 U
Vinyl chloride	900	20		7.8 U	9.3 U	10 U	7 U	5.9 U	410 U	510 U	640 U	5.8 U	5.9 U	370 U	5.7 U	5.7 U	5.9 U	7.4 U	490 U	5.8 U	370 U	6 U
Xylenes (total)	100000	1600		3.1 U	9.4	6.3	3.6	2.4 U	170 U	200 U	260 U	2.3 U	2.4 U	150 U	6	70	2.5	3 U	114 J	1.6 J	150 U	60

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 17. Summary of Volatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell:	D-7S	SW-2S		SW-3S	
			Sample Designation:	SB-17	SW-2S	SW-2S	SW-3S	SW-3S
			Sample Date:	10/29/2007	3/10/2008	3/10/2008	3/10/2008	3/10/2008
			Sample Depth (ft bls):	2-4	0-5	3-4	0-5	4-5
1,1,1-Trichloroethane	100000	680		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1,1,2-Tetrachloroethane	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1,2,2-Tetrachloroethane	--	--		NA	6.8 U	510 U	6.1 U	1200 U
1,1,2-Trichloroethane	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1-Dichloroethane	26000	270		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,1-Dichloroethene	100000	330		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,2,3-Trichloropropane	--	--		5.6 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	52000	3600		5.9	NA	NA	NA	NA
1,2-Dichlorobenzene	100000	1100		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,2-Dichloroethane	3100	20		5.6 U	1.4 U	100 U	1.2 U	250 U
1,2-Dichloroethene (total)	--	--		NA	NA	NA	NA	NA
1,2-Dichloropropane	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,3,5-Trimethylbenzene	52000	8400		3.4	NA	NA	NA	NA
1,3-Dichlorobenzene	49000	2400		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,3-Dichloropropane	--	--		5.6 U	NA	NA	NA	NA
1,4-Dichlorobenzene	13000	1800		5.6 U	6.8 U	510 U	6.1 U	1200 U
1,4-Dioxane	13000	100		280 U	NA	NA	NA	NA
2-Butanone (MEK)	100000	120		5.6 U	14 U	1000 U	12 U	2500 U
2-Chloroethyl vinyl ether	--	--		5.6 U	NA	NA	NA	NA
2-Hexanone	--	--		5.6 U	NA	NA	NA	NA
4-Isopropyltoluene	--	--		1.1 U	NA	NA	NA	NA
4-Methyl-2-pentanone	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
Acetone	100000	50		22 J	15.7	1000 U	51.3	2500 U
Acrolein	--	--		28 U	NA	NA	NA	NA
Acrylonitrile	--	--		5.6 U	68 U	5100 U	61 U	12000 U
Benzene	4800	60		1.1 U	1.4 U	100 U	1.2 U	737
Benzyl Alcohol	--	--		NA	NA	NA	NA	NA
Bromodichloromethane	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
Bromoform	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
Bromomethane	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
Carbon disulfide	--	--		5.6 U	NA	NA	NA	NA
Carbon tetrachloride	2400	760		5.6 U	6.8 U	510 U	6.1 U	1200 U
Chlorobenzene	100000	1100		5.6 U	6.8 U	510 U	6.1 U	1200 U
Chloroethane	--	--		5.6 U	NA	NA	NA	NA
Chloroform	49000	370		5.6 U	6.8 U	510 U	6.1 U	1200 U
Chloromethane	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
cis-1,2-Dichloroethene	100000	250		5.6 U	6.8 U	510 U	6.1 U	1200 U
cis-1,3-Dichloropropene	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
Dibromochloromethane	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
Dichlorodifluoromethane	--	--		5.6 U	NA	NA	NA	NA
Ethylbenzene	41000	1000		2.3	0.95 J	100 U	0.96 J	908
Freon 113	--	--		5.6 U	NA	NA	NA	NA
Isopropylbenzene	--	--		1.1 U	NA	NA	NA	NA
Methylene chloride	100000	50		12 B	6.8 U	510 U	6.1 U	1200 U
MTBE	100000	930		1.1 U	NA	NA	NA	NA
n-Butylbenzene	100000	12000		1.1 U	NA	NA	NA	NA
n-Propylbenzene	100000	3900		1.1 U	NA	NA	NA	NA
o-Xylene	--	--		4.6	NA	NA	NA	NA
sec-Butylbenzene	100000	11000		1.1 U	NA	NA	NA	NA
Styrene	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
t-Butyl Alcohol	--	--		28 U	NA	NA	NA	NA
t-Butylbenzene	100000	5900		1.1 U	NA	NA	NA	NA
Tetrachloroethene	19000	1300		5.6 U	6.8 U	510 U	6.1 U	1200 U
Toluene	100000	700		1.7	1.5	100 U	0.8 J	592
trans-1,2-Dichloroethene	100000	190		5.6 U	6.8 U	510 U	6.1 U	1200 U
trans-1,3-Dichloropropene	--	--		5.6 U	6.8 U	510 U	6.1 U	1200 U
Trichloroethene	21000	470		5.6 U	6.8 U	510 U	6.1 U	1200 U
Trichlorofluoromethane	--	--		5.6 U	NA	NA	NA	NA
Vinyl chloride	900	20		5.6 U	6.8 U	510 U	6.1 U	1200 U
Xylenes (total)	100000	1600		11	4.9	200 U	6	1790

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			A-2S		A-2D					A-2DD			A-3S		A-3D		A-3DD					
Parameter	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S 3/7/2008 0-10	LB-1 1/31/2008 1-7	AX-3 9/12/2007 10-12.5	AX-4 9/12/2007 15-20	AX-4R 7/10/2009 15-15.5	AX-4R 7/10/2009 17-17.5	LB-1 1/31/2008 13-19	A-2R 7/7/2009 20-20.5	A-2R 7/7/2009 22.5-23	AX-4R 7/10/2009 36.5-37	A-3S 3/7/2008 0-10	LB-2 1/29/2008 2-6	A-3D 3/7/2008 10-20	LB-2 1/29/2008 10-17	A-3R 7/7/2009 22.5-23	A-3R 7/7/2009 24.5-25	LB-2R 7/7/2009 22.5-23	LB-2 2/1/2008 23-25	LB-2R 7/7/2009 24.5-25
(Concentrations in µg/kg)																						
1,2,4-Trichlorobenzene	--	--		81 U	76 U	460 U	440 U	NA	NA	80 U	NA	NA	NA	78 U	80 U	110 U	95 U	NA	NA	NA	100 U	NA
1,2-Dichlorobenzene	100000	--		81 U	76 U	460 U	440 U	300 U	5.5 U	80 U	7.3 U	7.3 U	8 U	78 U	80 U	110 U	95 U	7 U	8.2 U	7.6 U	100 U	7.6 U
1,2-Diphenylhydrazine	--	--		NA	NA	35 U	820 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	49000	--		81 U	76 U	35 U	820 U	300 U	5.5 U	80 U	7.3 U	7.3 U	8 U	78 U	80 U	110 U	95 U	7 U	8.2 U	7.6 U	100 U	7.6 U
1,4-Dichlorobenzene	13000	--		81 U	76 U	35 U	820 U	300 U	5.5 U	80 U	7.3 U	7.3 U	8 U	78 U	80 U	110 U	95 U	7 U	8.2 U	7.6 U	100 U	7.6 U
2,2-oxybis (1-chloropropane)	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
2,4,5-Trichlorophenol	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
2,4,6-Trichlorophenol	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
2,4-Dichlorophenol	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
2,4-Dimethylphenol	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
2,4-Dinitrophenol	--	--		810 U	760 U	1200 U	1100 U	630 U	650 U	800 U	810 U	890 U	850 U	780 U	800 U	1100 U	950 U	860 U	900 U	980 U	1000 U	880 U
2,4-Dinitrotoluene	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
2,6-Dinitrotoluene	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
2-Chloronaphthalene	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
2-Chlorophenol	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
2-Methylnaphthalene	--	--		NA	76 U	460 U	450	1030	65 U	38.7 J	20.3 J	89 U	85 U	NA	57.7 J	NA	89.6 J	86 U	90 U	98 U	100 U	88 U
2-Methylphenol	100000	330		81 U	190 U	460 U	440 U	63 U	65 U	200 U	81 U	89 U	85 U	78 U	200 U	110 U	240 U	86 U	90 U	98 U	260 U	88 U
2-Nitroaniline	--	--		NA	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	NA	200 U	NA	240 U	220 U	230 U	240 U	260 U	220 U
2-Nitrophenol	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
3&4-Methylphenol	--	--		81 U	190 U	NA	NA	63 U	65 U	200 U	81 U	89 U	85 U	78 U	200 U	110 U	240 U	86 U	90 U	98 U	260 U	88 U
3,3-Dichlorobenzidine	--	--		200 U	190 U	1200 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
3-Nitroaniline	--	--		NA	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	NA	200 U	NA	240 U	220 U	230 U	240 U	260 U	220 U
4,6-Dinitro-2-methylphenol	--	--		810 U	760 U	1200 U	1100 U	630 U	650 U	800 U	810 U	890 U	850 U	780 U	800 U	1100 U	950 U	860 U	900 U	980 U	1000 U	880 U
4-Bromophenyl phenyl ether	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
4-Chloro-3-methylphenol	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
4-Chloroaniline	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
4-Chlorophenyl phenyl ether	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
4-Methylphenol	100000	330		NA	NA	460 U	440 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--		NA	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	NA	200 U	NA	240 U	220 U	230 U	240 U	260 U	220 U
4-Nitrophenol	--	--		810 U	760 U	460 U	440 U	320 U	330 U	800 U	400 U	450 U	430 U	780 U	800 U	1100 U	950 U	430 U	450 U	490 U	1000 U	440 U
Acenaphthene	100000	98000		20.1 J	41.5 J	530	250 J	466	33 U	129	183	45 U	43 U	28.5 J	48.7 J	145	36.1 J	43 U	45 U	49 U	100 U	44 U
Acenaphthylene	100000	107000		58 J	17.8 J	88 J	440 U	445	33 U	54.9 J	81.8	45 U	43 U	61.3 J	34.2 J	42.6 J	20.3 J	43 U	45 U	49 U	100 U	44 U
Aniline	--	--		NA	NA	460 U	440 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100000	1000000		108	68.9 J	900	180 J	929	33 U	308	698	45 U	43 U	183	115	227	95 U	42.6 J	45 U	47.6 J	100 U	44 U
Benzidine	--	--		NA	NA	1200 U	440 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1000	1000		472	253	1400	280 J	2530	35.6	543	1100	45 U	43 U	592	519	445	291	129	45 U	150	100 U	44 U
Benzo(a)pyrene	1000	22000		488	244	1100	160 J	2900	37.3	433	793	45 U	43 U	522	518	361	340	131	45 U	133	100 U	44 U
Benzo(b)fluoranthene	1000	1700		403	205	1300	200 J	3680	41.4	31												

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S		A-2D					A-2DD			A-3S		A-3D		A-3DD				
				A-2S	LB-1	AX-3	AX-4	AX-4R	AX-4R	LB-1	A-2R	A-2R	AX-4R	A-3S	LB-2	A-3D	LB-2	A-3R	A-3R	LB-2R	LB-2	LB-2R
				3/7/2008	1/31/2008	9/12/2007	9/12/2007	7/10/2009	7/10/2009	1/31/2008	7/7/2009	7/7/2009	7/10/2009	3/7/2008	1/29/2008	3/7/2008	1/29/2008	7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009
				0-10	1-7	10-12.5	15-20	15-15.5	17-17.5	13-19	20-20.5	22.5-23	36.5-37	0-10	2-6	10-20	10-17	22.5-23	24.5-25	22.5-23	23-25	24.5-25
Naphthalene	100000	12000		27 J	76 U	190 J	550	685	15 J	53.5 J	32.4 J	45 U	43 U	39.1 J	71.8 J	277	95 U	28.5 J	45 U	35.7 J	100 U	44 U
Nitrobenzene	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
n-Nitrosodimethylamine	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitroso-di-n-propylamine	--	--		81 U	76 U	460 U	440 U	63 U	65 U	80 U	81 U	89 U	85 U	78 U	80 U	110 U	95 U	86 U	90 U	98 U	100 U	88 U
n-Nitrosodiphenylamine	--	--		200 U	190 U	460 U	440 U	160 U	160 U	200 U	200 U	220 U	210 U	190 U	200 U	280 U	240 U	220 U	230 U	240 U	260 U	220 U
Pentachlorophenol	6700	800		400 U	760 U	1200 U	1100 U	320 U	330 U	800 U	400 U	450 U	430 U	390 U	800 U	550 U	950 U	430 U	450 U	490 U	1000 U	440 U
Phenanthrene	100000	1000000		366	265	3500	1100	5490	38.6	729	2340	44.8 J	43 U	603	546	616	151	88.2	45 U	95.2	100 U	44 U
Phenol	100000	330		81 U	190 U	460 U	440 U	63 U	65 U	200 U	81 U	89 U	85 U	78 U	200 U	110 U	240 U	86 U	90 U	98 U	260 U	88 U
Pyrene	100000	1000000		941	465	3000	780	5620	64.8	1000	2030	30.6 J	43 U	1230	846	992	366	199	45 U	227	100 U	44 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Precharacterization Cell:			A-4S			A-4D		A-4DD						A-5S	A-6S					A-6D	
	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation: Sample Date: Sample Depth (ft bls):	LB-3 2/1/2008 0-6	LB-3 1/29/2008 6-11	SB-22 10/29/2007 4-5	A-4D 3/5/2008 10-20	LB-3 1/29/2008 11-17	A-4R 7/7/2009 21.5-22	A-4R 7/7/2009 23.5-24	LB-3R 7/7/2009 21-21.5	LB-3 2/1/2008 23-27	LB-3R 7/7/2009 23.5-24	LB-3R 7/9/2009 35-35.5	SB-23 10/26/2007 1-3	LB-4 1/31/2008 1-3	LB-4 1/24/2008 3-7	LB-4 1/31/2008 9-11	SB-25 10/26/2007 5-7.5	SB-27 10/26/2007 7.5-10	LB-4 1/24/2008 13-19	SB-28 10/29/2007 12-14
1,2,4-Trichlorobenzene	--	--		81 U	82 U	400 U	100 U	87 U	NA	NA	NA	98 U	NA	NA	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
1,2-Dichlorobenzene	100000	--		81 U	82 U	NA	100 U	87 U	7.7 U	7.2 U	390 U	98 U	7.7 U	5.2 U	NA	79 U	150 U	84 U	NA	NA	510 U	NA
1,2-Diphenylhydrazine	--	--		NA	NA	400 U	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	380 U	440 U	NA	410 U
1,3-Dichlorobenzene	49000	--		81 U	82 U	NA	100 U	87 U	7.7 U	7.2 U	390 U	98 U	7.7 U	5.2 U	NA	79 U	150 U	84 U	NA	NA	510 U	NA
1,4-Dichlorobenzene	13000	--		81 U	82 U	NA	100 U	87 U	7.7 U	7.2 U	390 U	98 U	7.7 U	5.2 U	NA	79 U	150 U	84 U	NA	NA	510 U	NA
2,2-oxybis (1-chloropropane)	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
2,4,5-Trichlorophenol	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
2,4,6-Trichlorophenol	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
2,4-Dichlorophenol	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
2,4-Dimethylphenol	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	258	380 U	210 U	380 U	440 U	1300 U	410 U
2,4-Dinitrophenol	--	--		810 U	820 U	1000 U	1000 U	870 U	920 U	860 U	780 U	980 U	920 U	620 U	1000 U	790 U	1500 U	840 U	960 U	1100 U	5100 U	1000 U
2,4-Dinitrotoluene	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
2,6-Dinitrotoluene	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
2-Chloronaphthalene	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
2-Chlorophenol	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
2-Methylnaphthalene	--	--		217	2340	3200	NA	28800	53.5 J	86 U	69.8 J	98 U	92 U	62 U	410 U	1130	102 J	84 U	380 U	460	2130	410 U
2-Methylphenol	100000	330		200 U	82 U	400 U	100 U	220 U	92 U	86 U	78 U	240 U	92 U	62 U	410 U	216	380 U	84 U	380 U	440 U	1300 U	410 U
2-Nitroaniline	--	--		200 U	210 U	400 U	NA	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
2-Nitrophenol	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
3&4-Methylphenol	--	--		200 U	82 U	NA	100 U	220 U	132	86 U	78 U	240 U	92 U	62 U	NA	608	380 U	84 U	NA	NA	1300 U	NA
3,3-Dichlorobenzidine	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
3-Nitroaniline	--	--		200 U	210 U	400 U	NA	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
4,6-Dinitro-2-methylphenol	--	--		810 U	820 U	1000 U	1000 U	870 U	920 U	860 U	780 U	980 U	920 U	620 U	1000 U	790 U	1500 U	840 U	960 U	1100 U	5100 U	1000 U
4-Bromophenyl phenyl ether	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
4-Chloro-3-methylphenol	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
4-Chloroaniline	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
4-Chlorophenyl phenyl ether	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
4-Methylphenol	100000	330		NA	NA	400 U	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	380 U	440 U	NA	410 U
4-Nitroaniline	--	--		200 U	210 U	400 U	NA	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
4-Nitrophenol	--	--		810 U	820 U	400 U	1000 U	870 U	460 U	430 U	390 U	980 U	460 U	310 U	410 U	790 U	1500 U	840 U	380 U	440 U	5100 U	410 U
Acenaphthene	100000	98000		210	82 U	400 U	184	111	39.2 J	43 U	44.5	98 U	46 U	31 U	130 J	534	110 J	87.4	320 J	440 U	919	45 J
Acenaphthylene	100000	107000		79.9 J	82 U	400 U	100 U	87 U	50.1	43 U	39 U	98 U	46 U	31 U	170 J	1950	83.5 J	94.6	330 J	440 U	488 J	61 J
Aniline	--	--		NA	NA	400 U	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	380 U	440 U	NA	410 U
Anthracene	100000	1000000		575	82 U	51 J	59.6 J	87 U	165	43 U	52.8	98 U	46 U	31 U	720	2610	271	282	1100	77 J	2310	160 J
Benzidine	--	--		NA	NA	400 U	NA	NA	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	380 U	440 U	NA	410 U
Benzo(a)anthracene	1000	1000		1530	82 U	110 J	31.4 J	87 U	667	43 U	102	24.9 J	46 U	31 U	2500	5770	869	744	2600	160 J	5130	610
Benzo(a)pyrene	1000	22000		1310	82 U	90 J	25.8 J	87 U	678	43 U	106	98 U	46 U	31 U	2200	3800	852	685	2000	130 J	3800	540
Benzo(b)fluoranthene	1000	1700		1160	82 U	120 J	25.6 J	87 U	774	43 U	119	98 U	46 U	31 U	2700	4460	983	627	3100	140 J	4760	770
Benzo(g,h,i)perylene	100000	1000000		882	82 U	43 J	29 J	87 U	388	43 U	68.8	98 U	46 U	31 U	1100	2280	568	443	1200	72 J	2330	360 J
Benzo(k)fluoranthene	3900	1700		968	82 U	400 U	100 U	87 U	324	43 U	47.7	98 U	46 U	31 U	840	2740	443	575	780	66 J	2270	190 J
Benzoic acid	--	--		NA	NA	2000 U	NA	NA	NA	NA	NA	NA	NA	NA	1000 U	NA	NA	NA	960 U	1100 U	NA	1000 U
Bis(2-chloroethoxy)methane	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
Bis(2-chloroethyl)ether	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
Bis(2-chloroisopropyl)ether	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	--		887	118	400 U	100 U	491	92 U	86 U	78 U	98 U	92 U	62 U	150 J	28300	250	637	500	440 U	1160	160 J
Butyl benzylphthalate	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	162	457	379	1600	440 U	276 J	230 J
Carbazole	--	--		138	82 U	400 U	NA	87 U	37.7 J	86 U	78 U	98 U	92 U	62 U	59 J	2170	137 J	140	590	440 U	1520	79 J
Chrysene	3900	1000		1440	82 U	130 J	24.7 J	87 U	728	43 U	101	98 U	46 U	31 U	2000	5510	885	759	2400	140 J	4830	520
Dibenzo(a h)anthracene	--	--		307	82 U	400 U	100 U	87 U	46 U	43 U	39 U	98 U	46 U	31 U	370 J	910	142 J	149	390	440 U	607	100 J
Dibenzofuran	59000	210000		94.1	82 U	400 U	NA	24.8 J	31 J	86 U	78 U	98 U	92 U	62 U	410 U	2080	90.4 J	86	680	440 U	875	410 U
Diethyl phthalate	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
Dimethyl phthalate	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
Di-n-butyl phthalate	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	97 J	440 U	510 U	410 U
Di-n-octyl phthalate	--	--		81 U	82 U	1000 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
Fluoranthene	100000	1000000		2730	35.4 J	360 J	88.4 J	37.9 J	1520	43 U	180	42.8 J	46 U	31 U	3500	16200	1800	1710	5900	200 J	12100	1100
Fluorene	100000	386000		223	82 U	44 J	157	97.9	59	43 U	51.9	98 U	46 U	31 U	170 J	2420	108 J	129	700	440 U	1370	100 J
Hexachlorobenzene	1200	3200		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
Hexachlorobutadiene	--	--		81 U	82 U	400 U	100 U	87 U	46 U	43 U	39 U	98 U	46 U	31 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
Hexachlorocyclopentadiene	--	--		810 U	820 U	400 U	1000 U	870 U	920 U	860 U	780 U	980 U	920 U	620 U	410 U	790 U	1500 U	840 U	380 U	440 U		

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Precharacterization Cell:			A-4S			A-4D		A-4DD						A-5S	A-6S					A-6D	
	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation: Sample Date: Sample Depth (ft bls):	LB-3	LB-3	SB-22	A-4D	LB-3	A-4R	A-4R	LB-3R	LB-3	LB-3R	LB-3R	SB-23	LB-4	LB-4	LB-4	SB-25	SB-27	LB-4	SB-28
				2/1/2008	1/29/2008	10/29/2007	3/5/2008	1/29/2008	7/7/2009	7/7/2009	7/7/2009	2/1/2008	7/7/2009	7/9/2009	10/26/2007	1/31/2008	1/24/2008	1/31/2008	10/26/2007	10/26/2007	1/24/2008	10/29/2007
				0-6	6-11	4-5	10-20	11-17	21.5-22	23.5-24	21-21.5	23-27	23.5-24	35-35.5	1-3	1-3	3-7	9-11	5-7.5	7.5-10	13-19	12-14
Naphthalene	100000	12000		94.5	874	2500	3380	31900	69.4	43 U	97.9	19.9 J	46 U	31 U	67 J	2430	255	53.4 J	280 J	540	2930	42 J
Nitrobenzene	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
n-Nitrosodimethylamine	--	--		NA	NA	400 U	NA	NA	NA	NA	NA	NA	NA	NA	1000 U	NA	NA	NA	960 U	1100 U	NA	1000 U
n-Nitroso-di-n-propylamine	--	--		81 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	98 U	92 U	62 U	410 U	79 U	150 U	84 U	380 U	440 U	510 U	410 U
n-Nitrosodiphenylamine	--	--		200 U	210 U	400 U	260 U	220 U	230 U	220 U	190 U	240 U	230 U	150 U	410 U	200 U	380 U	210 U	380 U	440 U	1300 U	410 U
Pentachlorophenol	6700	800		810 U	410 U	1000 U	510 U	430 U	460 U	430 U	390 U	980 U	460 U	310 U	1000 U	390 U	1500 U	420 U	960 U	1100 U	5100 U	1000 U
Phenanthrene	100000	1000000		2120	40.8 J	220 J	201	86.8 J	856	43 U	160	34.7 J	46 U	31 U	2100	19300	1360	1410	7200	150 J	7730	770
Phenol	100000	330		200 U	82 U	400 U	100 U	87 U	92 U	86 U	78 U	240 U	92 U	62 U	410 U	281	380 U	84 U	380 U	74 J	1300 U	410 U
Pyrene	100000	1000000		2700	45.8 J	290 J	92.9 J	44.1 J	1410	43 U	166	39.5 J	46 U	31 U	4900	11400	1510	1410	6700	300 J	8860	1400

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-7S		B-2S	B-2D	B-3S	B-3D	B-3DD		B-4S	B-4D				B-4DD					B-5S
				A-7S	LB-5	B-2S	AX-5	B-3S	B-3D	B-3R	B-3R	B-4S	AX-1	AX-1R	AX-2	AX-2 DUP	AX-1R	AX-1R	AX-2R	AX-2R	AX-2R	B-5S
				3/7/2008 0-10	2/1/2008 2-6	3/7/2008 0-10	9/12/2007 12.5-15	3/7/2008 0-10	3/7/2008 10-20	7/8/2009 23.5-24	7/8/2009 25.5-26	3/6/2008 0-10	9/11/2007 15-17.5	7/9/2009 19.5-20	9/11/2007 15-17.5	9/11/2007 15-17.5	7/9/2009 21.5-22	7/9/2009 35.5-36	7/8/2009 20-20.5	7/8/2009 22.5-23	7/10/2009 22.5-23	3/6/2008 0-10
1,2,4-Trichlorobenzene	--	--		73 U	79 U	77 U	480 U	79 U	85 U	NA	NA	81 U	2100 U	NA	4500 U	2300 U	NA	NA	NA	NA	87 U	
1,2-Dichlorobenzene	100000	--		73 U	79 U	77 U	480 U	79 U	85 U	7.7 U	7.2 U	81 U	2100 U	13 U	4500 U	2300 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	87 U
1,2-Diphenylhydrazine	--	--		NA	NA	NA	36 U	NA	NA	NA	NA	NA	7900 U	NA	8400 U	860 U	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	49000	--		73 U	79 U	77 U	36 U	79 U	85 U	7.7 U	7.2 U	81 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	87 U
1,4-Dichlorobenzene	13000	--		73 U	79 U	77 U	36 U	79 U	85 U	7.7 U	7.2 U	81 U	7900 U	13 U	8400 U	860 U	6.8 U	5.2 U	510 U	6.9 U	6.3 U	87 U
2,2-oxybis (1-chloropropane)	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U
2,4,5-Trichlorophenol	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
2,4,6-Trichlorophenol	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
2,4-Dichlorophenol	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
2,4-Dimethylphenol	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
2,4-Dinitrophenol	--	--		730 U	790 U	770 U	1200 U	790 U	850 U	900 U	880 U	810 U	5300 U	670 U	11000 U	5700 U	810 U	630 U	870 U	840 U	830 U	870 U
2,4-Dinitrotoluene	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U
2,6-Dinitrotoluene	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U
2-Chloronaphthalene	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U
2-Chlorophenol	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
2-Methylnaphthalene	--	--		NA	48.5 J	NA	480 U	NA	NA	90 U	88 U	NA	15000	545	6700	9700	81 U	63 U	85.2 J	84 U	83 U	NA
2-Methylphenol	100000	330		73 U	200 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U
2-Nitroaniline	--	--		NA	200 U	NA	480 U	NA	NA	220 U	220 U	NA	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	NA
2-Nitrophenol	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
3&4-Methylphenol	--	--		73 U	200 U	77 U	NA	79 U	85 U	90 U	88 U	81 U	NA	67 U	NA	NA	81 U	63 U	87 U	84 U	83 U	87 U
3,3-Dichlorobenzidine	--	--		180 U	200 U	190 U	1200 U	200 U	210 U	220 U	220 U	200 U	5300 U	170 U	11000 U	5700 U	200 U	160 U	220 U	210 U	210 U	220 U
3-Nitroaniline	--	--		NA	200 U	NA	480 U	NA	NA	220 U	220 U	NA	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	NA
4,6-Dinitro-2-methylphenol	--	--		730 U	790 U	770 U	1200 U	790 U	850 U	900 U	880 U	810 U	5300 U	670 U	11000 U	5700 U	810 U	630 U	870 U	840 U	830 U	870 U
4-Bromophenyl phenyl ether	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U
4-Chloro-3-methylphenol	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
4-Chloroaniline	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U
4-Chlorophenyl phenyl ether	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U
4-Methylphenol	100000	330		NA	NA	NA	480 U	NA	NA	NA	NA	NA	2100 U	NA	4500 U	2300 U	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--		NA	200 U	NA	480 U	NA	NA	220 U	220 U	NA	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	NA
4-Nitrophenol	--	--		730 U	790 U	770 U	480 U	790 U	850 U	450 U	440 U	810 U	2100 U	340 U	4500 U	2300 U	410 U	310 U	430 U	420 U	410 U	870 U
Acenaphthene	100000	98000		98.9	145	77 U	140 J	120	17.2 J	45 U	44 U	23.5 J	2100 U	1120	4500 U	2300 U	41 U	31 U	43 U	42 U	41 U	67.9 J
Acenaphthylene	100000	107000		64.9 J	17.6 J	77 U	480 U	79 U	85 U	45 U	44 U	81 U	2100 U	347	4500 U	2300 U	41 U	31 U	43 U	42 U	41 U	45.1 J
Aniline	--	--		NA	NA	NA	480 U	NA	NA	NA	NA	NA	2100 U	NA	4500 U	2300 U	NA	NA	NA	NA	NA	NA
Anthracene	100000	1000000		218	272	77 U	90 J	150	85 U	45 U	44 U	48.8 J	340 J	2900	860 J	2300 U	34.6 J	31 U	43 U	42 U	41 U	184
Benzidine	--	--		NA	NA	NA	1200 U	NA	NA	NA	NA	NA	5300 U	NA	11000 U	5700 U	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1000	1000		559	502	63 J	190 J	456	39.5 J	45 U	44 U	157	1700 J	3450	1600 J	230 J	85.8	32	43 U	42 U	41 U	612
Benzo(a)pyrene	1000	22000		508	432	60.4 J	170 J	248	38 J	45 U	44 U	133	1100 J	2880	1100 J	2300 U	74	28.5 J	19.7 J	42 U	41 U	511
Benzo(b)fluoranthene	1000	1700		443	338	48.6 J	240 J	241	38.4 J	45 U	44 U											

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	A-7S		B-2S	B-2D	B-3S	B-3D	B-3DD		B-4S	B-4D				B-4DD					B-5S	
				A-7S	LB-5	B-2S	AX-5	B-3S	B-3D	B-3R	B-3R	B-4S	AX-1	AX-1R	AX-2	AX-2 DUP	AX-1R	AX-1R	AX-2R	AX-2R	AX-2R	B-5S	
				3/7/2008	2/1/2008	3/7/2008	9/12/2007	3/7/2008	3/7/2008	7/8/2009	7/8/2009	3/6/2008	9/11/2007	7/9/2009	9/11/2007	9/11/2007	9/11/2007	7/9/2009	7/9/2009	7/8/2009	7/8/2009	7/10/2009	3/6/2008
				0-10	2-6	0-10	12.5-15	0-10	10-20	23.5-24	25.5-26	0-10	15-17.5	19.5-20	15-17.5	15-17.5	21.5-22	35.5-36	20-20.5	22.5-23	22.5-23	22.5-23	0-10
Naphthalene	100000	12000		56.6 J	64.5 J	77 U	540	715	633	45 U	44 U	81 U	17000	628	8600	13000	41 U	31 U	192	42 U	41 U	50.6 J	
Nitrobenzene	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	
n-Nitrosodimethylamine	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
n-Nitroso-di-n-propylamine	--	--		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	
n-Nitrosodiphenylamine	--	--		180 U	200 U	190 U	480 U	200 U	210 U	220 U	220 U	200 U	2100 U	170 U	4500 U	2300 U	200 U	160 U	220 U	210 U	210 U	220 U	
Pentachlorophenol	6700	800		370 U	390 U	390 U	1200 U	390 U	430 U	450 U	440 U	410 U	5300 U	340 U	11000 U	5700 U	410 U	310 U	430 U	420 U	410 U	430 U	
Phenanthrene	100000	1000000		868	963	53.1 J	450 J	533	55.6 J	45 U	44 U	194	2800	10200	3900 J	460 J	78.5	40.1	43 U	42 U	41 U	867	
Phenol	100000	330		73 U	79 U	77 U	480 U	79 U	85 U	90 U	88 U	81 U	2100 U	67 U	4500 U	2300 U	81 U	63 U	87 U	84 U	83 U	87 U	
Pyrene	100000	1000000		1250	926	106	390 J	767	91.8	45 U	44 U	315	3100	6950	3100 J	400 J	135	49.6	31.6 J	42 U	41 U	987	

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Precharacterization Cell:		B-5D		B-6S			B-6D	B-7S	C-2S	C-2D	C-3S		C-3D				C-3DD			C-4S	
	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation: Sample Date: Sample Depth (ft bls):	B-5D	B-5R	LB-6	LB-6	SB-26	LB-6	SB-24	C-2S	SB-11	LB-7	SB-21	C-3D	C-3R	LB-7	LB-7R	C-3R	LB-7	LB-7R	C-4S
				3/6/2008 10-20	7/10/2009 16-16.5	2/1/2008 1-3	1/28/2008 5-9	10/29/2007 7-9	1/28/2008 12-16	10/26/2007 2-5	3/5/2008 0-10	10/24/2007 14-15	2/1/2008 1-5	10/26/2007 7.5-10	3/5/2008 10-20	7/8/2009 17.5-18	1/15/2008 9-13	7/8/2009 19-19.5	7/8/2009 20-20.5	1/15/2008 20-25	7/8/2009 21-21.5	3/5/2008 0-10
1,2,4-Trichlorobenzene	--	--		92 U	NA	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	NA	160 U	NA	NA	160 U	NA	92 U
1,2-Dichlorobenzene	100000	--		92 U	6.6 U	78 U	84 U	NA	86 U	NA	77 U	NA	83 U	NA	87 U	1700 U	160 U	290 U	7.7 U	160 U	7.6 U	92 U
1,2-Diphenylhydrazine	--	--		NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	49000	--		92 U	6.6 U	78 U	84 U	NA	86 U	NA	77 U	NA	83 U	NA	87 U	1700 U	160 U	290 U	7.7 U	160 U	7.6 U	92 U
1,4-Dichlorobenzene	13000	--		92 U	6.6 U	78 U	84 U	NA	86 U	NA	77 U	NA	83 U	NA	87 U	1700 U	160 U	290 U	7.7 U	160 U	7.6 U	92 U
2,2-oxybis (1-chloropropane)	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
2,4,5-Trichlorophenol	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
2,4,6-Trichlorophenol	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
2,4-Dichlorophenol	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
2,4-Dimethylphenol	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
2,4-Dinitrophenol	--	--		920 U	770 U	780 U	840 U	1000 U	860 U	920 U	770 U	1000 U	830 U	3100 U	870 U	670 U	1600 U	620 U	840 U	1600 U	860 U	920 U
2,4-Dinitrotoluene	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
2,6-Dinitrotoluene	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
2-Chloronaphthalene	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
2-Chlorophenol	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
2-Methylnaphthalene	--	--		NA	77 U	100	42.3 J	410 U	86 U	370 U	NA	400 U	42.6 J	12000	NA	194	1470	3670	84 U	169	86 U	NA
2-Methylphenol	100000	330		92 U	77 U	200 U	210 U	410 U	210 U	370 U	53.9 J	400 U	210 U	1200 U	87 U	67 U	410 U	62 U	84 U	390 U	86 U	92 U
2-Nitroaniline	--	--		NA	190 U	200 U	210 U	410 U	210 U	370 U	NA	400 U	210 U	1200 U	NA	170 U	410 U	150 U	210 U	390 U	220 U	NA
2-Nitrophenol	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
3&4-Methylphenol	--	--		92 U	77 U	200 U	210 U	NA	210 U	NA	247	NA	210 U	NA	87 U	67 U	410 U	62 U	84 U	390 U	86 U	92 U
3,3-Dichlorobenzidine	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
3-Nitroaniline	--	--		NA	190 U	200 U	210 U	410 U	210 U	370 U	NA	400 U	210 U	1200 U	NA	170 U	410 U	150 U	210 U	390 U	220 U	NA
4,6-Dinitro-2-methylphenol	--	--		920 U	770 U	780 U	840 U	1000 U	860 U	920 U	770 U	1000 U	830 U	3100 U	870 U	670 U	1600 U	620 U	840 U	1600 U	860 U	920 U
4-Bromophenyl phenyl ether	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
4-Chloro-3-methylphenol	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
4-Chloroaniline	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
4-Chlorophenyl phenyl ether	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
4-Methylphenol	100000	330		NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--		NA	190 U	200 U	210 U	410 U	210 U	370 U	NA	400 U	210 U	1200 U	NA	170 U	410 U	150 U	210 U	390 U	220 U	NA
4-Nitrophenol	--	--		920 U	380 U	780 U	840 U	410 U	860 U	370 U	770 U	400 U	830 U	1200 U	870 U	330 U	1600 U	310 U	420 U	1600 U	430 U	920 U
Acenaphthene	100000	98000		417	38 U	76.1 J	140	410 U	65.5 J	370 U	1250	190 J	47.4 J	1200 U	471	39.7	160 U	31 U	42 U	160 U	43 U	92 U
Acenaphthylene	100000	107000		148	38 U	150	66.1 J	410 U	86 U	370 U	145	69 J	83 U	1200 U	78.1 J	33 U	160 U	31 U	42 U	160 U	43 U	92 U
Aniline	--	--		NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100000	1000000		953	38 U	259	449	410 U	58.7 J	370 U	4600	260 J	97	1200 U	928	21.6 J	160 U	31 U	42 U	160 U	43 U	92 U
Benzidine	--	--		NA	NA	NA	NA	410 U	NA	370 U	NA	400 U	NA	1200 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1000	1000		1500	100	779	1330	410 U	160	47 J	5160	500	199	1200 U	1070	27.6 J	45.1 J	31 U	42 U	116 J	43 U	115
Benzo(a)pyrene	1000	22000		1140	120	695	895	410 U	145	45 J	3400	360 J	194	150 J	722	23.3 J	160 U	31 U	42 U	93.6 J	43 U	104
Benzo(b)fluoranthene	1000	1700		927	133	615	807	410 U	125	54 J	3210	500	161	140 J	600	25.6 J	47.5 J	31 U	42 U	111 J	43 U	96.9
Benzo(g,h,i)perylene	100000	1000000		598	84.5	493	464	410 U	89.5	370 U	1920	200 J	167	1200 U	395	20.8 J	160 U	31 U	42 U	47.4 J	43 U	80.3 J
Benzo(k)fluoranthene	3900	1700		923	60.1	594	762	410 U	110	370 U	2730	180 J	147	1200 U	572	33 U	160 U	31 U	42 U	43.8 J	43 U	84 J
Benzoic acid	--	--		NA	NA	NA	NA	2000 U	NA	920 U	NA	1000 U	NA	1200 U	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Bis(2-chloroethyl)ether	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Bis(2-chloroisopropyl)ether	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	--		92 U	77 U	397	277	410 U	235	42 J	77 U	400 U	481	1200 U	49.7 J	67 U	175	62 U	84 U	91.9 J	86 U	92 U
Butyl benzylphthalate	--	--		92 U	77 U	367	61.7 J	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Carbazole	--	--		NA	77 U	164	381	410 U	86 U	370 U	NA	400 U	36.6 J	1200 U	NA	67 U	160 U	62 U	84 U	160 U	86 U	NA
Chrysene	3900	1000		1450	101	788	1180	410 U	148	370 U	5530	410	203	1200 U	1060	26.5 J	39.8 J	31 U	42 U	98.1 J	43 U	117
Dibenzo(a h)anthracene	--	--		241	20.4 J	155	202	410 U	29.8 J	370 U	751	73 J	45.2 J	1200 U	149	33 U	160 U	31 U	42 U	160 U	43 U	23.2 J
Dibenzofuran	59000	210000		NA	77 U	162	100	410 U	25.4 J	370 U	NA	400 U	26.5 J	1200 U	NA	67 U	160 U	62 U	84 U	160 U	86 U	NA
Diethyl phthalate	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Dimethyl phthalate	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Di-n-butyl phthalate	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Di-n-octyl phthalate	--	--		92 U	77 U	78 U	84 U	1000 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Fluoranthene	100000	1000000		2860	131	1570	2310	410 U	315	55 J	11100	1100	423	160 J	2240	46.6	79.9 J	21.6 J	42 U	180	43 U	177
Fluorene	100000	386000		542	38 U	191	146	410 U	36.6 J	370 U	2400	190 J	35.7 J	1200 U	729	49.8	34.2 J	27.2 J	42 U	160 U	43 U	92 U
Hexachlorobenzene	1200	3200		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
Hexachlorobutadiene	--	--		92 U	38 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	33 U	160 U	31 U	42 U	160 U	43 U	92 U
Hexachlorocyclopentadiene	--	--		920 U	770 U	780 U	840 U	410 U	860 U	370 U	770 U	400 U	830 U	1200 U	870 U	670 U	1600 U	620 U	840 U	1600 U	860 U	920 U
Hexachloroethane	--	--																				

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell: Sample Designation: Sample Date: Sample Depth (ft bls):	B-5D		B-6S			B-6D	B-7S	C-2S	C-2D	C-3S		C-3D				C-3DD			C-4S
				B-5D	B-5R	LB-6	LB-6	SB-26	LB-6	SB-24	C-2S	SB-11	LB-7	SB-21	C-3D	C-3R	LB-7	LB-7R	C-3R	LB-7	LB-7R	C-4S
				3/6/2008 10-20	7/10/2009 16-16.5	2/1/2008 1-3	1/28/2008 5-9	10/29/2007 7-9	1/28/2008 12-16	10/26/2007 2-5	3/5/2008 0-10	10/24/2007 14-15	2/1/2008 1-5	10/26/2007 7.5-10	3/5/2008 10-20	7/8/2009 17.5-18	1/15/2008 9-13	7/8/2009 19-19.5	7/8/2009 20-20.5	1/15/2008 20-25	7/8/2009 21-21.5	3/5/2008 0-10
Naphthalene	100000	12000		192	38 U	193	56.2 J	410 U	32.5 J	370 U	1990	240 J	46.5 J	12000	1670	898	2800	2840	42 U	291	43 U	48.2 J
Nitrobenzene	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
n-Nitrosodimethylamine	--	--		NA	NA	NA	NA	410 U	NA	920 U	NA	1000 U	NA	1200 U	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitroso-di-n-propylamine	--	--		92 U	77 U	78 U	84 U	410 U	86 U	370 U	77 U	400 U	83 U	1200 U	87 U	67 U	160 U	62 U	84 U	160 U	86 U	92 U
n-Nitrosodiphenylamine	--	--		230 U	190 U	200 U	210 U	410 U	210 U	370 U	190 U	400 U	210 U	1200 U	220 U	170 U	410 U	150 U	210 U	390 U	220 U	230 U
Pentachlorophenol	6700	800		460 U	380 U	390 U	840 U	1000 U	860 U	920 U	380 U	1000 U	830 U	3100 U	440 U	330 U	1600 U	310 U	420 U	1600 U	430 U	460 U
Phenanthrene	100000	1000000		3560	56.2	1570	1740	410 U	163	46 J	19200	660	412	210 J	3890	68.6	85.6 J	45.8	42 U	56.3 J	43 U	92 U
Phenol	100000	330		92 U	77 U	78 U	210 U	410 U	210 U	370 U	288	400 U	210 U	1200 U	87 U	67 U	410 U	62 U	84 U	390 U	86 U	92 U
Pyrene	100000	1000000		2610	142	1570	2060	410 U	343	87 J	10300	1600	415	140 J	2280	47	76.9 J	24.5 J	42 U	186	43 U	189

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Precharacterization Cell:			C-4D		C-4DD		C-5S	C-5D	C-6S	C-6D	C-7S			D-2S	D-2D	D-3S			D-3D			
	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation: Sample Date: Sample Depth (ft bls):	SB-18 10/25/2007 12.5-15	SB-18R 7/9/2009 19.5-20	SB-18R 7/9/2009 21.5-22	SB-18R 7/9/2009 30-30.5	C-5S 3/5/2008 0-10	C-5D 3/5/2008 10-20	C-6S 3/4/2008 0-10	SB-19 10/26/2007 15-18	SB-20 10/26/2007 2.5-5	SB-20 DUP 10/26/2007 2.5-5	LB-8 39472 3-9	D-2S 3/3/2008 0-10	SB-12 10/25/2007 12-14	D-3S 3/3/2008 0-10	LB-9 2/1/2008 0-6	LB-9 1/15/2008 6-8	D-3D 3/4/2008 10-20	D-3R 7/8/2009 15.5-16	D-3R 7/8/2009 17.5-18	LB-9 1/24/2008 10-12
1,2,4-Trichlorobenzene	--	--		4300 U	NA	NA	NA	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	NA	NA	530 U
1,2-Dichlorobenzene	100000	--		NA	3700 U	6.5 U	5.6 U	92 U	99 U	80 U	NA	NA	NA	160 U	75 U	NA	75 U	80 U	160 U	84 U	780 U	6.6 U	530 U
1,2-Diphenylhydrazine	--	--		4300 U	NA	NA	NA	NA	NA	NA	410 U	1200 U	1900 U	NA	NA	2000 U	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	49000	--		NA	3700 U	6.5 U	5.6 U	92 U	99 U	80 U	NA	NA	NA	160 U	75 U	NA	75 U	80 U	160 U	84 U	780 U	6.6 U	530 U
1,4-Dichlorobenzene	13000	--		NA	3700 U	6.5 U	5.6 U	92 U	99 U	80 U	NA	NA	NA	160 U	75 U	NA	75 U	80 U	160 U	84 U	780 U	6.6 U	530 U
2,2-oxybis (1-chloropropane)	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
2,4,5-Trichlorophenol	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
2,4,6-Trichlorophenol	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
2,4-Dichlorophenol	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
2,4-Dimethylphenol	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
2,4-Dinitrophenol	--	--		11000 U	700 U	740 U	640 U	920 U	990 U	800 U	1000 U	2900 U	4800 U	1600 U	750 U	5000 U	750 U	800 U	1600 U	840 U	730 U	760 U	5300 U
2,4-Dinitrotoluene	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
2,6-Dinitrotoluene	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
2-Chloronaphthalene	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
2-Chlorophenol	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
2-Methylnaphthalene	--	--		35000	7960	74 U	64 U	NA	NA	NA	410 U	1200 U	1900 U	80.5 J	NA	12000	NA	122	120 J	NA	178	76 U	530 U
2-Methylphenol	100000	330		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	390 U	75 U	2000 U	75 U	200 U	410 U	84 U	73 U	76 U	530 U
2-Nitroaniline	--	--		4300 U	180 U	190 U	160 U	NA	NA	NA	410 U	1200 U	1900 U	390 U	NA	2000 U	NA	200 U	410 U	NA	180 U	190 U	1300 U
2-Nitrophenol	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
3&4-Methylphenol	--	--		NA	70 U	74 U	64 U	92 U	99 U	80 U	NA	NA	NA	390 U	75 U	NA	75 U	200 U	410 U	84 U	73 U	76 U	530 U
3,3-Dichlorobenzidine	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
3-Nitroaniline	--	--		4300 U	180 U	190 U	160 U	NA	NA	NA	410 U	1200 U	1900 U	390 U	NA	2000 U	NA	200 U	410 U	NA	180 U	190 U	1300 U
4,6-Dinitro-2-methylphenol	--	--		11000 U	700 U	740 U	640 U	920 U	990 U	800 U	1000 U	2900 U	4800 U	1600 U	750 U	5000 U	750 U	800 U	1600 U	840 U	730 U	760 U	5300 U
4-Bromophenyl phenyl ether	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
4-Chloro-3-methylphenol	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
4-Chloroaniline	--	--		4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
4-Chlorophenyl phenyl ether	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
4-Methylphenol	100000	330		4300 U	NA	NA	NA	NA	NA	NA	410 U	1200 U	1900 U	NA	NA	2000 U	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--		4300 U	180 U	190 U	160 U	NA	NA	NA	410 U	1200 U	1900 U	390 U	NA	2000 U	NA	200 U	410 U	NA	180 U	190 U	1300 U
4-Nitrophenol	--	--		4300 U	350 U	370 U	320 U	920 U	990 U	800 U	410 U	1200 U	1900 U	1600 U	750 U	2000 U	750 U	800 U	1600 U	840 U	360 U	380 U	5300 U
Acenaphthene	100000	98000		4300 U	30.4 J	37 U	32 U	21.2 J	252	421	120 J	390 J	880 J	134 J	23.7 J	430 J	95.3	219	646	114	64.8	38 U	530 U
Acenaphthylene	100000	107000		4300 U	35 U	37 U	32 U	92 U	99 U	316	110 J	290 J	590 J	80 J	75 U	2000 U	49.4 J	108	245	65.7 J	38	38 U	530 U
Aniline	--	--		4300 U	NA	NA	NA	NA	NA	NA	410 U	1200 U	1900 U	NA	NA	2000 U	NA	NA	NA	NA	NA	NA	NA
Anthracene	100000	1000000		4300 U	41.1	37 U	32 U	71.1 J	99 U	1410	330 J	960 J	2300	348	75.4	460 J	257	579	781	330	57	58.8	530 U
Benzidine	--	--		4300 U	NA	NA	NA	NA	NA	NA	410 U	1200 U	1900 U	NA	NA	2000 U	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1000	1000		4300 U	35.1	37 U	32 U	169	50.8 J	3740	1200	3400	6700	981	189	850 J	816	1410	1820	609	222	161	143 J
Benzo(a)pyrene	1000	22000		4300 U	23.2 J	37 U	32 U	139	49.5 J	3290	1000	2800	5400	836	152	570 J	670	1270	1690	475	238	157	530 U
Benzo(b)fluoranthene	1000	1700		4300 U	32.3 J	37 U	32 U	128	47 J	2800	1400	4000	7900	1000	138	810 J	596	1080	1700	432	301	185	530 U
Benzo(g,h,i)perylene	100000	1000000		4300 U	18.7 J	37 U	32 U	91.9 J	41.1 J	2080	670	1800	3400	563	108	270 J	459	958	1010	286	161	93.6	530 U
Benzo(k)fluoranthene	3900	1700		4300 U	35 U	37 U	32 U	34.8 J	99 U	3070	510	1400	2700	498	114	220 J	517	1260	1210	333	82.2	68.9	530 U
Benzoic acid	--	--		11000 U	NA	NA	NA	NA	NA	NA	1000 U	2900 U	4800 U	NA	NA	5000 U	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
Bis(2-chloroethyl)ether	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
Bis(2-chloroisopropyl)ether	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	--		4300 U	40.5 J	74 U	64 U	92 U	99 U	509	130 J	260 J	270 J	1220	57.3 J	2000 U	73.5 J	673	465	45.3 J	73 U	76 U	411 J
Butyl benzylphthalate	--	--		4300 U	70 U	74 U	64 U	88.9 J	99 U	67.3 J	81 J	1100 J	790 J	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
Carbazole	--	--		4300 U	25.6 J	74 U	64 U	NA	NA	NA	180 J	510 J	1200 J	222	NA	2000 U	NA	286	163	NA	73 U	76 U	530 U
Chrysene	3900	1000		4300 U	30.6 J	37 U	32 U	166	39.5 J	3860	1100	2900	5900	964	200	680 J	804	1380	1860	617	221	164	121 J
Dibenzo(a,h)anthracene	--	--		4300 U	35 U	37 U	32 U	28.7 J	17.3 J	706	190 J	520 J	1000 J	142 J	38.1 J	2000 U	182	322	266	101	46.8	24.5 J	530 U
Dibenzofuran	59000	210000		4300 U	19.4 J	74 U	64 U	NA	NA	NA	410 U	1200 U	980 J	131 J	NA	2000 U	NA	172	460	NA	73 U	76 U	530 U
Diethyl phthalate	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
Dimethyl phthalate	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
Di-n-butyl phthalate	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
Di-n-octyl phthalate	--	--		4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
Fluoranthene	100000	1000000		4300 U	80.1	37 U	32 U	356	115	8150	2200	6300	14000	2060	383	1900 J	1540	2490	5110	1300	307	298	213 J
Fluorene	100000	386000		4300 U	63	37 U	32 U	26.5 J	129	484	140 J	430 J	1200 J	174	29.2 J	470 J	94.2						

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Precharacterization Cell:		C-4D		C-4DD		C-5S	C-5D	C-6S	C-6D	C-7S			D-2S	D-2D	D-3S			D-3D			
	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation:		Sample Date:		C-5S	C-5D	C-6S	SB-19	SB-20	SB-20 DUP	LB-8	D-2S	SB-12	D-3S	LB-9	LB-9	D-3D	D-3R	D-3R	LB-9
	(µg/kg)	(µg/kg)	Sample Depth (ft bls):		10/25/2007	7/9/2009																
			12.5-15	19.5-20	7/9/2009	7/9/2009	3/5/2008	3/5/2008	3/4/2008	10/26/2007	10/26/2007	10/26/2007	39472	3/3/2008	10/25/2007	3/3/2008	2/1/2008	1/15/2008	3/4/2008	7/8/2009	7/8/2009	1/24/2008
Naphthalene	100000	12000	38000	6290	37 U	32 U	92 U	99 U	223	170 J	590 J	1000 J	171	45.1 J	7200	68.9 J	181	290	187	385	19.1 J	257 J
Nitrobenzene	--	--	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
n-Nitrosodimethylamine	--	--	11000 U	NA	NA	NA	NA	NA	NA	1000 U	2900 U	4800 U	NA	NA	5000 U	NA	NA	NA	NA	NA	NA	NA
n-Nitroso-di-n-propylamine	--	--	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	160 U	75 U	2000 U	75 U	80 U	160 U	84 U	73 U	76 U	530 U
n-Nitrosodiphenylamine	--	--	4300 U	180 U	190 U	160 U	230 U	250 U	200 U	410 U	1200 U	1900 U	390 U	190 U	2000 U	190 U	200 U	410 U	210 U	180 U	190 U	1300 U
Pentachlorophenol	6700	800	11000 U	350 U	370 U	320 U	460 U	490 U	400 U	1000 U	2900 U	4800 U	1600 U	370 U	5000 U	380 U	400 U	1600 U	420 U	360 U	380 U	2700 U
Phenanthrene	100000	1000000	4300 U	150	37 U	32 U	232	173	6710	2100	5400	13000	1740	344	2000 J	991	2140	1110	1150	241	132	252 J
Phenol	100000	330	4300 U	70 U	74 U	64 U	92 U	99 U	80 U	410 U	1200 U	1900 U	390 U	75 U	2000 U	75 U	80 U	410 U	84 U	73 U	76 U	530 U
Pyrene	100000	1000000	4300 U	80.5	16 J	32 U	347	136	7330	2800	7000	15000	1670	364	2200	1450	2460	4290	1220	335	291	232 J

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Precharacterization Cell:			D-4S			D-4D					D-4DD				D-5S				D-5D		D-6S	
	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Sample Designation: Sample Date: Sample Depth (ft bls):	LB-10 2/1/2008 0-4	LB-10 1/24/2008 4-8	LB-10 1/22/2008 8-12	D-4D 3/4/2008 10-28	D-4R 7/8/2009 18.5-19	SB-13 10/25/2007 15-17.5	SB-13R 7/8/2009 17.5-18	SB-13R 7/8/2009 19.5-20	D-4R 7/8/2009 20.5-21	LB-10 2/1/2008 20-27	LB-10 1/22/2008 22-27	LB-10 1/24/2008 25-27	D-5S 3/4/2008 0-10	SB-14 10/25/2007 0-2	SB-15 10/25/2007 0-2	LB-11 2/1/2008 8-10	D-5D 3/4/2008 10-20	LB-11 1/23/2008 12-20	D-6S 3/4/2008 3-4	SB-16 10/29/2007 0-2
1,2,4-Trichlorobenzene	--	--		81 U	160 U	180 U	94 U	NA	2400 U	NA	NA	NA	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
1,2-Dichlorobenzene	100000	--		81 U	160 U	180 U	94 U	1000 U	NA	440 U	6.8 U	7.8 U	110 U	180 U	190 U	78 U	NA	NA	150 U	82 U	160 U	78 U	NA
1,2-Diphenylhydrazine	--	--		NA	NA	NA	NA	NA	2400 U	NA	NA	NA	NA	NA	NA	NA	380 U	380 U	NA	NA	NA	NA	400 U
1,3-Dichlorobenzene	49000	--		81 U	160 U	180 U	94 U	1000 U	NA	440 U	6.8 U	7.8 U	110 U	180 U	190 U	78 U	NA	NA	150 U	82 U	160 U	78 U	NA
1,4-Dichlorobenzene	13000	--		81 U	160 U	180 U	94 U	1000 U	NA	440 U	6.8 U	7.8 U	110 U	180 U	190 U	78 U	NA	NA	150 U	82 U	160 U	78 U	NA
2,2-oxybis (1-chloropropane)	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
2,4,5-Trichlorophenol	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
2,4,6-Trichlorophenol	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
2,4-Dichlorophenol	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
2,4-Dimethylphenol	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
2,4-Dinitrophenol	--	--		810 U	1600 U	1800 U	940 U	760 U	6000 U	790 U	760 U	860 U	1100 U	1800 U	1900 U	780 U	950 U	960 U	1500 U	820 U	1600 U	780 U	990 U
2,4-Dinitrotoluene	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
2,6-Dinitrotoluene	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
2-Chloronaphthalene	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
2-Chlorophenol	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
2-Methylnaphthalene	--	--		81 U	160 U	180 U	NA	1380	12000	236	76 U	86 U	93.3 J	180 U	190 U	NA	380 U	380 U	150 U	NA	160 U	NA	400 U
2-Methylphenol	100000	330		200 U	410 U	450 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	460 U	480 U	78 U	380 U	380 U	150 U	82 U	400 U	78 U	400 U
2-Nitroaniline	--	--		200 U	410 U	450 U	NA	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	NA	380 U	380 U	380 U	NA	400 U	NA	400 U
2-Nitrophenol	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
3&4-Methylphenol	--	--		200 U	410 U	450 U	94 U	76 U	NA	79 U	76 U	86 U	77.4 J	460 U	480 U	78 U	NA	NA	150 U	82 U	400 U	78 U	NA
3,3-Dichlorobenzidine	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
3-Nitroaniline	--	--		200 U	410 U	450 U	NA	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	NA	380 U	380 U	380 U	NA	400 U	NA	400 U
4,6-Dinitro-2-methylphenol	--	--		810 U	1600 U	1800 U	940 U	760 U	6000 U	790 U	760 U	860 U	1100 U	1800 U	1900 U	780 U	950 U	960 U	1500 U	820 U	1600 U	780 U	990 U
4-Bromophenyl phenyl ether	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
4-Chloro-3-methylphenol	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
4-Chloroaniline	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
4-Chlorophenyl phenyl ether	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
4-Methylphenol	100000	330		NA	NA	NA	NA	NA	2400 U	NA	NA	NA	NA	NA	NA	NA	380 U	380 U	NA	NA	NA	NA	400 U
4-Nitroaniline	--	--		200 U	410 U	450 U	NA	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	NA	380 U	380 U	380 U	NA	400 U	NA	400 U
4-Nitrophenol	--	--		810 U	1600 U	1800 U	940 U	380 U	2400 U	400 U	380 U	430 U	1100 U	1800 U	1900 U	780 U	380 U	380 U	1500 U	820 U	1600 U	780 U	400 U
Acenaphthene	100000	98000		81 U	160 U	180 U	94 U	23 J	2400 U	35.7 J	38 U	43 U	234	180 U	190 U	83.3	380 U	57 J	150 U	56.8 J	160 U	402	170 J
Acenaphthylene	100000	107000		81 U	160 U	180 U	94 U	38 U	2400 U	40 U	38 U	43 U	47.1 J	180 U	190 U	98.6	380 U	65 J	150 U	66.6 J	160 U	317	81 J
Aniline	--	--		NA	NA	NA	NA	NA	2400 U	NA	NA	NA	NA	NA	NA	NA	380 U	380 U	NA	NA	NA	NA	400 U
Anthracene	100000	1000000		81 U	160 U	180 U	94 U	38 U	2400 U	67.9	38 U	43 U	235	180 U	190 U	264	380 U	170 J	150 U	131	160 U	1200	430
Benzidine	--	--		NA	NA	NA	NA	NA	2400 U	NA	NA	NA	NA	NA	NA	NA	380 U	380 U	NA	NA	NA	NA	400 U
Benzo(a)anthracene	1000	1000		105	45.3 J	41.7 J	160	38 U	2400 U	189	38 U	43 U	434	71.4 J	190 U	793	58 J	690	150 U	466	99.4 J	4370	1700
Benzo(a)pyrene	1000	22000		91.8	43.3 J	48.7 J	148	17.1 J															

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	Precharacterization Cell:			D-4S			D-4D					D-4DD				D-5S				D-5D		D-6S	
	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation: Sample Date: Sample Depth (ft bls):	LB-10	LB-10	LB-10	D-4D	D-4R	SB-13	SB-13R	SB-13R	D-4R	LB-10	LB-10	LB-10	D-5S	SB-14	SB-15	LB-11	D-5D	LB-11	D-6S	SB-16
	(µg/kg)	(µg/kg)		2/1/2008 0-4	1/24/2008 4-8	1/22/2008 8-12	3/4/2008 10-28	7/8/2009 18.5-19	10/25/2007 15-17.5	7/8/2009 17.5-18	7/8/2009 19.5-20	7/8/2009 20.5-21	2/1/2008 20-27	1/22/2008 22-27	1/24/2008 25-27	3/4/2008 0-10	10/25/2007 0-2	10/25/2007 0-2	2/1/2008 8-10	3/4/2008 10-20	1/23/2008 12-20	3/4/2008 3-4	10/29/2007 0-2
Naphthalene	100000	12000		31.1 J	160 U	180 U	207	1180	14000	103	38 U	43 U	173	180 U	190 U	58.8 J	380 U	57 J	150 U	82 U	160 U	241	110 J
Nitrobenzene	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
n-Nitrosodimethylamine	--	--		NA	NA	NA	NA	NA	6000 U	NA	NA	NA	NA	NA	NA	NA	950 U	960 U	NA	NA	NA	NA	990 U
n-Nitroso-di-n-propylamine	--	--		81 U	160 U	180 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	180 U	190 U	78 U	380 U	380 U	150 U	82 U	160 U	78 U	400 U
n-Nitrosodiphenylamine	--	--		200 U	410 U	450 U	230 U	190 U	2400 U	200 U	190 U	210 U	270 U	460 U	480 U	200 U	380 U	380 U	380 U	200 U	400 U	190 U	400 U
Pentachlorophenol	6700	800		810 U	1600 U	1800 U	470 U	380 U	6000 U	400 U	380 U	430 U	550 U	1800 U	1900 U	390 U	950 U	960 U	760 U	410 U	1600 U	390 U	990 U
Phenanthrene	100000	1000000		115	46.6 J	180 U	114	38 U	2400 U	303	38 U	43 U	728	170 J	190 U	1350	45 J	740	150 U	557	103 J	5920	2000
Phenol	100000	330		200 U	410 U	450 U	94 U	76 U	2400 U	79 U	76 U	86 U	110 U	460 U	480 U	78 U	380 U	380 U	150 U	82 U	400 U	78 U	400 U
Pyrene	100000	1000000		176	58.3 J	44.1 J	276	38 U	2400 U	487	38 U	43 U	851	161 J	190 U	1510	130 J	1600	42.9 J	828	146 J	8050	3800

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell:	D-7S	SW-2S	SW-3S
			Sample Designation:	SB-17	SW-2S	SW-3S
			Sample Date: Sample Depth (ft bls):	10/29/2007 2-4	3/10/2008 0-5	3/10/2008 0-5
1,2,4-Trichlorobenzene	--	--		370 U	79 U	79 U
1,2-Dichlorobenzene	100000	--		NA	79 U	79 U
1,2-Diphenylhydrazine	--	--		370 U	NA	NA
1,3-Dichlorobenzene	49000	--		NA	79 U	79 U
1,4-Dichlorobenzene	13000	--		NA	79 U	79 U
2,2-oxybis (1-chloropropane)	--	--		370 U	79 U	79 U
2,4,5-Trichlorophenol	--	--		370 U	200 U	200 U
2,4,6-Trichlorophenol	--	--		370 U	200 U	200 U
2,4-Dichlorophenol	--	--		370 U	200 U	200 U
2,4-Dimethylphenol	--	--		370 U	200 U	200 U
2,4-Dinitrophenol	--	--		940 U	790 U	790 U
2,4-Dinitrotoluene	--	--		370 U	79 U	79 U
2,6-Dinitrotoluene	--	--		370 U	79 U	79 U
2-Chloronaphthalene	--	--		370 U	79 U	79 U
2-Chlorophenol	--	--		370 U	200 U	200 U
2-Methylnaphthalene	--	--		370 U	NA	NA
2-Methylphenol	100000	330		370 U	79 U	79 U
2-Nitroaniline	--	--		370 U	NA	NA
2-Nitrophenol	--	--		370 U	200 U	200 U
3&4-Methylphenol	--	--		NA	79 U	79 U
3,3-Dichlorobenzidine	--	--		370 U	200 U	200 U
3-Nitroaniline	--	--		370 U	NA	NA
4,6-Dinitro-2-methylphenol	--	--		940 U	790 U	790 U
4-Bromophenyl phenyl ether	--	--		370 U	79 U	79 U
4-Chloro-3-methylphenol	--	--		370 U	200 U	200 U
4-Chloroaniline	--	--		370 U	200 U	200 U
4-Chlorophenyl phenyl ether	--	--		370 U	79 U	79 U
4-Methylphenol	100000	330		370 U	NA	NA
4-Nitroaniline	--	--		370 U	NA	NA
4-Nitrophenol	--	--		370 U	790 U	790 U
Acenaphthene	100000	98000		140 J	153	15.8 J
Acenaphthylene	100000	107000		77 J	212	18.4 J
Aniline	--	--		370 U	NA	NA
Anthracene	100000	1000000		360 J	416	41.5 J
Benzidine	--	--		370 U	NA	NA
Benzo(a)anthracene	1000	1000		1400	1480	179
Benzo(a)pyrene	1000	22000		1300	1170	185
Benzo(b)fluoranthene	1000	1700		1700	1120	166
Benzo(g,h,i)perylene	100000	1000000		870	678	126
Benzo(k)fluoranthene	3900	1700		630	1160	142
Benzoic acid	--	--		940 U	NA	NA
Bis(2-chloroethoxy)methane	--	--		370 U	79 U	79 U
Bis(2-chloroethyl)ether	--	--		370 U	79 U	79 U
Bis(2-chloroisopropyl)ether	--	--		NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	--		110 J	106	79 U
Butyl benzylphthalate	--	--		66 J	3650	79 U
Carbazole	--	--		170 J	NA	NA
Chrysene	3900	1000		1200	1760	197
Dibenzo(a h)anthracene	--	--		250 J	274	41.1 J
Dibenzofuran	59000	210000		370 U	NA	NA
Diethyl phthalate	--	--		370 U	79 U	79 U
Dimethyl phthalate	--	--		370 U	79 U	79 U
Di-n-butyl phthalate	--	--		370 U	79 U	79 U
Di-n-octyl phthalate	--	--		370 U	445	79 U
Fluoranthene	100000	1000000		2400	3320	323
Fluorene	100000	386000		120 J	378	79 U
Hexachlorobenzene	1200	3200		370 U	79 U	79 U
Hexachlorobutadiene	--	--		370 U	79 U	79 U
Hexachlorocyclopentadiene	--	--		370 U	790 U	790 U
Hexachloroethane	--	--		370 U	200 U	200 U
Indeno(1,2,3-cd)pyrene	500	8200		800	680	116
Isophorone	--	--		370 U	79 U	79 U

Table 18. Summary of Semivolatile Organic Compounds in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in µg/kg)	NYS Part 375 Restricted Residential (µg/kg)	NYS Part 375 Protection of Groundwater (µg/kg)	Precharacterization Cell:	D-7S	SW-2S	SW-3S
			Sample Designation:	SB-17	SW-2S	SW-3S
			Sample Date: Sample Depth (ft bls):	10/29/2007 2-4	3/10/2008 0-5	3/10/2008 0-5
Naphthalene	100000	12000		96 J	719	19.8 J
Nitrobenzene	--	--		370 U	79 U	79 U
n-Nitrosodimethylamine	--	--		940 U	NA	NA
n-Nitroso-di-n-propylamine	--	--		370 U	79 U	79 U
n-Nitrosodiphenylamine	--	--		370 U	200 U	200 U
Pentachlorophenol	6700	800		940 U	400 U	390 U
Phenanthrene	100000	1000000		1700	5290	214
Phenol	100000	330		370 U	79 U	79 U
Pyrene	100000	1000000		3000	3520	427

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 19. Summary of Metals in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			A-2S		A-2D					A-2DD			A-3S		A-3D		A-3DD					
Parameter	NYS Part 375 Restricted Residential (mg/kg)	NYS Part 375 Protection of Groundwater (mg/kg)	Sample Designation: Sample Date: Sample Depth (ft bls):	A-2S 3/7/2008 0-10	LB-1 1/31/2008 1-7	AX-3 9/12/2007 10-12.5	AX-4 9/12/2007 15-20	AX-4R 7/10/2009 15-15.5	AX-4R 7/10/2009 17-17.5	LB-1 39478 13-19	A-2R 7/7/2009 20-20.5	A-2R 7/7/2009 22.5-23	AX-4R 7/10/2009 36.5-37	A-3S 3/7/2008 0-10	LB-2 1/29/2008 2-6	A-3D 3/7/2008 10-20	LB-2 1/29/2008 10-17	A-3R 7/7/2009 22.5-23	A-3R 7/7/2009 24.5-25	LB-2R 7/7/2009 22.5-23	LB-2 2/1/2008 23-25	LB-2R 7/7/2009 24.5-25
Aluminum	--	--		NA	9700	6100	8000	13100	7440	10200	10200	15800	15900	NA	8610	NA	9440	16700	15000	17400	14100	15100
Antimony	--	--		2.5 U	2.4 U	2.9	2.6 U	2.2 U	2.2 U	2.4 U	3.1	3 U	2.9 U	2.4 U	2.4 U	3.2 U	2.7 U	2.8 U	2.9 U	3.2 U	3.1 U	3 U
Arsenic	16	16		3.3	4.5	22	4.9	2.2 U	3.5	2.7	15.2	9.7	8.2	8	5.7	6.1	7	12.7	9.7	14.8	8	9.5
Barium	400	820		85.6	234	200	140	196	87	105	102	40.6	41.4	223	207	116	170	81	38.8	148	35.1	37
Beryllium	72	47		0.83	0.6 U	0.83 U	0.79 U	0.54 U	0.56 U	0.59 U	0.65 U	1.2	0.86	0.67	0.6 U	0.8 U	0.68 U	0.8	0.88	0.88	0.77 U	0.88
Cadmium	4.3	7.5		0.62 U	0.6 U	0.83 U	0.79 U	0.54 U	0.56 U	0.59 U	1.3 U	0.74 U	0.73 U	0.61 U	1.2	0.8 U	0.68 U	0.71 U	0.73 U	0.79	0.77 U	0.74 U
Calcium	--	--		NA	5650	32000	8400	18600	3170	7980	11100	3310	4410	NA	22800	NA	22100	7750	2890	8190	4010	3260
Chromium	--	--		16.1	28.9	16	17	24.3	17.4	16.8	60.3	28.4	29.6	14.9	15.5	21.8	13.4	34.7	27.9	40.5	25.9	27.5
Cobalt	--	--		NA	8	8.4	8.9	13.6	7.4	9.5	21.2	11.7	11	NA	7	NA	6.8 U	10.6	10.9	11.8	9.2	10.7
Copper	270	1720		30.8	34.9	110	54	32.4	19.3	23.6	61.6	15.8	14.7	54.5	39.8	45.6	45.7	51	12.5	57.2	13.4	13.4
Hexavalent Chromium	--	19		1.2 U	1.1 U	NA	NA	NA	NA	1.2 U	NA	NA	NA	1.2 U	1.2 U	1.7 U	1.4 U	NA	NA	NA	1.5 U	NA
Iron	--	--		NA	16600	22000	16000	23200	14400	18900	77900	31000	31600	NA	21700	NA	12300	27900	28900	29200	27300	29700
Lead	400	450		144	124	4400	120	266	57.7	66.8	298	14.7	12.6	603	284	392	429	146	11.6	397	12.8	11.9
Magnesium	--	--		NA	3420	2400	4700	7440	3090	4160	7120	7090	7430	NA	3000	NA	2690	6780	6960	6320	6070	7000
Manganese	2000	2000		NA	341	330	210	352	176	270	650	1220	581	NA	1030	NA	165	359	567	340	573	648
Mercury	0.81	0.73		0.54	0.43	2.9	0.56	0.14	0.24	0.11	0.76	0.045 U	0.047 U	1.5	0.56	5.3	1.2	1	0.051 U	2.7	0.05 U	0.05 U
Nickel	310	130		14.1	14.6	20	19	26.3	12.9	17.1	61.5	25.5	25.5	12.5	22.4	18	11.6	25.8	23.6	28	20.4	23.7
Potassium	--	--		NA	2770	1700	5000	7810	4280	4570	4570	3680	3730	NA	2250	NA	1400 U	3550	3630	3460	3050	3650
Selenium	180	4		2.5 U	2.4 U	2.5 U	2.4 U	2.2 U	2.2 U	2.4 U	5.2 U	3 U	2.9 U	2.4 U	2.4 U	3.2 U	2.7 U	2.8 U	4	3.2 U	3.1 U	3 U
Silver	180	8.3		1.2 U	1.2 U	2.1 U	2 U	1.1 U	1.1 U	1.2 U	1.3 U	1.5 U	1.5 U	1.2 U	1.2 U	1.6 U	1.4 U	1.4 U	1.5 U	1.6 U	1.5 U	1.5 U
Sodium	--	--		NA	1200 U	460	330 U	1100 U	1100 U	1200 U	2600 U	1800	2070	NA	1200 U	NA	1400 U	1400 U	1990	1600 U	1830	1690
Thallium	--	--		1.2 U	1.2 U	1.7 U	1.6 U	1.1 U	1.1 U	1.2 U	2.6 U	1.5 U	1.5 U	1.2 U	1.2 U	1.6 U	1.4 U	1.4 U	1.5 U	1.6 U	1.5 U	1.5 U
Trivalent Chromium	--	--		NA	28.9	NA	NA	NA	NA	16.8	NA	NA	NA	NA	15.5	NA	13.4	NA	NA	NA	25.9	NA
Vanadium	--	--		21	19.8	21	22	32.8	14.3	24.2	34.3	33.1	33.7	18.9	18.2	20.3	19.2	32.8	32.6	37.9	29.6	31.7
Zinc	10000	2480		94.4	288	120	160	144	61.2	60.2	85.5	71.2	67.9	277	448	754	96.1	147	64.1	170	63.6	66

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 19. Summary of Metals in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

			Precharacterization Cell:	A-4S			A-4D		A-4DD						A-5S	A-6S				
Parameter	NYS Part 375 Restricted Residential (mg/kg)	NYS Part 375 Protection of Groundwater (mg/kg)	Sample Designation: Sample Date: Sample Depth (ft bls):	LB-3 2/1/2008 0-6	LB-3 1/29/2008 6-11	SB-22 10/29/2007 4-5	A-4D 3/5/2008 10-20	LB-3 1/29/2008 11-17	A-4R 7/7/2009 21.5-22	A-4R 7/7/2009 23.5-24	LB-3R 7/7/2009 21-21.5	LB-3 2/1/2008 23-27	LB-3R 7/7/2009 23.5-24	LB-3R 7/9/2009 35-35.5	SB-23 10/26/2007 1-3	LB-4 1/31/2008 1-3	LB-4 1/24/2008 3-7	LB-4 1/31/2008 9-11	SB-25 10/26/2007 5-7.5	SB-27 10/26/2007 7.5-10
Aluminum	--	--		7030	12500	6300	NA	5420	12400	14600	8610	13200	16000	5540	5800	6800	5970	7120	5800	7300
Antimony	--	--		2.5 U	2.4 U	2.4 U	3.1 U	2.5 U	3.1 U	2.8 U	2.7 U	2.8 U	3 U	2.2 U	2.5 U	2.4 U	2.3 U	2.7 U	2.3 U	2.6 U
Arsenic	16	16		9.1	6	3.5	11.2	8.6	14.7	8.4	9.4	9	7.5	2.2 U	8	5.4	5	4.6	5.9	8.8
Barium	400	820		169	103	76	243	156	149	38.9	239	32.9	40.8	50.6	150	102	91.4	132	190	100
Beryllium	72	47		0.64 U	0.61 U	0.72 U	0.76 U	0.62 U	0.81	0.79	0.66 U	0.71 U	0.93	0.55 U	0.74 U	0.61 U	0.57 U	0.67 U	0.69 U	0.79 U
Cadmium	4.3	7.5		1.2	0.61 U	0.72 U	0.76 U	0.62 U	0.77 U	0.71 U	0.66 U	0.71 U	0.76 U	0.55 U	0.74 U	0.61 U	0.57 U	0.67 U	0.69 U	0.79 U
Calcium	--	--		24200	6790	2800	NA	8040	15800	4160	12000	7100	3830	1340	8700	28500	18200	16400	52000	4100
Chromium	--	--		47.1	17.4	13	18	12	25.7	27.2	29	23.3	29.3	12.1	16	21.5	12.3	17.4	15	18
Cobalt	--	--		7.3	7.9	5.7	NA	6.2 U	10.9	10.4	6.6 U	9	11.4	5.5 U	7.9	6.1 U	5.7 U	6.7 U	5.7	6.5
Copper	270	1720		35.2	26.6	28	42.7	124	57.3	13.8	77.7	14.5	14.4	11.4	62	45.1	58.7	93.7	84	24
Hexavalent Chromium	--	19		1.2 U	1.2 U	NA	1.5 U	1.3 U	NA	NA	NA	1.5 U	NA	NA	NA	1.2 U	1.1 U		NA	NA
Iron	--	--		23100	20900	14000	NA	12000	28200	29800	22000	25300	31000	10100	16000	12200	12400	12500	12000	15000
Lead	400	450		547	170	92	411	257	4420	15.8	392	10.1	12.7	6.1	290	100	116	120	190	19
Magnesium	--	--		3070	2860	2100	NA	996	5300	6910	2290	5670	7080	2210	2100	8410	3580	3610	4400	3200
Manganese	2000	2000		265	431	190	NA	128	275	551	368	479	643	365	200	206	186	172	190	190
Mercury	0.81	0.73		0.45	2.5	0.44	1.1	0.93	3	0.049 U	2.6	0.056	0.046 U	0.032 U	1.5	0.3	0.34	0.26	0.41	0.11 U
Nickel	310	130		13.5	13.4	12	27.3	12.3	25.3	23.9	17	19.4	25.1	10	15	14.6	11.1	15.5	13	14
Potassium	--	--		2060	1220	860	NA	1200 U	2340	3460	1300 U	2830	3660	1800	1200	1730	2080	2620	1800	2300
Selenium	180	4		2.5 U	2.4 U	2.2 U	3.1 U	2.5 U	3.1 U	2.8 U	2.7 U	2.8 U	3 U	2.2 U	2.2 U	2.4 U	2.3 U	2.7 U	2.1 U	2.4 U
Silver	180	8.3		1.3 U	1.2 U	1.8 U	1.5 U	1.2 U	1.5 U	1.4 U	1.3 U	1.4 U	1.5 U	1.1 U	1.9 U	1.2 U	1.1 U	1.3 U	1.7 U	2 U
Sodium	--	--		1300 U	1200 U	300 U	NA	1200 U	1500 U	1540	1300 U	1400 U	1500 U	1100 U	310 U	1200 U	1100 U	1300 U	360	330 U
Thallium	--	--		1.3 U	1.2 U	1.4 U	1.5 U	1.2 U	1.5 U	1.4 U	1.3 U	1.4 U	1.5 U	1.1 U	1.5 U	1.2 U	1.1 U	1.3 U	1.4 U	1.6 U
Trivalent Chromium	--	--		47.1	17.4	NA	NA	12	NA	NA	NA	23.3	NA	NA	NA	21.5	12.3		NA	NA
Vanadium	--	--		22	24.3	17	34.2	18.6	31.6	31.4	18.8	27.1	33.3	16.6	22	23.8	15.6	21.5	16	24
Zinc	10000	2480		852	98.8	71	122	268	284	64.4	426	60.1	70.8	25.5	180	90.7	87.7	112	130	38

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 19. Summary of Metals in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			A-6D		A-7S		B-2S	B-2D	B-3S	B-3D	B-3DD		B-4S	B-4D				B-4DD					
Parameter	NYS Part 375 Restricted Residential (mg/kg)	NYS Part 375 Protection of Groundwater (mg/kg)	Sample Designation: Sample Date: Sample Depth (ft bls):	LB-4 1/24/2008 13-19	SB-28 10/29/2007 12-14	A-7S 3/7/2008 2/1/2008 0-10	LB-5 2/1/2008 2-6	B-2S 3/7/2008 0-10	AX-5 9/12/2007 12.5-15	B-3S 3/7/2008 0-10	B-3D 3/7/2008 10-20	B-3R 7/8/2009 23.5-24	B-3R 7/8/2009 25.5-26	B-4S 3/6/2008 0-10	AX-1 9/11/2007 15-17.5	AX-1R 7/9/2009 19.5-20	AX-2 9/11/2007 15-17.5	AX-2 DUP 9/11/2007 15-17.5	AX-1R 7/9/2009 21.5-22	AX-1R 7/9/2009 35.5-36	AX-2R 7/8/2009 20-20.5	AX-2R 7/8/2009 22.5-23	AX-2R 7/10/2009 22.5-23
Aluminum	--	--		5070	3900	NA	6170	NA	5200	NA	NA	14700	15100	NA	4500	4800	4500	4400	14400	6200	12600	13100	10600
Antimony	--	--		2.6 U	2.4 U	2.3 U	2.4 U	2.3 U	2.9 U	2.4 U	2.6 U	3 U	2.9 U	2.4 U	8.7	2.3 U	2.7 U	2.7 U	2.8 U	2.2 U	3 U	2.9 U	2.4 U
Arsenic	16	16		10	4.9	4	2.9	3.9	7.2	2.8	6.8	9.4	8.1	9.6	14	3.8	12	22	5.6	2.2 U	8	7.2	7.5
Barium	400	820		124	130	142	76.1	75.6	160	71.2	172	36.1	40.2	268	200	46.4	140	300	71.8	66.4	41.6	33.2	25.7
Beryllium	72	47		0.64 U	0.73 U	0.98	0.61 U	0.82	0.86 U	0.76	0.82	0.81	0.79	0.59 U	0.76 U	0.57 U	0.81 U	0.82 U	0.71 U	0.55 U	0.75 U	0.75	0.62
Cadmium	4.3	7.5		0.64 U	0.73 U	0.57 U	0.61 U	1	0.86 U	0.59 U	0.64 U	0.75 U	0.73 U	0.62	0.76 U	0.57 U	0.81 U	0.82 U	0.71 U	0.55 U	0.75 U	0.72 U	0.6 U
Calcium	--	--		14700	22000	NA	9320	NA	6000	NA	NA	3090	3030	NA	19000	3710	15000	11000	2780	1360	2710	3150	2200
Chromium	--	--		21.4	9.6	20.3	11.8	14.9	14	17.1	18.2	28.9	27.6	16	20	24.7	16	20	28	16.8	24.2	26	19.9
Cobalt	--	--		6.4 U	3 U	NA	6.1 U	NA	6.1	NA	NA	10.3	10.6	NA	13	5.7 U	5.6	5.9	9.7	5.9	9.4	9.3	8.1
Copper	270	1720		62.2	53	45.7	26.1	32.7	38	23.6	28.5	12.5	14.3	62.3	450	16.1	93	100	35.2	17.7	18.2	11.4	9.7
Hexavalent Chromium	--	19		1.3 U	NA	1.1 U	1.2 U	1.2 U	NA	1.2 U	1.3 U	NA	NA	1.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	--		11400	8100	NA	12000	NA	13000	NA	NA	29800	28800	NA	36000	12200	15000	19000	26300	11700	26200	27400	22300
Lead	400	450		723	160	95.2	56.3	62.3	280	39	244	10.6	11.7	577	470	65.3	240	980	89.1	12.1	26.4	10.4	8.4
Magnesium	--	--		2200	1800	NA	3320	NA	1600	NA	NA	6990	7030	NA	2200	2110	1300	1100	5730	2480	5400	6060	4820
Manganese	2000	2000		209	120	NA	260	NA	170	NA	NA	585	500	NA	240	151	160	240	296	239	404	602	380
Mercury	0.81	0.73		46.3	0.37	0.19	0.25	0.41	2.1	0.2	1	0.046 U	0.047 U	1.1	2.4	0.29	2.9	2.4	1.3	0.071	0.25	0.042 U	0.038 U
Nickel	310	130		8.4	7.4	17.4	11.6	16.1	16	14.7	16.4	24	24	14.8	19	14.3	15	20	24.3	11.3	22.3	21.4	19.4
Potassium	--	--		1300 U	740	NA	1570	NA	960	NA	NA	3630	3680	NA	1000	1220	680 U	680 U	2870	1960	2780	3090	2390
Selenium	180	4		2.6 U	2.2 U	2.3 U	2.4 U	2.3 U	2.6 U	2.4 U	2.6 U	3 U	2.9 U	3.9	2.3 U	2.3 U	2.4 U	2.7	2.8 U	2.2 U	3 U	2.9 U	2.4 U
Silver	180	8.3		1.3 U	1.8 U	1.1 U	1.2 U	1.2 U	2.1 U	1.2 U	1.3 U	1.5 U	1.5 U	1.2 U	1.9 U	1.1 U	2 U	2.1 U	1.4 U	1.1 U	1.5 U	1.4 U	1.2 U
Sodium	--	--		1300 U	300 U	NA	1200 U	NA	400	NA	NA	2060	2210	NA	380	1100 U	360	340 U	1400 U	1100 U	1500 U	1400 U	1200 U
Thallium	--	--		1.3 U	1.5 U	1.1 U	1.2 U	1.2 U	1.7 U	1.2 U	1.3 U	1.5 U	1.5 U	1.2 U	1.5 U	1.1 U	1.6 U	1.6 U	1.4 U	1.1 U	1.5 U	1.4 U	1.2 U
Trivalent Chromium	--	--		21.4	NA	NA	11.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	--		14.7	12 U	25	21.1	17.6	22	19	22.2	31.3	32	22.2	29	11.9	18	21	29.3	18.6	27	28.7	23.1
Zinc	10000	2480		84.7	310	96	63.9	238	160	58.3	89.7	66.5	65.3	266	510	54.9	250	300	89.6	23.1	66.8	59.5	50.8

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 19. Summary of Metals in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			B-5S	B-5D		B-6S				B-6D	B-7S	C-2S	C-2D		C-3S			C-3D				
Parameter	NYS Part 375 Restricted Residential (mg/kg)	NYS Part 375 Protection of Groundwater (mg/kg)	Sample Designation: Sample Date: Sample Depth (ft bls):	B-5S 3/6/2008 0-10	B-5D 3/6/2008 10-20	B-5R 7/10/2009 16-16.5	B-6S 3/6/2008 0-10	LB-6 2/1/2008 1-3	LB-6 1/28/2008 5-9	SB-26 10/29/2007 7-9	LB-6 1/28/2008 12-16	SB-24 10/26/2007 2-5	C-2S 3/5/2008 0-10	C-2D 3/5/2008 10-20	SB-11 10/24/2007 14-15	C-3S 3/5/2008 0-10	LB-7 2/1/2008 1-5	SB-21 10/26/2007 7.5-10	C-3D 3/5/2008 10-20	C-3R 7/8/2009 17.5-18	LB-7 1/15/2008 9-13	LB-7R 7/8/2009 19-19.5
Aluminum	--	--		NA	NA	7930	NA	9620	7040	8700	10200	4100	NA	NA	11000	NA	6840	6700	NA	7320	3850	13100
Antimony	--	--		2.7 U	2.7 U	2.7 U	NA	2.4 U	2.7 U	2.4 U	2.6 U	2.2 U	2.4 U	NA	2.4 U	NA	2.5 U	2.5 U	2.5 U	2.3 U	2.6 U	2.2 U
Arsenic	16	16		15.2	17.6	7.9	NA	4.8	3.7	7.9	3.6	2.2 U	3.1	NA	5.3	NA	3.8	3.9	82.2	8.6	2.6	4.2
Barium	400	820		258	792	313	124	135	56.4	110	69.9	62	91.5	94.5	410	111	77.6	99	134	261	85.5	76.5
Beryllium	72	47		0.68 U	0.67 U	0.68 U	NA	0.6 U	0.67 U	0.73 U	0.66 U	0.66 U	0.6 U	NA	0.72 U	NA	0.64 U	0.75 U	0.63 U	0.61	0.64 U	0.55 U
Cadmium	4.3	7.5		0.68 U	0.67 U	0.68 U	NA	0.6 U	0.67 U	0.73 U	0.66 U	0.66 U	0.6 U	NA	0.72 U	NA	0.64 U	0.75 U	0.63 U	0.58 U	0.64 U	0.55 U
Calcium	--	--		NA	NA	11700	NA	14600	13200	2400	4300	2100	NA	NA	3500	NA	9330	4100	NA	4610	17700	2450
Chromium	--	--		19.5	27.9	17.9	NA	18.5	10.6	19	18.3	8	14.8	NA	28	NA	13.6	15	25.2	16.6	8.9	17.3
Cobalt	--	--		NA	NA	8	NA	8.2	6.7 U	6.7	8.7	3.9	NA	NA	9.8	NA	6.4 U	6.1	NA	5.8 U	6.4 U	6.8
Copper	270	1720		105	300	119	NA	50.4	34.1	26	31	8.6	29.8	NA	38	NA	25.3	34	62.2	129	19.5	17.2
Hexavalent Chromium	--	19		1.3 U	1.4 U	NA	NA	1.2 U	1.3 U	NA	1.3 U	NA	1.1 U	NA	NA	NA	1.2 U	NA	1.3 U	NA	1.3 U	NA
Iron	--	--		NA	NA	27400	NA	15700	11000	30000	16900	8400	NA	NA	21000	NA	11500	15000	NA	8740	9940	16900
Lead	400	450		688	1220	449	NA	95.9	43.3	49	60.4	12	45	NA	290	NA	129	170	167	792	523	37.8
Magnesium	--	--		NA	NA	1270	NA	4400	3070	2400	4250	2600	NA	NA	5400	NA	2720	2200	NA	1100	1520	2510
Manganese	2000	2000		NA	NA	222	NA	248	148	890	182	220	NA	NA	200	NA	147	380	NA	106	140	170
Mercury	0.81	0.73		4.3	4	7.1	NA	0.56	0.12	0.21	0.26	0.092 U	0.27	NA	0.59	NA	0.12	5.2	1.5	1.4	2.8	0.26
Nickel	310	130		19.2	20.5	19.5	NA	15.9	10.3	12	19.9	7.5	22.6	NA	23	NA	13.8	11	24.5	14.3	8	12.7
Potassium	--	--		NA	NA	1400 U	NA	3460	1820	610 U	2140	2700	NA	NA	3900	NA	1920	1100	NA	1200 U	1300 U	1100 U
Selenium	180	4		2.7	4.9	2.7 U	NA	2.4 U	2.7 U	2.2 U	2.6 U	2 U	2.4 U	NA	2.2 U	NA	2.5 U	2.2 U	2.5 U	2.3 U	2.6 U	2.2 U
Silver	180	8.3		1.4 U	1.3 U	1.4 U	NA	1.2 U	1.3 U	1.8 U	1.3 U	1.6 U	1.2 U	NA	1.8 U	NA	1.3 U	1.9 U	1.3 U	1.2 U	1.3 U	1.1 U
Sodium	--	--		NA	NA	1400 U	NA	1200 U	1300 U	300 U	1300 U	270 U	NA	NA	330	NA	1300 U	320	NA	1200 U	1300 U	1100 U
Thallium	--	--		1.4 U	1.3 U	1.4 U	NA	1.2 U	1.3 U	1.5 U	1.3 U	1.3 U	1.2 U	NA	1.4 U	NA	1.3 U	1.5 U	1.3 U	1.2 U	1.3 U	1.1 U
Trivalent Chromium	--	--		NA	NA	NA	NA	18.5	10.6	NA	18.3	NA	NA	NA	NA	NA	13.6	NA	NA	NA	8.9	NA
Vanadium	--	--		22.1	25.4	20.7	26	23.7	14.4	22	20.9	11 U	16.3	24.7	34	23.8	16.8	20	24.8	25.3	10.4	24.4
Zinc	10000	2480		278	369	245	NA	87.3	54.1	80	66.5	39	71.4	NA	220	NA	89	64	93.8	86.9	44.6	42.1

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 19. Summary of Metals in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

			Precharacterization Cell:	C-3DD			C-4S	C-4D		C-4DD		C-5S	C-5D	C-6S	C-6D	C-7S				D-2S	D-2D
Parameter	NYS Part 375 Restricted Residential	NYS Part 375 Protection of Groundwater	Sample Designation:	C-3R	LB-7	LB-7R	C-4S	SB-18	SB-18R	SB-18R	SB-18R	C-5S	C-5D	C-6S	SB-19	C-7S	LB-8	SB-20	SB-20 DUP	D-2S	SB-12
(Concentrations in mg/kg)	(mg/kg)	(mg/kg)	Sample Date:	7/8/2009	1/15/2008	7/8/2009	3/5/2008	10/25/2007	7/9/2009	7/9/2009	7/9/2009	3/5/2008	3/5/2008	3/4/2008	10/26/2007	3/4/2008	1/25/2008	10/26/2007	10/26/2007	3/3/2008	10/25/2007
			Sample Depth (ft bls):	20-20.5	20-25	21-21.5	0-10	12.5-15	19.5-20			0-10	10-20	0-10	15-18		3-9	2.5-5	2.5-5	0-10	12-14
Aluminum	--	--		14400	10600	14800	NA	6000	4300	12100	6400	NA	NA	NA	8000	NA	5440	8900	6900	NA	7300
Antimony	--	--		3 U	2.4 U	3.1 U	2.7 U	2.6 U	2.4 U	2.5 U	2.2 U	2.8 U	2.9 U	2.3 U	2.5 U	NA	2.4 U	2.3 U	2.3 U	8.8	2.4 U
Arsenic	16	16		8.5	17.6	8.1	12.7	11	5.4	7	2.4	8.4	11.9	11	8.6	NA	5.2	4.6	2.3 U	35.9	4.7
Barium	400	820		38.8	187	36.2	250	190	140	36.8	40.7	179	324	134	160	109	85	180	110	64.2	100
Beryllium	72	47		0.83	0.66	0.84	0.66 U	0.78 U	0.61 U	0.71	0.54 U	0.71 U	0.88	0.59 U	0.74 U	NA	0.61 U	0.7 U	0.7 U	0.55 U	0.71 U
Cadmium	4.3	7.5		0.75 U	0.61 U	0.76 U	1.5	0.78 U	0.61 U	0.62 U	0.54 U	0.71 U	0.73 U	0.59 U	0.74 U	NA	0.61 U	0.7 U	0.7 U	1.4	0.71 U
Calcium	--	--		3310	9280	2760	NA	8200	10300	2470	678	NA	NA	NA	31000	NA	28800	78000	68000	NA	3900
Chromium	--	--		27.4	21.3	27.1	18.1	14	13.4	23	13	17.2	15.5	14.1	15	NA	11	16	10	15.9	14
Cobalt	--	--		10.2	8.2	10.6	NA	6.7	6.1 U	8.3	5.4 U	NA	NA	NA	4.1	NA	6.1 U	4.3	3.8	NA	6.1
Copper	270	1720		14.5	45.1	13	48.8	61	104	11.3	8.3	43.9	42.7	49.8	78	NA	49.6	39	20	37.7	32
Hexavalent Chromium	--	19		NA	1.2 U	NA	1.4 U	NA	NA	NA	NA	1.4 U	1.5 U	1.2 U	NA	NA	1.2 U	NA	NA	1.1 U	NA
Iron	--	--		29900	17700	30600	NA	17000	15900	24200	10900	NA	NA	NA	15000	NA	12400	11000	9100	NA	14000
Lead	400	450		16.3	221	11.3	432	540	137	12.3	3.1	200	283	332	260	NA	164	72	38	945	100
Magnesium	--	--		6970	3180	7050	NA	1300	2720	5290	1960	NA	NA	NA	3100	NA	3000	4500	3400	NA	3300
Manganese	2000	2000		607	251	623	NA	170	214	582	128	NA	NA	NA	230	NA	192	190	170	NA	160
Mercury	0.81	0.73		0.059	1.7	0.044 U	2.4	1.1	2.2	0.042 U	0.034 U	0.66	3.1	1.6	3.3	NA	0.68	0.6	0.21	0.69	1.4
Nickel	310	130		23	18.6	23.3	17.3	15	12	19	9.1	17.5	20.6	14.3	12	NA	10	11	11	39.9	14
Potassium	--	--		3430	1770	3520	NA	1000	1200 U	2770	1440	NA	NA	NA	1600	NA	1300	1600	1200	NA	2400
Selenium	180	4		3 U	2.4 U	3.1 U	5	2.3 U	2.4 U	2.5 U	2.2 U	2.8 U	3.1	2.6	2.2 U	NA	2.4 U	2.1 U	2.1 U	2.2 U	2.1 U
Silver	180	8.3		1.5 U	1.2 U	1.5 U	1.3 U	1.9 U	1.2 U	1.2 U	1.1 U	1.4 U	1.5 U	1.2 U	1.9 U	NA	1.2 U	1.7 U	1.7 U	1.1 U	1.8 U
Sodium	--	--		2040	1200 U	1700	NA	320 U	1200 U	1200 U	1100 U	NA	NA	NA	900	NA	1200 U	600	440	NA	300 U
Thallium	--	--		1.5 U	1.2 U	1.5 U	1.3 U	1.6 U	1.2 U	1.2 U	1.1 U	1.4 U	1.5 U	1.2 U	1.5 U	NA	1.2 U	1.4 U	1.4 U	1.1 U	1.4 U
Trivalent Chromium	--	--		NA	21.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11	NA	NA	NA	NA
Vanadium	--	--		31.3	24.9	31.3	23.9	23	16.9	26.1	17.3	26.8	32.4	18.2	24	17	21.4	21	15	16.6	19
Zinc	10000	2480		78.2	140	98.2	1250	240	106	54.7	17.3	108	989	166	180	NA	108	170	110	775	64

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 19. Summary of Metals in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Precharacterization Cell:			D-3S			D-3D				D-4S			D-4D					D-4DD				
Parameter	NYS Part 375 Restricted Residential (mg/kg)	NYS Part 375 Protection of Groundwater (mg/kg)	Sample Designation:	D-3S	LB-9	LB-9	D-3D	D-3R	D-3R	LB-9	LB-10	LB-10	LB-10	D-4D	D-4R	SB-13	SB-13R	SB-13R	D-4R	LB-10	LB-10	LB-10
(Concentrations in mg/kg)			Sample Date:	3/3/2008	2/1/2008	1/15/2008	3/4/2008	7/8/2009	7/8/2009	1/24/2008	2/1/2008	1/24/2008	1/22/2008	3/4/2008	7/8/2009	10/25/2007	7/8/2009	7/8/2009	7/8/2009	2/1/2008	1/22/2008	1/24/2008
			Sample Depth (ft bls):	0-10	0-6	6-8	10-20	15.5-16	17.5-18	10-12	0-4	4-8	8-12	10-28	18.5-19	15-17.5	17.5-18	19.5-20	20.5-21	20-27	22-27	25-27
Aluminum	--	--		NA	8030	7230	NA	6450	14500	7790	4780	4280	6000	NA	9040	4500	5560	13600	14000	14300	11700	11200
Antimony	--	--		2.4 U	2.3 U	2.5 U	2.6 U	2.6 U	2.6 U	2.9 U	2.5 U	2.4 U	2.7 U	2.9 U	2.6 U	2.9 U	2.9 U	2.6 U	2.9 U	3.1 U	2.8 U	2.8 U
Arsenic	16	16		2.9	4.9	6.6	5.7	9.9	9.9	7.8	8	2.8	6.6	8.5	8.3	9.3	6.8	6.8	15.3	12.1	7.3	8.2
Barium	400	820		79.9	112	84	126	246	86	139	540	52.8	138	199	244	220	185	34.5	36.8	174	109	37.8
Beryllium	72	47		0.6 U	0.58 U	0.64 U	0.66 U	0.71	0.65	0.71 U	0.63 U	0.6 U	0.68 U	0.9	0.93	0.86 U	0.72 U	0.74	0.78	0.78 U	0.7 U	0.71 U
Cadmium	4.3	7.5		0.6 U	0.58 U	0.64 U	0.66 U	0.66 U	0.64 U	0.71 U	0.63 U	0.6 U	0.68 U	0.73 U	0.64 U	0.86 U	0.72 U	0.64 U	0.72 U	0.78 U	0.7 U	0.71 U
Calcium	--	--		NA	23300	6660	NA	4990	6650	3750	77300	58000	7940	NA	8070	40000	9060	2430	2750	4460	4160	2070
Chromium	--	--		13	20.8	15.8	14.9	12.1	29.3	14	65.8	10.9	10.2	11.9	13.7	9.9	11.1	24.3	25.8	29.7	24.6	21
Cobalt	--	--		NA	8.4	6.8	NA	7.9	9.6	7.1 U	6.3 U	6 U	6.8 U	NA	9.6	5.7	7.2 U	9.3	10.5	9.9	7.7	7.6
Copper	270	1720		16.6	22.3	23	25.8	38.1	46.1	141	504	30.1	46.2	67.7	45.2	360	51.6	12	12.9	50.2	38.4	10.2
Hexavalent Chromium	--	19		1.1 U	1.2 U	1.2 U	1.3 U	NA	NA	1.4 U	1.2 U	1.2 U	1.3 U	1.4 U	NA	NA	NA	NA	NA	1.6 U	1.4 U	1.5 U
Iron	--	--		NA	13800	20600	NA	22500	26100	13900	12700	12500	11200	NA	10200	15000	10400	25400	29900	26500	21800	23700
Lead	400	450		39.4	48.4	195	130	816	134	200	377	80.7	470	168	198	190	175	11.2	11.1	333	218	11.3
Magnesium	--	--		NA	3550	2730	NA	1030	7240	1520	1840	2310	695	NA	789	890	1200	5710	5910	4730	4300	4560
Manganese	2000	2000		NA	148	181	NA	208	288	142	184	126	122	NA	134	190	139	492	499	346	262	427
Mercury	0.81	0.73		0.079	0.41	1.2	0.82	0.71	1.7	0.89	0.68	0.52	0.76	1.9	0.96	0.51	1.3	0.041 U	0.046 U	1.4	1.9	0.043 U
Nickel	310	130		11.1	13.3	15.1	14.6	17.2	23	13.8	16.7	9.7	14.4	19.7	23	11	12.5	21.4	22.9	22.8	18	16.8
Potassium	--	--		NA	1720	1680	NA	1300 U	2970	1400 U	1300 U	1830	1400 U	NA	1300 U	990	1400 U	3060	3150	2710	2330	2440
Selenium	180	4		2.4 U	2.3 U	2.5 U	2.6 U	3.4	2.6 U	2.9 U	2.5 U	2.4 U	2.7 U	3.5	2.6 U	2.6 U	2.9 U	2.6 U	2.9 U	3.4	2.8 U	2.8 U
Silver	180	8.3		1.2 U	1.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.2 U	1.7	1.5 U	1.3 U	2.1 U	1.4 U	1.3 U	1.4 U	1.6 U	1.4 U	1.4 U
Sodium	--	--		NA	1200 U	1300 U	NA	1300 U	1300 U	1400 U	1300 U	1200 U	1400 U	NA	1300 U	840	1400 U	1300 U	1400 U	1600 U	1400 U	1400 U
Thallium	--	--		1.2 U	1.2 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.2 U	1.4 U	1.5 U	1.3 U	1.7 U	1.4 U	1.3 U	1.4 U	1.6 U	1.4 U	1.4 U
Trivalent Chromium	--	--		NA	20.8	15.8	NA	NA	NA	14	65.8	10.9	10.2	NA	NA	NA	NA	NA	NA	29.7	24.6	21
Vanadium	--	--		16	24.1	17.3	20	22.1	29.6	20	16.5	15.2	23.4	24.2	26.5	26	18.6	28	31	34.2	26.8	26.3
Zinc	10000	2480		88.3	106	62.5	64.1	159	135	143	521	89.4	67.9	97.9	65.7	130	92.4	59.3	63.3	194	123	50.2

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory

Table 19. Summary of Metals in Soil as Compared to Part 375 Restricted Residential and Protection of Groundwater SCOs, Remedial Action Work Plan, Mid Block #57 Project, Manhattan, New York

Parameter (Concentrations in mg/kg)	NYS Part 375 Restricted Residential (mg/kg)	NYS Part 375 Protection of Groundwater (mg/kg)	Precharacterization Cell:		D-5S				D-5D		D-6S		D-7S	SW-2S	SW-3S
			Sample Designation:	Sample Date:	D-5S	SB-14	SB-15	LB-11	D-5D	LB-11	D-6S	SB-16	SB-17	SW-2S	SW-3S
			Sample Depth (ft bls):		3/4/2008 0-10	10/25/2007 0-2	10/25/2007 0-2	2/1/2008 8-10	3/4/2008 10-20	1/23/2008 12-20	3/4/2008 3-4	10/29/2007 0-2	10/29/2007 2-4	3/10/2008 0-5	3/10/2008 0-5
Aluminum	--	--			NA	4000	7400	5760	NA	7020	NA	7100	7000	NA	NA
Antimony	--	--			2.3 U	2.3 U	4.9	2.3 U	2.5 U	2.5 U	2.4 U	2.4 U	2.2 U	2.4 U	2.4 U
Arsenic	16	16			7	5.7	20	2.3 U	6.5	2.5 U	4.3	2.5	3.7	3.8	4.7
Barium	400	820			138	98	130	45.7	126	41.5	187	680	110	159	120
Beryllium	72	47			0.57 U	0.68 U	0.69 U	0.57 U	0.63 U	0.63 U	0.6 U	0.71 U	0.67 U	1.2	0.94
Cadmium	4.3	7.5			0.57 U	0.68 U	0.69 U	0.57 U	0.63 U	0.63 U	0.6 U	0.71 U	0.67 U	0.6 U	0.6 U
Calcium	--	--			NA	15000	12000	60500	NA	3650	NA	78000	71000	NA	NA
Chromium	--	--			18.2	17	16	7.9	14.5	13.3	14.6	11	9.6	22.7	17.2
Cobalt	--	--			NA	4.5	7.3	5.7 U	NA	6.3 U	NA	8	5.3	NA	NA
Copper	270	1720			50.6	29	57	17	64.1	117	36.4	23	23	29.6	27.1
Hexavalent Chromium	--	19			1.2 U	NA	NA	1.1 U	1.2 U	1.2 U	1.6	NA	NA	1.2 U	1.2 U
Iron	--	--			NA	12000	28000	6720	NA	13000	NA	10000	8300	NA	NA
Lead	400	450			250	160	790	7.6	208	28.5	88.8	55	38	82.2	104
Magnesium	--	--			NA	2600	3200	16600	NA	2460	NA	15000	3800	NA	NA
Manganese	2000	2000			NA	220	260	133	NA	229	NA	190	150	NA	NA
Mercury	0.81	0.73			2.7	4.3	0.73	0.049	1.4	0.18	0.31	0.36	0.13	0.13	0.29
Nickel	310	130			16.6	10	18	5.1	15	12.8	13.3	10	9.6	15.7	13.2
Potassium	--	--			NA	780	1900	1620	NA	1630	NA	740	1200	NA	NA
Selenium	180	4			2.3 U	2 U	2.1 U	2.3 U	2.5 U	2.5 U	2.4 U	2.1 U	2 U	2.4 U	2.4 U
Silver	180	8.3			1.1 U	1.7 U	1.7 U	1.1 U	1.3 U	1.3 U	1.2 U	1.8 U	1.7 U	1.2 U	1.2 U
Sodium	--	--			NA	280 U	290 U	1100 U	NA	1300 U	NA	300 U	630	NA	NA
Thallium	--	--			1.1 U	1.4 U	1.4 U	1.1 U	1.3 U	1.3 U	1.2 U	1.4 U	1.3 U	1.2 U	1.2 U
Trivalent Chromium	--	--			NA	NA	NA	7.9	NA	13.3	NA	NA	NA	NA	NA
Vanadium	--	--			19.3	17	20	12.4	18.2	17	14.9	17	20	23	19.9
Zinc	10000	2480			141	98	150	17.3	111	36.3	178	530	73	127	110

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
mg/kg - Milligrams per kilogram
-- No NYSDEC Part 375 Restricted Residential Standard available
ft bls - Feet below land surface
Bold - Concentration exceeds NYSDEC Part 375 Restricted Residential Standard
Boxed - Concentration exceeds NYSDEC Part 375 Protection of Groundwater Standard
NA - Not analyzed by laboratory



Title:

SITE LOCATION MAP

REMEDIAL ACTION WORK PLAN
MID BLOCK #57 PROJECT

Prepared for:

DURST DEVELOPMENT L.L.C.

REMEDIAL ENGINEERING, P.C.
Environmental Engineers

Compiled by: J.L.
Prepared by: G.M.
Project Mgr.: J.L.
File No.: DUR0313603.CDR

Date: 29JUL09
Scale: AS SHOWN
Office: NY
Project No.: 133803Y03

FIGURE

1

N:\PROJECTS\DU\1338\DURO3\136\DURO313602.DWG



12th AVENUE

11th AVENUE

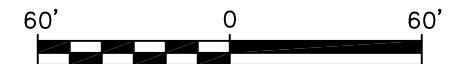
WEST 58th STREET

WEST 57th STREET

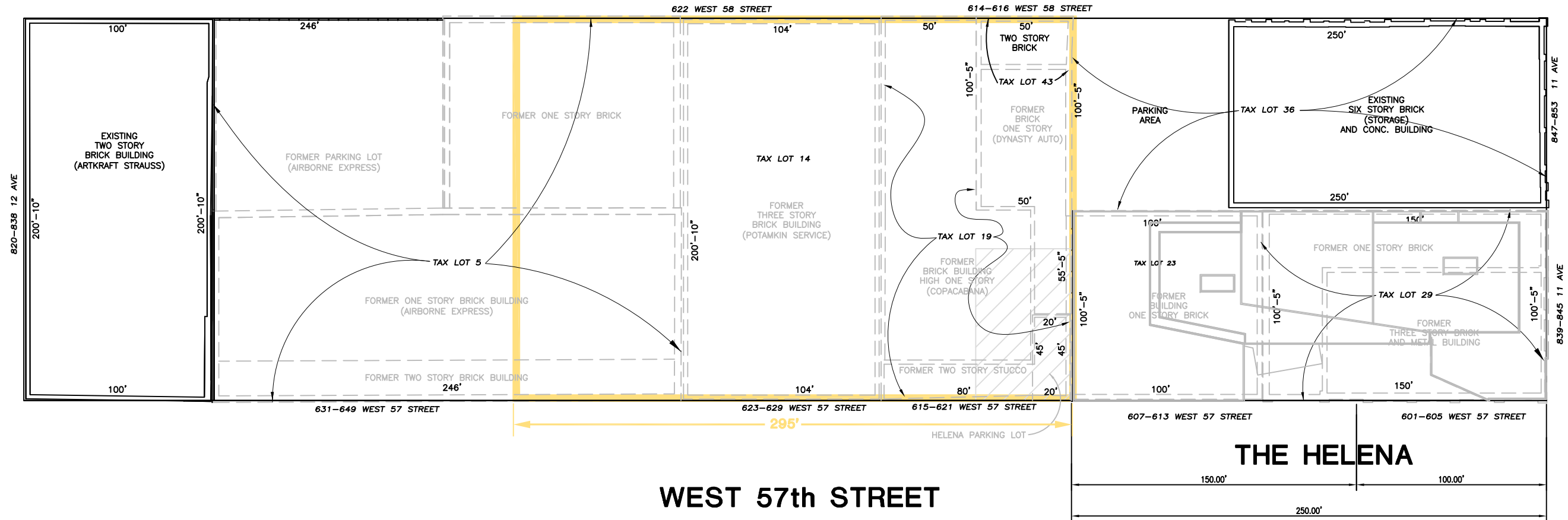
BLOCK 1105

LEGEND

— LIMITS OF PROPOSED MID BLOCK #57 PROJECT



Title:			
SITE PLAN			
REMEDIAL ACTION WORK PLAN MID BLOCK #57 PROJECT			
Prepared For:			
DURST DEVELOPMENT L.L.C.			
REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	FIGURE 2
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Office: NY	
	File No: DUR0313602		



N:\PROJECTS\DU01338\DU0313602.DWG



12th AVENUE

11th AVENUE

WEST 58th STREET

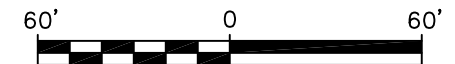
WEST 57th STREET

BLOCK 1105

LEGEND

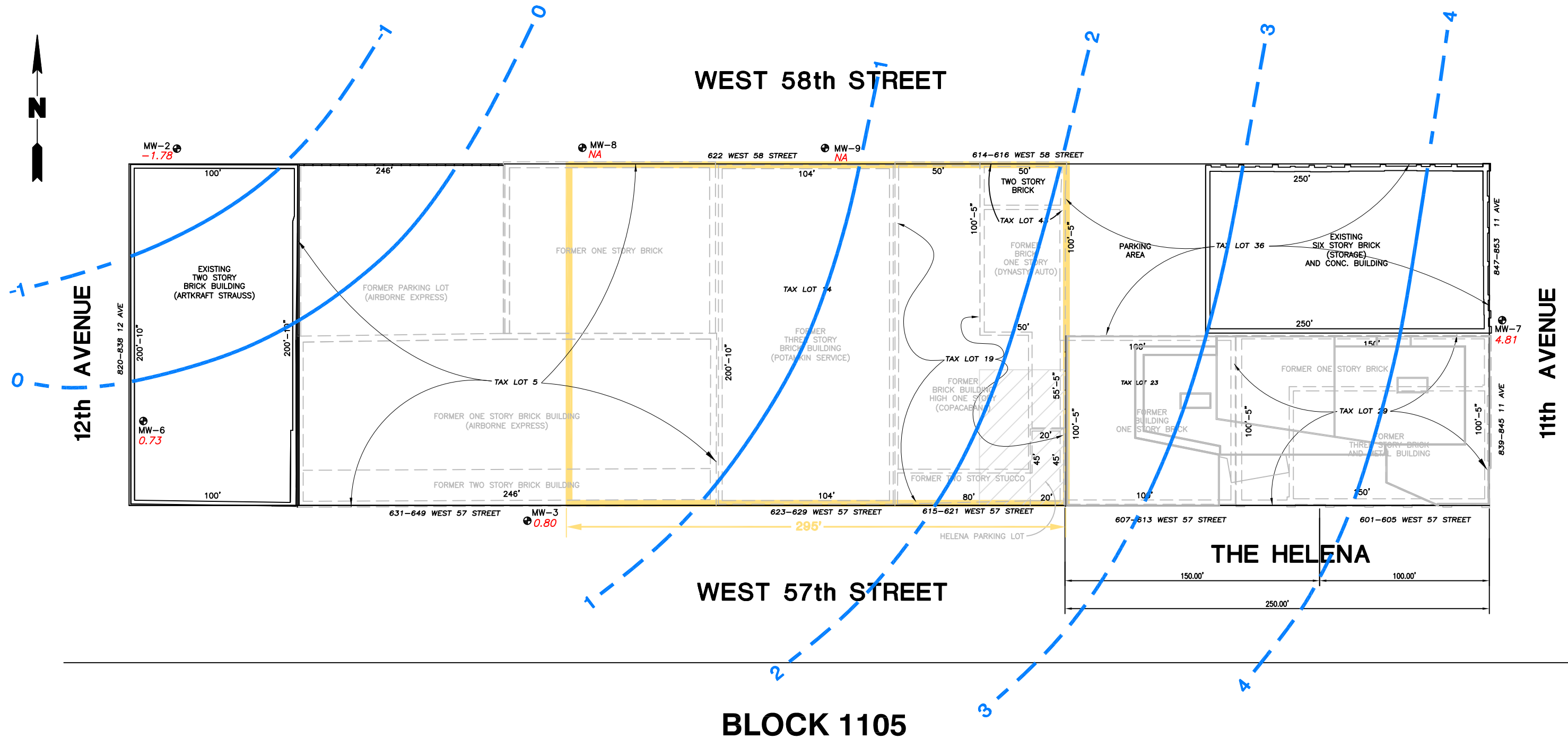
- LIMITS OF PROPOSED MID BLOCK #57 PROJECT
- ▨ TEST PIT LOCATION
- SB-10 ■ LOCATION AND DESIGNATION OF SOIL BORING (GROUNDWATER AND SOIL SAMPLE)
- SV-3 ▲ LOCATION AND DESIGNATION OF SOIL VAPOR SAMPLE
- AX-7 ● LOCATION AND DESIGNATION OF SOIL BORING (SOIL SAMPLE ONLY)

- SVE-1 ● LOCATION AND DESIGNATION OF FORMER SOIL VAPOR EXTRACTION WELL
- MW-3 ● LOCATION AND DESIGNATION OF EXISTING MONITORING WELL
- MW-5A ● LOCATION AND DESIGNATION OF FORMER MONITORING WELL



Title: SOIL, GROUNDWATER AND SOIL VAPOR SAMPLING LOCATIONS AUGUST 2007 - MARCH 2008 REMEDIAL ACTION WORK PLAN MID BLOCK #57 PROJECT			
Prepared For: DURST DEVELOPMENT L.L.C.			
REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	FIGURE 3
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Office: NY	
File No: DUR0313602		Project: 133803Y	

N:\PROJECTS\DU\1338\DU03\136\DU0313602.DWG

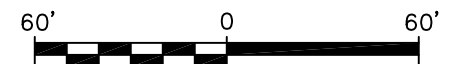


LEGEND

- LIMITS OF PROPOSED MID BLOCK #57 PROJECT
- LOCATION AND DESIGNATION OF EXISTING MONITORING WELL
- WATER-LEVEL ELEVATION (FEET RELATIVE TO MANHATTAN DATUM)
- LINE OF EQUAL WATER-LEVEL ELEVATION. DASHED WHERE INFERRED. (FEET RELATIVE TO MANHATTAN DATUM)
- ESTIMATED DIRECTION OF GROUNDWATER FLOW

NOTE

MANHATTAN DATUM IS 2.75 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.



Title: GROUNDWATER ELEVATION CONTOUR MAP FEBRUARY 2009			
REMEDIAL ACTION WORK PLAN MID BLOCK #57 PROJECT			
Prepared For: DURST DEVELOPMENT L.L.C.			
REMEDIAL ENGINEERING, P.C. <i>ENVIRONMENTAL ENGINEERS</i>	Compiled by: J.L.	Date: 29JUL09	FIGURE 4
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Office: NY	
	File No: DUR0313602		

N:\PROJECTS\DU\1338\DU\03\136\DU0313602.DWG



SV-7	10/31/2007
Analyte	
1,2,4-Trimethylbenzene	1410
1,3,5-Trimethylbenzene	1040
4-Ethyltoluene	470 J
Cyclohexane	16500
Ethylbenzene	491
Heptane	30300
Hexane	13900
Isooctane	49000
Toluene	388
Xylenes (total)	4860

SVE-6	8/17/2007
Analyte	
1,2,4-Trimethylbenzene	11
Acetone	16
Dichlorodifluoromethane	14
Heptane	6.1 J
Hexane	16
Isooctane	486
t-Butyl Alcohol	5.2
Tetrachloroethene	75.9
Toluene	6.4
Trichlorofluoromethane	65.2
Xylenes (total)	15

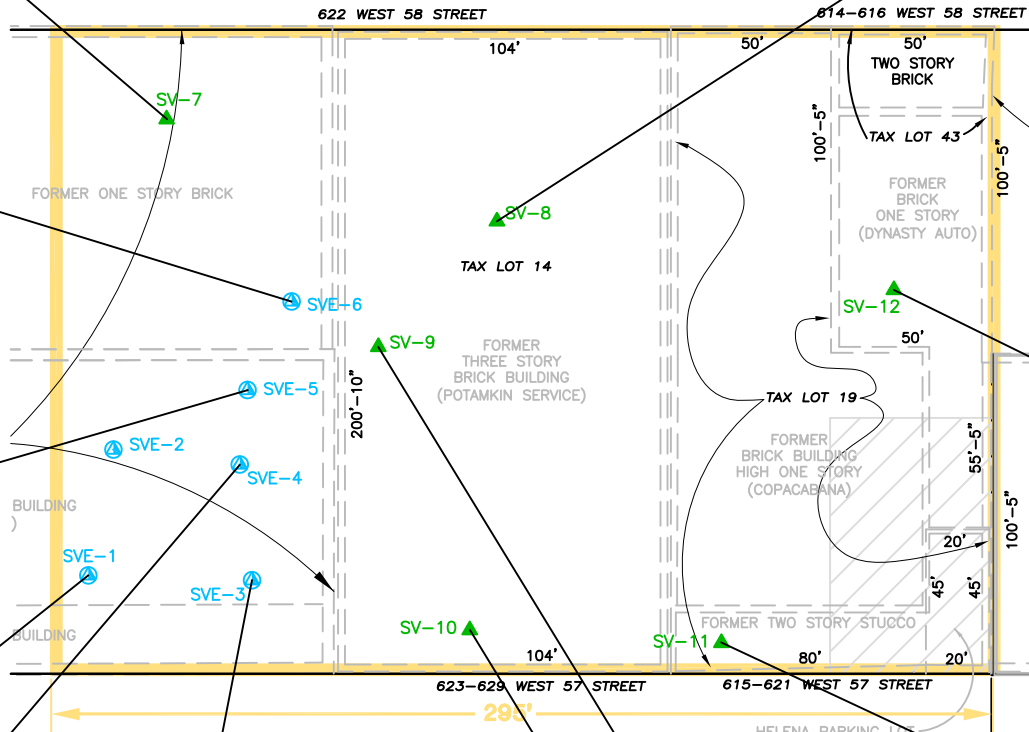
SVE-5	8/17/2007
Analyte	
1,2,4-Trimethylbenzene	9.3
Acetone	7.4
Isooctane	345
t-Butyl Alcohol	4.5 J
Tetrachloroethene	18
Toluene	3.8 J
Xylenes (total)	6.9

SVE-1	8/17/2007
Analyte	
Hexane	1730
Isooctane	96200

SVE-4	8/17/2007
Analyte	
1,2,4-Trimethylbenzene	7.9
Acetone	7.4
Dichlorodifluoromethane	7.4 J
Isooctane	137
Tetrachloroethene	20
Xylenes (total)	6.5 J

SVE-3	8/17/2007
Analyte	
Isooctane	110000
Tetrachloroethene	240

WEST 58th STREET



WEST 57th STREET

SV-10	10/31/2007
Analyte	
1,2,4-Trimethylbenzene	37600
1,3,5-Trimethylbenzene	17600
4-Ethyltoluene	8950
Benzene	690
Cyclohexane	2230
Ethylbenzene	6690
Heptane	9470
Hexane	8420
Isooctane	36400
Toluene	1560
Xylenes (total)	21400

SV-9	10/31/2007
Analyte	
Cyclohexane	4440
Heptane	6640
Hexane	18600
Isooctane	130000

SV-8	10/31/2007
Analyte	
1,2,4-Trimethylbenzene	22700
1,3,5-Trimethylbenzene	16400
4-Ethyltoluene	6150
Acetone	278 J
Benzene	831
Cyclohexane	774
Ethylbenzene	3980
Heptane	13000
Hexane	3270
Isooctane	39800
Propylene	325 J
Toluene	3000
Xylenes (total)	19400

SV-12	10/31/2007
Analyte	
1,1,1-Trichloroethane	7.6 J
1,2,4-Trimethylbenzene	46
1,3,5-Trimethylbenzene	70.8
4-Ethyltoluene	12
Dichlorodifluoromethane	32
Isooctane	34
Tetrachloroethene	197
Toluene	3.2 J
Trichloroethene	6.4 J
Trichlorofluoromethane	159
Xylenes (total)	12

SV-11	10/31/2007
Analyte	
2-Propanol	55.6
Cyclohexane	209
Dichlorodifluoromethane	658
Ethanol	269
Heptane	54.5
Hexane	176
Isooctane	4720
Methylene chloride	893
Tetrachloroethene	170
Toluene	49.7
Trichlorofluoromethane	674
Xylenes (total)	35 J

LEGEND

— LIMITS OF PROPOSED MID BLOCK #57 PROJECT

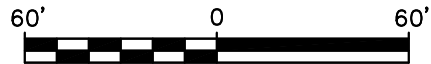
④ SVE-1 LOCATION AND DESIGNATION OF FORMER SOIL VAPOR EXTRACTION WELL

▲ SV-3 LOCATION AND DESIGNATION OF SOIL VAPOR SAMPLE

TYPICAL DATABOX CONFIGURATION

SAMPLE ID	SVE-3	8/17/2007	SAMPLE DATE
ANALYTES	Analyte		
	Isooctane	110000	
	Tetrachloroethene	240	CONCENTRATION

Concentrations in µg/m3
µg/m3 - Micrograms per cubic meter
J - Estimated value
VOCs - Volatile Organic Compounds



Title:

SUMMARY OF VOCs DETECTED IN SOIL VAPOR

REMEDIAL ACTION WORK PLAN
MID BLOCK #57 PROJECT

Prepared For:

DURST DEVELOPMENT L.L.C.

REMEDIATION ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

Compiled by: J.L.
Prepared by: G.M.
Project Mgr: J.L.
File No: DUR0313602

Date: 29JUL09
Scale: AS SHOWN
Office: NY
Project: 133803Y

FIGURE

5

N:\PROJECTS\DU\1338\DURO3\136\DURO313602.DWG



12th AVENUE

11th AVENUE

Parameter (Concentrations in µg/L)	Standards* (µg/L)
Acenaphthene	20
Benzo(a)pyrene	ND
Chrysene	0.002
Fluorene	50
Naphthalene	10
Phenanthrene	50
Phenol	1

µg/L - Micrograms per liter
* - NYSDEC AWQSGVs
NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
J - Estimated Value
- - Not detected above NYSDEC AWQSGV
DUP - Duplicate
SVOCs - SEMI-Volatile Organic Compounds
NE - No exceedances

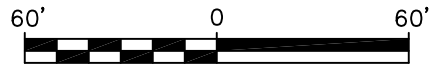
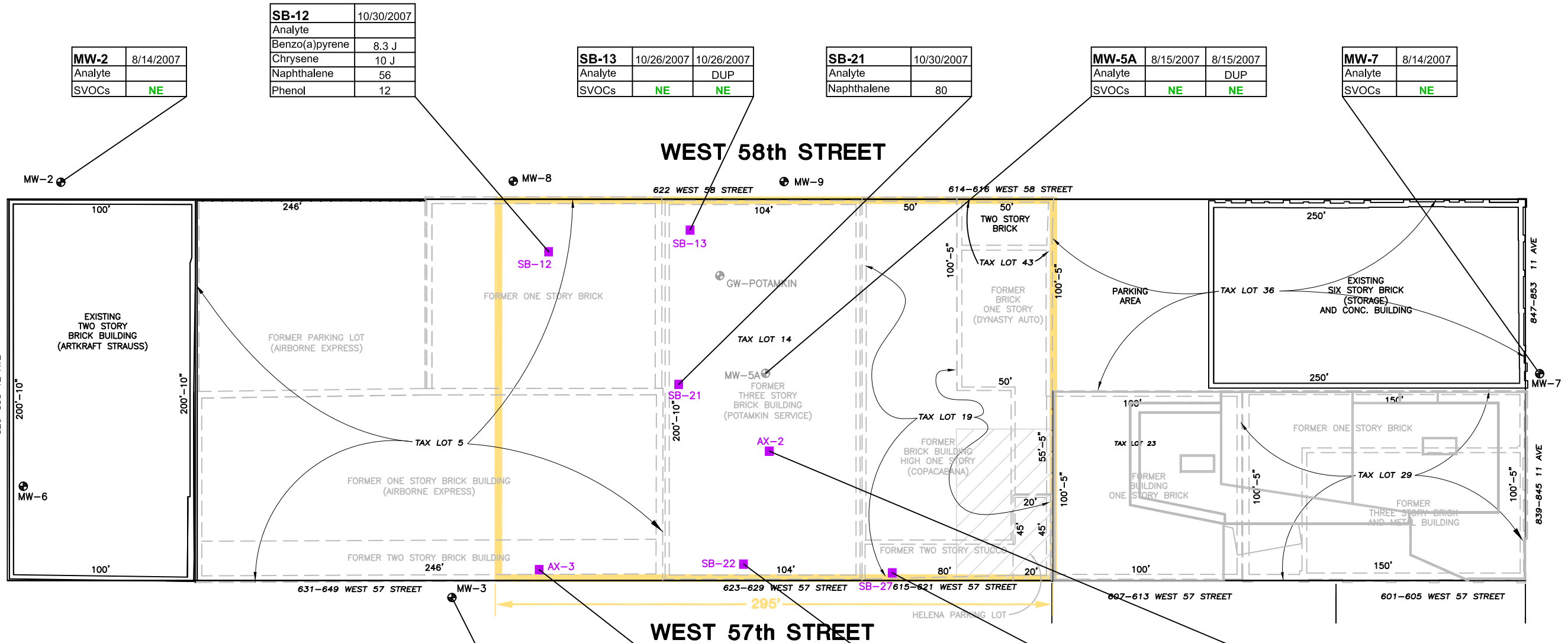
Concentrations in µg/L

LEGEND

- LIMITS OF PROPOSED MID BLOCK #57 PROJECT
- LOCATION AND DESIGNATION OF SOIL BORING (GROUNDWATER AND SOIL SAMPLE)
- LOCATION AND DESIGNATION OF EXISTING MONITORING WELL
- LOCATION AND DESIGNATION OF FORMER MONITORING WELL

TYPICAL DATABASE CONFIGURATION

SAMPLE ID	SB-13	10/26/2007	10/26/2007	SAMPLE DATE
	Analyte		DUP	
ANALYTES	1,2,4-Trimethylbenzene	--	--	CONCENTRATION
	1,3,5-Trimethylbenzene	--	--	
	Benzene	20	18	
	Ethylbenzene	12	10	
	Methylene chloride	5.1 B	--	
	n-Butylbenzene	5.8	5.6	
	n-Propylbenzene	53	42	



Title: SUMMARY OF SVOCs DETECTED IN GROUNDWATER IN EXCESS OF AWQSGVs			
REMEDIAL ACTION WORK PLAN MID BLOCK #57 PROJECT			
Prepared For: DURST DEVELOPMENT L.L.C.			
REMEDIAL ENGINEERING, P.C. <i>ENVIRONMENTAL ENGINEERS</i>	Compiled by: J.L.	Date: 29JUL09	FIGURE 7
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Office: NY	
	File No: DUR0313602	Project: 133803Y	

N:\PROJECTS\DU\1338\DU\03\136\DU\0313602.DWG

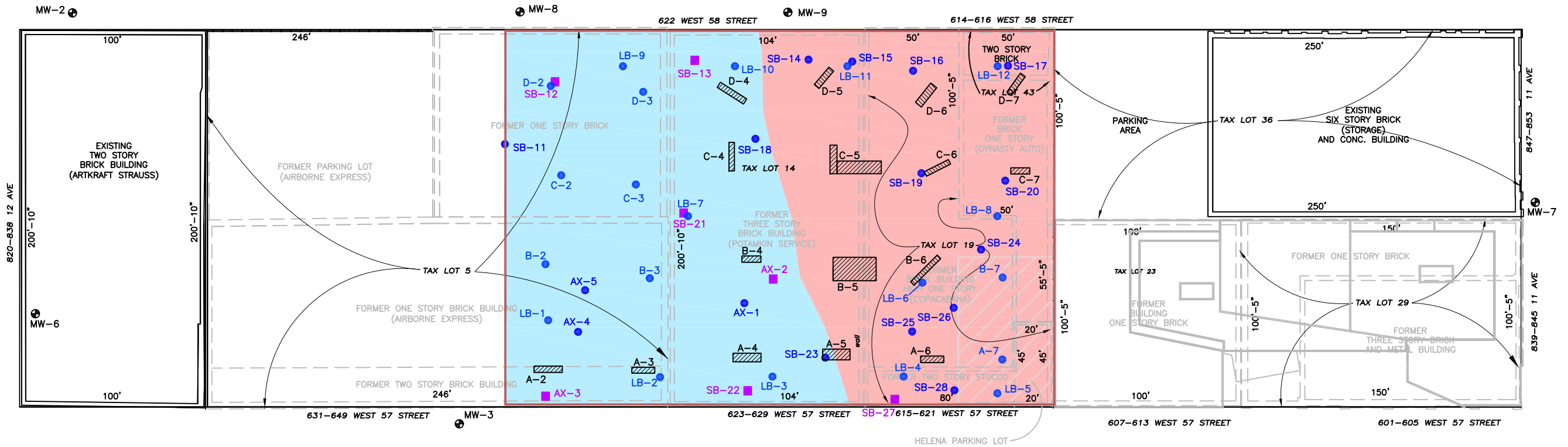


12th AVENUE

11th AVENUE

WEST 58th STREET

WEST 57th STREET



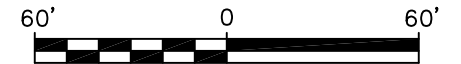
LEGEND

- LIMITS OF MID BLOCK #57 PROJECT
- EXCAVATION TO 25 FEET BELOW LAND SURFACE
- EXCAVATION TO BEDROCK
- TEST PIT LOCATION

- SB-10 LOCATION AND DESIGNATION OF SOIL BORING GROUNDWATER AND SOIL SAMPLE)
- AX-7 LOCATION AND DESIGNATION OF SOIL BORING (SOIL SAMPLE ONLY)
- MW-3 LOCATION AND DESIGNATION OF EXISTING MONITORING WELL

NOTE

- REMEDIAL ALTERNATIVE 1 INCLUDES EXCAVATION AND OFFSITE DISPOSAL OF ALL ON-SITE SOILS FROM LAND SURFACE TO 25 FEET BELOW LAND SURFACE OR BEDROCK AND END-POINT SOIL SAMPLING TO MEET TRACK 1-UNRESTRICTED SOIL CLEANUP OBJECTIVES (SCOs).
- ADDITIONAL DEEPER EXCAVATION OF BEDROCK AND SOIL MAY BE NECESSARY FOR FOUNDATION CONSTRUCTION.



Title: REMEDIAL ALTERNATIVE 1 TRACK 1 - UNRESTRICTED REMEDIAL ACTION WORK PLAN MID BLOCK #57 PROJECT			
Prepared For: DURST DEVELOPMENT L.L.C.			
REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	FIGURE 9
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Office: NY	
File No: DUR0313602		Project: 133803Y	

N:\PROJECTS\DU\1338\DURO3\136\DURO313602.DWG



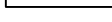
12th AVENUE

11th AVENUE

WEST 58th STREET

WEST 57th STREET

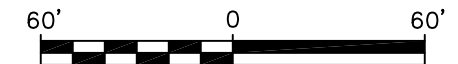
LEGEND

-  LIMITS OF MID BLOCK #57 PROJECT
-  EXCAVATION TO 15 FEET BELOW LAND SURFACE WITH DEEPER HOT SPOT EXCAVATIONS TO REMOVE POTENTIAL SOURCES TO GROUNDWATER
-  EXCAVATION TO 15 FEET BELOW LAND SURFACE OR BEDROCK
-  HOT SPOT EXCAVATION TO REMOVE POTENTIAL SOURCES OF GROUNDWATER
-  PROPOSED EXCAVATION DEPTH (FEET BELOW LAND SURFACE)
-  HOT SPOT ID NUMBER
-  TEST PIT LOCATION
-  HEAVILY IMPACTED TEST PIT LOCATION
-  LOCATION AND DESIGNATION OF SOIL BORING GROUNDWATER AND SOIL SAMPLE)
-  LOCATION AND DESIGNATION OF SOIL BORING (SOIL SAMPLE ONLY)
-  LOCATION AND DESIGNATION OF EXISTING MONITORING WELL

NOTE

- REMEDIAL ALTERNATIVE 2 INCLUDES EXCAVATION AND OFFSITE DISPOSAL OF ALL ON-SITE SOILS FROM LAND SURFACE TO 15 FEET BELOW LAND SURFACE AND HOT SPOT EXCAVATION DEEPER THAN 15 FEET TO REMOVE POTENTIAL SOURCES TO GROUNDWATER.
- ADDITIONAL DEEPER EXCAVATION OF BEDROCK AND SOIL MAY BE NECESSARY FOR FOUNDATION CONSTRUCTION.
- END POINT SOIL SAMPLING WILL BE CONDUCTED TO MEET PART 375 RESTRICTED RESIDENTIAL AND PROTECTION OF GROUNDWATER CRITERIA FOR HOT SPOTS.
- ENGINEERING AND INSTITUTIONAL CONTROLS ARE REQUIRED AS NOTED IN REMEDIAL ACTION WORK PLAN.

HOT SPOT ID #	HOT SPOT SAMPLE ID	SUMMARY TABLE EXCAVATION DEPTH (FT BLS)
1	D-3D	20
2	SB-18R	20
3	C-3D	20
4	LB-7R	19.5
5	AX-2R	20.5
6	A-2R	20.5
7	AX-4	20
8	A-4D	20
9	A-3	17
10	LB-3	17
11	B-3	19
12	B-4	19
13	AX-1	17.5
14	D-4	19
15	SB-13	18

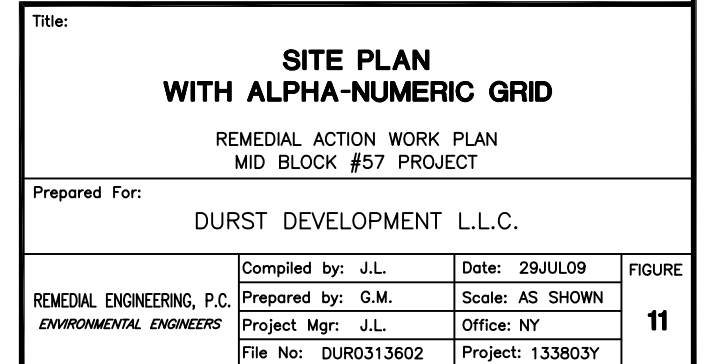


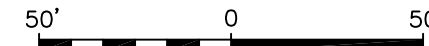
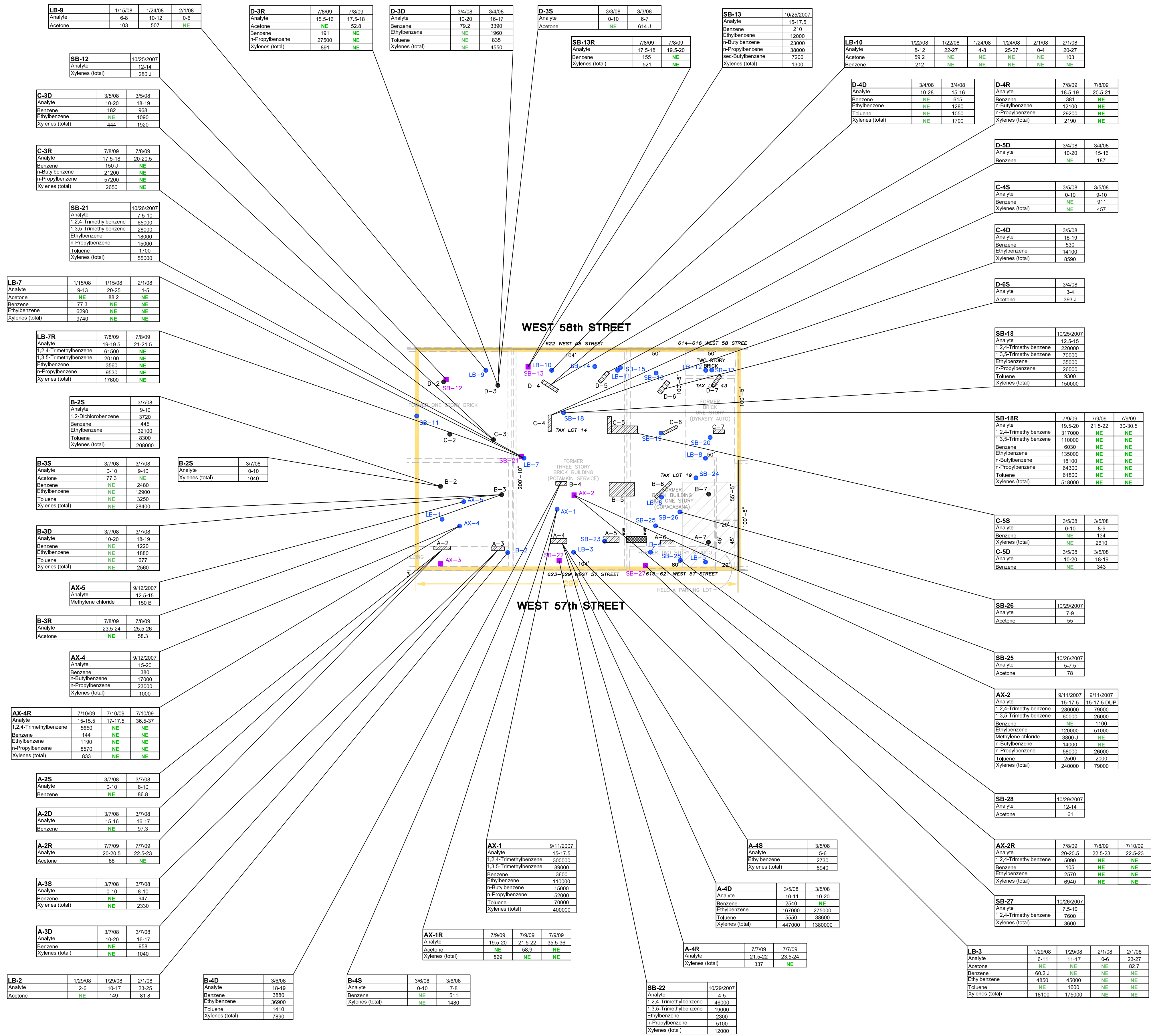
Title:			
REMEDIAL ALTERNATIVE 2 TRACK 2 - RESTRICTED RESIDENTIAL REMEDIAL ACTION WORK PLAN MID BLOCK #57 PROJECT			
Prepared For:			
DURST DEVELOPMENT L.L.C.			
REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	FIGURE 10
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Office: NY	
	File No: DUR0313602	Project: 133803Y	



— ALPHA-NUMERIC GRID LINE

ALPHA-NUMERIC GRID CELLS ARE SPACED EVERY 50 FEET.





Title: SUMMARY OF VOCs DETECTED IN SOIL IN EXCESS OF PART 375 UNRESTRICTED SCOs			
REMEDIAL ACTION WORK PLAN MID BLOCK #57 PROJECT			
Prepared For: DURST DEVELOPMENT L.L.C.			
REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	PLATE
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Project: 133803Y	
	File: DUR0313603		



LEGEND

- LIMITS OF PROPOSED MID BLOCK #57 PROJECT
- TEST PIT LOCATION
- HEAVILY IMPACTED TEST PIT LOCATION
- LOCATION AND DESIGNATION OF SOIL BORING GROUNDWATER AND SOIL SAMPLE)
- LOCATION AND DESIGNATION OF SOIL BORING (SOIL SAMPLE ONLY)

TYPICAL DATABOX CONFIGURATION

SAMPLE ID	SB-20	10/26/2007	10/26/2007	10/26/2007	10/26/2007	SAMPLE DATE
ANALYTES	Benzo(a)anthracene	3400	3400	3400	3400	SAMPLE TYPE
	Benzo(a)pyrene	2800	2800	2800	2800	CONCENTRATION
	Benzo(b)fluoranthene	4000	4000	4000	4000	SAMPLE DEPTH (FT)
	Chrysene	1400	1400	1400	1400	
	Dibenz(a,h)anthracene	500 J	500 J	500 J	500 J	
	Indeno(1,2,3-cd)pyrene	1700	1700	1700	1700	

Parameter	Standards*
Benzo(a)anthracene	1000
Benzo(a)pyrene	1000
Benzo(b)fluoranthene	1000
Chrysene	800
Dibenz(a,h)anthracene	330
Indeno(1,2,3-cd)pyrene	500
Naphthalene	12000

CONCENTRATIONS IN ug/kg

µg/kg - MICROGRAMS PER KILOGRAM

* - 6 NYCRR PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES

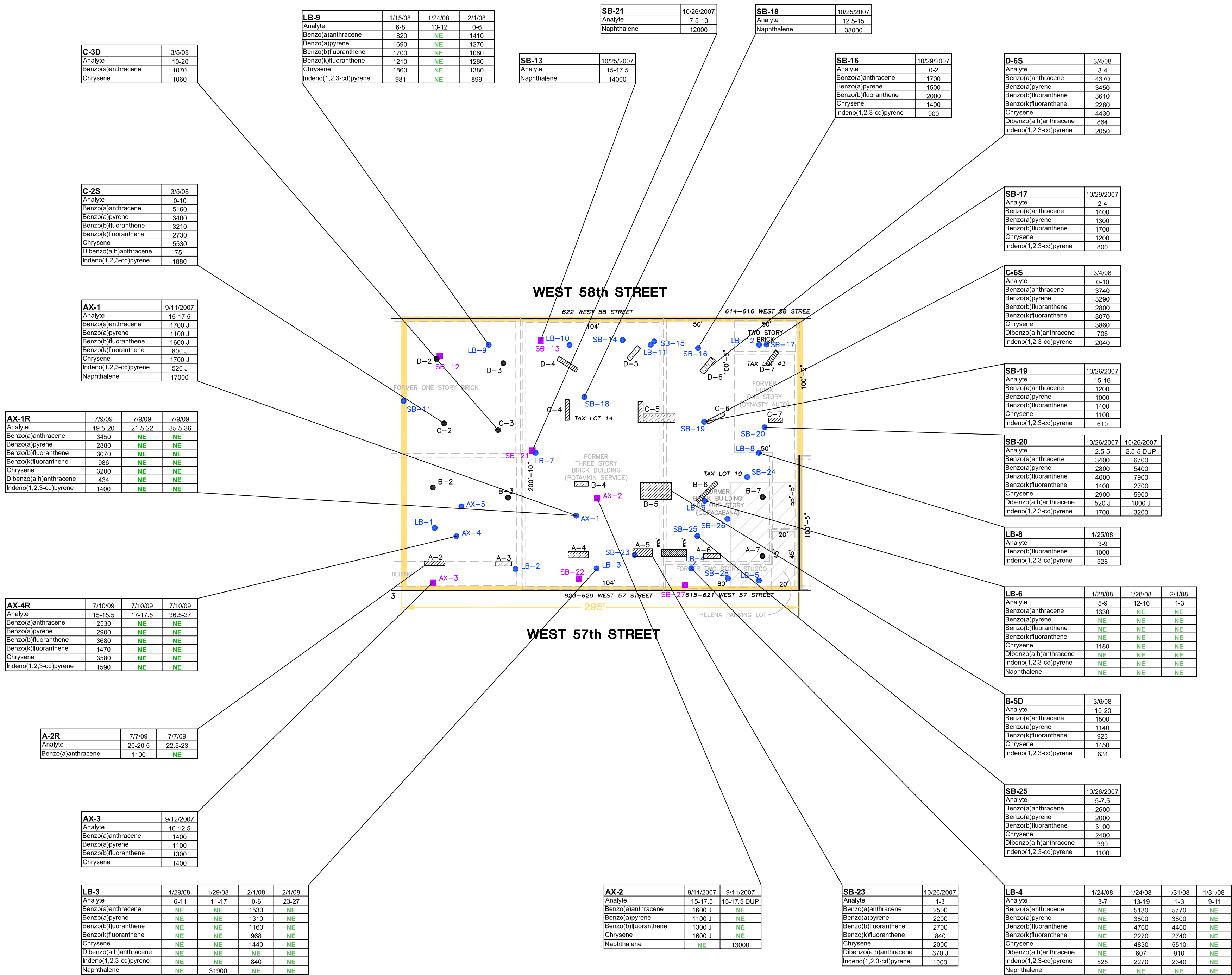
DUP - DUPLICATE

J - ESTIMATED VALUE

NE - NO EXCEEDANCES

SVOCs - SEMI-VOLATILE ORGANIC COMPOUNDS

SCOs - SOIL CLEANUP OBJECTIVES



50' 0 50'

SUMMARY OF SVOCs DETECTED IN SOIL IN EXCESS OF PART 375 UNRESTRICTED SCOs

REMEDIAL ACTION WORK PLAN
MID BLOCK #57 PROJECT

Prepared For: DURST DEVELOPMENT L.L.C.

REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	PLATE
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Project: 133803Y	
	File: DURS0313603		





LEGEND

- LIMITS OF PROPOSED MID BLOCK #57 PROJECT
- TEST PIT LOCATION
- HEAVILY IMPACTED TEST PIT LOCATION
- LOCATION AND DESIGNATION OF SOIL BORING GROUNDWATER AND SOIL SAMPLE)
- LOCATION AND DESIGNATION OF SOIL BORING (SOIL SAMPLE ONLY)

TYPICAL DATABOX CONFIGURATION

SAMPLE ID	SB-20	10/26/2007	10/26/2007	SAMPLE DATE
ANALYTES	ANALYTE	2-5	2-5-DUP	SAMPLE TYPE
	Benzo(a)anthracene	3400	6700	CONCENTRATION
	Benzo(a)pyrene	2800	5400	SAMPLE DEPTH (FT)
	Benzo(b)fluoranthene	4000	7800	
	Chrysene	NE	5900	
	Indeno(1,2,3-cd)pyrene	1700	3200	

Parameter	Standards* (ug/kg)
Benzo(a)anthracene	1000
Benzo(a)pyrene	1000
Benzo(b)fluoranthene	1000
Chrysene	3900
Indeno(1,2,3-cd)pyrene	500

CONCENTRATIONS IN ug/kg

µg/kg - MICROGRAMS PER KILOGRAM

* - 6 NYCRR PART 375 RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVES

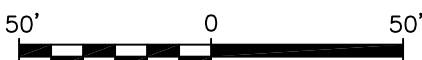
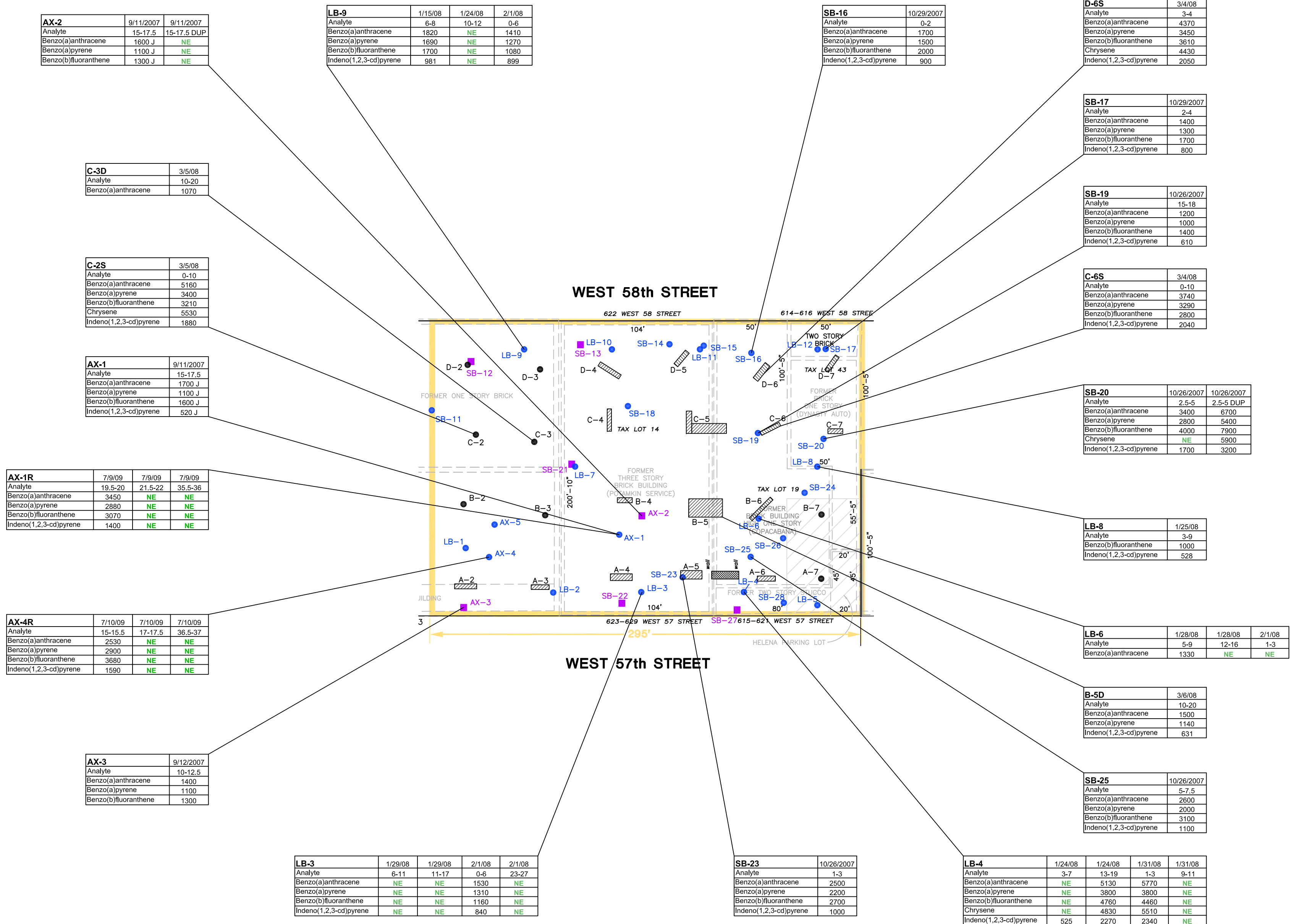
DUP - DUPLICATE

J - ESTIMATED VALUE

NE - NO EXCEEDANCES

SVOCs - SEMI-VOLATILE ORGANIC COMPOUNDS

SCOs - SOIL CLEANUP OBJECTIVES

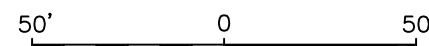
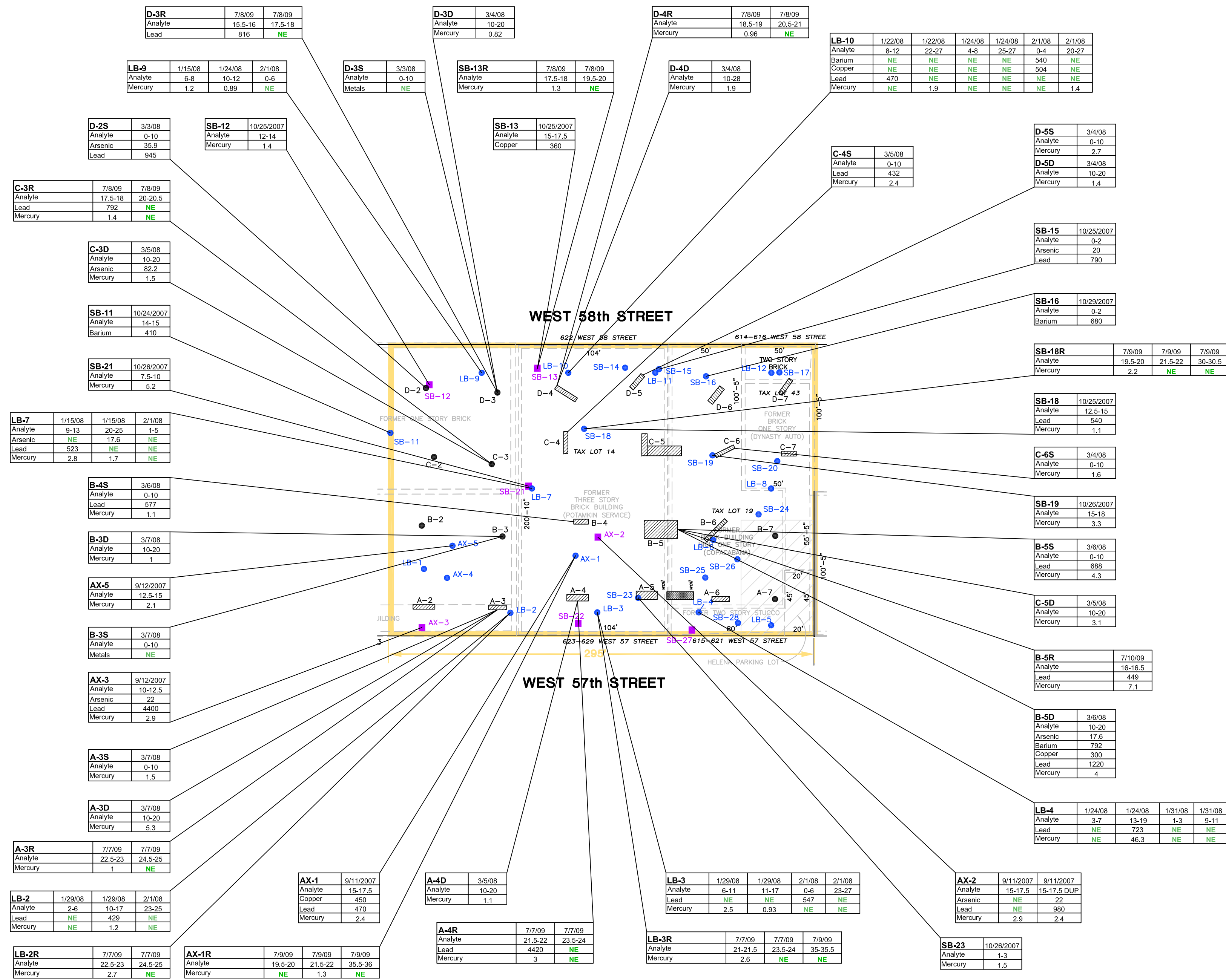


Title: **SUMMARY OF SVOCs DETECTED IN SOIL IN EXCESS OF PART 375 RESTRICTED RESIDENTIAL SCOs**

REMEDIAL ACTION WORK PLAN
MID BLOCK #57 PROJECT

Prepared For: **DURST DEVELOPMENT L.L.C.**

REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	PLATE
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Project: 133803Y	
	File: DURO313603		



**SUMMARY OF METALS DETECTED
IN SOIL IN EXCESS OF PART 375
RESTRICTED RESIDENTIAL SCOs**

REMEDIAL ACTION WORK PLAN
MID BLOCK #57 PROJECT

Prepared For: DURST DEVELOPMENT L.L.C.

REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS	Compiled by: J.L.	Date: 29JUL09	PLATE
	Prepared by: G.M.	Scale: AS SHOWN	
	Project Mgr: J.L.	Project: 133803Y	
	File: DURO313603		