

2921 Westchester Avenue Remedial Action Work Plan

2921 Westchester Avenue, Bronx, New York
Block 4164, Portion of Lot 5
BCP Site #C203140

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 2
Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101

Prepared for:
Ralford Realty Corp.
c/o Anthony Scovotti
8 West 40th Street
New York, NY 10018

Prepared by:
Matthew M. Carroll, P.E.
&



121 West 27th Street, Suite 702
New York, NY 10001

January 2025

CERTIFICATIONS

I, Matthew M. Carroll, certify that I am currently a registered professional engineer licensed by the State of New York and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).



091629
NYS Professional Engineer #

1/10/2025
Date

Matthew M. Carroll, P.E.
Signature

It is a violation of Article 145 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 145, New York State Education Law.

TABLE OF CONTENTS

CERTIFICATIONS	1
TABLE OF CONTENTS	2
LIST OF ACRONYMS	6
EXECUTIVE SUMMARY	10
1.0 INTRODUCTION	16
1.1 Site Location and Description	16
1.2 Proposed Site Plan	17
1.3 Description of Surrounding Property	17
2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS	18
2.1 Site History	18
2.2 Site Geology / Hydrogeology	18
2.3 Summary of Remedial Investigation	19
2.4 Significant Threat	26
3.0 CONTAMINATION CONDITIONS	27
3.1 Conceptual Model of Site Contamination	27
3.2 Description of Areas of Concern	28
3.3 Identification of Standards, Criteria and Guidance	29
3.4 Soil/Fill Contamination	29
3.4.1 Summary of Soil/Fill Data	29
3.4.2 Comparison of Soil/Fill with SCGs	29
3.5 On- and Offsite Groundwater Contamination	30
3.5.1 Summary of Groundwater Data	30
3.5.2 Comparison of Groundwater with SCGs	30
3.6 On- and Offsite Soil Vapor/Indoor Air Contamination	30
3.6.1 Summary of Soil Vapor/Indoor Air Data	30
3.6.2 Comparison of Soil Vapor/Indoor Air with SCGs	31
4.0 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS	32
4.1 Qualitative Human Health Exposure Assessment	32
4.2 Remedial Action Objectives	33
4.2.1 Soil	33
4.2.2 Groundwater	34
4.2.3 Soil Vapor	34
5.0 DESCRIPTION OF REMEDIAL ACTION WORK PLAN	36
5.1 Evaluation of Remedial Alternatives	36
5.1.1 Soil	36
5.1.2 Soil Vapor	37
5.1.3 Groundwater	38
5.2 Standards, Criteria and Guidance (SCGs)	39
5.3 Evaluation of Alternatives	40
5.3.1 Protection of Human Health and the Environment	40
5.3.2 Conformance with Standards, Criteria and Guidelines	40
5.3.3 Short-Term Effectiveness and Performance	41
5.3.4 Long-Term Effectiveness and Performance	41
5.3.5 Reduction in Toxicity, Mobility or Volume	41
5.3.6 Implementability	41

5.3.7	Cost Effectiveness	41
5.3.8	Green and Sustainable Remediation	42
5.3.9	Community Acceptance.....	42
5.3.10	Land Use	42
5.4	Selection of the Preferred Remedial Actions	43
6.0	REMEDIAL ACTION PROGRAM.....	47
6.1	Governing Documents	47
6.1.1	Site Specific Health and Safety Plan	47
6.1.2	Quality Assurance Project Plan	47
6.1.3	Soil/Materials Management Plan.....	47
6.1.4	Community Air Monitoring Plan.....	47
6.1.5	Citizen Participation Plan	47
6.2	General Remedial Construction Information	48
6.2.1	Project Organization and Emergency Contacts	48
6.2.2	Remedial Engineer.....	49
6.2.3	Remedial Action Construction Schedule.....	49
6.2.4	Work Hours	49
6.2.5	Mobilization	49
6.2.6	Erosion and Sedimentation Controls.....	49
6.2.7	Stabilized Construction Entrances.....	50
6.2.8	Equipment and Material Staging.....	50
6.2.9	Decontamination Area.....	50
6.2.10	Demobilization	50
6.2.11	Sheeting and Shoring	50
6.2.12	Utility Markout and Easement Layout.....	50
6.2.13	Required Permits.....	51
6.2.14	Site Security and Signage.....	51
6.2.15	Pre-Construction Meeting with NYSDEC	51
6.2.16	Estimated Remedial Action Costs.....	51
6.2.17	Deviations from the Remedial Action Plan.....	51
6.3	Reporting	51
6.3.1	Daily Reporting	51
6.3.2	Monthly Reporting.....	52
6.3.3	Other Reporting	52
6.3.4	Complaint Management.....	53
7.0	REMEDIAL ACTION IMPLEMENTATION: EXCAVATION	54
7.1	Estimated Material Removal Quantities.....	54
7.2	Soil Characterization	54
7.3	Soil/Materials Management Plan (SMMP).....	55
7.4	Community Air Monitoring Plan (CAMP).....	55
7.5	Materials Transport Off-Site	55
7.6	Dewatering and Fluids Management	56
7.7	UST Removal.....	56
7.8	Monitoring Well Decommissioning	56
7.9	Remedial Performance Evaluation.....	56
7.9.1	Quality Assurance / Quality Control (QA/QC)	57
7.9.2	Data Usability Summary Report (DUSR)	57
7.9.3	Reporting of End-Point Data in FER.....	57

7.10	Import of Materials.....	57
8.0	REMEDIAL ACTION IMPLEMENTATION: IN-SITU CHEMICAL TREATMENT	
	58	
8.1	Pilot Test	58
8.2	ISCO Implementation.....	58
8.3	Remedial Performance Evaluation (Post-Remedial Groundwater Sampling)	59
8.3.1	Quality Assurance / Quality Control (QA/QC)	59
8.3.2	Data Usability Summary Report (DUSR)	59
8.3.3	Reporting of End-Point Data in FER.....	59
9.0	REMEDIAL ACTION IMPLEMENTATION: ACTIVE SUB-SLAB- DEPRESSURIZATION SYSTEM, VAPOR SEALANT, AND WATERPROOFING MEMBRANE/VAPOR BARRIER.....	61
9.1	Vapor Sealant and Waterproofing Membrane/Vapor Barrier Selection	61
9.2	Communication Test.....	61
9.3	Active Sub-Slab Depressurization System	62
9.4	Materials Transport Off-Site	64
9.5	Remedial Performance Evaluation (Soil Vapor Intrusion Evaluation).....	64
9.5.1	Quality Assurance / Quality Control (QA/QC)	64
9.5.2	Data Usability Summary Report (DUSR)	64
9.5.3	Reporting of End-Point Data in FER.....	64
10.0	REMAINING CONTAMINATION TO REMAIN ON-SITE	65
11.0	ENGINEERING CONTROLS.....	66
11.1	Engineering Control Systems – On-Site.....	66
11.1.1	Description of On-Site Engineering Controls	66
11.1.2	Criteria for Termination of Remedial Systems	67
11.1.2.2	<i>Sub-Slab Depressurization System</i>	67
11.2	Engineering Control Systems – Off-Site	68
11.2.1	Description of Off-Site Engineering Controls	68
12.0	INSTITUTIONAL CONTROLS	69
12.1	Environmental Easement	69
12.2	Site Management Plan	71
13.0	FINAL ENGINEERING REPORT	73
13.1	Certifications	74
14.0	SCHEDULE	76

LIST OF FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Layout Map
Figure 3a – Groundwater Flow Map (February 2021)
Figure 3b – Groundwater Flow Map (March 2021)
Figure 4 – PCE Impacts Above Protection of Groundwater Standards in Soil – Cross-Sections
Figure 5 – PCE in Soil Isopleth
Figure 6 – PCE in Groundwater Isopleth
Figure 7 – Extent of Hotspot Excavation (Alternative 1)
Figure 8 – Proposed Post-Remedial End-Point Sample Locations (Alternative 1)
Figure 9 – Extent of Hotspot Excavation (Alternative 2)
Figure 10 – Proposed Post-Remedial End-Point Sample Locations (Alternative 2)
Figure 11 – Composite Cover System Locations
Figure 12 – Vapor Sealant/Vapor Barrier System Locations
Figure 13 – Conceptual ISCO Injection Well Network
Figure 14 – Proposed Post-Remedial Groundwater Sampling Locations
Figure 15 – Areas of Sub-Slab Depressurization

LIST OF TABLES

Table 1a – Volatile Organic Compounds in Soil
Table 1b – Semivolatile Organic Compounds in Soil
Table 1c – Metals in Soil
Table 1d – Pesticides, Herbicides, and Polychlorinated Biphenyls in Soil
Table 1e – Emerging Contaminants in Soil
Table 2a – Volatile Organic Compounds in Groundwater
Table 2b – Semivolatile Organic Compounds in Groundwater
Table 2c – Total and Dissolved Metals in Groundwater
Table 2d – Pesticides, Herbicides, and Polychlorinated Biphenyls in Groundwater
Table 2e – Emerging Contaminants in Groundwater
Table 3a – Volatile Organic Compounds in Sub-Slab Soil Vapor and Indoor Air – March 2021
Table 3b – Volatile Organic Compounds in Sub-Slab Soil Vapor and Indoor Air – February 2022
Table 3c – Volatile Organic Compounds in Sub-Slab Soil Vapor and Indoor Air – February 2024
Table 4 – Volatile Organic Compounds in Exterior Soil Vapor
Table 5 – Unrestricted Use Soil Cleanup Objectives
Table 6 – Commercial Use Soil Cleanup Objectives
Table 7 – Protection of Groundwater Soil Cleanup Objectives
Table 8 – NYSDEC TOGS Class GA Standards
Table 9 – Estimated Remedial Construction Costs
Table 10 – Remedial Construction Schedule
Table 11 – Required Permits for Remedial Construction

LIST OF APPENDICES

Appendix A – Site-Specific Community Air Monitoring Plan
Appendix B – Construction Health and Safety Plan
Appendix C – Soils/Materials Management Plan
Appendix D – Quality Assurance Project Plan
Appendix E – Vapor Sealant Specification Sheet
Appendix F – In-Situ Chemical Oxidation Pilot Test Work Plan
Appendix G – Environmental Footprint Analyses and Climate Change Vulnerability Checklist

LIST OF ACRONYMS

AGV	NYSDOH Air Guidance Value
AOC	area of concern
AS	air sparging
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
ECL	Environmental Conservation Law
BTEX	benzene, toluene, ethylbenzene and xylenes
CAMP	Community Air Monitoring Program
C&D	construction and demolition
CDS	construction dewatering system
Class GA Standards	NYSDEC TOGS 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CPP	Citizen Participation Plan
COC	Certificate of Completion
DCE	dichloroethylene
DER-10	NYSDEC Division of Environmental Remediation (DER), DER-10 / Technical Guidance for Site Investigation and Remediation
DRO	diesel range organics
DOC	dissolved organic carbon
DUSR	Data Usability Summary Report
EC	engineering control
ESA	Environmental Site Assessment
EZ	exclusion zone
FB	field blanks
FER	Final Engineering Report
ft-bbg	feet below basement grade
ft-bs	feet below building slab
ft-bsg	feet below sidewalk grade
ft-msl	feet above mean sea level
GPM	Gallons per minute
HASP	Health and Safety Plan
HSA	Hollow Stem Auger
HSO	Health and Safety Officer
IC	institutional control
ISCO	<i>in-situ</i> chemical oxidation
IRM	Interim Remedial Measure
MW	monitoring well
NAVD	North American Vertical Datum of 1988
NGVD	National Geodetic Vertical Datum of 1929
NIOSH	National Institute for Occupational Safety and Health
NYCDEP	New York City Department of Environmental Protection

NYCDEP Limits	NYCDEP Limitations for Effluent to Sanitary or Combined Sewers
NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOH-ELAP	NYSDOH Environmental Laboratory Approval Program
O&M Plan	Operations and Maintenance Plan
OSHA	Occupational Safety and Health Association
PCB	polychlorinated biphenyl
PCE	perchloroethylene, aka tetrachloroethylene
PID	photoionization detector
PGWSCOs	6 NYCRR 375-6.8(b) and CP-51 Protection of Groundwater Soil Cleanup Objectives
PP Metals	Priority Pollutant Metals
PPE	personal protective equipment
QA/QC	quality assurance / quality control
QAPP	Quality Assurance Project Plan
RAWP	Remedial Action Plan
RCNY	Rules of the City of New York
RAO	Remedial Action Objective
RE	Remedial Engineer
RI	remedial investigation
RSCOs	Recommended Soil Cleanup Objectives
RUSCOs	6 NYCRR 375-6.8(b) and CP-51 Track 2 – Commercial Use Soil Cleanup Objectives
SB	soil boring
SCGs	Standards, Criteria and Guidance
SV	soil vapor
SMP	Site Management Plan
SMMP	Soil/Material Management Plan
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
TAL	Target Analyte List
TAGM 4046	NYSDEC Technical and Administrative Guidance Memorandum #4046
TB	trip blanks
TCE	trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCLP Limits	USEPA Maximum Concentrations of Contaminants for the Toxicity Characteristic
TOC	total organic carbon

USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
UUSCOs	6 NYCRR 375-6.8(a) Track 1 Unrestricted Use Soil Cleanup Objectives
VOC	volatile organic compound

EXECUTIVE SUMMARY

SITE DESCRIPTION/PHYSICAL SETTING/SITE HISTORY

On October 5, 2020, Ralford Realty Corp. (the “Participant”) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate the property located at 2921 Westchester Avenue in the Pelham Bay neighborhood of the Bronx, New York (the “Site”). The New York State Brownfield Cleanup Agreement Index Number is C203140-10-20 and the Site Number is C203140.

The Site is a portion of New York City Department of Finance Block 4164, Lot 5. Lot 5 is improved with one two-story commercial building with a partial basement. The building contains multiple commercial tenant spaces, currently occupied by a cell phone store and a home goods store. The Site, which occupies a part of the building, is comprised of an approximate 1,415 square foot (SF) vacant two-story tenant space and the basement directly below and was historically operated by a dry cleaner and, most recently, a tutoring and after-school center. The property lot is an irregularly-shaped 0.31-acre parcel located in Bronx Community Board 10. A location map for the Site is provided as Figure 1. A map of the current Site layout is included as Figure 2.

Lot 5 was initially developed sometime prior to 1950 with the existing two-story building with a partial basement. The Site operated as a dry cleaning facility from circa 1988 to circa 2000. Following the cessation of dry cleaning operations, the Site was occupied for approximately five years by a home goods store and then as a tutoring and after-school facility until early 2020. As noted, the Site is currently vacant. The current owner of the Site lot intends to sell the property following completion of the Remedial Action.

The Remedial Action to be performed under the Remedial Action Work Plan (RAWP) is intended to make the Site protective of human health and the environment consistent with DER-10 and NYSDOH Soil Vapor Intrusion Decision Matrices and the contemplated end use. At this time, the Participant is not proposing to change the future use of the Site and is not contemplating redevelopment of the Site.

SUMMARY OF THE REMEDIAL INVESTIGATION

A Remedial Investigation Report (RIR) dated February 2023 and an Addendum to the RIR dated March 5, 2024 were prepared by Tenen Environmental, LLC (Tenen). The RIR documented the results of the Remedial Investigation (RI) and various supplemental sampling events, and the Addendum to the RIR documented the results of an offsite soil vapor intrusion investigation conducted at two offsite properties. The RIR was approved by NYSDEC on February 13, 2023, and the Addendum to the RIR was approved by NYSDEC on June 17, 2024.

The investigation consisted of the installation of soil borings and collection of soil samples, installation and sampling of groundwater monitoring wells, and sampling of soil vapor and indoor

air. Based on the results of the RI and previous investigations, the following summary has been prepared:

Site History

- Previous Site uses include a dry cleaner for at least twelve years and a home goods store for five years. The most recent use of the Site was as a tutoring and after-school facility until 2020.
- Previous reports identified chlorinated solvent impacts in soil, groundwater and soil vapor.

Geology/Hydrogeology

- Bedrock was noted at depths of three to four feet below basement grade (ft-bbg) or 13 feet below sidewalk grade (ft-bsg).
- The overburden is composed predominantly of fill material extending to depths ranging from approximately three to five ft-bsg. The fill material is underlain by a layer of fine-grained clayey sand approximately seven to ten feet thick. The clayey sand layer is underlain by fine to coarse-grained sand with silt to bedrock.
- Perched groundwater was encountered at depths ranging from directly below the basement slab in MW-5 (basement) to 9.22 ft-bsg in MW-6 (sidewalk).
- Groundwater in the bedrock well installed in the Site basement was encountered at approximately 0.14 ft-bbg.
- Shallow groundwater flow has been measured to be towards the north with an eastern component.

Chlorinated Solvents

- Tetrachloroethene (PCE) impacts were detected in soil, groundwater and soil vapor.
- The results of historic sampling and the RI indicate that there is a PCE source area in soil located beneath the cellar of the historic dry cleaner. PCE was vertically delineated in soil as part of the RI and is estimated to be limited to an approximately 580 square foot area having a maximum depth of three feet below basement grade.
- Chlorinated solvents were detected above the NYSDEC TOGS 1.1.1 Ambient Water Quality Standards (AWQS) in groundwater collected from the Site and downgradient of the source area, with the highest concentrations detected in the well in the cell phone store basement, downgradient of the source area. The furthest downgradient wells, located in the home goods store and the western sidewalk of Westchester Avenue, contained concentrations of chlorinated solvents that were two to three orders of magnitude below the concentrations detected in the monitoring well in the cell phone store basement.
- The source of the volatile organic compounds (VOCs) in groundwater is determined to be the soil impacts located beneath the basement. Infiltrated water from along Westchester Avenue flows on top of the bedrock interface, which eventually concentrates in the area of the perched water in the cell phone store basement.
- Chlorinated VOCs (cVOCs) were detected at elevated concentrations in off-Site sub-slab soil vapor samples and on- and off-Site indoor air samples collected from various tenant spaces within the Site building. Comparison of concentrations detected in sub-slab soil vapor and co-located indoor air with the applicable NYSDOH Decision Matrices indicates that mitigation is necessary for PCE in the south adjoining off-Site basement and mitigation

is necessary for cis-1,2-dichloroethene (cis-1,2-DCE) at one location in the slab-on-grade portion of the home goods store. Sub-slab soil vapor samples could not be collected from the Site or north adjoining basement. However, the concentrations of PCE and trichloroethene (TCE) detected in the four indoor air samples collected from these locations (two from the Site basement and two from the north adjoining basement) indicate mitigation would likely be necessary for both analytes at all four locations, regardless of the potential sub-slab soil vapor concentrations.

- Low concentrations of cVOCs were detected in sub-slab soil vapor and co-located indoor air samples collected from tenant spaces at two offsite commercial properties adjoining the Site building (Block 4164 and Lot 1, and Block 4164 and Lot 3). Comparison of concentrations detected in sub-slab soil vapor and co-located indoor air with the applicable NYSDOH Decision Matrices resulted in a 'No Further Action' matrix decision for all analytes at all sampling locations.
- Low concentrations of PCE were detected in two exterior soil vapor samples collected from the western sidewalk of Pilgrim Avenue. Based on the results of the exterior soil vapor samples, it is unlikely that a soil vapor intrusion condition exists in any of the three residential buildings to the northwest, southwest, and southeast of the Site.
- PCE and TCE were detected in exceedance of the NYSDOH long-term exposure air guideline values (AGVs) in two indoor air samples collected from the Site basement and two indoor air samples collected from the north adjoining basement. In addition, TCE was also detected in exceedance of its NYSDOH AGV in one indoor air sample collected from the slab-on-grade portion of the home goods store.

Petroleum Impacts

- Petroleum-related VOCs were detected in sub-slab soil vapor, indoor air, and exterior soil vapor samples above the ambient air concentrations on- and off-Site.

Emerging Contaminants

- Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected above Class GA Standards in groundwater on- and off-Site. Groundwater at the Site is not potable and drinking water is provided by the New York City Department of Environmental Protection (NYCDEP) from upstate reservoirs.

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The results of the remedial investigations provided sufficient data to complete a Qualitative Human Health Exposure Assessment, which identified several potential exposure pathways that include:

- direct contact with subsurface soils (and incidental ingestion);
- direct contact with groundwater;
- inhalation of volatile groundwater constituents; and,
- inhalation of vapors.

Exposure to workers in the Site building is being mitigated by AirPura carbon air purifying

canisters, which were installed as an Interim Remedial Measure during the Remedial Investigation phase. The canisters mitigate the potential for vapor intrusion impacts while the existing Site building continues to operate for commercial purposes. The potential exposure pathways associated with the remediation are temporary and of limited duration. Worker exposure to impacted groundwater and soil vapor and particulates will be addressed by adherence to health and safety protocols as outlined in a Site-specific Health and Safety Plan (HASP). The HASP is included as Appendix B of this RAWP. Potential exposure of neighborhood workers, residents and other off-Site populations will be addressed through compliance with the Community Air Monitoring Plan (CAMP). A summary of the CAMP is included in Appendix A of this RAWP. Potential for exposure of building occupants to contaminants in indoor air will be minimized by removal of soil to bedrock, treatment of dissolved, chlorinated solvent-related VOC groundwater constituents, installation of a vapor sealant/vapor barrier, installation of an active sub-slab depressurization system (SSDS), and implementation of institutional controls in the form of an environmental easement and Site Management Plan (SMP).

SUMMARY OF THE REMEDIAL ACTIONS

The preferred Track 4 remedy, intended to address all environmental issues associated with the Site, consists of the following:

- A remedial program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:
 - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
 - Reducing direct and indirect greenhouse gases and other emissions;
 - Increasing energy efficiency and minimizing use of non-renewable energy;
 - Conserving and efficiently managing resources and materials;
 - Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
 - Maximizing habitat value and creating habitat when possible;
 - Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
 - Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
 - Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis was completed. The environmental footprint analysis was completed using an accepted environmental footprint

analysis calculator, SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA). Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use was estimated for each proposed remedial alternative in this RAWP, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, were incorporated into the remedial program, as appropriate. The project includes detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial program.

Additionally, the remedial program includes a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise were assessed, and the remedial program adjusted to incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

- Excavation and off-Site disposal of all on-site soils which exceed the Commercial Use SCOs for non-cVOC constituents and the Protection of Groundwater SCOs for all cVOCs, as defined by 6 NYCRR Part 375-6.8, at all depths throughout the Site. These Track 4-appropriate SCOs will be achieved through excavation and off-Site disposal of a 580-square-foot PCE hotspot and a 25-square-foot VOC hotspot below the Site basement. Approximately 65 cubic yards of soil will be disposed of off-Site;
- Disposal of impacted material from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
- Collection and analysis of post-remedial end-point samples to document remaining concentrations of contaminants. Samples will be evaluated for attainment of Protection of Groundwater SCOs for cVOCs and Commercial Use SCOs for all non-cVOC analytes, which would support a Track 4 remedy;
- Import of materials to be used for backfill and cover in compliance with: (1) the Part 375-6.7(d) and (2) all Federal, State and local rules and regulations for handling and transport of material;
- Completion of an in-situ chemical oxidation (ISCO) groundwater treatment via injection. A pilot study will be completed to determine design considerations, including the chemical to be used, and final number and locations of the injection points. A groundwater remedy Design Document will be submitted under separate cover to NYSDEC for approval;
- Quarterly post-remedial groundwater sampling to confirm the efficacy of the ISCO, beginning approximately three months after the first round of injections;
- Installation of a minimum 20-mil waterproofing membrane/vapor barrier beneath the new section of building slab to be installed over the cVOC hotspot;
- Installation of a minimum 20-mil vapor sealant on top of the existing building slab. Prior to installation of the vapor sealant, the building slab will be visually inspected and any cracks or openings will be sealed;

- Installation of an active SSDS within the entire existing Site building. This includes the Site as well as the off-Site areas within the larger Site building. A communication test will be performed to determine the radius of influence and design parameters of the SSDS. A blower test will be performed for the system to determine the final fan size required to meet the system design parameters. A SSDS Design Document for the system will be submitted under separate cover to NYSDEC and NYSDOH for approval;
- Efficacy of the active SSDS will be confirmed via achieving the required -0.02” water column depressurization throughout the sub-slab. Post-remedial (three months following SSDS start-up) indoor air sampling will be conducted for additional evaluation of the on-Site SSDS.
- Preparation of a Final Engineering Report (FER) to document the implemented remedial actions; and,
- Development of a Site Management Plan (SMP) for long term management of residual contamination as required by an Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, and (3) reporting.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

Ralford Realty Corp. entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on October 5, 2020, to investigate and remediate an approximately 1,415 square feet (SF) (0.03 acre) vacant tenant space which is a portion of an irregularly-shaped parcel, identified by the New York City Department of Finance as Block 4164, Lot 5. The Site is part of the building located at 2921 Westchester Avenue in the Pelham Bay neighborhood of the Bronx, New York (the “Site”). Ralford Realty Corp. is a Participant in the Brownfield Cleanup Program.

Lot 5 is improved with one two-story commercial building with a partial basement. The building contains multiple commercial tenant spaces, currently occupied by a cell phone store and a home goods store. The part of the building that comprises the Site was historically occupied by a dry cleaner and, most recently, a tutoring and after-school center. Basements extend beneath the entirety of the Site and directly adjacent vacant and cell phone store tenant spaces. These basement spaces share a common slab, but are separated by walls. The northwestern portion of the home goods store footprint contains a small sub-cellar consisting of a boiler room, and the remainder of the home goods store footprint consists of a slab-on-grade. The commercial layout and cellar layout of the Site lot are depicted on Figure 2. The Site consists of one vacant tenant space within the building and the portion of the basement directly below.

The Participant is not proposing to change the future use of the Site and is not contemplating redevelopment of the Site.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination, as determined from data gathered during the Remedial Investigation (RI) activities performed between February 2021 and February 2024.

The RAWP provides an evaluation of Track 1 and Track 4 remedies and other applicable remedial measure alternatives, their associated costs, and the recommended and preferred remedy to address on-Site contamination. The remedy described in this document is consistent with the procedures defined in DER-10 and DER-31, 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. Formal Remedial Design Documents will be prepared for the proposed groundwater remedy and active sub-slab depressurization system (SSDS). The Remedial Design Documents will be submitted within three months of approval of this RAWP. Based on the findings of the RI and previous investigations, the NYSDEC, in consultation with the New York State Department of Health (NYSDOH), has determined that the Site poses a significant threat to public health or the environment. The RI for this Site did not identify fish and wildlife resources.

1.1 Site Location and Description

The Site is located at 2921 Westchester Avenue in the Pelham Bay neighborhood of the Bronx, New York. The Site is defined as an approximate 1,415 SF (0.03 acre) vacant tenant space which is a portion of a building located on an irregularly-shaped parcel located on the west side of

Westchester Avenue, between Pilgrim Avenue and Buhre Avenue The Site is located in Bronx Community Board 10. A location map for the Site is provided as Figure 1. A map of the current Site layout is included as Figure 2.

1.2 Proposed Site Plan

The Remedial Actions being performed under the RAWP are intended to make the Site protective of human health and the environment consistent with the NYSDOH Soil Vapor Intrusion Decision Matrices and the contemplated end use of the Site. At this time, the Participant is not proposing to change the future use of the Site and is not contemplating redevelopment of the Site.

1.3 Description of Surrounding Property

The surrounding area is predominantly residential and commercial. The adjacent properties consist of mixed-use residential and commercial buildings to the south, west and east, and commercial buildings to the north.

The Site is located in a R7-1 zoning district; a designation that typically denotes a medium density apartment house district, with a C2-2 commercial overlay.

Based on a review of the New York City Office of Environmental Remediation (OER) Searchable Property Environmental E-Database (SPEED), the NYSDEC Environmental Resource Mapper, and a Google maps search, no sensitive receptors (public schools, day cares, or hospitals), rivers/streams, or wetlands are present within 500 feet of the Site. The closest water body is the Eastchester Bay, located approximately one mile east of the Site.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work described in the January 2021 Remedial Investigation Work Plan (RIWP), which was approved by NYSDEC. This section presents the findings of the previous investigations conducted on-Site as well as the findings of the 2021-2022 remedial investigation (RI) and 2024 addendum to the RI performed by Tenen.

2.1 Site History

Lot 5 was initially developed sometime prior to 1950 with the existing two-story building with a partial basement. The Site operated as a dry cleaning facility from circa 1988 to circa 2000. Following cessation of dry cleaning operations, the Site was occupied for approximately five years by a home goods store and then as a tutoring and after-school facility until early 2020. As noted, the Site is currently vacant.

2.2 Site Geology / Hydrogeology

Site Topography

Based on the U.S. Geological Survey (Flushing-NY USGS 7.5 Minute Topographic Quadrangle) topographic map, the Site is located at an elevation of approximately 45 feet above mean sea level (msl). The Site is located in a relatively flat area, and the general downward slope of the surrounding region is to the west.

Site Geology and Hydrogeology

Bedrock was noted at depths of three to four feet below basement grade (ft-bbg), of approximately 13 feet below sidewalk grade (ft-bsg).

The overburden at the Site generally consisted of fill material containing brick fragments with brown, fine to coarse grained silty sand extending to bedrock. In the off-Site soil borings, the fill material extended to depths ranging from three to five ft-bsg and was underlain by a layer of brown, fine grained clayey sand approximately seven to ten feet thick. The clayey sand layer was underlain by brown to gray, fine to coarse grained sand with silt to bedrock (approximately 13 ft-bsg) in SB-10. In SB-17, the fill layer was underlain by a layer of silt approximately ten feet thick.

Perched groundwater was encountered at depths ranging from approximately 0 ft-bbg in MW-5 (basement) to 9.22 ft-bsg in MW-6 (sidewalk). Groundwater in the bedrock well was encountered at approximately 0.14 ft-bbg. The shallow groundwater flow has most recently been measured consistently to be toward the north with an eastern component, as shown in Figures 3a and 3b. However, the groundwater flow appears to be dependent on precipitation and earlier measurements have indicated a flow to the southwest. Within this document, downgradient is considered to be to the north as that is the most recent and frequent groundwater flow direction.

Investigations at the Site have documented groundwater concentrations of contaminants above the NYSDEC TOGS 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values (AWQS). There are no known wellhead protection areas or specifically designated groundwater

recharge areas in the vicinity of the Site. Groundwater in this area is not used as a source of potable water.

2.3 Summary of Remedial Investigation

This section presents the findings of the previous investigations conducted on-Site and off-Site by Tenen and others as well as the findings of the 2021-2022 Remedial Investigation and 2024 Addendum to the Remedial Investigation performed by Tenen.

2.3.1 Summary of Data

Investigations and sampling efforts conducted at the Site are described in the following reports:

- *Phase II Environmental Site Assessment, 2925 Westchester Avenue, Bronx, New York.* Castleton Environmental, August 2019.
- *Due Diligence Investigation Letter Report, 2921 Westchester Avenue, Bronx, New York.* Tenen Environmental, LLC, May 2020.
- *Remedial Investigation Report, 2921 Westchester Avenue, Bronx, New York.* Tenen Environmental, LLC, February 2023.
- *Addendum to the Final Remedial Investigation Report, dated February 2023, 2921 Westchester Avenue, Bronx, New York.* Tenen Environmental, LLC, March 5, 2024.

The findings of the above investigations are summarized below.

Phase II Environmental Site Assessment, 2921 Westchester Avenue, Bronx, New York, Castleton Environmental, August 2019.

A Phase II Environmental Site Assessment (ESA) was completed at the Site by Castleton Environmental in 2019 as part of a prospective purchaser's due diligence to investigate the potential for contamination associated with the historical use of the Site for dry cleaning. The Phase II ESA included the advancement of five soil borings, the collection of three soil samples, the installation of three temporary well points, the collection of three groundwater samples, the installation of three temporary soil vapor points, and the collection of three sub-slab soil vapor samples.

Soil Results

Results of the soil sampling indicated concentrations of several chlorinated volatile organic compounds (cVOCs), specifically tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE), in exceedance of their respective NYSDEC 6 NYCRR Part 375-6.8(a) Unrestricted Use (UU) Soil Cleanup Objectives (SCOs) and Part 375-6.8(b) Protection of Groundwater (PGW) SCOs in one of three samples collected.

Groundwater Results

Results of the groundwater sampling indicated concentrations of several cVOCs, specifically PCE, TCE, and cis-1,2-DCE, in exceedance of their NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (Class GA Standards) in all three samples collected.

Soil Vapor Results

Results of the sub-slab soil vapor sampling indicated elevated concentrations of several cVOCs, specifically PCE, TCE, and cis-1,2-DCE, in two of three samples collected.

Due Diligence Investigation Letter Report, 2921 Westchester Avenue, Bronx, New York, Tenen Environmental, LLC, May 2020

A Due Diligence Investigation was conducted on and off the Site by Tenen between September 2019 and February 2020 to further investigate the contamination identified in soil, groundwater, and soil vapor in Castleton's Phase II ESA so as to provide additional information to assist in the sale of the building that includes the Site. Soil, groundwater, and indoor air sampling was completed by Tenen to further investigate the presence of chlorinated solvents in soil and groundwater at the Site and to determine if a potential soil vapor intrusion condition exists. The DDI consisted of the advancement of ten soil borings, the collection of 22 on-Site soil samples and one off-Site soil sample, the installation of three permanent groundwater monitoring wells (one on-Site and two off-Site), the collection of three groundwater samples, and the collection of two on-Site indoor air samples (first floor and basement) and three off-Site indoor air samples (separate tenant spaces within the building on Lot 5). A well survey was conducted at the Site as part of this investigation and groundwater was determined to flow to the south-southwest. Groundwater contour maps are included as Figures 3a and 3b.

Soil Results

Soil results were compared to NYSDEC PGW and RCU SCOs as listed in 6 NYCRR Part 375-6.8(b) and the October 21, 2010 NYSDEC DEC Policy CP-51. The PGW SCOs are used as a screening value for potential groundwater impacts and the RCU SCOs are consistent with the current and assumed future use of the Site.

All VOCs and metals were detected below the PGW and RCU SCOs in off-Site soil sample MW-1 (16-18). All VOCs were detected below RCU SCOs in soil samples collected on-Site.

PCE was detected in exceedance of its PGW SCO from 0-1 ft-bbg in soil delineation boring SB-5 (concentration 3.2 mg/kg), SB-5-N (concentration 34 mg/kg), SB-5-S (concentration 1.7 mg/kg), SB-5-W (concentration 20 mg/kg), and SB-5-W2 (concentration 8.1 mg/kg). PCE was detected at a low concentration below the PGW SCO from 0-1 ft-bbg in soil delineation boring SB-5-E. PCE was detected in exceedance of its PGW SCO from 1-2 ft-bbg in soil delineation borings SB-5-N (concentration 22 mg/kg) and SB-5-W (concentration 16 mg/kg). PCE was detected at low concentrations below the PGW SCO from 1-2 ft-bbg in soil delineation borings SB-5, SB-5-S, and SB-5-W2. PCE was detected in exceedance of its PGW SCO from 2-3 ft-bbg in soil delineation boring SB-5-W, only (concentration 7 mg/kg). PCE was detected at low concentrations below the PGW SCO from 2-3 ft-bbg in soil delineation borings SB-5, SB-5-N, and SB-5-S. PCE was also detected at a low concentration below the PGW SCO from 3-4 ft-bbg in soil delineation boring SB-5.

Concentrations of cis-1,2 DCE and TCE were detected in exceedance of their respective PGW SCO in five samples collected from three borings: SB-5(0-1ft); SB-5-N(0-1 ft, 1-2 ft and 2-3 ft); and

SB-5-W(0-1ft)

Groundwater Results

Groundwater results were compared to NYSDEC TOGS Class GA Standards. Results of the groundwater sampling indicated concentrations of chlorinated solvents, specifically PCE, TCE, and cis-1,2-DCE in exceedance of Class GA Standards in the groundwater sample collected from the basement of the Site. PCE was detected at a concentration of 470 micrograms per liter (ug/l); TCE was detected at a concentration of 79 ug/l; and, cis-1,2-DCE was detected at a concentration of 210 ug/l. PCE, TCE and cis-1,2-DCE all have a Class GA Standard of 5 ug/l.

All cVOCs were detected below the Class GA Standards in the two off-Site, permanent monitoring well samples.

Indoor Air Results

Indoor air results were compared to the NYSDOH Air Guidance Values (AGVs) as presented in the NYSDOH Soil Vapor Guidance, October 2006 with May 2017 updates and the Environmental Protection Agency (EPA) Vapor Intrusion Screening Limits (VISL), Commercial Target Indoor Air Concentrations (TIAC). Results of the indoor air sampling indicated that concentrations of VOCs were not detected in exceedance of NYSDOH AGVs in any on-Site or off-Site indoor air samples collected. However, low concentrations of cVOCs were detected in all five indoor air samples collected, with the highest concentrations generally occurring in the sample collected from the basement of the Site.

Remedial Investigation Report, 2921 Westchester Avenue, Bronx, New York, Tenen Environmental, LLC, February 2023

A Remedial Investigation was performed by Tenen between February 2021 and May 2022 and a Remedial Investigation Report was prepared by Tenen in the several months that followed in 2022. The scope of work performed by Tenen during the Remedial Investigation consisted of the following:

- Installation of 17 soil borings and collection of 30 soil samples (including QA/QC sample);
- Installation of six permanent groundwater monitoring wells. Groundwater samples were collected from six newly-installed and three previously-installed wells;
- Collection of sub-slab soil vapor samples from nine off-Site locations in tenant spaces in the building surrounding the Site;
- Collection of exterior soil vapor samples from three off-Site locations in sidewalks surrounding the Site; and,
- Collection of 13 indoor air samples on- and off-Site.

Soil Results

- The cVOC PCE and its breakdown products, TCE and cis-1,2-DCE, were detected in exceedance of Protection of Groundwater SCOs in two onsite soil samples, SB-9 (0-1) and SB-12 (0-2). The cVOC vinyl chloride was detected in exceedance of its Protection of

Groundwater SCO in one soil sample, SB-2 (0-2). cVOCs were not detected in exceedance of Restricted Commercial Use SCOs in any soil samples analyzed.

- One petroleum-related VOC, 2-butanone, was detected in exceedance of its Protection of Groundwater SCO, but below its Restricted Commercial Use SCO, in three soil samples collected from two onsite boring locations.
- SVOCs, pesticides, herbicides, PCBs, TAL metals, 1,4-dioxane, and PFAS were not detected in exceedance of Protection of Groundwater or Restricted Commercial Use SCOs in any soil samples analyzed.

Groundwater Results

- PCE was detected in all three onsite groundwater monitoring wells (MW-3, MW-4, and BW-1) and three offsite groundwater monitoring wells (MW-5, MW-7, and MW-8) at concentrations exceeding the Class GA Standard; TCE and cis-1,2-DCE were detected in two onsite groundwater monitoring wells (MW-3 and BW-1) and three offsite groundwater monitoring wells (MW-5, MW-7, and MW-8) in exceedance of Class GA Standards; vinyl chloride was detected in two onsite groundwater monitoring wells (MW-3 and BW-1) and one offsite groundwater monitoring well (MW-5) in exceedance of the Class GA Standard; and, chloroform was detected in the bedrock monitoring well, BW-1, in exceedance of the Class GA Standard. In general, the highest concentrations of cVOCs were detected in offsite and downgradient monitoring well MW-5. Concentrations of cVOCs detected in MW-5 were generally two to three orders of magnitude higher than all other groundwater samples.
- cVOC concentrations detected in the bedrock monitoring well, BW-1, were generally one order of magnitude lower than the closest groundwater monitoring well, MW-3.
- SVOCs, specifically PAHs, were detected slightly in exceedance of Class GA Standards in two offsite groundwater monitoring wells, MW-2 and MW-6.
- No pesticides, herbicides, or PCBs were detected above Class GA Standards in any groundwater samples analyzed.
- One metal, antimony, was detected in all three onsite total (unfiltered) groundwater samples (MW-3, MW-4, and BW-1) and the duplicate sample in exceedance of the Class GA Standard. In addition, a variety of metals, including chromium, lead, nickel, and thallium, were detected in one offsite total (unfiltered) groundwater sample (MW-6) in exceedance of Class GA Standards. Of these, antimony was also detected in six dissolved (filtered) groundwater samples and the duplicate sample in exceedance of the Class GA Standard and thallium was detected in one offsite dissolved (filtered) groundwater sample (MW-2).
- Naturally occurring earth metals, including iron, magnesium, manganese, and sodium were detected in total (unfiltered) and dissolved (filtered) groundwater samples across the Site and offsite.
- PFAS were detected in groundwater samples across the Site and offsite. PFOA was detected in exceedance of its Class GA Standard of 6.7 nanograms per liter (ng/l) in all three onsite groundwater monitoring wells (MW-3, MW-4, and BW-1) and in three offsite groundwater monitoring wells (MW-1, MW-5, and MW-6). PFOS was detected in exceedance of its Class GA Standard of 2.7 ng/l in three onsite monitoring wells (MW-3, MW-4, and BW-1) and three offsite monitoring wells (MW-1, MW-5, and MW-6). 1,4-Dioxane was detected at low concentrations in three offsite monitoring wells (MW-1, MW-2, and MW-5).

Soil Vapor/Indoor Air Results

- A variety of cVOCs included on the NYSDOH Decision Matrices, including PCE, TCE, cis-1,2-DCE, vinyl chloride, carbon tetrachloride, 1,1,1-TCA, and methylene chloride, were detected in one or more sub-slab soil vapor and indoor air samples. Comparison of concentrations detected in sub-slab soil vapor samples and co-located indoor air samples to the NYSDOH matrices resulted in the following:
 - A ‘Mitigate’ Matrix Decision for PCE at both locations in the former barber shop basement adjoining the Site to the south (SS-3/IA-8 and SS-7/IA-12) and an ‘identify sources and resample or mitigate’ Matrix Decision for PCE at one location in the home goods store (TI-SS-3/TI-IA-3);
 - A ‘Mitigate’ Matrix Decision for cis-1,2-DCE at one location in the home goods store (TI-SS-1/TI-IA-1) and an ‘identify sources and resample or mitigate’ Matrix Decision for cis-1,2-DCE at both locations in the former barber shop (SS-3/IA-8 and SS-7/IA-12) and two locations in the home goods store (TI-SS-2/TI-IA-2 and TI-SS-3/TI-IA-3);
 - An ‘identify sources and resample or mitigate’ Matrix Decision for TCE at both locations in the former barber shop (SS-3/IA-8 and SS-7/IA-12) and at one location in the home goods store (TI-SS-3/TI-IA-3);
 - A ‘Mitigate’ Matrix Decision for methylene chloride at one location within the home goods store (TI-SS-4/TI-IA-4) and an ‘identify sources and resample or mitigate’ Matrix Decision for methylene chloride at five locations within the home goods store (TI-SS-1/TI-IA-1, TI-SS-2/TI-IA-2, TI-SS-3/TI-IA-3, TI-SS-5/TI-IA-5, and TI-SS-6/TI-IA-6);
 - A ‘Monitor’ Matrix Decision for carbon tetrachloride at one location in the former barber shop (SS-7/IA-12); and,
 - Comparison to the NYSDOH matrices resulted in a ‘No Further Action’ Matrix Decision for all analytes at the co-located location in the home goods store basement (SS-5/IA-10).
- Concentrations of PCE and TCE were detected in exceedance of their respective NYSDOH AGVs in indoor air on- and offsite. PCE and TCE were detected in exceedance of NYSDOH AGVs in two indoor air samples collected from the Site basement and two indoor air samples collected from the north adjoining cell phone store basement. In addition, TCE was also detected in exceedance of its NYSDOH AGV in one indoor air sample collected from the slab-on-grade portion of the home goods store. Based upon the concentrations detected in indoor air, mitigation would likely be required for PCE and TCE at both indoor air locations in the Site basement and both indoor air locations in the north adjoining cell phone store basement.
- Concentrations of methylene chloride were detected in exceedance of the NYSDOH AGV in all six indoor air samples collected from the slab-on-grade portion of the home goods store. Methylene chloride is commonly utilized in the production of flooring materials and the elevated concentrations of methylene chloride detected in samples collected from the slab-on-grade portion of the home goods store are suspected to be a result of off-gassing of the flooring materials present in the tenant space.

- PCE was detected in two of three exterior soil vapor samples at low concentrations. No other cVOCs included on the NYSDOH Matrices were detected in any soil vapor samples.
- A variety of petroleum-related VOCs were detected at low concentrations in sub-slab soil vapor, exterior soil vapor, and indoor air across the Site and offsite.

Addendum to the Final Remedial Investigation Report, dated February 2023, 2921 Westchester Avenue, Bronx, New York, Tenen Environmental, LLC, March 5, 2024

An offsite soil vapor and indoor air investigation was performed by Tenen at two commercial properties adjoining the Site building (Block 4164, Lot 1, hereinafter references as “Offsite Property A” and Block 4164, Lot 3, hereinafter referenced as “Offsite Property B”) in February 2024. The results of the offsite investigation were documented in an Addendum to the Remedial Investigation Report, prepared by Tenen in March 2024. The scope of work performed by Tenen during the offsite investigation consisted of the following:

- Collection of sub-slab soil vapor samples from four off-Site locations in Offsite Property A and one off-Site location in Offsite Property B;
- Collection of four indoor air samples from Offsite Property A and one indoor air sample from Offsite Property B. Indoor air samples were co-located with sub-slab soil vapor samples; and,
- Collection of one outdoor ambient air sample.

Soil Vapor/Indoor Air Results

- Comparison of detected concentrations of PCE, TCE, cis-1,2-DCE, carbon tetrachloride, and methylene chloride in offsite sub-slab soil vapor samples and co-located indoor air samples to the applicable NYSDOH Decision Matrices resulted in a “No Further Action” matrix decision for all analytes at all sampling locations at Offsite Properties A and B.
- VOCs were not detected in exceedance of NYSDOH AGVs in any indoor air samples collected from Offsite Properties A or B.
- A variety of petroleum-related VOCs, including benzene, toluene, 1,2,4-trimethylbenzene, and 2,2,4-trimethylpentane were detected in sub-slab soil vapor and indoor air at low concentrations.
- Acetone and ethanol were detected at elevated concentrations in one or more sub-slab soil vapor and indoor air samples. Acetone and ethanol are common laboratory artifacts.
- Based upon comparison of the detected concentrations of chlorinated solvents in sub-slab soil vapor and indoor air with the NYSDOH Decision Matrices, no further action is required to address soil vapor conditions at Offsite Properties A or B.

Conclusions

Based on the results of the 2022 Remedial Investigation, 2024 Addendum to the RI, and all previous investigations, the following conclusions have been made:

Chlorinated Solvents

- Tetrachloroethene (PCE) impacts were detected in soil, groundwater, and soil vapor.
- The results of historic sampling and the RI indicate that there is a PCE source area in soil located beneath the cellar of the historic dry cleaner. PCE was vertically delineated in soil as part of the RI and is estimated to be limited to an approximately 580 square foot area having a maximum depth of three feet below basement grade.
- Chlorinated solvents were detected above the NYSDEC TOGS 1.1.1 Ambient Water Quality Standards (AWQS) in groundwater collected from the Site and downgradient of the source area, with the highest concentrations detected in the well in the cell phone store basement, downgradient of the source area. The furthest downgradient wells, located in the home goods store and the western sidewalk of Westchester Avenue, contained concentrations of chlorinated solvents that were two to three orders of magnitude below the concentrations detected in the monitoring well in the cell phone store basement.
- The source of the volatile organic compounds (VOCs) in groundwater is determined to be the soil impacts located beneath the basement. Infiltrated water from along Westchester Avenue flows on top of the bedrock interface, which eventually concentrates in the area of the perched water in the cell phone store basement.
- Chlorinated VOCs (cVOCs) were detected at elevated concentrations in off-Site sub-slab soil vapor samples and on- and off-Site indoor air samples collected from various tenant spaces of the Site building. Comparison of concentrations detected in sub-slab soil vapor and co-located indoor air with the applicable NYSDOH Decision Matrices indicates that mitigation is necessary for PCE in the south adjoining basement and mitigation is necessary for cis-1,2-dichloroethene (cis-1,2-DCE) at one location in the slab-on-grade portion of the home goods store. Sub-slab soil vapor samples could not be collected from the Site or north adjoining basement due to the presence of groundwater immediately below the slab. However, the concentrations of PCE and trichloroethene (TCE) detected in the four indoor air samples collected from these locations (two from the Site basement and two from the north adjoining basement) indicate mitigation would likely be necessary for both analytes at all four locations, regardless of the potential sub-slab soil vapor concentrations.
- Low concentrations of cVOCs were detected in sub-slab soil vapor and co-located indoor air samples collected from tenant spaces at two offsite commercial properties adjoining the Site building (Block 4164 and Lot 1, and Block 4164 and Lot 3). Comparison of concentrations detected in sub-slab soil vapor and co-located indoor air with the applicable NYSDOH Decision Matrices resulted in a 'No Further Action' matrix decision for all analytes at all sampling locations.
- Low concentrations of PCE were detected in two exterior soil vapor samples collected from the western sidewalk of Pilgrim Avenue. Based on the results of the exterior soil vapor samples, it is unlikely that a soil vapor intrusion condition exists in any of the three residential buildings to the northwest, southwest, and southeast of the Site.
- PCE and TCE were detected in exceedance of the NYSDOH long-term exposure air guideline values (AGVs) in two indoor air samples collected from the Site basement and two indoor air samples collected from the north adjoining basement. In addition, TCE was also detected in exceedance of its NYSDOH AGV in one indoor air sample collected from the slab-on-grade portion of the home goods store.

Petroleum Impacts

- Petroleum-related VOCs were detected in sub-slab soil vapor, indoor air, and exterior soil vapor samples above the ambient air concentrations on- and off-Site.

Emerging Contaminants

- Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected in groundwater above Class GA Standards in groundwater on- and off-Site. Groundwater at the Site is not potable and drinking water is provided by the New York City Department of Environmental Protection (NYCDEP) from upstate reservoirs.

Qualitative Environmental Assessment

- The following potential exposure routes were identified: direct contact with surface soils, inhalation (and incidental ingestion), ingestion of groundwater, direct contact with groundwater and inhalation of vapors.
- Potential impacts from these exposure routes can be mitigated through the implementation of Health and Safety Plan (HASP) and Community Air Monitoring Program (CAMP) during ground-intrusive activities, current Site caps (building foundation) and through Site remediation performed under an approved remedial action work plan.

2.4 Significant Threat

In June 2022, the NYSDEC, in conjunction with the NYSDOH, determined that the Site poses a significant threat to public health and the environment. The RI for this Site did not identify fish and wildlife resources.

3.0 CONTAMINATION CONDITIONS

3.1 Conceptual Model of Site Contamination

The Site is currently vacant and was historically utilized as a dry cleaner for a period of at least twelve years. Other prior uses include a home goods store and, most recently, a tutoring and after-school facility. The Site has been vacant since early 2020, although other portions of the same building remain tenanted.

Based on the results of the RI and the findings of prior investigations, the contaminants of concern at the Site are cVOCs, specifically PCE and its breakdown products, TCE, cis-1,2-DCE and vinyl chloride, as well as two PFAS analytes, PFOA and PFOS.

cVOCs were detected in sub-slab soil vapor, indoor air, soil and groundwater at elevated concentrations at the Site and off-Site. PCE, TCE, cis-1,2-DCE and/or vinyl chloride were detected in soil samples collected from basement grade to three feet below basement grade in the northwestern portion of the Site basement at concentrations exceeding Protection of Groundwater SCOs, but below Commercial Use SCOs during the 2019 Phase II ESA and the 2020 Limited Due Diligence Investigation. The RI further delineated PCE impacts in soil within the Site basement.

PCE, TCE, cis-1,2-DCE and/or vinyl chloride were detected in groundwater above the Class GA Standards across the Site and in off-Site and downgradient monitoring wells, with the highest concentrations occurring in the monitoring well located in the north adjoining basement, immediately downgradient of the soil source area. Concentrations of cVOCs detected in the furthest off-Site and downgradient wells, located in the home goods store and western sidewalk of Westchester Avenue, were two to three orders of magnitude lower than the concentrations detected in the monitoring well installed in the north adjoining basement.

Concentrations of cVOCs detected in the on-Site bedrock monitoring well were generally one order of magnitude lower than those detected in the nearest shallow groundwater monitoring well, indicating that chlorinated solvents are not significantly impacting the bedrock beneath the Site.

In the sub-slab soil vapor and indoor air, chlorinated solvents were detected at all on- and off-Site sampling locations¹ within the Site basement and the north and south adjoining basements, as well as three sampling locations within the slab-on-grade portion of the home goods store. Comparison of cVOC concentrations in the off-Site sub-slab soil vapor and co-located indoor air samples to applicable NYSDOH Decision Matrices indicates that mitigation is necessary (1) for PCE at both locations in the south adjoining basement and (2) for cis-1,2-DCE at one location in the slab-on-grade portion of the home goods store. Although sub-slab soil vapor samples could not be collected from the Site or north adjoining basement due to the presence of groundwater immediately below the slab, the concentrations of PCE and TCE in the four indoor air samples collected from these

¹ Sub-slab soil vapor samples were not collected from the Site or north adjoining basement due to the presence of groundwater directly below the basement slab.

locations (two from the Site, two from the north adjoining basement) indicate mitigation would be necessary for both analytes at all four locations.

CVOCs were detected at low concentrations in sub-slab soil vapor and co-located indoor air samples collected from the tenant spaces within two off-site commercial properties adjoining the Site building (Offsite Properties A and B). Comparison of cVOCs concentrations in the off-site sub-slab soil vapor and co-located indoor air samples to applicable NYSDOH Decision Matrices resulted in a 'No Further Action' Matrix Decision for each analyte at each sampling location.

PCE was detected in two of three exterior soil vapor samples at low concentrations. Based on the concentrations of PCE detected in exterior soil vapor samples, it is unlikely that a soil vapor intrusion condition due to contamination emanating from the Site exists in any of the three adjoining residential buildings to the northwest, southwest, and southeast of the Site. In particular, public utilities were documented to be present within the adjoining streets and are likely limiting the transport of cVOCs through soil vapor.

A cVOC source area was identified on-Site during the RI and previous investigations and is present beneath the Site basement. Analytical results from soil samples collected as part of the RI and previous investigations indicate that PCE in soil is limited to an approximate 580 square foot area having a maximum depth of three feet (which is at or near the bedrock interface). Previous sampling events have not identified any remediation requirements for the bedrock matrix. The distribution of groundwater impacts supports a relationship between the soil source area and chlorinated solvent concentrations in shallow groundwater at the Site and cross- and downgradient of the source area. Based upon the distribution of chlorinated solvent impacts, the presence of chlorinated solvents is likely due to historic dry cleaning operations at the Site.

PFAS, specifically PFOA and PFOS, were detected in groundwater in exceedance of Class GA Standards in on- and offsite groundwater monitoring wells, with the highest concentrations detected in onsite monitoring well MW-3. PFAS were detected at low concentrations below the proposed Protection of Groundwater SCOs in soil samples collected onsite. Dry cleaning operations are a known potential source of PFAS.

Table 5 presents the Part 375 Unrestricted Use SCOs. Table 6 presents the Part 375 Restricted Commercial Use SCOs. Table 7 presents the Part 375 Restricted Protection of Groundwater SCOs. Table 8 presents the TOGS 1.1.1 Ambient Class GA Water Quality Standards. Tables 1 through 4 present soil, groundwater, soil vapor and indoor analytical results for sampling conducted as part of the 2021-2022 RI.

3.2 Description of Areas of Concern

Two areas of concern (AOCs) have been identified at the Site:

- A 580-SF PCE hotspot in the northern portion of the Site basement (PCE soil source area); and,
- A 25-SF vinyl chloride hotspot in the southern portion of the Site basement.

No other AOCs have been identified at the Site.

3.3 Identification of Standards, Criteria and Guidance

The following Standards, Criteria, and Guidance (SCGs) were utilized to evaluate soil, groundwater, and soil vapor/indoor air analytical results.

- Soil – 6 NYCRR Part 375-6.8(b) and CP-51 Protection of Groundwater and Restricted Commercial Use Soil Cleanup Objectives and NYSDEC's *Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs*, dated April 2023
- Groundwater – New York State Division of Water Technical and Operational Guidance Series (TOGS) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (AWQS), with February 2023 updates
- Soil Vapor/Indoor Air – NYSDOH Guidance for Evaluating Soil Vapor Intrusions in the State of New York (2006) (Soil Vapor Guidance), with May 2017 and February 2024 updates

3.4 Soil/Fill Contamination

3.4.1 Summary of Soil/Fill Data

The following contaminants of concern were detected in soil/fill at the Site at concentrations exceeding applicable SCGs:

- PCE (concentrations ranging from 1.7 to 34 mg/kg)
- TCE (concentrations ranging from 0.53 to 26 mg/kg)
- Cis-1,2-DCE (concentrations ranging from 0.57 to 15 mg/kg)
- Vinyl chloride (concentrations ranging from 0.024 to 0.084 mg/kg)

3.4.2 Comparison of Soil/Fill with SCGs

The chlorinated solvent PCE and its breakdown products, TCE, cis-1,2-DCE, and vinyl chloride, were detected in exceedance of Protection of Groundwater SCOs, but below Commercial Use SCOs, in one or more soil samples collected from directly below the basement slab to bedrock (approximately three feet below basement grade) in the northern portion of the Site. Vinyl chloride was also detected in one soil sample in exceedance of the Protection of Groundwater SCO in the southern portion of the Site.

Refer to Tables 1a through 1e for soil analytical concentrations in exceedance of applicable SCGs.

3.5 On- and Offsite Groundwater Contamination

3.5.1 Summary of Groundwater Data

The following contaminants of concern were detected in groundwater on- and offsite at concentrations exceeding applicable SCGs:

- PCE (concentrations ranging from 23 to 42,000 ug/l)
- TCE (concentrations ranging from 5.7 to 4,000 ug/l)
- Cis-1,2-DCE (concentrations ranging from 91 to 15,000 ug/l)
- Vinyl chloride (concentrations ranging from 2.9 to 1,900 ug/l)
- PFOA (concentrations ranging from 9.63 to 447 ng/l)
- PFOS (concentrations ranging from 3.89 to 111 ng/l)

3.5.2 Comparison of Groundwater with SCGs

The chlorinated solvent PCE and its breakdown products, TCE, cis-1,2-DCE, and vinyl chloride, were detected in exceedance of Class GA Standards in groundwater across the Site and offsite (downgradient), with the highest concentrations occurring in offsite monitoring well MW-5, located downgradient of the Site in the north adjoining basement. Elevated concentrations of cVOCs were not detected in groundwater samples collected from three offsite monitoring wells located up- and/or cross-gradient of the Site. The distribution of contaminants in groundwater supports a correlation with the PCE soil source in the northern portion of the Site.

Two PFAS analytes, PFOA and PFOS, were detected in exceedance of Class GA Standards in groundwater across the Site and offsite, with the highest concentrations occurring in onsite groundwater monitoring well MW-3. Dry cleaning operations are a known potential source of PFAS.

Refer to Tables 2a through 2e for groundwater analytical concentrations in exceedance of applicable SCGs.

3.6 On- and Offsite Soil Vapor/Indoor Air Contamination

3.6.1 Summary of Soil Vapor/Indoor Air Data

The following contaminants of concern were detected in soil vapor and indoor air on- and offsite at concentrations exceeding applicable SCGs:

- PCE (concentrations ranging from 27.2 to 277 milligrams per cubic meter [mg/m³] in sub-slab soil vapor and 10.8 to 92.2 mg/m³ in indoor air)
- TCE (concentrations ranging from 1.66 to 2.32 mg/m³ in sub-slab soil vapor and 1.2 to 10.2 mg/m³ in indoor air)

- Cis-1,2-DCE (concentrations ranging from 1.78 to 6.78 mg/m³ in sub-slab soil vapor and 1.26 to 20.7 mg/m³ in indoor air)

3.6.2 *Comparison of Soil Vapor/Indoor Air with SCGs*

The chlorinated solvent PCE and its breakdown products, TCE and cis-1,2-DCE, have been detected in the soil vapor and indoor air at the Site and offsite at elevated concentrations. Comparison of PCE and cis-1,2-DCE concentrations in co-located sub-slab soil vapor and indoor air samples to the NYSDOH Decision Matrices indicates that mitigation is necessary offsite within the Site building (within the south adjoining basement and the southernmost portion of the first floor of the Home Goods Store). Sub-slab soil vapor samples could not be collected from the Site or north adjoining basement during the RI due to the presence of groundwater directly below the basement slab at these locations. However, comparison of PCE and TCE concentrations detected in indoor air samples collected from these locations indicates mitigation would be necessary onsite and in the north adjoining basement regardless of the potential co-located soil vapor concentrations. The distribution of contaminants in soil vapor supports a correlation with the PCE soil source in the northern portion of the Site and the distribution of cVOC contaminants in groundwater on- and offsite.

Refer to Tables 3a through 3c and Table 4 for soil vapor and indoor air analytical concentrations in exceedance of applicable SCGs.

4.0 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

4.1 Qualitative Human Health Exposure Assessment

A qualitative exposure assessment (QHHEA) has been completed in accordance with Section 3.3(c)4 of DER-10 and the NYSDOH guidance for performing a qualitative EA (NYSDEC DER-10; Technical Guidance for Site Investigation and Remediation; Appendix 3 B). The qualitative exposure assessment evaluates the potential for populations to be exposed to Site contaminants.

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 to an exposed population; (3) a receptor population; (4) a route of exposure; and (5) a point of exposure to a receptor population. Potential contaminant receptors include the following populations:

- Site workers (primarily environmental professionals and contractors)
- Construction workers, visitors or trespassers
- Existing commercial workers at the Site building
- Future building occupants and commercial workers
- Future on-Site workers and utility workers
- Off-Site residents/building occupants
- Off-Site maintenance workers

The following potential exposure routes are considered incomplete:

Groundwater Ingestion

New York City code prohibits the use of groundwater for potable purposes. This pathway is incomplete.

Inhalation of Vapors by Future Building Employees

Remediation will include excavation of a hot spot of PCE in soil and treatment of PCE in groundwater. Following remediation of the soil and groundwater, a vapor sealant will be installed over the existing building basement slab, a vapor barrier will be installed beneath the newly constructed portion of the building slab, and an active sub-slab depressurization system will be installed to mitigate vapor intrusion into the building.

The following potential exposure routes are considered complete:

Dermal Contact with Soil by On-Site Environmental and Construction Workers

During slab demolition, excavation and soil handling, on-Site personnel and construction workers may be exposed to contaminants in soil via dermal contact. This exposure would be mitigated by adherence to the Health and Safety Plan (HASp), included in Appendix B, during ground intrusive activities.

Dermal Contact with Groundwater by On-Site Environmental and Construction Workers

During hotspot excavation within the Site basement, on-Site personnel and construction workers may be exposed to contaminants in groundwater via dermal contact. In addition, environmental professionals collecting groundwater samples for environmental analysis or treating the groundwater through existing and newly installed monitoring wells may be exposed to contaminants in groundwater via dermal contact. These exposures would be mitigated by adherence to the HASP, included in Appendix B, during sampling activities.

Inhalation of Vapors and Particulates by Off-Site Residents/Commercial Workers of the Site Building and Customers

As part of the Remedial Investigation, air purifying canisters were installed in the grade level of the two occupied tenant spaces of the Site building (cell phone store and home goods store) to mitigate the potential for inhalation of vapors by commercial workers and customers. Basements of the tenant spaces are utilized as storage only and are not regularly occupied.

During Site redevelopment, work during slab demolition as well as soil excavation and removal may generate dust and vapors that could be inhaled by off-Site residents/commercial workers of the Site building and customers.

The above potential exposures are limited to the remediation/construction phase of the proposed remedial action. Adherence to health and safety protocols will address environmental and construction worker exposure to contaminated soil vapors, particulates and groundwater. Potential exposure of off-Site residents and building occupants will be addressed by implementation of the Community Air Monitoring Plan (CAMP) referenced in Section 7.4 of this RAWP and included as Appendix A.

4.2 Remedial Action Objectives

The goals of remediation are to remove the on-Site source of chlorinated solvent impacts in soil to allow for the Site's continued commercial use and reduce the concentrations of contaminants in soil vapor, soil and groundwater on- and offsite to levels below applicable Standards, Criteria and Guidance (SCGs). Based on the results of the remedial investigations conducted at the Site, the following Remedial Action Objectives (RAOs) have been identified:

4.2.1 Soil

The cVOCs PCE, TCE, cis-1,2-DCE and/or vinyl chloride were detected at concentrations above the Protection of Groundwater SCOs, but below the Commercial Use SCOs in soil samples collected from basement grade on-Site to a maximum three feet below basement grade during the RI and previous investigations. This hotspot was horizontally and vertically delineated during the RI and is approximately 580 square feet in size.

No other compounds were detected in soil at a concentration above the Commercial Use SCO or, if detected in groundwater above the AWQS, at a concentration above the Protection of Groundwater SCO.

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

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

4.2.2 Groundwater

The cVOCs PCE, TCE, cis-1,2-DCE and vinyl chloride were detected in the groundwater on-Site and downgradient of the Site above applicable SCGs. One dissolved metal, antimony, has also been detected above applicable SCGs in groundwater on-Site. Dissolved metals consistent with typical earth metals attributable to the conditions of the aquifer, including iron, magnesium, manganese, and sodium, have also been detected above currently applicable or proposed SCGs. Per- and polyfluoroalkyl substances (PFAS), specifically perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were detected in groundwater across the Site and off-Site slightly exceeding the proposed SCGs.

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

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

4.2.3 Soil Vapor

The cVOCs PCE, TCE and cis-1,2-DCE, were detected in off-Site sub-slab soil vapor and indoor air on- and off-Site. Based upon the concentrations of cVOCs detected, mitigation is required for PCE at both sample locations in the south adjoining basement and mitigation is required for cis-1,2-DCE at one location in the slab-on-grade portion of the home goods store. Although sub-slab soil vapor samples could not be collected from the Site basement and north adjoining basement due to the presence of groundwater directly below the slab, based upon the concentrations of PCE and TCE detected in indoor air, mitigation would likely be required for both analytes at all four sample locations (two in the Site basement, two in the north adjoining basement). No further action is required for any analytes at any locations sampled within Offsite Properties A and B.

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into the building at the Site.

5.0 DESCRIPTION OF REMEDIAL ACTION WORK PLAN

5.1 Evaluation of Remedial Alternatives

The alternatives considered to address contamination in soil, groundwater, and soil vapor are discussed below.

5.1.1 Soil

Two remedial alternatives were considered to address cVOC-related impacts in soil.

Alternative 1 – Track 4 Excavation with cVOC Hot Spot Excavations. Excavation of the approximately 580-SF PCE-based hotspot in the northwest portion of the Site basement and the approximately 25-SF vinyl chloride (VC) hotspot in the vicinity of RI sample location SB-2 in the southern portion of the Site basement would allow for the removal of the bulk of the cVOC contaminant mass at the Site. The excavation would extend to bedrock (approximately three ft-bbg) in the PCE hotspot footprint and to two ft-bbg in the VC hotspot footprint within the Site basement to remove the cVOC-contaminated soil. The existing building slab will be partially demolished to facilitate excavation. Following excavation, the building slab will be repaired and any additional cracks in the building slab will be repaired.

End-point samples will be collected to document the condition of soils that will be left in-place and capped. This alternative includes a shallow excavation to a maximum depth of approximately three feet below basement grade (bedrock). At final excavation depth, end-point samples will be collected from the base of the hotspot excavations on a 15-foot grid, where bedrock is not encountered, and from the sidewalls of the excavation every 30 linear feet (LF) and will be analyzed for VOCs, SVOCs, TAL metals, pesticides, PCBs, 1,4-dioxane, and PFAS. If the end-point sample concentrations do not meet Commercial Use SCOs for non-cVOC constituents and the Protection of Groundwater SCOs for all cVOCs, excavation and additional end-point sampling will continue until the appropriate SCOs are met.

The extent of the hot spot excavation is depicted on Figure 7. Post excavation endpoint sample locations are depicted on Figure 8.

A CAMP (Appendix A) and Soil/Materials Management Plan (Appendix C) will be implemented during the invasive Site activities to prevent or minimize potential impacts to human health and the environment. End-point samples will confirm the removal of soil to concentrations below Commercial Use SCOs for non-cVOC constituents and the Protection of Groundwater SCOs for cVOCs.

This alternative is the preferred remedy as it is appropriate for source removal and the continued commercial use of the Site.

Alternative 2 – Track 1 Excavation. Excavation of all soil with concentrations above the Unrestricted Use SCOs would be completed. Based on previous investigations completed at the Site, this alternative would include an additional (compared to Soil Alternative 1) excavation in the northwest corner of the Site basement, at depths up to three feet below basement grade (bedrock)

to address detections of 2-butanone exceeding Unrestricted Use SCOs. The Protection of Groundwater SCOs are the same as the Unrestricted Use SCOs for all cVOC contaminants of concern, therefore, excavation of the cVOC hotspot in the Site basement would be implemented in accordance with *Alternative 1*.

End-point samples would be collected to confirm that Unrestricted Use SCOs have been achieved across the Site. At final remedial excavation depth (approximately three feet below basement grade), end-point samples will be collected from the base of the hotspot excavation on a 15-foot grid, where bedrock is not encountered, and from the sidewalls of the excavation every 30 linear feet (LF) and will be analyzed for VOCs, SVOCs, TAL metals, pesticides, PCBs, 1,4-dioxane, and PFAS. If end-point sample concentrations do not meet the Unrestricted Use SCOs, additional excavation and end-point sampling will continue until the Unrestricted Use SCOs are met.

5.1.2 Soil Vapor

One remedial alternative was considered to address the levels of cVOCs present in the soil vapor at the Site and beneath the Site building and the potential for future vapor intrusion into the Site building.

Alternative 1 – Active Sub-Slab Depressurization System, Vapor Barrier and Vapor Sealant. Installation of an active sub-slab depressurization system (SSDS) on- and offsite within the Site building, installation of a vapor sealant on- and offsite on the existing cellar slab of the Site building, and installation of the minimum 20-mil vapor barrier beneath the new slab to be installed over the cVOC hotspots following excavation would mitigate the potential for elevated concentrations of cVOCs in soil vapor beneath the building slab to migrate into the interior of the building. The SSDS would create a negative pressure beneath the building slab, resulting in the collection of any VOCs that might otherwise migrate into the interior of the building. The system would connect to an exterior blower that will release trapped VOCs into the atmosphere about the building's roofline to be diluted with ambient air. Exhaust of VOC-impacted soil vapor will conform to the requirements set forth in the NYSDOH Soil Vapor Guidance. Given the presence of groundwater directly below the slab in some areas, each riser will be fitted with a valve.

Confirmation testing will be performed following the installation of the system to verify that the system is achieving the depressurization goal set by the Remedial Engineer. If the test shows a sub-slab vacuum below the depressurization goal, corrective measures would be implemented. Possible corrective measures include adjusting flow rates of individual soil vapor suction points, increasing the size of the suction point, adding additional suction points, and adding an additional blower. Permanent vapor monitoring points to accommodate confirmation testing of the system will be installed prior to the installation of the vapor barrier.

A vapor sealant will be applied to the existing Site basement slab on- and offsite to mitigate potential soil vapor intrusion. The vapor sealant will be installed over the existing concrete basement slab within the Site, north adjoining basement, and south adjoining basement, and consist of a chemically resistant seal with a minimum thickness of 20-mil. The vapor sealant would be Retro-Coat, manufactured by Land Science Technologies and it would be installed by a licensed installer. A high-density polyethylene (HDPE) waterproofing membrane/vapor barrier would be

installed beneath the building slab to be poured over the cVOC hotspots following excavation. The waterproofing membrane/vapor barrier system will be a minimum thickness of 20-mil.

Baseline indoor air samples will be collected on-Site prior to the start-up of the SSDS, with post-remedial indoor air samples collected on-Site three months after the system start-up to evaluate the effect of the SSDS on cVOC concentrations in indoor air within the Site building. In general, four indoor air samples will be collected: one each from the Site basement and the north and south adjoining basements, and one from the southern perimeter of the slab-on-grade portion of the home goods store tenant space. Indoor air samples will be analyzed for VOCs via EPA Method TO-15. The results of the indoor air sampling will be presented in tabular form and discussed in the Final Engineering Report (FER).

Long-term institutional and engineering controls for this Alternative would include maintenance of the SSDS, annual inspection and certification of the on-Site SSDS by a professional engineer, submission of periodic review reports (PRRs) to NYSDEC, and general site management activities. Figure 12 depicts the locations of the vapor sealant and vapor barrier systems.

5.1.3 Groundwater

One remedial alternative for groundwater has been considered and is described below.

Alternative 1 – In-Situ Chemical Oxidation Treatment. Implementation of in-situ chemical oxidation (ISCO) involves introducing an oxidant into the subsurface via injection in order to break down chlorinated solvent contaminants into less toxic degradation products. The type and dosing of the oxidant will be determined through a pilot test. A typical oxidant used to treat cVOCs is potassium permanganate. ISCO is a viable alternative for remediation of cVOCs in groundwater on-Site and emanating off-Site. Long term engineering controls would include groundwater monitoring.

Post-remedial groundwater sampling will be performed in accordance with a SMP to evaluate the efficacy of the ISCO treatment. In general, it is anticipated that post-remedial groundwater samples will be collected from five existing monitoring wells: two on-Site (MW-3 and MW-4), one off-Site and upgradient (MW-2), and two off-Site and downgradient (MW-5 and MW-8). The first round of post-remedial groundwater sampling will occur three months after the start of the groundwater remedy. Groundwater samples will be analyzed for cVOCs and PFAS. If the results of the first post-remedial groundwater sampling indicate that cVOC concentrations have decreased below applicable standards, one confirmatory round of samples will be collected after an additional three months, at which point the groundwater remedy will be considered complete and a request to discontinue monitoring will be submitted to NYSDEC and NYSDOH. Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. If cVOC concentrations have not decreased below applicable standards, additional treatment may be required and additional post-treatment samples will be collected.

Groundwater in the New York City area is not used as a potable (drinking) water source. New York City residents receive their drinking water supply from surface reservoirs located in upstate New York.

This alternative is the preferred remedy as it is appropriate for both the detected concentrations and lithology of the Site.

5.2 Standards, Criteria and Guidance (SCGs)

The Remedial Action SCGs are listed below.

SCG	Scope / Application
NYSDEC Brownfield Cleanup Program Guide (draft 2004)	General program guidance
NYSDEC CP-51 / Soil Cleanup Guidance (2010)	Restricted Use SCOs for soil
NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (2010)	End-point sampling methodology; underground storage tank (UST) closure
NYSDEC DER-31 Green Remediation (2011)	Green remediation components
NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (1998)	Class GA Standards for groundwater
NYSDOH Guidance for Evaluating Soil Vapor Intrusions in the State of New York (2006)	Soil vapor guidance
NYSDOH Generic Community Air Monitoring Plan	Plan for monitoring dust and volatile organics resulting from construction activities
New York State Codes, Rules and Regulations (NYCRR) Title 6 Part 360 – Solid Waste Management Facilities	Off-Site disposal of waste for facilities in NYC
New York State Codes, Rules and Regulations (NYCRR) Title 6 Part 364 – Waste Transporter Permits	Transporter requirements for off-Site disposal of waste
6 NYCRR Part 370 – Hazardous Waste Management System	Disposal of hazardous waste, if encountered
6 NYCRR Part 375 – Environmental Remediation Programs (December 2006)	General administrative guidance
6 NYCRR Part 376 – Land Disposal Restrictions	Disposal of hazardous waste, if encountered
6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Regulations	Discharge of wastewater and stormwater
Code of Federal Regulations (CFR) Title 29 Part 1910.120 - Hazardous Waste Operations and Emergency Response Standard	Worker safety
29 CFR Title 29 Part 1926 - Safety and Health Regulations for Construction	Worker safety
40 CFR Parts 144 and 146 – Underground Injection Control Program	Injection of chemicals into the groundwater

SCG	Scope / Application
Title 15, Rules of the City of New York (RCNY), Chapter 19 - Use of the Public Sewers	Discharge of groundwater to the municipal sewer system
NYCDEP Limitations for Effluent to Sanitary or Combined Sewers	Discharge of groundwater to the municipal sewer system

5.3 Evaluation of Alternatives

The remedial alternatives for soil, groundwater and soil vapor are discussed below. Each alternative was evaluated based on the following remedy selection factors (as defined in DER-10, Section 4.2):

- Protection of human health and the environment
- Conformance with standards, criteria and guidelines
- Short-term effectiveness and performance
- Long-term effectiveness and performance
- Reduction in toxicity, mobility or volume
- Implementability
- Cost effectiveness
- Green and Sustainable Remediation (including climate resiliency);
- Community acceptance
- Land use

5.3.1 Protection of Human Health and the Environment

Each alternative would be protective of human health and the environment. The cVOC hot spot would be removed to meet Commercial Use SCOs for non-cVOC constituents and the Protection of Groundwater SCO for all cVOCs, consistent with the continued commercial use of the Site and the concentrations detected in groundwater. Groundwater in this area is not used as a source of drinking water. Short-term soil vapor impacts have been mitigated prior to implementation of the Remedial Action by the installation of air purifying canisters in the two occupied tenant spaces. As part of the Remedial Action, the source of potential soil vapor impacts would be removed, a vapor sealant/barrier would be installed above the existing basement slab, a vapor barrier would be installed beneath the new building slab over the cVOC hotspots, and an active SSDS would be installed in the Site building to mitigate any potential vapor intrusion.

A Health and Safety Plan (HASP), including monitoring/management for particulates and volatiles will be implemented during remedial activities.

5.3.2 Conformance with Standards, Criteria and Guidelines

Each alternative would conform to the SCGs. The soil alternatives would remove the bulk of cVOC soil impacts.

On-site construction safety will conform to the HASP requirements, which incorporate Occupational Safety and Health Administration (OSHA) requirements.

5.3.3 Short-Term Effectiveness and Performance

Each alternative would be effective over a short-term time horizon. The air purifying canisters installed in the two occupied tenant spaces are addressing potential short-term soil vapor intrusion conditions while the existing building is in use prior to implementation of the Remedial Action. The soil alternatives are consistent with the proposed use. Soil Alternative 2 (Track 1 SCOs) is associated with the most significant short-term impacts, related to the increased duration associated with more extensive soil removal. These impacts include the potential for particulate and volatile impacts and additional truck traffic. To a slightly lesser extent, Soil Alternative 1 (Track 4 SCOs) would have similar potential impacts. These potential impacts are addressed in the various control plans included in this RAWP.

5.3.4 Long-Term Effectiveness and Performance

Each alternative would be effective over a long-term time horizon. The two soil alternatives, the groundwater alternative and the soil vapor alternative would be consistent with the proposed use with long-term engineering controls. Groundwater in this area is not used as a source of drinking water and the source of potential impacts to soil vapor would be removed. A vapor sealant would be installed over the existing basement slab, a vapor barrier would be installed beneath the new building slab over the cVOC hotspots, and an active SSDS will be installed in the Site building to mitigate potential soil vapor intrusion from residual or off-Site sources.

5.3.5 Reduction in Toxicity, Mobility or Volume

Each alternative would reduce the toxicity, mobility and volume of the contaminants present on-site. In particular, Soil Alternatives 1 (Track 4 SCOs) and 2 (Track 1 SCOs), the Groundwater Alternative 1 (ISCO) and Soil Vapor Alternative 1 (active SSDS, vapor sealant, and vapor barrier) would remove the bulk of the impacts present at and adjacent to (but within the Site building) the Site.

5.3.6 Implementability

Each alternative would be implementable. Soil Alternatives 1 (Track 4 SCOs) and 2 (Track 1 SCOs), Groundwater Alternative 1 (ISCO) and Soil Vapor Alternatives 1 (active SSDS, vapor sealant, and vapor barrier) can be implemented as part of the Site remedial action utilizing standard environmental and construction means and methods.

5.3.7 Cost Effectiveness

The implementation of Soil Alternative 1 (Track 4 SCOs), Groundwater Alternative 1 (ISCO) and Soil Vapor Alternative 1 (active SSDS, vapor sealant, and vapor barrier) is estimated at approximately \$400,000, as shown in Table 9. Additional reporting and long-term monitoring costs, approximately \$150,000, would also be incurred. The costs to implement Soil Alternative 2 (Track 1 SCOs) would be slightly higher due to the additional excavation by area in the Site basement.

5.3.8 *Green and Sustainable Remediation*

Both alternatives implement a variety of green remediation principles and techniques (See Section 5.4). An environmental footprint analysis was conducted for both remedial alternatives. The same volume of hazardous waste will be disposed of offsite at a landfill, while approximately two tons of additional non-hazardous waste will be disposed of offsite at a landfill under Soil Alternative 2 (Track 1 SCOs) compared to Soil Alternative 1 (Track 4 SCOs). In addition, Soil Alternative 2 (Track 1 SCOs) will result in slightly more air emissions than Soil Alternative 1 (Track 4 SCOs) due to the additional excavation and offsite disposal required. The environmental footprint analyses for each proposed remedial alternative are included in Appendix G.

5.3.9 *Community Acceptance*

Each alternative eliminates potential exposure pathways and will result in a decrease in toxicity, mobility and volume (see Section 5.3.5). These considerations, in conjunction with the continued commercial use of the Site and acknowledgement that groundwater is not used as a potable source of water in this area of the Bronx, should result in acceptance by the community.

The short-term impacts (see Section 5.3.3) are greater due to the additional construction impacts, although these will be addressed by the various control plans in this RAWP. The selected remedy will be subject to a 45-day public comment period in accordance with the Citizen Participation Plan. Any substantive public comments received will be addressed before the remedy is approved.

5.3.10 *Land Use*

Each of the proposed alternatives is compatible with the proposed land use at the Site, which has been documented in the BCP Application and in Section 1.3.

The following findings, based on a review of previous environmental and public documents, support the compatibility of the proposed Site land use with that of the surrounding area:

1. The use proposed for the Site conforms to applicable zoning laws or maps or the reasonably anticipated future use of the Site.
2. The proposed use conforms to historical and/or recent development patterns in the area.
3. The Site does not fall within the boundaries of an existing Brownfield Opportunity Area (BOA).
4. According to the New York City Planning Commission Zoning Map, the Site is located in an R7-1 zoning district with a C2-2 commercial overlay; a designation that typically denotes a medium density apartment house district with commercial uses that serve local retail needs.
5. The Site is located in an urban setting characterized by residential and commercial uses. There are no areas zoned for agricultural use in the proximity of the Site.
6. According to the NYSDEC database for environmental justice concerns, the Site is part of a Potential Environmental Justice Area (PEJAs).
7. There are no federal or state land designations.
8. The population growth patterns and projections support the proposed land use.
9. The Site is accessible to existing infrastructure.

10. The Site is not located in close proximity to important federal, state or local natural resources, including waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species.
11. Municipal water supply wells are not present in this area of New York City; therefore, groundwater from the Site cannot affect municipal water supply wells or recharge areas. The Federal Emergency Management Agency (FEMA) flood insurance rate map for the Site (Map Number 3604970102F) indicates that the Site is not located within the 0.2% annual chance floodplain (500-year flood).

5.4 Selection of the Preferred Remedial Actions

The preferred Track 4 remedy, intended to address all environmental issues associated with the Site, consists of the following: Soil Alternative 1 (Track 4 SCOs), Groundwater Alternative 1 (ISCO) and Soil Vapor Alternative 1 (active SSDS, vapor sealant and vapor barrier). The preferred remedy is further described below:

- A remedial program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:
 - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
 - Reducing direct and indirect greenhouse gases and other emissions;
 - Increasing energy efficiency and minimizing use of non-renewable energy;
 - Conserving and efficiently managing resources and materials;
 - Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
 - Maximizing habitat value and creating habitat when possible;
 - Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
 - Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
 - Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.
- As part of the remedial program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis was completed. The environmental footprint analysis was completed using an accepted environmental footprint analysis calculator, SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA). Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use was estimated for each proposed remedial alternative in this RAWP, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and

natural and cultural resources, and promoting environmental justice, were incorporated into the remedial program, as appropriate. The project includes detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial program.

Additionally, the remedial program includes a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise were assessed, and the remedial program adjusted to incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

- Excavation and off-Site disposal of all on-site soils which exceed the Commercial Use SCOs for non-cVOC constituents and the Protection of Groundwater SCOs for all cVOCs, as defined by 6 NYCRR Part 375-6.8, at all depths throughout the Site. Track 4 SCOs will be achieved through excavation and off-Site disposal of a 580 square foot PCE hotspot and a 25 square foot VC hotspot below the Site basement. Approximately 65 cubic yards of soil will be disposed of off-Site;
- Disposal of impacted material from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
- Collection and analysis of post-remedial end-point samples to document remaining concentrations of contaminants. Samples will be evaluated for attainment of Protection of Groundwater SCOs for cVOCs and Commercial Use SCOs for all non-cVOC analytes, which would support a Track 4 remedy;
- Import of materials to be used for backfill and cover in compliance with: (1) the Part 375-6.7(d) and (2) all Federal, State and local rules and regulations for handling and transport of material;
- Completion of an in-situ chemical oxidation (ISCO) groundwater treatment via injection. A pilot study will be completed to determine design considerations, including the chemical to be used, and final number and locations of the injection points. A groundwater remedy Design Document will be submitted under separate cover to NYSDEC for approval;
- Quarterly post-remedial groundwater sampling to confirm the efficacy of the ISCO, beginning approximately three months after the first round of injections;
- Installation of a minimum 20-mil waterproofing membrane/vapor barrier beneath the new section of building slab to be installed over the cVOC soil hotspots;
- Installation of a vapor sealant on top of the existing basement slab. Prior to installation of the vapor sealant, the building slab will be visually inspected and any cracks or openings will be sealed;
- Installation of an active SSDS within the existing Site building. A communication test will be performed to determine the radius of influence and design parameters of the SSDS. A blower test will be performed for the system to determine the final fan size required to meet the system design parameters. A SSDS Design Document for the system will be submitted under separate cover to NYSDEC and NYSDOH for approval;

- Efficacy of the active SSDS will be confirmed via achieving the required -0.02” water column depressurization throughout the sub-slab. Post-remedial (three months following SSDS start-up) indoor air sampling will be conducted for additional evaluation of the on-Site SSDS;
- Preparation of a Final Engineering Report (FER) to document the implemented remedial actions; and,
- Development of a Site Management Plan (SMP) for long term management of residual contamination as required by an Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, and (3) reporting.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the Department-issued Decision Document. All deviations from the RAWP and/or Decision Document will be promptly reported to NYSDEC for approval and fully explained in the FER. The Site source of chlorinated compounds (i.e., the soil in the northwest portion of the Site basement) will be removed. Site soils will meet the Commercial Use SCOs for non-cVOC constituents and the Protection of Groundwater SCOs for all cVOCs, and end-point sampling will confirm targeted SCOs are met. Potential soil vapor impacts will be mitigated by removing the source of chlorinated solvents in soil and groundwater, installing an active SSDS within the Site building, installing a vapor sealant above the existing building slab, and installing a vapor barrier beneath the new building slab to be installed over the cVOC hotspots following excavation to mitigate potential soil vapor intrusion from residual or off-Site sources.

The following land-use factors were considered in selecting these remedial measures. Land Use Factor	Remedy Evaluation Result
Zoning	Remedy is consistent
Applicable comprehensive community master plans or land use plans	Remedy is consistent (not within a Brownfield Opportunity Area)
Surrounding property uses	Remedy is consistent
Citizen participation	Remedy is consistent; CPP requirements implemented regardless of selected remedy
Environmental justice concerns	Remedy is consistent
Land use designations	Remedy is consistent
Populations growth patterns	Remedy is consistent
Accessibility to existing infrastructure	Remedy is consistent
Proximity to cultural resources	None identified
Proximity to natural resources	None identified
Off-Site groundwater impacts	Remedy removes the source of the chlorinated impacts. Groundwater will be monitored on-Site following implementation of the remedy.
Proximity to floodplains	Site is outside the 500 year flood zone.
Geography and geology of the Site	Remedy is consistent
Current Institutional Controls	None currently present

Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and,
- Integrating the remedy with the end use where possible.

6.0 REMEDIAL ACTION PROGRAM

6.1 Governing Documents

6.1.1 Site Specific Health and Safety Plan

A Site Specific HASP has been created for the Site and is included in Appendix B. All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. An emergency contact sheet with names and phone numbers is included in Table 1 of the HASP and defines the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency. The HASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

6.1.2 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) has been created for the site to address quality control and quality assurance procedures for all site sampling, including post excavation end-point sampling, post-remedial groundwater sampling, and post-remedial indoor air sampling and is included in Appendix D.

6.1.3 Soil/Materials Management Plan

The Soil/Materials Management Plan (SMMP) includes plans for managing all soils/materials that are disturbed at the Site. The SMMP includes provisions for sediment and erosion control and stormwater management. The development is less than one acre in area and a Stormwater Pollution Prevention Plan (SWPPP) is not required.

The SMMP, which describes procedures for excavation, handling, storage, and transport and disposal, is included in Appendix C.

6.1.4 Community Air Monitoring Plan

The purpose of the Community Air Monitoring Plan (CAMP) is to protect downwind receptors (e.g., residences, businesses, schools, nearby workers, and the public) from potential airborne contaminants released as a direct result of the Remedial Action being performed at the Site. A summary of the CAMP plan is included in Appendix A.

6.1.5 Citizen Participation Plan

The Citizen Participation Plan (CPP) enables citizens to participate more fully in decisions that affect their health, environment, and social well-being. The CPP will be updated throughout the Remedial Action in response to any community feedback.

6.1.6 Site Operations Plan

The Remedial Engineer is responsible to ensure that all 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.

6.2 General Remedial Construction Information

6.2.1 Project Organization and Emergency Contacts

The following are the principal personnel who will be assist in the management, oversight and completion of this project:

Remedial Engineer

Matthew M. Carroll, PE
1085 Sackett Avenue
Bronx, NY 10461
(917) 510-6767

Tenen Environmental, LLC

121 West 27th Street, Suite 702, New York, NY 10001
(646) 606-2332

- Alana Carroll, Professional Geologist: responsible for overall coordination and management of the project.
- Mohamed Ahmed, Professional Geologist: responsible for quality assurance of sampling procedures and laboratory data.
- Ashley Platt, Project Geologist: responsible for the day-to-day field monitoring activities, including soil excavation and load-out, dust monitoring and PID monitoring. Report preparation will be the function of a Project Geologist from Tenen.

Subcontractors

Laboratory:

York Analytical Laboratories, 132-02 89th Avenue, Suite 217 in Richmond Hill, NY
(203) 325-1371

NYSDOH Environmental Laboratory Approval Program (ELAP) Certification No. 10854 for solid and hazardous waste

Driller:

AARCO Environmental Services Inc, 50 Gear Avenue, Lindenhurst, NY 11757
(631) 586-5900

Data Validation:

L.A.B Validation Corp., 14 West Point Drive, East Northport, NY 11731
(516) 523-7891

Remedial Party:

Ralford Realty Corp.
8 West 40th Street, New York, NY 10018
Attn: Anthony Scovotti
(914) 261-1482

Resumes of key personnel involved in the Remedial Action are presented in the QAPP, included as Appendix D.

6.2.2 Remedial Engineer

The Remedial Engineer (RE) for this project will be Matthew M. Carroll, P.E. The RE is a registered professional engineer (PE) licensed by the State of New York. The RE will have primary direct responsibility for implementation of the remedial program for the 2921 Westchester Avenue site (NYSDEC BCA Index No. C203140-10-20; Site No. C203140). The RE will certify in the Final Engineering Report (FER) that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 have been achieved in conformance with that Plan. Other RE certification requirements are listed later in this RAWP.

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

The RE will review all pre-remedial plans submitted by contractors for compliance with this RAWP and will certify compliance in the FER.

6.2.3 Remedial Action Construction Schedule

A general Remedial Action construction schedule is included in Table 10.

6.2.4 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. NYSDEC will be notified by the Participant of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

6.2.5 Mobilization

Mobilization includes field personnel orientation, equipment mobilization (including CAMP equipment), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures. The contractor will mobilize all necessary materials and equipment on Site directly prior to the initiation of any remedial activities. Material stockpile and equipment decontamination areas will be designated.

6.2.6 Erosion and Sedimentation Controls

All work will be completed within the existing basement of the Site building, approximately ten feet below sidewalk grade. If any catch basins are identified that could receive sediment-laden stormwater, they will be protected.

6.2.7 Stabilized Construction Entrances

All excavated soil will be staged in lined containers for disposal and stabilized construction entrances will not be needed.

6.2.8 Equipment and Material Staging

All equipment and materials will be stored at the Site in accordance with the requirements of this RAWP, manufacturer's recommendations, and in conformity to applicable statutes, ordinances, regulations, and rulings of the public authority having jurisdiction. There will be no specific material or equipment staging area; any staging will be in areas where space permits. The Remedial Contractor shall not store materials or encroach upon private property without the written consent of the owners of such private property. No work shall commence until Notice to Commence work is provided by the Remedial Engineer.

6.2.9 Decontamination Area

Equipment decontamination will take place on-Site in order to prevent dispersion of any contaminating materials.

6.2.10 Demobilization

Disturbed areas resulting from remediation activities will be restored or addressed during construction activities. Restoration of disturbed access areas to pre-remediation conditions will include decommissioning any temporary curb supports for equipment access, if applicable.

Sediment and erosion control measures, if any, will be removed upon completion of the remediation activities.

All remediation and construction materials will be disposed of in accordance with the applicable rules and regulations. General refuse will be handled in accordance with the rules and regulations of the New York City Department of Sanitation.

6.2.11 Sheet piling and Shoring

Excavation will extend to a maximum three feet below basement grade (bedrock) as part of this RA and sheet piling/shoring will therefore not be necessary.

6.2.12 Utility Markout and Easement Layout

The Participant and its 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 Participant and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Participant and its 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.

6.2.13 Required Permits

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 is included as Table 11. 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 FER.

6.2.14 Site Security and Signage

All on-Site work will be performed within the existing Site building, restricting access to construction workers and on-Site personnel only. Work to be performed on sidewalks along public roadways will utilize barriers and traffic cones as necessary to prevent unauthorized access to work zones, protect pedestrians from remedial action activities, and maintain Site security.

6.2.15 Pre-Construction Meeting with NYSDEC

The NYSDEC Project Manager will be invited to attend a pre-remedial action meeting at the Site with all parties involved in the remedial process prior to implementation of the RAWP.

6.2.16 Estimated Remedial Action Costs

The estimated cost to implement the Remedial Action is approximately \$400,000. Additional costs, approximately \$150,000, would be incurred for reporting and long-term monitoring. An itemized summary of estimated costs is included as Table 9. This table will be revised based on actual costs and included in the FER.

6.2.17 Deviations from the Remedial Action Plan

During the implementation of the RAWP, any material deviation from the RAWP will be noted and immediately brought to the attention of the RE. The RE or his representative will contact the NYSDEC Project Manager and determine if the deviation necessitates a formal RAWP modification and NYSDEC approval. If no formal RAWP modification is required, the deviation will be noted in the Site reports and explained in the FER.

6.3 Reporting

6.3.1 Daily Reporting

Daily reports will be submitted to the NYSDEC Project Manager by the end of each day following the reporting period and will include:

- An update of progress made during each day;
- Locations of work and quantities of material imported and exported from the Site;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP findings, including excursions; and,
- An explanation of notable Site conditions.
- Photos highlighting day's remedial activity

Daily reporting will be conducted during active Site remediation periods including hotspot soil excavation, air monitoring, soil segregation, off-Site disposal of material, endpoint sampling, active SSDS installation, vapor sealant installation, waterproofing membrane/vapor barrier installation, and pouring of the concrete foundation slab over the cVOC hotspots.

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

Daily reports will include a description of daily activities keyed to a 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 any complaints received from the public. All complaints received will immediately be reported to NYSDEC.

The NYSDEC assigned project number will appear on all reports.

6.3.2 Monthly Reporting

Monthly reports will be submitted to NYSDEC Project Manager by the 10th day of the following month 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.);
- Photographs of the work completed during the reporting period;
- Description of approved activity modifications, including changes to 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.

6.3.3 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 included in the daily reports as needed, and a comprehensive collection of photos will be included in the Final Engineering Report.

Progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the FER, including a comparison to the goals

established during the remedial program. Regular updates to the metrics used (SEFA) will be included.

A Climate Screening checklist was completed for the Site and temperature (extreme heat or cold events) and storm severity were identified as potential climate hazards that could impact the Site. A telemetry system will be installed with the active SSDS to alert project contacts in the event of any power outages or surges. The Climate Screening process and results are documented in the form of a completed checklist, included in Appendix G. The checklist will be updated following completion of the Remedial Action and included in the Final Engineering Report. If future Climate Screening results indicate that a CVA is necessary, a complete CVA Report will be developed. The CVA Report will be included as an Appendix or Attachment in relevant documents and/or submitted as a standalone report.

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

6.3.4 Complaint Management

All complaints received will be logged in by the Remedial Engineer and reported in the daily report. Each complaint will be investigated as to its validity, the source determined, and a resolution adopted. Once a remedy has been put in place it will be recorded with the original complaint and reported in the daily report.

7.0 REMEDIAL ACTION IMPLEMENTATION: EXCAVATION

As discussed in Section 5.3, the components of the remedial action include the excavation and off-Site disposal of soil for attainment of Commercial Use SCO for non-cVOC constituents and the Protection of Groundwater SCO for all cVOCs. The applicable SCOs are presented in Tables 6 and 7.

An approximate 580-SF cVOC hotspot in the northwestern portion of the Site basement will be excavated to approximately three feet below basement grade (i.e., to bedrock). In addition, an approximate 25-SF vinyl chloride hotspot in the southern portion of the basement will be excavated to approximately two feet below basement grade. As further described below, the major components of the excavation remedial action include characterization for disposal, implementation of the SMMP and CAMP, excavation and off-Site disposal of impacted materials, closure of any encountered USTs, and end-point sampling.

Based on the maximum detected concentration of PCE, 34 milligrams per kilogram (mg/kg), the material will be disposed as F-002 hazardous waste.

Potential migration of off-Site contamination onto the Site will not affect the future use of the building due to the installation and maintenance of a vapor sealant, vapor barrier and composite cover system.

7.1 Estimated Material Removal Quantities

The estimated quantity of soil/fill to be removed from the Site for remedial and development purposes is approximately 65 cubic yards (CY).

7.2 Soil Characterization

Soil characterization is not currently proposed prior to excavation. Excavated materials will be containerized on-Site and staged for pickup. The soil will be characterized at that time and the results provided to NYSDEC. A sample will be collected from the soil and tested in a manner that is consistent with disposal facility requirements, which generally require the following:

- Total petroleum hydrocarbons (TPH) by gas chromatograph/photoionization device (GC/PID);
- Total VOCs via USEPA Method 8260C;
- Total SVOCs via USEPA Method 8270D;
- TAL Metals via USEPA Method 6010B/7470A;
- Total PCBs via USEPA Method 8082;
- Pesticides via USEPA Method 8081A;
- Paint Filter via USEPA Method 9095B;
- RCRA Characteristics:
 - Ignitability via USEPA Method 1030;
 - Corrosivity by USEPA Method 1110A;
 - Reactivity; and,

- Toxicity Characteristic Leachate Procedure (TCLP) Metals via USEPA Method 1311.

Depending on the selected facility, additional analyses may be required. Characterization samples will be submitted to an ELAP-approved laboratory (also holding accreditation for the disposal facility state) for analysis. Analytical reports will be maintained, and copies will be available for inspection in the field and will be included in the FER.

7.3 Soil/Materials Management Plan (SMMP)

Soil and materials management on-Site will be conducted in accordance with the SMMP and as described below. The main goal of the SMMP is to handle all potentially contaminated soil and manage activities associated with soil in a manner that prevents contamination from reaching the community, workers, future occupants and workers, and the environment. Contaminated soil must be managed in a manner that ensures removal, transport, and disposal such that it fulfills applicable regulatory requirements. The means and methods to meet this goal are included in the SMMP, included as Appendix C.

7.4 Community Air Monitoring Plan (CAMP)

The main goal of the CAMP is to keep objectionable odors, VOCs and/or particulates from reaching the surrounding community. The NYSDOH Generic CAMP, which includes monitoring for VOCs and particulates, will be implemented.

Should objectionable odors be produced during excavation, the area to be disturbed at any one time will be limited and, if necessary, foam cover will be utilized (Rusmar Incorporated AC-645 Long Duration Foam or approved equivalent), following the manufacturer's recommended application rate.

The CAMP is included as Appendix A.

7.5 Materials Transport Off-Site

Due to the limited quantity of fill/soil to be generated, material will be placed in a roll-off container prior to off-Site disposal. The container will be lined with plastic sheeting and covered with a heavy duty tarp at night and during transportation.

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 and having tight fitting, secure covers made of solid tightly woven material (not mesh).

The roll-off container will be loaded on the sidewalk of Pilgrim Avenue, which exits to the two-way Buhre Avenue. Truck will make a right onto Buhre Avenue the make the first left onto Westchester Avenue. Once on Westchester Avenue, trucks will make a right onto Wilkinson Avenue and continue onto I-95 North, which is a truck through route.

This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) limiting total distance to major

highways; (d) promoting safety in access to highways; and (e) overall safety in transport. All trucks loaded with Site materials will exit the vicinity of the Site using only the most current New York City Department of Transportation (NYCDOT)-approved truck routes (currently the 2022 New York City Truck Route Map).

7.6 Dewatering and Fluids Management

Due to the shallow perched water table, which is present immediately below the basement slab at the Site, dewatering will be required during remedial action implementation. Dewatering would be accomplished via a sump pump and all liquids would be containerized, sampled, and managed for transportation and disposal at an off-Site treatment facility. The flow of water will be limited by a temporary bentonite or concrete slurry wall around the perimeter of the proposed excavation area.

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.

Dewatering 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 action implementation to surface waters (e.g., a local pond, stream, or river) is prohibited without a SPDES permit.

7.7 UST Removal

No known USTs are present at the Site. Any encountered USTs will be registered and closed in conformance with all applicable federal, state and local regulations, including those defined in DER-10 and 6NYCRR Parts 612 and 613. USTs will be registered with NYSDEC. NYSDEC will be notified seven days prior to removal of any USTs. USTs will be removed by a contractor licensed by the New York City Fire Department (FDNY) in accordance with the procedures set forth in the American Petroleum Institute (API) Recommended Practice 1604 entitled “Removal and Disposal of Used Underground Storage Tanks”.

7.8 Monitoring Well Decommissioning

Existing monitoring wells that will not be part of the long-term monitoring will be decommissioned in accordance with NYSDEC Groundwater Monitoring Well Decommissioning Policy (CP-43), dated November 3, 2009.

7.9 Remedial Performance Evaluation

Post-Excavation End-Point Sampling

End-point samples will be collected from the base of the hotspot excavations every 900-SF, where bedrock is not encountered², and from the sidewalls of the excavation every 30-LF. Sidewall and

² In areas where bedrock is encountered at the bottom of the remedial excavation, the bedrock will be inspected and photographs taken to document the condition of the bedrock and presence of any transmissive fractures.

bottom end-point samples will be analyzed for VOCs, SVOCs, TAL metals, pesticides, PCBs, 1,4-dioxane, and PFAS. It is anticipated that a total of five base of excavation end-point samples and eight sidewall end-point samples will be collected following implementation of the Remedial Action. Figure 8 presents a generalized post-excavation sampling location map for Soil Alternative 1, and Figure 10 presents a generalized post-excavation sampling location map for Soil Alternative 2.

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

All post-excavation sample results will be compared with the Protection of Groundwater and Commercial Use SCOs. The excavation will be extended if any samples show exceedances of the cleanup objectives. any soils not meeting the Commercial Use SCOs for non-cVOC constituents or the Protection of Groundwater SCOs for cVOCs within the hotspot excavations will be removed and the area backfilled with clean fill meeting the criteria outlined in this RAWP. The Commercial Use and Protection of Groundwater SCOs are listed in Tables 6 and 7, respectively.

7.9.1 Quality Assurance / Quality Control (QA/QC)

A Quality Assurance Project Plan (QAPP) detailing the frequency of sample collection, analytical methods and the quality standards that must be achieved by the analytical laboratory is included as Appendix D.

The QAPP includes provisions for trip blanks, field blanks, duplicates, matrix spike and matrix spike duplicate (MS/MSD) samples. The QAPP also describes field sampling procedures.

7.9.2 Data Usability Summary Report (DUSR)

A qualified data validator will prepare a Data Usability Report (DUSR). The DUSR will be prepared according to the guidelines contained in Appendix 2B of DER-10.

7.9.3 Reporting of End-Point Data in FER

The FER will provide a tabular and map summary of all end-point sample results and any exceedances of SCOs. All post-remedial end-point analytical data will be submitted in an electronic data deliverable (EDD) format that complies with the NYSDEC's electronic data warehouse standards.

7.10 Import Materials

Approximately 65 cubic yards of soil will be required for backfill following excavation of hotspot areas. Import of materials will be in compliance with: (1) the Part 375-6.7(d) and (2) all Federal, State and local rules and regulations for handling and transport of material, and is further discussed in Section 1.9 of the SMMP in Appendix C.

8.0 REMEDIAL ACTION IMPLEMENTATION: IN-SITU CHEMICAL TREATMENT

As discussed in Section 5.1.2, the components of the remedial action to address groundwater impacts include in-situ chemical oxidation (ISCO) and continued groundwater monitoring. The ISCO will remediate contaminated groundwater on-Site and contaminated groundwater that is emanating from the Site.

8.1 Pilot Test

The ISCO pilot test will be conducted to evaluate the potential full scale use of the ISCO technology to treat cVOCs in groundwater at the Site and emanating from the Site. The pilot test will include one round of sampling at the Site. One groundwater sample will be collected from the previously installed permanent groundwater monitoring well MW-5 and analyzed for oxidant demand. This downgradient off-Site location in the Site building contained the highest PCE concentration during previous sampling events. Given the lithology, soil oxidant demand will be estimated based on soil type.

The objective of the pilot test is to gain information sufficient to define the conditions needed to support an evaluation of the feasibility and long-term effectiveness of cVOC treatment using the ISCO remedial approach. The type and dosing of the activated carbon and oxidant will be determined after the completion of the ISCO pilot test.

Site-specific data will be collected in order to determine the following:

- Lateral spacing for injection points;
- The volume and concentration of chemical oxidant to be injected; and,
- The potential for rebound of chemical concentrations following one injection of chemical oxidant in order to evaluate the solution strength and frequency of additional injections (if needed) during the full-scale ISCO implementation.

The in-situ chemical treatment pilot test design was developed based on Tenen's understanding of the contaminant mass in the groundwater at the Site. The proposed injection area will be selected to target the area of highest cVOC concentrations. Following the ISCO pilot test, results of the test and the design for the ISCO treatment will be submitted to NYSDEC and NYSDOH for review and approval via a Design Document prior to ISCO implementation.

The ISCO Pilot Test Work Plan is included in Appendix F.

8.2 ISCO Implementation

The goal of the in-situ chemical oxidation treatment for the Site is to break down contaminant cVOCs into less toxic compounds through the introduction of oxidants into the subsurface via injection. A Design Document, to be provided following implementation of the ISCO pilot test, will describe the type of treatment chemical and dosing of the proposed injection points. The

Design Document will be submitted to NYSDEC for review and approval prior to ISCO implementation.

In general, the ISCO treatment will include the advancement of several injection well points within the on-Site cVOC plume area and at the off-Site location downgradient of the source area, where the highest concentrations of cVOCs were detected in groundwater during the RI. The injection well points will be permanent to accommodate reapplication of the treatment chemical, as necessary, during Site management, as determined by the results of the post-remedial groundwater sampling. The application of chemical injection, regardless of the method, is considered a Class V Well under the EPA Underground Injection Control (UIC) Program. Class V Wells are “used to inject non-hazardous fluids underground.” A UIC Permit will be obtained prior to application of any compound. Figure 13 displays the conceptual location and extent of the injection wells.

8.3 Remedial Performance Evaluation (Post-Remedial Groundwater Sampling)

Baseline and post-remedial groundwater sampling will be completed in accordance with a SMP. Baseline groundwater samples will be collected prior to ISCO injections and post-remedial groundwater sampling will begin approximately three months after the first round of injections into the injection well system. It is anticipated that groundwater samples will be collected quarterly for two years (i.e., eight quarters). It is anticipated that post-remedial groundwater samples will be collected from five existing permanent groundwater monitoring wells: two on-Site (MW-3 and MW-4), one off-Site and upgradient (MW-2), and two off-Site and downgradient (MW-5 and MW-8). Proposed post-remedial groundwater monitoring well locations are shown on Figure 14.

All existing wells will be decommissioned in accordance with Section 7.7 and post-remedial monitoring wells will be installed in accordance with the SMP. All baseline and post-remedial groundwater samples will be analyzed for cVOCs and PFAS and compared to the NYSDEC Division of Water, Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (AWQS).

8.3.1 *Quality Assurance / Quality Control (QA/QC)*

A QAPP detailing the frequency of sample collection, analytical methods and the quality standards that must be achieved by the analytical laboratory is included as Appendix D.

The QAPP includes provisions for trip blanks, field blanks, duplicates, and MS/MSD samples. The QAPP also describes field sampling procedures.

8.3.2 *Data Usability Summary Report (DUSR)*

A qualified data validator will prepare a Data Usability Summary Report (DUSR). The DUSR will be prepared according to the guidelines contained in Appendix 2B of DER-10.

8.3.3 *Reporting of Data in FER*

The FER will provide a tabular and map summary of all post-remedial groundwater sample results and any exceedances of the AWQS. All baseline and post-remedial groundwater analytical data

will be submitted in an EDD format that complies with the NYSDEC's electronic data warehouse standards.

9.0 REMEDIAL ACTION IMPLEMENTATION: ACTIVE SUB-SLAB-DEPRESSURIZATION SYSTEM, VAPOR SEALANT, AND WATERPROOFING MEMBRANE/VAPOR BARRIER

Following completion of the soil remediation as described in Section 7, an active sub-slab depressurization system (SSDS) will be installed on- and offsite within the basement of the existing Site building to mitigate the potential for soil vapor intrusion into the building. In addition, a vapor sealant will be installed over the existing Site building's basement slab onsite and in the north and south adjoining basements, and a waterproofing membrane/vapor barrier will be installed beneath the new portion of the building slab to be installed onsite over the cVOC soil hotspots within the Site basement to mitigate the potential for soil vapor intrusion from residual or off-Site sources. The active SSDS will be a permanent engineering control for the Site. The vapor sealant and vapor barrier will be a green remediation element for the Site.

The proposed on-Site vapor sealant and waterproofing membrane/vapor barrier system layouts are shown on Figure 12. The final SSDS design will be based upon the results of the communication test and submitted for approval to NYSDEC via a SSDS Design Document.

9.1 Vapor Sealant and Waterproofing Membrane/Vapor Barrier Selection

A vapor sealant consisting of a chemically resistant seal with a minimum thickness of 20-mil will be installed over the existing part of the building slab within the Site boundaries, the north adjoining basement, and the south adjoining basement. The vapor sealant is likely to be Retro-Coat™ caulk, manufactured by Land Science Technologies, or equivalent, to be installed by a licensed installer. Prior to installation of the vapor sealant, the building slab will be visually inspected and any cracks or openings in the slab will be repaired.

A continuous vapor barrier and waterproofing membrane will then be installed beneath the new portion of the building slab to be installed over the excavated 580-SF and 25-SF cVOC hotspots in the Site basement. The system will consist of a minimum 20-mil vapor barrier and waterproofing membrane. All welds, seams, and penetrations will be properly sealed according to manufacturer instructions to minimize preferential pathways for vapor migration. The vapor barrier will be installed in accordance with manufacturer instructions.

A plan view showing the location of the proposed vapor sealant and waterproofing membrane/vapor barrier systems is provided in Figure 12. The chosen vapor barrier to be used at the Site will be submitted to NYSDEC for approval prior to the start of the Remedial Action. The FER will include as-built drawings and diagrams, manufacturer documentation, and photographs of the installation. The vapor sealant and vapor barrier systems are green remediation elements for the Site.

9.2 Communication Test

Prior to installation of the SSDS, a communication test will be performed to assess the radius of influence and ensure that the system will create sufficient vacuum everywhere beneath the building slab. Test suction points will be installed through the building slab in multiple locations within the basement of the Site building. The static vacuum will first be measured by applying known

quantities of vacuum to the test suction points. Smaller test points will be drilled at select distances from the test suction points, and a manometer will be utilized to measure the pressure differential. The data from the communication test and the measures volume of the exhaust system will be used to determine the number of suction points and the types and capacities of suction blowers required for the SSDS.

The communication test will be conducted upon approval of the RAWP, and a design document will be submitted to NYSDEC for approval prior to implementation of the Remedial Action.

9.3 Active Sub-Slab Depressurization System

An active SSDS will be installed within the Site building to minimize the potential for vapor intrusion into the building basement. The SSDS will depressurize below the current basement slab within the Site building as compared to the building environment. The SSDS has been designed to create a pressure differential of approximately -0.02 in-wc beneath the building slab, as compared to the building air pressure.

The SSDS will consist of multiple suction pits installed beneath the building slab that will be connected to a blower on the roof via cast iron (interior) and PVC (exterior) piping. To create the suction pits, the existing slab will be saw cut and the underlying soil will be removed to a depth of at least 18 inches. The void space will be lined with geotextile fabric and a layer of ¾" clean stone aggregate (or similar material).

Several pressure monitoring points will be installed throughout the slab to confirm the resulting pressure field. The layout of the proposed suction pits and monitoring points will be provided to NYSDEC for approval via a SSDS Design Document that will be prepared following the communication test.

As noted above, the existing building slab will be inspected for cracks. If any are identified, they will be filled with a non-VOC sealant (e.g., Retro-Coat™ caulk).

A pipe (4" nominal size) will be inserted into each suction pit. The slab penetration points will be sealed with a chemically resistant sealant (e.g., bituthene liquid membrane). The riser pipes will connect to exterior common PVC header pipes that will run outside the building to the roof. All horizontal piping runs will be slightly pitched back towards the pressure relief point to allow for drainage of any moisture. The final location of all vertical riser piping, header piping, and roof mounts will be determined by a Professional Engineer in consultation with the building owner.

A blower capable of creating the required flow will be mounted on the roof. In order to size the blower, a blower test (described below) will be performed after the sub-grade components are installed beneath the building slab.

To avoid entry of extracted subsurface vapors into the building, the vent pipe's exhaust will conform to the NYSDOH Soil Vapor Intrusion Guidance, specifically *Section 4.2.2, System-specific recommendations*, which reads:

To avoid entry of extracted subsurface vapors into the building, the vent pipe's exhaust should be:

- Above the eave of the roof (preferable, above the highest eave of the building at least 12 inches above the surface of the roof),
- At least 10 feet above ground level,
- At least 10 feet away from any opening that is less than 2 feet below the exhaust point, and
- 10 feet from any adjoining or adjacent building, or HVAC intakes or supply registers.

The exhaust location, labeling, alarms and system components have been designed in general accordance with the NYSDOH Soil Vapor Guidance.

Following the installation of the suction pits, a blower test will be completed in order to size the blower. A regenerative blower will be mobilized to the Site and a step-test will be completed to determine the flows from each suction pit to depressurize below the slab at least -0.02 in-wc. The above-grade head losses will be modeled using the Darcy-Weisbach equation.

Initial Startup

After the System has been installed, the following will be completed in order to ensure that the system meets the remedial goal of a -0.02 in-wc or greater pressure differential.

- Visual inspection of the building slab for any cracks or holes not previously sealed. In any are identified, they will be sealed.
- Measurement of the sub-slab pressure at temporary and permanent pressure-monitoring points to ensure that the remedial goal of -0.02 in-wc has been achieved. If the startup is not conducted during the heating season, the pressure differential will also be measured during the heating season to ensure the remedial goal of -0.02 in-wc has been achieved.
- If appliances that rely on natural draft for exhaust of carbon monoxide and other combustion gases are identified, the potential for back draft will be tested. The potential for back draft will be determined using a carbon monoxide detector. If any back draft is identified, it will be corrected.

An alarm system will be installed that will notify the building management if a drop in pressure indicates that the system is not operating as designed. In general, a pressure switch will be placed on the main riser with a field-set switch point. The alarm will be a horn-strobe mounted in the building. If a full-time attendant is not assigned to oversee the performance of the SSDS, a telemetry system will be installed that is capable of notifying building management of any operational issues via electronic communication.

Operations, Maintenance and Monitoring (OM&M) Plan

A Site Management Plan (SMP) will be prepared that includes an Operations, Maintenance and Monitoring (OM&M) Plan and submitted to NYSDEC upon completion of the Remedial Action. The OM&M Plan will be used to determine the efficacy of the SSDS after system startup.

System Shut-down

A proposal to discontinue the SSDS may be made based on confirmatory sampling. The SSDS will not be shut down unless written approval is obtained from NYSDEC and NYSDOH.

9.4 Materials Transport Off-Site

Soil/fill will be excavated during the installation of the suction pits for the active SSDS. The material will be drummed and staged on-Site for off-Site disposal. All transport of materials will be performed by licensed haulers in accordance with appropriate local, State and Federal regulations, including 6NYCRR Part 364.

9.5 Remedial Performance Evaluation (Soil Vapor Intrusion Evaluation)

Post-Remedial Indoor Air Sampling

Efficacy of the active SSDS will be confirmed via pressure monitoring points achieving the required -0.02 in-wc depressurization throughout the sub-slab. Baseline (i.e., prior to SSDS start-up) and post-remedial (three months following SSDS start-up) indoor air sampling will be conducted for additional evaluation of the on-Site SSDS and vapor barrier system. It is anticipated that four indoor air samples will be collected from the Site building prior to and following the implementation of the Remedial Action: one each from the Site basement and the north and south adjoining basements, and one from the southern perimeter of the slab-on-grade portion of the home goods store tenant space.

Laboratories used for all indoor air sample results will be NYSDOH ELAP certified. Indoor air samples will be collected in laboratory-supplied and individually-certified 6-liter Summa canisters using 24-hour regulators and will be sealed, labeled, and placed in a secure container for delivery to a NYSDOH ELAP certified analytical laboratory. All indoor air samples will be analyzed for EPA Method TO-15 VOCs and sample results will be compared with the NYSDOH Air Guideline Values (AGVs) as listed in the NYSDOH Soil Vapor Guidance.

9.5.1 Quality Assurance / Quality Control (QA/QC)

A QAPP detailing the frequency of sample collection, analytical methods and the quality standards that must be achieved by the analytical laboratory is included as Appendix D.

The QAPP includes provisions for trip blanks, field blanks, duplicates, and MS/MSD samples. The QAPP also describes field sampling procedures.

9.5.2 Data Usability Summary Report (DUSR)

A qualified data validator will prepare a Data Usability Report (DUSR). The DUSR will be prepared according to the guidelines contained in Appendix 2B of DER-10.

9.5.3 Reporting of Data in FER

The FER will provide a tabular and map summary of all indoor air sample results and any exceedances of AGVs. All post-remedial indoor air analytical data will be submitted in an EDD format that complies with the NYSDEC's electronic data warehouse standards.

10.0 REMAINING CONTAMINATION TO REMAIN ON-SITE

The successful implementation of the Remedial Action will result in the following:

- All soil left on-Site will meet the Commercial Use SCOs for all constituents and also the Protection of Groundwater SCOs for cVOCs.
- Contamination may remain in the groundwater and soil vapor but the bulk of the cVOC contaminant mass will be removed.
- Groundwater will be treated using ISCO injections with a design goal of meeting the Class GA Standards for cVOCs.
- Soil vapor will be mitigated within the existing Site building by an active SSDS with a design goal of preventing soil vapor intrusion within the building.

Since residual contaminated groundwater and soil vapor may remain 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 below. Long-term management of ECs/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 will be implemented to protect public health and the environment by appropriately managing residual contamination. The Controlled Property (the Site) will have three primary long-term EC systems. They are:

- Composite Cover System;
- Active Sub-Slab Depressurization System; and,
- Post-Remedial Groundwater Monitoring.

The composite cover system and active SSDS would be long-term ECs. While post-remedial groundwater monitoring is part of the selected remedy, it is presented as an EC because it will continue after the FER and SMP are submitted. The FER will report residual contamination on the Site in tabular and map form, including any exceedances of the Commercial Use or Protection of Groundwater SCOs.

11.0 ENGINEERING CONTROLS

11.1 Engineering Control Systems – On-Site

As discussed above, three long-term engineering controls (ECs) will be utilized at the Site: a composite cover system, an active SSDS and post-remedial groundwater monitoring. The ECs will be established in an Environmental Easement assigned to the property by the titleholder and will be implemented under a SMP. The post-remedial groundwater monitoring is considered an EC only because it will be implemented following submittal of the FER. The conceptual approach, general system design, maintenance and monitoring (OM&M) requirements and criteria for termination of each of these systems are described below.

11.1.1 Description of On-Site Engineering Controls

11.1.1.1 Composite Cover System

Exposure to soil, groundwater, and soil vapor associated with residual contaminated groundwater and/or soil would be prevented by the continued maintenance of an existing engineered composite cover system. This cover system consists of a two- to four-inch thick building slab that covers the entirety of the Site. Any penetrations made through the existing slab during the implementation of the remedial action will be promptly repaired.

The location of each potential remedial cover type used on the Site is shown on Figure 11. The SMP will outline the procedures required in the event the composite cover system and underlying residual contamination are disturbed and planned inspections of the composite cover system.

11.1.1.2 Sub-Slab Depressurization System

An active SSDS will be installed within the Site to minimize the potential for vapor intrusion and minimize off-Site vapor migration. The SSDS will be part of a larger system that addresses off-Site soil vapor within the Site building, which is described in Section 11.2.1.1. A communication test will be performed to assess the radius of influence and determine the design parameters of the system and the proposed system design and layout will be provided to NYSDEC for approval via a SSDS Design Document following the communication test. The principal components of the SSDS are a number of vertical suction pipes that penetrate the cover system, a manifold that connects the vertical suction pipes in the system to the roof, an exterior suction blower on the roof, and temporary and permanent pressure-monitoring points throughout the cover system.

The goal of an active system is to create a pressure differential of at least -0.02 in-wc between the indoor and sub-slab environments. An alarm system will be installed that will notify the building management if a drop in pressure occurs, indicating that the system is not operating as designed. A telemetry system will be installed that is capable of notifying building management of any operational issues via electronic communication. The system will be designed in general accordance with NYSDOH's Soil Vapor Guidance. In order to assess the radius of influence and determine design parameters for the system, a communication test will be conducted prior to installation of the SSDS.

A written record of the annual monitoring for the system will be kept with the SMP. If any of the above items suggests that the SSDS may have been impacted beyond the need for routine

maintenance, the building management will contact an environmental professional. If the operation of the SSDS has been impacted, NYSDEC will be contacted. If non-routine maintenance or repairs are required based on the annual inspection or an alarm condition, the system will be restarted as described in the “Initial Startup” section (RAWP Section 9.3).

11.1.1.3 Post-Remedial Groundwater Monitoring

Elevated levels of cVOCs have been detected in groundwater at the Site. Residual contaminants in groundwater will be treated with injections of chemicals during the Remedial Action to destroy the bulk of any remaining contaminants.

Groundwater will be monitored by sampling five existing permanent monitoring wells, as shown on Figure 14: two on-Site monitoring wells (MW-3 and MW-4), one off-Site and upgradient monitoring well (MW-2), and two off-Site and downgradient monitoring wells (MW-5 and MW-8).

Post-remedial groundwater monitoring will begin approximately three months after the first groundwater injection. All sampling equipment will be decontaminated prior to use. Prior to sampling, water levels will be measured using an electronic water level meter. Samples will be collected using low-flow techniques (peristaltic pump) in accordance with EPA Region 1 Low-Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells. (EQASOP-GW 001 Revision 3 dated July 30, 1996 Revised: January 19, 2010).

Long-term monitoring (eight quarterly events) of the groundwater in these wells will be conducted to determine the efficacy of the Remedial Action. All quarterly monitoring samples will be analyzed for cVOCs and PFAS.

11.1.2 *Criteria for Termination of Remedial Systems*

11.1.2.1 Composite Cover System

The composite cover system is a long-term EC and will be maintained throughout the life of the building. Any breaches of the composite cover will be repaired in accordance with the SMP.

11.1.2.2 Sub-Slab Depressurization System

The operation of the SSDS will not be discontinued without written approval by NYSDEC and NYSDOH. A proposal to discontinue the SSDS may be made based on additional sampling.

11.1.2.3 Post-Remedial Groundwater Monitoring

Groundwater monitoring to assess the efficacy of the Remedial Action is planned for eight quarters after the completion of the Remedial Action.

Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. Monitoring activities will be outlined in the SMP. If the results of the post-remedial

groundwater monitoring indicate groundwater quality is not improving, additional applications of injections will be applied.

11.2 Engineering Control Systems – Off-Site

One long-term EC, an active SSDS, will be utilized at off-Site locations within the Site building. The conceptual approach, general system design, maintenance and monitoring (OM&M) requirements and criteria for termination of this system are described below.

11.2.1 Description of Off-Site Engineering Controls

11.2.1.1 Sub-Slab Depressurization System

An active SSDS will be installed within the existing Site building to minimize the potential for vapor intrusion and off-Site vapor migration. The SSDS will be part of a larger system that addresses on-Site soil vapor, which is described in Section 11.1.1.2. A communication test will be performed to assess the radius of influence and determine the design parameters of the system, and the proposed system design and layout will then be provided to NYSDEC for approval via a SSDS Design Document following the communication test. The principal components of the SSDS are a number of vertical suction pipes that penetrate the existing slabs, a manifold that connects the vertical suction pipes in the system to the roof, an exterior suction blower on the roof, and temporary and permanent pressure-monitoring points throughout the cover system.

The goal of an active system is to create a pressure differential of at least -0.02 in-wc between the indoor and sub-slab environments. An alarm system will be installed that will notify the building management if a drop in pressure occurs, indicating that the system is not operating as designed. A telemetry system will be installed that is capable of notifying building management of any operational issues via electronic communication. The system will be designed in general accordance with NYSDOH's Soil Vapor Guidance. In order to assess the radius of influence and determine design parameters for the system, a communication test will be conducted prior to installation of the SSDS.

A written record of the annual monitoring for the system will be kept with the SMP. If any of the above items suggests that the SSDS may have been impacted beyond the need for routine maintenance, the building management will contact an environmental professional. If the operation of the SSDS has been impacted, NYSDEC will be contacted. If non-routine maintenance or repairs are required based on the annual inspection or an alarm condition, the system will be restarted as described in the "Initial Startup" section (RAWP Section 9.3).

12.0 INSTITUTIONAL CONTROLS

An Institutional Control (IC) will be required to manage residual contamination on-Site and off-Site and to ensure that the ECs remain protective of public health and the environment. The ICs consist of two elements designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan.

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, will be recorded with Bronx County Office of the City Register for the Site and any off-Site property requiring mitigation 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.

12.1 Environmental Easement

The Environmental Easement renders the Site and any property requiring mitigation as Controlled Properties. The Environmental Easements must be recorded with the Office of the City Register of the City of New York 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 commercial or industrial 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 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 monitoring wells and pressure monitoring points, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these Institutional Controls for the Site and off-Site properties requiring mitigation 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:

- Use of groundwater underlying the Controlled Property, currently not used as potable water, is prohibited in the future, as well, 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 commercial or industrial use only, provided the long-term Engineering and Institutional Controls included in the Site Management Plan continue to be employed;
- The Controlled Property may not be used for a higher level of use, such as unrestricted or residential use, without an amendment or extinguishment of the 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.

The Environmental Easement will incorporate the ICs required to implement, maintain and monitor the ECs, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restrict the use of the Site to commercial uses only, unless discontinued or modified with the approval of NYSDEC.

The Environmental Easement for the controlled property will include the following requirements:

- the remedial party or Site owner must complete and submit to NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- the use and development of the controlled property is allowed for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health (NYCDOH) is restricted; and

- compliance with the NYSDEC-approved SMP is required.

12.2 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 SMP is submitted as part of the FER, but will be written as a complete and independent document. Site management requirements continue in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site and off-Site management responsibilities defined in the Environmental Easement and SMP are performed.

The SMP is intended to provide a detailed description of the procedures required to manage remaining contamination, that is, what is left in place at the Site and off-Site properties requiring mitigation 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 of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); and (3) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC.

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 (O&M) Plan for implementation of remedial containment systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annual. The Periodic Review Report (PRR) submitted under the SMP will be based on a calendar year. The first PRR will be submitted to the NYSDEC within 15 months after the date of COC issuance. Any lapses in the engineering or institutional controls noted in the PRR will be required to be corrected expeditiously and the NYSDEC notified of the correction. The SMP will include the following:

1. Introduction with purpose, summary of remediation and site conditions;
2. Institutional and Engineering Control Plan;
3. O&M Plan;
4. Site Monitoring Plan;
5. Site maintenance requirements;
6. Citizen Participation Plan;
7. Personnel organization and responsibilities;
8. Health and Safety Plan;
9. Records and forms;
10. Emergency Contingency Plan; and
11. Copies of Environmental Easement and applicable Site plans, including electronic versions.

The Institutional and Engineering Control Plan will include, but is not limited to:

- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including a provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls; and,
- maintaining site access controls and NYSDEC notification; and the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

The OM&M Plan will include, but is not limited to:

- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining access controls and Department notification; and
- providing NYSDEC access to the site and O&M records.

The Site Monitoring Plan will include, but is not limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to NYSDEC; and,
- monitoring for soil vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

The Periodic Review Report

Site Management Reporting Plan will include, but is not limited to:

- Details regarding post-COC reporting requirements, including a schedule
- The contents of the annual report, including:
 - an evaluation of the EC/ICs, EC/IC certifications, results of period Site inspections and deliverables to be generated;
 - frequency and type of the EC/IC and Site inspections;
 - inspection forms, sampling data and maintenance reports;
 - an evaluation of records and reporting; and,
 - corrective measure plans.

13.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be submitted to the NYSDEC Project Manager within 90 days of completing the remedial action. 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, calculation and manufacturer documentation for treatment systems, 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. 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.

The Final Engineering Report will include written and photographic documentation of all remedial work performed under this remedy. Photographs will be taken of all remedial activities and submitted to NYSDEC in digital format after completion of active Site remediation. 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 (two copies) and to NYSDOH's Project Manager (one copy). Each CD will have a label and a general file inventory structure that separates photos into directories and sub-directories according to logical Remedial Measure components. A photo log keyed to photo file ID numbers will be prepared to provide explanation for all representative photos.

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 remaining contamination left on the Site after the remedy is complete. Remaining 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 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.

This FER will include the following:

1. Certification by the RE that the data generated is useable and meets the remedial requirements;
2. Certification by the RE that any financial assurance mechanisms required by the NYSDEC have been executed;
3. Certification by the RE that the remedial work conformed to the RAWP;
4. Certification by the RE that dust, odor, and vapor control measures were implemented during invasive work and conformed with the RAWP;
5. Certification by the RE that all the remedial waste was transported and disposed in accordance with the RAWP;
6. Certification by the RE that the source approval and sampling of imported acceptable fill was completed in a manner consistent with the methodology of the RAWP;
7. Summary of the remedy and all remedial actions completed;
8. Description of any problems encountered and their resolutions;
9. Description of the deviations from the approved RAWP;
10. Listing of waste streams, quantity of materials disposed, and where they were disposed;
11. Analytical QA/QC completed for the environmental media sampling during the remedial activities, including DUSR or other data validation;
12. List of the remediation standards applied to the remedial actions;
13. List of all applicable local, regional, and national governmental permits, certificates, or other approvals required for the remedial and development work;
14. Tables and figures containing all pre- and post-remedial data, including volumes of soil removed (as applicable);
15. Description of source and quality of fill (as applicable);
16. "As-built" drawings including remediation areas;
17. Air quality and dust monitoring data, including any supporting documentation on the decisions made based on the data;
18. Copies of all the submitted periodic reports; and
19. Copies of all manifests of off-Site transport of waste material.

Before approval of a FER and issuance of a Certificate of Completion, all documents and reports will be submitted to the NYSDEC in both hard copy and in digital format on CD. These digital documents shall be in PDF form and, where appropriate, supplemented by photos and Microsoft Excel files. Laboratory analytical data will be submitted in an electronic data deliverable (EDD) format that complies with the NYSDEC's electronic data warehouse standards.

13.1 Certifications

The following certifications will appear in front of the Executive Summary of the Final Engineering Report. The FER will be prepared, stamped, and the following certification signed by an individual licensed or otherwise authorized in accordance with article 145 of the education law to practice the profession of engineering. The certification will include the following statements:

I, Matthew M. Carroll, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities,

and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant to ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted 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 Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Matthew M. Carroll, of 1085 Sackett Avenue, Bronx, NY, am certifying as Owner's Designated Site Representative for the Site.

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

14.0 SCHEDULE

Immediately upon approval of this RAWP and issuance of the Decision Document by NYSDEC, Tenen will mobilize to the Site to conduct pilot test and baseline groundwater sampling and implement the communication test for the SSDS, which will be used to prepare the Groundwater Remedy and SSDS Design Documents, respectively. Following collection of groundwater samples and implementation of the SSDS communication test, hotspot excavation and disposal of hazardous and non-hazardous soil offsite will occur while the Design Documents are reviewed by NYSDEC. Following approval of the Design Documents by NYSDEC and completion of the hotspot excavation, the groundwater remedy and installation of the SSDS will occur. A Certificate of Completion is estimated by December 2025.

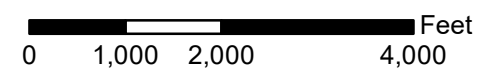
The estimated schedule prepared for the project, inclusive of all tasks to be completed from submission of this RAWP to NYSDEC through NYSDEC issuance of the Certificate of Completion, is included in Table 10. The actual schedule may vary depending on factors such as contractor availability, Site constraints, complexity of data collected, and access coordination. The NYSDEC project manager will be notified of significant changes to the schedule.

Figures



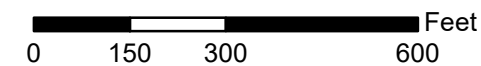
Basemap: USGS Topographic Map, 7.5 Minute Quadrangle, Flushing, NY, 2016

Site Location



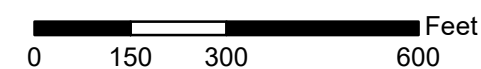
<http://gis.nyc.gov/taxmap/map.htm>

Department of Finance Digital Tax Map



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2018 v2.1



Site

TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By LM

Checked By AP

Date December 2020

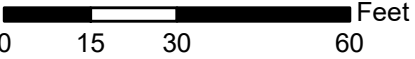
Scale As Noted

Site Location Map

Drawing Title

Figure 1

Drawing No



Legend

- Site Boundary
- Cellar Spaces
- Home Store
- Boost Mobile
- Vacant Space
- Block 4164, Tax Lot 5

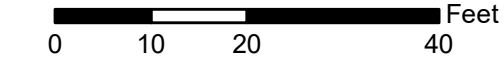
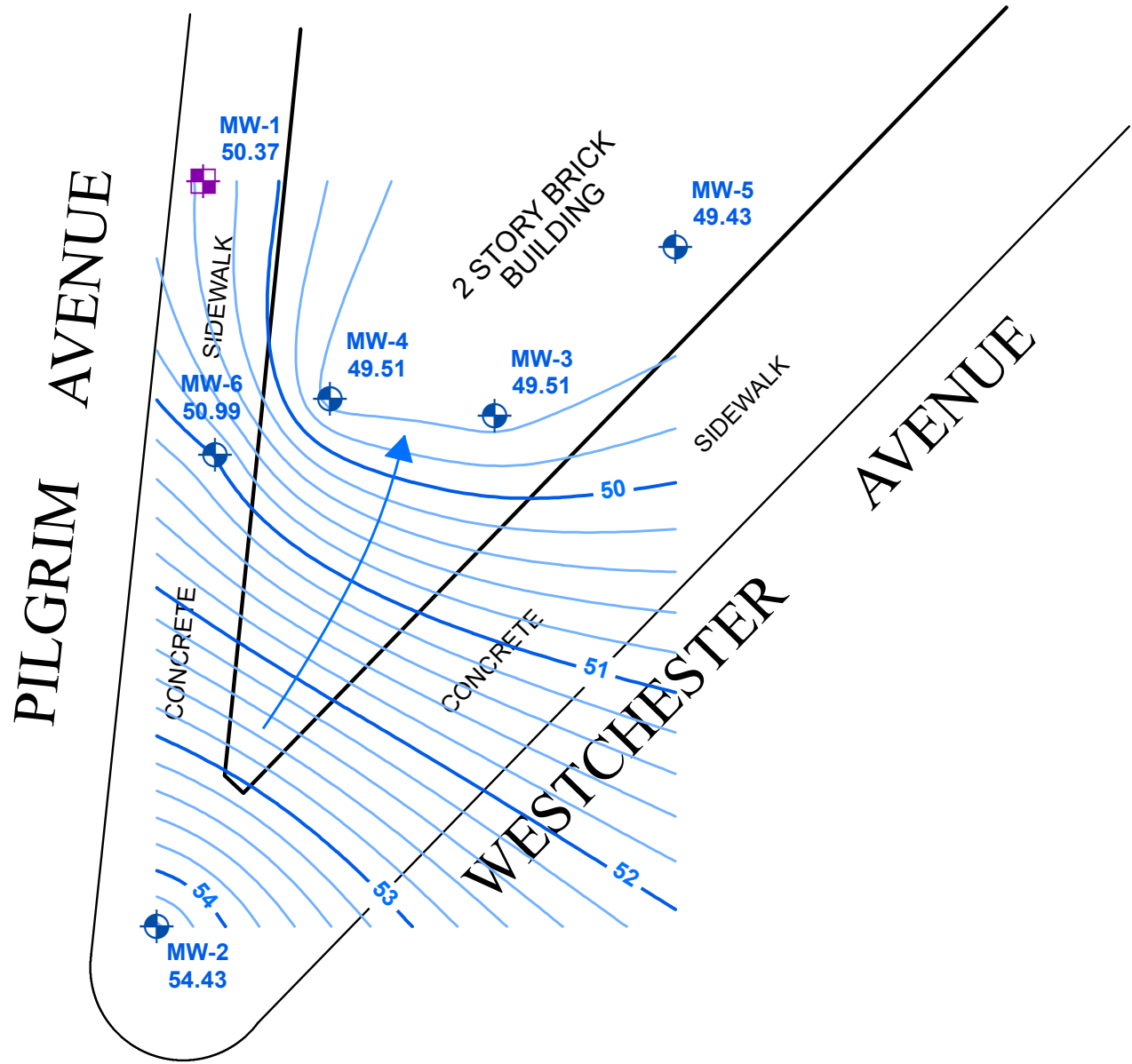


Drawing Title	Site Layout	Drawn By	LM
		Checked By	AP
Drawing No	Figure 2	Date	July 2022
		Scale	As Noted

TENEN ENVIRONMENTAL	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379

| Remedial Action Work Plan 2921 Westchester Avenue Bronx, New York Block 4164, Lot 5 | | Site |

Source:
Donald R. Stedje, P.L.S.
Well Elevation Survey, 2925 Westchester Avenue, Bronx, NY
Revised February 23, 2021



- Legend**
- Groundwater Sampling Location (Tenen 2021)
 - Soil and Groundwater Sampling Location (Tenen 2021)
 - Intermediate Groundwater Contour
 - Index Groundwater Contour
 - Groundwater Flow Direction

Drawing Title
**Groundwater Flow Map
Feb 2021 Groundwater Elevations**

Drawing No

Figure 3a

Drawn By	LM
Checked By	AP
Date	March 2021
Scale	As Noted

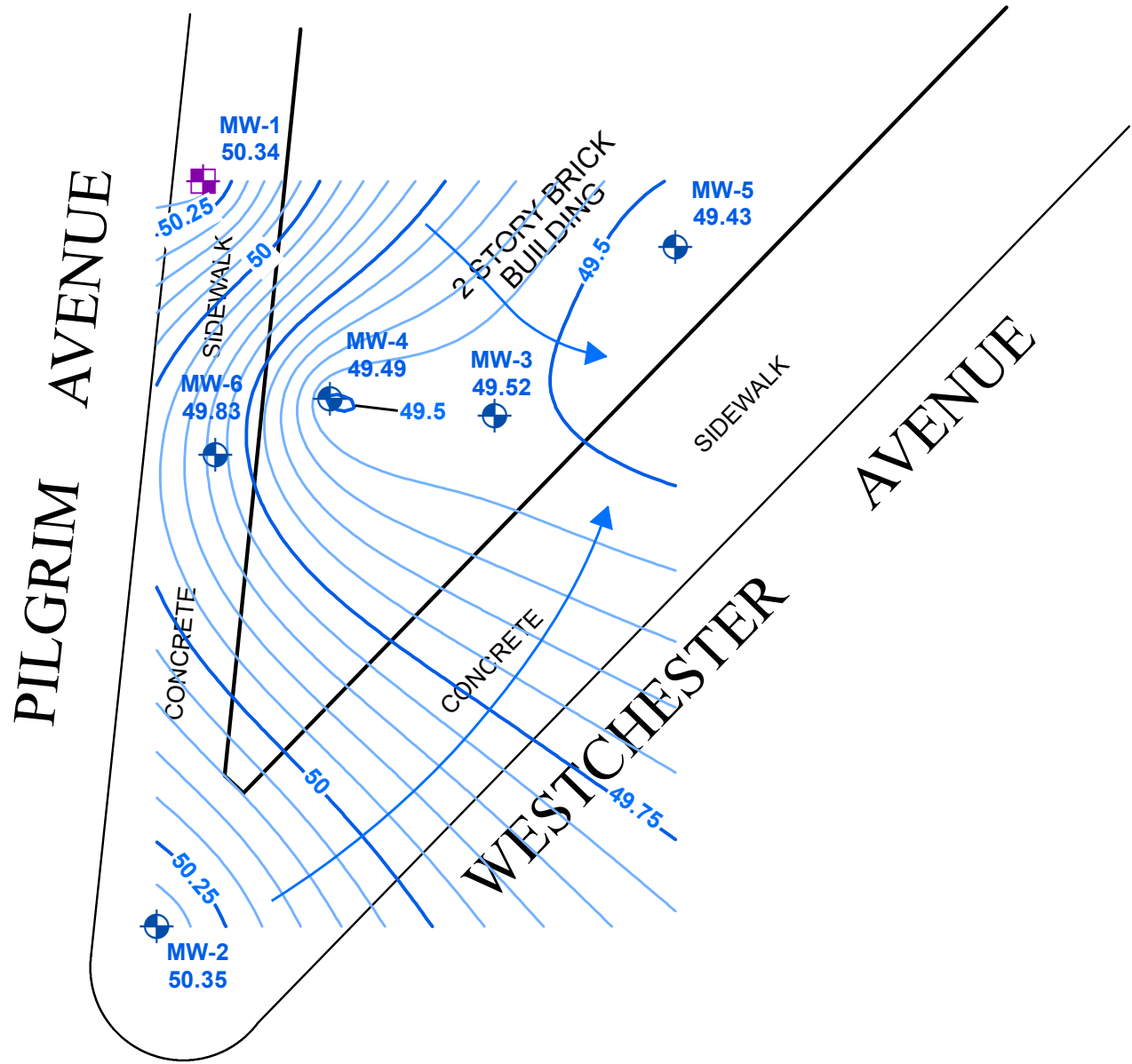
TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Site

**Remedial Action Work Plan
2921 Westchester Avenue
Bronx, New York
Block 4164, Lot 5**

Source:
Donald R. Stedje, P.L.S.
Well Elevation Survey, 2925 Westchester Avenue, Bronx, NY
Revised February 23, 2021



Legend

- Groundwater Sampling Location (Tenen 2021)
- Soil and Groundwater Sampling Location (Tenen 2021)
- Intermediate Groundwater Contour
- Index Groundwater Contour
- Groundwater Flow Direction

0 10 20 40 Feet



Drawing Title

Groundwater Flow Map
March 2021 GW Elevations

Drawing No

Figure 5b

Site

TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By

LM

Checked By

AP

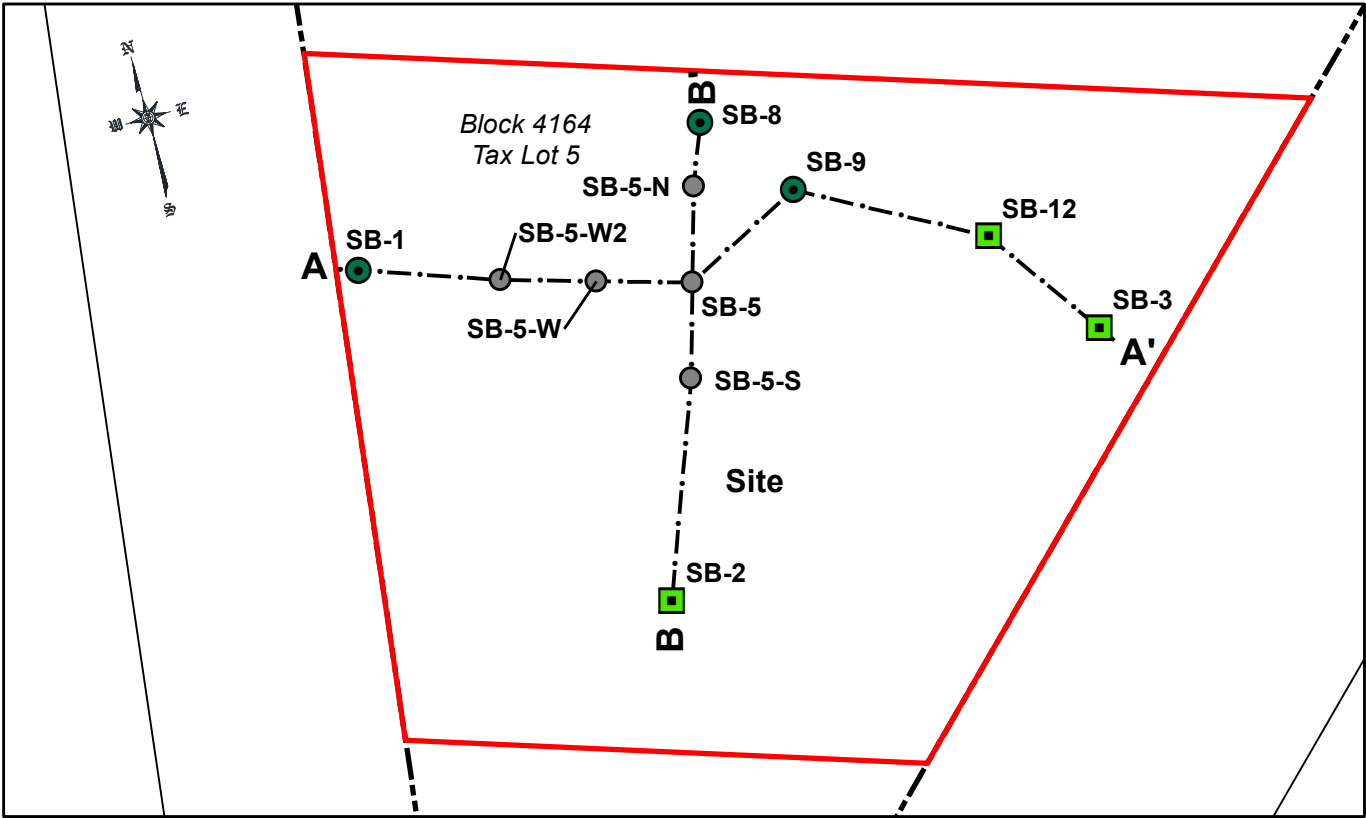
Date

March 2021

Scale

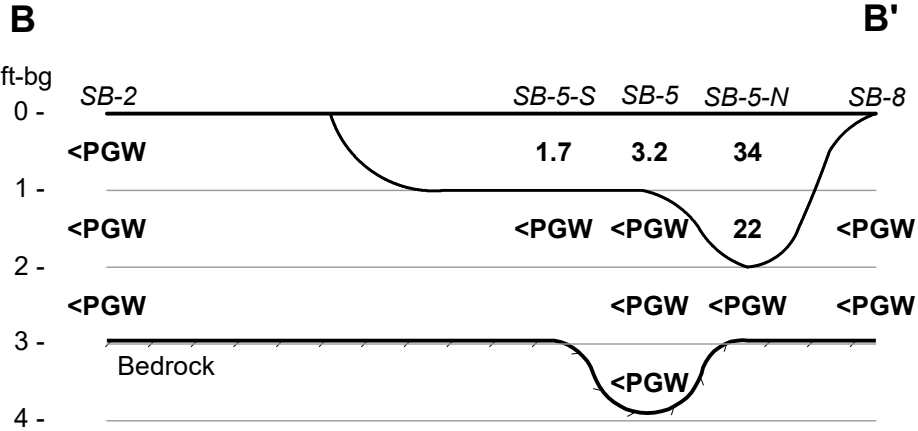
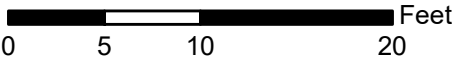
As Noted

Remedial Investigation Report
2921 Westchester Avenue
Bronx, New York
Block 4164, Lot 5



Source: NYC DOF - Digital Tax Map

Plan View



Section B-B'

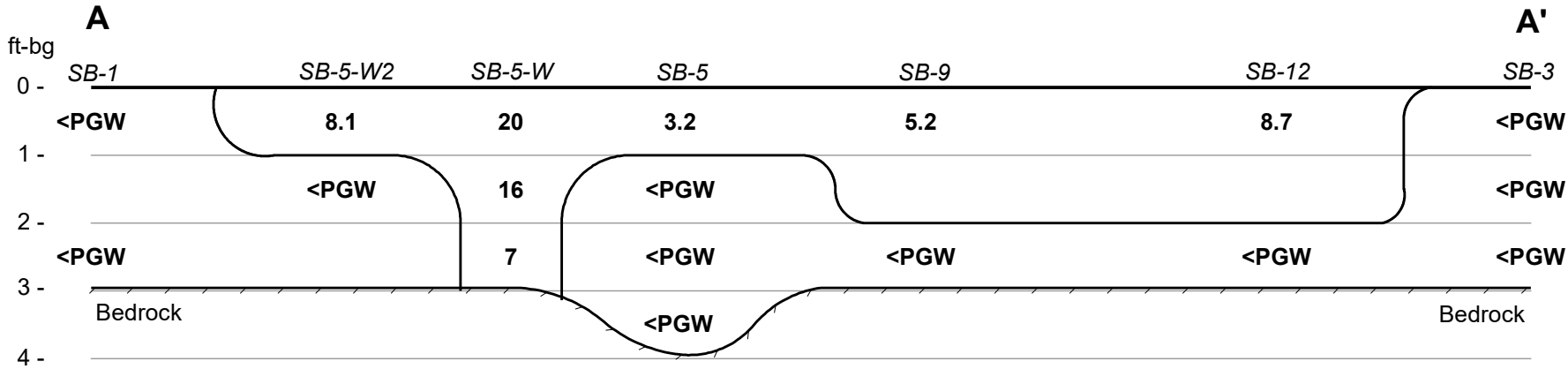
Horiz. Scale 1" = 5'
Vert. Scale 1" = 2.5'

Approximate Areas of PCE in Soil		
Depth	Area > 10 mg/kg	Area < 10 mg/kg, >PGW
0-1 ft	179 sf	401 sf
1-2 ft	34 sf	445 sf
2-3 ft	0	113 sf

Legend

- Delineation Boring Sample Location
- Characterization Boring Sample Location
- Soil Delineation Sample Locations
- Site Location
- 2921 Westchester Avenue
- Block 4164, Tax Lot 5

Note:
PGW - Protection of Groundwater Standard



Section A-A'

Horiz. Scale 1" = 5'
Vert. Scale 1" = 2.5'

Remedial Action Work Plan
2921 Westchester Avenue
Bronx, New York
Block 4164, Lot 5

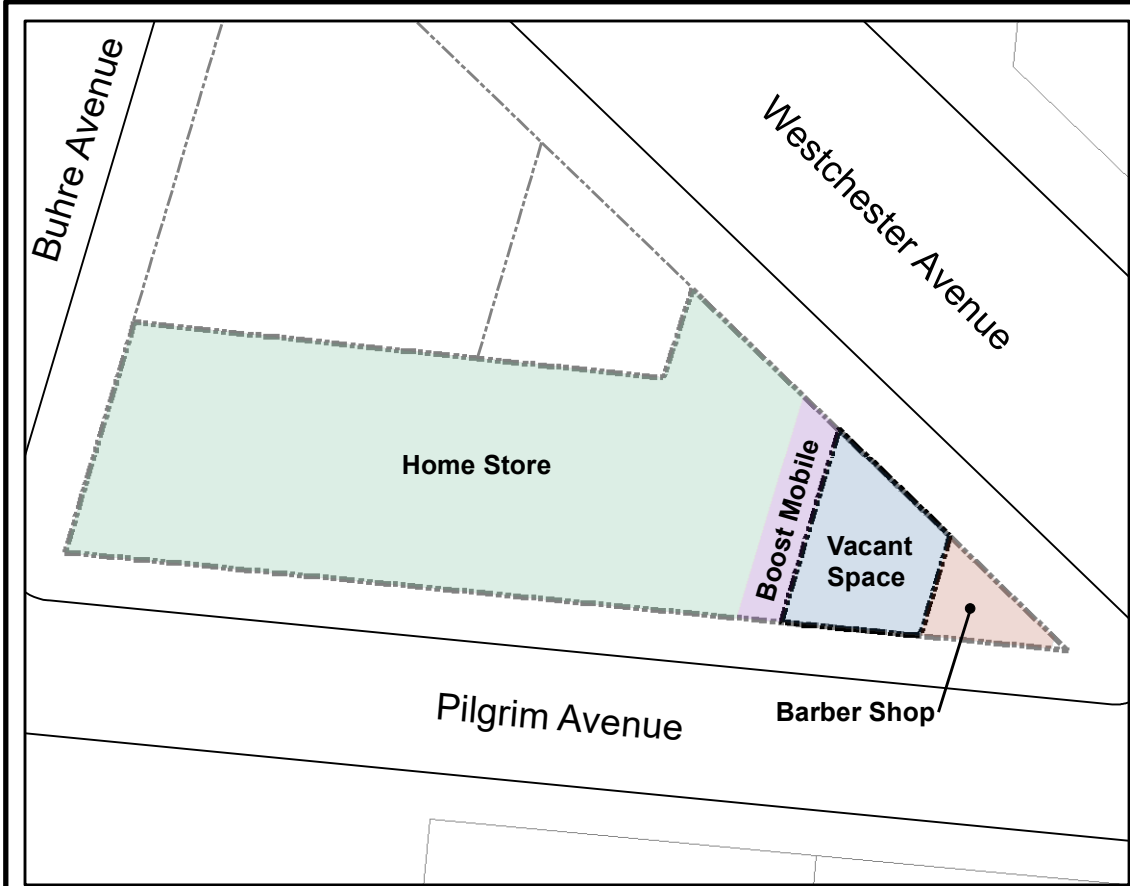
TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

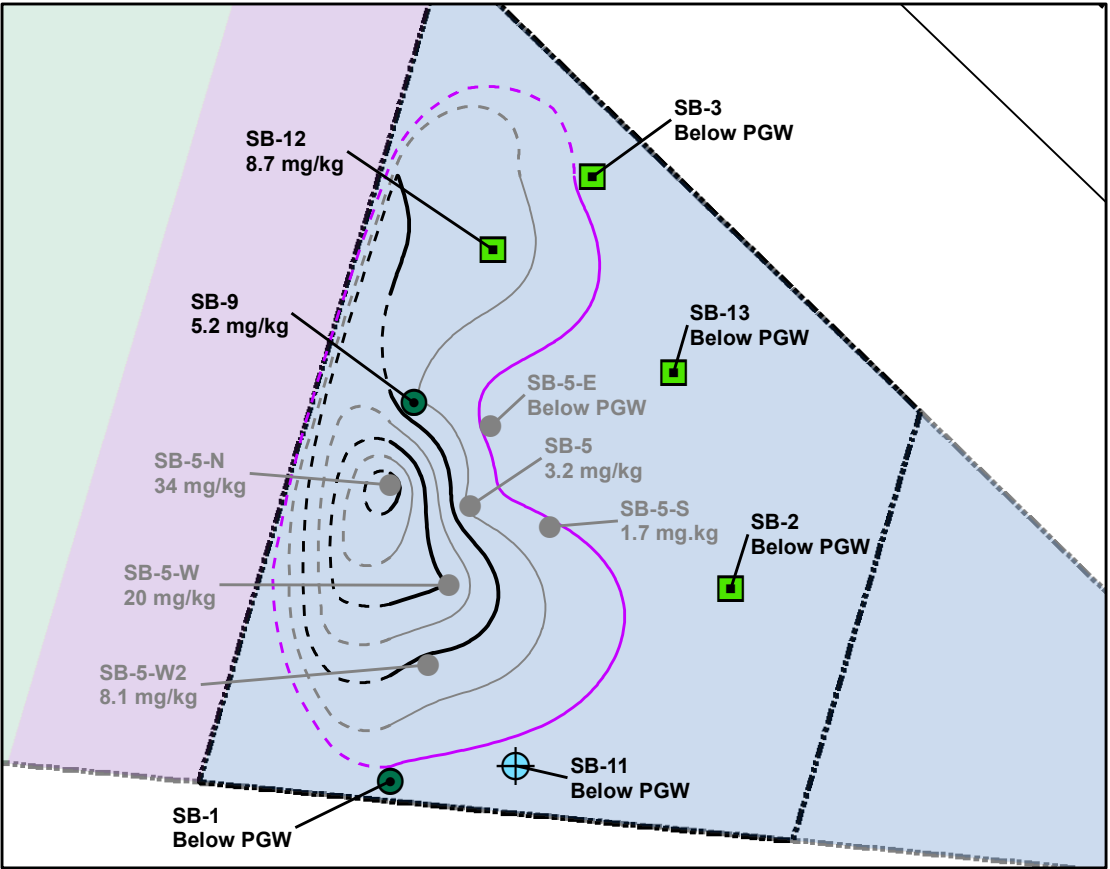
Drawn By	LM
Checked By	AP
Date	July 2022
Scale	As Noted

Drawing Title
PCE Impacts above Groundwater
Standards - Cross-Sections

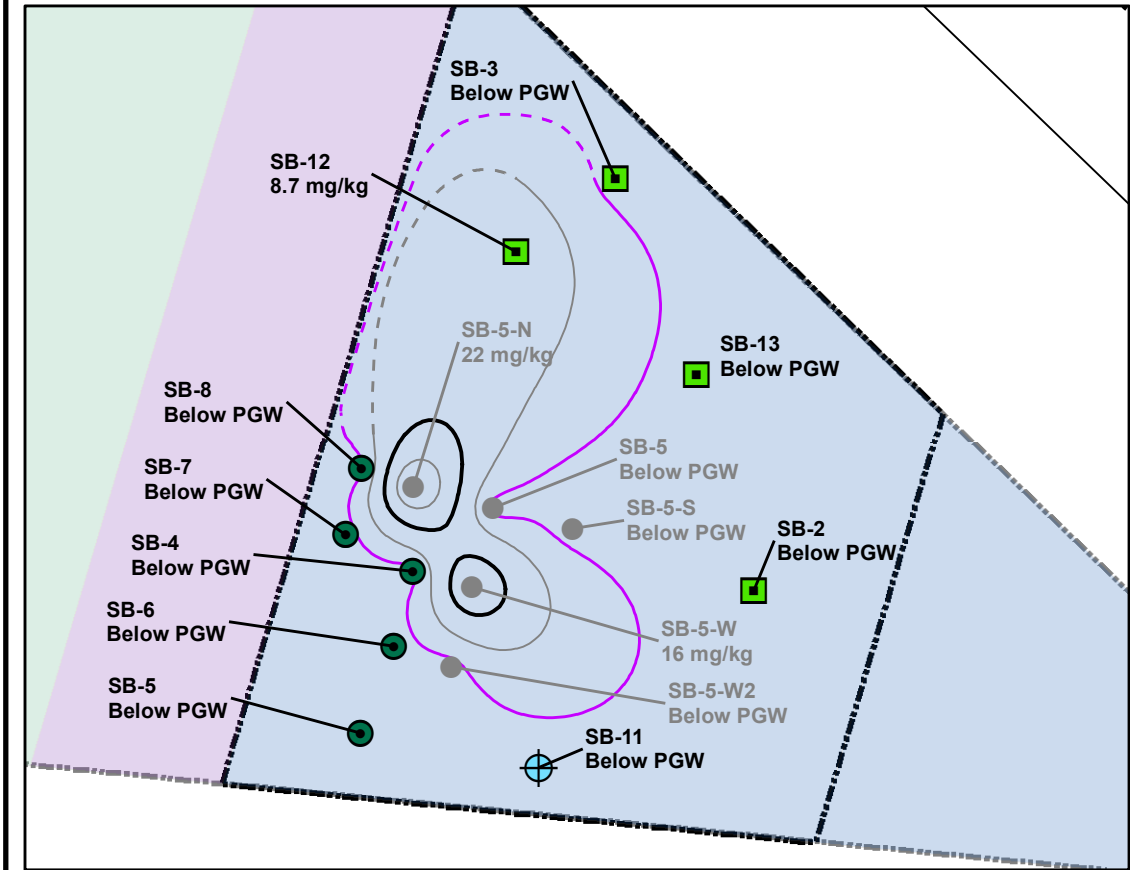
Drawing No
Figure 4



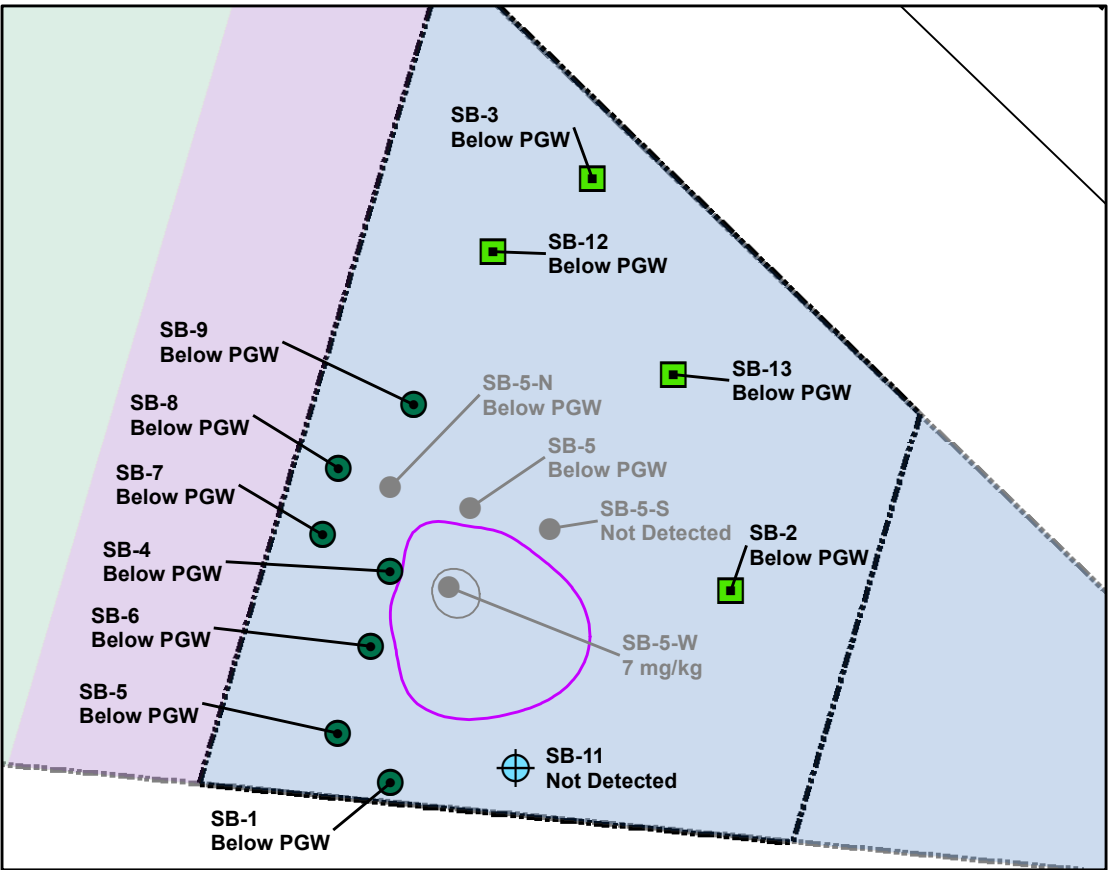
Key Map



PCE in Soil (0 to 1 ft depth)



PCE in Soil (1 to 2 ft depth)



PCE in Soil (2 to 3 ft depth)



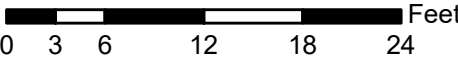
Approximate Areas of PCE in Soil		
Depth	Area > 10 mg/kg	Area <10 mg/kg, >PGW
0-1 ft	179 sf	401 sf
1-2 ft	34 sf	445 sf
2-3 ft	0	113 sf

Legend

- Delineation Boring Sample Location (Tenen 2021)
- Characterization Boring Sample Location (Tenen 2021)
- Soil Boring/ Monitoring Well Location (Tenen 2021)
- Soil Delineation Sample Locations (Tenen 2019)
- Tax Lot
- Home Store
- Boost Mobile
- Vacant Space
- Site Boundary

PCE Contours

- PGW Contour
- Intermediate 5-ft Contour
- Index 10-ft Contour



Remedial Action Work Plan
2921 Westchester Avenue
Bronx, New York
Block 4164, Lot 5

TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By LM

Checked By AP

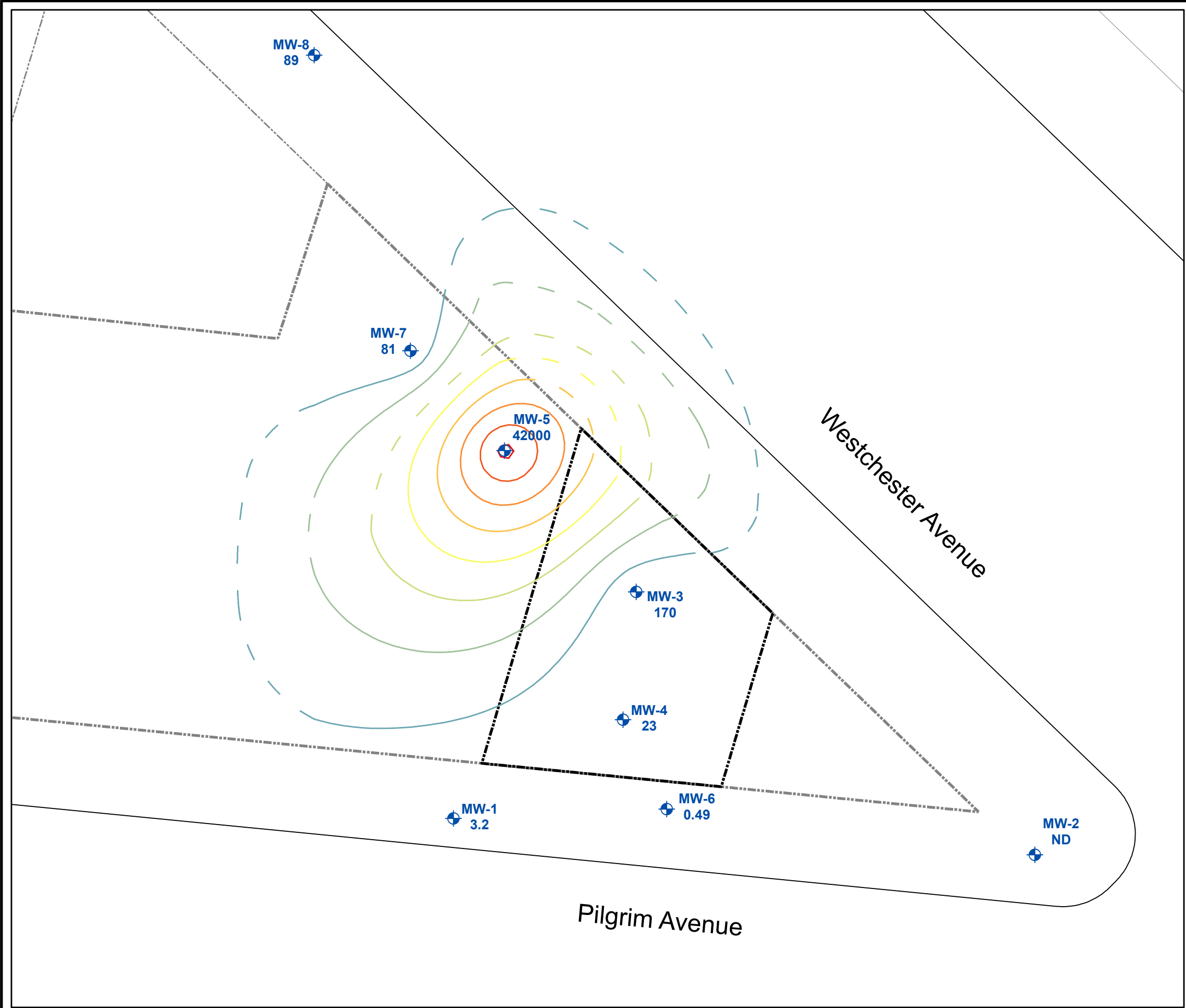
Date July 2022

Scale As Noted

Drawing Title
PCE Isopleths in Soil (0 to 1ft,
1 ft to 2 ft, & 2 ft to 3 ft depths)

Figure 5

Drawing No



05Feet

05102030

Legend

Well Locations

Tax Lot

Site Boundary

ZLEVEL

0

5000

10000

15000

20000

25000

30000

35000

40000

PCE in Groundwater

ug/l

5000

10000

15000

20000

25000

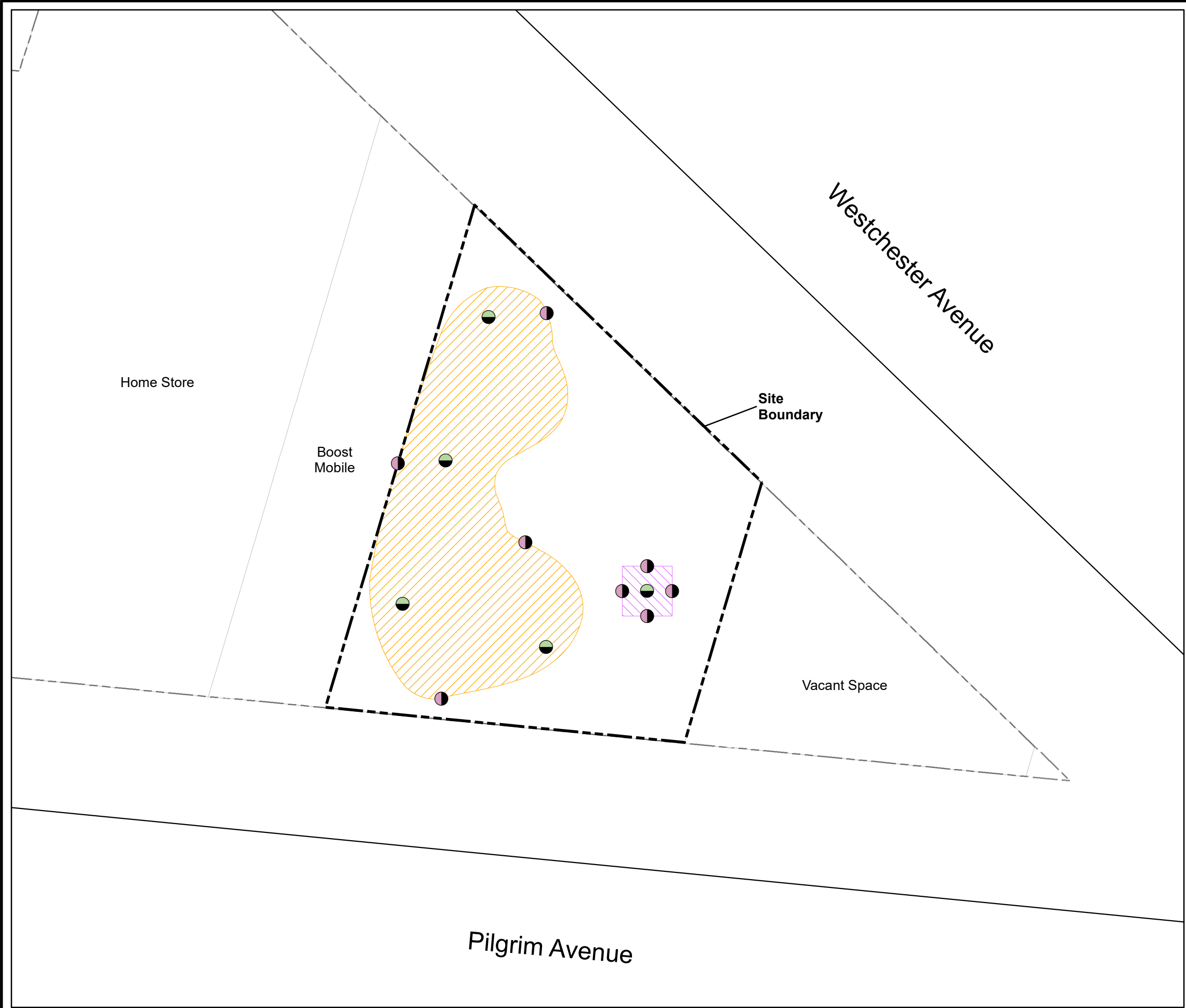
30000

35000

40000

North Arrow

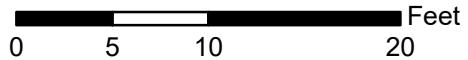
Drawing Title	Remedial Action Work Plan 2921 Westchester Avenue Bronx, New York Block 4164, Lot 5			
	Site			
Drawing No	TENEN ENVIRONMENTAL		Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
	Drawn By	LM	Checked By	AP
	Date	July 2022	Scale	As Noted
	Figure 6			



Legend

- Sidewall End-Point Sample
- Bottom Endpoint Sample
- Hotspot Excavation to Approximately 2 ft-bbg
- Hotspot Excavation to Approximately 3 ft-bbg
- Site Boundary
- NYC Tax Lot

Note: ft-bbg=feet below grade



Drawing Title
**Proposed Post-Remedial
End-Point Sample Locations
(Alternative 1)**

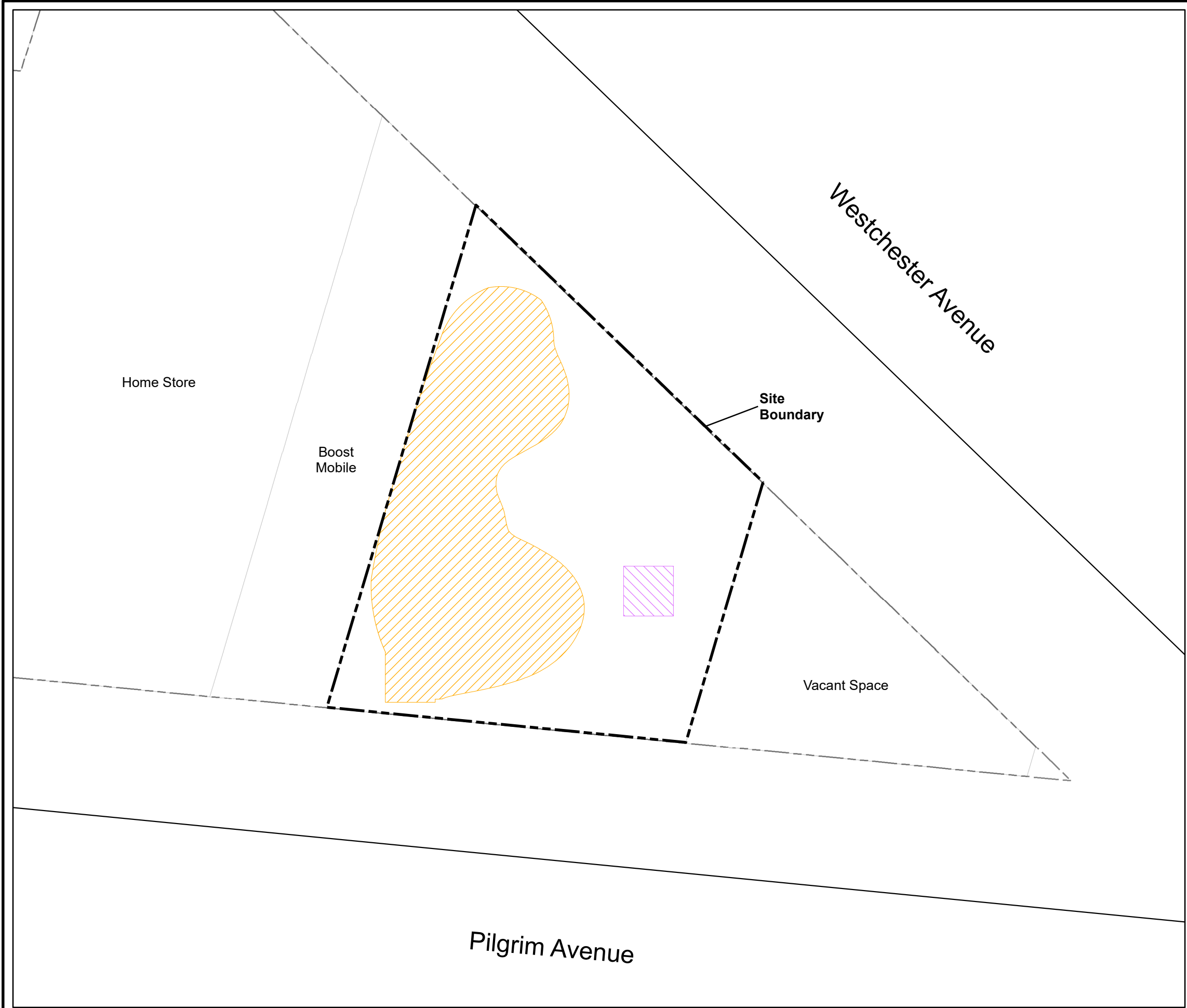
Drawn By	LM
Checked By	AP
Date	September 2022
Scale	As Noted

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Site

**Remedial Action Work Plan
2921 Westchester Avenue
Bronx, New York
Block 4164, Lot 5**

Drawing No
Figure 8



Legend

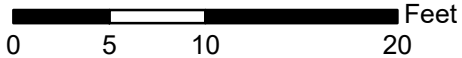
 Hotspot Excavation to Approximately 2 ft-bbg 25 SF

 Hotspot Excavation to Approximately 3 ft-bbg 589 SF

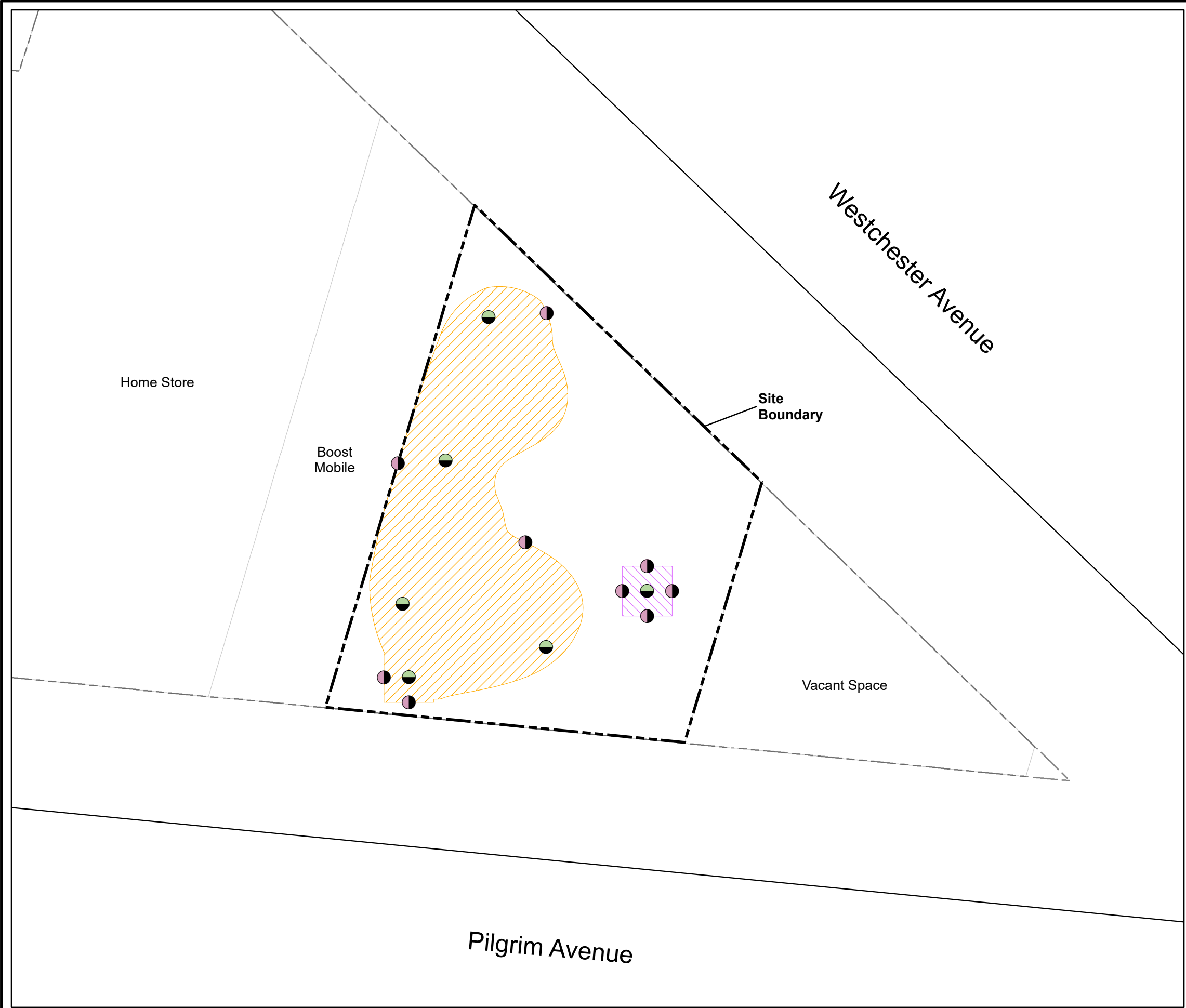
 Site Boundary

 NYC Tax Lot

Note: ft-bbg=feet below grade



Drawing Title	Extent of Hotspot Excavation (Alternative 2)				Drawing No
	Figure 9				
Site	Remedial Action Work Plan 2921 Westchester Avenue Bronx, New York Block 4164, Lot 5				TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379
	Drawn By	LM	Checked By	AP	
	Date	September 2022		Scale	



Legend

- Sidewall End-Point Sample
- Bottom End-Point Sample
- Hotspot Excavation to Approximately 2 ft-bbg 25 SF
- Hotspot Excavation to Approximately 3 ft-bbg 589 SF
- Site Boundary
- NYC Tax Lot

Note: ft-bbg=feet below grade



Drawing Title
**Proposed Post-Remedial
End-Point Sample Locations
(Alternative 2)**

Drawing No
Figure 10

Drawn By
LM

Checked By
AP

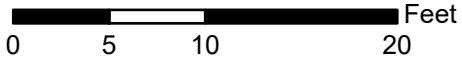
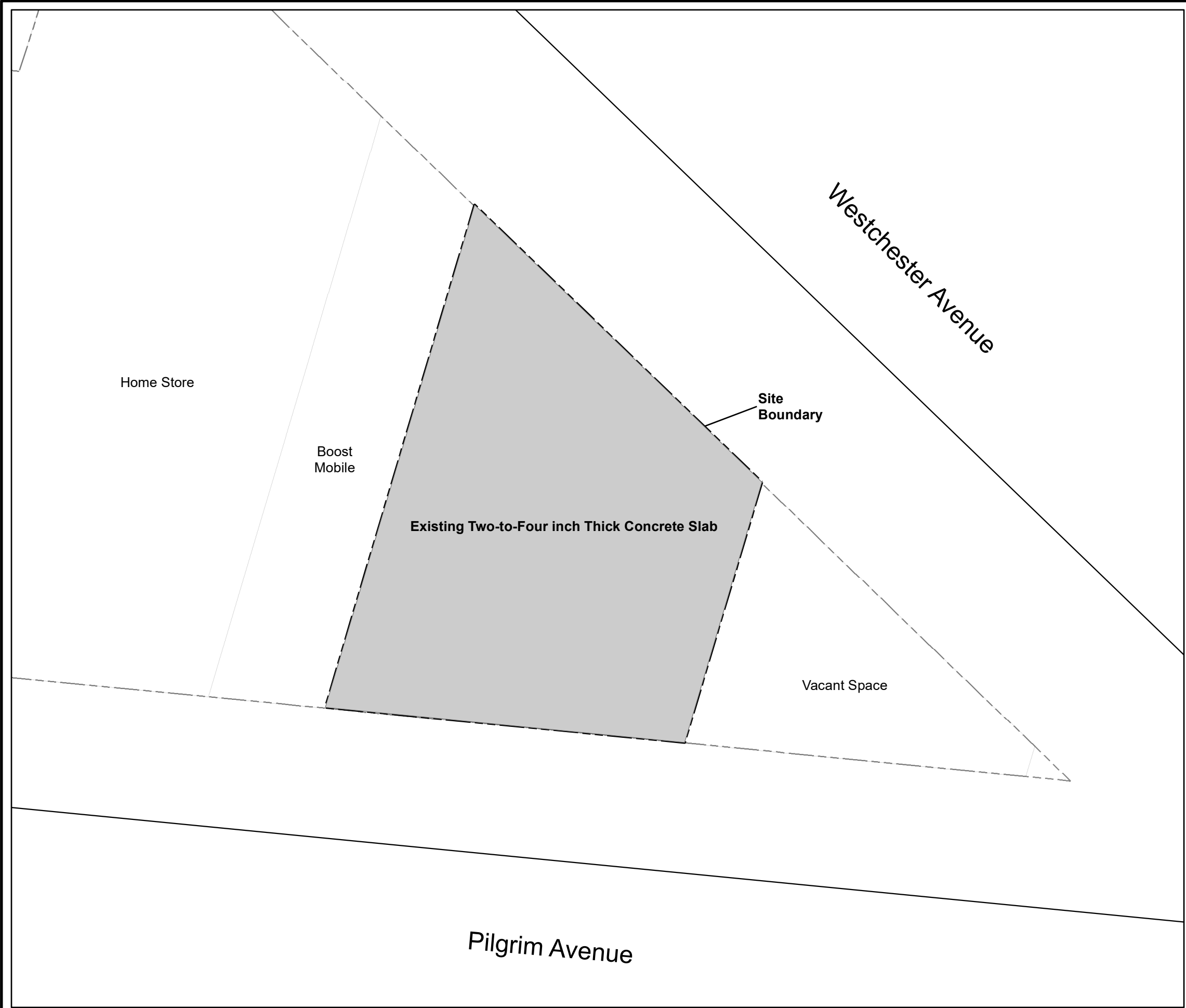
Date
September 2022

Scale
As Noted

TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Site
**Remedial Action Work Plan
2921 Westchester Avenue
Bronx, New York
Block 4164, Lot 5**

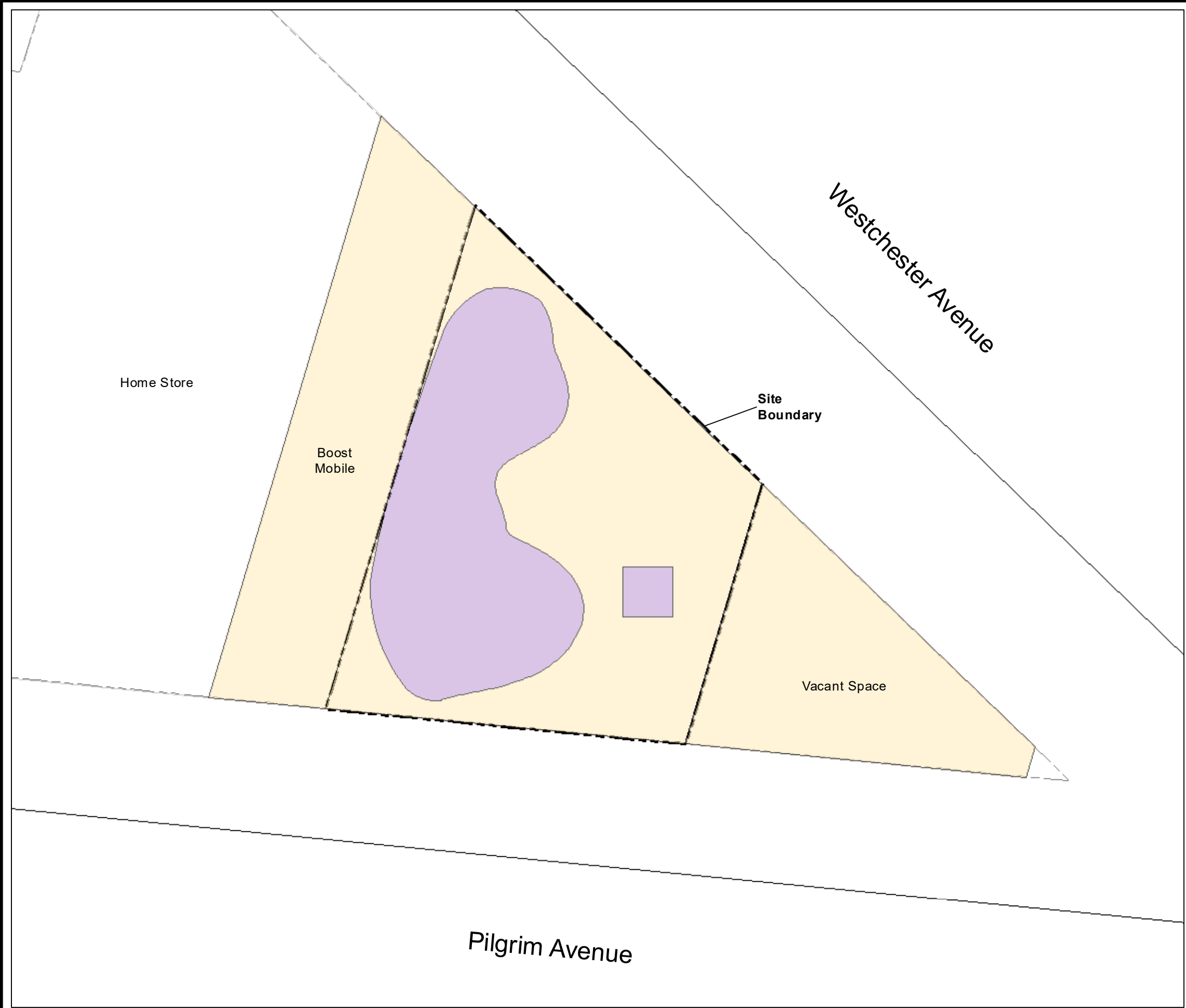


- Legend**
- Existing Two-to-Four inch Thick Concrete Slab
 - Site Boundary
 - NYC Tax Lot

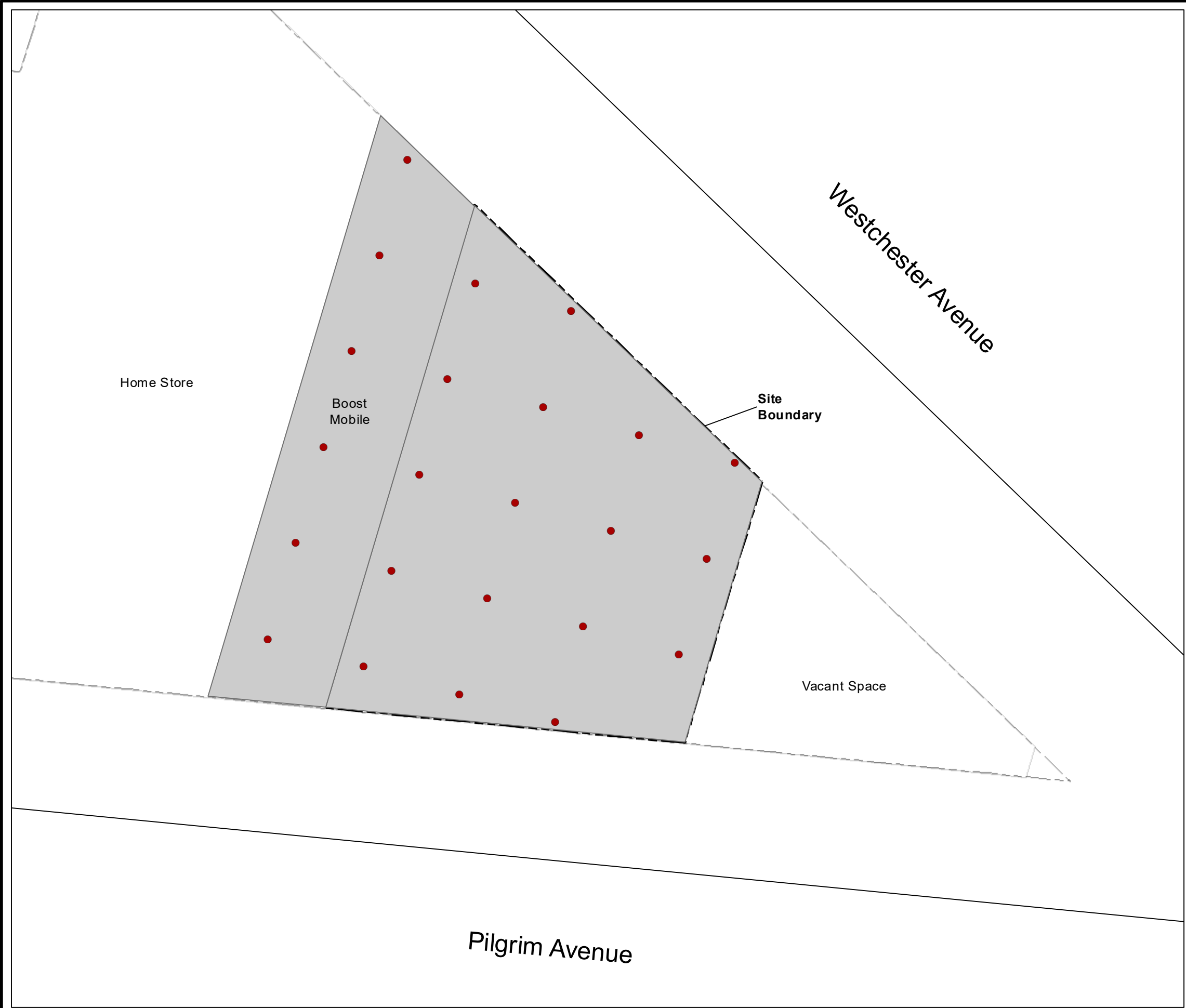
Note:
Entire site footprint to be covered with a combination vapor barrier/ waterproofing membrane and vapor sealant.



Drawing Title	Remedial Action Work Plan 2921 Westchester Avenue Bronx, New York Block 4164, Lot 5			
	Site			
Drawing No	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379			
	Drawn By LM	Checked By AP	Date January 2023	Scale As Noted
Composite Cover System Locations		Figure 11		



Drawing Title	Vapor Barrier/Vapor Sealant Location			
	Figure 12			
Drawing No	Site			
	Remedial Action Work Plan 2921 Westchester Avenue Bronx, New York Block 4164, Lot 5			
Drawn By		LM	TENEN ENVIRONMENTAL	
Checked By		AP	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
Date		February 2023		
Scale		As Noted		

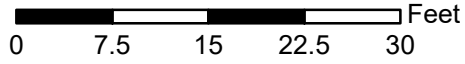
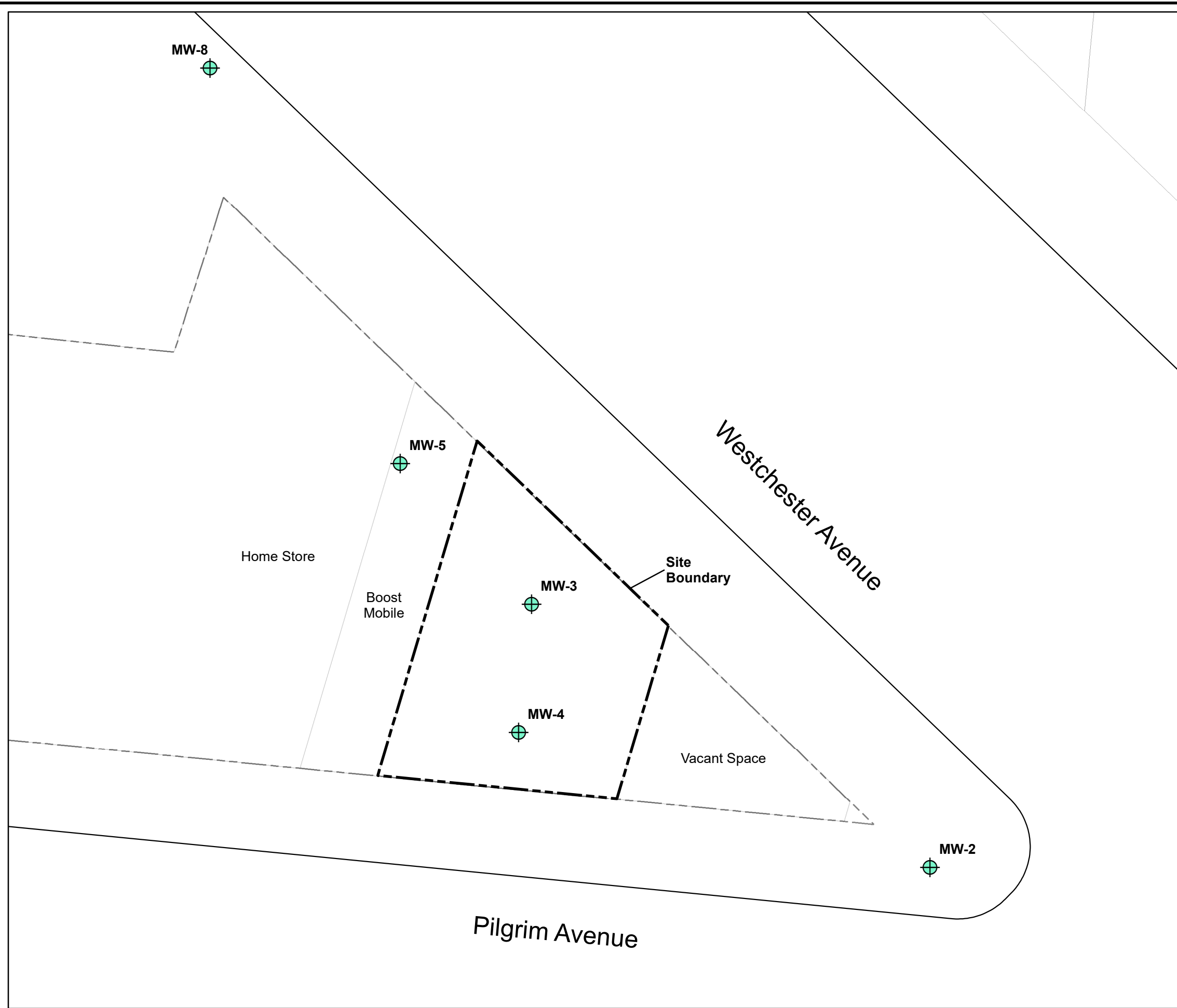


- Legend**
- ISCO Injection Points
 - ISCO Injection Area
 - - - Site Boundary
 - - - NYC Tax Lot

Note:
Final ISCO injection points will
be determined following the
ISCO pilot test.



Drawing Title	Conceptual ISCO Injection Well Network		
	Figure 13		
Drawing No	LM		
	AP		
Date	February 2023		
	As Noted		
Scale	As Noted		
	As Noted		
TENEN ENVIRONMENTAL			
Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379			
Remedial Action Work Plan 2921 Westchester Avenue Bronx, New York Block 4164, Lot 5			
Site			

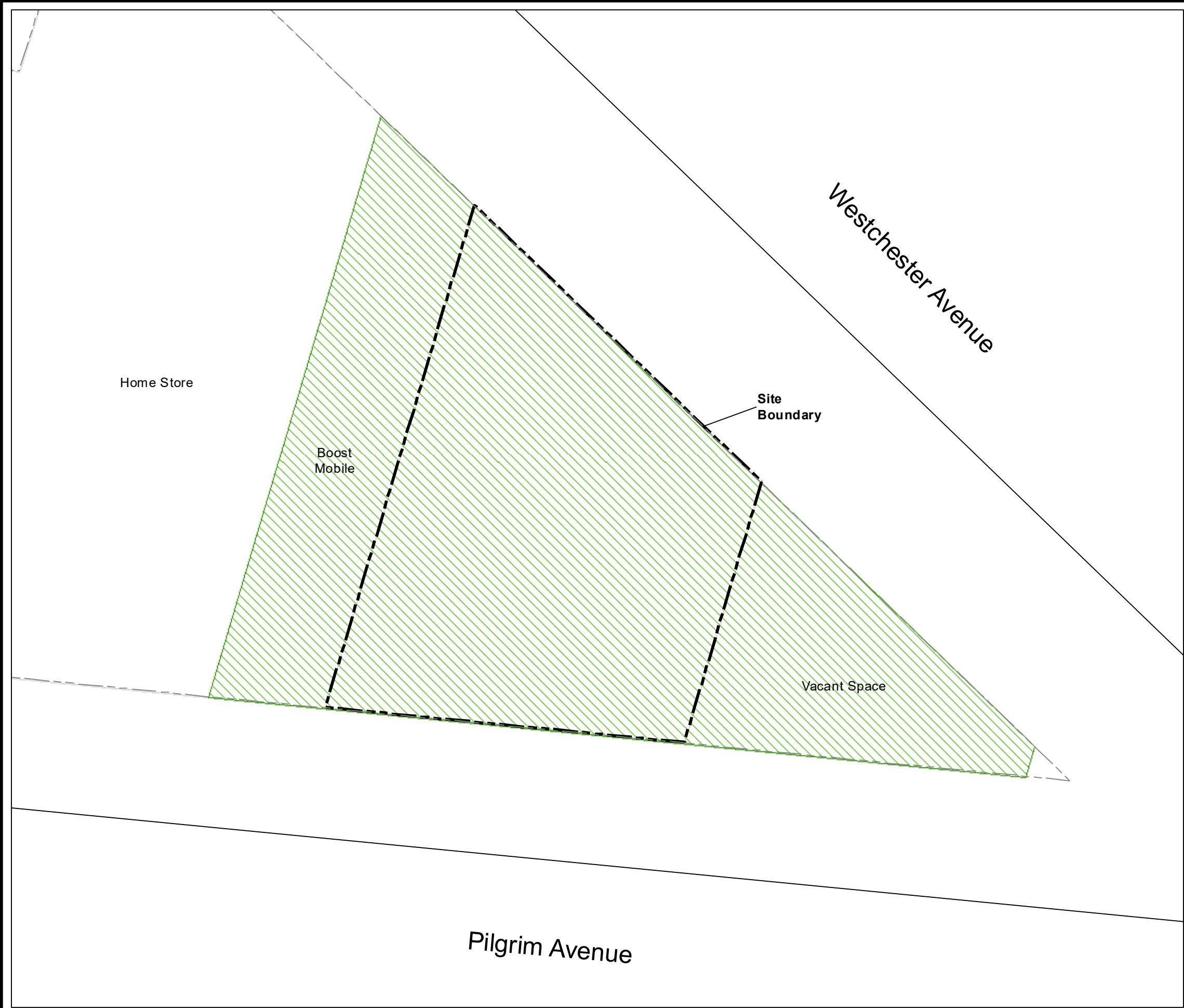


Legend

-  Proposed Post-Remedial Groundwater Sample Location
-  Site Boundary
-  NYC Tax Lot



Drawing Title Proposed Post-Remedial Groundwater Sampling Locations	Drawn By LM	 Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	Site Remedial Action Work Plan 2921 Westchester Avenue Bronx, New York Block 4164, Lot 5
	Checked By AP		
Drawing No Figure 14	Date December 2022		
	Scale As Noted		



Legend

- — NYC Tax Lot
- Site Boundary
- Area of Depressurization

0 5 10 20 Feet



Drawing Title	Areas of Sub-Slab Depressurization		Drawn By	LM	Site
			Checked By	AC	
Drawing No	Figure 15		Date	July 2024	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379
			Scale	As Noted	

Tables

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)
LAB ID:				L2107354-01	L2107354-03	L2107354-04
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	76.9	92.8	86.2
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.055	0.0039	0.0004 J
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	ND	ND	0.024
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	0.00064 J
Trichloroethene	0.47	200	mg/kg	0.0099	ND	0.00035 J
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.012	ND	0.065
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.012	ND	0.066 J
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)
LAB ID:				L2107354-01	L2107354-03	L2107354-04
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	ND	0.011	0.013
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	--	--
1,1-Dichloroethane	0.27	240	mg/kg	--	--	--
Chloroform	0.37	350	mg/kg	--	--	--
Carbon tetrachloride	0.76	22	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)
LAB ID:				L2107354-01	L2107354-03	L2107354-04
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	--	--
Dibromochloromethane	NS	NS	mg/kg	--	--	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	--	--
Tetrachloroethene	1.3	150	mg/kg	--	--	--
Chlorobenzene	1.1	500	mg/kg	--	--	--
Trichlorofluoromethane	NS	NS	mg/kg	--	--	--
1,2-Dichloroethane	0.02	30	mg/kg	--	--	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	--	--
Bromodichloromethane	NS	NS	mg/kg	--	--	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	--	--
1,1-Dichloropropene	NS	NS	mg/kg	--	--	--
Bromoform	NS	NS	mg/kg	--	--	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Benzene	0.06	44	mg/kg	--	--	--
Toluene	0.7	500	mg/kg	--	--	--
Ethylbenzene	1	390	mg/kg	--	--	--
Chloromethane	NS	NS	mg/kg	--	--	--
Bromomethane	NS	NS	mg/kg	--	--	--
Vinyl chloride	0.02	13	mg/kg	--	--	--
Chloroethane	NS	NS	mg/kg	--	--	--
1,1-Dichloroethene	0.33	500	mg/kg	--	--	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	--	--
Trichloroethene	0.47	200	mg/kg	--	--	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	--	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	--	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	--	--
Methyl tert butyl ether	0.93	500	mg/kg	--	--	--
p/m-Xylene	NS	NS	mg/kg	--	--	--
o-Xylene	NS	NS	mg/kg	--	--	--
Xylenes, Total	1.6	500	mg/kg	--	--	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	--	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	--	--
Dibromomethane	NS	NS	mg/kg	--	--	--
Styrene	NS	NS	mg/kg	--	--	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	--	--
Acetone	0.05	500	mg/kg	--	--	--
Carbon disulfide	NS	NS	mg/kg	--	--	--
2-Butanone	0.12	500	mg/kg	--	--	--
Vinyl acetate	NS	NS	mg/kg	--	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	--	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	--	--
2-Hexanone	NS	NS	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)
LAB ID:				L2107354-01	L2107354-03	L2107354-04
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	--	--
2,2-Dichloropropane	NS	NS	mg/kg	--	--	--
1,2-Dibromoethane	NS	NS	mg/kg	--	--	--
1,3-Dichloropropane	NS	NS	mg/kg	--	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Bromobenzene	NS	NS	mg/kg	--	--	--
n-Butylbenzene	12	500	mg/kg	--	--	--
sec-Butylbenzene	11	500	mg/kg	--	--	--
tert-Butylbenzene	5.9	500	mg/kg	--	--	--
o-Chlorotoluene	NS	NS	mg/kg	--	--	--
p-Chlorotoluene	NS	NS	mg/kg	--	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	--	--
Hexachlorobutadiene	NS	NS	mg/kg	--	--	--
Isopropylbenzene	NS	NS	mg/kg	--	--	--
p-Isopropyltoluene	NS	NS	mg/kg	--	--	--
Naphthalene	12	500	mg/kg	--	--	--
Acrylonitrile	NS	NS	mg/kg	--	--	--
n-Propylbenzene	3.9	500	mg/kg	--	--	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	--	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	--	--
1,4-Dioxane	0.1	130	mg/kg	--	--	--
p-Diethylbenzene	NS	NS	mg/kg	--	--	--
p-Ethyltoluene	NS	NS	mg/kg	--	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	--	--
Ethyl ether	NS	NS	mg/kg	--	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	--	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)
LAB ID:				L2107354-05	L2107354-06	L2107354-08
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	90.6	82.8	88.1
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.0052	0.0019	0.0005
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	0.00033 J	ND	ND
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	0.003	0.00039 J	0.00041 J
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.016	0.0008 J	0.0047
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.016	0.0008 J	0.0047
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)
LAB ID:				L2107354-05	L2107354-06	L2107354-08
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	0.006 J	0.0064 J	ND
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	--	--
1,1-Dichloroethane	0.27	240	mg/kg	--	--	--
Chloroform	0.37	350	mg/kg	--	--	--
Carbon tetrachloride	0.76	22	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)
LAB ID:				L2107354-05	L2107354-06	L2107354-08
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	--	--
Dibromochloromethane	NS	NS	mg/kg	--	--	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	--	--
Tetrachloroethene	1.3	150	mg/kg	--	--	--
Chlorobenzene	1.1	500	mg/kg	--	--	--
Trichlorofluoromethane	NS	NS	mg/kg	--	--	--
1,2-Dichloroethane	0.02	30	mg/kg	--	--	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	--	--
Bromodichloromethane	NS	NS	mg/kg	--	--	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	--	--
1,1-Dichloropropene	NS	NS	mg/kg	--	--	--
Bromoform	NS	NS	mg/kg	--	--	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Benzene	0.06	44	mg/kg	--	--	--
Toluene	0.7	500	mg/kg	--	--	--
Ethylbenzene	1	390	mg/kg	--	--	--
Chloromethane	NS	NS	mg/kg	--	--	--
Bromomethane	NS	NS	mg/kg	--	--	--
Vinyl chloride	0.02	13	mg/kg	--	--	--
Chloroethane	NS	NS	mg/kg	--	--	--
1,1-Dichloroethene	0.33	500	mg/kg	--	--	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	--	--
Trichloroethene	0.47	200	mg/kg	--	--	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	--	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	--	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	--	--
Methyl tert butyl ether	0.93	500	mg/kg	--	--	--
p/m-Xylene	NS	NS	mg/kg	--	--	--
o-Xylene	NS	NS	mg/kg	--	--	--
Xylenes, Total	1.6	500	mg/kg	--	--	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	--	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	--	--
Dibromomethane	NS	NS	mg/kg	--	--	--
Styrene	NS	NS	mg/kg	--	--	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	--	--
Acetone	0.05	500	mg/kg	--	--	--
Carbon disulfide	NS	NS	mg/kg	--	--	--
2-Butanone	0.12	500	mg/kg	--	--	--
Vinyl acetate	NS	NS	mg/kg	--	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	--	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	--	--
2-Hexanone	NS	NS	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)
LAB ID:				L2107354-05	L2107354-06	L2107354-08
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	--	--
2,2-Dichloropropane	NS	NS	mg/kg	--	--	--
1,2-Dibromoethane	NS	NS	mg/kg	--	--	--
1,3-Dichloropropane	NS	NS	mg/kg	--	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Bromobenzene	NS	NS	mg/kg	--	--	--
n-Butylbenzene	12	500	mg/kg	--	--	--
sec-Butylbenzene	11	500	mg/kg	--	--	--
tert-Butylbenzene	5.9	500	mg/kg	--	--	--
o-Chlorotoluene	NS	NS	mg/kg	--	--	--
p-Chlorotoluene	NS	NS	mg/kg	--	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	--	--
Hexachlorobutadiene	NS	NS	mg/kg	--	--	--
Isopropylbenzene	NS	NS	mg/kg	--	--	--
p-Isopropyltoluene	NS	NS	mg/kg	--	--	--
Naphthalene	12	500	mg/kg	--	--	--
Acrylonitrile	NS	NS	mg/kg	--	--	--
n-Propylbenzene	3.9	500	mg/kg	--	--	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	--	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	--	--
1,4-Dioxane	0.1	130	mg/kg	--	--	--
p-Diethylbenzene	NS	NS	mg/kg	--	--	--
p-Ethyltoluene	NS	NS	mg/kg	--	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	--	--
Ethyl ether	NS	NS	mg/kg	--	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	--	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)
LAB ID:				L2107354-07	L2107354-10	L2107354-11
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	87.6	77.7	76.9
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.00095	0.051	0.064
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	ND	ND	ND
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	0.00062	0.0026	0.00075
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.0099	0.0021	ND
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.0099	0.0021	ND
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)
LAB ID:				L2107354-07	L2107354-10	L2107354-11
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	0.014	0.01	0.014
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	ND	--
1,1-Dichloroethane	0.27	240	mg/kg	--	ND	--
Chloroform	0.37	350	mg/kg	--	ND	--
Carbon tetrachloride	0.76	22	mg/kg	--	ND	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)
LAB ID:				L2107354-07	L2107354-10	L2107354-11
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	ND	--
Dibromochloromethane	NS	NS	mg/kg	--	ND	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	ND	--
Tetrachloroethene	1.3	150	mg/kg	--	0.59	--
Chlorobenzene	1.1	500	mg/kg	--	ND	--
Trichlorofluoromethane	NS	NS	mg/kg	--	ND	--
1,2-Dichloroethane	0.02	30	mg/kg	--	ND	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	ND	--
Bromodichloromethane	NS	NS	mg/kg	--	ND	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	ND	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	ND	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	ND	--
1,1-Dichloropropene	NS	NS	mg/kg	--	ND	--
Bromoform	NS	NS	mg/kg	--	ND	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	ND	--
Benzene	0.06	44	mg/kg	--	ND	--
Toluene	0.7	500	mg/kg	--	ND	--
Ethylbenzene	1	390	mg/kg	--	ND	--
Chloromethane	NS	NS	mg/kg	--	ND	--
Bromomethane	NS	NS	mg/kg	--	ND	--
Vinyl chloride	0.02	13	mg/kg	--	ND	--
Chloroethane	NS	NS	mg/kg	--	ND	--
1,1-Dichloroethene	0.33	500	mg/kg	--	ND	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	ND	--
Trichloroethene	0.47	200	mg/kg	--	0.032 J	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	ND	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	ND	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	ND	--
Methyl tert butyl ether	0.93	500	mg/kg	--	ND	--
p/m-Xylene	NS	NS	mg/kg	--	ND	--
o-Xylene	NS	NS	mg/kg	--	ND	--
Xylenes, Total	1.6	500	mg/kg	--	ND	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	ND	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	ND	--
Dibromomethane	NS	NS	mg/kg	--	ND	--
Styrene	NS	NS	mg/kg	--	ND	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	ND	--
Acetone	0.05	500	mg/kg	--	ND	--
Carbon disulfide	NS	NS	mg/kg	--	ND	--
2-Butanone	0.12	500	mg/kg	--	0.18 J	--
Vinyl acetate	NS	NS	mg/kg	--	ND	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	ND	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	ND	--
2-Hexanone	NS	NS	mg/kg	--	ND	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)
LAB ID:				L2107354-07	L2107354-10	L2107354-11
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	ND	--
2,2-Dichloropropane	NS	NS	mg/kg	--	ND	--
1,2-Dibromoethane	NS	NS	mg/kg	--	ND	--
1,3-Dichloropropane	NS	NS	mg/kg	--	ND	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	ND	--
Bromobenzene	NS	NS	mg/kg	--	ND	--
n-Butylbenzene	12	500	mg/kg	--	ND	--
sec-Butylbenzene	11	500	mg/kg	--	ND	--
tert-Butylbenzene	5.9	500	mg/kg	--	ND	--
o-Chlorotoluene	NS	NS	mg/kg	--	ND	--
p-Chlorotoluene	NS	NS	mg/kg	--	ND	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	ND	--
Hexachlorobutadiene	NS	NS	mg/kg	--	ND	--
Isopropylbenzene	NS	NS	mg/kg	--	ND	--
p-Isopropyltoluene	NS	NS	mg/kg	--	ND	--
Naphthalene	12	500	mg/kg	--	ND	--
Acrylonitrile	NS	NS	mg/kg	--	ND	--
n-Propylbenzene	3.9	500	mg/kg	--	ND	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	ND	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	ND	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	ND	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	ND	--
1,4-Dioxane	0.1	130	mg/kg	--	ND	--
p-Diethylbenzene	NS	NS	mg/kg	--	ND	--
p-Ethyltoluene	NS	NS	mg/kg	--	ND	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	ND	--
Ethyl ether	NS	NS	mg/kg	--	ND	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	ND	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)
LAB ID:				L2107354-13	L2107354-14	L2107354-16
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	81.8	81.2	76.2
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.34 E	0.34 E	0.076
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	0.00051 J	ND	ND
Chloroethane	NS	NS	mg/kg	0.00051 J	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	0.0033	0.0015	0.00078
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.004	0.00024 J	0.0015
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.004	0.00024 J	0.0015
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)
LAB ID:				L2107354-13	L2107354-14	L2107354-16
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	0.0084 J	0.018	0.017
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	ND	ND	--
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	--
Chloroform	0.37	350	mg/kg	0.01 J	0.017 J	--
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)
LAB ID:				L2107354-13	L2107354-14	L2107354-16
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	--
Dibromochloromethane	NS	NS	mg/kg	ND	ND	--
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	--
Tetrachloroethene	1.3	150	mg/kg	0.9	1	--
Chlorobenzene	1.1	500	mg/kg	ND	ND	--
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	--
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	--
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	--
Bromodichloromethane	NS	NS	mg/kg	ND	ND	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	--
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	--
Bromoform	NS	NS	mg/kg	ND	ND	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	--
Benzene	0.06	44	mg/kg	ND	ND	--
Toluene	0.7	500	mg/kg	ND	ND	--
Ethylbenzene	1	390	mg/kg	ND	ND	--
Chloromethane	NS	NS	mg/kg	ND	ND	--
Bromomethane	NS	NS	mg/kg	ND	ND	--
Vinyl chloride	0.02	13	mg/kg	ND	ND	--
Chloroethane	NS	NS	mg/kg	ND	ND	--
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	--
Trichloroethene	0.47	200	mg/kg	ND	ND	--
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	--
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	--
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	--
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	--
p/m-Xylene	NS	NS	mg/kg	ND	ND	--
o-Xylene	NS	NS	mg/kg	ND	ND	--
Xylenes, Total	1.6	500	mg/kg	ND	ND	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	ND	ND	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	ND	ND	--
Dibromomethane	NS	NS	mg/kg	ND	ND	--
Styrene	NS	NS	mg/kg	ND	ND	--
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	--
Acetone	0.05	500	mg/kg	ND	ND	--
Carbon disulfide	NS	NS	mg/kg	ND	ND	--
2-Butanone	0.12	500	mg/kg	0.19 J	0.16 J	--
Vinyl acetate	NS	NS	mg/kg	ND	ND	--
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	--
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	--
2-Hexanone	NS	NS	mg/kg	ND	ND	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)
LAB ID:				L2107354-13	L2107354-14	L2107354-16
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	ND	ND	--
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	--
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	--
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	--
Bromobenzene	NS	NS	mg/kg	ND	ND	--
n-Butylbenzene	12	500	mg/kg	ND	ND	--
sec-Butylbenzene	11	500	mg/kg	ND	ND	--
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	--
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	--
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	--
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	--
Isopropylbenzene	NS	NS	mg/kg	ND	ND	--
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	--
Naphthalene	12	500	mg/kg	ND	ND	--
Acrylonitrile	NS	NS	mg/kg	ND	ND	--
n-Propylbenzene	3.9	500	mg/kg	ND	ND	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	--
1,4-Dioxane	0.1	130	mg/kg	ND	ND	--
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	--
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	--
Ethyl ether	NS	NS	mg/kg	ND	ND	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)
LAB ID:				L2107354-17	L2107354-19	L2107354-20
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	91.5	80.5	90.4
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.057	0.098	0.045
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	ND	ND	ND
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	0.00052	0.0038	0.00022 J
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.00055 J	0.0053	0.00016 J
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.00055 J	0.0053	0.00016 J
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)
LAB ID:				L2107354-17	L2107354-19	L2107354-20
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	0.01	0.0054 J	0.0088 J
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	ND	--
1,1-Dichloroethane	0.27	240	mg/kg	--	ND	--
Chloroform	0.37	350	mg/kg	--	0.02 J	--
Carbon tetrachloride	0.76	22	mg/kg	--	ND	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)
LAB ID:				L2107354-17	L2107354-19	L2107354-20
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	ND	--
Dibromochloromethane	NS	NS	mg/kg	--	ND	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	ND	--
Tetrachloroethene	1.3	150	mg/kg	--	0.52	--
Chlorobenzene	1.1	500	mg/kg	--	ND	--
Trichlorofluoromethane	NS	NS	mg/kg	--	ND	--
1,2-Dichloroethane	0.02	30	mg/kg	--	ND	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	ND	--
Bromodichloromethane	NS	NS	mg/kg	--	ND	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	ND	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	ND	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	ND	--
1,1-Dichloropropene	NS	NS	mg/kg	--	ND	--
Bromoform	NS	NS	mg/kg	--	ND	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	ND	--
Benzene	0.06	44	mg/kg	--	ND	--
Toluene	0.7	500	mg/kg	--	ND	--
Ethylbenzene	1	390	mg/kg	--	ND	--
Chloromethane	NS	NS	mg/kg	--	ND	--
Bromomethane	NS	NS	mg/kg	--	ND	--
Vinyl chloride	0.02	13	mg/kg	--	ND	--
Chloroethane	NS	NS	mg/kg	--	ND	--
1,1-Dichloroethene	0.33	500	mg/kg	--	ND	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	ND	--
Trichloroethene	0.47	200	mg/kg	--	0.046	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	ND	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	ND	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	ND	--
Methyl tert butyl ether	0.93	500	mg/kg	--	ND	--
p/m-Xylene	NS	NS	mg/kg	--	ND	--
o-Xylene	NS	NS	mg/kg	--	ND	--
Xylenes, Total	1.6	500	mg/kg	--	ND	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	0.015 J	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	0.015 J	--
Dibromomethane	NS	NS	mg/kg	--	ND	--
Styrene	NS	NS	mg/kg	--	ND	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	ND	--
Acetone	0.05	500	mg/kg	--	ND	--
Carbon disulfide	NS	NS	mg/kg	--	ND	--
2-Butanone	0.12	500	mg/kg	--	ND	--
Vinyl acetate	NS	NS	mg/kg	--	ND	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	ND	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	ND	--
2-Hexanone	NS	NS	mg/kg	--	ND	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)
LAB ID:				L2107354-17	L2107354-19	L2107354-20
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	ND	--
2,2-Dichloropropane	NS	NS	mg/kg	--	ND	--
1,2-Dibromoethane	NS	NS	mg/kg	--	ND	--
1,3-Dichloropropane	NS	NS	mg/kg	--	ND	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	ND	--
Bromobenzene	NS	NS	mg/kg	--	ND	--
n-Butylbenzene	12	500	mg/kg	--	ND	--
sec-Butylbenzene	11	500	mg/kg	--	ND	--
tert-Butylbenzene	5.9	500	mg/kg	--	ND	--
o-Chlorotoluene	NS	NS	mg/kg	--	ND	--
p-Chlorotoluene	NS	NS	mg/kg	--	ND	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	ND	--
Hexachlorobutadiene	NS	NS	mg/kg	--	ND	--
Isopropylbenzene	NS	NS	mg/kg	--	ND	--
p-Isopropyltoluene	NS	NS	mg/kg	--	ND	--
Naphthalene	12	500	mg/kg	--	ND	--
Acrylonitrile	NS	NS	mg/kg	--	ND	--
n-Propylbenzene	3.9	500	mg/kg	--	ND	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	ND	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	ND	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	ND	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	ND	--
1,4-Dioxane	0.1	130	mg/kg	--	ND	--
p-Diethylbenzene	NS	NS	mg/kg	--	ND	--
p-Ethyltoluene	NS	NS	mg/kg	--	ND	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	ND	--
Ethyl ether	NS	NS	mg/kg	--	ND	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	ND	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)
LAB ID:				L2107354-22	L2107354-23	L2107354-24
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	92	86.5	78.8
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	0.016 J
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.01	0.004	5.2
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	0.00039 J	ND	ND
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	0.011	0.00072	1.2
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.017	0.00083 J	1.4
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.017	0.00083 J	1.4
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)
LAB ID:				L2107354-22	L2107354-23	L2107354-24
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	0.0085 J	0.014	0.58 J
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	0.00067 J	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	0.00033 J	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	0.00048 J	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	ND	--	--
1,1-Dichloroethane	0.27	240	mg/kg	ND	--	--
Chloroform	0.37	350	mg/kg	ND	--	--
Carbon tetrachloride	0.76	22	mg/kg	ND	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)
LAB ID:				L2107354-22	L2107354-23	L2107354-24
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	ND	--	--
Dibromochloromethane	NS	NS	mg/kg	ND	--	--
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	--	--
Tetrachloroethene	1.3	150	mg/kg	0.82	--	--
Chlorobenzene	1.1	500	mg/kg	ND	--	--
Trichlorofluoromethane	NS	NS	mg/kg	ND	--	--
1,2-Dichloroethane	0.02	30	mg/kg	ND	--	--
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	--	--
Bromodichloromethane	NS	NS	mg/kg	ND	--	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	--	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	--	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	--	--
1,1-Dichloropropene	NS	NS	mg/kg	ND	--	--
Bromoform	NS	NS	mg/kg	ND	--	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	--	--
Benzene	0.06	44	mg/kg	ND	--	--
Toluene	0.7	500	mg/kg	ND	--	--
Ethylbenzene	1	390	mg/kg	ND	--	--
Chloromethane	NS	NS	mg/kg	ND	--	--
Bromomethane	NS	NS	mg/kg	ND	--	--
Vinyl chloride	0.02	13	mg/kg	ND	--	--
Chloroethane	NS	NS	mg/kg	ND	--	--
1,1-Dichloroethene	0.33	500	mg/kg	ND	--	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	--	--
Trichloroethene	0.47	200	mg/kg	0.29	--	--
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	--	--
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	--	--
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	--	--
Methyl tert butyl ether	0.93	500	mg/kg	ND	--	--
p/m-Xylene	NS	NS	mg/kg	ND	--	--
o-Xylene	NS	NS	mg/kg	ND	--	--
Xylenes, Total	1.6	500	mg/kg	ND	--	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.12	--	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.12	--	--
Dibromomethane	NS	NS	mg/kg	ND	--	--
Styrene	NS	NS	mg/kg	ND	--	--
Dichlorodifluoromethane	NS	NS	mg/kg	ND	--	--
Acetone	0.05	500	mg/kg	ND	--	--
Carbon disulfide	NS	NS	mg/kg	ND	--	--
2-Butanone	0.12	500	mg/kg	ND	--	--
Vinyl acetate	NS	NS	mg/kg	ND	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	--	--
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	--	--
2-Hexanone	NS	NS	mg/kg	ND	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)
LAB ID:				L2107354-22	L2107354-23	L2107354-24
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	ND	--	--
2,2-Dichloropropane	NS	NS	mg/kg	ND	--	--
1,2-Dibromoethane	NS	NS	mg/kg	ND	--	--
1,3-Dichloropropane	NS	NS	mg/kg	ND	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	--	--
Bromobenzene	NS	NS	mg/kg	ND	--	--
n-Butylbenzene	12	500	mg/kg	ND	--	--
sec-Butylbenzene	11	500	mg/kg	ND	--	--
tert-Butylbenzene	5.9	500	mg/kg	ND	--	--
o-Chlorotoluene	NS	NS	mg/kg	ND	--	--
p-Chlorotoluene	NS	NS	mg/kg	ND	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	--	--
Hexachlorobutadiene	NS	NS	mg/kg	ND	--	--
Isopropylbenzene	NS	NS	mg/kg	ND	--	--
p-Isopropyltoluene	NS	NS	mg/kg	ND	--	--
Naphthalene	12	500	mg/kg	ND	--	--
Acrylonitrile	NS	NS	mg/kg	ND	--	--
n-Propylbenzene	3.9	500	mg/kg	ND	--	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	--	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	--	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	--	--
1,4-Dioxane	0.1	130	mg/kg	ND	--	--
p-Diethylbenzene	NS	NS	mg/kg	ND	--	--
p-Ethyltoluene	NS	NS	mg/kg	ND	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	--	--
Ethyl ether	NS	NS	mg/kg	ND	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	--	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-9 (2-3)	SB-10 (2.5-4.5)	SB-11 (0-2)
LAB ID:				L2107354-26	L2107354-41	L2107354-27
COLLECTION DATE:				2/15/2021	2/16/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	84	84.1	86.3
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.0033	ND	0.039
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	ND	ND	ND
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	0.00062	ND	0.0049
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.0024	ND	0.0082
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.0024	ND	0.0082
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-9 (2-3)	SB-10 (2.5-4.5)	SB-11 (0-2)
LAB ID:				L2107354-26	L2107354-41	L2107354-27
COLLECTION DATE:				2/15/2021	2/16/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	0.006 J	ND	0.025
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	0.00044 J
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	--	--
1,1-Dichloroethane	0.27	240	mg/kg	--	--	--
Chloroform	0.37	350	mg/kg	--	--	--
Carbon tetrachloride	0.76	22	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-9 (2-3)	SB-10 (2.5-4.5)	SB-11 (0-2)
LAB ID:				L2107354-26	L2107354-41	L2107354-27
COLLECTION DATE:				2/15/2021	2/16/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	--	--
Dibromochloromethane	NS	NS	mg/kg	--	--	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	--	--
Tetrachloroethene	1.3	150	mg/kg	--	--	--
Chlorobenzene	1.1	500	mg/kg	--	--	--
Trichlorofluoromethane	NS	NS	mg/kg	--	--	--
1,2-Dichloroethane	0.02	30	mg/kg	--	--	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	--	--
Bromodichloromethane	NS	NS	mg/kg	--	--	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	--	--
1,1-Dichloropropene	NS	NS	mg/kg	--	--	--
Bromoform	NS	NS	mg/kg	--	--	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Benzene	0.06	44	mg/kg	--	--	--
Toluene	0.7	500	mg/kg	--	--	--
Ethylbenzene	1	390	mg/kg	--	--	--
Chloromethane	NS	NS	mg/kg	--	--	--
Bromomethane	NS	NS	mg/kg	--	--	--
Vinyl chloride	0.02	13	mg/kg	--	--	--
Chloroethane	NS	NS	mg/kg	--	--	--
1,1-Dichloroethene	0.33	500	mg/kg	--	--	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	--	--
Trichloroethene	0.47	200	mg/kg	--	--	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	--	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	--	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	--	--
Methyl tert butyl ether	0.93	500	mg/kg	--	--	--
p/m-Xylene	NS	NS	mg/kg	--	--	--
o-Xylene	NS	NS	mg/kg	--	--	--
Xylenes, Total	1.6	500	mg/kg	--	--	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	--	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	--	--
Dibromomethane	NS	NS	mg/kg	--	--	--
Styrene	NS	NS	mg/kg	--	--	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	--	--
Acetone	0.05	500	mg/kg	--	--	--
Carbon disulfide	NS	NS	mg/kg	--	--	--
2-Butanone	0.12	500	mg/kg	--	--	--
Vinyl acetate	NS	NS	mg/kg	--	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	--	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	--	--
2-Hexanone	NS	NS	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-9 (2-3)	SB-10 (2.5-4.5)	SB-11 (0-2)
LAB ID:				L2107354-26	L2107354-41	L2107354-27
COLLECTION DATE:				2/15/2021	2/16/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	--	--
2,2-Dichloropropane	NS	NS	mg/kg	--	--	--
1,2-Dibromoethane	NS	NS	mg/kg	--	--	--
1,3-Dichloropropane	NS	NS	mg/kg	--	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Bromobenzene	NS	NS	mg/kg	--	--	--
n-Butylbenzene	12	500	mg/kg	--	--	--
sec-Butylbenzene	11	500	mg/kg	--	--	--
tert-Butylbenzene	5.9	500	mg/kg	--	--	--
o-Chlorotoluene	NS	NS	mg/kg	--	--	--
p-Chlorotoluene	NS	NS	mg/kg	--	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	--	--
Hexachlorobutadiene	NS	NS	mg/kg	--	--	--
Isopropylbenzene	NS	NS	mg/kg	--	--	--
p-Isopropyltoluene	NS	NS	mg/kg	--	--	--
Naphthalene	12	500	mg/kg	--	--	--
Acrylonitrile	NS	NS	mg/kg	--	--	--
n-Propylbenzene	3.9	500	mg/kg	--	--	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	--	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	--	--
1,4-Dioxane	0.1	130	mg/kg	--	--	--
p-Diethylbenzene	NS	NS	mg/kg	--	--	--
p-Ethyltoluene	NS	NS	mg/kg	--	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	--	--
Ethyl ether	NS	NS	mg/kg	--	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	--	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-11 (2-3)	SB-12 (0-2)	SB-12 (2-3)
LAB ID:				L2107354-28	L2107354-29	L2107354-31
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	76.7	88.4	88.8
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	0.026 J	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	ND	8.7	0.0085
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	ND	ND	0.00029 J
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	ND	0.53	0.0056
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	ND	0.8	0.019
1,2-Dichloroethene, Total	NS	NS	mg/kg	ND	0.8	0.019
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-11 (2-3)	SB-12 (0-2)	SB-12 (2-3)
LAB ID:				L2107354-28	L2107354-29	L2107354-31
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	ND	0.48 J	ND
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	--	--
1,1-Dichloroethane	0.27	240	mg/kg	--	--	--
Chloroform	0.37	350	mg/kg	--	--	--
Carbon tetrachloride	0.76	22	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-11 (2-3)	SB-12 (0-2)	SB-12 (2-3)
LAB ID:				L2107354-28	L2107354-29	L2107354-31
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	--	--
Dibromochloromethane	NS	NS	mg/kg	--	--	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	--	--
Tetrachloroethene	1.3	150	mg/kg	--	--	--
Chlorobenzene	1.1	500	mg/kg	--	--	--
Trichlorofluoromethane	NS	NS	mg/kg	--	--	--
1,2-Dichloroethane	0.02	30	mg/kg	--	--	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	--	--
Bromodichloromethane	NS	NS	mg/kg	--	--	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	--	--
1,1-Dichloropropene	NS	NS	mg/kg	--	--	--
Bromoform	NS	NS	mg/kg	--	--	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Benzene	0.06	44	mg/kg	--	--	--
Toluene	0.7	500	mg/kg	--	--	--
Ethylbenzene	1	390	mg/kg	--	--	--
Chloromethane	NS	NS	mg/kg	--	--	--
Bromomethane	NS	NS	mg/kg	--	--	--
Vinyl chloride	0.02	13	mg/kg	--	--	--
Chloroethane	NS	NS	mg/kg	--	--	--
1,1-Dichloroethene	0.33	500	mg/kg	--	--	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	--	--
Trichloroethene	0.47	200	mg/kg	--	--	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	--	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	--	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	--	--
Methyl tert butyl ether	0.93	500	mg/kg	--	--	--
p/m-Xylene	NS	NS	mg/kg	--	--	--
o-Xylene	NS	NS	mg/kg	--	--	--
Xylenes, Total	1.6	500	mg/kg	--	--	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	--	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	--	--
Dibromomethane	NS	NS	mg/kg	--	--	--
Styrene	NS	NS	mg/kg	--	--	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	--	--
Acetone	0.05	500	mg/kg	--	--	--
Carbon disulfide	NS	NS	mg/kg	--	--	--
2-Butanone	0.12	500	mg/kg	--	--	--
Vinyl acetate	NS	NS	mg/kg	--	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	--	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	--	--
2-Hexanone	NS	NS	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-11 (2-3)	SB-12 (0-2)	SB-12 (2-3)
LAB ID:				L2107354-28	L2107354-29	L2107354-31
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	--	--
2,2-Dichloropropane	NS	NS	mg/kg	--	--	--
1,2-Dibromoethane	NS	NS	mg/kg	--	--	--
1,3-Dichloropropane	NS	NS	mg/kg	--	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Bromobenzene	NS	NS	mg/kg	--	--	--
n-Butylbenzene	12	500	mg/kg	--	--	--
sec-Butylbenzene	11	500	mg/kg	--	--	--
tert-Butylbenzene	5.9	500	mg/kg	--	--	--
o-Chlorotoluene	NS	NS	mg/kg	--	--	--
p-Chlorotoluene	NS	NS	mg/kg	--	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	--	--
Hexachlorobutadiene	NS	NS	mg/kg	--	--	--
Isopropylbenzene	NS	NS	mg/kg	--	--	--
p-Isopropyltoluene	NS	NS	mg/kg	--	--	--
Naphthalene	12	500	mg/kg	--	--	--
Acrylonitrile	NS	NS	mg/kg	--	--	--
n-Propylbenzene	3.9	500	mg/kg	--	--	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	--	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	--	--
1,4-Dioxane	0.1	130	mg/kg	--	--	--
p-Diethylbenzene	NS	NS	mg/kg	--	--	--
p-Ethyltoluene	NS	NS	mg/kg	--	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	--	--
Ethyl ether	NS	NS	mg/kg	--	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	--	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater
Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup
Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-12 (0-2)_DUP	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-30	L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	80.3	89.8	91.6
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	0.0029	0.00049	0.00034 J
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	0.008	0.00094	ND
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	0.0014 J	ND	ND
Trichloroethene	0.47	200	mg/kg	0.0031	ND	0.00023 J
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	0.037	0.019	0.016
1,2-Dichloroethene, Total	NS	NS	mg/kg	0.038 J	0.019	0.016
Dibromomethane	NS	NS	mg/kg	ND	ND	ND
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-12 (0-2)_DUP	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-30	L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	0.023	0.0066 J	0.0047 J
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	ND	ND	ND
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	ND	ND	ND
2,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Bromobenzene	NS	NS	mg/kg	ND	ND	ND
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
p-Chlorotoluene	NS	NS	mg/kg	ND	ND	ND
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	ND	ND	ND
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND
p-Diethylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Ethyltoluene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	ND	ND	ND
Ethyl ether	NS	NS	mg/kg	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	ND	ND	ND
Freon-113	NS	NS	mg/kg	--	--	--
Methyl cyclohexane	NS	NS	mg/kg	--	--	--
Methyl acetate	NS	NS	mg/kg	--	--	--
Cyclohexane	NS	NS	mg/kg	--	--	--
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	--	--
1,1-Dichloroethane	0.27	240	mg/kg	--	--	--
Chloroform	0.37	350	mg/kg	--	--	--
Carbon tetrachloride	0.76	22	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-12 (0-2)_DUP	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-30	L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	--	--
Dibromochloromethane	NS	NS	mg/kg	--	--	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	--	--
Tetrachloroethene	1.3	150	mg/kg	--	--	--
Chlorobenzene	1.1	500	mg/kg	--	--	--
Trichlorofluoromethane	NS	NS	mg/kg	--	--	--
1,2-Dichloroethane	0.02	30	mg/kg	--	--	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	--	--
Bromodichloromethane	NS	NS	mg/kg	--	--	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	--	--
1,1-Dichloropropene	NS	NS	mg/kg	--	--	--
Bromoform	NS	NS	mg/kg	--	--	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Benzene	0.06	44	mg/kg	--	--	--
Toluene	0.7	500	mg/kg	--	--	--
Ethylbenzene	1	390	mg/kg	--	--	--
Chloromethane	NS	NS	mg/kg	--	--	--
Bromomethane	NS	NS	mg/kg	--	--	--
Vinyl chloride	0.02	13	mg/kg	--	--	--
Chloroethane	NS	NS	mg/kg	--	--	--
1,1-Dichloroethene	0.33	500	mg/kg	--	--	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	--	--
Trichloroethene	0.47	200	mg/kg	--	--	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	--	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	--	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	--	--
Methyl tert butyl ether	0.93	500	mg/kg	--	--	--
p/m-Xylene	NS	NS	mg/kg	--	--	--
o-Xylene	NS	NS	mg/kg	--	--	--
Xylenes, Total	1.6	500	mg/kg	--	--	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	--	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	--	--
Dibromomethane	NS	NS	mg/kg	--	--	--
Styrene	NS	NS	mg/kg	--	--	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	--	--
Acetone	0.05	500	mg/kg	--	--	--
Carbon disulfide	NS	NS	mg/kg	--	--	--
2-Butanone	0.12	500	mg/kg	--	--	--
Vinyl acetate	NS	NS	mg/kg	--	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	--	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	--	--
2-Hexanone	NS	NS	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-12 (0-2)_DUP	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-30	L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	--	--
2,2-Dichloropropane	NS	NS	mg/kg	--	--	--
1,2-Dibromoethane	NS	NS	mg/kg	--	--	--
1,3-Dichloropropane	NS	NS	mg/kg	--	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Bromobenzene	NS	NS	mg/kg	--	--	--
n-Butylbenzene	12	500	mg/kg	--	--	--
sec-Butylbenzene	11	500	mg/kg	--	--	--
tert-Butylbenzene	5.9	500	mg/kg	--	--	--
o-Chlorotoluene	NS	NS	mg/kg	--	--	--
p-Chlorotoluene	NS	NS	mg/kg	--	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	--	--
Hexachlorobutadiene	NS	NS	mg/kg	--	--	--
Isopropylbenzene	NS	NS	mg/kg	--	--	--
p-Isopropyltoluene	NS	NS	mg/kg	--	--	--
Naphthalene	12	500	mg/kg	--	--	--
Acrylonitrile	NS	NS	mg/kg	--	--	--
n-Propylbenzene	3.9	500	mg/kg	--	--	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	--	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	--	--
1,4-Dioxane	0.1	130	mg/kg	--	--	--
p-Diethylbenzene	NS	NS	mg/kg	--	--	--
p-Ethyltoluene	NS	NS	mg/kg	--	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	--	--
Ethyl ether	NS	NS	mg/kg	--	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	--	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater
Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup
Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-16 (6-8)	SB-16 (6-8)_DUP	SB-17 (6-8)
LAB ID:				L2209049-01	L2209049-02	L2209049-03
COLLECTION DATE:				2/18/2022	2/18/2022	2/18/2022
				Qual	Qual	Qual
General Chemistry						
Solids, Total	NS	NS	%	97	91.7	91.3
Volatile Organic Compounds by EPA 5035						
Methylene chloride	0.05	500	mg/kg	ND	ND	ND
1,1-Dichloroethane	0.27	240	mg/kg	ND	ND	ND
Chloroform	0.37	350	mg/kg	ND	ND	ND
Carbon tetrachloride	0.76	22	mg/kg	ND	ND	ND
1,2-Dichloropropane	NS	NS	mg/kg	ND	ND	ND
Dibromochloromethane	NS	NS	mg/kg	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	mg/kg	ND	ND	ND
Tetrachloroethene	1.3	150	mg/kg	ND	ND	0.0029
Chlorobenzene	1.1	500	mg/kg	ND	ND	ND
Trichlorofluoromethane	NS	NS	mg/kg	ND	ND	ND
1,2-Dichloroethane	0.02	30	mg/kg	ND	ND	ND
1,1,1-Trichloroethane	0.68	500	mg/kg	ND	ND	ND
Bromodichloromethane	NS	NS	mg/kg	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	--	--
1,1-Dichloropropene	NS	NS	mg/kg	--	--	--
Bromoform	NS	NS	mg/kg	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	ND	ND	ND
Benzene	0.06	44	mg/kg	ND	ND	ND
Toluene	0.7	500	mg/kg	ND	ND	ND
Ethylbenzene	1	390	mg/kg	ND	ND	ND
Chloromethane	NS	NS	mg/kg	ND	ND	ND
Bromomethane	NS	NS	mg/kg	ND	ND	ND
Vinyl chloride	0.02	13	mg/kg	ND	ND	ND
Chloroethane	NS	NS	mg/kg	ND	ND	ND
1,1-Dichloroethene	0.33	500	mg/kg	ND	ND	ND
trans-1,2-Dichloroethene	0.19	500	mg/kg	ND	ND	ND
Trichloroethene	0.47	200	mg/kg	ND	ND	0.00044 J
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
Methyl tert butyl ether	0.93	500	mg/kg	ND	ND	ND
p/m-Xylene	NS	NS	mg/kg	ND	ND	ND
o-Xylene	NS	NS	mg/kg	ND	ND	ND
Xylenes, Total	1.6	500	mg/kg	ND	ND	ND
cis-1,2-Dichloroethene	0.25	500	mg/kg	ND	ND	0.0023
1,2-Dichloroethene, Total	NS	NS	mg/kg	ND	ND	0.0023
Dibromomethane	NS	NS	mg/kg	--	--	--
Styrene	NS	NS	mg/kg	ND	ND	ND
Dichlorodifluoromethane	NS	NS	mg/kg	ND	ND	ND

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-16 (6-8)	SB-16 (6-8)_DUP	SB-17 (6-8)
LAB ID:				L2209049-01	L2209049-02	L2209049-03
COLLECTION DATE:				2/18/2022	2/18/2022	2/18/2022
				Qual	Qual	Qual
Acetone	0.05	500	mg/kg	ND	ND	ND
Carbon disulfide	NS	NS	mg/kg	ND	ND	ND
2-Butanone	0.12	500	mg/kg	ND	ND	ND
Vinyl acetate	NS	NS	mg/kg	--	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	mg/kg	--	--	--
2-Hexanone	NS	NS	mg/kg	ND	ND	ND
Bromochloromethane	NS	NS	mg/kg	--	--	--
2,2-Dichloropropane	NS	NS	mg/kg	--	--	--
1,2-Dibromoethane	NS	NS	mg/kg	ND	ND	ND
1,3-Dichloropropane	NS	NS	mg/kg	--	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Bromobenzene	NS	NS	mg/kg	--	--	--
n-Butylbenzene	12	500	mg/kg	ND	ND	ND
sec-Butylbenzene	11	500	mg/kg	ND	ND	ND
tert-Butylbenzene	5.9	500	mg/kg	ND	ND	ND
o-Chlorotoluene	NS	NS	mg/kg	--	--	--
p-Chlorotoluene	NS	NS	mg/kg	--	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	--	--	--
Isopropylbenzene	NS	NS	mg/kg	ND	ND	ND
p-Isopropyltoluene	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Acrylonitrile	NS	NS	mg/kg	--	--	--
n-Propylbenzene	3.9	500	mg/kg	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	190	mg/kg	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	190	mg/kg	ND	ND	ND
1,4-Dioxane	0.1	130	mg/kg	--	--	--
p-Diethylbenzene	NS	NS	mg/kg	--	--	--
p-Ethyltoluene	NS	NS	mg/kg	--	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	--	--
Ethyl ether	NS	NS	mg/kg	--	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	--	--
Freon-113	NS	NS	mg/kg	ND	ND	ND
Methyl cyclohexane	NS	NS	mg/kg	ND	ND	ND
Methyl acetate	NS	NS	mg/kg	ND	ND	ND
Cyclohexane	NS	NS	mg/kg	ND	ND	ND
Volatile Organic Compounds by EPA 5035 High						
Methylene chloride	0.05	500	mg/kg	--	--	--
1,1-Dichloroethane	0.27	240	mg/kg	--	--	--
Chloroform	0.37	350	mg/kg	--	--	--
Carbon tetrachloride	0.76	22	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-16 (6-8)	SB-16 (6-8)_DUP	SB-17 (6-8)
LAB ID:				L2209049-01	L2209049-02	L2209049-03
COLLECTION DATE:				2/18/2022	2/18/2022	2/18/2022
				Qual	Qual	Qual
1,2-Dichloropropane	NS	NS	mg/kg	--	--	--
Dibromochloromethane	NS	NS	mg/kg	--	--	--
1,1,2-Trichloroethane	NS	NS	mg/kg	--	--	--
Tetrachloroethene	1.3	150	mg/kg	--	--	--
Chlorobenzene	1.1	500	mg/kg	--	--	--
Trichlorofluoromethane	NS	NS	mg/kg	--	--	--
1,2-Dichloroethane	0.02	30	mg/kg	--	--	--
1,1,1-Trichloroethane	0.68	500	mg/kg	--	--	--
Bromodichloromethane	NS	NS	mg/kg	--	--	--
trans-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
cis-1,3-Dichloropropene	NS	NS	mg/kg	--	--	--
1,3-Dichloropropene, Total	NS	NS	mg/kg	--	--	--
1,1-Dichloropropene	NS	NS	mg/kg	--	--	--
Bromoform	NS	NS	mg/kg	--	--	--
1,1,2,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Benzene	0.06	44	mg/kg	--	--	--
Toluene	0.7	500	mg/kg	--	--	--
Ethylbenzene	1	390	mg/kg	--	--	--
Chloromethane	NS	NS	mg/kg	--	--	--
Bromomethane	NS	NS	mg/kg	--	--	--
Vinyl chloride	0.02	13	mg/kg	--	--	--
Chloroethane	NS	NS	mg/kg	--	--	--
1,1-Dichloroethene	0.33	500	mg/kg	--	--	--
trans-1,2-Dichloroethene	0.19	500	mg/kg	--	--	--
Trichloroethene	0.47	200	mg/kg	--	--	--
1,2-Dichlorobenzene	1.1	500	mg/kg	--	--	--
1,3-Dichlorobenzene	2.4	280	mg/kg	--	--	--
1,4-Dichlorobenzene	1.8	130	mg/kg	--	--	--
Methyl tert butyl ether	0.93	500	mg/kg	--	--	--
p/m-Xylene	NS	NS	mg/kg	--	--	--
o-Xylene	NS	NS	mg/kg	--	--	--
Xylenes, Total	1.6	500	mg/kg	--	--	--
cis-1,2-Dichloroethene	0.25	500	mg/kg	--	--	--
1,2-Dichloroethene, Total	NS	NS	mg/kg	--	--	--
Dibromomethane	NS	NS	mg/kg	--	--	--
Styrene	NS	NS	mg/kg	--	--	--
Dichlorodifluoromethane	NS	NS	mg/kg	--	--	--
Acetone	0.05	500	mg/kg	--	--	--
Carbon disulfide	NS	NS	mg/kg	--	--	--
2-Butanone	0.12	500	mg/kg	--	--	--
Vinyl acetate	NS	NS	mg/kg	--	--	--
4-Methyl-2-pentanone	NS	NS	mg/kg	--	--	--
1,2,3-Trichloropropane	NS	NS	mg/kg	--	--	--
2-Hexanone	NS	NS	mg/kg	--	--	--

Table 1a. Volatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-16 (6-8)	SB-16 (6-8)_DUP	SB-17 (6-8)
LAB ID:				L2209049-01	L2209049-02	L2209049-03
COLLECTION DATE:				2/18/2022	2/18/2022	2/18/2022
				Qual	Qual	Qual
Bromochloromethane	NS	NS	mg/kg	--	--	--
2,2-Dichloropropane	NS	NS	mg/kg	--	--	--
1,2-Dibromoethane	NS	NS	mg/kg	--	--	--
1,3-Dichloropropane	NS	NS	mg/kg	--	--	--
1,1,1,2-Tetrachloroethane	NS	NS	mg/kg	--	--	--
Bromobenzene	NS	NS	mg/kg	--	--	--
n-Butylbenzene	12	500	mg/kg	--	--	--
sec-Butylbenzene	11	500	mg/kg	--	--	--
tert-Butylbenzene	5.9	500	mg/kg	--	--	--
o-Chlorotoluene	NS	NS	mg/kg	--	--	--
p-Chlorotoluene	NS	NS	mg/kg	--	--	--
1,2-Dibromo-3-chloropropane	NS	NS	mg/kg	--	--	--
Hexachlorobutadiene	NS	NS	mg/kg	--	--	--
Isopropylbenzene	NS	NS	mg/kg	--	--	--
p-Isopropyltoluene	NS	NS	mg/kg	--	--	--
Naphthalene	12	500	mg/kg	--	--	--
Acrylonitrile	NS	NS	mg/kg	--	--	--
n-Propylbenzene	3.9	500	mg/kg	--	--	--
1,2,3-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,2,4-Trichlorobenzene	NS	NS	mg/kg	--	--	--
1,3,5-Trimethylbenzene	8.4	190	mg/kg	--	--	--
1,2,4-Trimethylbenzene	3.6	190	mg/kg	--	--	--
1,4-Dioxane	0.1	130	mg/kg	--	--	--
p-Diethylbenzene	NS	NS	mg/kg	--	--	--
p-Ethyltoluene	NS	NS	mg/kg	--	--	--
1,2,4,5-Tetramethylbenzene	NS	NS	mg/kg	--	--	--
Ethyl ether	NS	NS	mg/kg	--	--	--
trans-1,4-Dichloro-2-butene	NS	NS	mg/kg	--	--	--

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater
Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup
Objectives

E = Concentration exceeds calibration curve of the instrument

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)
LAB ID:				L2107354-01	L2107354-03	L2107354-04
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND	ND
Chrysene	1	56	mg/kg	ND	ND	0.021 J
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	ND	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)
LAB ID:				L2107354-01	L2107354-03	L2107354-04
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	ND	ND	ND
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)
LAB ID:				L2107354-05	L2107354-06	L2107354-08
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND	ND
Chrysene	1	56	mg/kg	ND	ND	ND
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	ND	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)
LAB ID:				L2107354-05	L2107354-06	L2107354-08
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	ND	ND	ND
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)
LAB ID:				L2107354-07	L2107354-10	L2107354-11
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND	ND
Chrysene	1	56	mg/kg	ND	ND	ND
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	ND	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)
LAB ID:				L2107354-07	L2107354-10	L2107354-11
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	ND	ND	ND
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCO

Bold and shaded orange value indicates concentration exceeds NY-RESC SCO

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)
LAB ID:				L2107354-13	L2107354-14	L2107354-16
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND	ND
Chrysene	1	56	mg/kg	ND	ND	ND
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	ND	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)
LAB ID:				L2107354-13	L2107354-14	L2107354-16
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	ND	ND	ND
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)
LAB ID:				L2107354-17	L2107354-19	L2107354-20
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND	ND
Chrysene	1	56	mg/kg	ND	ND	ND
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	ND	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)
LAB ID:				L2107354-17	L2107354-19	L2107354-20
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	ND	ND	ND
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)
LAB ID:				L2107354-22	L2107354-23	L2107354-24
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	0.025 J	ND	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND	ND
Chrysene	1	56	mg/kg	0.02 J	ND	ND
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	0.035 J	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)
LAB ID:				L2107354-22	L2107354-23	L2107354-24
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	0.023 J	ND	ND
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-9 (2-3)	SB-11 (0-2)	SB-11 (2-3)
LAB ID:				L2107354-26	L2107354-27	L2107354-28
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	ND	0.13	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	0.058 J	ND
Benzo(a)pyrene	22	1	mg/kg	ND	0.06 J	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	0.066 J	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	0.033 J	ND
Chrysene	1	56	mg/kg	ND	0.063 J	ND
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	0.042 J	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	ND	0.11	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	0.046 J	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-9 (2-3)	SB-11 (0-2)	SB-11 (2-3)
LAB ID:				L2107354-26	L2107354-27	L2107354-28
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	ND	0.13	ND
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-12 (0-2)	SB-12 (2-3)	SB-12 (0-2)_DUP
LAB ID:				L2107354-29	L2107354-31	L2107354-30
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Semivolatile Organic Compounds						
Acenaphthene	98	500	mg/kg	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND	ND
Fluoranthene	1000	500	mg/kg	0.021 J	ND	0.023 J
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND	ND
Naphthalene	12	500	mg/kg	ND	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND	ND
Chrysene	1	56	mg/kg	ND	ND	ND
Acenaphthylene	107	500	mg/kg	ND	ND	ND
Anthracene	1000	500	mg/kg	ND	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND	ND
Fluorene	386	500	mg/kg	ND	ND	ND
Phenanthrene	1000	500	mg/kg	ND	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-12 (0-2)	SB-12 (2-3)	SB-12 (0-2)_DUP
LAB ID:				L2107354-29	L2107354-31	L2107354-30
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual
Pyrene	1000	500	mg/kg	0.019 J	ND	0.02 J
Biphenyl	NS	NS	mg/kg	ND	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND	ND
Phenol	0.33	500	mg/kg	ND	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021
				Qual	Qual
Semivolatile Organic Compounds					
Acenaphthene	98	500	mg/kg	ND	ND
1,2,4-Trichlorobenzene	NS	NS	mg/kg	ND	ND
Hexachlorobenzene	3.2	6	mg/kg	ND	ND
Bis(2-chloroethyl)ether	NS	NS	mg/kg	ND	ND
2-Chloronaphthalene	NS	NS	mg/kg	ND	ND
1,2-Dichlorobenzene	1.1	500	mg/kg	ND	ND
1,3-Dichlorobenzene	2.4	280	mg/kg	ND	ND
1,4-Dichlorobenzene	1.8	130	mg/kg	ND	ND
3,3'-Dichlorobenzidine	NS	NS	mg/kg	ND	ND
2,4-Dinitrotoluene	NS	NS	mg/kg	ND	ND
2,6-Dinitrotoluene	NS	NS	mg/kg	ND	ND
Fluoranthene	1000	500	mg/kg	ND	ND
4-Chlorophenyl phenyl ether	NS	NS	mg/kg	ND	ND
4-Bromophenyl phenyl ether	NS	NS	mg/kg	ND	ND
Bis(2-chloroisopropyl)ether	NS	NS	mg/kg	ND	ND
Bis(2-chloroethoxy)methane	NS	NS	mg/kg	ND	ND
Hexachlorobutadiene	NS	NS	mg/kg	ND	ND
Hexachlorocyclopentadiene	NS	NS	mg/kg	ND	ND
Hexachloroethane	NS	NS	mg/kg	ND	ND
Isophorone	NS	NS	mg/kg	ND	ND
Naphthalene	12	500	mg/kg	ND	ND
Nitrobenzene	NS	NS	mg/kg	ND	ND
NDPA/DPA	NS	NS	mg/kg	ND	ND
n-Nitrosodi-n-propylamine	NS	NS	mg/kg	ND	ND
Bis(2-ethylhexyl)phthalate	NS	NS	mg/kg	ND	ND
Butyl benzyl phthalate	NS	NS	mg/kg	ND	ND
Di-n-butylphthalate	NS	NS	mg/kg	ND	ND
Di-n-octylphthalate	NS	NS	mg/kg	ND	ND
Diethyl phthalate	NS	NS	mg/kg	ND	ND
Dimethyl phthalate	NS	NS	mg/kg	ND	ND
Benzo(a)anthracene	1	5.6	mg/kg	ND	ND
Benzo(a)pyrene	22	1	mg/kg	ND	ND
Benzo(b)fluoranthene	1.7	5.6	mg/kg	ND	ND
Benzo(k)fluoranthene	1.7	56	mg/kg	ND	ND
Chrysene	1	56	mg/kg	ND	ND
Acenaphthylene	107	500	mg/kg	ND	ND
Anthracene	1000	500	mg/kg	ND	ND
Benzo(ghi)perylene	1000	500	mg/kg	ND	ND
Fluorene	386	500	mg/kg	ND	ND
Phenanthrene	1000	500	mg/kg	ND	ND
Dibenzo(a,h)anthracene	1000	0.56	mg/kg	ND	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	mg/kg	ND	ND

Table 1b. Semivolatile Organic Compounds in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021
				Qual	Qual
Pyrene	1000	500	mg/kg	ND	ND
Biphenyl	NS	NS	mg/kg	ND	ND
4-Chloroaniline	NS	NS	mg/kg	ND	ND
2-Nitroaniline	NS	NS	mg/kg	ND	ND
3-Nitroaniline	NS	NS	mg/kg	ND	ND
4-Nitroaniline	NS	NS	mg/kg	ND	ND
Dibenzofuran	210	350	mg/kg	ND	ND
2-Methylnaphthalene	NS	NS	mg/kg	ND	ND
1,2,4,5-Tetrachlorobenzene	NS	NS	mg/kg	ND	ND
Acetophenone	NS	NS	mg/kg	ND	ND
2,4,6-Trichlorophenol	NS	NS	mg/kg	ND	ND
p-Chloro-m-cresol	NS	NS	mg/kg	ND	ND
2-Chlorophenol	NS	NS	mg/kg	ND	ND
2,4-Dichlorophenol	NS	NS	mg/kg	ND	ND
2,4-Dimethylphenol	NS	NS	mg/kg	ND	ND
2-Nitrophenol	NS	NS	mg/kg	ND	ND
4-Nitrophenol	NS	NS	mg/kg	ND	ND
2,4-Dinitrophenol	NS	NS	mg/kg	ND	ND
4,6-Dinitro-o-cresol	NS	NS	mg/kg	ND	ND
Pentachlorophenol	0.8	6.7	mg/kg	ND	ND
Phenol	0.33	500	mg/kg	ND	ND
2-Methylphenol	0.33	500	mg/kg	ND	ND
3-Methylphenol/4-Methylphenol	0.33	500	mg/kg	ND	ND
2,4,5-Trichlorophenol	NS	NS	mg/kg	ND	ND
Benzoic Acid	NS	NS	mg/kg	ND	ND
Benzyl Alcohol	NS	NS	mg/kg	ND	ND
Carbazole	NS	NS	mg/kg	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCO

Bold and shaded orange value indicates concentration exceeds NY-RESC SCO

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1c. Metals in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)	SB-3 (0-2)_DUP	SB-4 (1-2)
LAB ID:				L2107354-01	L2107354-03	L2107354-04	L2107354-05	L2107354-06	L2107354-08	L2107354-07	L2107354-10
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
General Chemistry											
Chromium, Trivalent	NS	1500	mg/kg	26	23 J	30	19	27	24	15 J	20
Cyanide, Total	40	27	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Hexavalent	19	400	mg/kg	ND	0.248 J	ND	ND	ND	ND	0.32 J	ND
Total Metals											
Aluminum, Total	NS	NS	mg/kg	4740	4250	5810	3500	5140	5000	3280	5180
Antimony, Total	NS	NS	mg/kg	ND	ND	ND	2.13 J	ND	ND	ND	ND
Arsenic, Total	16	16	mg/kg	0.79 J	0.629 J	0.697 J	0.547 J	0.854 J	0.678 J	0.469 J	2.98
Barium, Total	820	400	mg/kg	34.7	32.6	40.6	28.1	37.5	40	21.4	78.4
Beryllium, Total	47	590	mg/kg	ND	ND	0.054 J	ND	ND	ND	ND	0.04 J
Cadmium, Total	7.5	9.3	mg/kg	0.213 J	0.21 J	0.253 J	0.188 J	0.232 J	0.229 J	0.159 J	0.311 J
Calcium, Total	NS	NS	mg/kg	7110	7700	3960	6000	4250	5670	4720	26500
Chromium, Total	NS	NS	mg/kg	26	23.4	30	19	26.9	23.5	15.6	19.7
Cobalt, Total	NS	NS	mg/kg	6.82	6.33	7.49	5.56	7.57	6.8	4.17	5.79
Copper, Total	1720	270	mg/kg	15.6	14.5	15.9	14.4	16.4	16.7	14	15.6
Iron, Total	NS	NS	mg/kg	10200	10400	12700	9340	11400	10900	7790	10600
Lead, Total	450	1000	mg/kg	2.82 J	1.79 J	4.6	1.63 J	2.53 J	3.17 J	1.38 J	84.8
Magnesium, Total	NS	NS	mg/kg	7450	7420	5950	6370	6660	6150	5510	8850
Manganese, Total	2000	10000	mg/kg	157	151	150	127	176	350	97.8	175
Mercury, Total	0.73	2.8	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	130	310	mg/kg	43.2	46.6	55.1	36.1	54.2	50	32.4	39.9
Potassium, Total	NS	NS	mg/kg	1380	1320	1430	1120	1510	1450	789	1210
Selenium, Total	4	1500	mg/kg	ND	0.344 J	ND	0.231 J	0.306 J	0.299 J	ND	0.351 J
Silver, Total	8.3	1500	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	NS	NS	mg/kg	309	277	293	244	352	321	303	313
Thallium, Total	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	NS	NS	mg/kg	20.7	22.1	20.7	17.2	18.9	17	18.2	19.1
Zinc, Total	2480	10000	mg/kg	17.5	14.2	22.2	12.5	17.6	18.7	9.88	40.2

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCO

Bold and shaded orange value indicates concentration exceeds NY-RESC SCO

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1c. Metals in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-4 (2-3)	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)	SB-8 (1-2)
LAB ID:				L2107354-11	L2107354-13	L2107354-14	L2107354-16	L2107354-17	L2107354-19	L2107354-20	L2107354-22
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
General Chemistry											
Chromium, Trivalent	NS	1500	mg/kg	30 J	27	23 J	34 J	20	29	19 J	25 J
Cyanide, Total	40	27	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Hexavalent	19	400	mg/kg	0.364 J	ND	0.96 J	0.302 J	ND	ND	0.254 J	0.25 J
Total Metals											
Aluminum, Total	NS	NS	mg/kg	5260	4630	4430	5100	4230	5260	3670	6800
Antimony, Total	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	16	16	mg/kg	0.829 J	1.1	0.745 J	0.752 J	0.421 J	0.728 J	0.373 J	1.16
Barium, Total	820	400	mg/kg	37.7	64.2	37.3	39.8	31	43.4	27.5	61.9
Beryllium, Total	47	590	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	7.5	9.3	mg/kg	0.247 J	0.267 J	0.22 J	0.227 J	0.189 J	0.243 J	0.174 J	0.269 J
Calcium, Total	NS	NS	mg/kg	7990	9840	7340	8110	6210	6790	5840	6250
Chromium, Total	NS	NS	mg/kg	30	26.7	23.8	34.4	20	29.3	19.6	24.9
Cobalt, Total	NS	NS	mg/kg	7.68	6.92	6.57	7.12	6.8	7.49	5.88	8.64
Copper, Total	1720	270	mg/kg	16.3	22.2	16.4	18.3	16.9	19.8	13.6	23.3
Iron, Total	NS	NS	mg/kg	12200	10900	10400	11100	9290	11200	8640	12400
Lead, Total	450	1000	mg/kg	1.98 J	27	5.98	2.03 J	1.53 J	6.41	1.5 J	6.73
Magnesium, Total	NS	NS	mg/kg	9390	7440	7720	7560	6960	8190	6960	6590
Manganese, Total	2000	10000	mg/kg	170	160	156	161	132	158	132	141
Mercury, Total	0.73	2.8	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	130	310	mg/kg	60.7	52.2	51.6	39.4	45	54	45.2	36.2
Potassium, Total	NS	NS	mg/kg	1570	1370	1280	1590	1110	1510	1070	2240
Selenium, Total	4	1500	mg/kg	0.335 J	ND	ND	ND	ND	0.374 J	ND	ND
Silver, Total	8.3	1500	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	NS	NS	mg/kg	321	286	290	316	308	342	250	301
Thallium, Total	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	NS	NS	mg/kg	22.4	20.3	19.3	21.2	18.4	22.9	16.8	25.4
Zinc, Total	2480	10000	mg/kg	18.9	103	45	16.6	13	24.8	12.1	34

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1c. Metals in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-8 (2-3)	SB-9 (0-1)	SB-9 (2-3)	SB-11 (0-2)	SB-11 (2-3)	SB-12 (0-2)	SB-12 (2-3)	SB-12 (0-2)_DUP
LAB ID:				L2107354-23	L2107354-24	L2107354-26	L2107354-27	L2107354-28	L2107354-29	L2107354-31	L2107354-30
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
General Chemistry											
Chromium, Trivalent	NS	1500	mg/kg	26	30	22 J	21 J	36	20	22	6.6
Cyanide, Total	40	27	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Hexavalent	19	400	mg/kg	ND	ND	0.333 J	0.208 J	ND	ND	ND	ND
Total Metals											
Aluminum, Total	NS	NS	mg/kg	5080	5320	4170	4280	4770	3620	3870	5980
Antimony, Total	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	16	16	mg/kg	1.21	0.596 J	0.399 J	3.81	2.35	0.427 J	ND	9.7
Barium, Total	820	400	mg/kg	38.1	41.5	30.2	59.8	70.1	30.4	35.1	88.6
Beryllium, Total	47	590	mg/kg	ND	ND	ND	0.18 J	ND	ND	ND	0.184 J
Cadmium, Total	7.5	9.3	mg/kg	0.226 J	0.24 J	0.204 J	0.287 J	0.548 J	0.258 J	0.29 J	0.398 J
Calcium, Total	NS	NS	mg/kg	6410	7420	6860	14500	11900	5110	5410	28200
Chromium, Total	NS	NS	mg/kg	26.4	30.4	22.6	21.4	35.8	19.5	22	6.6
Cobalt, Total	NS	NS	mg/kg	7.42	7.62	7.61	5.07	7.71	5.92	6.45	5.28
Copper, Total	1720	270	mg/kg	15.9	18.3	17	37	22.7	14.6	13.5	30.6
Iron, Total	NS	NS	mg/kg	11000	11600	10100	8290	12200	8190	8940	8920
Lead, Total	450	1000	mg/kg	2.37 J	4.37 J	1.91 J	138	419	1.43 J	1.55 J	51.3
Magnesium, Total	NS	NS	mg/kg	8760	8650	9630	3110	4260	6430	7950	2760
Manganese, Total	2000	10000	mg/kg	149	169	138	113	113	110	143	89.5
Mercury, Total	0.73	2.8	mg/kg	ND	ND	ND	0.051 J	ND	ND	ND	0.062 J
Nickel, Total	130	310	mg/kg	62.5	57.4	69.9	24.9	40.5	37.5	51.1	12.5
Potassium, Total	NS	NS	mg/kg	1520	1660	1220	936	2130	1270	1440	460
Selenium, Total	4	1500	mg/kg	ND	ND	ND	0.602 J	0.341 J	ND	ND	0.291 J
Silver, Total	8.3	1500	mg/kg	ND	ND	ND	ND	0.372 J	ND	ND	ND
Sodium, Total	NS	NS	mg/kg	310	329	288	320	339	303	268	588
Thallium, Total	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	NS	NS	mg/kg	19	22.4	20.4	13.2	17.9	17	17.7	15
Zinc, Total	2480	10000	mg/kg	16.6	23.4	14.8	58.1	66.5	14	15.2	38.6

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1c. Metals in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021
				Qual	Qual
General Chemistry					
Chromium, Trivalent	NS	1500	mg/kg	19	20 J
Cyanide, Total	40	27	mg/kg	ND	ND
Chromium, Hexavalent	19	400	mg/kg	ND	0.196 J
Total Metals					
Aluminum, Total	NS	NS	mg/kg	3160	3810
Antimony, Total	NS	NS	mg/kg	ND	ND
Arsenic, Total	16	16	mg/kg	0.385 J	ND
Barium, Total	820	400	mg/kg	27.8	33.3
Beryllium, Total	47	590	mg/kg	ND	ND
Cadmium, Total	7.5	9.3	mg/kg	0.265 J	0.272 J
Calcium, Total	NS	NS	mg/kg	5530	5210
Chromium, Total	NS	NS	mg/kg	19.3	20
Cobalt, Total	NS	NS	mg/kg	5.81	5.91
Copper, Total	1720	270	mg/kg	13.5	13.9
Iron, Total	NS	NS	mg/kg	8230	8430
Lead, Total	450	1000	mg/kg	1.68 J	1.59 J
Magnesium, Total	NS	NS	mg/kg	6700	6200
Manganese, Total	2000	10000	mg/kg	126	129
Mercury, Total	0.73	2.8	mg/kg	ND	ND
Nickel, Total	130	310	mg/kg	39.8	33.4
Potassium, Total	NS	NS	mg/kg	1130	1430
Selenium, Total	4	1500	mg/kg	0.291 J	ND
Silver, Total	8.3	1500	mg/kg	ND	ND
Sodium, Total	NS	NS	mg/kg	318	294
Thallium, Total	NS	NS	mg/kg	ND	ND
Vanadium, Total	NS	NS	mg/kg	16.6	17.4
Zinc, Total	2480	10000	mg/kg	13.2	14.6

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater
Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup
Objectives

J = Estimated value

ND = Not detected

NS = No standard

Table 1d. Pesticides, Herbicides, and Polychlorinated Biphenyls in Soil

2921 Westchester Avenue

BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)	SB-5 (1-2)	SB-5 (2-3)
LAB ID:				L2107354-01	L2107354-03	L2107354-04	L2107354-05	L2107354-06	L2107354-08	L2107354-07	L2107354-10	L2107354-11	L2107354-13	L2107354-14
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
Chlorinated Herbicides														
2,4-D	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-T	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	3.8	500	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Organochlorine Pesticides														
Delta-BHC	0.25	500	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lindane	0.1	9.2	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha-BHC	0.02	3.4	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta-BHC	0.09	3	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	0.38	15	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	0.19	0.68	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	0.06	89	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	0.1	1.4	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	17	62	mg/kg	0.000722 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	14	92	mg/kg	0.000767 JP	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	136	47	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	102	200	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	102	200	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	1000	200	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-Chlordane	2.9	24	mg/kg	0.00184 JP	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-Chlordane	NS	NS	mg/kg	0.001 JIP	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls														
Aroclor 1016	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1221	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1232	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1260	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1262	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCBs, Total	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

P = The RPD between the results for the two columns exceeds the method-specified criteria

J = Estimated value

ND = Not detected

NS = No standard

Table 1d. Pesticides, Herbicides, and Polychlorinated Biphenyls in Soil

2921 Westchester Avenue

BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (1-2)	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)	SB-9 (2-3)	SB-11 (0-2)	SB-11 (2-3)	SB-12 (0-2)
LAB ID:				L2107354-16	L2107354-17	L2107354-19	L2107354-20	L2107354-22	L2107354-23	L2107354-24	L2107354-26	L2107354-27	L2107354-28	L2107354-29
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
Chlorinated Herbicides														
2,4-D	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-T	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	3.8	500	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Organochlorine Pesticides														
Delta-BHC	0.25	500	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lindane	0.1	9.2	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha-BHC	0.02	3.4	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta-BHC	0.09	3	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	0.38	15	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	0.19	0.68	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	0.06	89	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	0.1	1.4	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	17	62	mg/kg	0.00507 P	ND	0.00324	ND	0.000525 J	ND	0.00152 J	ND	0.000622 J	ND	0.000548 JP
4,4'-DDD	14	92	mg/kg	ND	ND	ND	ND	0.00076 J	ND	ND	ND	0.000951 J	ND	ND
4,4'-DDT	136	47	mg/kg	0.0018 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	102	200	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	102	200	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	1000	200	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	NS	NS	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-Chlordane	2.9	24	mg/kg	ND	ND	0.0012 J	ND	0.00671	ND	ND	ND	ND	ND	ND
trans-Chlordane	NS	NS	mg/kg	0.000892 J	ND	0.0011 J	ND	0.00749	ND	ND	ND	ND	ND	ND
Chlordane	NS	NS	mg/kg	ND	ND	ND	ND	0.0593	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls														
Aroclor 1016	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1221	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1232	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0136 J	ND
Aroclor 1260	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1262	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCBs, Total	3.2	1	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0136 J	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

P = The RPD between the results for the two columns exceeds the method-specified criteria

J = Estimated value

ND = Not detected

NS = No standard

Table 1d. Pesticides, Herbicides, and Polychlorinated Biphenyls in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-12 (2-3)	SB-12 (0-2) DUP	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-31	L2107354-30	L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual
Chlorinated Herbicides							
2,4-D	NS	NS	mg/kg	ND	ND	ND	ND
2,4,5-T	NS	NS	mg/kg	ND	ND	ND	ND
2,4,5-TP (Silvex)	3.8	500	mg/kg	ND	ND	ND	ND
Organochlorine Pesticides							
Delta-BHC	0.25	500	mg/kg	ND	ND	ND	ND
Lindane	0.1	9.2	mg/kg	ND	ND	ND	ND
Alpha-BHC	0.02	3.4	mg/kg	ND	ND	ND	ND
Beta-BHC	0.09	3	mg/kg	ND	ND	ND	ND
Heptachlor	0.38	15	mg/kg	ND	ND	ND	ND
Aldrin	0.19	0.68	mg/kg	ND	ND	ND	ND
Heptachlor epoxide	NS	NS	mg/kg	ND	ND	ND	ND
Endrin	0.06	89	mg/kg	ND	ND	ND	ND
Endrin aldehyde	NS	NS	mg/kg	ND	ND	ND	ND
Endrin ketone	NS	NS	mg/kg	ND	ND	ND	ND
Dieldrin	0.1	1.4	mg/kg	ND	ND	ND	ND
4,4'-DDE	17	62	mg/kg	ND	0.00107 JP	ND	ND
4,4'-DDD	14	92	mg/kg	ND	ND	ND	ND
4,4'-DDT	136	47	mg/kg	ND	ND	ND	ND
Endosulfan I	102	200	mg/kg	ND	ND	ND	ND
Endosulfan II	102	200	mg/kg	ND	ND	ND	ND
Endosulfan sulfate	1000	200	mg/kg	ND	ND	ND	ND
Methoxychlor	NS	NS	mg/kg	ND	ND	ND	ND
Toxaphene	NS	NS	mg/kg	ND	ND	ND	ND
cis-Chlordane	2.9	24	mg/kg	ND	ND	ND	ND
trans-Chlordane	NS	NS	mg/kg	ND	ND	ND	ND
Chlordane	NS	NS	mg/kg	ND	ND	ND	ND
Polychlorinated Biphenyls							
Aroclor 1016	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1221	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1232	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1242	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1248	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1254	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1260	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1262	3.2	1	mg/kg	ND	ND	ND	ND
Aroclor 1268	3.2	1	mg/kg	ND	ND	ND	ND
PCBs, Total	3.2	1	mg/kg	ND	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

P = The RPD between the results for the two columns exceeds the method-specified criteria

J = Estimated value

ND = Not detected

NS = No standard

Table 1e. Emerging Contaminants in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-1 (0-1)	SB-1 (2-3)	SB-2 (0-2)	SB-2 (2-3)	SB-3 (0-2)	SB-3 (2-3)
LAB ID:				L2107354-01	L2107354-03	L2107354-04	L2107354-05	L2107354-06	L2107354-08
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual
1,4-Dioxane									
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND	ND	ND	ND
Perfluorinated Alkyl Acids									
Perfluorobutanoic Acid (PFBA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	NS	NS	ng/g	ND	ND	ND	ND	0.0051 J	ND
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	1.1	500	ng/g	ND	ND	0.16 J	ND	0.39	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	0.41 JF
Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	NS	NS	ng/g	ND	ND	0.14 J	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	3.7	440	ng/g	ND	ND	0.42	ND	0.19 J	ND
Perfluorodecanoic Acid (PFDA)	NS	NS	ng/g	ND	ND	0.0093 J	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (FOSA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTTrDA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
PFOA/PFOS, Total	NS	NS	ng/g	ND	ND	0.57 J	ND	0.58 J	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

The NY-PGW and NY-RESC SCOs for all PFAS analytes are proposed SCOs per NYSDEC's Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs, updated January 2021

J = Estimated value

F = The ratio of quantifier ion response to qualifier ion response falls outside the laboratory criteria

ND = Not detected

NS = No standard

Table 1e. Emerging Contaminants in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-3 (0-2)_DUP	SB-4 (1-2)	SB-4 (2-3)	SB-5 (1-2)	SB-5 (2-3)	SB-6 (1-2)
LAB ID:				L2107354-07	L2107354-10	L2107354-11	L2107354-13	L2107354-14	L2107354-16
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual
1,4-Dioxane									
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND	ND	ND	ND
Perfluorinated Alkyl Acids									
Perfluorobutanoic Acid (PFBA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	1.1	500	ng/g	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	3.7	440	ng/g	ND	ND	ND	ND	ND	ND
Perfluorodecanoic Acid (PFDA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (FOSA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
PFOA/PFOS, Total	NS	NS	ng/g	ND	ND	ND	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

The NY-PGW and NY-RESC SCOs for all PFAS analytes are proposed SCOs per NYSDEC's Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs, updated January 2021

J = Estimated value

F = The ratio of quantifier ion response to qualifier ion response falls outside the laboratory criteria

ND = Not detected

NS = No standard

Table 1e. Emerging Contaminants in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-6 (2-3)	SB-7 (1-2)	SB-7 (2-3)	SB-8 (1-2)	SB-8 (2-3)	SB-9 (0-1)
LAB ID:				L2107354-17	L2107354-19	L2107354-20	L2107354-22	L2107354-23	L2107354-24
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual
1,4-Dioxane									
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND	ND	ND	ND
Perfluorinated Alkyl Acids									
Perfluorobutanoic Acid (PFBA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	1.1	500	ng/g	ND	ND	ND	ND	ND	0.104 J
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	3.7	440	ng/g	ND	ND	ND	ND	ND	ND
Perfluorodecanoic Acid (PFDA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (FOSA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTTrDA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
PFOA/PFOS, Total	NS	NS	ng/g	ND	ND	ND	ND	ND	0.104 J

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

The NY-PGW and NY-RESC SCOs for all PFAS analytes are proposed SCOs per NYSDEC's Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs, updated January 2021

J = Estimated value

F = The ratio of quantifier ion response to qualifier ion response falls outside the laboratory criteria

ND = Not detected

NS = No standard

Table 1e. Emerging Contaminants in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-9 (2-3)	SB-11 (0-2)	SB-11 (2-3)	SB-12 (0-2)	SB-12 (2-3)	SB-12 (0-2)_DUP
LAB ID:				L2107354-26	L2107354-27	L2107354-28	L2107354-29	L2107354-31	L2107354-30
COLLECTION DATE:				2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021
				Qual	Qual	Qual	Qual	Qual	Qual
1,4-Dioxane									
1,4-Dioxane	0.1	130	mg/kg	ND	ND	ND	ND	ND	ND
Perfluorinated Alkyl Acids									
Perfluorobutanoic Acid (PFBA)	NS	NS	ng/g	ND	ND	ND	0.0031 J	ND	ND
Perfluoropentanoic Acid (PFPeA)	NS	NS	ng/g	ND	ND	ND	0.0061 J	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	NS	NS	ng/g	ND	ND	ND	0.0068 J	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	1.1	500	ng/g	ND	0.0054 J	ND	0.48	ND	0.088 J
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	3.7	440	ng/g	ND	0.44	ND	0.6	ND	ND
Perfluorodecanoic Acid (PFDA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (FOSA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	NS	NS	ng/g	ND	ND	ND	0.0082 JF	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTA)	NS	NS	ng/g	ND	ND	ND	ND	ND	ND
PFOA/PFOS, Total	NS	NS	ng/g	ND	0.49 J	ND	1.08	ND	0.088 J

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

The NY-PGW and NY-RESC SCOs for all PFAS analytes are proposed SCOs per NYSDEC's Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs, updated January 2021

J = Estimated value

F = The ratio of quantifier ion response to qualifier ion response falls outside the laboratory criteria

ND = Not detected

NS = No standard

Table 1e. Emerging Contaminants in Soil
2921 Westchester Avenue
BCP Site No. C203140

SAMPLE ID:	NY-PGW	NY-RESC	Units	SB-13 (0-2)	SB-13 (2-3)
LAB ID:				L2107354-32	L2107354-33
COLLECTION DATE:				2/15/2021	2/15/2021
				Qual	Qual
1,4-Dioxane					
1,4-Dioxane	0.1	130	mg/kg	ND	ND
Perfluorinated Alkyl Acids					
Perfluorobutanoic Acid (PFBA)	NS	NS	ng/g	ND	ND
Perfluoropentanoic Acid (PFPeA)	NS	NS	ng/g	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	ng/g	ND	ND
Perfluorohexanoic Acid (PFHxA)	NS	NS	ng/g	ND	ND
Perfluoroheptanoic Acid (PFHpA)	NS	NS	ng/g	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	ng/g	ND	ND
Perfluorooctanoic Acid (PFOA)	1.1	500	ng/g	ND	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	NS	ng/g	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	ng/g	ND	ND
Perfluorononanoic Acid (PFNA)	NS	NS	ng/g	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	3.7	440	ng/g	ND	ND
Perfluorodecanoic Acid (PFDA)	NS	NS	ng/g	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	NS	ng/g	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	NS	ng/g	ND	ND
Perfluoroundecanoic Acid (PFUnA)	NS	NS	ng/g	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	NS	NS	ng/g	ND	ND
Perfluorooctanesulfonamide (FOSA)	NS	NS	ng/g	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	NS	ng/g	ND	ND
Perfluorododecanoic Acid (PFDoA)	NS	NS	ng/g	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	NS	NS	ng/g	ND	ND
Perfluorotetradecanoic Acid (PFTA)	NS	NS	ng/g	ND	ND
PFOA/PFOS, Total	NS	NS	ng/g	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-PGW SCOs

Bold and shaded orange value indicates concentration exceeds NY-RESC SCOs

NY-PGW = 6 NYCRR Part 375 Restricted Protection of Groundwater Soil Cleanup Objectives

NY-RESC = 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives

The NY-PGW and NY-RESC SCOs for all PFAS analytes are proposed SCOs per NYSDEC's Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs, updated January 2021

J = Estimated value

F = The ratio of quantifier ion response to qualifier ion response falls outside the laboratory criteria

ND = Not detected

NS = No standard

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-1	MW-2	MW-5
SAMPLING DATE			2/23/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2108841-01	L2108841-02	L2108841-03
			Qual	Qual	Qual
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,1-Trichloroethane	5	ug/l	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,2-Trichloroethane	1	ug/l	ND	ND	ND
1,1-Dichloroethane	5	ug/l	ND	ND	ND
1,1-Dichloroethene	5	ug/l	0.17 J	ND	ND
1,1-Dichloropropene	5	ug/l	ND	ND	ND
1,2,3-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,3-Trichloropropane	0.04	ug/l	ND	ND	ND
1,2,4,5-Tetramethylbenzene	5	ug/l	ND	ND	ND
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trimethylbenzene	5	ug/l	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ug/l	ND	ND	ND
1,2-Dibromoethane	0.0006	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,2-Dichloroethane	0.6	ug/l	ND	ND	ND
1,2-Dichloroethene, Total	NS	ug/l	ND	ND	15000
1,2-Dichloropropane	1	ug/l	ND	ND	ND
1,3,5-Trimethylbenzene	5	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichloropropane	5	ug/l	ND	ND	ND
1,3-Dichloropropene, Total	NS	ug/l	ND	ND	ND
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dioxane	NS	ug/l	ND	ND	ND
2,2-Dichloropropane	5	ug/l	ND	ND	ND
2-Butanone	50	ug/l	ND	ND	ND
2-Hexanone	50	ug/l	ND	ND	ND
4-Methyl-2-pentanone	NS	ug/l	ND	ND	ND
Acetone	50	ug/l	ND	14	ND
Acrylonitrile	5	ug/l	ND	ND	ND
Benzene	1	ug/l	ND	ND	ND
Bromobenzene	5	ug/l	ND	ND	ND
Bromochloromethane	5	ug/l	ND	ND	ND
Bromodichloromethane	50	ug/l	ND	ND	ND
Bromoform	50	ug/l	ND	ND	ND
Bromomethane	5	ug/l	ND	ND	ND
Carbon disulfide	60	ug/l	ND	ND	ND
Carbon tetrachloride	5	ug/l	ND	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-1	MW-2	MW-5
SAMPLING DATE			2/23/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2108841-01	L2108841-02	L2108841-03
			Qual	Qual	Qual
Volatile Organic Compounds					
Chlorobenzene	5	ug/l	ND	ND	ND
Chloroethane	5	ug/l	ND	ND	ND
Chloroform	7	ug/l	ND	ND	ND
Chloromethane	NS	ug/l	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/l	ND	ND	15000
cis-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
Cyclohexane	NS	ug/l	--	--	--
Dibromochloromethane	50	ug/l	ND	ND	ND
Dibromomethane	5	ug/l	ND	ND	ND
Dichlorodifluoromethane	5	ug/l	ND	ND	ND
Ethyl ether	NS	ug/l	ND	ND	ND
Ethylbenzene	5	ug/l	ND	ND	ND
Freon-113	5	ug/l	--	--	--
Hexachlorobutadiene	0.5	ug/l	ND	ND	ND
Isopropylbenzene	5	ug/l	ND	ND	ND
Methyl acetate	NS	ug/l	--	--	--
Methyl cyclohexane	NS	ug/l	--	--	--
Methyl tert butyl ether	10	ug/l	ND	ND	ND
Methylene chloride	5	ug/l	ND	ND	ND
n-Butylbenzene	5	ug/l	ND	ND	ND
n-Propylbenzene	5	ug/l	ND	ND	ND
Naphthalene	10	ug/l	ND	ND	ND
o-Chlorotoluene	5	ug/l	ND	ND	ND
o-Xylene	5	ug/l	ND	ND	ND
p-Chlorotoluene	5	ug/l	ND	ND	ND
p-Diethylbenzene	NS	ug/l	ND	ND	ND
p-Ethyltoluene	NS	ug/l	ND	ND	ND
p-Isopropyltoluene	5	ug/l	ND	ND	ND
p/m-Xylene	5	ug/l	ND	ND	ND
sec-Butylbenzene	5	ug/l	ND	ND	ND
Styrene	5	ug/l	ND	ND	ND
tert-Butylbenzene	5	ug/l	ND	ND	ND
Tetrachloroethene	5	ug/l	3.2	ND	39000
Toluene	5	ug/l	ND	ND	ND
trans-1,2-Dichloroethene	5	ug/l	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
trans-1,4-Dichloro-2-butene	5	ug/l	ND	ND	ND
Trichloroethene	5	ug/l	0.21 J	ND	2900

Table 2a. Volatile Organic Compounds in Groundwater
 2921 Westchester Avenue
 BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-1	MW-2	MW-5
SAMPLING DATE			2/23/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2108841-01	L2108841-02	L2108841-03
			Qual	Qual	Qual
Volatile Organic Compounds					
Trichlorofluoromethane	5	ug/l	ND	ND	ND
Vinyl acetate	NS	ug/l	ND	ND	ND
Vinyl chloride	2	ug/l	ND	ND	1900
Xylenes, Total	NS	ug/l	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-5_VOC	BW-1	BW-1_DUP
SAMPLING DATE			3/4/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2110911-03	L2108841-04	L2108841-05
			Qual	Qual	Qual
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,1-Trichloroethane	5	ug/l	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,2-Trichloroethane	1	ug/l	ND	ND	ND
1,1-Dichloroethane	5	ug/l	ND	ND	ND
1,1-Dichloroethene	5	ug/l	ND	ND	ND
1,1-Dichloropropene	5	ug/l	ND	ND	ND
1,2,3-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,3-Trichloropropane	0.04	ug/l	ND	ND	ND
1,2,4,5-Tetramethylbenzene	5	ug/l	ND	ND	ND
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trimethylbenzene	5	ug/l	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ug/l	ND	ND	ND
1,2-Dibromoethane	0.0006	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,2-Dichloroethane	0.6	ug/l	ND	ND	ND
1,2-Dichloroethene, Total	NS	ug/l	9900	91	110
1,2-Dichloropropane	1	ug/l	ND	ND	ND
1,3,5-Trimethylbenzene	5	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichloropropane	5	ug/l	ND	ND	ND
1,3-Dichloropropene, Total	NS	ug/l	ND	ND	ND
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dioxane	NS	ug/l	ND	ND	ND
2,2-Dichloropropane	5	ug/l	ND	ND	ND
2-Butanone	50	ug/l	ND	ND	ND
2-Hexanone	50	ug/l	ND	ND	ND
4-Methyl-2-pentanone	NS	ug/l	ND	ND	ND
Acetone	50	ug/l	ND	6.6	6.9
Acrylonitrile	5	ug/l	ND	ND	ND
Benzene	1	ug/l	ND	ND	ND
Bromobenzene	5	ug/l	ND	ND	ND
Bromochloromethane	5	ug/l	ND	ND	ND
Bromodichloromethane	50	ug/l	ND	0.78	0.75
Bromoform	50	ug/l	ND	ND	ND
Bromomethane	5	ug/l	ND	ND	ND
Carbon disulfide	60	ug/l	ND	ND	ND
Carbon tetrachloride	5	ug/l	ND	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-5_VOC	BW-1	BW-1_DUP
SAMPLING DATE			3/4/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2110911-03	L2108841-04	L2108841-05
			Qual	Qual	Qual
Volatile Organic Compounds					
Chlorobenzene	5	ug/l	ND	ND	ND
Chloroethane	5	ug/l	ND	ND	ND
Chloroform	7	ug/l	ND	24	22
Chloromethane	NS	ug/l	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/l	9900	91	110
cis-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
Cyclohexane	NS	ug/l	--	--	--
Dibromochloromethane	50	ug/l	ND	ND	ND
Dibromomethane	5	ug/l	ND	ND	ND
Dichlorodifluoromethane	5	ug/l	ND	ND	ND
Ethyl ether	NS	ug/l	ND	ND	ND
Ethylbenzene	5	ug/l	ND	ND	ND
Freon-113	5	ug/l	--	--	--
Hexachlorobutadiene	0.5	ug/l	ND	ND	ND
Isopropylbenzene	5	ug/l	ND	ND	ND
Methyl acetate	NS	ug/l	--	--	--
Methyl cyclohexane	NS	ug/l	--	--	--
Methyl tert butyl ether	10	ug/l	ND	ND	ND
Methylene chloride	5	ug/l	ND	ND	ND
n-Butylbenzene	5	ug/l	ND	ND	ND
n-Propylbenzene	5	ug/l	ND	ND	ND
Naphthalene	10	ug/l	ND	ND	ND
o-Chlorotoluene	5	ug/l	ND	ND	ND
o-Xylene	5	ug/l	ND	ND	ND
p-Chlorotoluene	5	ug/l	ND	ND	ND
p-Diethylbenzene	NS	ug/l	ND	ND	ND
p-Ethyltoluene	NS	ug/l	ND	ND	ND
p-Isopropyltoluene	5	ug/l	ND	ND	ND
p/m-Xylene	5	ug/l	ND	ND	ND
sec-Butylbenzene	5	ug/l	ND	ND	ND
Styrene	5	ug/l	ND	ND	ND
tert-Butylbenzene	5	ug/l	ND	ND	ND
Tetrachloroethene	5	ug/l	42000	28	28
Toluene	5	ug/l	ND	ND	ND
trans-1,2-Dichloroethene	5	ug/l	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
trans-1,4-Dichloro-2-butene	5	ug/l	ND	ND	ND
Trichloroethene	5	ug/l	4000	5.7	5.8

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-5_VOC	BW-1	BW-1_DUP
SAMPLING DATE			3/4/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2110911-03	L2108841-04	L2108841-05
			Qual	Qual	Qual
Volatile Organic Compounds					
Trichlorofluoromethane	5	ug/l	ND	ND	ND
Vinyl acetate	NS	ug/l	ND	ND	ND
Vinyl chloride	2	ug/l	600	5.6	6.1
Xylenes, Total	NS	ug/l	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-3	MW-4	MW-6
SAMPLING DATE			3/4/2021	3/4/2021	3/4/2021
LAB SAMPLE ID			L2110911-01	L2110911-02	L2110911-04
			Qual	Qual	Qual
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,1-Trichloroethane	5	ug/l	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,2-Trichloroethane	1	ug/l	ND	ND	ND
1,1-Dichloroethane	5	ug/l	ND	ND	ND
1,1-Dichloroethene	5	ug/l	ND	ND	ND
1,1-Dichloropropene	5	ug/l	ND	ND	ND
1,2,3-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,3-Trichloropropane	0.04	ug/l	ND	ND	ND
1,2,4,5-Tetramethylbenzene	5	ug/l	ND	ND	ND
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trimethylbenzene	5	ug/l	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ug/l	ND	ND	ND
1,2-Dibromoethane	0.0006	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,2-Dichloroethane	0.6	ug/l	ND	ND	ND
1,2-Dichloroethene, Total	NS	ug/l	140	3.8	ND
1,2-Dichloropropane	1	ug/l	ND	ND	ND
1,3,5-Trimethylbenzene	5	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichloropropane	5	ug/l	ND	ND	ND
1,3-Dichloropropene, Total	NS	ug/l	ND	ND	ND
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dioxane	NS	ug/l	ND	ND	ND
2,2-Dichloropropane	5	ug/l	ND	ND	ND
2-Butanone	50	ug/l	ND	ND	ND
2-Hexanone	50	ug/l	ND	ND	ND
4-Methyl-2-pentanone	NS	ug/l	ND	ND	ND
Acetone	50	ug/l	ND	ND	6.2
Acrylonitrile	5	ug/l	ND	ND	ND
Benzene	1	ug/l	ND	ND	ND
Bromobenzene	5	ug/l	ND	ND	ND
Bromochloromethane	5	ug/l	ND	ND	ND
Bromodichloromethane	50	ug/l	ND	ND	ND
Bromoform	50	ug/l	ND	ND	ND
Bromomethane	5	ug/l	ND	ND	ND
Carbon disulfide	60	ug/l	ND	ND	ND
Carbon tetrachloride	5	ug/l	ND	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-3	MW-4	MW-6
SAMPLING DATE			3/4/2021	3/4/2021	3/4/2021
LAB SAMPLE ID			L2110911-01	L2110911-02	L2110911-04
			Qual	Qual	Qual
Volatile Organic Compounds					
Chlorobenzene	5	ug/l	ND	ND	ND
Chloroethane	5	ug/l	ND	ND	ND
Chloroform	7	ug/l	2.4 J	ND	ND
Chloromethane	NS	ug/l	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/l	140	3.8	ND
cis-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
Cyclohexane	NS	ug/l	--	--	--
Dibromochloromethane	50	ug/l	ND	ND	ND
Dibromomethane	5	ug/l	ND	ND	ND
Dichlorodifluoromethane	5	ug/l	ND	ND	ND
Ethyl ether	NS	ug/l	ND	ND	ND
Ethylbenzene	5	ug/l	ND	ND	ND
Freon-113	5	ug/l	--	--	--
Hexachlorobutadiene	0.5	ug/l	ND	ND	ND
Isopropylbenzene	5	ug/l	ND	ND	ND
Methyl acetate	NS	ug/l	--	--	--
Methyl cyclohexane	NS	ug/l	--	--	--
Methyl tert butyl ether	10	ug/l	ND	ND	ND
Methylene chloride	5	ug/l	ND	ND	ND
n-Butylbenzene	5	ug/l	ND	ND	ND
n-Propylbenzene	5	ug/l	ND	ND	ND
Naphthalene	10	ug/l	ND	ND	ND
o-Chlorotoluene	5	ug/l	ND	ND	ND
o-Xylene	5	ug/l	ND	ND	ND
p-Chlorotoluene	5	ug/l	ND	ND	ND
p-Diethylbenzene	NS	ug/l	ND	ND	ND
p-Ethyltoluene	NS	ug/l	ND	ND	ND
p-Isopropyltoluene	5	ug/l	ND	ND	ND
p/m-Xylene	5	ug/l	ND	ND	ND
sec-Butylbenzene	5	ug/l	ND	ND	ND
Styrene	5	ug/l	ND	ND	ND
tert-Butylbenzene	5	ug/l	ND	ND	ND
Tetrachloroethene	5	ug/l	170	23	0.49 J
Toluene	5	ug/l	ND	ND	ND
trans-1,2-Dichloroethene	5	ug/l	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
trans-1,4-Dichloro-2-butene	5	ug/l	ND	ND	ND
Trichloroethene	5	ug/l	31	1.9	ND

Table 2a. Volatile Organic Compounds in Groundwater
 2921 Westchester Avenue
 BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-3	MW-4	MW-6
SAMPLING DATE			3/4/2021	3/4/2021	3/4/2021
LAB SAMPLE ID			L2110911-01	L2110911-02	L2110911-04
			Qual	Qual	Qual
Volatile Organic Compounds					
Trichlorofluoromethane	5	ug/l	ND	ND	ND
Vinyl acetate	NS	ug/l	ND	ND	ND
Vinyl chloride	2	ug/l	2.9	ND	ND
Xylenes, Total	NS	ug/l	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-7	MW-8	MW-8_DUP
SAMPLING DATE			2/24/2022	2/24/2022	2/24/2022
LAB SAMPLE ID			L2210146-01	L2210146-02	L2210146-03
			Qual	Qual	Qual
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	5	ug/l	--	--	--
1,1,1-Trichloroethane	5	ug/l	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,2-Trichloroethane	1	ug/l	ND	ND	ND
1,1-Dichloroethane	5	ug/l	ND	ND	ND
1,1-Dichloroethene	5	ug/l	--	--	--
1,1-Dichloropropene	5	ug/l	--	--	--
1,2,3-Trichlorobenzene	5	ug/l	--	--	--
1,2,3-Trichloropropane	0.04	ug/l	--	--	--
1,2,4,5-Tetramethylbenzene	5	ug/l	--	--	--
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trimethylbenzene	5	ug/l	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ug/l	ND	ND	ND
1,2-Dibromoethane	0.0006	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,2-Dichloroethane	0.6	ug/l	ND	ND	ND
1,2-Dichloroethene, Total	NS	ug/l	--	--	--
1,2-Dichloropropane	1	ug/l	ND	ND	ND
1,3,5-Trimethylbenzene	5	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichloropropane	5	ug/l	--	--	--
1,3-Dichloropropene, Total	NS	ug/l	--	--	--
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dioxane	NS	ug/l	--	--	--
2,2-Dichloropropane	5	ug/l	--	--	--
2-Butanone	50	ug/l	ND	ND	ND
2-Hexanone	50	ug/l	ND	ND	ND
4-Methyl-2-pentanone	NS	ug/l	ND	ND	ND
Acetone	50	ug/l	2.8 J	21	22
Acrylonitrile	5	ug/l	--	--	--
Benzene	1	ug/l	ND	ND	ND
Bromobenzene	5	ug/l	--	--	--
Bromochloromethane	5	ug/l	--	--	--
Bromodichloromethane	50	ug/l	ND	ND	ND
Bromoform	50	ug/l	ND	ND	ND
Bromomethane	5	ug/l	ND	ND	ND
Carbon disulfide	60	ug/l	ND	ND	ND
Carbon tetrachloride	5	ug/l	ND	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-7	MW-8	MW-8_DUP
SAMPLING DATE			2/24/2022	2/24/2022	2/24/2022
LAB SAMPLE ID			L2210146-01	L2210146-02	L2210146-03
			Qual	Qual	Qual
Volatile Organic Compounds					
Chlorobenzene	5	ug/l	ND	ND	ND
Chloroethane	5	ug/l	ND	ND	ND
Chloroform	7	ug/l	ND	ND	ND
Chloromethane	NS	ug/l	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/l	140	130	120
cis-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
Cyclohexane	NS	ug/l	ND	ND	ND
Dibromochloromethane	50	ug/l	ND	ND	ND
Dibromomethane	5	ug/l	--	--	--
Dichlorodifluoromethane	5	ug/l	ND	ND	ND
Ethyl ether	NS	ug/l	--	--	--
Ethylbenzene	5	ug/l	0.84 J	ND	ND
Freon-113	5	ug/l	ND	ND	ND
Hexachlorobutadiene	0.5	ug/l	--	--	--
Isopropylbenzene	5	ug/l	ND	ND	ND
Methyl acetate	NS	ug/l	ND	ND	ND
Methyl cyclohexane	NS	ug/l	ND	ND	ND
Methyl tert butyl ether	10	ug/l	ND	ND	ND
Methylene chloride	5	ug/l	ND	ND	ND
n-Butylbenzene	5	ug/l	ND	ND	ND
n-Propylbenzene	5	ug/l	ND	ND	ND
Naphthalene	10	ug/l	ND	ND	ND
o-Chlorotoluene	5	ug/l	--	--	--
o-Xylene	5	ug/l	1.4 J	ND	ND
p-Chlorotoluene	5	ug/l	--	--	--
p-Diethylbenzene	NS	ug/l	--	--	--
p-Ethyltoluene	NS	ug/l	--	--	--
p-Isopropyltoluene	5	ug/l	ND	ND	ND
p/m-Xylene	5	ug/l	3.6	ND	ND
sec-Butylbenzene	5	ug/l	ND	ND	ND
Styrene	5	ug/l	ND	ND	ND
tert-Butylbenzene	5	ug/l	ND	ND	ND
Tetrachloroethene	5	ug/l	81	89	86
Toluene	5	ug/l	ND	ND	ND
trans-1,2-Dichloroethene	5	ug/l	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
trans-1,4-Dichloro-2-butene	5	ug/l	--	--	--
Trichloroethene	5	ug/l	24	22	21

Table 2a. Volatile Organic Compounds in Groundwater
 2921 Westchester Avenue
 BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-7	MW-8	MW-8_DUP
SAMPLING DATE			2/24/2022	2/24/2022	2/24/2022
LAB SAMPLE ID			L2210146-01	L2210146-02	L2210146-03
			Qual	Qual	Qual
Volatile Organic Compounds					
Trichlorofluoromethane	5	ug/l	ND	ND	ND
Vinyl acetate	NS	ug/l	--	--	--
Vinyl chloride	2	ug/l	ND	ND	ND
Xylenes, Total	NS	ug/l	5 J	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	FIELD BLANK	TRIP BLANK	TRIP BLANK
SAMPLING DATE			2/23/2021	2/23/2021	3/4/2021
LAB SAMPLE ID			L2108841-06	L2108841-07	L2110911-05
			Qual	Qual	Qual
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,1-Trichloroethane	5	ug/l	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/l	ND	ND	ND
1,1,2-Trichloroethane	1	ug/l	ND	ND	ND
1,1-Dichloroethane	5	ug/l	ND	ND	ND
1,1-Dichloroethene	5	ug/l	ND	ND	ND
1,1-Dichloropropene	5	ug/l	ND	ND	ND
1,2,3-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,3-Trichloropropane	0.04	ug/l	ND	ND	ND
1,2,4,5-Tetramethylbenzene	5	ug/l	ND	ND	ND
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trimethylbenzene	5	ug/l	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ug/l	ND	ND	ND
1,2-Dibromoethane	0.0006	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,2-Dichloroethane	0.6	ug/l	ND	ND	ND
1,2-Dichloroethene, Total	NS	ug/l	ND	ND	ND
1,2-Dichloropropane	1	ug/l	ND	ND	ND
1,3,5-Trimethylbenzene	5	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichloropropane	5	ug/l	ND	ND	ND
1,3-Dichloropropene, Total	NS	ug/l	ND	ND	ND
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dioxane	NS	ug/l	ND	ND	ND
2,2-Dichloropropane	5	ug/l	ND	ND	ND
2-Butanone	50	ug/l	ND	ND	ND
2-Hexanone	50	ug/l	ND	ND	ND
4-Methyl-2-pentanone	NS	ug/l	ND	ND	ND
Acetone	50	ug/l	ND	ND	ND
Acrylonitrile	5	ug/l	ND	ND	ND
Benzene	1	ug/l	ND	ND	ND
Bromobenzene	5	ug/l	ND	ND	ND
Bromochloromethane	5	ug/l	ND	ND	ND
Bromodichloromethane	50	ug/l	ND	ND	ND
Bromoform	50	ug/l	ND	ND	ND
Bromomethane	5	ug/l	ND	ND	ND
Carbon disulfide	60	ug/l	ND	ND	ND
Carbon tetrachloride	5	ug/l	ND	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	FIELD BLANK	TRIP BLANK	TRIP BLANK
SAMPLING DATE			2/23/2021	2/23/2021	3/4/2021
LAB SAMPLE ID			L2108841-06	L2108841-07	L2110911-05
			Qual	Qual	Qual
Volatile Organic Compounds					
Chlorobenzene	5	ug/l	ND	ND	ND
Chloroethane	5	ug/l	ND	ND	ND
Chloroform	7	ug/l	ND	ND	ND
Chloromethane	NS	ug/l	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/l	ND	ND	ND
cis-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
Cyclohexane	NS	ug/l	--	--	--
Dibromochloromethane	50	ug/l	ND	ND	ND
Dibromomethane	5	ug/l	ND	ND	ND
Dichlorodifluoromethane	5	ug/l	ND	ND	ND
Ethyl ether	NS	ug/l	ND	ND	ND
Ethylbenzene	5	ug/l	ND	ND	ND
Freon-113	5	ug/l	--	--	--
Hexachlorobutadiene	0.5	ug/l	ND	ND	ND
Isopropylbenzene	5	ug/l	ND	ND	ND
Methyl acetate	NS	ug/l	--	--	--
Methyl cyclohexane	NS	ug/l	--	--	--
Methyl tert butyl ether	10	ug/l	ND	ND	ND
Methylene chloride	5	ug/l	ND	ND	ND
n-Butylbenzene	5	ug/l	ND	ND	ND
n-Propylbenzene	5	ug/l	ND	ND	ND
Naphthalene	10	ug/l	ND	ND	ND
o-Chlorotoluene	5	ug/l	ND	ND	ND
o-Xylene	5	ug/l	ND	ND	ND
p-Chlorotoluene	5	ug/l	ND	ND	ND
p-Diethylbenzene	NS	ug/l	ND	ND	ND
p-Ethyltoluene	NS	ug/l	ND	ND	ND
p-Isopropyltoluene	5	ug/l	ND	ND	ND
p/m-Xylene	5	ug/l	ND	ND	ND
sec-Butylbenzene	5	ug/l	ND	ND	ND
Styrene	5	ug/l	ND	ND	ND
tert-Butylbenzene	5	ug/l	ND	ND	ND
Tetrachloroethene	5	ug/l	ND	ND	ND
Toluene	5	ug/l	ND	ND	ND
trans-1,2-Dichloroethene	5	ug/l	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/l	ND	ND	ND
trans-1,4-Dichloro-2-butene	5	ug/l	ND	ND	ND
Trichloroethene	5	ug/l	ND	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	FIELD BLANK	TRIP BLANK	TRIP BLANK
SAMPLING DATE			2/23/2021	2/23/2021	3/4/2021
LAB SAMPLE ID			L2108841-06	L2108841-07	L2110911-05
			Qual	Qual	Qual
Volatile Organic Compounds					
Trichlorofluoromethane	5	ug/l	ND	ND	ND
Vinyl acetate	NS	ug/l	ND	ND	ND
Vinyl chloride	2	ug/l	ND	ND	ND
Xylenes, Total	NS	ug/l	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	FIELD BLANK	TRIP BLANK
SAMPLING DATE			2/24/2022	2/24/2022
LAB SAMPLE ID			L2210146-04	L2210146-05
			Qual	Qual
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	5	ug/l	--	--
1,1,1-Trichloroethane	5	ug/l	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/l	ND	ND
1,1,2-Trichloroethane	1	ug/l	ND	ND
1,1-Dichloroethane	5	ug/l	ND	ND
1,1-Dichloroethene	5	ug/l	--	--
1,1-Dichloropropene	5	ug/l	--	--
1,2,3-Trichlorobenzene	5	ug/l	--	--
1,2,3-Trichloropropane	0.04	ug/l	--	--
1,2,4,5-Tetramethylbenzene	5	ug/l	--	--
1,2,4-Trichlorobenzene	5	ug/l	ND	ND
1,2,4-Trimethylbenzene	5	ug/l	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ug/l	ND	ND
1,2-Dibromoethane	0.0006	ug/l	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND
1,2-Dichloroethane	0.6	ug/l	ND	ND
1,2-Dichloroethene, Total	NS	ug/l	--	--
1,2-Dichloropropane	1	ug/l	ND	ND
1,3,5-Trimethylbenzene	5	ug/l	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND
1,3-Dichloropropane	5	ug/l	--	--
1,3-Dichloropropene, Total	NS	ug/l	--	--
1,4-Dichlorobenzene	3	ug/l	ND	ND
1,4-Dioxane	NS	ug/l	--	--
2,2-Dichloropropane	5	ug/l	--	--
2-Butanone	50	ug/l	ND	ND
2-Hexanone	50	ug/l	ND	ND
4-Methyl-2-pentanone	NS	ug/l	ND	ND
Acetone	50	ug/l	ND	ND
Acrylonitrile	5	ug/l	--	--
Benzene	1	ug/l	ND	ND
Bromobenzene	5	ug/l	--	--
Bromochloromethane	5	ug/l	--	--
Bromodichloromethane	50	ug/l	ND	ND
Bromoform	50	ug/l	ND	ND
Bromomethane	5	ug/l	ND	ND
Carbon disulfide	60	ug/l	ND	ND
Carbon tetrachloride	5	ug/l	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	FIELD BLANK	TRIP BLANK
SAMPLING DATE			2/24/2022	2/24/2022
LAB SAMPLE ID			L2210146-04	L2210146-05
			Qual	Qual
Volatile Organic Compounds				
Chlorobenzene	5	ug/l	ND	ND
Chloroethane	5	ug/l	ND	ND
Chloroform	7	ug/l	ND	ND
Chloromethane	NS	ug/l	ND	ND
cis-1,2-Dichloroethene	5	ug/l	ND	ND
cis-1,3-Dichloropropene	0.4	ug/l	ND	ND
Cyclohexane	NS	ug/l	ND	ND
Dibromochloromethane	50	ug/l	ND	ND
Dibromomethane	5	ug/l	--	--
Dichlorodifluoromethane	5	ug/l	ND	ND
Ethyl ether	NS	ug/l	--	--
Ethylbenzene	5	ug/l	ND	ND
Freon-113	5	ug/l	ND	ND
Hexachlorobutadiene	0.5	ug/l	--	--
Isopropylbenzene	5	ug/l	ND	ND
Methyl acetate	NS	ug/l	ND	ND
Methyl cyclohexane	NS	ug/l	ND	ND
Methyl tert butyl ether	10	ug/l	ND	ND
Methylene chloride	5	ug/l	ND	ND
n-Butylbenzene	5	ug/l	ND	ND
n-Propylbenzene	5	ug/l	ND	ND
Naphthalene	10	ug/l	ND	ND
o-Chlorotoluene	5	ug/l	--	--
o-Xylene	5	ug/l	ND	ND
p-Chlorotoluene	5	ug/l	--	--
p-Diethylbenzene	NS	ug/l	--	--
p-Ethyltoluene	NS	ug/l	--	--
p-Isopropyltoluene	5	ug/l	ND	ND
p/m-Xylene	5	ug/l	ND	ND
sec-Butylbenzene	5	ug/l	ND	ND
Styrene	5	ug/l	ND	ND
tert-Butylbenzene	5	ug/l	ND	ND
Tetrachloroethene	5	ug/l	ND	ND
Toluene	5	ug/l	ND	ND
trans-1,2-Dichloroethene	5	ug/l	ND	ND
trans-1,3-Dichloropropene	0.4	ug/l	ND	ND
trans-1,4-Dichloro-2-butene	5	ug/l	--	--
Trichloroethene	5	ug/l	ND	ND

Table 2a. Volatile Organic Compounds in Groundwater
 2921 Westchester Avenue
 BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	FIELD BLANK	TRIP BLANK
SAMPLING DATE			2/24/2022	2/24/2022
LAB SAMPLE ID			L2210146-04	L2210146-05
			Qual	Qual
Volatile Organic Compounds				
Trichlorofluoromethane	5	ug/l	ND	ND
Vinyl acetate	NS	ug/l	--	--
Vinyl chloride	2	ug/l	ND	ND
Xylenes, Total	NS	ug/l	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

-- = Not analyzed

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-1	MW-2	MW-5
SAMPLING DATE			2/23/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2108841-01	L2108841-02	L2108841-03
			Qual	Qual	Qual
Semivolatile Organic Compounds					
1,2,4,5-Tetrachlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
2,4,5-Trichlorophenol	NS	ug/l	ND	ND	ND
2,4,6-Trichlorophenol	NS	ug/l	ND	ND	ND
2,4-Dichlorophenol	1	ug/l	ND	ND	ND
2,4-Dimethylphenol	50	ug/l	ND	ND	ND
2,4-Dinitrophenol	10	ug/l	ND	ND	ND
2,4-Dinitrotoluene	5	ug/l	ND	ND	ND
2,6-Dinitrotoluene	5	ug/l	ND	ND	ND
2-Chlorophenol	NS	ug/l	ND	ND	ND
2-Methylphenol	NS	ug/l	ND	ND	ND
2-Nitroaniline	5	ug/l	ND	ND	ND
2-Nitrophenol	NS	ug/l	ND	ND	ND
3,3'-Dichlorobenzidine	5	ug/l	ND	ND	ND
3-Methylphenol/4-Methylphenol	NS	ug/l	ND	ND	ND
3-Nitroaniline	5	ug/l	ND	ND	ND
4,6-Dinitro-o-cresol	NS	ug/l	ND	ND	ND
4-Bromophenyl phenyl ether	NS	ug/l	ND	ND	ND
4-Chloroaniline	5	ug/l	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	ug/l	ND	ND	ND
4-Nitroaniline	5	ug/l	ND	ND	ND
4-Nitrophenol	NS	ug/l	ND	ND	ND
Acetophenone	NS	ug/l	ND	ND	ND
Benzoic Acid	NS	ug/l	ND	ND	ND
Benzyl Alcohol	NS	ug/l	ND	ND	1.2 J
Biphenyl	NS	ug/l	ND	ND	ND
Bis(2-chloroethoxy)methane	5	ug/l	ND	ND	ND
Bis(2-chloroethyl)ether	1	ug/l	ND	ND	ND
Bis(2-chloroisopropyl)ether	5	ug/l	ND	ND	ND
Bis(2-ethylhexyl)phthalate	5	ug/l	ND	ND	ND
Butyl benzyl phthalate	50	ug/l	ND	ND	ND
Carbazole	NS	ug/l	ND	ND	ND
Di-n-butylphthalate	50	ug/l	ND	ND	ND
Di-n-octylphthalate	50	ug/l	ND	ND	ND
Dibenzofuran	NS	ug/l	ND	ND	ND
Diethyl phthalate	50	ug/l	ND	ND	ND
Dimethyl phthalate	50	ug/l	ND	ND	ND
Hexachlorocyclopentadiene	5	ug/l	ND	ND	ND
Isophorone	50	ug/l	ND	ND	ND

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-1	MW-2	MW-5
SAMPLING DATE			2/23/2021	2/23/2021	2/23/2021
LAB SAMPLE ID			L2108841-01	L2108841-02	L2108841-03
			Qual	Qual	Qual
Semivolatile Organic Compounds					
n-Nitrosodi-n-propylamine	NS	ug/l	ND	ND	ND
NDPA/DPA	50	ug/l	ND	ND	ND
Nitrobenzene	0.4	ug/l	ND	ND	ND
p-Chloro-m-cresol	NS	ug/l	ND	ND	ND
Phenol	1	ug/l	ND	ND	ND
2-Chloronaphthalene	10	ug/l	ND	ND	ND
2-Methylnaphthalene	NS	ug/l	ND	ND	0.08 J
Acenaphthene	20	ug/l	ND	ND	0.42
Acenaphthylene	NS	ug/l	ND	ND	0.03 J
Anthracene	50	ug/l	ND	0.03 J	0.02 J
Benzo(a)anthracene	0.002	ug/l	ND	0.03 J	ND
Benzo(a)pyrene	NS	ug/l	ND	ND	ND
Benzo(b)fluoranthene	0.002	ug/l	ND	0.02 J	ND
Benzo(ghi)perylene	NS	ug/l	ND	0.01 J	ND
Benzo(k)fluoranthene	0.002	ug/l	ND	0.01 J	ND
Chrysene	0.002	ug/l	ND	0.01 J	ND
Dibenzo(a,h)anthracene	NS	ug/l	ND	ND	ND
Fluoranthene	50	ug/l	ND	0.03 J	0.03 J
Fluorene	50	ug/l	ND	ND	0.1 J
Hexachlorobenzene	0.04	ug/l	ND	ND	ND
Hexachlorobutadiene	0.5	ug/l	ND	ND	ND
Hexachloroethane	5	ug/l	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/l	ND	0.01 J	ND
Naphthalene	10	ug/l	ND	ND	0.52
Pentachlorophenol	1	ug/l	0.34 J	0.65 J	0.27 J
Phenanthrene	50	ug/l	ND	ND	0.08 J
Pyrene	50	ug/l	ND	0.03 J	0.03 J

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	BW-1	BW-1_DUP	MW-3
SAMPLING DATE			2/23/2021	2/23/2021	3/4/2021
LAB SAMPLE ID			L2108841-04	L2108841-05	L2110911-01
			Qual	Qual	Qual
Semivolatile Organic Compounds					
1,2,4,5-Tetrachlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
2,4,5-Trichlorophenol	NS	ug/l	ND	ND	ND
2,4,6-Trichlorophenol	NS	ug/l	ND	ND	ND
2,4-Dichlorophenol	1	ug/l	ND	ND	ND
2,4-Dimethylphenol	50	ug/l	ND	ND	ND
2,4-Dinitrophenol	10	ug/l	ND	ND	ND
2,4-Dinitrotoluene	5	ug/l	ND	ND	ND
2,6-Dinitrotoluene	5	ug/l	ND	ND	ND
2-Chlorophenol	NS	ug/l	ND	ND	ND
2-Methylphenol	NS	ug/l	ND	ND	ND
2-Nitroaniline	5	ug/l	ND	ND	ND
2-Nitrophenol	NS	ug/l	ND	ND	ND
3,3'-Dichlorobenzidine	5	ug/l	ND	ND	ND
3-Methylphenol/4-Methylphenol	NS	ug/l	ND	ND	ND
3-Nitroaniline	5	ug/l	ND	ND	ND
4,6-Dinitro-o-cresol	NS	ug/l	ND	ND	ND
4-Bromophenyl phenyl ether	NS	ug/l	ND	ND	ND
4-Chloroaniline	5	ug/l	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	ug/l	ND	ND	ND
4-Nitroaniline	5	ug/l	ND	ND	ND
4-Nitrophenol	NS	ug/l	ND	ND	ND
Acetophenone	NS	ug/l	ND	ND	ND
Benzoic Acid	NS	ug/l	ND	ND	ND
Benzyl Alcohol	NS	ug/l	ND	ND	ND
Biphenyl	NS	ug/l	ND	ND	ND
Bis(2-chloroethoxy)methane	5	ug/l	ND	ND	ND
Bis(2-chloroethyl)ether	1	ug/l	ND	ND	ND
Bis(2-chloroisopropyl)ether	5	ug/l	ND	ND	ND
Bis(2-ethylhexyl)phthalate	5	ug/l	ND	ND	ND
Butyl benzyl phthalate	50	ug/l	ND	ND	ND
Carbazole	NS	ug/l	ND	ND	ND
Di-n-butylphthalate	50	ug/l	ND	ND	ND
Di-n-octylphthalate	50	ug/l	ND	ND	ND
Dibenzofuran	NS	ug/l	ND	ND	ND
Diethyl phthalate	50	ug/l	ND	ND	ND
Dimethyl phthalate	50	ug/l	ND	ND	ND
Hexachlorocyclopentadiene	5	ug/l	ND	ND	ND
Isophorone	50	ug/l	ND	ND	ND

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	BW-1	BW-1_DUP	MW-3
SAMPLING DATE			2/23/2021	2/23/2021	3/4/2021
LAB SAMPLE ID			L2108841-04	L2108841-05	L2110911-01
			Qual	Qual	Qual
Semivolatile Organic Compounds					
n-Nitrosodi-n-propylamine	NS	ug/l	ND	ND	ND
NDPA/DPA	50	ug/l	ND	ND	ND
Nitrobenzene	0.4	ug/l	ND	ND	ND
p-Chloro-m-cresol	NS	ug/l	ND	ND	ND
Phenol	1	ug/l	ND	ND	ND
2-Chloronaphthalene	10	ug/l	ND	ND	ND
2-Methylnaphthalene	NS	ug/l	0.1 J	0.07 J	ND
Acenaphthene	20	ug/l	0.02 J	0.02 J	ND
Acenaphthylene	NS	ug/l	ND	ND	ND
Anthracene	50	ug/l	ND	ND	ND
Benzo(a)anthracene	0.002	ug/l	ND	ND	ND
Benzo(a)pyrene	NS	ug/l	ND	ND	ND
Benzo(b)fluoranthene	0.002	ug/l	ND	ND	ND
Benzo(ghi)perylene	NS	ug/l	ND	ND	ND
Benzo(k)fluoranthene	0.002	ug/l	ND	ND	ND
Chrysene	0.002	ug/l	ND	ND	ND
Dibenzo(a,h)anthracene	NS	ug/l	ND	ND	ND
Fluoranthene	50	ug/l	0.06 J	0.03 J	0.05 J
Fluorene	50	ug/l	0.03 J	0.03 J	ND
Hexachlorobenzene	0.04	ug/l	ND	ND	ND
Hexachlorobutadiene	0.5	ug/l	ND	ND	ND
Hexachloroethane	5	ug/l	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/l	ND	ND	ND
Naphthalene	10	ug/l	0.09 J	ND	ND
Pentachlorophenol	1	ug/l	0.27 J	0.28 J	0.16 J
Phenanthrene	50	ug/l	0.06 J	0.04 J	0.07 J
Pyrene	50	ug/l	0.03 J	0.02 J	0.04 J

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-4	MW-6	FIELD BLANK
SAMPLING DATE			3/4/2021	3/4/2021	2/23/2021
LAB SAMPLE ID			L2110911-02	L2110911-04	L2108841-06
			Qual	Qual	Qual
Semivolatile Organic Compounds					
1,2,4,5-Tetrachlorobenzene	5	ug/l	ND	ND	ND
1,2,4-Trichlorobenzene	5	ug/l	ND	ND	ND
1,2-Dichlorobenzene	3	ug/l	ND	ND	ND
1,3-Dichlorobenzene	3	ug/l	ND	ND	ND
1,4-Dichlorobenzene	3	ug/l	ND	ND	ND
2,4,5-Trichlorophenol	NS	ug/l	ND	ND	ND
2,4,6-Trichlorophenol	NS	ug/l	ND	ND	ND
2,4-Dichlorophenol	1	ug/l	ND	ND	ND
2,4-Dimethylphenol	50	ug/l	ND	ND	ND
2,4-Dinitrophenol	10	ug/l	ND	ND	ND
2,4-Dinitrotoluene	5	ug/l	ND	ND	ND
2,6-Dinitrotoluene	5	ug/l	ND	ND	ND
2-Chlorophenol	NS	ug/l	ND	ND	ND
2-Methylphenol	NS	ug/l	ND	ND	ND
2-Nitroaniline	5	ug/l	ND	ND	ND
2-Nitrophenol	NS	ug/l	ND	ND	ND
3,3'-Dichlorobenzidine	5	ug/l	ND	ND	ND
3-Methylphenol/4-Methylphenol	NS	ug/l	ND	ND	ND
3-Nitroaniline	5	ug/l	ND	ND	ND
4,6-Dinitro-o-cresol	NS	ug/l	ND	ND	ND
4-Bromophenyl phenyl ether	NS	ug/l	ND	ND	ND
4-Chloroaniline	5	ug/l	ND	ND	ND
4-Chlorophenyl phenyl ether	NS	ug/l	ND	ND	ND
4-Nitroaniline	5	ug/l	ND	ND	ND
4-Nitrophenol	NS	ug/l	ND	ND	ND
Acetophenone	NS	ug/l	ND	1.8 J	ND
Benzoic Acid	NS	ug/l	ND	ND	ND
Benzyl Alcohol	NS	ug/l	ND	ND	ND
Biphenyl	NS	ug/l	ND	ND	ND
Bis(2-chloroethoxy)methane	5	ug/l	ND	ND	ND
Bis(2-chloroethyl)ether	1	ug/l	ND	ND	ND
Bis(2-chloroisopropyl)ether	5	ug/l	ND	ND	ND
Bis(2-ethylhexyl)phthalate	5	ug/l	ND	11	ND
Butyl benzyl phthalate	50	ug/l	ND	7.1 J	ND
Carbazole	NS	ug/l	ND	ND	ND
Di-n-butylphthalate	50	ug/l	ND	ND	ND
Di-n-octylphthalate	50	ug/l	ND	ND	ND
Dibenzofuran	NS	ug/l	ND	ND	ND
Diethyl phthalate	50	ug/l	ND	ND	ND
Dimethyl phthalate	50	ug/l	ND	ND	ND
Hexachlorocyclopentadiene	5	ug/l	ND	ND	ND
Isophorone	50	ug/l	ND	ND	ND

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-4	MW-6	FIELD BLANK
SAMPLING DATE			3/4/2021	3/4/2021	2/23/2021
LAB SAMPLE ID			L2110911-02	L2110911-04	L2108841-06
			Qual	Qual	Qual
Semivolatile Organic Compounds					
n-Nitrosodi-n-propylamine	NS	ug/l	ND	ND	ND
NDPA/DPA	50	ug/l	ND	ND	ND
Nitrobenzene	0.4	ug/l	ND	ND	ND
p-Chloro-m-cresol	NS	ug/l	ND	ND	ND
Phenol	1	ug/l	ND	ND	ND
2-Chloronaphthalene	10	ug/l	ND	ND	ND
2-Methylnaphthalene	NS	ug/l	ND	ND	ND
Acenaphthene	20	ug/l	ND	ND	ND
Acenaphthylene	NS	ug/l	ND	ND	ND
Anthracene	50	ug/l	ND	ND	ND
Benzo(a)anthracene	0.002	ug/l	ND	0.1 J	ND
Benzo(a)pyrene	NS	ug/l	ND	0.1 J	ND
Benzo(b)fluoranthene	0.002	ug/l	ND	0.16 J	0.02 J
Benzo(ghi)perylene	NS	ug/l	ND	0.08 J	0.02 J
Benzo(k)fluoranthene	0.002	ug/l	ND	0.04 J	0.02 J
Chrysene	0.002	ug/l	ND	0.14 J	0.01 J
Dibenzo(a,h)anthracene	NS	ug/l	ND	ND	ND
Fluoranthene	50	ug/l	ND	0.33 J	ND
Fluorene	50	ug/l	ND	ND	ND
Hexachlorobenzene	0.04	ug/l	ND	ND	ND
Hexachlorobutadiene	0.5	ug/l	ND	ND	ND
Hexachloroethane	5	ug/l	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/l	ND	0.09 J	0.02 J
Naphthalene	10	ug/l	ND	ND	ND
Pentachlorophenol	1	ug/l	0.26 J	ND	0.2 J
Phenanthrene	50	ug/l	0.09 J	0.27 J	ND
Pyrene	50	ug/l	ND	0.27 J	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-6
SAMPLING DATE			7/14/2021
LAB SAMPLE ID			L2137792-01
			Qual
Semivolatile Organic Compounds			
1,2,4,5-Tetrachlorobenzene	5	ug/l	ND
1,2,4-Trichlorobenzene	5	ug/l	ND
1,2-Dichlorobenzene	3	ug/l	ND
1,3-Dichlorobenzene	3	ug/l	ND
1,4-Dichlorobenzene	3	ug/l	ND
2,4,5-Trichlorophenol	NS	ug/l	ND
2,4,6-Trichlorophenol	NS	ug/l	ND
2,4-Dichlorophenol	1	ug/l	ND
2,4-Dimethylphenol	50	ug/l	ND
2,4-Dinitrophenol	10	ug/l	ND
2,4-Dinitrotoluene	5	ug/l	ND
2,6-Dinitrotoluene	5	ug/l	ND
2-Chlorophenol	NS	ug/l	ND
2-Methylphenol	NS	ug/l	ND
2-Nitroaniline	5	ug/l	ND
2-Nitrophenol	NS	ug/l	ND
3,3'-Dichlorobenzidine	5	ug/l	ND
3-Methylphenol/4-Methylphenol	NS	ug/l	ND
3-Nitroaniline	5	ug/l	ND
4,6-Dinitro-o-cresol	NS	ug/l	ND
4-Bromophenyl phenyl ether	NS	ug/l	ND
4-Chloroaniline	5	ug/l	ND
4-Chlorophenyl phenyl ether	NS	ug/l	ND
4-Nitroaniline	5	ug/l	ND
4-Nitrophenol	NS	ug/l	ND
Acetophenone	NS	ug/l	ND
Benzoic Acid	NS	ug/l	ND
Benzyl Alcohol	NS	ug/l	ND
Biphenyl	NS	ug/l	ND
Bis(2-chloroethoxy)methane	5	ug/l	ND
Bis(2-chloroethyl)ether	1	ug/l	ND
Bis(2-chloroisopropyl)ether	5	ug/l	ND
Bis(2-ethylhexyl)phthalate	5	ug/l	ND
Butyl benzyl phthalate	50	ug/l	ND
Carbazole	NS	ug/l	ND
Di-n-butylphthalate	50	ug/l	0.89 J
Di-n-octylphthalate	50	ug/l	ND
Dibenzofuran	NS	ug/l	ND
Diethyl phthalate	50	ug/l	ND
Dimethyl phthalate	50	ug/l	ND
Hexachlorocyclopentadiene	5	ug/l	ND
Isophorone	50	ug/l	ND

Table 2b. Semivolatile Organic Compounds in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-6
SAMPLING DATE			7/14/2021
LAB SAMPLE ID			L2137792-01
			Qual
Semivolatile Organic Compounds			
n-Nitrosodi-n-propylamine	NS	ug/l	ND
NDPA/DPA	50	ug/l	ND
Nitrobenzene	0.4	ug/l	ND
p-Chloro-m-cresol	NS	ug/l	ND
Phenol	1	ug/l	ND
2-Chloronaphthalene	10	ug/l	ND
2-Methylnaphthalene	NS	ug/l	ND
Acenaphthene	20	ug/l	ND
Acenaphthylene	NS	ug/l	ND
Anthracene	50	ug/l	ND
Benzo(a)anthracene	0.002	ug/l	ND
Benzo(a)pyrene	NS	ug/l	ND
Benzo(b)fluoranthene	0.002	ug/l	ND
Benzo(ghi)perylene	NS	ug/l	ND
Benzo(k)fluoranthene	0.002	ug/l	ND
Chrysene	0.002	ug/l	ND
Dibenzo(a,h)anthracene	NS	ug/l	ND
Fluoranthene	50	ug/l	ND
Fluorene	50	ug/l	ND
Hexachlorobenzene	0.04	ug/l	ND
Hexachlorobutadiene	0.5	ug/l	ND
Hexachloroethane	5	ug/l	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/l	ND
Naphthalene	10	ug/l	ND
Pentachlorophenol	1	ug/l	ND
Phenanthrene	50	ug/l	ND
Pyrene	50	ug/l	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

Table 2c. Total and Dissolved Metals in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-1	MW-2	MW-5	BW-1	BW-1_DUP	MW-3	MW-4	FIELD BLANK	MW-6
SAMPLING DATE			2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	3/4/2021	3/4/2021	2/23/2021	7/14/2021
LAB SAMPLE ID			L2108841-01	L2108841-02	L2108841-03	L2108841-04	L2108841-05	L2110911-01	L2110911-02	L2108841-06	L2137792-01
			Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
General Chemistry											
Chromium, Trivalent	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	271 J
Cyanide, Total	200	ug/l	ND	35	2 J	ND	ND	ND	ND	3 J	2 J
Chromium, Hexavalent	50	ug/l	4 J	8 J	3 J	3 J	3 J	ND	6 J	ND	4 J
Total Metals											
Aluminum, Total	NS	ug/l	82	143	2290	622	836	61.8	53.6	ND	40000
Antimony, Total	3	ug/l	ND	ND	ND	16.91	11.37	4.5	5.79	ND	0.8 J
Arsenic, Total	25	ug/l	0.71	5.8	1.68	1.93	1.92	2.07	2.7	ND	8.19
Barium, Total	1000	ug/l	326.5	142.4	220.3	56.39	65.03	53.32	77.28	ND	497.8
Beryllium, Total	3	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	1.34
Cadmium, Total	5	ug/l	ND	ND	ND	ND	ND	ND	0.12 J	ND	0.37
Calcium, Total	NS	ug/l	99200	78600	143000	35400	49700	87800	106000	ND	38200
Chromium, Total	50	ug/l	1.68	6.11 J	10.74	3.05	4.64	2.11	5.4	ND	275
Cobalt, Total	NS	ug/l	0.67	ND	2.81	0.72	1.3	0.76	0.2 J	ND	42.09
Copper, Total	200	ug/l	1.4	14.4	8.49	3.94	5.67	0.63 J	1.79	ND	138.1
Iron, Total	300	ug/l	198	281 J	3600	774	1190	1500	103	ND	62000
Lead, Total	25	ug/l	ND	ND	2.35	2.68	4.53	0.7 J	9.05	ND	136.1
Magnesium, Total	35000	ug/l	106000	7580	49800	19900	44200	33200	55500	ND	53900
Manganese, Total	300	ug/l	182.9	10.09	949	63.86	61.76	106.2	2.18	ND	1055
Mercury, Total	0.7	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	0.1 J
Nickel, Total	100	ug/l	3.91	ND	19.92	7.58	10.99	5.06	3.72	ND	478.5
Potassium, Total	NS	ug/l	6640	14300	23500	4210	5230	11200	10600	ND	17000
Selenium, Total	10	ug/l	ND	ND	ND	ND	ND	3.95 J	3.53 J	ND	2.97 J
Silver, Total	50	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	0.27 J
Sodium, Total	20000	ug/l	211000	1730000	169000	49000	77600	201000	188000	ND	249000
Thallium, Total	0.5	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	1.24
Vanadium, Total	NS	ug/l	2.25 J	ND	8.77	3.22 J	4.72 J	2.08 J	2.64 J	ND	80.95
Zinc, Total	2000	ug/l	8.88 J	ND	17.34	9.5 J	15.79	72.18	567.9	5.7 J	324.7
Dissolved Metals											
Aluminum, Dissolved	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	1040
Antimony, Dissolved	3	ug/l	4.74 J	17.65 J	3.15 J	18.04 J	11.62 J	4.61	5.82	ND	2.23 J
Arsenic, Dissolved	25	ug/l	1.12 J	6.19	1.44 J	2.05 J	2.11 J	0.43 J	2.85	ND	5.45
Barium, Dissolved	1000	ug/l	326.1	133.3	203	52.05	56.18	48.56	76.54	0.48 J	32.63
Beryllium, Dissolved	3	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Dissolved	5	ug/l	ND	ND	ND	ND	ND	ND	0.11 J	ND	ND
Calcium, Dissolved	NS	ug/l	116000	78000	166000	41400	74500	86200	110000	ND	15100
Chromium, Dissolved	50	ug/l	0.95 J	5.08	ND	ND	ND	ND	5.3	ND	11.96
Cobalt, Dissolved	NS	ug/l	ND	ND	ND	ND	ND	0.66	ND	ND	1.16
Copper, Dissolved	200	ug/l	ND	14.42	ND	ND	ND	ND	1.37	ND	11.82
Iron, Dissolved	300	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	1410
Lead, Dissolved	25	ug/l	ND	ND	ND	ND	ND	ND	3.16	ND	3.34
Magnesium, Dissolved	35000	ug/l	152000	7340	52200	21200	52500	34800	57300	ND	10800
Manganese, Dissolved	300	ug/l	21.64	5.05	940.4	60	39.87	106.2	ND	ND	33.16
Mercury, Dissolved	0.7	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Dissolved	100	ug/l	3.16 J	3.42 J	4.14 J	5.57 J	4.35 J	4.94	3.32	ND	14.11
Potassium, Dissolved	NS	ug/l	7260	14200	25800	4480	5910	10900	11000	ND	4890
Selenium, Dissolved	10	ug/l	ND	ND	ND	ND	ND	3.53 J	3.22 J	ND	ND
Silver, Dissolved	50	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Dissolved	20000	ug/l	240000	1820000	187000	68400	69000	201000	192000	34.5 J	245000
Thallium, Dissolved	0.5	ug/l	ND	0.92 J	ND	ND	ND	0.34 J	0.23 J	ND	0.5 J
Vanadium, Dissolved	NS	ug/l	ND	ND	ND	ND	ND	ND	2.58 J	ND	10.65
Zinc, Dissolved	2000	ug/l	ND	ND	ND	ND	ND	40.76	542.7	ND	9.49 J

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

NS = No standard

Table 2d. Pesticides, Herbicides, and Polychlorinated Biphenyls in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	Units	MW-1	MW-2	MW-5	BW-1	BW-1_DUP	MW-3	MW-4	FIELD BLANK	MW-6
SAMPLING DATE			2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	3/4/2021	3/4/2021	2/23/2021	7/14/2021
LAB SAMPLE ID			L2108841-01	L2108841-02	L2108841-03	L2108841-04	L2108841-05	L2110911-01	L2110911-02	L2108841-06	L2137792-01
			Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
Chlorinated Herbicides											
2,4,5-T	35	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-D	50	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls											
Aroclor 1016	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1221	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1232	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1260	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1262	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	0.09	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCBs, Total	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Organochlorine Pesticides											
4,4'-DDD	0.3	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	0.2	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	0.2	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha-BHC	0.01	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta-BHC	0.04	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	0.05	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-Chlordane	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Delta-BHC	0.04	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	0.004	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	5	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	5	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	0.04	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	0.03	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lindane	0.05	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	35	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	0.06	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-Chlordane	NS	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

ND = Not detected

NS = No standard

Table 2e. Emerging Contaminants in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	NY-PFAS	Units	MW-1	MW-2	MW-5	BW-1	BW-1_DUP	MW-3
SAMPLING DATE				2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	3/4/2021
LAB SAMPLE ID				L2108841-01	L2108841-02	L2108841-03	L2108841-04	L2108841-05	L2110911-01
				Qual	Qual	Qual	Qual	Qual	Qual
1,4 Dioxane									
1,4-Dioxane	NS	NS	ug/l	0.188	ND	0.172	ND	ND	ND
Perfluorinated Alkyl Acids									
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	100	ng/l	ND	ND	1.24 J	ND	ND	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	100	ng/l	32	1.85 J	7	5.93	5.66	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	100	ng/l	ND	ND	16.7	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	100	ng/l	ND	ND	19.3 F	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	NS	100	ng/l	12.6	0.275 JF	29	3.3	3.45	18.3
Perfluorobutanoic Acid (PFBA)	NS	100	ng/l	22.1	16.8	43.8	5.28	5.64	26.2
Perfluorodecanesulfonic Acid (PFDS)	NS	100	ng/l	ND	ND	ND	ND	ND	ND
Perfluorodecanoic Acid (PFDA)	NS	100	ng/l	0.397 J	2.22	3.38	0.588 J	0.74 J	7.49
Perfluorododecanoic Acid (PFDoA)	NS	100	ng/l	ND	1.37 JF	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	NS	100	ng/l	0.713 JF	ND	1.88 JF	ND	ND	0.924 J
Perfluoroheptanoic Acid (PFHpA)	NS	100	ng/l	10.6	1.89	26.4	5.04	5.65	80.6
Perfluorohexanesulfonic Acid (PFHxS)	NS	100	ng/l	4.23	ND	9.57	2.4 F	2.16	5.39
Perfluorohexanoic Acid (PFHxA)	NS	100	ng/l	24.4	3.44	3.89	5.62	6.55	60.9
Perfluorononanoic Acid (PFNA)	NS	100	ng/l	2.86	1.11 J	13.5	6.64	6.95	38.4
Perfluorooctanesulfonamide (FOSA)	NS	100	ng/l	ND	ND	0.846 JF	ND	ND	0.746 JF
Perfluorooctanesulfonic Acid (PFOS)	NS	10	ng/l	35.6	3.89	111	9	8.83	47
Perfluorooctanoic Acid (PFOA)	NS	10	ng/l	35.4	3.28	94	25.7	25.4	447
Perfluoropentanoic Acid (PFPeA)	NS	100	ng/l	28.6	2.07	41.7	5.37	5.54	35.2
Perfluorotetradecanoic Acid (PFTA)	NS	100	ng/l	ND	0.49 J	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	NS	100	ng/l	ND	0.45 J	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	NS	100	ng/l	ND	1.05 J	ND	ND	ND	ND
Perfluorinated Alkyl Acids, Total	NS	500	ng/l	209.5	40.185	423.206	74.868	76.57	768.15

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS or NY-PFAS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

NY-PFAS = Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, October 2020

J = Estimated value

F = The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria

ND = Not detected

NS = No standard

Table 2e. Emerging Contaminants in Groundwater
2921 Westchester Avenue
BCP Site No. C203140

CLIENT SAMPLE ID	NY-AWQS	NY-PFAS	Units	MW-4	FIELD BLANK	MW-6
SAMPLING DATE				3/4/2021	2/23/2021	7/14/2021
LAB SAMPLE ID				L2110911-02	L2108841-06	L2137792-01
				Qual	Qual	Qual
1,4 Dioxane						
1,4-Dioxane	NS	NS	ug/l	ND	ND	ND
Perfluorinated Alkyl Acids						
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	100	ng/l	ND	ND	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	100	ng/l	ND	ND	29.4
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	100	ng/l	1.29 JF	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	100	ng/l	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	NS	100	ng/l	23.9	ND	22.6
Perfluorobutanoic Acid (PFBA)	NS	100	ng/l	25.1	ND	7.71
Perfluorodecanesulfonic Acid (PFDS)	NS	100	ng/l	ND	ND	ND
Perfluorodecanoic Acid (PFDA)	NS	100	ng/l	2.79	ND	6.72
Perfluorododecanoic Acid (PFDoA)	NS	100	ng/l	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	NS	100	ng/l	8.36 J	ND	ND
Perfluoroheptanoic Acid (PFHpA)	NS	100	ng/l	22.7	ND	4.19
Perfluorohexanesulfonic Acid (PFHxS)	NS	100	ng/l	4.67	ND	0.9 J
Perfluorohexanoic Acid (PFHxA)	NS	100	ng/l	33.3	ND	12
Perfluorononanoic Acid (PFNA)	NS	100	ng/l	22.1	ND	3.23
Perfluorooctanesulfonamide (FOSA)	NS	100	ng/l	0.901 JF	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	NS	10	ng/l	35.2	ND	38.1
Perfluorooctanoic Acid (PFOA)	NS	10	ng/l	91.7	ND	9.63
Perfluoropentanoic Acid (PFPeA)	NS	100	ng/l	26.5	ND	8.81
Perfluorotetradecanoic Acid (PFTA)	NS	100	ng/l	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	NS	100	ng/l	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	NS	100	ng/l	0.791 J	ND	0.719 J
Perfluorinated Alkyl Acids, Total	NS	500	ng/l	299.302	ND	144.009

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS or NY-PFAS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

NY-PFAS = Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, October 2020

J = Estimated value

F = The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria

ND = Not detected

NS = No standard

Table 3a. Volatile Organic Compounds in Sub-Slab Soil Vapor and Indoor Air - March 2021
2921 Westchester Avenue
BCP Site No. C203140

LOCATION	NYSDOH Matrix	NYSDOH AGV	Units	IA-6	IA-7	SS-3	IA-8	SS-7	IA-12	IA-9	IA-11	SS-5	IA-10	AA-1	Matrix Action
SAMPLING DATE				3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	
LAB SAMPLE ID				L2110920-01	L2110920-02	L2110920-03	L2110920-04	L2110920-05	L2110920-06	L2110920-07	L2110920-08	L2110920-09	L2110920-10	L2110920-11	
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	
Volatile Organic Compounds															
Dichlorodifluoromethane	-	NS	ug/m3	2.4	2.41	2.15	2.41	2.26	2.42	2.36	2.37	2.33	2.43	2.4	
Chloromethane	-	NS	ug/m3	0.944	1.03	ND	0.977	ND	0.981	1.18	1.22	ND	1.22	1.27	
Freon-114	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Vinyl chloride	C	NS	ug/m3	0.276	0.279	ND	0.079	ND	0.079	0.637	0.629	ND	ND	ND	No further action
1,3-Butadiene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	0.584	0.757	ND	
Bromomethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Ethanol	-	NS	ug/m3	15.9	15.8	ND	23.7	14.2	23.9	16.4	16.2	ND	109	18.1	
Vinyl bromide	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Acetone	-	NS	ug/m3	6.87	7.29	2.38	21.6	ND	22.2	5.25	5.2	5.49	6.1	3.75	
Trichlorofluoromethane	-	NS	ug/m3	1.45	1.4	1.21	1.42	1.25	1.47	1.39	1.4	1.37	1.43	1.44	
Isopropanol	-	NS	ug/m3	15.1	15.6	3.83	48.9	24.6	50.6	5.9	5.09	ND	25.1	7.03	
1,1-Dichloroethene	A	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No further action
Tertiary butyl Alcohol	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Methylene chloride	B	60	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	3.51	3.13	1.91	No further action
3-Chloropropene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon disulfide	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Freon-113	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl tert butyl ether	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
2-Butanone	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethene	A	NS	ug/m3	9.12	9.28	3.22	2.32	ND	2.28	20.7	19.7	ND	0.337	ND	Identify sources and resample or mitigate (SS-3/IA-8 & SS-7/IA-12)
Ethyl Acetate	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroform	-	NS	ug/m3	6.1	6.45	5.76	1.67	9.18	1.6	12.9	12.5	6.45	ND	ND	
Tetrahydrofuran	-	NS	ug/m3	ND	ND	ND	ND	8.35	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
n-Hexane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	4.19	5.46	ND	
1,1,1-Trichloroethane	B	NS	ug/m3	ND	ND	3.03	ND	2.71	ND	ND	ND	ND	ND	ND	No further action
Benzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	3.14	3.26	ND	
Carbon tetrachloride	A	NS	ug/m3	0.453	0.478	5.2	0.453	14.4	0.453	0.484	0.516	ND	0.409	0.428	Monitor (SS-7/IA-12)
Cyclohexane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	1.8	2.55	ND	
1,2-Dichloropropane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Bromodichloromethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	1.61	1.54	ND	ND	ND	
1,4-Dioxane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Trichloroethene	A	2	ug/m3	4.51	4.61	2.32	1.23	2.2	1.2	10.2	9.89	ND	0.22	ND	Identify sources and resample or mitigate (SS-3/IA-8 & SS-7/IA-12)
2,2,4-Trimethylpentane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	2.53	2.96	ND	
Heptane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	1.26	3.19	ND	
cis-1,3-Dichloropropene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
4-Methyl-2-pentanone	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,3-Dichloropropene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	-	NS	ug/m3	ND	0.833	ND	ND	ND	ND	1.08	1.06	6.14	11.3	ND	
2-Hexanone	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dibromochloromethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromoethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Tetrachloroethene	B	30	ug/m3	40.9	42.7	277	11	275	10.8	92.2	90.9	7.87	1.93	0.217	Mitigate (SS-3/IA-8 & SS-7/IA-12)
Chlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	
p/m-Xylene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	2.22	7.34	ND	
Bromoform	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Styrene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
o-Xylene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	0.877	2.68	ND	

Table 3a. Volatile Organic Compounds in Sub-Slab Soil Vapor and Indoor Air - March 2021
2921 Westchester Avenue
BCP Site No. C203140

LOCATION	NYSDOH Matrix	NYSDOH AGV	Units	IA-6	IA-7	SS-3	IA-8	SS-7	IA-12	IA-9	IA-11	SS-5	IA-10	AA-1	Matrix Action
SAMPLING DATE				3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	3/4/2021	
LAB SAMPLE ID				L2110920-01	L2110920-02	L2110920-03	L2110920-04	L2110920-05	L2110920-06	L2110920-07	L2110920-08	L2110920-09	L2110920-10	L2110920-11	
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	
Volatile Organic Compounds															
4-Ethyltoluene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,3,5-Trimethylbenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2,4-Trimethylbenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	1.01	2.09	ND	
Benzyl chloride	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2,4-Trichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Hexachlorobutadiene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

Shaded blue value indicates "Identify sources and resample or mitigate"
Matrix Decision

Shaded yellow value indicates "Monitor" Matrix Decision

Shaded orange value indicates "Mitigate" Matrix Decision

Bold value indicates concentration exceeds NYSDOH AGVs

NYSDOH AGVs = New York State Department of Health Air
Guideline Values, Table 3.1 in NYSDOH Soil Vapor Guidance,
October 2006 with May 2017 updates

Only indoor air concentrations are compared to NYSDOH AGVs

ND = Not detected

NS = No standard

Table 3b. Volatile Organic Compounds in Sub-Slab Soil Vapor and Indoor Air - February 2022
2921 Westchester Avenue
BCP Site No. C203140

LOCATION				TI-SS-1	TI-IA-1	TI-SS-2	TI-IA-2	TI-SS-3	TI-IA-3	TI-SS-4	TI-IA-4	TI-SS-5	TI-IA-5	TI-SS-6	TI-IA-6	AA-3	
SAMPLING DATE	NYSDOH Matrix	NYSDOH AGV	Units	2/24/2022 L2210179-01	2/24/2022 L2210179-02	2/24/2022 L2210179-03	2/24/2022 L2210179-04	2/24/2022 L2210179-05	2/24/2022 L2210179-06	2/24/2022 L2210179-07	2/24/2022 L2210179-08	2/24/2022 L2210179-09	2/24/2022 L2210179-10	2/24/2022 L2210179-11	2/24/2022 L2210179-12	2/24/2022 L2210179-13	Matrix Action
Volatile Organic Compounds				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	
Dichlorodifluoromethane	-	NS	ug/m3	2.58	2.49	2.56	2.39	2.51	2.36	2.54	2.47	2.45	2.44	2.46	2.43	2.42	
Chloromethane	-	NS	ug/m3	0.758	1.1	ND	1.08	0.597	0.921	1.1	1.15	ND	1.16	ND	1.15	1.18	
Freon-114	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Vinyl chloride	C	NS	ug/m3	ND	ND	ND	ND	ND	0.077	ND	ND	ND	ND	ND	ND	ND	No further action
1,3-Butadiene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	0.507	0.52	ND	0.555	0.511	ND	ND	
Bromomethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Ethanol	-	NS	ug/m3	26.4	135	11.6	149	23	13.8	169	131	11.4	106	15.6	102	12.3	
Vinyl bromide	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Acetone	-	NS	ug/m3	8.81	19.4	4.49	16.9	13.5	5.32	299	4.04	4.11	5.91	ND	3.09	ND	
Trichlorofluoromethane	-	NS	ug/m3	ND	ND	1.24	ND	1.31	ND	1.37	ND	ND	ND	1.34	ND	ND	
Isopropanol	-	NS	ug/m3	3.24	24.4	ND	25.3	2.31	9.93	32	41.5	ND	45.2	ND	40.6	1.42	
1,1-Dichloroethene	A	NS	ug/m3	ND	0.25	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	No further action
Tertiary butyl Alcohol	-	NS	ug/m3	6.49	ND	ND	ND	ND	ND	13.1	ND	1.59	ND	1.68	ND	ND	
Methylene chloride	B	60	ug/m3	14.7	5520	3.22	7540	40.3	101	329	1650	68.8	1540	1.98	1550	ND	Mitigate (TI-SS-4/TI-IA-4) Identify sources and resample or mitigate (TI-SS-1/TI-IA-1; TI-SS-2/TI-IA-2; TI-SS-3/TI-IA-3; TI-SS-5/TI-IA-5; TI-SS-6/TI-IA-6)
Methylene chloride	B	60	ug/m3	--	4760 E	--	3610 E	--	--	--	1950 E	--	1720 E	--	1670	--	
3-Chloropropene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon disulfide	-	NS	ug/m3	ND	ND	ND	ND	1.43	ND	2.39	ND	ND	ND	ND	ND	ND	
Freon-113	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl tert butyl ether	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
2-Butanone	-	NS	ug/m3	11.9	ND	12.8	ND	18.5	ND	56.6	ND	7.11	ND	5.63	ND	ND	
cis-1,2-Dichloroethene	A	NS	ug/m3	6.78	1.26	3.1	1.27	1.78	4.6	ND	0.444	ND	0.341	ND	0.337	ND	Mitigate (TI-SS-1/TI-IA-1) Identify sources and resample or mitigate (TI-SS-2/TI-IA-2; TI-SS-3/TI-IA-3)
Ethyl Acetate	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroform	-	NS	ug/m3	16.3	2.98	8.06	2.91	6.1	10.4	1.21	1.23	ND	0.996	1.74	ND	ND	
Tetrahydrofuran	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	1.52	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
n-Hexane	-	NS	ug/m3	1.06	21.5	ND	13.9	4.05	0.715	16.5	8.21	0.726	7.54	1.29	6.91	ND	
1,1,1-Trichloroethane	B	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No further action
Benzene	-	NS	ug/m3	0.981	1.72	ND	1.6	0.738	ND	ND	2.42	ND	2.38	0.914	2.25	0.744	
Carbon tetrachloride	A	NS	ug/m3	ND	0.535	ND	0.491	ND	0.478	ND	0.535	ND	0.472	ND	0.497	0.472	No further action
Cyclohexane	-	NS	ug/m3	ND	0.785	ND	0.737	3.43	ND	28	1.07	0.75	1.09	ND	0.922	ND	
1,2-Dichloropropane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Bromodichloromethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,4-Dioxane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	1.55	ND	ND	ND	ND	ND	ND	
Trichloroethene	A	2	ug/m3	4.85	0.844	3.27	0.844	1.66	2.85	2.89	0.333	ND	0.274	ND	0.231	ND	Identify sources and resample or mitigate (TI-SS-3/TI-IA-3)
2,2,4-Trimethylpentane	-	NS	ug/m3	ND	1.14	ND	1.12	ND	ND	ND	1.71	ND	1.75	ND	1.49	ND	
Heptane	-	NS	ug/m3	1.91	1.49	1.18	1.33	13.3	ND	89.3	1.82	1.06	1.76	1.16	1.53	ND	
cis-1,3-Dichloropropene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
4-Methyl-2-pentanone	-	NS	ug/m3	3.4	ND	ND	ND	3.09	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,3-Dichloropropene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	-	NS	ug/m3	13.6	18.8	13.2	14.3	2.51	1.55	40.3	10.8	4.48	9.5	5.92	8.4	ND	
2-Hexanone	-	NS	ug/m3	12.3	ND	6.72	ND	1.33	ND	ND	ND	6.07	ND	5.66	ND	ND	
Dibromochloromethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromoethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Tetrachloroethene	B	30	ug/m3	41.4	7.59	43.8	7.46	27.2	26	10.6	2.9	28.1	2.29	12.6	2.02	0.156	Identify sources and resample or mitigate (TI-SS-3/TI-IA-3)
Chlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	-	NS	ug/m3	1.75	ND	1.24	ND	ND	ND	2.7	1.03	0.973	0.986	1.43	ND	ND	
p/m-Xylene	-	NS	ug/m3	6.95	2.1	5.47	2.05	2.39	ND	7.38	3.32	3.98	3.23	6.12	2.65	ND	
Bromoform	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Styrene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	1.13	ND	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
o-Xylene	-	NS	ug/m3	2.76	ND	2.21	ND	1.02	ND	3.35	1.17	1.73	1.12	2.38	0.947	ND	
4-Ethyltoluene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,3,5-Trimethylbenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2,4-Trimethylbenzene	-	NS	ug/m3	2.48	ND	2.79	ND	1.46	ND	2.86	1.19	1.92	1.14	2.65	ND	ND	
Benzyl chloride	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Table 3b. Volatile Organic Compounds in Sub-Slab Soil Vapor and Indoor Air - February 2022
2921 Westchester Avenue
BCP Site No. C203140

LOCATION	NYSDOH Matrix	NYSDOH AGV	Units	TI-SS-1	TI-IA-1	TI-SS-2	TI-IA-2	TI-SS-3	TI-IA-3	TI-SS-4	TI-IA-4	TI-SS-5	TI-IA-5	TI-SS-6	TI-IA-6	AA-3	Matrix Action
SAMPLING DATE				2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022	
LAB SAMPLE ID				L2210179-01	L2210179-02	L2210179-03	L2210179-04	L2210179-05	L2210179-06	L2210179-07	L2210179-08	L2210179-09	L2210179-10	L2210179-11	L2210179-12	L2210179-13	
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	
Volatile Organic Compounds																	
1,4-Dichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2,4-Trichlorobenzene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Hexachlorobutadiene	-	NS	ug/m3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

Shaded blue value indicates "Identify sources and resample or mitigate" Matrix Decision

Shaded orange value indicates "Mitigate" Matrix Decision

Bold value indicates concentration exceeds NYSDOH AGVs

NYSDOH AGVs = New York State Department of Health Air Guideline Values, Table 3.1 in NYSDOH Soil Vapor Guidance, October 2006 with May 2017 updates

Only indoor air concentrations are compared to NYSDOH AGVs

ND = Not detected

NS = No standard

E = Concentration exceeds the calibration range of the instrument

Table 3c. Volatile Organic Compounds in Offsite Sub-Slab Soil Vapor and Indoor Air
2921 Westchester Avenue - Bronx, NY
BCP Site No. C203140

LOCATION	NYSDOH Matrix	NYSDOH AGV	Units	AA-4	2931W_IA-1	2931W_SS-1	2931W_IA-2	2931W_SS-2	2931W_IA-3	2931W_SS-3	2931W_IA-4	2931W_SS-4	2929W_IA-1	2929W_SS-1	Matrix Action
SAMPLING DATE				2/7/2024	2/7/2024	2/7/2024	2/7/2024	2/7/2024	2/7/2024	2/7/2024	2/7/2024	2/7/2024	2/7/2024	2/7/2024	
LAB SAMPLE ID				L2406966-01	L2406966-02	L2406966-03	L2406966-04	L2406966-05	L2406966-06	L2406966-07	L2406966-08	L2406966-09	L2406976-01	L2406976-02	
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	
Volatile Organic Compounds															
p/m-Xylene	-	NS	ug/m3	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	
Bromoform	-	NS	ug/m3	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	
Styrene	-	NS	ug/m3	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	
1,1,2,2-Tetrachloroethane	-	NS	ug/m3	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	
o-Xylene	-	NS	ug/m3	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	
4-Ethyltoluene	-	NS	ug/m3	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	
1,3,5-Trimethylbenzene	-	NS	ug/m3	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	
1,2,4-Trimethylbenzene	-	NS	ug/m3	0.983 U	0.983 U	0.983 U	0.983 U	1.28	0.983 U	1.23	0.983 U	0.983 U	0.983 U	2.78	
Benzyl chloride	-	NS	ug/m3	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	
1,3-Dichlorobenzene	-	NS	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	
1,4-Dichlorobenzene	-	NS	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	
1,2-Dichlorobenzene	-	NS	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	
1,2,4-Trichlorobenzene	-	NS	ug/m3	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	
Hexachlorobutadiene	-	NS	ug/m3	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	

Notes:

Bold value indicates concentration exceeds NYSDOH AGVs

NYSDOH AGVs = New York State Department of Health Air Guideline Values, Table 3.1 in NYSDOH Soil Vapor Guidance, October 2006 with May 2017 updates

Only indoor air concentrations are compared to NYSDOH AGVs

E = Concentration exceeds calibration range of testing instrument

U = Not detected at or above the reporting limit

For 'U' qualified entries, the reporting limit is shown

NS = No standard

-- = Not analyzed

Table 4. Volatile Organic Compounds in Exterior Soil Vapor
2921 Westchester Avenue
BCP Site No. C203140

LOCATION	Units	SV-1	SV-2	SV-3	AA-2
SAMPLING DATE		7/20/2021	7/20/2021	7/20/2021	7/20/2021
LAB SAMPLE ID		L2138922-01	L2138922-02	L2138922-03	L2138922-04
		Qual	Qual	Qual	Qual
Volatile Organics in Air					
Dichlorodifluoromethane	ug/m3	2.37	ND	ND	2.34
Chloromethane	ug/m3	1.02	ND	ND	1.13
Freon-114	ug/m3	ND	ND	ND	ND
Vinyl chloride	ug/m3	ND	ND	ND	ND
1,3-Butadiene	ug/m3	1.6	ND	9.76	ND
Bromomethane	ug/m3	ND	ND	ND	ND
Chloroethane	ug/m3	3.35	4.14	17.4	ND
Ethanol	ug/m3	309	146	249	12.5
Vinyl bromide	ug/m3	ND	ND	ND	ND
Acetone	ug/m3	877	570	967	14.6
Trichlorofluoromethane	ug/m3	ND	ND	ND	1.15
Isopropanol	ug/m3	32.7	16	24.6	4.42
1,1-Dichloroethene	ug/m3	ND	ND	ND	ND
Tertiary butyl Alcohol	ug/m3	ND	ND	ND	ND
Methylene chloride	ug/m3	ND	ND	ND	ND
3-Chloropropene	ug/m3	ND	ND	ND	ND
Carbon disulfide	ug/m3	6.79	106	18.8	ND
Freon-113	ug/m3	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/m3	6.3	5.04	ND	ND
1,1-Dichloroethane	ug/m3	ND	ND	ND	ND
Methyl tert butyl ether	ug/m3	ND	ND	ND	ND
2-Butanone	ug/m3	31	956	1590	1.95
cis-1,2-Dichloroethene	ug/m3	ND	ND	ND	ND
Ethyl Acetate	ug/m3	4.14	ND	ND	ND
Chloroform	ug/m3	3.56	26.7	ND	ND
Tetrahydrofuran	ug/m3	9.02	ND	ND	3.51
1,2-Dichloroethane	ug/m3	ND	ND	ND	ND
n-Hexane	ug/m3	26.2	27.4	91.3	ND
1,1,1-Trichloroethane	ug/m3	ND	ND	ND	ND
Benzene	ug/m3	4.25	ND	ND	1.38
Carbon tetrachloride	ug/m3	ND	ND	ND	ND
Cyclohexane	ug/m3	19.2	22.7	73.7	ND
1,2-Dichloropropane	ug/m3	ND	ND	ND	ND
Bromodichloromethane	ug/m3	ND	ND	ND	ND
1,4-Dioxane	ug/m3	ND	ND	ND	ND
Trichloroethene	ug/m3	ND	ND	ND	ND
2,2,4-Trimethylpentane	ug/m3	1.84	ND	ND	ND
Heptane	ug/m3	12.5	6.56	16.3	ND
cis-1,3-Dichloropropene	ug/m3	ND	ND	ND	ND
4-Methyl-2-pentanone	ug/m3	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/m3	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/m3	ND	ND	ND	ND
Toluene	ug/m3	10.3	7.5	8.55	2.41
2-Hexanone	ug/m3	7.46	77	109	ND
Dibromochloromethane	ug/m3	ND	ND	ND	ND
1,2-Dibromoethane	ug/m3	ND	ND	ND	ND
Tetrachloroethene	ug/m3	2.32	17.2	ND	ND
Chlorobenzene	ug/m3	ND	ND	ND	ND
Ethylbenzene	ug/m3	3.47	ND	ND	ND
p/m-Xylene	ug/m3	14.5	12.3	ND	ND
Bromoform	ug/m3	ND	ND	ND	ND
Styrene	ug/m3	2.83	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/m3	ND	ND	ND	ND
o-Xylene	ug/m3	6.08	5.52	ND	ND
4-Ethyltoluene	ug/m3	ND	ND	ND	ND
1,3,5-Trimethylbenzene	ug/m3	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ug/m3	3.88	ND	ND	ND
Benzyl chloride	ug/m3	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/m3	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/m3	2.07	ND	ND	ND
1,2-Dichlorobenzene	ug/m3	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/m3	ND	ND	ND	ND
Hexachlorobutadiene	ug/m3	ND	ND	ND	ND

Notes:

Bold and shaded yellow value indicates soil vapor concentration exceeds AA-2 concentration

ND = Not detected

Table 5.
Unrestricted Use Soil Cleanup Objectives
Remedial Action Work Plan
2921 Westchester Avenue - Bronx, NY
BCP #C203140

From Table 375-6.8(a) Unrestricted Use Soil Cleanup Objectives

Contaminant	CAS Number	SCO
<i>Metals</i>		
Arsenic	7440-38-2	13 ^c
Barium	7440-39-3	350 ^e
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5 ^c
Chromium, hexavalent ^e	18540-29-9	1 ^b
Chromium, trivalent ^e	16065-83-1	30 ^c
Copper	7440-50-8	50
Total Cyanide ^{e,f}		27
Lead	7439-92-1	63 ^c
Manganese	7439-96-5	1,600 ^c
Total Mercury		0.18 ^c
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9 ^c
Silver	7440-22-4	2
Zinc	7440-66-6	109 ^c
<i>PCBs/Pesticides</i>		
2,4,5-TP Acid (Silvex) ^f	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033 ^b
4,4'-DDT	50-29-3	0.0033 ^b
4,4'-DDD	72-54-8	0.0033 ^b
Aldrin	309-00-2	0.005 ^c
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094
delta-BHC ^g	319-86-8	0.04
Dibenzofuran ^f	132-64-9	7
Dieldrin	60-57-1	0.005 ^c
Endosulfan I ^{d,f}	959-98-8	2.4
Endosulfan II ^{d,f}	33213-65-9	2.4
Endosulfan sulfate ^{d,f}	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1

Contaminant	CAS Number	SCO
<i>Semivolatiles</i>		
Acenaphthene	83-32-9	20
Acenaphthylene ^f	208-96-8	100 ^a
Anthracene ^f	120-12-7	100 ^a
Benz(a)anthracene ^f	56-55-3	1 ^c
Benzo(a)pyrene	50-32-8	1 ^c
Benzo(b)fluoranthene ^f	205-99-2	1 ^c
Benzo(g,h,i)perylene ^f	191-24-2	100
Benzo(k)fluoranthene ^f	207-08-9	0.8 ^c
Chrysene ^f	218-01-9	1 ^c
Dibenz(a,h)anthracene ^f	53-70-3	0.33 ^b
Fluoranthene ^f	206-44-0	100 ^a
Fluorene ^f	86-73-7	30
Indeno(1,2,3-cd)pyrene ^f	193-39-5	0.5 ^c
m-Cresol ^f	108-39-4	0.33 ^b
Naphthalene ^f	91-20-3	12
o-Cresol ^f	95-48-7	0.33 ^b
p-Cresol ^f	106-44-5	0.33 ^b
Pentachlorophenol	87-86-5	0.8 ^b
Phenanthrene ^f	85-01-8	100
Phenol	108-95-2	0.33 ^b
Pyrene ^f	129-00-0	100
<i>Volatiles</i>		
1,1,1-Trichloroethane ^f	71-55-6	0.68
1,1-Dichloroethane ^f	75-34-3	0.27
1,1-Dichloroethene ^f	75-35-4	0.33
1,2-Dichlorobenzene ^f	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.2 ^c
cis-1,2-Dichloroethene ^f	156-59-2	0.25
trans-1,2-Dichloroethene ^f	156-60-5	0.19
1,3-Dichlorobenzene ^f	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 ^b
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene ^f	104-51-8	12
Carbon tetrachloride ^f	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene ^f	100-41-4	1
Hexachlorobenzene ^f	118-74-1	0.33 ^b
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether ^f	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n-Propylbenzene ^f	103-65-1	3.9
sec-Butylbenzene ^f	135-98-8	11
tert-Butylbenzene ^f	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.07
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene ^f	95-63-6	3.6
1,3,5- Trimethylbenzene ^f	108-67-8	8.4
Vinyl chloride ^f	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

Notes:

All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified.

Footnotes (designations are from Table in Part 375). See Technical Support Document (TSD).

a The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See TSD section 9.3.

b For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

c For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

d SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

e The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

f Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

Table 6.
Restricted Commercial Use Soil Cleanup Objectives
Remedial Action Work Plan
2921 Westchester Avenue - Bronx, NY
BCP #C203140

From Table 375-6.8(b) or CP-51 Table 1: Restricted Commercial Use Soil Cleanup Objectives.

Contaminant	CAS Number	Restricted Commercial
<i>Metals</i>		
Arsenic	7440-38-2	16 ^f
Barium	7440-39-3	400
Beryllium	7440-41-7	590
Cadmium	7440-43-9	9.3
Chromium, hexavalent ^h	18540-29-9	400
Chromium, trivalent ^h	16065-83-1	1,500
Copper	7440-50-8	270
Total Cyanide ^h		27
Lead	7439-92-1	1,000
Manganese	7439-96-5	10,000 ^d
Total Mercury		2.8 ^j
Nickel	7440-02-0	310
Selenium	7782-49-2	1,500
Silver	7440-22-4	1,500
Zinc	7440-66-6	10,000 ^d
<i>PCBs/Pesticides</i>		
2,4,5-TP Acid (Silvex)	93-72-1	500 ^b
4,4'-DDE	72-55-9	62
4,4'-DDT	50-29-3	47
4,4'-DDD	72-54-8	92
Aldrin	309-00-2	0.68
alpha-BHC	319-84-6	3.4
beta-BHC	319-85-7	3
Chlordane (alpha)	5103-71-9	24
delta-BHC	319-86-8	500 ^b
Dibenzofuran	132-64-9	350
Dieldrin	60-57-1	1.4
Endosulfan I	959-98-8	200 ⁱ
Endosulfan II	33213-65-9	200 ⁱ
Endosulfan sulfate	1031-07-8	200 ⁱ
Endrin	72-20-8	89
Heptachlor	76-44-8	15
Lindane	58-89-9	9.2
Polychlorinated biphenyls	1336-36-3	1

Contaminant	CAS Number	Restricted Commercial
<i>Semivolatiles</i>		
Acenaphthene	83-32-9	500 ^b
Acenaphthylene	208-96-8	500 ^b
Anthracene	120-12-7	500 ^b
Benz(a)anthracene	56-55-3	6
Benzo(a)pyrene	50-32-8	1 ^f
Benzo(b)fluoranthene	205-99-2	6
Benzo(g,h,i)perylene	191-24-2	500 ^b
Benzo(k)fluoranthene	207-08-9	56
Chrysene	218-01-9	56
Dibenz(a,h)anthracene	53-70-3	1
Fluoranthene	206-44-0	500 ^b
Fluorene	86-73-7	500 ^b
Indeno(1,2,3-cd)pyrene	193-39-5	6
m-Cresol	108-39-4	500 ^b
Naphthalene	91-20-3	500 ^b
o-Cresol	95-48-7	500 ^b
p-Cresol	106-44-5	500 ^b
Pentachlorophenol	87-86-5	6.7
Phenanthrene	85-01-8	500 ^b
Phenol	108-95-2	500 ^b
Pyrene	129-00-0	500 ^b

Contaminant	CAS Number	Restricted Commercial
<i>Volatiles</i>		
1,1,1-Trichloroethane	71-55-6	500 ^b
1,1-Dichloroethane	75-34-3	240
1,1-Dichloroethene	75-35-4	500 ^b
1,2-Dichlorobenzene	95-50-1	500 ^b
1,2-Dichloroethane	107-06-2	30
cis-1,2-Dichloroethene	156-59-2	500 ^b
trans-1,2-Dichloroethene	156-60-5	500 ^b
1,3-Dichlorobenzene	541-73-1	280
1,4-Dichlorobenzene	106-46-7	130
1,4-Dioxane	123-91-1	130
Acetone	67-64-1	500 ^b
Benzene	71-43-2	44
n-Butylbenzene	104-51-8	500 ^b
Carbon tetrachloride	56-23-5	22
Chlorobenzene	108-90-7	500 ^b
Chloroform	67-66-3	350
Ethylbenzene	100-41-4	390
Hexachlorobenzene	118-74-1	6
Methyl ethyl ketone	78-93-3	500 ^b
Methyl tert-butyl ether	1634-04-4	500 ^b
Methylene chloride	75-09-2	500 ^b
n-Propylbenzene	103-65-1	500 ^b
sec-Butylbenzene	135-98-8	500 ^b
tert-Butylbenzene	98-06-6	500 ^b
Tetrachloroethene	127-18-4	150
Toluene	108-88-3	500 ^b
Trichloroethene	79-01-6	200
1,2,4-Trimethylbenzene	95-63-6	190
1,3,5- Trimethylbenzene	108-67-8	190
Vinyl chloride	75-01-4	13
Xylene (mixed)	1330-20-7	500 ^b

Notes:

All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified.

Footnotes (designations are from Table in Part 375). See Technical Support Document (TSD).

b The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

d The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

e For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

f For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

i This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

j This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

Table 7.
Protection of Groundwater Soil Cleanup Objectives
Remedial Action Work Plan
2921 Westchester Avenue - Bronx, NY
BCP #C203140

From Table 375-6.8(b) or CP51 Table 1: Protection of Groundwater Soil Cleanup Objectives.

Contaminant	CAS Number	Protection of GW
<i>Metals</i>		
Arsenic	7440-38-2	16 ^f
Barium	7440-39-3	820
Beryllium	7440-41-7	47
Cadmium	7440-43-9	7.5
Chromium, hexavalent ^h	18540-29-9	19
Chromium, trivalent ^h	16065-83-1	36
Copper	7440-50-8	1720
Total Cyanide ^h		40
Lead	7439-92-1	450
Manganese	7439-96-5	2,000 ^f
Total Mercury		0.73
Nickel	7440-02-0	130
Selenium	7782-49-2	4 ^f
Silver	7440-22-4	8
Zinc	7440-66-6	2,480
<i>PCBs/Pesticides</i>		
2,4,5-TP Acid (Silvex)	93-72-1	3.8
4,4'-DDE	72-55-9	17
4,4'-DDT	50-29-3	136
4,4'-DDD	72-54-8	14
Aldrin	309-00-2	0.19
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.009
Chlordane (alpha)	5103-71-9	2.9
delta-BHC	319-86-8	0.25
Dibenzofuran	132-64-9	6.2
Dieldrin	60-57-1	0.1
Endosulfan I	959-98-8	102
Endosulfan II	33213-65-9	102
Endosulfan sulfate	1031-07-8	1000 ^c
Endrin	72-20-8	0.06
Heptachlor	76-44-8	0.38
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	3.2

Contaminant	CAS Number	Protection of GW
<i>Semivolatiles</i>		
Acenaphthene	83-32-9	98
Acenaphthylene	208-96-8	107
Anthracene	120-12-7	1000 ^c
Benz(a)anthracene	56-55-3	1 ^f
Benzo(a)pyrene	50-32-8	22
Benzo(b)fluoranthene	205-99-2	2
Benzo(g,h,i)perylene	191-24-2	1000 ^c
Benzo(k)fluoranthene	207-08-9	2
Chrysene	218-01-9	1 ^f
Dibenz(a,h)anthracene	53-70-3	1000 ^c
Fluoranthene	206-44-0	1000 ^c
Fluorene	86-73-7	386
Indeno(1,2,3-cd)pyrene	193-39-5	8
m-Cresol	108-39-4	0.33 ^c
Naphthalene	91-20-3	12
o-Cresol	95-48-7	0.33 ^c
p-Cresol	106-44-5	0.33 ^c
Pentachlorophenol	87-86-5	0.8 ^c
Phenanthrene	85-01-8	1000 ^c
Phenol	108-95-2	0.33 ^c
Pyrene	129-00-0	1000 ^c

Contaminant	CAS Number	Protection of GW
<i>Volatiles</i>		
1,1,1-Trichloroethane	71-55-6	0.68
1,1-Dichloroethane	75-34-3	0.27
1,1-Dichloroethene	75-35-4	0.33
1,2-Dichlorobenzene	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02 ^f
cis-1,2-Dichloroethene	156-59-2	0.25
trans-1,2-Dichloroethene	156-60-5	0.19
1,3-Dichlorobenzene	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 ^c
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene	104-51-8	12
Carbon tetrachloride	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene	100-41-4	1
Hexachlorobenzene	118-74-1	3
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n-Propylbenzene	103-65-1	3.9
sec-Butylbenzene	135-98-8	11
tert-Butylbenzene	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5- Trimethylbenzene	108-67-8	8.4
Vinyl chloride	75-01-4	0.02
Xylene (mixed)	1330-20-7	1.6

Notes:

All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified.

Footnotes (designations are from Table in Part 375). See Technical Support Document (TSD).

a The SCOs for restricted-commercial use were capped at a maximum value of 250 ppm.

b the SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD

d The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

e For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

i This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

j This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

Table 8.
NYSDEC Division of Water TOGS 1.1.1 Class GA Standards
Remedial Action Work Plan
2921 Westchester Avenue - Bronx, NY
BCP #C203140

From Table 1: New York State Ambient Water Quality Standards and Guidance Values
(Division of Water Technical and Operational Guidance Series (1.1.1), June 1998)

Contaminant	CAS Number	Class GA Standard
<i>Volatiles</i>		
1,1,1,2-Tetrachloroethane	630-20-6	5*
1,1,1-Trichloroethane	71-55-6	5*
1,1,2,2-Tetrachloroethane	79-34-5	5*
1,1,2-Trichloroethane	79-00-5	1
1,1-Dichloroethane	75-34-3	5*
1,1-Dichloroethene	75-35-4	5*
1,1-Dichloropropene	563-58-6	5*
1,2,3-Trichloropropane	96-18-4	0.04
1,2,4,5-Tetramethylbenzene	95-93-2	5*
1,2,4-Trimethylbenzene	95-63-6	5*
1,2-Dibromo-3-chloropropane	96-12-8	0.04
1,2-Dichlorobenzene	95-50-1	3
1,2-Dichloroethane	107-06-2	0.6
1,2-Dichloropropane	78-87-5	1
1,3,5-Trimethylbenzene	108-67-8	5*
1,3-Dichlorobenzene	541-73-1	3
1,3-Dichloropropane	142-28-9	5*
1,4-Dichlorobenzene	106-46-7	3
2,2-Dichloropropane	594-20-7	5*
2-Hexanone	591-78-6	50**
Acetone	67-64-1	50**
Acrylonitrile	107-13-1	5*
Benzene	71-43-2	1
Bromobenzene	108-86-1	5*
Bromochloromethane	74-97-5	5*
Bromodichloromethane	75-27-4	50**
Bromoform	75-25-2	50**
Bromomethane	74-83-9	5*
Butylbenzene	104-51-8	5*
Carbon tetrachloride	56-23-5	5
Chlorobenzene	108-90-7	5*
Chloroethane	75-00-3	5*
Chloroform	75-34-3	7
Chloromethane (Methyl Chloride)	74-87-3	5*
cis-1,2-Dichloroethene	156-59-2	5*
Dibromochloromethane	124-48-1	50**
Dibromomethane	74-95-3	5*
Dichlorodifluoromethane	75-71-8	5*
Ethylbenzene	100-41-4	5*
Hexachlorobenzene	87-68-3	0.04
Hexachlorobutadiene	87-68-3	0.5
Isopropylbenzene	98-82-8	5*
Methylene chloride	75-09-2	5*
m-Xylene (1,3-Xylene)	108-38-3	5*
Naphthalene	91-20-3	10**
n-Propylbenzene	103-65-1	5*
o-Chlorotoluene	95-49-8	5*
o-Xylene (1,2-Xylene)	95-47-6	5*
p-Chlorotoluene	106-43-4	5*
p-Isopropyltoluene	99-87-6	5*
p-Xylene (1,4-Xylene)	106-42-3	5*
sec-Butylbenzene	135-98-8	5*
Styrene	100-42-5	5*
tert-Butylbenzene	98-06-6	5*
Tetrachloroethene	127-18-4	5*
Toluene	108-88-3	5*

Contaminant	CAS Number	Class GA Standard
<i>Volatiles</i>		
Total 1,3-Dichloropropene	542-75-6	0.4 (1)
trans-1,2-Dichloroethene	156-60-5	5*
trans-1,4-Dichloro-2-butene	110-57-6	5*
Trichloroethene	79-01-6	5*
Trichlorofluoromethane	75-69-4	5*
Vinyl chloride	75-01-4	2

<i>Semivolatiles</i>		
1,2,4,5-Tetrachlorobenzene	95-94-3	5*
1,2-Dichlorobenzene	95-50-1	3
1,3-Dichlorobenzene	541-73-1	3
1,4-Dichlorobenzene	106-46-7	3
3,3'-Dichlorobenzidine	91-94-1	5*
2,4-Dichlorophenol	120-83-2	5*
2,4-Dimethylphenol	105-67-9	50**
2,4-dinitrophenol	51-28-5	10**
2,4-Dinitrotoluene	121-14-2	5*
2,6-Dinitrotoluene	606-20-2	5*
2-Chloronaphthalene	91-58-7	10**
2-Nitroaniline	88-74-4	5*
3-Nitroaniline	99-09-2	5*
4-Chloroaniline	106-47-8	5*
4-Nitroaniline	100-01-6	5*
Acenaphthene	83-32-9	20**
Aniline	62-53-3	5*
Anthracene	120-12-7	50**
Benzo(a)anthracene	56-55-3	0.002**
Benzo(a)pyrene	50-32-8	0
Benzo(b)fluoranthene	205-99-2	0.002**
Benzo(k)fluoranthene	207-08-9	0.002**
Biphenyl	92-52-4	5*
Bis(2-chloroethoxy)methane	111-91-1	5*
Bis(2-chloroethyl)ether	111-44-4	1.0
Bis(2-Ethylhexyl)phthalate	117-81-7	5
Butyl benzyl phthalate	85-68-7	50**
Chrysene	218-01-9	0.002
Diethyl phthalate	84-66-2	50**
Dimethyl phthalate	131-11-3	50**
Di-n-butylphthalate	84-74-2	50
Di-n-octylphthalate	117-84-0	50**
Fluoranthene	206-44-0	50**
Fluorene	86-73-7	50**
Hexachlorobenzene	118-74-1	0.04
Hexachlorobutadiene	87-68-3	0.5
Hexachlorocyclopentadiene	77-47-4	5*
Hexachloroethane	67-72-1	5*
Indeno(1,2,3-cd)Pyrene	193-39-5	0.002
Isophorone	78-59-1	50**
Naphthalene	91-20-3	10**
Nitrobenzene	98-95-3	0.4
NitrosoDiPhenylAmine(NDPA)/DPA	86-30-6	50**
Pentachlorophenol	87-86-5	1(2)
Phenanthrene	85-01-8	50**
Phenol	108-95-2	1 (2)
Pyrene	129-00-0	50**

Notes:

All Class GA Standards are in micrograms per liter (ug/l). Compounds without standards or guideline values are not shown.

*The principal organic contaminant standard for groundwater of 5 ug/l applies to this substance.

** The value shown is a Guidance Value

(1) refers to sum of cis- and trans-1,3-dichloropropene.

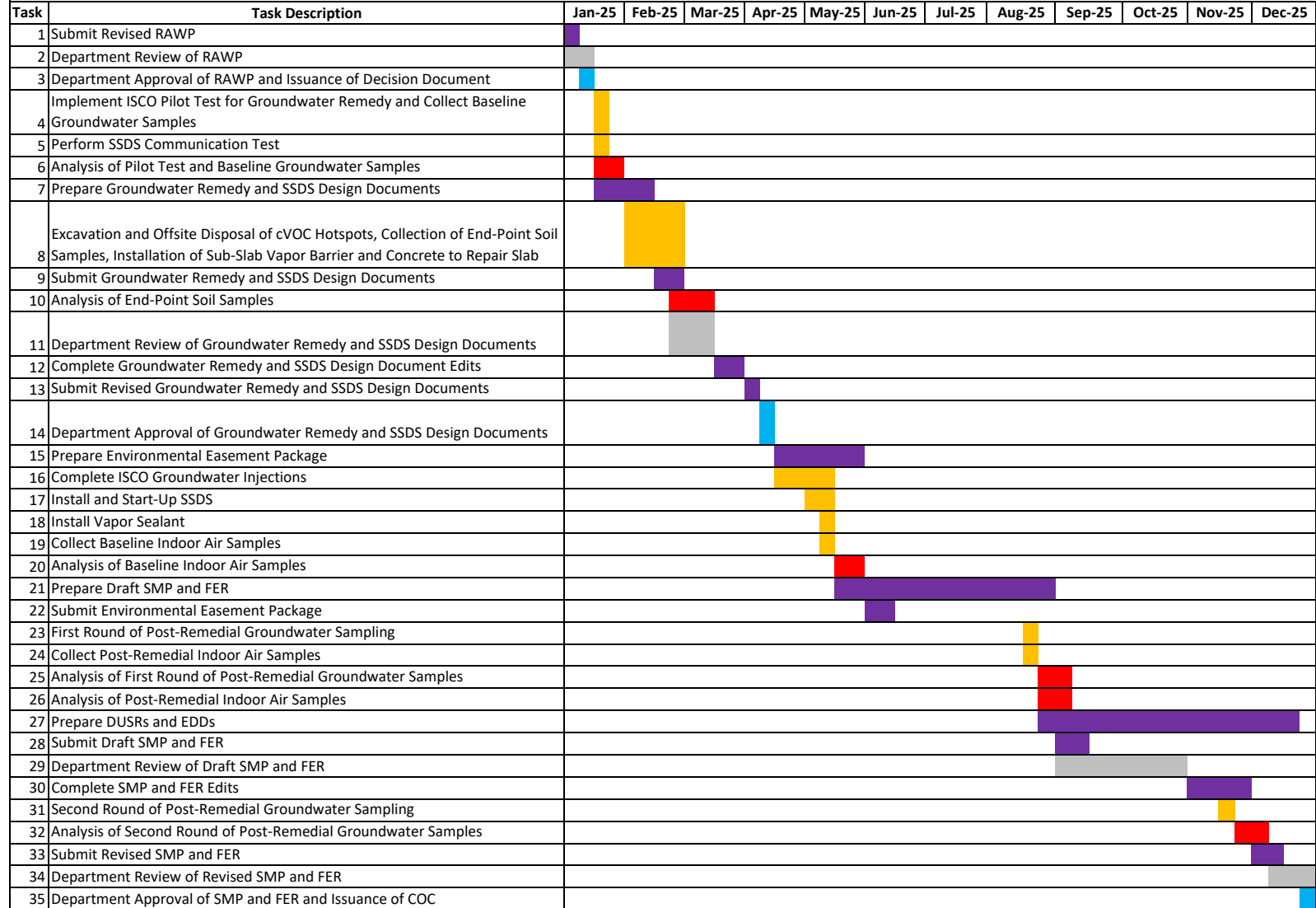
(2) refers to the sum of Total Phenols (phenolic compounds)

Table 9. Estimated Remedial Construction Costs
2921 Westchester Avenue - Bronx, NY
Remedial Action Work Plan
BCP #C203140

Alternative 1: Track 4 Soil Cleanup Objectives (SCOs) with SSDS, Vapor Barrier/Vapor Sealant, and Groundwater Remediation		
<i>Remedial Tasks</i>		
Excavation and Disposal of cVOC Hotspots	\$65,000	Excavation and disposal of approximately 100 tons of hazardous soil
Backfill Hotspots and Patch Foundation Slab	\$40,000	Import of approximately 100 tons of clean fill and patch approximately 605 SF of concrete foundation slab
Collection of Post-Excavation End-Point Samples	\$10,000	Collection and analysis of 13 end-point soil samples (plus QA/QC)
Pre-Design Groundwater Sampling	\$15,000	Groundwater sampling and injection well network design
Injection Well Installation	\$50,000	Installation of approximately 23 injection wells
Chemical Injections	\$120,000	Chemicals and two injections
Installation of Vapor Barrier and Vapor Sealant	\$15,000	Vapor barrier installation beneath the new slab and vapor sealant installation over the existing slab
Pressure Field Extension Test for SSDS	\$10,000	Pressure testing and engineering design
SSDS	\$60,000	Installation and startup
Collection of Post-Remedial Indoor Air Samples	\$5,000	Collection and analysis of 4 post-remedial indoor air samples
Operation & Maintenance of SSDS	\$10,000	Ongoing operation and maintenance of SSDS
<i>Post-Remedial Reporting and Long-term Groundwater Monitoring</i>		
Reporting (FER, SMP)	\$60,000	Reporting
Long-term Groundwater Monitoring	\$90,000	Twelve quarters of groundwater sampling for CVOCs from five wells; annual reporting

Estimated Remedial Costs	\$400,000
Estimated Reporting and Long-Term Monitoring Costs	\$150,000
 Total Estimated Remedial Costs	 \$550,000

Table 10. Remedial Action Construction Schedule
2921 Westchester Avenue - Bronx, NY
BCP Site #C203140



Key Map	
	Fieldwork
	Lab Analysis/Validation/EDDs
	Report Writing
	Agencies Review
	Agency Acceptance
	Public Comment Period

Table 11. Required Permits
2921 Westchester Avenue - Bronx, NY
Remedial Action Work Plan
BCP #C203140

Permit	Law, Statute or Code	Contact
Underground Injection Control (UIC) Permit	40 CFR 144-147	USEPA Region 2, Nicole Kraft, (212) 637-3093
Street Opening Permit Type 0126 (Test Pits, Cores or Borings)	Rules of the City of New York Title 34, Chapter 2, Section 2-09	NYCDOT, Bureau of Permit Management and Construction Control, (212) 639-9675

Appendix A

Site-Specific Community Air Monitoring Plan

Community Air Monitoring Plan (CAMP)

for 2921 Westchester Avenue Remedial Action Work Plan

2921 Westchester Avenue
Bronx, New York
BCP Site # C203140

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
Ralford Realty Corp.
c/o Anthony Scovotti
8 West 40th Street
New York, NY 10018

Prepared by:



121 West 27th Street, Suite 702
New York, NY 10001

January 2025

New York State Department of Health Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring.

If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than $150 \text{ mcg}/\text{m}^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible

dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors.

Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m³, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m³ or less at the monitoring point.

Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Special Requirements for Indoor Work with Occupied Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated

above under “Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures” except that in this instance “nearby/occupied structures” would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

Appendix B

Construction Health and Safety Plan

Health and Safety Plan
for
2921 Westchester Avenue
Remedial Action Work Plan

2921 Westchester Avenue
Bronx, New York 10461
BCP Site # C203140

Submitted to:

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:

Ralford Realty Corp.
c/o Anthony Scovotti
8 West 40th Street
New York, NY 10018

Prepared by:



121 West 27th Street, Suite 702
New York, NY 10001

January 2025

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Scope of HASP.....	1
2.0	PROJECT SAFETY AUTHORITY.....	2
2.1	Designated Personnel.....	2
3.0	HAZARD ASSESSMENT AND CONTROL MEASURES.....	3
3.1	Human Exposure Pathways.....	5
3.2	Chemical Hazards	5
3.3	Physical Hazards	6
4.0	Covid-19 Health and Safety	9
5.0	AIR MONITORING	11
6.0	PERSONAL PROTECTIVE EQUIPMENT.....	13
7.0	EXPOSURE MONITORING	14
8.0	SITE ACCESS	15
9.0	WORK AREAS.....	16
10.0	DECONTAMINATION PROCEDURES.....	17
11.0	GENERAL SAFE WORK PRACTICES.....	18
12.0	EMERGENCY PROCEDURES	19
12.1	Route to Hospital.....	20
12.2	Emergency Contacts.....	20
13.0	TRAINING.....	21
14.0	MEDICAL SURVEILLANCE	22

Figures

Figure 1 – Route to Hospital (page 20)

Tables

Table 1 – Emergency Contact Information (page 20)

Appendices

Appendix A – Acknowledgement of HASP

Appendix B – Injury Reporting Form (OSHA Form 300)

Appendix C – Material Safety Data Sheets

1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared in conformance with the Occupational Safety and Health Administration (OSHA) standards and guidance that govern site investigation activities, other applicable regulations, and Tenen Environmental LLC (Tenen) health and safety policies and procedures. The purpose of this HASP is the protection of Tenen field personnel and others during the implementation of the Remedial Action.

The Site is located on the west side of Westchester Avenue, between Pilgrim Avenue and Buhre Avenue, in the Pelham Bay section of the Bronx, New York.

The Site is improved with one two-story commercial building with a partial basement that occupies the entire Site lot. The Site consists of one tenant space of the building and a portion of the partial basement. The Site is an irregularly shaped 1,415 square foot parcel located in the Bronx Community Board 10 and is generally identified as a portion of Block 4164 and Lot 5. The Site is currently vacant and was most recently occupied by a tutor and afterschool program. The Site was historically utilized as a dry cleaning facility.

1.1 Scope of HASP

This HASP includes safety procedures to be used by Tenen staff during the following activities:

- Hotspot soil excavation and backfill;
- Installation of injection wells and in-situ chemical oxidation injections;
- Installation of a sub-slab depressurization system, vapor sealant, and vapor barrier; and,
- Collection of post-remedial end-point, groundwater, and indoor air samples.

Subcontractors will ensure that performance of the work is in compliance with this HASP and applicable laws and regulations.

2.0 PROJECT SAFETY AUTHORITY

The following personnel are responsible for project health and safety under this HASP.

- Project Manager, Alana Carroll
- Health and Safety Officer (HSO), Ashley Platt

In addition, each individual working at the Site will be responsible for compliance with this HASP and general safe working practices. All Site workers will have the authority to stop work if a potentially hazardous situation or event is observed.

2.1 Designated Personnel

The Project Manager is responsible for the overall operation of the project, including compliance with the HASP and general safe work practices. The Project Manager may also act as the Health and Safety Officer (HSO) for this project.

Tenen will appoint one of its on-site personnel as the on-site HSO. This individual will be responsible for the implementation of the HASP. The HSO will have a 4-year college degree in occupational safety or a related science/engineering field, and at least two (2) years of experience in implementation of air monitoring and hazardous materials sampling programs. The HSO will have completed a 40-hour training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards.

The HSO will be present on-site during all field operations involving drilling or other subsurface disturbance, and will be responsible for all health and safety activities and the delegation of duties to the field crew. The HSO has stop-work authorization, which he/she will execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the HSO must be absent from the field, a replacement who is familiar with the Construction Health and Safety Plan, air monitoring and personnel protective equipment (PPE) will be designated.

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

The Site was initially developed sometime prior to 1950 with the existing two-story building with a partial basement. The Site operated as a dry cleaning facility from 1988 to 2000. The Site is currently vacant. The following previous investigations summarize contaminants of concern detected on the site:

Phase II Environmental Site Assessment, 2925 Westchester Avenue, Bronx, NY 10461, Castleton Environmental, August 2019.

Castleton Environmental conducted a soil, groundwater, and soil vapor investigation at the Site in 2019, which included the collection of three soil samples, three groundwater samples, and three sub-slab soil vapor samples from the basement of the former dry cleaner for laboratory analysis. The results were as follows:

- Chlorinated VOCs (cVOCs), specifically tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE) were detected in exceedance of their respective Unrestricted Use Soil Cleanup Objectives (SCOs) and Protection of Groundwater SCOs in one of three soil samples collected;
- cVOCs, specifically PCE, TCE, and cis-1,2-DCE, were detected in exceedance of their NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (Class GA Standards) in all three groundwater samples collected; and,
- Elevated concentrations of cVOCs, specifically PCE, TCE, and cis-1,2-DCE, were detected in two of three soil vapor samples collected.

Due Diligence Investigation Letter Report, 2925 Westchester Avenue, Bronx, NY 10461, Tenen Environmental, LLC, May 2020.

Tenen conducted a groundwater and indoor air investigation and soil delineation sampling at the Site in 2019 and 2020, which included the collection of 22 onsite soil samples and one offsite soil sample, one onsite groundwater sample and two offsite groundwater samples, and two onsite indoor air samples and three offsite indoor air samples for laboratory analysis. The results were as follows:

- Concentrations of PCE were detected in exceedance of its Unrestricted Use and Protection of Groundwater SCOs at 0-1 feet below basement grade (ft-bbg) at five boring locations, at 1-2 ft-bbg at two boring locations, and at 2-3 ft-bbg at one boring location. In addition, TCE and cis-1,2-DCE were detected in exceedance of Unrestricted Use and Protection of Groundwater SCOs at 0-1 ft-bbg at five boring locations, at 1-2 ft-bbg at two boring locations, and at 2-3 ft-bbg at two boring locations; vinyl chloride was detected in exceedance of its Unrestricted Use and Protection of Groundwater SCOs at 0-1 ft-bbg at one boring location and at 1-2 ft-bbg at one boring location; and methylene chloride was detected in exceedance of its Unrestricted Use and Protection of Groundwater SCOs at 1-2 ft-bbg at one boring location;
- A PCE hotspot in soil was horizontally and vertically delineated at the Site and is approximately 7 cubic yards in volume;

- Concentrations of cVOCs, specifically PCE, TCE, and cis-1,2-DCE were detected in exceedance of Class GA Standards in the groundwater sample collected from the basement of the Site;
- Concentrations of VOCs were not detected in exceedance of NYSDOH Air Guidance Values (AGVs) in any onsite or offsite indoor air samples collected. However, low concentrations of cVOCs were detected in all five indoor air samples collected, with the highest concentrations generally occurring in the sample collected from the basement of the Site; and,
- Concentrations of cVOCs were not detected in exceedance of applicable standards in any offsite soil or groundwater samples collected.

Remedial Investigation Report, 2921 Westchester Avenue, Bronx, NY 10461, Tenen Environmental, LLC, February 2023.

A Remedial Investigation was performed by Tenen between February 2021 and May 2022 and a Remedial Investigation Report was prepared by Tenen in February 2023. The scope of work performed by Tenen during the Remedial Investigation consisted of the following:

- Installation of 17 soil borings and collection of 30 soil samples (including QA/QC sample);
- Installation of six permanent groundwater monitoring wells. Groundwater samples were collected from six newly-installed and three previously-installed wells;
- Collection of sub-slab soil vapor samples from nine offsite locations in tenant spaces surrounding the Site;
- Collection of exterior soil vapor samples from three offsite locations in sidewalks surrounding the Site; and,
- Collection of 13 indoor air samples on- and offsite.

Based on the results of the 2021/2022 Remedial Investigation and all previous investigations, the following conclusions have been made:

- Tetrachloroethene (PCE) impacts were detected in soil, groundwater, and soil vapor.
- The results of historic sampling and the RI indicate that there is a PCE source area in soil located beneath the cellar of the historic dry cleaner. PCE was vertically delineated in soil as part of the RI and is estimated to be limited to an approximately 580 square foot area having a maximum depth of three feet below basement grade.
- Chlorinated solvents were detected above the NYSDEC TOGS 1.1.1 Ambient Water Quality Standards (AWQS) in groundwater collected from the Site and downgradient of the source area, with the highest concentrations detected in the well in the cell phone store basement, downgradient of the source area. The furthest downgradient wells, located in the home goods store and the western sidewalk of Westchester Avenue, contained concentrations of chlorinated solvents that were two to three orders of magnitude below the concentrations detected in the monitoring well in the cell phone store basement.
- The source of the volatile organic compounds (VOCs) in groundwater is assumed to be the soil impacts located beneath the basement. Infiltrated water from along Westchester

Avenue flows on top of the bedrock interface, which eventually concentrates in the area of the perched water in the cell phone store basement.

- Chlorinated VOCs (cVOCs) were detected at elevated concentrations in offsite sub-slab soil vapor samples and on- and offsite indoor air samples. Comparison of concentrations detected in sub-slab soil vapor and co-located indoor air with the applicable NYSDOH Decision Matrices indicates that mitigation is necessary for PCE in the south adjoining basement and mitigation is necessary for cis-1,2-dichloroethene (cis-1,2-DCE) at one location in the slab-on-grade portion of the home goods store. Sub-slab soil vapor samples could not be collected from the Site or north adjoining basement. However, the concentrations of PCE and trichloroethene (TCE) detected in the four indoor air samples collected from these locations (two from the Site basement and two from the north adjoining basement) indicate mitigation would likely be necessary for both analytes at all four locations, regardless of the potential sub-slab soil vapor concentrations.
- Low concentrations of PCE were detected in two exterior soil vapor samples collected from the western sidewalk of Pilgrim Avenue. Based on the results of the exterior soil vapor samples, it is unlikely that a soil vapor intrusion condition exists in any of the three residential buildings to the northwest, southwest, and southeast of the Site.
- PCE and TCE were detected in exceedance of the NYSDOH long-term exposure air guideline values (AGVs) in two indoor air samples collected from the Site basement and two indoor air samples collected from the north adjoining basement. In addition, TCE was also detected in exceedance of its NYSDOH AGV in one indoor air sample collected from the slab-on-grade portion of the home goods store.
- Petroleum-related VOCs were detected in sub-slab soil vapor, indoor air, and exterior soil vapor samples above the ambient air concentrations on- and offsite.
- Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected above NYSDEC's Guidelines for Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (PFAS Guidelines) in groundwater on- and offsite. Groundwater at the Site is not potable and drinking water is provided by NYCDEP from upstate reservoirs.

3.1 Human Exposure Pathways

The media of concern at the Site include potentially-impacted soil, groundwater and soil vapor. Potential exposure pathways include dermal contact, incidental ingestion and inhalation of vapors. The risk of dermal contact and incidental ingestion will be minimized through general safe work practices, a personal hygiene program and the use of PPE. The risk of inhalation will be minimized through the use of an air monitoring program for VOCs and particulates.

3.2 Chemical Hazards

Based on the results of the 2021/2022 RI and previous investigations, the following contaminants of concern are present at the Site:

Chlorinated Solvents

- Tetrachloroethene (PCE)
- Trichloroethene (TCE)

- Cis-1,2-dichloroethene (cis-1,2-DCE)

Material Safety Data Sheets (MSDSs) for each contaminant of concern are included in Appendix C. All personnel are required to review the MSDSs included in this HASP.

3.3 Physical Hazards

The physical hazards associated with the field activities likely present a greater risk of injury than the chemical constituents at the Site. Activities within the scope of this project shall comply with New York State and Federal OSHA construction safety standards.

Head Trauma

To minimize the potential for head injuries, field personnel will be required to wear National Institutes of Occupational Safety and Health (NIOSH)-approved hard hats during field activities. Hats must be worn properly and not altered in any way that would decrease the degree of protection provided.

Foot Trauma

To avoid foot injuries, field personnel will be required to wear steel-toed safety shoes while field activities are being performed. To afford maximum protection, all safety shoes must meet American National Standards Institute (ANSI) standards.

Eye Trauma

Field personnel will be required to wear eye protection (safety glasses with side shields) while field activities are being performed to prevent eye injuries caused by contact with chemical or physical agents.

Noise Exposure

Field personnel will be required to wear hearing protection (ear plugs or muffs) in high noise areas (noise from heavy equipment) while field activities are being performed.

Buried Utilities and Overhead Power Lines

Boring locations will be cleared by an underground utility locator service. In addition, prior to intrusive activities, the drilling subcontractor will contact the One Call Center to arrange for a utility mark-out, in accordance with New York State requirements. Protection from overhead power lines will be accomplished by maintaining safe distances of at least 15 feet at all times.

Thermal Stress

The effects of ambient temperature can cause physical discomfort, personal injury, and increase the probability of accidents. In addition, heat stress due to lack of body ventilation caused by protective clothing is an important consideration. Heat-related illnesses commonly consist of heat stroke and heat exhaustion.

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.

The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

Heat-stress monitoring will be conducted if air temperatures exceed 70 degrees Fahrenheit. The initial work period will be set at 2 hours. Each worker will check his/her pulse at the wrist for 30 seconds early in each rest period. If the pulse rate exceeds 110 beats per minute, the next work period will be shortened by one-third.

One or more of the following precautions will reduce the risk of heat stress on the Site:

- Provide plenty of liquids to replace lost body fluids; water, electrolytic drinks, or both will be made available to minimize the risk of dehydration and heat stress
- Establish a work schedule that will provide appropriate rest periods
- Establish work regimens consistent with the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines
- Provide adequate employee training on the causes of heat stress and preventive measures

In the highly unlikely event of extreme low temperatures, reasonable precautions will be made to avoid risks associated with low temperature exposure.

Traffic

Field activities will occur near public roadways. As a result, vehicular traffic will be a potential hazard during these activities and control of these areas will be established using barricades or traffic cones. Additional staff will be assigned, as warranted, for the sole purpose of coordinating traffic. Personnel will also be required to wear high-visibility traffic vests while working in the vicinity of the public roadways and local requirements for lane closure will be observed as needed. All work in public rights-of-way will be coordinated with local authorities and will adhere to their requirements for working in traffic zones.

Hazardous Weather Conditions

All Site workers will be made aware of hazardous weather conditions, specifically including extreme heat, and will be requested to take the precautions described herein to avoid adverse health risks. All workers are encouraged to take reasonable, common sense precautions to avoid potential injury associated with possible rain or high wind, sleet, snow or freezing.

Slip, Trip and Fall

Areas at the Site may be slippery from mud or water. Care should be taken by all Site workers to avoid slip, trip, and fall hazards. Workers shall not enter areas that do not have adequate lighting. Additional portable lighting will be provided at the discretion of the HSO.

Biological Hazards

Drugs and alcohol are prohibited from the Site. Any on-site personnel violating this requirement will be immediately expelled from the site.

Any worker or oversight personnel with a medical condition that may require attention must inform the HSO of such condition. The HSO will describe appropriate measures to be taken if the individual should become symptomatic.

Due to the Site location in an urban area, it is highly unlikely that poisonous snakes, spiders, plants and insects will be encountered. However, other animals (dogs, cats, etc.) may be encountered and care should be taken to avoid contact.

4.0 COVID-19 HEALTH AND SAFETY

The following requirements apply to all Tenen employees working on project sites for the duration of the COVID-19 pandemic. These guidelines are based on information provided by the Centers for Disease Control, the Occupational Safety and Health Administration and the New York State “New York Forward” Covid-19 management plans. Information regarding the health status of Tenen employees will be kept confidential, with the exception of required notifications to health authorities. The following are guidelines. **As with any potential workplace hazard, employees should report any concerns related to potential Covid-19 exposure to the Project Manager.**

Communication/Reporting:

Employees should not report to work and should notify the Project Manager immediately in the event of the following:

- You are exhibiting flu-like symptoms (fever, body aches, cough, difficulty breathing). Contact your health care provider and follow their instructions.
- You do not exhibit symptoms but have a sick (i.e., diagnosed with Covid-19 or exhibiting flu-like symptoms) family member at home. Remember that the virus can be spread by asymptomatic individuals.
- You have been exposed to someone who has been diagnosed with Covid-19.

In each of the above cases, inform your Project Manager regarding others who may have been exposed in order to facilitate any necessary notification or contact tracing efforts.

Hygiene

- Wash hands frequently with soap and water for at least 20 seconds or use hand sanitizer with at least 60% alcohol if soap and water are not available. Key times for employees to clean their hands include:
 - Before and after work shifts
 - Before and after work breaks
 - After blowing the nose, coughing, or sneezing
 - After using the restroom
 - Before eating or preparing food
 - After putting on, touching, or removing face coverings
- Avoid touching the eyes, nose, and mouth with unwashed hands.
- Practice good respiratory etiquette, including covering coughs and sneezes.
- To the extent possible, avoid sharing tools and sampling equipment. Shared tools and equipment should be regularly disinfected.

Physical Distancing

- Minimize contact with others, maintaining a distance of at least six feet to the extent possible
- Employees should wear masks over their nose and mouth to prevent spread of the virus; this is especially important when a minimum 6-foot distance cannot be maintained.
- Maintain the 6-foot distance to the extent possible during sampling efforts and pickup and delivery of sampling equipment and containers.
- Keep job site meetings to a minimum and of short duration; limit the number of people involved and maintain social distance.

5.0 AIR MONITORING

The NYSDOH Generic Community Air Monitoring Plan (CAMP), included as Appendix 1A of DER-10, will be implemented during all ground-intrusive sampling activities.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring should be performed using equipment appropriate for the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.
4. All 15-minute readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m³) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10

- particulate levels do not exceed 150 mcg/m³ above the upwind level and provided that no visible dust is migrating from the work area.
2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m³ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m³ of the upwind level and in preventing visible dust migration.
 3. All readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review.

A site-specific CAMP is included as Appendix D of the RIWP.

6.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, “General Description and Discussion of the Levels of Protection and Protective Gear” and the Centers for CDC COVID-19 “Guidelines on How to Protect Yourself and Others”.

Tenen field personnel and other site personnel will wear Modified Level D-1 personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, Modified Level D-2 equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A six-foot minimum distance between individuals (both workers and non-workers) will be maintained at all times. A description of the personnel protective equipment for Levels D and C is provided below.

Modified Level D-1

Respiratory Protection: Cloth face covering

Protective Clothing: Hard hat, steel-toed shoes, long pants, nitrile gloves

Modified Level D-2

Respiratory Protection: Cloth face covering

Protective Clothing: Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

Level C

Respiratory Protection: Air purifying respirator with organic vapor cartridges and filters.

Protective Clothing: Same as Modified Level D-2

7.0 EXPOSURE MONITORING

7.1 Hazardous Materials

Selective monitoring of workers in the exclusion area may be conducted, as determined by the HSO, if sources of hazardous materials are identified. Personal monitoring may be conducted in the breathing zone at the discretion of the Project Manager or HSO. All monitoring will comply with the CDCs Guidance on Social Distancing.

7.2 COVID-19

For any employee that may have come into contact with a person who has COVID-19, a 14-day quarantine will be imposed for that individual and any employee that individual was in contact with.

8.0 SITE ACCESS

Access to the Site during the investigation will be controlled by the Project Manager or HSO. Unauthorized personnel will not be allowed access to the sampling areas.

9.0 WORK AREAS

During any activities involving drilling or other subsurface disturbance, the work area must be divided into various zones to prevent the spread of contamination, clarify the type of protective equipment needed, and provide an area for decontamination.

The Exclusion Zone is defined as the area where potentially contaminated materials are generated as the result of drilling, sampling, or similar activities. The Contamination Reduction Zone (CRZ) is the area where decontamination procedures take place and is located adjacent to the Exclusion Zone. The Support Zone is the area where support facilities such as vehicles, a field phone, fire extinguisher and/or first aid supplies are located. The emergency staging area (part of the Support Zone) is the area where all Site workers will assemble in the event of an emergency. These zones shall be designated daily, depending on that day's activities. All field personnel will be informed of the location of these zones before work begins.

Control measures such as "Caution" tape and traffic cones will be placed around the perimeter of the work area when work is being done in the areas of concern (i.e., areas with exposed soil) to prevent unnecessary access.

10.0 DECONTAMINATION PROCEDURES

Personnel Decontamination

Personnel decontamination (decon), if deemed necessary by the HSO, will take place in the designated decontamination area delineated for each sampling location. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

Equipment Decontamination

Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan.

Disposal of Materials

Purged well water, water used to decontaminate any equipment and well cuttings will be containerized and disposed off-site in accordance with federal, state and local regulations.

11.0 GENERAL SAFE WORK PRACTICES

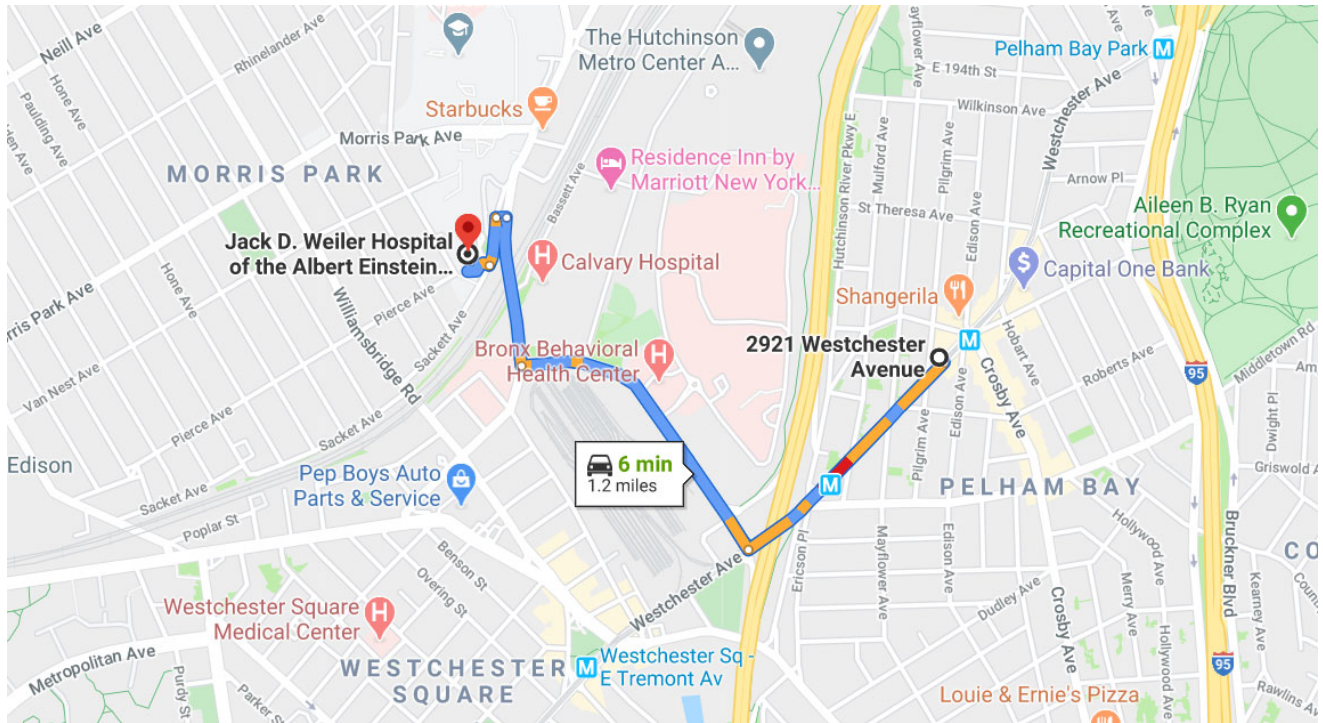
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the HSO.
- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.
- Removal of potential contamination from PPE and equipment by blowing, shaking or any means that may disperse materials into the air is prohibited.
- Contact with contaminated or suspected surfaces should be avoided.
- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.
- Personnel will be cautioned to inform each other of symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract and heat stress.
- No excessive facial hair that interferes with a satisfactory fit of the face-piece of the respirator to the face will be allowed on personnel required to wear respiratory protective equipment.
- On-site personnel will be thoroughly briefed about the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods.

12.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—onsite personnel should drive injured person to a hospital. **The nearest emergency room is located at the Jack D. Weiler Hospital of the Albert Einstein College of Medicine located at 1825 Westchester Road, Bronx, NY 10461. The phone number is (718) 904-3333.** The route to the hospital is shown and detailed on the next page.

12.1 Route to Hospital



Driving directions to **Jack D. Weiler Hospital of the Albert Einstein College of Medicine** from **2921 Westchester Avenue, Bronx, New York**.

Driving Directions

1. Head southwest on Westchester Avenue towards Pilgrim Avenue (0.4 mi).
2. Turn right onto Waters Place (0.5 mi).
3. Turn right onto Eastchester Road (0.2 mi).
4. Turn left toward Sackett Avenue (75 ft).
5. Turn left onto Sackett Avenue (364 ft).
6. Turn right (194 ft). Destination will be on the right.

12.2 Emergency Contacts

There will be an on-site field phone. Emergency and contact telephone numbers are listed below:

Table 1 – Emergency Contacts

Ambulance	911
Emergency Room	(718) 918-5000
NYSDEC Spill Hotline	(800) 457-7362
NYSDEC	(518) 402-8013
Project Manager, Matthew Carroll	(917) 510-6767
On-site Personnel, Ashley Platt	(908) 892-1354
Client representative, Anthony Scovotti	(718) 824-1700

13.0 TRAINING

All personnel performing the field activities described in this HASP will have received the initial safety training required by 29 CFR, 1910.120. Current refresher training status also will be required for all personnel engaged in field activities.

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All field personnel must attend a training program covering the following areas:

- potential hazards that may be encountered;
- the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- the purpose and limitations of safety equipment; and
- protocols to enable field personnel to safely avoid or escape from emergencies.

Each member of the field crew will be instructed in the above objectives before he/she goes onto the site. The HSO will be responsible for conducting the training program.

14.0 MEDICAL SURVEILLANCE

All Tenen and subcontractor personnel performing field work involving drilling or other subsurface disturbance at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). The medical examination for Tenen employees will, at a minimum, be provided annually and upon termination of hazardous waste site work.

Appendix A

Acknowledgement of HASP

ACKNOWLEDGMENT OF HASP

Below is an affidavit that must be signed by all Tenen Environmental employees who enter the site. A copy of the HASP must be on-site at all times and will be kept by the HSO.

AFFIDAVIT

I have read the Construction Health and Safety Plan (HASP) for the 2921 Westchester Avenue site in the Bronx, NY. I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from the site.

Signature: _____
Signature: _____
Signature: _____
Signature: _____
Signature: _____

Date: _____
Date: _____
Date: _____
Date: _____
Date: _____

Tenen Environmental, LLC
Health and Safety Plan

2921 Westchester Avenue – Bronx, NY
BCP Site # C203140

Appendix B

Injury Reporting Form (OSHA Form 300)

OSHA’s Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name _____

City _____ State _____

Identify the person			Describe the case			Classify the case												
(A) Case no.	(B) Employee’s name	(C) Job title <i>(e.g., Welder)</i>	(D) Date of injury or onset of illness	(E) Where the event occurred <i>(e.g., Loading dock north end)</i>	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill <i>(e.g., Second degree burns on right forearm from acetylene torch)</i>	CHECK ONLY ONE box for each case based on the most serious outcome for that case:				Enter the number of days the injured or ill worker was:	Check the “Injury” column or choose one type of illness:							
						Remained at Work				Away from work	On job transfer or restriction	(M)						
						Death	Days away from work	Job transfer or restriction	Other record-able cases	(K)	(L)	Injury	Skin disorder	Respiratory condition	Poisoning	Hearing loss	All other illnesses	
						(G)	(H)	(I)	(J)			(1)	(2)	(3)	(4)	(5)	(6)	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐	☐	☐	
_____	_____	_____	____/____/____ month/day	_____	_____	☐	☐	☐	☐	____ days	____ days	☐	☐	☐	☐			

Appendix C

Material Safety Data Sheets (MSDS)

SAFETY DATA SHEET

Creation Date 22-Sep-2009

Revision Date 23-Jan-2018

Revision Number 3

1. Identification

Product Name cis-1,2-Dichloroethylene

Cat No. : AC113380000; AC113380025; AC113380100; AC113380500

Synonyms cis-Acetylene dichloride.

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99

CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapor
Harmful if swallowed
Harmful if inhaled

Causes serious eye irritation
Causes skin irritation
May cause respiratory irritation

**Precautionary Statements****Prevention**

Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Avoid breathing dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Take precautionary measures against static discharge
Do not eat, drink or smoke when using this product

Response

Call a POISON CENTER or doctor/physician if you feel unwell

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell

Skin

IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation occurs: Get medical advice/attention

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Ingestion

Rinse mouth
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Fire

Explosion risk in case of fire
Fight fire with normal precautions from a reasonable distance
Evacuate area

Storage

Store in a well-ventilated place. Keep cool
Store in a closed container
Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
cis-1,2-Dichloroethylene	156-59-2	97

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.
Inhalation	Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.
Ingestion	Do NOT induce vomiting. Get medical attention.
Most important symptoms and effects	Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray. Carbon dioxide (CO ₂). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	No information available
Flash Point	6 °C / 42.8 °F
Method -	No information available
Autoignition Temperature	440 °C / 824 °F
Explosion Limits	
Upper	12.80%
Lower	9.70%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrogen chloride gas.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
2

Flammability
3

Instability
0

Physical hazards
N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing.
Environmental Precautions	See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling	Ensure adequate ventilation. Wear personal protective equipment/face protection. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Avoid contact with skin, eyes or clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.
Storage	Keep in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed. Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
cis-1,2-Dichloroethylene	TWA: 200 ppm			TWA: 200 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures	Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	No protective equipment is needed under normal use conditions.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-80 °C / -112 °F
Boiling Point/Range	60 °C / 140 °F @ 760 mmHg
Flash Point	6 °C / 42.8 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	12.80%
Lower	9.70%
Vapor Pressure	201 mmHg @ 25 °C
Vapor Density	3.34 (Air = 1.0)
Specific Gravity	1.280
Solubility	No information available
Partition coefficient; n-octanol/water	No data available

Autoignition Temperature	440 °C / 824 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C2 H2 Cl2
Molecular Weight	96.94

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to light. Incompatible products. Exposure to moist air or water.
Incompatible Materials	Bases
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Hydrogen chloride gas
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Toxicologically Synergistic Products	No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Irritating to eyes, respiratory system and skin
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
cis-1,2-Dichloroethylene	156-59-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT - single exposure	Respiratory system
STOT - repeated exposure	None known
Aspiration hazard	No information available
Symptoms / effects, both acute and delayed	Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Endocrine Disruptor Information	No information available
Other Adverse Effects	The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
cis-1,2-Dichloroethylene	Not listed	Not listed	EC50 = 721 mg/L 5 min EC50 = 905 mg/L 30 min	Not listed

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1150
 Proper Shipping Name 1,2-DICHLOROETHYLENE
 Hazard Class 3
 Packing Group II

TDG

UN-No UN1150
 Proper Shipping Name 1,2-DICHLOROETHYLENE
 Hazard Class 3
 Packing Group II

IATA

UN-No UN1150
 Proper Shipping Name 1,2-DICHLOROETHYLENE
 Hazard Class 3
 Packing Group II

IMDG/IMO

UN-No UN1150
 Proper Shipping Name 1,2-DICHLOROETHYLENE
 Hazard Class 3
 Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
cis-1,2-Dichloroethylene	156-59-2	X	ACTIVE	-

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
cis-1,2-Dichloroethylene	156-59-2	-	X	205-859-7	-	X	X	X	KE-10124

U.S. Federal Regulations

SARA 313	Not applicable
SARA 311/312 Hazard Categories	See section 2 for more information
CWA (Clean Water Act)	Not applicable
Clean Air Act	Not applicable
OSHA - Occupational Safety and Health Administration	Not applicable

CERCLA

California Proposition 65	This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
cis-1,2-Dichloroethylene	X	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security	This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade	No information available

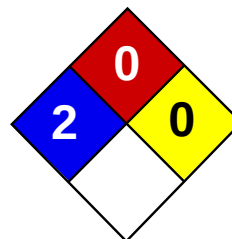
16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	22-Sep-2009
Revision Date	23-Jan-2018
Print Date	23-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS



Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet

Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolve; Tetrachloroethene; Tetraleno; Tetralox; Tetravec; Tetrogue; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C₂-Cl₄

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD₅₀): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC₅₀): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC₅₀): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

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

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:

Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium, barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

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

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symptoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorientation, seizures, emotional instability, stupor, coma). It may cause pulmonary edema. Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver (hepatitis, fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/central nervous system/peripheral nervous system (impaired memory, numbness of extremities, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fathead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:**WHMIS (Canada):**

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

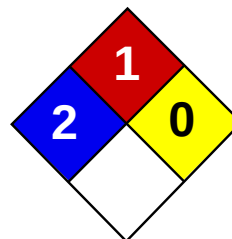
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):**Health Hazard:** 2**Fire Hazard:** 0**Reactivity:** 0**Personal Protection:** g**National Fire Protection Association (U.S.A.):****Health:** 2**Flammability:** 0**Reactivity:** 0**Specific hazard:****Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information**References:** Not available.**Other Special Considerations:** Not available.**Created:** 10/10/2005 08:29 PM**Last Updated:** 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.



Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Trichloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Trichloroethylene

Catalog Codes: SLT3310, SLT2590

CAS#: 79-01-6

RTECS: KX4560000

TSCA: TSCA 8(b) inventory: Trichloroethylene

CI#: Not available.

Synonym:

Chemical Formula: C₂HCl₃

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

Toxicological Data on Ingredients: Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse].
DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH.

MUTAGENIC EFFECTS: Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not

available. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 420°C (788°F)

Flash Points: Not available.

Flammable Limits: LOWER: 8% UPPER: 10.5%

Products of Combustion: These products are carbon oxides (CO, CO₂), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:

Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m³) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 131.39 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 86.7°C (188.1°F)

Melting Point: -87.1°C (-124.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.4649 (Water = 1)

Vapor Pressure: 58 mm of Hg (@ 20°C)

Vapor Density: 4.53 (Air = 1)

Volatility: Not available.

Odor Threshold: 20 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:

Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity:

Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

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

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in human. Detected in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Trichloroethylene : UN1710 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R36/38- Irritating to eyes and skin. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

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

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:54 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Appendix C

Soils/Materials Management Plan

SOIL/MATERIALS MANAGEMENT PLAN

for 2921 Westchester Avenue Remedial Action Work Plan

2921 Westchester Avenue, Bronx, New York
Block 4164, Portion of Lot 5
BCP Site #C203140

Submitted to:

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
1 Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101

Prepared for:

Ralford Realty Corp.
c/o Anthony Scovotti
8 West 40th Street
New York, NY 10018

Prepared by:



121 West 27th Street, Suite 702
New York, NY 10001

January 2025

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Soil Screening Methods	1
1.2	Soil Staging Methods	1
1.3	Characterization of Excavated Materials	1
1.4	Materials Excavation, Load-Out and Departure	1
1.5	Off-Site Materials Transport	2
1.6	Materials Disposal Off-Site.....	2
1.7	Materials Reuse On-Site.....	3
1.8	Demarcation	4
1.9	Import of Backfill Soil from Off-Site Sources.....	4
1.10	Fluids Management.....	6
1.11	Stormwater Pollution Prevention	6
1.12	Erosion and Sediment Control Measures	6
1.13	Contingency Plan	6
1.14	Odor, Dust and Nuisance Control	6
	<u>Odor Control</u>	6
	<u>Dust Control</u>	7
	<u>Other Nuisances</u>	7
1.15	Import of Clean Cover and Fill Material.....	7

List of Figures

Figure 1 - Site Location Map
Figure 2 - Site Layout Map
Figure 3 - Truck Route Map

1.0 INTRODUCTION

This Soil/Materials Management Plan (SMMP) has been developed for the Remedial Action Work Plan (RAWP) prepared for 2921 Westchester Avenue (the Site).

The Site is located on the west side of Westchester Avenue, between Pilgrim Avenue and Buhre Avenue, in the Pelham Bay section of the Bronx, New York.

The Site is improved with one two-story commercial building with a partial basement that occupies the entire Site lot. The Site consists of one tenant space of the building and a portion of the partial basement. The Site is an irregularly shaped 1,415 square foot parcel located in the Bronx Community Board 10 and is generally identified as a portion of Block 4164 and Lot 5. The Site is currently vacant and was most recently occupied by a tutor and afterschool program. The Site was historically utilized as a dry cleaning facility. A site location map and site layout map are included as Figures 1 and 2, respectively.

1.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional or experienced field geologist under the supervision of the Remedial Engineer (RE) and will be reported in the Final Engineering Report (FER). Soil Screening will be performed during all remedial excavations into known or potentially contaminated material regardless of when the invasive work is done prior to issuance of a COC.

1.2 Soil Staging Methods

Excavated soil from hotspot excavations will be placed in lined containers staged on a sidewalk adjoining the Site. While containers are staged on the sidewalk and work is occurring, they will be inspected daily. All container and soil management will be complaint will applicable Federal, State and local laws and regulations.

1.3 Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off the Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils are not proposed for reuse on-Site.

1.4 Materials Excavation, Load-Out and Departure

The RE overseeing the remedial activities, or a qualified environmental professional under his/her supervision, will:

- Oversee remedial work and the excavation and load-out of excavated material;
- Ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;

- Ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- Ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this RAWP are properly addressed by appropriate parties;
- Ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- Ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. Mechanical processing of historical fill and contaminated soil on the Site is prohibited.

1.5 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364.

Trucks removing soil from the Site will be loaded on the sidewalk of Pilgrim Avenue, which exits to the two-way Buhre Avenue. Truck will make a right onto Buhre Avenue the make the first left onto Westchester Avenue. Once on Westchester Avenue, trucks will make a right onto Wilkinson Avenue and continue onto I-95 North, which is a truck through route.

This is the most appropriate route and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) limiting total distance to major highways; (d) promoting safety in access to highways; and, (e) overall safety in transport. All trucks loaded with Site materials will exit the vicinity of the Site using only the most-current New York City Department of Transportation (NYCDOT)-approved truck routes (currently the 2022 New York City Truck Route Map).

All trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site. A truck route map is included as Figure 3.

1.6 Materials Disposal Off-Site

To document that the disposal of regulated material exported from the Site complies with applicable laws and regulations, the following documentation will be established and reported by the RE for each disposal destination used in this project:

- (1) a letter from the RE or Applicant to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the RE or Applicant, and will include as an attachment a summary of all chemical data for the material being transported; and
- (2) a letter from each disposal facility stating it is in receipt of the correspondence, (1) above, and is approved to accept the material.

These documents will be included in the FER.

The FER will include an itemized account of the destination of all material removed from the Site during the remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the FER.

All soil, fill and other waste excavated and removed from the Site will be managed as regulated material (municipal solid waste per 6NYCRR Part 360-1.2) and will be disposed in accordance with applicable laws and regulations. Historic fill and material that does not meet Track 1 Unrestricted Use soil cleanup objectives (SCOs) is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility). Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Approximately 65 cubic yards (CY) of soil is proposed for off-Site disposal. Final disposal facilities will be identified to NYSDEC prior to shipping material to any facility. Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the Final Engineering Report (FER). A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the FER. Hazardous wastes derived from on-Site will be stored, transported and disposed of in compliance with applicable laws and regulations.

If disposal of soil and fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by NYSDEC with an associated plan compliant with 6NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and that the material complies with receipt requirements for recycling under 6 NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

1.7 Materials Reuse On-Site

“Reuse on-Site” means material that is excavated during the remedy or development does not leave the property, and is relocated within the same property and on comparable soil/fill material, and

addressed pursuant to Engineering Controls. The RE will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in the RAWP are followed. Soil reuse is not proposed. Reused soil must be non-hazardous and meet the Use-based SCOs and Protection of Groundwater SCOs in accordance with the predetermined beneficial use determination listed in 6 NYCRR Part 360-1.15(b). If any of the waste materials are used for an end use specified in 6 NYCRR Part 360-1.15(b), it will not be considered a solid waste. Reuse of soil will be coordinated in advance with the NYSDEC project manager.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing the Site will not be buried onsite. Soil and fill excavated from the Site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 Demarcation

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods:

- (1) Placement of a demarcation layer. The demarcation layer will consist of geo-synthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the FER;
- (2) A land survey of the top elevation of residual soil/fill before placement of cover soils, pavement, and associated sub-soils, or other materials or structures; and,
- (3) All materials beneath the approved cover will be considered impacted and subject to Site management after the remedy is complete.

Demarcation may be established by one or any combination of the above three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the FER. The demarcation will constitute the top of the Site management horizon, if necessary.

1.9 Import of Backfill Soil from Off-Site Sources

All imported materials will be in compliance with: (1) the Part 375-6.7(d) and (2) all Federal, State and local rules and regulations for handling and transport of material.

The following presents the requirements for imported fill materials to be used below the cover layer. The backfill and cover soil quality objectives will be the lower of the Protection of Groundwater or Commercial Use SCOs.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with applicable City, State and Federal laws and requirements. The source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed will be reported to NYSDEC at the end of construction activities and before obtaining a Certificate of Occupancy or Department of Building Letter of Completion.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite and discrete samples of imported material will be taken consistent with Table 5.4(e)10 of DER-10. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be reported to NYSDEC at the end of construction activities and before obtaining a Certificate of Occupancy or Department of Building Letter of Completion. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.10 Fluids Management

All liquids to be removed from the Site will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by the New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an offsite treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e., a stream or river) is prohibited without a SPDES permits issued by NYSDEC.

1.11 Stormwater Pollution Prevention

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the remedial program. Since Site disturbance is less than one acre in area, a Stormwater Pollution Prevention Plan (SWPPP) is not required to be submitted to NYSDEC Division of Water.

1.12 Erosion and Sediment Control Measures

Soil from localized hot spot excavation will be stored in lined containers (i.e., not stockpiled on flat land); erosion and sediment control measures are not required.

1.13 Contingency Plan

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to the NYSDEC Project Manager. Petroleum spills will be reported to the NYSDEC Spill Hotline. These findings will be included in applicable daily report(s). If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to NYSDEC. Analysis will be performed for Full List volatiles and semi-volatiles, pesticides/PCBs, and TAL metals, as appropriate.

1.14 Odor, Dust and Nuisance Control

A Site-specific Community Air Monitoring Plan (CAMP) is included in the Health and Safety Plan (HASP) included as Appendix A and B, respectively, of the RAWP.

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations

with tarps and other covers; and may include (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) live loading of soils into trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the Remedial Engineer (RE), who is responsible for certifying the FER.

Dust Control

Dust management during invasive on-Site work will include, as necessary:

- Use of a dedicated water spray method for roads, excavation areas, and stockpiles;
- Use of properly anchored tarps to cover stockpiles;
- Exercise of extra care during dry and high-wind periods; and
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

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

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.

1.15 Import of Clean Cover and Fill Material

Soil is anticipated to be imported to the Site to backfill after excavating the petroleum hot spot in the northwest corner of the Site. Any imported soil will be uncontaminated soil that meets the lower of the appropriate NYSDEC 6 NYCRR Part 375-6.8(a) Unrestricted Use soil cleanup objectives (SCOs) and the NYSDEC 6 NYCRR Part 375-6.8(b) Protection of Groundwater SCOs.

Any imported uncontaminated soil cover will be from an approved source/facility and will be evaluated by the RE to ensure the following:

- (1) That a segregated stockpile for less than 750 tons (500 cubic yards) is properly maintained at the source and will not be comingled with any other material prior to importing and grading the clean soil material at the Site;
- (2) That the material does not include any solid waste, including construction and demolition material, as prohibited;
- (3) That screening for evidence of contamination by visual, olfactory and PID soil screening practices prior to testing at the source, as well as upon importing to the Site for grading, is completed; and
- (4) That a maximum five-part composite sample will be collected from the segregated stockpile at the source at a minimum frequency of one sample per 250 cubic yards and analyzed for the following Full List parameters:
 - VOCs by EPA Method 8260C
 - SVOCs by EPA Method 8270D
 - Pesticides by EPA Method 8081B
 - PCBs by EPA Method 8082A
 - TAL Metals by EPA Method 6010C/7471B

Upon receipt of the segregated stockpile analytical results collected at the source, a Clean Soil Sampling Report will be submitted to NYSDEC for review/approval prior to importing. The report will include the following:

- (1) A summary of the sample quantities collected and analyzed, tabulated data and comparison to the Unrestricted Use SCOs;
- (2) Analytical data sheets and chain-of-custody (COC) documentation;
- (3) Estimate of the amount of soil/material stockpiled in tons and cubic yards;
- (4) Photographs from the segregated stockpile at the source with sample point locations identified;
- (5) An affidavit from the source/facility on company letterhead stating that the segregated stockpile has been properly maintained at the source and complies with the requirements listed above; and
- (6) A copy of the source/facility NYSDEC permit(s).

If fill material is imported, a highly visible demarcation barrier (i.e. orange geo-synthetic material or equivalent) will be installed beneath the clean soil/fill surface cover. Upon importing and grading any NYSDEC-approved clean soil cover on top of a highly visible demarcation barrier, the following documentation will be presented in the FER:

- (1) Copies of purchase invoices;
- (2) Truck transportation slips from the source to the Site;
- (3) Confirmation of the number of tons and cubic yards of NYSDEC-approved clean soil cover material imported and graded at the Site on top of a highly visible demarcation barrier;
- (4) A Site plan depicting all areas where the NYSDEC-approved clean soil cover has been placed; and

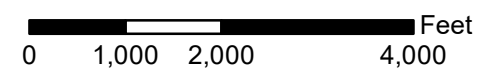
- (5) Photographs documenting the importing and grading of the NYSDEC-approved clean soil cover across the Site with the underlying highly visible demarcation barrier (i.e., orange geo-synthetic material or equivalent).

Figures



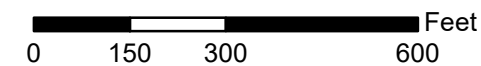
Basemap: USGS Topographic Map, 7.5 Minute Quadrangle, Flushing, NY, 2016

Site Location



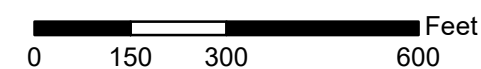
<http://gis.nyc.gov/taxmap/map.htm>

Department of Finance Digital Tax Map



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2018 v2.1



Site

TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By LM

Checked By AP

Date December 2020

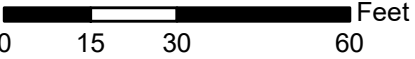
Scale As Noted

Site Location Map

Drawing Title

Figure 1

Drawing No

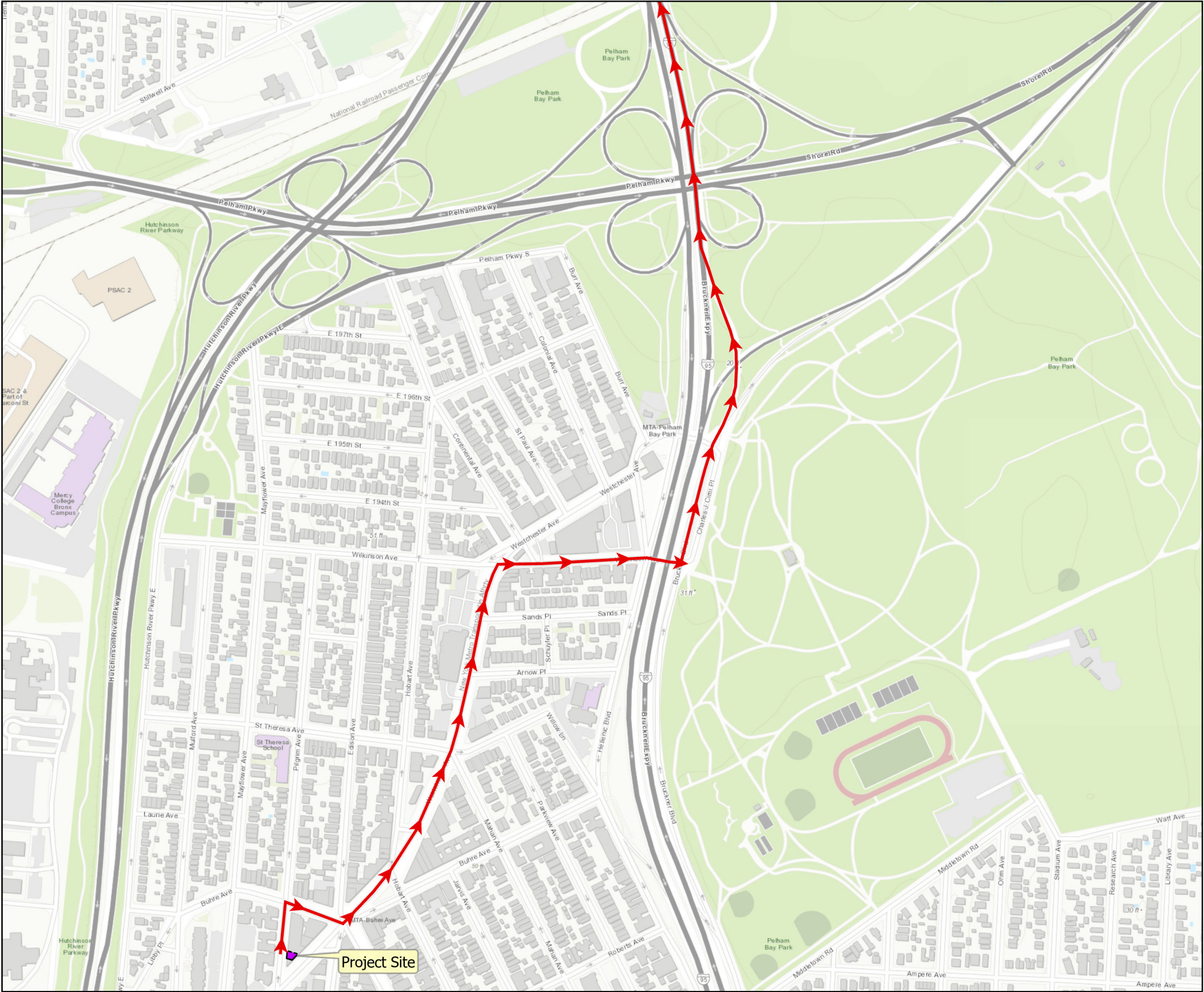


Legend

- Site Boundary
- Cellar Spaces
- Home Store
- Boost Mobile
- Vacant Space
- Block 4164, Tax Lot 5



Drawing Title	Site Layout	Drawn By	LM	TENEN ENVIRONMENTAL	Site
		Checked By	AP		
Drawing No	Figure 2	Date	July 2022	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
		Scale	As Noted		

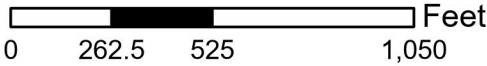


Reference:
NYC OpenData, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA



Legend

-  Project Site
-  Truck Route to I-95 North



Remedial Action Work Plan
291 Westchester Avenue
Bronx, New York
Block 4164, Lot 5

TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	LM
Checked By	AP
Date	January 2025
Scale	As Noted

Truck Route Map

Figure 3

Appendix D

Quality Assurance Project Plan

Quality Assurance Project Plan
for
2921 Westchester Avenue
Remedial Investigation Work Plan

2921 Westchester Avenue – Bronx, NY
Block 4164, Lot 5
BCP Site # C203140

Submitted to:

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:

Ralford Realty Corp.
c/o Anthony Scovotti
8 West 40th Street
New York, NY 10018

Prepared by:



121 West 27th Street, Suite 702
New York, NY 10001

January 2025

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Project Scope and QAPP Objective	1
2.0	PROJECT ORGANIZATION.....	2
3.0	SAMPLING AND DECONTAMINATION PROCEDURES	4
3.1	Level of Effort for QC Samples	4
3.2	Sample Handling.....	4
3.3	Custody Procedures	5
3.4	Sample Storage.....	5
3.5	Sample Custody.....	5
3.6	Sample Tracking	6
3.7	Post-Remedial End-Point Sampling Methodology	6
3.8	Quarterly Groundwater Sampling.....	8
3.9	Post-Remedial Indoor Air Sampling Methodology	10
3.10	Analytical Methods/Quality Assurance Summary Table.....	11
3.11	Decontamination	14
3.12	Data Review and Reporting	14

Appendices

Appendix A – Resumes

Appendix B – PFAS Field Sampling Guide

Appendix C – PFAS Compounds to be Analyzed and Associated MDLs

Appendix D – Laboratory Standard Operating Procedures for PFAS Analysis

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been developed for the Remedial Action Work Plan (RAWP) prepared for the 2921 Westchester Avenue property (the Site).

The Site, located at 2921 Westchester Avenue, is an irregularly-shaped parcel of land located on the west side of Westchester Avenue, between Pilgrim Avenue and Buhre Avenue in the Pelham Bay section of the Bronx, New York.

The Site is improved with one two-story commercial building with a partial basement that occupies the entire Site lot. The Site consists of one tenant space of the building and a portion of the partial basement. The Site is an irregularly-shaped 1,415 square foot parcel located in the Bronx Community Board 10 and is generally identified as a portion of Block 4164 and Lot 5. The Site is currently vacant and was most recently occupied by a tutor and afterschool program. The Site was historically utilized as a dry cleaning facility.

1.1 Project Scope and QAPP Objective

The proposed scope of work includes the following:

- Hotspot soil excavation and backfill;
- Installation of injection wells and in-situ chemical oxidation injections;
- Installation of a sub-slab depressurization system, vapor sealant, and vapor barrier; and,
- Collection of post-remedial end-point, groundwater, and indoor air samples.

The objective of the QAPP is to detail the policies, organization, objectives, functional activities and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of the Remedial Investigation Work Plan. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented for quality control (QC) purposes. Specifically, this QAPP addresses the following:

- The procedures to be used to collect, preserve, package, and transport samples;
- Field data collection and record keeping;
- Data management;
- Chain-of-custody procedures; and,
- Determination of precision, accuracy, completeness, representativeness, decision rules, comparability and level of quality control effort.

2.0 PROJECT ORGANIZATION

The personnel detailed are responsible for the implementation of the QAPP. Tenen Environmental, LLC (Tenen) will implement the RIWP on behalf of Ralford Realty Corp. (the Participant) once it has been approved by the New York State Department of Environmental Conservation (NYSDEC).

The Project Manager and Qualified Environmental Professional (QEP) will be Mrs. Alana Carroll, CPG, managing scientist at Tenen. Mrs. Carroll is a certified professional geologist with experience in all aspects of site assessment, development and implementation of remedial strategies. Her experience involves projects from inception through investigation, remediation and closure. Her expertise includes soil, soil vapor and groundwater remediation; remedial selection and design; field/health and safety oversight and preparation of work plans and reports to satisfy the requirements of various regulatory agencies. Mrs. Carroll received her BS in Geology from Hofstra University; her resume is included in Appendix A.

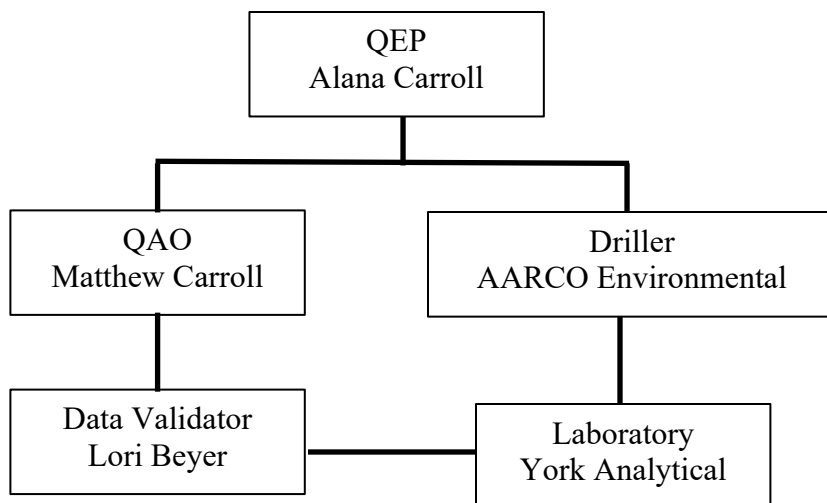
The Quality Assurance Officer will be Mohamed Ahmed, Ph.D., CPG, principal at Tenen. Dr. Ahmed is a certified professional geologist with over 20 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems, and soil remediation. He has managed numerous projects focused on compliance with the requirements of the New York State Brownfield Cleanup Program and spills programs and the New York City E-designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the New York City Department of Environmental Protection, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation. Dr. Ahmed holds advanced degrees in geology and Earth and Environmental Sciences from Brooklyn College and the Graduate Center of the City University of New York; his resume is included in Appendix A.

In addition, Tenen will utilize subcontractors for drilling (AARCO Environmental Services of Lindenhurst, NY), laboratory services (York Analytical of Richmond Hill, NY) and data validation (L.A.B. Validation Corp. of East Northport, NY). The resume for the DUSR preparer, Ms. Lori Beyer, is included in Appendix A.

Contact Information

Remedial Party (Ralford Realty Corp.), Anthony Scovotti, 718.824.1700
Tenen Environmental, Alana Carroll or Mohamed Ahmed, 646.606.2332

An organization chart for the implementation of the Remedial Investigation Work Plan and QAPP is below.



3.0 SAMPLING AND DECONTAMINATION PROCEDURES

A detailed description of the procedures to be used during this program for collection of post-remedial soil, indoor air, and groundwater samples is provided below. Proposed sample locations are shown on Figures 8 and 14 of the Work Plan. An Analytical Methods/Quality Assurance Summary is provided in Table 1, included in Section 3.11.

3.1 Level of Effort for QC Samples

Field blank, trip blank, field duplicate and matrix spike (MS) / matrix spike duplicate (MSD) samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. Each type of QC sample is discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.
- Duplicate samples are analyzed to check for sampling and analytical reproducibility.
- MS/MSD samples provide information about the effect of the sample matrix on the digestion and measurement methodology.

The general level of QC effort will be one field duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD for every 20 or fewer investigative samples of a given matrix. One trip blank will be included along with each sample delivery group of volatile organic compound (VOC) samples. If non-dedicated sampling equipment is used to collect PFAS samples, one equipment blank will be collected at a frequency of one per day that PFAS samples are collected for a given matrix.

The analytical laboratory, York Analytical, is certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) as Lab IDs 10854 and 12058. NYSDEC Analytical Services Protocol (ASP) Category B deliverables will be prepared by the laboratory.

3.2 Sample Handling

Samples will either be picked up by the laboratory, delivered to the laboratory in person by the sampler, or transported to the laboratory by overnight courier. All samples will be shipped to the laboratory to arrive within 48 hours after collection, and the laboratory will adhere to the analytical holding times for these analyses, as listed in the current version of the New York State ASP.

3.3 Custody Procedures

Sample custody will be controlled and maintained through the chain-of-custody procedures. The chain of custody is the means by which the possession and handling of samples is tracked from the site to the laboratory. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following sections (Sections 3.4 and 3.5) describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

3.4 Sample Storage

Samples will be stored in secure limited-access areas. Walk-in coolers or refrigerators will be maintained at 4°C, +/- 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location, if necessary.

3.5 Sample Custody

Sample custody is defined by this QAPP as the following:

- The sample is in someone's actual possession;
- The sample is in someone's view after being in his or her physical possession;
- The sample was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering; or,
- The sample is placed in a designated and secured area.

Samples will be removed from storage areas by the sample custodian or laboratory personnel and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure.

Laboratory documentation used to establish chain of custody and sample identification may include the following:

- Field chains of custody or other paperwork that arrives with the sample;
- Laboratory chain of custody;
- Sample labels or tags attached to each sample container;
- Sample custody seals;
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books, filled out in legible handwriting, and signed and dated by the chemist;
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist;

- Sample storage log (same as the laboratory chain of custody); and,
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

3.6 Sample Tracking

All samples will be maintained in the appropriate coolers prior to and after analysis. Laboratory analysts will remove and return their samples, as needed. Samples that require internal chain of custody procedures will be relinquished to the analysts by the sample custodians. The analyst and sample custodian will sign the original chain of custody relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original chain of custody returning sample custody to the sample custodian. Sample extracts will be relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department will track internal chain of custody through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the chain of custody (e.g., sample breakage or depletion).

3.7 Post-Remedial End-Point Sampling Methodology

End-point samples will be collected from the base of the hotspot excavations on a 15-foot grid, where bedrock is not encountered, and from the sidewalls of the excavation every 30-LF. It is anticipated that a total of five base of excavation end-point samples and eight sidewall end-point samples will be collected following implementation of the Remedial Action. Figure 8 of the RAWP presents a generalized post-excavation sampling location map for Soil Alternative 1.

All post-excavation sample results will be compared with the Protection of Groundwater and Commercial Use SCOs. Any soils not meeting the Commercial Use SCOs for non-cVOC constituents or the Protection of Groundwater SCOs for cVOCs within the hotspot excavations will be removed and the area backfilled with clean fill meeting the criteria outlined in this RAWP.

All end-point samples will be analyzed for the following analytes on the Part 375 list with a Category B deliverable package:

- Target Compound List (TCL) VOCs by EPA Method 8260C;
- TCL Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C;
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082A;
- Pesticides by EPA Method 8081B;
- Target Analyte List (TAL) Metals by EPA Method 6010C / 7471B;
- PFAS by EPA Method 1633 [reporting limit of 0.5 parts per billion (ppb)]; and,
- 1,4-Dioxane by EPA Method 8270.

Field methods can impact the analysis of PFAS. PFAS samples will be collected using dedicated disposable sampling equipment when possible. If dedicated disposable sampling equipment

cannot be used, samples will be collected with stainless steel tools (spoons, bowls, etc.) and decontaminated using detergent (Alconox) and clean, PFAS-free water. Sampling containers for PFAS will be made of high-density polyethylene (HDPE) with caps that will not be lined with polytetrafluoroethylene (PTFE). PFAS sampling containers will be kept in separate coolers from all other sampling containers and only regular ice will be used to cool the samples. Field staff conducting the sampling will not wear clothing that contains PTFE material or that has been waterproofed with PFAS material during sampling and all clothing worn will be laundered multiple times. Any bug spray or sunscreen utilized by field staff conducting the sampling will be PFAS free.

The following PFAS will be analyzed by EPA Method 1633:

- Perfluorobutanoic Acid (PFBA)
- Perfluoropentanoic Acid (PFPeA)
- Perfluorobutanesulfonic Acid (PFBS)
- 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)
- Perfluorohexanoic Acid (PFHxA)
- Perfluoropentanesulfonic Acid (PFPeS)
- Perfluoroheptanoic Acid (PFHpA)
- Perfluorohexanesulfonic Acid (PFHxS)
- Perfluorooctanoic Acid (PFOA)
- 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)
- Perfluoroheptanesulfonic Acid (PFHpS)
- Perfluorononanoic Acid (PFNA)
- Perfluorooctanesulfonic Acid (PFOS)
- Perfluorodecanoic Acid (PFDA)
- 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)
- Perfluorononanesulfonic Acid (PFNS)
- N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)
- Perfluoroundecanoic Acid (PFUnA)
- Perfluorodecanesulfonic Acid (PFDS)
- Perfluorooctanesulfonamide (FOSA)
- N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)
- Perfluorododecanoic Acid (PFDoA)
- Perfluorotridecanoic Acid (PFTrDA)
- Perfluorotetradecanoic Acid (PFTA)
- 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)
- 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)
- Perfluorododecane Sulfonic Acid (PFDoDS)
- 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)
- 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)
- N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)
- N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)
- N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)

- N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)
- Perfluoro-3-Methoxypropanoic Acid (PFMPA)
- Perfluoro-4-Methoxybutanoic Acid (PFMBA)
- Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)
- Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)
- 3-Perfluoropropyl Propanoic Acid (3:3FTCA)
- 2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)
- 3-Perfluoroheptyl Propanoic Acid (7:3FTCA)

A sampling guide is included in Appendix B. A list of PFAS compounds to be analyzed and associated MDLs is included in Appendix C. York Analytical, an ELAP-certified lab for PFAS by EPA Method 1633, will be performing all PFAS analyses of soil. The laboratory standard operating procedures for PFAS analysis is included in Appendix D.

3.8 Quarterly Groundwater Sampling

Prior to sample collection, static water levels will be measured and recorded from all monitoring wells. Monitoring wells will also be gauged for the presence of light non-aqueous phase liquid (LNAPL). In the event that LNAPL is detected, Tenen will record the thickness and will not collect a sample. If LNAPL is not detected, Tenen will purge and sample monitoring wells using low-flow/minimal drawdown purge and sample collection procedures (peristaltic pump). Prior to sample collection, groundwater will be evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, temperature, turbidity, dissolved oxygen, specific conductance, oxidation-reduction potential and water level, as well as visual and olfactory field observations, will be periodically recorded and monitored for stabilization. Purging will be considered complete when pH, specific conductivity, dissolved oxygen and temperature stabilize and when turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU) or become stable above 50 NTU. If stabilization does not occur or the well has been purged and recovery cannot maintain the pace of low flow purging, a sample will be collected and a notation will be made in the field book.

Stability is defined as variation between field measurements of 10 percent or less and no overall upward or downward trend in the measurements. Upon stabilization of field parameters, groundwater samples will be collected and analyzed as discussed below.

Wells will be purged and sampled using dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures, as described above. The pump will be decontaminated between samples and the tubing will be replaced.

Groundwater samples will be collected for laboratory analysis through dedicated tubing. Prior to, and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, dissolved oxygen, turbidity and depth-to-water, as well as visual and olfactory field observations will be recorded. All collected groundwater samples will be placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to the designated laboratory for analysis.

Post-remedial groundwater sampling will be completed in accordance with a Site Management Plan (SMP). It is anticipated that post-injection groundwater samples will be collected from five previously installed permanent groundwater monitoring: two onsite (MW-3 and MW-4), one offsite and upgradient (MW-2), and, two offsite and downgradient (MW-5 and MW-8). Post-remedial groundwater sampling will begin approximately three months after the groundwater remedy described in Section 5.1.3 of the RAWP is implemented and quarterly for a minimum of two years after. Proposed post-remedial groundwater sampling locations are shown on Figure 14 of the RAWP.

All groundwater samples will be analyzed with a Category B deliverable package, for the following:

- cVOCs by EPA Method 8260C; and,
- PFAS by EPA Method 1633 [reporting limit of 2 parts per trillion (ppb)].

Field methods can impact the analysis of PFAS. PFAS samples will be collected using dedicated disposable HDPE tubing. If dedicated disposable sampling equipment cannot be used, equipment will be decontaminated by standard two step decontamination using detergent (Alconox) and clean, PFAS-free water. All sources of water used for equipment decontamination will be verified in advance to be PFAS-free through laboratory analysis or certification. Sampling containers for PFAS will be made of HDPE with caps that will not be lined with PTFE. PFAS sampling containers will be kept in separate coolers from all other sampling containers and only regular ice will be used to cool the samples. Field staff conducting the sampling will not wear clothing that contains PTFE material or that has been waterproofed with PFAS material during sampling and all clothing worn will be laundered multiple times. Any bug spray or sunscreen utilized by field staff conducting the sampling will be PFAS free.

The following PFAS will be analyzed by EPA Method 1633:

- PFBA
- PFPeA
- PFBS
- 4:2FTS
- PFHxA
- PFPeS
- PFHpA
- PFHxS
- PFOA
- 6:2FTS
- PFHpS
- PFNA
- PFOS
- PFDA
- 8:2FTS
- PFNS

- NMeFOSAA
- PFUnA
- PFDS
- FOSA
- NEtFOSAA
- PFDoA
- PFTTrDA
- PFTA
- HFPO-DA
- ADONA
- PFDoDS
- 9Cl-PF3ONS
- 11Cl-PF3OUdS
- NMeFOSA
- NEtFOSA
- NMeFOSE
- NEtFOSE
- PFMPA
- PFMBa
- PFEESA
- NFDH
- 3:3FTCA
- 5:3FTCA
- 7:3FTCA

A sampling guide is included in Appendix B. A list of PFAS compounds to be analyzed and associated MDLs is included in Appendix C. York Analytical, an ELAP-certified lab for PFAS by EPA Method 1633, will be performing all PFAS analyses of groundwater. The laboratory standard operating procedures for PFAS analysis is included in Appendix D.

3.9 Post-Remedial Indoor Air Sampling Methodology

All post-remedial indoor air samples will be collected in accordance with the NYSDOH Soil Vapor Guidance. Some sample locations may be adjusted based on field observations or conditions.

The post-remedial indoor air samples will be collected from breathing height (three to five feet above the floor) from within the existing Site building. The sampling flow rate will not exceed 0.2 L/min. Sampling will occur for eight hours in commercial structures. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, identity of samplers, sampling methods and devices, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain-of-custody protocols.

Post-remedial indoor air samples will be collected during the heating season in laboratory-supplied, individually-certified 6-liter Summa canisters using eight-hour regulators in commercial structures. Indoor air samples will be analyzed for VOCs using EPA Method TO-15.

3.10 Analytical Methods/Quality Assurance Summary Table

A summary of the analytical methods and quality assurance methods are included in Table 1, below.

Table 1
Analytical Methods/Quality Assurance Summary

Matrix	Proposed Samples	QA/QC Samples					Total # Samples	Analytical	Method	Preservativ e	Holding Times	Container
		TB	FB	DUP	MS/MSD	EB		Parameter				
Soil	13	1	1	1	1 / 1	0	18	VOCs	8260C	Cool to 4°C, No Headspace	14 days	(3) Encore samplers; (1) 2-oz plastic bottle
	13	0	1	1	1 / 1	0	17	SVOCs	8270D	Cool to 4°C		(1) 4-oz amber glass bottle
	13	0	1	1	1 / 1	0	17	Pesticides	8081B			
	13	0	1	1	1 / 1	0	17	PCBs	8082A			
	13	0	1	1	1 / 1	0	17	TAL Metals	8151A, 7196A, 3050B, 7471B, 9010C/9012B/ 9014, 3060A/7196			
	13	0	1	1	1 / 1	0	17	1,4-Dioxane	8270			
	13	0	1	1	1 / 1	1	18	PFAS	1633		14 days to extraction, 28 days following extraction	
Groundwater	5	1	1	1	1 / 1	0	10	cVOCs	8260C	Cool to 4°C, HCL	14 days	(3) 40 mL amber glass vials
	5	1	1	1	1 / 1	1	11	PFAS	1633	Cool to 4°C		(1) 250 mL HDPE bottle
Indoor Air	4	0	0	0	0	0	4	VOCs	TO-15	None	30 days	(1) 6-L Summa
Ambient Air	1	0	0	0	0	0	1					

Tenen Environmental, LLC
Quality Assurance Project Plan

2921 Westchester Avenue, Bronx, NY
BCP Site # C203140

TB – Trip Blank
FB – Field Blank
DUP – Duplicate
EB – Equipment Blank
°C – degrees Celsius
mL – milliliter
L – liter

3.11 Decontamination

Where possible, samples will be collected using new, dedicated sampling equipment so that decontamination is not required. All non-dedicated drilling tools and equipment will be decontaminated between boring locations using potable tap water and a phosphate-free detergent (e.g., Alconox) and/or a steam cleaner. All non-dedicated sampling equipment will also have a final rinse with deionized water. Decontamination water will be collected and disposed as investigation-derived waste (IDW).

3.12 Data Review and Reporting

The NYSDEC ASP Category B data package will be validated by an independent data validation subconsultant and a DUSR summarizing the results of the data validation process will be prepared. All reported analytical results will be qualified as necessary by the data validation and will be reviewed and compared against background concentrations and/or applicable New York State criteria:

Soil –Protection of Groundwater and Restricted Commercial Use Soil Cleanup Objectives (SCOs) as listed in 6NYCRR Part 375, and PFAS results will be compared to the proposed Protection of Groundwater and Restricted Commercial Use SCOs as listed in NYSDEC’s April 2023 PFAS Guidelines;

Groundwater – Class GA groundwater standards and guidance values for groundwater as listed in NYSDEC Technical and Operations Guidance Series (TOGS) 1.1.1 with February 2023 updates; and,

Indoor Air – NYSDOH Matrices and Air Guidance Values (AGVs).

Reports documenting the quarterly groundwater monitoring analytical results will be prepared in accordance with a Site Management Plan, and will describe Site conditions and document applicable observations made during the sample collection. In addition, the reports will include a description of the sampling procedures, tabulated sample results and an assessment of the data and conclusions. The laboratory data packages, DUSR, and field notes will be included in the report as appendices. All data will also be submitted electronically to NYSDEC via the Environmental Information Management System (EIMS) in EqUIS format.

Appendix A
Resumes

Alana M. Carroll, PG
Senior Project Manager

PROFESSIONAL PROFILE

Ms. Alana Carroll is a professional geologist with experience managing a variety of environmental consulting projects in the New York metropolitan area and specializing in remedial investigations, conceptual site modeling, and remedial design and implementation. She provides analytical, technical, and regulatory guidance to clients, including developers and environmental attorneys, on a variety of projects in various stages of investigation, remediation, and redevelopment. Ms. Carroll has managed projects from inception through investigation, remediation, and closure in the New York State Brownfield Cleanup Program, the New York State Department of Environmental Conservation (NYSDEC) Spills and Voluntary Cleanup Programs, the New York State Superfund Program, and the New York City E-Designation Program.

CREDENTIALS AND PROFESSIONAL HONORS

New York State Licensed Professional Geologist #000979
Adjunct Professor, Manhattan College, School of Engineering
M.A., Earth and Environmental Sciences, Brooklyn College, New York
B.S., Geology, Hofstra University, Uniondale, New York

CONTINUING EDUCATION AND TRAINING

OSHA 10-Hour Construction Training (2015)
Hazardous Waste Operations and Emergency Response 40-Hour Certification
(2004; refreshers 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014, and 2015)
First Aid and CPR Certified (2012)
Amtrak Contractor Safety Training (2010 and 2011)

PROFESSIONAL AFFILIATIONS

Member of Geologic Society of America
Member of New Partners for Community Revitalization

RELEVANT EXPERIENCE

New York State Brownfield Cleanup Program, Former West 18th Street MGP Site, Block 690, Lots 20 and 29, West Chelsea, Manhattan, New York—Successfully guided the client into the Brownfield Cleanup Program at the remediation stage. Prepared detailed remedial cost estimates for several redevelopment scenarios. Assisted in negotiating cleanup costs on behalf of the developer with the entity responsible for onsite contamination from former manufactured gas plant (MGP) operations. Designed and managed a pre-design investigation that delineated onsite coal tar impacts and differentiated petroleum impacts. Served on a team that designed an *in situ* stabilization treatability study. Prepared the Remedial Action Work Plan and Alternatives Analysis that included the excavation and removal of coal tar source material within two MGP gas holders and the encapsulation of residual coal tar. Performed an essential role on the construction and design team, coordinating with the structural, foundation, mechanical, and architectural contractors.

New York State Brownfield Cleanup Program, 520 West 28th Street, West Chelsea, Manhattan, New York—Managed several investigations to address New York State Spills, New York City E-Designation, and New York State Brownfield Cleanup programs. Prepared scopes of work to address requirements of both State and City regulatory agencies. Served as an essential member of the construction and design team, coordinating with the structural, foundation, mechanical, and architectural contractors. Managed access with adjacent property owners for full-scale excavation. Coordinated with State and City agencies for the satisfaction of air, noise, and hazardous waste requirements. Coordinated and managed the characterization and disposal of over 35,000 tons of hazardous material and historic fill. Designed and managed the remedial action necessary to obtain a successful Track 1 Cleanup. Assisted in negotiating a nuanced approach to support excavation that allowed for a Track 1 Cleanup. Prepared the final engineering report that expedited the certificate of completion.

New York State Brownfield Cleanup Program, Teitelbaum Dry Cleaner, Long Island City, New York—Designed and managed multiple onsite and offsite investigations to address NYSDEC and New York State Department of Health (NYSDOH) regulatory requirements with respect to chlorinated solvent impacts to groundwater and soil vapor. Designed and managed chlorinated solvent plume delineation and remediation in both groundwater and soil vapor. Prepared a technical memorandum on the fate and transport of the onsite chlorinated solvent groundwater plume that established limited liability for downgradient impacts and identified a secondary source. Coordinated with multiple adjacent parties for access. Designed a remedial approach for the site building that included source removal, groundwater injection, and a retro-fitted sub-slab depressurization system (SSDS).

Confidential Project, Steuben County, NY—Performed a forensic review and analysis of environmental records associated with five parcels of land that the State deemed as illegal solid waste dumps. Prepared and presented two technical arguments to NYSDEC and NYSDOH detailing illegal dumping, historic fill material, human health exposure pathways, bioavailability of historic fill constituents and remedial alternatives. Designed a full-scale remedial investigation of soil, groundwater and sediments for five parcels of historically industrial land.

New York City Voluntary Cleanup Program, Gallery Row, West Chelsea, Manhattan, New York—Managed multiple investigations over five tax lots to address New York City E-Designation and Voluntary Cleanup Program requirements. Designed a remedial action that incorporates a phased and targeted excavation below Highline Park. Coordinated with State and City agencies for the satisfaction of air, noise, and hazardous waste requirements. Served as an integral part of the construction and design team.

New York State Brownfield Cleanup Program, Former Nu-Brite Dry Cleaner, 1299 First Avenue, East Side, Manhattan, New York—Designed and managed multiple investigations to address onsite chlorinated solvent impacts to soil, groundwater, and soil vapor. Site challenges included investigation and remedial action within existing, occupied building sites. Designed and managed a bedrock fracture investigation to address potential impacts to bedrock. Designed and managed offsite delineation of chlorinated solvent plume in soil vapor. Directed multiple offsite soil vapor investigations within adjacent properties; assisted in negotiating several nuanced access agreements. Managed an onsite interim remedial measure including the installation of a retro coat vapor barrier and retro-fitted SSDS within the site building.

New York State Brownfield Cleanup Program, 34th Street and 42nd Street, West Side, Manhattan, New York—Designed and managed multiple investigations to address New York State Spills and Brownfield Cleanup programs. Prepared scopes of work to address requirements of both state regulations and those agreed to by the former owner. Coordinated

with NYSDEC to modify scopes based on field observations and limitations, which resulted in not having to mobilize for additional investigations. Coordinated with multiple entities for access to perform investigations, including Javits Convention Center, Amtrak, New York City Department of Transportation, Metropolitan Transit Authority, and their contractors. Developed a three-phase analysis plan with the laboratory to determine the minimum required extent of excavation next to an Amtrak line while limiting analytical costs, decreasing in the extent of excavation, and lowering disposal and structural support requirement costs.

New York State Brownfield Cleanup Program, 388 Bridge Street, Downtown Brooklyn, New York—Designed and managed all onsite and offsite investigations of soil, soil gas, groundwater, and indoor air, including coordination of staff and subcontractors. Prepared investigation reports for submittal to client, project team, NYSDEC, and NYSDOH. Participated in project team decision making with clients, lawyers, construction manager, and other consultants. Managed New York City Transit approvals for subsurface investigations near subway lines. Coordinated offsite access in residences, commercial spaces, and a private school. Participated in soil vapor extraction pilot test implementation and reporting. Assisted with implementation of an offsite SSDS in an existing building; activities included system design/layout, installation oversight, testing, and long-term operation and maintenance. Responsible for NYSDEC/NYSDOH coordination and reporting for all investigations. Tracked project activities for inclusion in NYSDEC/NYSDOH programmatic submittals, including monthly reports and remedial schedules.

New York Department of Environmental Remediation, Class 2 State Superfund, Laurel Hill Site, Queens, New York—Managed multiphase, multiparcel project involving design, installation, and ongoing operation, maintenance, and monitoring of six remedial caps. Site challenges included the division of the site into individual parcels that were independent of one another; subsequently, each parcel had a stormwater management design individual to the surrounding parcels. Other challenges included the site's position in a wetlands area fronting Newtown Creek, and working with the New York City Department of Transportation to facilitate its schedule for the adjacent Kosciusko Bridge restoration.

New York State Brownfield Cleanup Program, Willets Point Development, Queens, New York—Managed the Brownfield Cleanup Program application and Phase I environmental site assessment effort for 45 parcels of industrialized land. Coordinated with multiple interested parties, including New York City Department of Housing Preservation and Development and the Economic Development Corporation for access and contracting.

New York State Brownfield Cleanup Program, Uniforms for Industry, Queens, New York—Designed and managed an alternative approach to the offsite soil vapor intrusion investigation. Utilized soil vapor modeling to evaluate potential human health risks and migration probabilities. Provided support for the design of a retrofitted passive venting system.

New York State Spills Program, Gotham Center, Queens, New York—Responsible for proposal and budget development, subcontractor selection and coordination, negotiation, and preparation of subcontractor terms and agreements, budget, and invoice review for a comprehensive subsurface investigation. Prepared and implemented scope of work for delineation of soil contamination and calculation of contaminant mass estimates. Subsequent to interpretation of site data and subgrade characteristics, developed and presented remedial alternatives and associated costs for internal and client project teams. Prepared remedial investigation report in coordination with the New York City Economic Development Corporation and the client for submittal to state regulators.

Mohamed Ahmed, Ph.D., C.P.G.
Sr. Geologist/Principal

Experience Summary

Mohamed Ahmed is a certified professional geologist with nearly 23 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems and soil remediation. He has managed numerous projects focused on compliance with the New York State Brownfield Cleanup and Spills programs and the New York City “e” designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the NYC Office of Housing Preservation and Development, and the Mayor’s Office of Environmental Remediation.

Selected Project Experience

Willoughby Square, Downtown Brooklyn

As Project Manager, directs all regulatory interaction and investigation on this joint public-private sector redevelopment that will include a public park and four-level underground parking garage. Prepared the remedial investigation work plan and remedial action work plan, conducted investigation activities and waste characterization, and negotiated with the NYC Department of Environmental Protection and the Mayor’s Office of Environmental Remediation to transition the site into the NYC Voluntary Cleanup Program.

School Facility, Borough Park, Brooklyn

Managed all regulatory agency coordination, work plan and report preparation and remedial oversight; worked with OER to determine measures to retroactively address the hazardous materials and air quality E-designations on a previously constructed school building and prepared supporting documentation to justify the use of electrical units rather than natural gas.

LGA Hotel Site, East Elmhurst, Queens

Project manager for all work conducted at this former gasoline service station which is being remediated under the NYS Brownfield Cleanup Program; technical oversight of work plans, reports, and design and implementation of field and soil disposal characterization.

436 10th Avenue, Manhattan

As project manager and technical lead, assisted client in developing remedial cost estimates used for property transaction, developed regulatory strategy to address NYS Spills and NYC E-designation requirements, and currently overseeing remedial activities which include removal and disposal of petroleum-contaminated bedrock and dewatering and disposal of impacted groundwater.

Brownfield Cleanup Program Site, Downtown Brooklyn

Managed investigation and remediation under the BCP program for a proposed mixed-use development; designed the remedial investigation and prepared the remedial action work plan which includes an SVE system monitored natural attenuation. Prepared remedial cost

estimates for several scenarios. The project will include a 53-story mixed-use structure and parking garage.

Queens West Development, Long Island City

Directed project team and subcontractors for soil investigation/remediation studies on multiple properties; provided technical support for negotiations with NYSDEC during investigation and remediation.

Former Creosote Site, Long Island City

Designed and implemented a complex investigation to assess the nature and extent of historic creosote contamination at this former industrial site; conducted studies to optimize recovery of LNAPL and DNAPL and developed strategies using bioremediation and natural attenuation in conjunction with conventional remedial approaches. Performed pilot tests for soil vapor extraction system design and coordinated with NYSDEC and NYSDOH to implement sub-slab soil vapor sampling.

NYSDEC Spill Site – Far West Side, Manhattan

Developed a detailed remedial cost estimate for to support client negotiations with a major oil company. The estimate included costs pertaining to: chipping, removal and disposal of petroleum-impacted bedrock; removal/disposal of recycled concrete; costs for dewatering and disposal of impacted groundwater during construction; and design and installation of a vapor barrier below the redevelopment.

Active Industrial Facility, Newburgh, New York

Designed remedial investigation of soil and groundwater contaminated with trichloroethane; performed soil vapor pilot test and pump test to aid in design of soil and groundwater remediation alternatives; conducted sub-slab vapor sampling in accordance with NYSDOH guidance.

Former Dry Cleaning Facility, New York City

Conducted soil and groundwater investigations, designed and installed a soil vapor extraction system and performed extensive testing of indoor air. Negotiated the scope of the RI and IRM with NYSDEC.

Waterfront Redevelopment, Yonkers, NY

Designed and performed geophysics survey of six parcels to determine locations of subsurface features; supervised test pit excavation to confirm geophysics results and evaluate and classify soil conditions prior to development activities.

Prince's Point, Staten Island, New York

Performed soil, groundwater and sediment sampling to delineate the extent of contamination; used field-screening techniques to control analytical costs and supervised soil excavation and disposal.

Apartment Complex, New York City, New York

Coordinated with Con Edison, the owner of the adjacent property and NYSDEC to determine oil recovery protocol; assessed hydrogeological conditions and conducted pilot tests to design cost-effective recovery system; designed and supervised installation of recovery system.

Publications

“Impact of Toxic Waste Dumping on the Submarine Environment: A Case Study from the New York Bight”. Northeastern Geology and Environmental Sciences, V. 21, No. 12, p. 102-120. (With G. Friedman)

Metals Fluxes Across the Water/Sediment Interface and the Influence of pH. Northeastern Geology and Environmental Sciences, in press. (With G. Friedman)

“Water and Organic Waste Near Dumping Ground in the New York Bight”. International Journal of Coal Geology, volume 43. (With G. Friedman)

Education and Certifications

Ph.D., Earth and Environmental Sciences, Graduate Center of the City of New York (2001)

M.Ph., Earth and Environmental Sciences, City University of New York (1998)

M.A. Geology, Brooklyn College (1993)

B.S. Geology, Alexandria University, Egypt (1982)

American Institute of Professional Geologists, Certified Professional Geologist, 1997-2015

Matthew Carroll, P.E.
Environmental Engineer/Principal

Experience Summary

Matthew Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. He has managed projects from inception through investigation, remediation and closure. His expertise includes soil, soil gas, and groundwater remediation, preparation of cost estimates, remedial alternative selection and design, soil characterization for disposal, field safety oversight, and preparation of work plans and reports to satisfy New York and New Jersey state requirements, and New York City "e" designation and restrictive declarations. Mr. Carroll's project management experience includes past management of a New York City School Construction Authority hazardous materials contract. He is responsible for all engineering work performed by Tenen and is currently the project manager and remedial engineer for several New York State Brownfield Cleanup Program sites.

Selected Project Experience

470 Kent Avenue, Brooklyn

As project manager, supported the client in due diligence and transactional activities, including a Phase I ESA, preliminary site investigation, and remedial cost estimate; preparation of BCP application and remedial investigation work plan. The former manufactured gas plant, sugar refinery and lumberyard will be developed as a mixed-use project with market rate and affordable housing and public waterfront access. As remedial engineer, will be responsible for development of remedial alternatives and oversight and certification of all remedial activities.

500 Exterior Street, Bronx

Designed and implemented the investigation of this former lumberyard and auto repair shop that will be redeveloped as mixed use development with an affordable housing component; prepared BCP application and subsequent work plans and reports. Designed a remedial strategy incorporating both interim remedial measures (IRMs) and remediation during the development phase.

Gateway Elton I and II, Brooklyn

Conducted soil disposal characterization, prepared Remedial Action Work Plans and designed methane mitigation systems for two phases of a nine-building residential development and commercial space; prepared and oversaw implementation of a Stormwater Pollution Prevention Plan during construction and prepared and certified the remedial closure reports for the project.

Affordable Housing Development, Rye, NY

Consultant to the City of Rye on environmental issues pertaining to a county-owned development site slated for an afford senior housing; reviewed environmental documentation for the project and prepared summary memorandum for City Council review; recommended engineering controls to address potential exposure to petroleum constituents, presented report findings at public meetings and currently providing ongoing environmental support during project implementation.

Queens West Development BCP Site, Long Island City, New York

Assistant Project Manager for two developers involved in the site.

- Responsible for oversight of remediation under the New York State Brownfield Cleanup Program
- Technical review of work plans and reports and coordination of the Applicant's investigation and oversight efforts
- Provided input for mass calculations and well placement for an in-situ oxidation remedy implemented on a proposed development parcel and within a City street
- Conducted technical review of work pertaining to a former refinery. Documents reviewed included work plans for characterization and contaminant delineation; pilot test (chemical oxidation); remediation (excavation and groundwater treatment). Managed field personnel conducting full time oversight and prepared progress summaries for distribution to project team
- Following implementation of remedial action, implemented the Site Management Plan and installation/design of engineering controls (SSDS, vapor barrier/concrete slab, NAPL recovery). Also responsible for coordination with NYSDEC

Brownfield Cleanup Program Redevelopment Sites – West Side, New York City

Managed remediation of a development consisting of four parcels being addressed under one or more State and city regulatory programs (NYS Brownfield Cleanup Program, NYS Spills, and NYC "e" designation program). Remediation includes soil removal, screening and disposal; treatment of groundwater during construction dewatering and implementation of a worker health and safety plan and community air monitoring plan (HASP/CAMP)

Managed an additional BCP site, supported the Applicant in coordination with MTA to create station access for the planned No. 7 subway extension; also provided support the client in coordination with Amtrak to obtain access for remedial activities on the portion of the site that is within an Amtrak easement. The site will eventually be used for construction of a mixed-use high-rise building.

BCP Site, Downtown Brooklyn, New York

Performed investigation on off-site properties and designed an SSDS for an adjacent building, retrofitting the system within the constraints of the existing structure; coordinated the installation of the indoor HVAC controls and vapor barrier; provided input to the design of a SVE system to address soil vapor issues on the site.

West Chelsea Brownfield Cleanup Program Site

Designed an in-situ remediation program and sub-slab depressurization system to address contamination remaining under the High Line Viaduct; SSDS design included specification of sub-grade components, fan modeling and selection, identifying exhaust location within building constraints and performance modeling; prepared the Operations Maintenance and Monitoring Plan and Site Management Plan sections pertaining to the SSDS.

Historic Creosote Spill Remediation – Queens, New York – New York State Voluntary Cleanup Program

Modeled contamination volume and extent and prepared mass estimates of historic fill constituents and creosote-related contamination; designed a soil vapor extraction (SVE) and dewatering system to address historic creosote release both above and below static

Matthew Carroll, Environmental Engineer/Principal
Tenen Environmental

water table; coordinated with the Metropolitan Transit Authority and prepared drawings to secure approval to drill in the area of MTA subway tunnels.

NYSDEC Spill Site- Far West Side, Manhattan

Provided support to client during negotiations with a major oil company regarding allocation of remedial costs. Worked with client's attorney to develop a regulatory strategy to address the client's obligations under the NYSDEC Spills Program and the New York City "e" designation requirements.

Affordable Housing Site, Brooklyn, New York

Modified prior work plans for soil, soil vapor and groundwater investigation to address requirements for site entry into the New York City Brownfield Cleanup Program. Prepared technical basis for use of prior data previously disallowed by OER. Currently conducting site investigation.

New York City School Construction Authority Hazardous Materials Contract

Provided work scopes and cost estimates, managed and implemented concurrent projects, including Phase I site assessments, Phase II soil, groundwater and soil gas investigations, review of contractor bid documents, preparation of SEQR documents, specifications and field oversight for above- and underground storage tank removal, and emergency response and spill control.

Former Manufacturing Facility, Hoboken, New Jersey

Evaluated site investigation data to support a revision of the current property use to unrestricted; modified the John & Ettinger vapor intrusion model to apply the model to a site-specific, mixed use commercial/residential development; implemented a Remedial Action Work Plan that included the characterization, removal and separation of 9,500 cubic yards of historic fill; designed and implemented a groundwater characterization/delineation program using a real-time Triad approach; designed and implemented an innovative chemical oxidation technology for the property.

Former Varnish Manufacturer - Newark, New Jersey

Prepared a Phase I environmental site assessment; implemented soil and groundwater sampling to assess presence of petroleum and chlorinated compounds; prepared alternate cost remediation scenarios for settlement purposes and implemented a groundwater investigation plan, including pump tests and piezometer installation to assess the effect of subsurface utilities and unique drainage pathways upon contaminant transport.

Education and Certifications

Professional Engineer, New York

Bachelor of Engineering, Environmental; Stevens Institute of Technology, 2002

Bachelor of Science, Chemistry, New York University, 2002

Technical and Regulatory Training in Underground Storage Tanks, Cook College, Rutgers University, 2006

Ashley Platt
Senior Environmental Scientist

PROFESSIONAL PROFILE

Ms. Ashley Platt is an environmental scientist with seven years of environmental consulting experience in the New York metropolitan area and specializing in brownfield redevelopment. She has experience in the preparation of various reports for regulatory compliance with local, State, and Federal entities, including Remedial Investigation Work Plans, Remedial Investigation Reports, Remedial Action Work Plans, Final Engineering Reports, and Site Management Plans. She also has an extensive field background which includes soil, groundwater, soil vapor and indoor air sampling and remediation, remedial oversight and installation of remedial systems, including soil vapor extraction systems and sub-slab depressurization systems. Ms. Platt has worked on projects from inception through investigation, remediation, and closure in the New York State Brownfield Cleanup Program and the New York City E-Designation Program.

CREDENTIALS AND PROFESSIONAL HONORS

P.S.M., Environmental Sciences, Stockton University, New Jersey (2016)

B.S., Biology, Minors in Chemistry and Business Studies, Stockton University, New Jersey (2014)

CONTINUING EDUCATION AND TRAINING

OSHA 30-Hour Construction Safety Training (2019)

Hazardous Waste Operations and Emergency Response 40-Hour Certification (2016; refreshers 2017, 2018, 2019, 2020, 2021, and 2022)

Hazardous Waste Operations and Emergency Response 8-Hour Supervisor Training (2017)

First Aid and CPR Certified (2016)

RELEVANT EXPERIENCE

New York State Brownfield Cleanup Program, 36-08 Review Avenue, Long Island City, Queens, New York

Assisted in guiding the client into the Brownfield Cleanup Program at the investigation stage. Assisted in the preparation of a Remedial Investigation Work Plan and performed an integral role in the implementation of the Remedial Investigation, including oversight during soil boring, monitoring well, and soil vapor point installation; collection of soil, groundwater, soil vapor, indoor air, and oil samples; and, implementation of a community air monitoring plan. Coordinated with tenants of the site buildings to arrange access to perform the Remedial Investigation. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, and Remedial Action Work Plan.

New York State Brownfield Cleanup Program, 555 West 22nd Street, West Chelsea, Manhattan, New York

Performed remedial oversight during redevelopment activities, including daily oversight of bulk excavation and soil/fill disposal offsite, implementation of a community air monitoring plan, and collection of post-remedial endpoint samples. Assisted in the preparation of a Final Engineering Report and Site Management Plan and the attainment of a Certificate of Completion. A mixed Track 2 and Track 4 cleanup was obtained. Assisted in the preparation of annual Periodic Review Reports following issuance of the Certificate of Completion.

New York City Voluntary Cleanup Program, Greenport II South, Far Rockaway, Queens, New York

Assisted in the preparation of a Phase I Environmental Site Assessment. Assisted in the preparation of a Remedial Investigation Work Plan and Remedial Investigation Report to address New York City E-Designation and Voluntary Cleanup Program requirements. Served an integral role in the preparation of a Remedial Action Work Plan and alternatives analysis and management of the remedial action. Prepared and submitted daily reports to the New York City Mayor's Office of Environmental Remediation for

compliance with the New York City Voluntary Cleanup Program. Assisted in the preparation of a Remedial Action Report and obtained a Track 1 Cleanup. As a result of the Remedial Action conducted at the property, the new development was awarded a 2022 Big Apple Brownfield Award for Community Space.

New York State Brownfield Cleanup Program, 147-35 95th Avenue, Jamaica, Queens, New York

Assisted in the design and implementation of a Remedial Investigation and waste characterization sampling of soil. Served an integral role in guiding the client into the Brownfield Cleanup Program at the remediation stage, including the preparation of a Brownfield Cleanup Program Application, Remedial Investigation Report, Remedial Action Work Plan, and alternatives analysis. Coordinated with State and City agencies for the satisfaction of air, noise, and hazardous waste requirements. Managed the project during implementation of the Remedial Action, including coordination to obtain disposal facility approvals for disposal of soil/fill offsite, preparation and submission of daily and monthly reports to the New York State Department of Environmental Conservation, coordination with the New York State Department of Environmental Conservation for approval to import various fill materials and reuse soil onsite as backfill, and coordination for changes to the sub-slab depressurization system design. Served an integral role in the preparation of a Final Engineering Report, Site Management Plan, and electronic data deliverables.

New York State Brownfield Cleanup Program, 965 Mamaroneck Avenue, Village of Mamaroneck, New York

Assisted in guiding the client into the Brownfield Cleanup Program at the remediation stage. Assisted in the preparation of a Remedial Investigation Work Plan and Supplemental Remedial Investigation Work Plans and performed an integral role in the implementation of the Remedial Investigation, including oversight during soil boring, monitoring well, and soil vapor point installation; collection of soil, groundwater, soil vapor, and indoor air samples; and, implementation of a community air monitoring plan. Coordinated with offsite property owners to complete soil vapor and indoor air sampling offsite. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, and a Remedial Action Work Plan and alternatives analysis.

New York State Brownfield Cleanup Program, 2921 Westchester Avenue, Pelham Bay, Bronx, New York

Performed an integral role in the implementation of a due diligence investigation, including the installation of soil borings and monitoring wells and the collection of soil, groundwater, and indoor air samples. Assisted in guiding the client into the Brownfield Cleanup Program at the investigation stage. Assisted in the preparation of a Remedial Investigation Work Plan and performed an integral role in the implementation of the Remedial Investigation, including oversight during soil boring, monitoring well, and soil vapor point installation; collection of soil, groundwater, soil vapor, and indoor air samples; and, implementation of a community air monitoring plan. Coordinated with offsite tenants of the Site building to arrange access for sampling during due diligence and Remedial Investigation activities. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, and a Remedial Action Work Plan and alternatives analysis.

New York City Voluntary Cleanup Program, 2700 Atlantic Avenue, East New York, Brooklyn, New York

Assisted in the preparation of a Remedial Investigation Report and performed an integral role in guiding the client into the Voluntary Cleanup Program. Performed an integral role in the preparation of a Remedial Action Work Plan and alternatives analysis and management of the remedial action. Prepared and implemented a waste characterization sampling plan and coordinated with the soil broker to obtain approvals to dispose of material offsite. Performed an integral role in the preparation of an Air Quality and Noise Remedial Action Plan.

New York City Voluntary Cleanup Program, 335 Ralph Avenue, Bedford Stuyvesant, Brooklyn, New York

Assisted in the preparation of a Remedial Investigation Work Plan and Remedial Investigation Report and performed an integral role in guiding the client into the Voluntary Cleanup Program. Performed an integral role in the preparation of a Remedial Action Work Plan and alternatives analysis, a Noise Remedial Action Plan, and management of the remedial action. Coordinated with the client, general contractor, and City agency to resolve issues related to importation of fill materials to the Site. Performed an integral role in the preparation of a Remedial Action Report.

New York City Voluntary Cleanup Program, Gallery Row, West Chelsea, Manhattan, New York

Performed remedial oversight during redevelopment activities over five tax lots, including daily oversight of bulk excavation and soil/fill disposal offsite, implementation of a community air monitoring plan, collection of post-remedial endpoint samples, and installation of a passive sub-slab depressurization system. Assisted in the preparation of a Remedial Action Report and the attainment of a Notice of Satisfaction for hazardous waste requirements.

New York State Brownfield Cleanup Program, Teitelbaum Dry Cleaner, Long Island City, Queens, New York

Performed an integral role in the preparation of a Remedial Investigation Report, Remedial Action Work Plan, and alternatives analysis. Assisted in the design of a remedial approach for the site building that included source removal, groundwater injections, and a retro-fitted sub-slab depressurization system. Performed remedial oversight during remedial action activities, including installation of a soil vapor extraction system, a retro-fitted sub-slab depressurization system, injection wells and groundwater injections.

New York City E-Designation Program, 2856 Webster Avenue, Bedford Park, Bronx, New York

Performed an integral role in the management of the remedial action, including preparing and submitting daily reports to NYC OER, coordinating soil reuse approvals for backfill onsite, and coordinating Petroleum Bulk Storage notifications and management of the disposal of abandoned underground storage tanks. Performed an integral role in the preparation of a Remedial Action Report and achieved a Track 4 cleanup.

New York State Brownfield Cleanup Program, 340 Myrtle Avenue, Fort Greene, Brooklyn, New York

Performed an integral role in the implementation of a Phase II Environmental Site Investigation to meet E-Designation requirements, including the installation of soil borings, monitoring wells, and soil vapor points and the collection of soil, groundwater, and sub-slab soil vapor samples. Assisted in guiding the client into the Brownfield Cleanup Program at the investigation stage. Assisted in the preparation of a Remedial Investigation Work Plan and managed the implementation of the Remedial Investigation. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, Noise Remedial Action Plan, and a Remedial Action Work Plan and alternatives analysis.

L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731

Lori A. Beyer

SUMMARY:

General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

EXPERIENCE:

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY

President

- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY

Laboratory Director/Technical Director

- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environment that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York

General Manager

- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York

Technical Project Manager

- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and Implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York

Corporate QA/QC Officer

- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York

Data Review Manager

- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York

Data Review Specialist

- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc. (NEI) Port Washington, New York

GC/MS VOA Analyst

EDUCATION:

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry

1981-1982 University of Delaware; Biology/Chemistry

5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training

8/92 Westchester Community College; Organic Data Validation Course

9/93 Westchester Community College; Inorganic Data Validation Course

Westchester Community College

Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

[Signature]

Assistant Dean
Professional Development Center

[Signature]
President



The Professional
Development Center

Westchester Community College

Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Arch O'Neil
Assistant Dean
Professional Development Center

J. B. Boshart
President



The Professional
Development Center

New York State Department of Environmental Conservation
60 Wolf Road, Albany, New York 12233



Thomas C. Jorling
Commissioner

July 8, 1992

Ms. Elaine Sall
Program Coordinator
Westchester Community College
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for your efforts and please contact me if I can be of any further assistance.

Sincerely,

Maureen P. Serafini

Maureen P. Serafini
Environmental Chemist II
Division of Hazardous Waste
Remediation

②



The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer
3 sparkill Drive
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%
Your Grade is 99%

Elaine Sall
Program Coordinator

ES/bf



SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595



The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall
Program Coordinator

ES/bf

Enclosures



SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Appendix B

PFAS Field Sampling Guidelines



EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampling for PFAS via EPA 537 can be challenging due to the prevalence of these compounds in consumer products. The following guidelines are strongly recommended when conducting sampling.

Reference-NHDES <https://www.des.nh.gov/organization/divisions/waste/hwrb/documents/pfc-stakeholder-notification-20161122.pdf>

FIELD CLOTHING and PPE

- No clothing or boots containing Gore-Tex®
- All safety boots made from polyurethane and PVC
- No materials containing Tyvek®
- Do not use fabric softener on clothing to be worn in field
- Do not use cosmetics, moisturizers, hand cream, or other related products the morning of sampling
- Do not use unauthorized sunscreen or insect repellent (see reference above for acceptable products)

FOOD CONSIDERATIONS

No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

OTHER RECOMMENDATIONS

Sample for PFAS first! Other containers for other methods may have PFAS present on their sampling containers

SAMPLE CONTAINERS

- All sample containers made of HDPE or polypropylene
- Caps are unlined and made of HDPE or polypropylene (no Teflon®-lined caps)

WET WEATHER (AS APPLICABLE)

Wet weather gear made of polyurethane and PVC only

EQUIPMENT DECONTAMINATION

- "PFAS-free" water on-site for decontamination of sample equipment. No other water sources to be used
- Only Alconox and Liquinox can be used as decontamination materials

FIELD EQUIPMENT

- Must not contain Teflon® (aka PTFE) or LDPE materials
- All sampling materials must be made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books can be used
- No plastic clipboards, binders, or spiral hard cover notebooks can be used
- No adhesives (i.e. Post-It® Notes) can be used
- Sharpies and permanent markers not allowed; regular ball point pens are acceptable
- Aluminum foil must not be used
- Keep PFC samples in separate cooler, away from sampling containers that may contain PFAS
- Coolers filled with regular ice only - Do not use chemical (blue) ice packs





EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampler must wash hands before wearing nitrile gloves in order to limit contamination during sampling. Each sample set requires a set of containers to comply with the method as indicated below. **Sample set is composed of samples collected from the same sample site and at the same time.*

Container Count	Container Type	Preservative
3 Sampling Containers - Empty	250 mL container	Pre preserved with 1.25 g Trizma
1 Reagent Water for Field Blank use	250 mL container	Pre preserved with 1.25 g Trizma
P1 Field Blank (FRB) - Empty	250 mL container	Unpreserved

Sampling container must be filled to the neck. For instructional purposes a black line has been drawn to illustrate the required fill level for each of the 3 Sample containers

Field blanks are recommended and the containers have been provided, please follow the instructions below.

Field Blank Instructions:

1. Locate the Reagent Water container from the bottle order. The Reagent Water container will be pre-filled with PFAS-free water and is preserved with Trizma.
2. Locate the empty container labeled "Field Blank".
3. Open both containers and proceed to transfer contents of the "Reagent Water" container into the "Field Blank" container.
4. If field blanks are to be analyzed, they need to be noted on COC, and will be billed accordingly as a sample.



Both the empty Reagent Water container and the filled Field Blank container must be returned to the lab along with the samples taken.

Sampling Instructions:

1. Each sampling event requires 3 containers to be filled to the neck of the provided containers for each sampling location.
2. Before sampling, remove faucet aerator, run water for 5 min, slow water to flow of pencil to avoid splashing and fill sample containers to neck of container (as previously illustrated) and invert 5 times.
3. Do not overfill or rinse the container.
4. Close containers securely. Place containers in sealed ZipLoc® bags, and in a separate cooler (no other container types).
5. Ensure Chain-of-Custody and all labels on containers contain required information. Place sample, Field Blank and empty Reagent Blank containers in ice filled cooler (do not use blue ice) and return to the laboratory. Samples should be kept at 4°C ±2. Samples must not exceed 10°C during first 48 hours after collection. Hold time is 14 days.

Please contact your Alpha Analytical project manager with additional questions or concerns.

Appendix C

PFAS Compounds to be Analyzed and Associated MDLs

Appendix C
PFAS Compounds to be Analyzed and Associated MDLs

Analyte	Soil MDL (ng/g)	Groundwater MDL (ng/l)
Perfluorobutanoic Acid (PFBA)	0.0504	0.512
Perfluoropentanoic Acid (PFPeA)	0.056	0.428
Perfluorobutanesulfonic Acid (PFBS)	0.0432	0.268
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.0808	0.836
Perfluorohexanoic Acid (PFHxA)	0.0464	0.236
Perfluoropentanesulfonic Acid (PFPeS)	0.0232	0.14
Perfluoroheptanoic Acid (PFHpA)	0.0232	0.16
Perfluorohexanesulfonic Acid (PFHxS)	0.0592	0.192
Perfluorooctanoic Acid (PFOA)	0.052	0.348
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.28	1.08
Perfluoroheptanesulfonic Acid (PFHpS)	0.0368	0.216
Perfluorononanoic Acid (PFNA)	0.0784	0.252
Perfluorooctanesulfonic Acid (PFOS)	0.0792	0.364
Perfluorodecanoic Acid (PFDA)	0.0752	0.324
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.3872	1.244
Perfluorononanesulfonic Acid (PFNS)	0.0424	0.248
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.1	0.436
Perfluoroundecanoic Acid (PFUnA)	0.0512	0.348
Perfluorodecanesulfonic Acid (PFDS)	0.032	0.184
Perfluorooctanesulfonamide (FOSA)	0.0432	0.216
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.0824	0.432
Perfluorododecanoic Acid (PFDoA)	0.0408	0.368
Perfluorotridecanoic Acid (PFTrDA)	0.0528	0.3
Perfluorotetradecanoic Acid (PFTA)	0.1064	0.212
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	0.0984	0.448
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	0.1464	0.504
Perfluorododecane Sulfonic Acid (PFDoDS)	0.0384	0.304
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	0.196	0.66
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	0.1672	0.66
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	0.1	0.348
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	0.112	0.368
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	0.2504	1.88
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	0.5104	0.98
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	0.0408	0.228
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	0.0312	0.212
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	0.0832	0.176
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	0.0952	0.944
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	0.144	1.32
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	0.5048	4.68
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	1.76	3.156

Appendix D

Laboratory Standard Operating Procedures for PFAS Analysis

Method 1633 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids and Tissue Samples by LC-MS/MS

References: Method 1633 - Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS (2nd Draft - June 2022)

DOD QSM (US Department of Defense Quality Systems Manual for Environmental Laboratories, version 5.4, 20221)

1. Scope and Application

Matrices: Drinking water, Non-potable Water, Tissues, Biosolids and Soil Matrices

Definitions: Refer to Alpha Analytical Quality Manual.

- 1.1** Method 1633 is for use in the Clean Water Act (CWA) for the determination of the per- and polyfluoroalkyl substances (PFAS) in Table 1 in aqueous, solid (soil, biosolids, sediment) and tissue samples by liquid chromatography/mass spectrometry (LC-MS/MS).
- 1.2** The method calibrates and quantifies PFAS analytes using isotopically labeled standards. Where linear and branched isomers are present in the sample and either qualitative or quantitative standards containing branched and linear isomers are commercially available, the PFAS analyte is reported as a single analyte consisting of the sum of the linear and branched isomer concentrations
- 1.3** This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water, tissue soil and biosolid Matrices. Accuracy and precision data have been generated for the compounds listed in Table 1.
- 1.4** The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.
- 1.5** This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of Method

- 2.1** Environmental samples are prepared and extracted using method-specific procedures. Sample extracts are subjected to cleanup procedures designed to remove interferences. Analyses of the sample extracts are conducted by LC-MS/MS in the multiple reaction monitoring (MRM) mode. Sample concentrations are determined by isotope dilution or extracted internal standard quantification using isotopically labeled compounds added to the samples before extraction.

- 2.2 Aqueous samples are spiked with isotopically labeled standards, extracted using solid-phase extraction (SPE) cartridges and undergo cleanup using carbon before analysis.
- 2.3 Solid samples are spiked with isotopically labeled standards, extracted into basic methanol, and cleaned up by carbon and SPE cartridges before analysis
- 2.4 Tissue samples are spiked with isotopically labeled standards, extracted in potassium hydroxide and acetonitrile followed by basic methanol, and cleaned up by carbon and SPE cartridges before analysis.
- 2.5 A sample extract is injected into an LC equipped with a C18 column that is interfaced to an MS/MS). The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.6 Method Modifications from Reference

N/A

3. Reporting Limits

The reporting limit for PFAS's are listed in Table 8.

4. Interferences

- 4.1 PFAS standards, extracts and samples should not come in contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.
- 4.2 Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be routinely demonstrated to be free from interferences (less than 1/2 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks as described in Section 9.1. Subtracting blank values from sample results is not permitted.
- 4.3 Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

- 4.4** SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

- 5.1** The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.
- 5.2** All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.
- 5.3** PFOA has been described as “likely to be carcinogenic to humans.” Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection for Aqueous Samples

- 6.1.1** Samples must be collected in two (2) 500-mL or 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap. All sample containers must have linerless HDPE or polypropylene caps.
- 6.1.2** The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.
- 6.1.3** Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.
- 6.1.4** Fill sample bottles. Samples do not need to be collected headspace free.
- 6.1.5** After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.
- 6.1.6** Maintain all aqueous samples protected from light at 0 - 6 °C from the time of collection until shipped to the laboratory. Samples must be shipped as soon as practical with sufficient ice to maintain the sample temperature below 6 °C during transport and be received by the laboratory within 48 hours of collection. The laboratory must confirm that the sample temperature is 0 - 6 °C upon receipt. Once received by the laboratory, the samples must be stored at ≤ -20 °C until sample preparation.

6.2 Sample Collection for Soil and Sediment samples.

- 6.2.1 Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided. Samples should fill no more than $\frac{3}{4}$ full.
- 6.2.2 Maintain solid samples protected from light (in HDPE containers) at 0 - 6 °C from the time of collection until receipt at the laboratory. The laboratory must confirm that the sample temperature is 0 - 6 °C upon receipt. Once received by the laboratory, the samples must be stored at ≤ -20 °C until sample preparation.

6.3 Sample Collection for fish and other tissue samples

- 6.3.1 Once received by the laboratory, the samples must be maintained protected from light at ≤ -20 °C until prepared. Store unused samples in HDPE containers or wrapped in aluminum foil at ≤ -20 °C.
- 6.3.2 The nature of the tissues of interest may vary by project. Field sampling plans and protocols should explicitly state the samples to be collected and if any processing will be conducted in the field (e.g., filleting of whole fish or removal of organs). All field procedures must involve materials and equipment that have been shown to be free of PFAS.

6.4 Sample Preservation

Not applicable.

6.5 Sample Shipping

Samples must be chilled during shipment and must not exceed 0 – 6 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 0 – 6 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction but should not be frozen.

NOTE: Samples that are significantly above 0 – 6 °C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.6 Sample Handling

- 6.6.1 Aqueous samples (including leachates) should be analyzed as soon as possible; however, samples may be held in the laboratory for up to 90 days from collection, when stored at ≤ -20 °C and protected from the light. When stored at 0 - 6 °C and protected from the light, aqueous samples may be held for up to 28 days, with the caveat that issues were observed with certain perfluorooctane sulfonamide ethanols and perfluorooctane sulfonamidoacetic acids after 7 days. These issues are more likely to elevate the observed concentrations of other PFAS compounds via the transformation of these precursors if they are present in the sample.
- 6.6.2 Solid samples (soils and sediments) and tissue samples may be held for up to 90 days, if stored by the laboratory in the dark at either 0 - 6 °C or ≤ -20 °C, with the caveat that samples may need to be extracted as soon as possible if NFDHA is an important analyte.

- 6.6.3** Biosolids samples may be held for up to 90 days, if stored by the laboratory in the dark at 0 - 6 °C or at -20 °C. Because microbiological activity in biosolids samples at 0 - 6 °C may lead to production of gases which may cause the sample to be expelled from the container when it is opened, as well as producing noxious odors, EPA recommends that samples be frozen if they need to be stored for more than a few days before extraction. Store sample extracts in the dark at less than 0 - 4 °C until analyzed. If stored in the dark at less than 0 - 4 °C, sample extracts may be stored for up to 90 days, with the caveat that issues were observed for some ether sulfonates after 28 days. These issues may elevate the observed concentrations of the ether sulfonates in the extract over time. Samples may need to be extracted as soon as possible if NFDHA is an important analyte.

7. Equipment and Supplies

- 7.1** SAMPLE CONTAINERS – 500-mL or 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.
- 7.2** SAMPLE JARS – 8-ounce wide mouth high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.
- 7.3** POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.
- 7.4** CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.
- 7.5** AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.
- 7.5.1** NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.
- 7.6** POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.
- 7.7** Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µLs.
- 7.8** PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.
- 7.9** Silanized glass wool (Sigma-Aldrich, Cat # 20411 or equivalent) – store in a clean glass jar and rinsed with methanol (2 times) prior to use.
- 7.10** Disposable syringe filter, 25-mm, 0.2-µm Nylon membrane, PALL/Acrodisc or equivalent
- 7.11** Variable volume pipettes with disposable HDPE or polypropylene tips (10 µL to 5 mL) used for preparation of calibration standards and spiked samples.
- 7.12** ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.
- 7.13** ANALYTICAL BALANCE – Capable of weighing to the nearest 0.1 g.
- 7.14** SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.14.1 SPE CARTRIDGES – (Waters Oasis WAX 150 mg, Cat # 186002493 or equivalent). The SPE sorbent must have a pKa above 8 so that it remains positively charged during the extraction.

7.14.1.1 Note: SPE cartridges with different bed volume (e.g., 500 mg) may be used; however, the laboratory must demonstrate that the bed volume does not negatively affect analyte absorption and elution, by performing the initial demonstration of capability analyses described in Section.

7.14.2 VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB.

7.14.3 SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8" O.D. x 1/16" I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB and LCS QC requirements.

7.15 EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 55 °C.

7.16 LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.17 LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.17.1 LC SYSTEM – Instrument capable of reproducibly injecting up to 10-µL aliquots and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

7.17.2 LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.17.3 DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion

abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.17.4 INSTRUMENT COLUMNS

7.17.4.1 ANALYTICAL: C18 column, 1.7 μ m, 50 x 2.1 mm (Waters Acquity UPLC® BEH or equivalent)

7.17.4.2 OPTIONAL GUARD COLUMN: (Phenomenex Kinetex® Evo C18 or equivalent)

8. Reagents and Standards

8.1 GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals must be used.

8.1.1 REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/2 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2 METHANOL (CH₃OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3 AMMONIUM ACETATE (NH₄C₂H₃O₂, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences.

8.1.4 ACETIC ACID (H₃CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences.

8.1.5 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 ml of 1M AMMONIUM ACETATE, 1 ml ACETIC ACID and 50 ml METHANOL into 1 Liter of REAGENT WATER.

8.1.7 ACETONITRILE – UPLC grade or equivalent, store at room temperature

8.1.8 TOLUENE – HPLC grade or equivalent.

8.1.9 ACETONE – pesticide grade or equivalent

8.1.10 AMMONIUM ACETATE – (Caledon Ultra LC/MS grade or equivalent

8.1.11 AMMONIUM HYDROXIDE (NH₃, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences.

- 8.1.12 METHANOLIC AMMONIUM HYDROXIDE (0.3%) - add ammonium hydroxide (1 mL, 30%) to methanol (99 mL), store at room temperature, replace after 1 month
- 8.1.13 METHANOLIC AMMONIUM HYDROXIDE (1%) - add ammonium hydroxide (3.3 mL, 30%) to methanol (97 mL), store at room temperature, replace after 1 month
- 8.1.14 METHANOLIC AMMONIUM HYDROXIDE (2%) - add ammonium hydroxide (6.6 mL, 30%) to methanol (93.4 mL), store at room temperature, replace after 1 month
- 8.1.15 METHANOLIC POTASSIUM HYDROXIDE (0.05 M) – add 3.3 g of potassium hydroxide to 1 L of methanol, store at room temperature, replace after 3 months
- 8.1.16 METHANOL WITH 4% WATER, 1% AMMONIUM HYDROXIDE AND 0.625% ACETIC ACID - add ammonium hydroxide (3.3 mL, 30%), reagent water (1.7 mL) and acetic acid (0.625 mL) to methanol (92 mL), store at room temperature, replace after 1 month. This solution is used to prepare the instrument blank and calibration standards (Section 8.3.2).
- 8.1.17 FORMIC ACID – (greater than 96% purity or equivalent).
- 8.1.18 FORMIC ACID (aqueous, 0.1 M) - dissolve formic acid (4.6 g) in reagent water (1 L), store at room temperature, replace after 2 years
- 8.1.19 FORMIC ACID (aqueous, 0.3 M) - dissolve formic acid (13.8 g) in reagent water (1 L), store at room temperature, replace after 2 years
- 8.1.20 FORMIC ACID (aqueous, 5% v/v) - mix 5 mL formic acid with 95 mL reagent water, store at room temperature, replace after 2 years
- 8.1.21 FORMIC ACID (methanolic 1:1, 0.1 M formic acid/methanol) - mix equal volumes of methanol and 0.1 M formic acid, store at room temperature, replace after 2 years
- 8.1.22 FORMIC ACID (aqueous, 50% v/v) - mix 50 mL formic acid with 50 mL reagent water, store at room temperature, replace after 2 years
- 8.1.23 POTASSIUM HYDROXIDE – certified ACS or equivalent
- 8.1.24 CARBON - – EnviCarb® 1-M-USP or equivalent, verified by lot number before use, store at room temperature. Loose carbon allows for better adsorption of interferent organics. Note: The single-laboratory validation laboratory achieved better performance with loose carbon than carbon cartridges. Loose carbon will be used for the multi-laboratory validation to set statistically based method criteria.
- 8.1.25 NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument

manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).

8.1.26 ARGON – Used as collision gas in some MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.

8.2 REFERENCE MATRICES - Matrices in which PFAS and interfering compounds are not detected by this method. These matrices are to be used to prepare the batch QC samples.

8.2.1 Reagent water - purified water, Type I

8.2.2 Solid reference matrix Ottawa Sand or equivalent

8.2.3 Tissue Reference matrix – Cod loin or other animal tissue demonstrated to be PFAS free

8.3 STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers and are stored at ≤ 4 °C. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.

8.3.1 Stock standards and diluted stock standards are stored at ≤ 4 °C. Prepare a spiking solution, containing the method analytes listed in Table 1, in methanol from prime stocks. The solution is used to prepare the calibration standards and to spike the known reference QC samples that are analyzed with every batch. Quantitative standards containing a mixture of branched and linear isomers must be used for method analytes if they are commercially available. Currently, these include PFOS, PFHxS, NEtFOSAA, and NMeFOSAA.

8.3.2 Calibration standard solutions – A series of calibration solutions containing the target analytes and the Labeled extracted internal standards (EIS) and non-extracted internal standards (NIS) is used to establish the initial calibration of the analytical instrument. Table 4 represents the concentrations of the native, EIS and NIS analytes of the calibration curve. Calibration standard solutions are made using the solution described in section 8.1.16.

8.3.3 ISOTOPE DILUTION EXTRACTED INTERNAL STANDARD (EIS) – Isotopically labelled analogs of the target analytes to be used for the quantification of target analytes. EIS stock standard solutions are purchased in glass ampoules and are stored in accordance with the manufacturer's recommendations. The EIS stock solution to be used for the fortification of samples and QC in accordance with the isotope dilution procedure. Table 2 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

8.3.4 ISOTOPE DILUTION NON-EXTRACTED INTERNAL STANDARDS (NIS) – Isotopically labelled analogs to be added post extraction for the measurement of EIS extraction efficiency and is added to the final volume of all extractions. Table 3 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

9. Quality Control

9.1 Method Blank

- 9.1.1 A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. An aliquot of reagent water that is treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents and standards. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination, and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.2 Laboratory Control Sample (LCS)

- 9.2.1 Low Level LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LLCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at 2X the LOQ. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%R) for each analyte using the equation:
- 9.2.2 An LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at the midpoint of the calibration curve. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%R) for each analyte using the equation:

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B = fortification concentration.

- 9.1.1 Where applicable, in the absence of additional sample volume required to perform matrix specific QC, LCSD's are to be extracted and analyzed. The concentration and analyte recovery criteria for the LCSD must be the same as the batch LCS. The RSD's must fall within ≤30% of the true value for medium and high-level replicates, and ≤50% for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

- 9.1.2 If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.3 Non-extracted Internal Standard Area (NIS)

Each time an initial calibration is performed, use the data from all the initial calibration standards used to meet the linearity test in Section 10.3.3.3 to calculate the mean area response for each of the NIS compounds, using the equation below.

$$\text{Mean Area}_{\text{NISi}} = \sum \text{Area}_{\text{NISi}} / n$$

where:

Area_{NISi} = Area counts for the *i*th NIS, where *i* ranges from 1 to 7, for the seven NIS compounds listed in Table 1

n = The number of ICAL standards (the default value is *n* = 6). If a different number of standards is used for the ICAL, for example, to increase the calibration range or by dropping a point at either end of the range to meet the linearity criterion, change 6 to match the actual number of standards used)

Record the mean areas for each NIS for use in evaluating results for sample analyses. There is no acceptance criterion associated with the mean NIS area data.

9.4 Extracted Internal Standards (EIS)

- 9.4.1 The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation:

$$\%R = (A / B) \times 100$$

Where:

A = calculated EIS concentration for the QC or Field Sample

B = fortified concentration of the EIS.

- 9.4.2 Default limits of 50-150% may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4) instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential

biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria, the data must be reanalyzed.

9.5 Matrix Spike (MS/MSD)

- 9.5.1 Analysis of an MS is prepared one per preparation batch (if required).
- 9.5.2 Aliquots of field samples that have been fortified with a known concentration of target compounds, prior to sample preparation and extraction, and analyzed to measure the effect of matrix interferences. The use of MS/MSD samples is generally not required in isotope dilution methods because the labeled compounds added to every sample provide more performance data than spiking a single sample in each preparation batch. Aliquots of field samples
- 9.5.3 Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6 Laboratory Duplicate

- 9.6.1 FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.
- 9.6.2 Calculate the relative percent difference (RPD) for duplicate measurements (FD1 and FD2) using the equation:

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

- 9.6.3 RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.
- 9.6.4 If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|MS - MSD|}{(MS + MSD) / 2} \times 100$$

- 9.6.5 RPDs for duplicate MSs should be $\leq 30\%$ for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are $\leq 50\%$ for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased. If no LCSD is present, the associated MS and MSD are to be re-analyzed to determine if any analytical has occurred. If the resulting RPDs are still outside control limits, the result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7 Bile Salt Interference Check

- 9.7.1 The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the

9.8 Initial Calibration Verification (ICV)

- 9.8.1 After each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be $\pm 30\%$ of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedure to locate and correct the problem.

9.9 Instrument Sensitivity Check (ISC)

- 9.9.1 At the start of each 12-hour shift, analyze a standard at the LOQ. The signal-to-noise ratio of the ISC standard must be greater than or equal to 3:1. If the requirements cannot be met, the problem must be corrected before analyses can proceed

9.10 Continuing Calibration Verification (CCV)

- 9.10.1 CCV Standards must be analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch.
- 9.10.2 The recovery of native and isotopically labeled compounds for the CVs must be within 70 - 130%
- 9.10.3

9.11 Method-specific Quality Control Samples

- 9.11.1 Instrument Blank – During the analysis of a batch of samples, a solvent blank is analyzed after samples containing high level of target compounds (e.g., calibration, CV) to monitor carryover from the previous injection. The injection blank consists of the solution in

Section 8.1.16 fortified with the EIS and NIS for quantitation purposes.

9.12 Example Method Sequence

- INSTRUMENT BLANK
- INSTRUMENT SENSITIVITY CHECK
- CALIBRATION VERIFICATION STANDARD
- QUALITATIVE IDENTIFICATION STANDARDS
- TDCA STANDARD (only if analyzing tissues)
- INSTRUMENT BLANK
- METHOD BLANK
- LOW-LEVEL LCS/OPR
- OPR/LCS
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK

10. Procedure

10.1 Equipment Set-up

- 10.1.1** This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements.
- 10.1.2** Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected.
- 10.1.3** The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.

- 10.1.4** All SPE apparatus, including manifolds, tubing and sample ports must be thoroughly rinsed following each use with 1% methanolic ammonium hydroxide, followed by Methanol and then DI water. Additionally, sample manifold ports and transfer tubing should be inspected regularly for signs of wear and/or discoloration. When such observations are made, the associated components should be replaced.
- 10.1.5** Prior to the start of any extraction, sample site information must be evaluated for any potentially high level PFAS concentrations or sample matrix irregularities that may impact the extraction process. If such samples are identified, aqueous samples may be pre-screened via direct aqueous injection prior to analysis to estimate the potential PFAS concentrations present.
- 10.1.6** To perform a direct aqueous injection (DAI) screen, the sample should be inverted several times to try and evenly disperse any organic matter present. A 1 ml aliquot (or less depending on the matrix) is to be taken from the parent sample, volume adjusted to 1 ml with reagent water if less than 1ml, fortified with EIS and NIS spiking solutions to match the concentrations of an extracted sample (typically 5 µl per 1 ml DAI), and then analyzed under the same analytical conditions as field samples.

10.2 Sample Preparation of Aqueous Samples

- 10.2.1** Samples are preserved, collected, and stored as presented in Section 6.
- 10.2.2** Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new HDPE bottle and record the weight of the new container.
- NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may not be transferred to a graduated cylinder for volume measurement.
- 10.2.3** The MB, LCS and FRB may be prepared by measuring reagent water with a polypropylene graduated cylinder or filling an HDPE sample bottle to near the top.
- 10.2.4** Check that the pH is 6.5 ± 0.5 . If necessary, adjust pH with 50% formic acid or ammonium hydroxide and 3% aqueous ammonium hydroxide. The extract is now ready for solid-phase extraction (SPE) and cleanup.
- 10.2.5** Add 20 µL of the EIS to each sample and QC, cap and invert to mix.
- 10.2.6** If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3 Sample Prep and Extraction Protocol for Soils, Solids and Sediments.

- 10.3.1** Homogenize and weigh 5 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 5 grams of clean sand is used.
- 10.3.1.1** For Biosolids and other complex matrices, a small aliquot may be required due to co-extracted matrix interferences.

10.3.1.2 For batch QC samples using 5 g of reference solid, add 2.5 g of reagent water. The addition of reagent water to the sand provides a matrix closer in composition to real-world samples.

10.3.2 Add 20 µL of the EIS to each sample and QC.

10.3.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3.4 Vortex the samples to evenly disperse the spiking solutions and allow to equilibrate for 30 minutes.

10.3.5 To all samples, add 10 ml of 0.3% methanolic ammonium hydroxide, cap, vortex for 25 seconds.

10.3.6 Following mixing, shake each sample for 30 minutes on a shaker table.

10.3.7 Centrifuge each sample at 2800RPM for 10 minutes.

10.3.8 Remove the supernatant and transfer to a clean 50 ml polypropylene centrifuge tube.

10.3.9 Repeat steps 10.3.4 to 10.3.7, with 15 ml of 0.3% methanolic ammonium hydroxide, combining the supernatants.

10.3.10 Add 5ml of 0.3% methanolic ammonium hydroxide to the sample, vortex for 25 seconds and centrifuge each sample at 2800RPM for 10 minutes.

10.3.11 Remove the supernatant and transfer to the same 50 ml polypropylene centrifuge tube containing eluates from the previous cycles.

10.3.12 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking for no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50 ml polypropylene centrifuge tube.

10.3.13 Dilute to approximately 35 mL with reagent water. Samples containing more than 50% water may yield extracts that are greater than 35 mL in volume; therefore, do not add water to these. Determine the water content in the sample as follows (percent moisture is determined from the % solids):

$$\text{Water Content in Sample} = (\text{Sample Weight} * \text{Percent moisture}) / 100$$

10.3.14 Concentrate each extract at approximately 55 °C with a gentle N2 flow to a final volume that is based on the water content of the sample (see table below). Allow extracts to concentrate for 10 minutes, then mix (by vortex if the volume is < 20. Continue concentrating and mixing every 5 minutes until the extract has been reduced to the required volume as specified in the table below. If the extract volume appears to stop dropping, the concentration must be stopped and the volume at which it was stopped recorded.

Water Content in Sample	Concentrated Final Volume
< 5 grams	15 ml
5-8 grams	15-20 ml
8-9 grams	20-22.5 ml
9-10 grams	22.5-25 ml

10.3.15 Add 40 - 50 mL of reagent water to the extract and vortex. Check that the pH is 6.5 ±0.5 and adjust as necessary with 50% formic acid or 30% ammonium

hydroxide, or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.4 Sample Prep and Extraction Protocol for Tissues.

- 10.4.1** Homogenize and weigh 2 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 2 grams of clean tissue is used.
- 10.4.2** Add 20 µL of the EIS PDS to each sample and QC.
- 10.4.3** If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.
- 10.4.4** Add 10 mL of 0.05M KOH in methanol to each sample. Vortex to disperse the tissue then place tubes on a mixing table to extract for at 16 hours. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant in a 50-mL polypropylene centrifuge tube.
- 10.4.5** Add 10 mL of acetonitrile to remaining tissue in the 50-mL centrifuge tube, vortex to mix and disperse the tissue. Sonicate for 30 minutes. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the initial extract.
- 10.4.6** Add 5 mL of 0.05M KOH in methanol to the remaining sample in each centrifuge tube. Vortex to disperse the tissue and hand mix briefly. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the first two extracts.
- 10.4.7** Add 10 mg of carbon to the combined extract, mix by occasional hand shaking over a period of no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50-mL centrifuge tube.
- 10.4.8** Add 1 mL of reagent water to each tube and concentrate each extract at approximately 55 °C with a gentle N₂ flow to a final volume of 2.5 mL.
- 10.4.9** Add reagent water to each evaporation/concentrator tube to dilute the extracts to 50 mL. Check that the pH = 6.5 ± 0.5 and adjust as needed with 50% formic acid, or ammonium hydroxide or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.5 SPE Extract: All matrices

- 10.5.1** Pack clean silanized glass wool to half the height of the WAX SPE cartridge barrel.
- 10.5.2** Pre-condition the cartridges by washing them with 3 X 5 mL of 1% methanolic ammonium hydroxide, discarding the wash volumes.
- 10.5.3** Rinse the cartridge with 5 mL of 0.3M formic acid, allowing the cartridge to drain using gravity only, discarding the rinse volume. Do not allow the cartridge to go dry
- 10.5.4** Adjust the vacuum so that the approximate flow rate is ~5 mL/min and load the sample across the cartridge. Do not allow the cartridge to go dry before all the sample has passed through.
- 10.5.5** Once all the sample has passed across the cartridge, rinse the walls of the reservoir with 2 X 5 mL reagent water, loading the rinse across the cartridge.

- 10.5.6 Rinse the walls of the reservoir with 5 mL of 1:1 0.1M formic acid/methanol and pass the rinse through the cartridge using vacuum. Dry the cartridge by pulling air through for 15 seconds.
- 10.5.7 Rinse the inside of the sample bottle with 5 mL of 1% methanolic ammonium hydroxide. Use vacuum to pull the elution solvent through the cartridge and into the collection tubes. When the cartridge bed and glass wool are submerged, stop the cartridge flow by closing the valve, keeping the sorbent bed and wool submerged.
- 10.5.8 Let the wetted sorbent bed and wool soak for 1 minute.
- 10.5.9 Open the cartridge valve and collect the eluate into a 15 ml polypropylene collection tube.
- 10.5.10 Add 25 µL of concentrated acetic acid to each sample eluted in the collection tubes and vortex to mix.
- 10.5.11 Add 10 mg of carbon to each sample and batch QC extract, using a 10-mg scoop. Handshake occasionally for no more than 5 minutes. It is important to minimize the time the sample extract is in contact with the carbon. Immediately vortex (30 seconds) and centrifuge at 2800 rpm for 10 minutes.
- 10.5.12 Add NIS solution to a clean collection tube. Place a syringe filter (25-mm filter, 0.2-µm nylon membrane) on a 5-mL polypropylene syringe. Take the plunger out and carefully decant the sample supernatant into the syringe barrel. Replace the plunger and filter the entire extract into the new collection tube containing the NIS.
- 10.5.13 Vortex to mix and transfer a portion of the extract into a .7-mL polypropylene LC vial for LC-MS/MS analysis. Cap the collection tube containing the remaining extract and store at 4 °C

10.6 Sample Volume Determination

- 10.6.1 If using weight to determine volume, weigh the empty bottle to the nearest 1 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight. Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration.

10.7 Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.7.1 ESI-MS/MS TUNE

- 10.7.1.1 Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.
- 10.7.1.2 Optimize the [M-H]⁻ or [M-CO₂]⁻ for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (0.4 mL/min). This tune can be done on a mix of the method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are varied until optimal analyte responses are determined.

The method analytes may have different optima requiring some compromise between the optima.

The Mass spec conditions found in Table 7 show the Sciex Triple Quad 5500+ operation conditions used in this method.

10.7.1.3 Optimize the product ion for each analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS/MS parameters (collision gas pressure, collision energy, etc.) are varied until optimal analyte responses are determined. Typically, the carboxylic acids have very similar MS/MS conditions, and the sulfonic acids have similar MS/MS conditions.

The conditions found on table 5 are representative of expected tune optimizations for each analyte. If conditions other the ones close to the values provided in table 5 are achieved, the process should be re-performed and/or instrument maintenance performed to resolve the problem.

10.7.2 Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

Table 6 represents the operation conditions of a Sciex Exion LC system when running this method.

10.7.3 Inject 2µl of a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]⁻) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ±0.5 daltons around the product ion mass were used for quantitation.

10.7.4 Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

NOTE: PFHxS, PFOS, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

10.7.5 Prepare a set of CAL standards as outlined in table 5. The lowest concentration CAL standard must be at or below the LOQ.

10.7.6 The LC/MS/MS system is calibrated using the isotope dilution technique. Target analytes are quantitated against their isotopically labeled analog (Extracted Internal Standard) where commercially available. If a labeled analog is not

commercially available, the extracted internal standard with the closest retention time and /or closest chemical similarity is to be used. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 5 levels are required for a linear calibration model and a minimum of 6 levels are required for a quadratic calibration model.

10.7.7 CALIBRATION ACCEPTANCE CRITERIA – A linear fit is acceptable if the calculated RSD or RSE for each target analyte is $\leq 20\%$. If linear or Quadratic regressions are used, coefficient of determination (r^2) values must be greater than 0.99. When quantitated using the initial calibration curve, each calibration point at or above the LOQ for each analyte must calculate to be within 70-130% of its true value. The calculate value of each EIS analyte must be within 50-150% of its true value. If these criteria cannot be met, corrective action is taken to reanalyze the CAL standards, restrict the range of calibration.

10.7.8 Bile salts interference check - The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the retention window for PFOS by at least one minute), and the initial calibration repeated.

10.8 CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a “sample” is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria. Subsequent CCVs should alternate between a medium and Low concentration CAL standard.

10.8.1 Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.

10.8.2 Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each native and EIS analyte for medium level CCVs must be within $\pm 30\%$ of the true. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. If the CCV fails because the calculated concentration is greater than 130% for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.

- 10.8.3 REMEDIAL ACTION – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration and verification of sensitivity by analyzing a CCV at or below the LOQ.

10.9 EXTRACT ANALYSIS

- 10.9.1 The same operating conditions used for the initial calibration and summarized in Tables 6 and 7 are to be used.
- 10.9.2 Prior to analysis of sample extracts, the Instrument mass calibration verification must be performed using standards whose mass range brackets the masses of interest and performed in the negative ion mode. The mass calibration is verified if the calculated mass is within $\pm .2$ daltons of the specified mass.
- 10.9.3 Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.
- 10.9.4 Calibrate the system by either the analysis of a calibration curve or by confirming the initial calibration is still valid by analyzing a CCV.
- 10.9.5 Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.
- 10.9.6 For concentrations at or above the method LOQ, the total (branched and linear isomer) quantification ion response to the total (branched and linear isomer) confirmation ion response ratio must fall within $\pm 50\%$ of the ratio observed in the midpoint initial calibration standard.
- 10.9.7 At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.
- 10.9.8 The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to ensure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.³
- 10.9.9 In instances where re-extraction is not an option, dilute a subsample of the sample extract with 0.1% acetic acid by a factor no greater than 10x adjust the amount of the NIS in the diluted extract, and analyze the diluted extract. If the

responses for each EIS in the diluted extract meet the S/N and retention time, and the EIS recoveries from the analysis of the diluted extract are greater than 5%, then the compounds associated with those EISs may be quantified using isotope dilution. Use the EIS recoveries from the original analysis to select the dilution factor, with the objective of keeping the EIS recoveries in the dilution above that 5% lower limit. If the adjusted EIS recoveries are below 5%, the dilution is assumed invalid. If the adjusted EIS recoveries are greater than 5%, adjust the compound concentrations, detection limits, and minimum levels to account for the dilution.

11. Data Evaluation, Calculations and Reporting

11.1 Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 9.

11.2 Calculate analyte concentrations using the multipoint calibration established in Section 10.9. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.8

$$C_{ex} = (\text{Area of target analyte} * \text{Concentration of Labeled analog}) / (\text{area of labeled analog} * CF)$$

$$C_s = (C_{ex} / \text{sample volume in ml}) * 1000$$

C_{ex} = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3 Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4 PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to the linear and branch isomers of these compounds (Sect. 10.10.4.). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5 Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1 Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

- 12.2** All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1 Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

- 13.1.1** The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2 Demonstration of Capability Studies

- 13.2.1** Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.
- 13.2.2** The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

- 14.1** Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.
- 14.2** This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.
- 14.3** The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124
SOP ID 1732 Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP
SOP ID 1739 Demonstration of Capability (DOC) Generation SOP
SOP ID 1728 Hazardous Waste Management and Disposal SOP

16. Attachments

Table 1: Names, Abbreviations, and CAS Registry Numbers for Target PFAS, Extracted Internal Standards and Non-extracted Internal Standards

Parameter	Acronym	CAS
PER- and POLYFLUOROALKYLETHER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		

Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTeDA	376-06-7
PERFLUOROALKYL SULFONIC ACIDS (PFASs)		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1

Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
FLUOROTELOMER CARBOXYLIC ACIDS		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3
Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4
PERFLUOROOCTANESULFONAMIDES		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
PERFLUOROOCTANE SULFONAMIDE ETHANOLS		
N-Methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
TELOMER SULFONIC ACIDS		

1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)	4:2FTS	757124-72-4
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	8:2FTS	39108-34-4
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
PERFLUOROETHER AND POLYETHER CARBOXYLIC ACIDS		
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

Table 2: Stock and Nominal Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M4PFBA	2000	40
M5PFPeA	1000	20
M5PFHxA	500	10
M4PFHpA	500	10
M8PFOA	500	10
M9PFNA	250	5
M6PFDA	250	5
M7PFUdA	250	5
MPFDoA	250	5
M2PFTeDA	250	5
M3PFBS	466	9.32
M3PFHxS	474	9.48
M8PFOS	479	9.58
M2-4:2FTS	938	18.8

Printouts of this document may be out of date and should be considered uncontrolled. To accomplish work, the published version of the document should be viewed online.

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M2-6:2FTS	951	19
M2-8:2FTS	960	19.2
M8FOSA	500	10
d3-N-MeFOSA	500	10
d5-N-EtFOSA	500	10
d3-N-MeFOSAA	1000	20
d5-N-EtFOSAA	1000	20
d7-N-MeFOSE	5000	100
d9-N-EtFOSE	5000	100
M3HFPO-DA	2000	40

Table 3: Stock and Nominal Non-Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M3PFBA	1000	40
M2PFHxA	500	10
M4PFOA	500	10
M5PFNA	250	5
M2PFDA	250	5
18O2PFHxS	474	9.48
M4PFOS	479	9.58

Table 4: Initial Calibration levels and Concentrations

Analyte	Cal A	Cal B (LOQ)	CAL C	Cal D	Cal E (CCV)	Cal F	Cal G	Cal H	Cal I
PFBA	.4	.8	2	5	10	20	50	250	500
PFPeA	.2	.4	1	2.5	5	10	25	125	250
PFHxA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFHpA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFOA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFNA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFUnA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDaA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTTrDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFBS	0.089	0.177	0.444	1.11	2.22	4.44	11.1	55.4	111
PFPeS	0.094	0.188	0.471	1.18	2.35	4.71	11.8	58.8	118

PFHxS	0.091	0.183	0.457	1.14	2.29	4.57	11.4	57.1	114
PFHpS	0.095	0.191	0.477	1.19	2.38	4.77	11.9	59.6	119
PFOS	0.093	0.186	0.464	1.16	2.32	4.64	11.6	58	116
PFNS	0.096	0.192	0.481	1.20	2.41	4.81	12	60.1	120
PFDS	0.097	0.193	0.483	1.21	2.41	4.83	12.1	60.3	121
PFDOS	0.097	0.194	0.485	1.21	2.43	4.85	12.1	60.6	121.
4:2FTS	0.375	0.75	1.88	4.69	9.38	18.8	46.9	234	469
6:2FTS	0.38	0.76	1.9	4.75	9.5	19	47.5	238	475
8:2FTS	0.384	0.768	1.92	4.8	9.6	19.2	48	240	480
PFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSE	1	2	5	12.5	25	50	125	625	1250
NEtFOSE	1	2	5	12.5	25	50	125	625	1250
HFPO-DA	.4	.8	2	5	10	20	50	250	500
ADONA	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
9CI-PFONS	0.374	0.748	1.87	4.68	9.35	18.7	46.8	234	468
11CI-PFOUdS	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
PFMPA	.2	.4	1	2.5	5	10	25	125	250
PFMBA	.2	.4	1	2.5	5	10	25	125	250
PFEESA	0.178	0.356	0.89	2.23	4.45	8.9	22.3	111	223
NFDHA	.2	.4	1	2.5	5	10	25	125	250
3:3FTCA	.5	1	2.5	6.25	12.5	25	62.5	312	624
5:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3120
7:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3125
M4PFBA	10	10	10	10	10	10	10	10	10
M5PFPeA	5	5	5	5	5	5	5	5	5
M5PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFHpA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M8PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M9PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M6PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M7PFUdA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
MPFDdA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25

M2PFTeDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M3PFBS	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
M3PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M8PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
M2-4:2FTS	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69
M2-6:2FTS	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
M2-8:2FTS	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
M8FOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d5-N-EtFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSAA	5	5	5	5	5	5	5	5	5
d5-N-EtFOSAA	5	5	5	5	5	5	5	5	5
d7-N-MeFOSE	25	25	25	25	25	25	25	25	25
d9-N-EtFOSE	25	25	25	25	25	25	25	25	25
M3HFPO-DA	10	10	10	10	10	10	10	10	10
M3PFBA	5	5	5	5	5	5	5	5	5
M2PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M5PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
18O2PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M4PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4

Table 5: Expected Mass Transitions and instrument conditions.

Q1	Q2	Analyte	DP Volts	CE Volts
213.032	169.022	PFBA	-50	-14
263.039	219.03	PFPeA	-55	-12
263.039	68.9	PFPeA_2	-55	-55
313.047	269.037	PFHxA	-45	-12
313.047	119	PFHxA_2	-45	-28
363.055	319.045	PFHpA	-60	-12
363.055	169.022	PFHpA_2	-60	-24
413.063	369.053	PFOA	-65	-14
413.063	169.022	PFOA_2	-65	-23
463.071	419.061	PFNA	-70	-14
463.071	219.03	PFNA_2	-70	-24

Printouts of this document may be out of date and should be considered uncontrolled. To accomplish work, the published version of the document should be viewed online.

513.078	469.069	PFDA	-80	-16
513.078	219.03	PFDA_2	-80	-30
563.086	519.076	PFUnA	-85	-18
563.086	269.037	PFUnA_2	-85	-25
613.094	569.084	PFDaA	-85	-18
613.094	319.045	PFDaA_2	-85	-28
663.102	619.092	PFTTrDA	-85	-20
663.102	169.022	PFTTrDA_2	-85	-36
713.11	669.1	PFTA	-70	-22
713.11	169.022	PFTA_2	-70	-38
299.092	80.062	PFBS	-100	-65
299.092	99.061	PFBS_2	-100	-40
349.1	80.062	PFPeS	-100	-75
349.1	99.061	PFPeS_2	-100	-60
399.107	80.062	PFHxS	-120	-75
399.107	99.061	PFHxS_2	-120	-80
449.115	80.062	PFHpS	-140	-95
449.115	99.061	PFHpS_2	-140	-80
499.113	80.062	PFOS	-145	-108
499.113	99.061	PFOS_2	-145	-85
549.131	80.062	PFNS	-180	-100
549.131	99.061	PFNS_2	-180	-100
599.139	80.062	PFDS	-170	-110
599.138	99.061	PFDS_2	-170	-100
699.154	80.062	PFDoS	-160	-150
699.154	99.061	PFDoS_2	-160	-130
327.146	307.139	4:2FTS	-100	-28
327.146	81.07	4:2FTS_2	-100	-50
427.161	407.155	6:2FTS	-120	-33
427.161	81.07	6:2FTS_2	-120	-65
527.177	507.17	8:2FTS	-140	-39
527.177	81.07	8:2FTS_2	-140	-85
498.146	78.07	FOSA	-150	-90
498.146	478	FOSA_2	-150	-35
512.163	219.03	NMeFOSA	-130	-35
512.163	169.022	NMeFOSA_2	-130	-40
526.192	219.03	NEtFOSA	-140	-35
526.192	169.022	NEtFOSA_2	-140	-35
570.202	419.061	NMeFOSAA	-100	-28

570.202	483	NMeFOSAA_2	-100	-22
584.229	419.061	NEtFOSAA	-100	-28
584.229	526.192	NEtFOSAA_2	-100	-38
616.1	58.9	NMeFOSE	-90	-70
630	58.9	NEtFOSE	-80	-75
285.035	169.022	HFPO-DA	-60	-12
285.035	184.9	HFPO-DA_2	-60	-18
377.06	251.028	ADONA	-65	-18
377.06	84.8	ADONA_2	-65	-48
530.8	351.05	9CI-PFONS	-130	-38
532.8	353	9CI-PFONS_2	-130	-38
630.9	451.031	11CI-PFOUdS	-145	-41
632.9	452.9	11CI-PFOUdS_2	-145	-41
241.085	177.069	3:3FTCA	-60	-12
241.085	117	3:3FTCA_2	-60	-50
341.101	237.072	5:3FTCA	-70	-20
341.101	217	5:3FTCA_2	-70	-35
441.117	316.9	7:3FTCA	-85	-30
441.117	337.088	7:3FTCA_2	-85	-20
315.093	135.013	PFEESA	-100	-35
315.093	82.9	PFEESA_2	-100	-25
229.032	85.006	PFMPA	-40	-25
279.042	85.006	PFMBA	-45	-25
295.032	201	NFDHA	-30	-15
295.032	84.9	NFDHA_2	-30	-40
217.001	171.999	MPFBA	-50	-14
268.001	222.999	M5PFPeA	-55	-12
318.009	273.007	M5PFHxA	-45	-12
367.024	322.022	M4PFHpA	-60	-12
421.002	376	M8PFOA	-65	-14
472.002	427	M9PFNA	-70	-14
519.033	474.03	M6PFDA	-80	-16
570.033	525.031	M7-PFUdA	-85	-18
615.079	570.033	MPFDoA	-85	-18
715.094	670.092	M2PFTeDA	-70	-22
302.069	80.062	M3PFBS	-100	-65
402.084	80.062	M3PFHxS	-120	-74
507.062	80.062	M8PFOS	-145	-85
329.13	81.07	M2-4:2FTS	-100	-50

429.162	81.07	M2-6:2FTS	-120	-65
529.162	81.07	M2-8:2FTS	-140	-85
506.077	78.07	M8FOSA	-150	-90
515.183	219.03	d3-NMeFOSA	-130	-35
531.222	219.03	d5-NEtFOSA	-140	-35
573.22	419.061	d3-NMeFOSAA	-75	-28
589.259	419.061	d5-NEtFOSAA	-90	-28
623.2	58.9	d7-NMeFOSE	-100	-28
639.2	58.9	d9-NEtFOSE	-100	-28
287.02	169.022	M3HFPO-DA	-60	-12
216.009	171.999	M3PFBA	-50	-14
315.032	270.03	M2PFHxA	-45	-12
417.032	372.03	M4PFOA	-65	-14
468.032	423.03	M5PFNA	-70	-14
515.063	470.061	M2PFDA	-80	-16
403.107	84.062	18O2-PFHxS	-120	-74
503.093	80.062	M4PFOS	-145	-85

Table 6: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 CH ₃ /H ₂ O)	100% Acetonitrile	Gradient Curve
Initial	100.0	0.0	0
.2	100.0	0.0	2
4	70	30	7
7	45	55	8
9	25	80	8
10	5	95	6
10.4	98	2	10
11.8	100	0	7
12	100	0	1
Waters Aquity UPLC ® BEHC ₁₈ 2.1 x 50 mm packed with 1.7 µm BEH C ₁₈ stationary phase Flow rate of 0.4 mL/min 2 µL injection			

Table 7: ESI-MS Method Conditions

ESI Conditions	
Polarity	Negative ion
Curtain Gas	30
Collision gas	9
Ion Spray Voltage	-4500
Desolvation gas temp.	500 °C
Ion Source Gas 1	30
Ion Source Gas 2	50
Entrance Poitential	-10
Exic Cell Potential	-11

Table 8. Reporting limits by Matrix

Compound	Aqueous (ng/L)	Solid (ng/g)	Tissue (ng/g)
PFBA	6.4	0.8	2
PFPeA	3.2	0.4	1
PFHxA	1.6	0.2	0.5
PFHpA	1.6	0.2	0.5
PFOA	1.6	0.2	0.5
PFNA	1.6	0.2	0.5
PFDA	1.6	0.2	0.5
PFUnA	1.6	0.2	0.5
PFDoA	1.6	0.2	0.5
PFTTrDA	1.6	0.2	0.5
PFTA	1.6	0.2	0.5
PFBS	1.6	0.2	0.5
PFPeS	1.6	0.2	0.5
PFHxS	1.6	0.2	0.5
PFHpS	1.6	0.2	0.5
PFOS	1.6	0.2	0.5
PFNS	1.6	0.2	0.5
PFDS	1.6	0.2	0.5
PFDoS	1.6	0.2	0.5
4:2FTS	6.4	0.8	2
6:2FTS	6.4	0.8	2
8:2FTS	6.4	0.8	2
FOSA	1.6	0.2	2
NMeFOSA	1.6	0.2	0.5

NEtFOSA	1.6	0.2	0.5
NMeFOSAA	1.6	0.2	0.5
NEtFOSAA	1.6	0.2	0.5
NMeFOSE	16	2	5
NEtFOSE	16	2	5
HFPO-DA	6.4	0.8	2
ADONA	6.4	0.8	2
9Cl-PFONS	6.4	0.8	2
11Cl-PFOUdS	6.4	0.8	2
3:3FTCA	8	1	2.5
5:3FTCA	40	5	12.5
7:3FTCA	40	5	12.5
PFEESA	3.2	0.4	1
PFMPA	3.2	0.4	1
PFMBA	3.2	0.4	1
NFDHA	3.2	0.4	1

Appendix E

Vapor Sealant and Vapor Barrier Specification Sheets

Land Science Technologies

Specifications for Retro-Coat™

Version 1.0

Part 1 – Scope

1.1 Product and Application

This specification describes the application of the Retro-Coat™ System. The minimum thickness of the system is between 25-30 mils, including a 20 mil minimum application of Retro-Coat.

1.2 Acceptable Manufacturers

- A. Retro-Coat as manufactured by Land Science Technologies San Clemente, CA.

1.3 Performance Criteria

- A. Retro-Coat as manufactured by Land Science Technologies San Clemente, CA.
 - 1. Diffusion Coefficient (Columbia Labs)
PCE: $7.6 \times 10^{-14} \text{ m}^2/\text{s}$
TCE: $8.2 \times 10^{-14} \text{ m}^2/\text{s}$
 - 2. Tensile Elongation (ASTM D-638)
Minimum: 6000 psi
 - 3. Tensile Elongation (ASTM D-638)
Minimum: 6 %
 - 4. Flexural Strength (ASTM D-790)
Minimum: 7000 psi
 - 5. Hardness, Shore D (ASTM D-2240)
Maximum: 85
 - 6. Gardner Impact (ASTM D-2794)
Minimum: 80 inch-pounds
 - 7. Bond Strength to Quarry Tile
Minimum: 1000 psi
 - 8. Vapor Transmission Rate (ASTM E-96)
Maximum: .07 perms
 - 9. Water Absorption (ASTM D-570)
Maximum: .02% in 24 hours
 - 10. 60° Gloss
Minimum: 100.

1.4 Materials

- A. Retro-Coat "A" shall be a modified epoxy containing special flexibilizers and specially formulated resins for superior chemical resistance and enhanced resilience. No solvents are allowed.
- B. Retro-Coat "B" shall be customized blend of hardeners specifically formulated to maximize chemical resistance. No solvents are allowed.

1.5 Applicator

- A. Applicator must be a certified contractor of Land Science Technologies.

Part 2 – Application

2.1 Surface Preparation

- A. All existing surfaces that will be covered with the systems specified herein should be mechanically ground, shot blasted or sand blasted to yield a minimum 60 grit surface texture. All loosely adhered coatings will be removed. Any grease and other contaminants found on the concrete must also be removed.
- B. All open cracks 1/2" and greater should be v-notched to a 3/4" width by 1/2" depth and cleaned of any debris. Such cracks should be filled with Retro-Coat Gel and struck off flush with the surrounding surface.
- C. Cut back and/or remove any expansion joint backing or filler strips to a minimum of 1 1/2" deep. Insert disposable filler in the joints to prevent filling with the overlayment materials and to allow for accurate location of final saw cuts in the overlayment.

2.2 Material Application

- A. Retro-Coat CAULK
 - 1. Apply Retro-Coat CAULK around the base of all pipe penetrations making sure to fill any gap between the penetration and concrete slab
 - 2. Apply Retro-Coat CAULK to the joint created between horizontal and vertical transitions. The caulking material should be applied and pressed into the joint filling any gaps that might be present.
- B. Retro-Coat PRIMER
 - 1. Apply Retro-Coat PRIMER to all areas at a thickness of 6 mil and allow to dry tack free. In areas where the concrete surface is in need of slight repair or needs to be leveled, a slurry form of Retro-Coat PRIMER called Retro-Coat PRIMER-S can be applied with a flat squeegee. Retro-Coat PRIMER-S is self priming and does not need to be primed again.
- C. Retro-Coat
 - 1. Mix Retro-Coat, Part A with a low-speed (<750 rpm) jiffy-style mixer for about 30 seconds, or until uniform in color, then mix in Retro-Coat Coating, Part B for another 30-60 seconds.
 - 2. Dump contents onto floor in a ribbon pattern, squeegee, and then back roll at a coverage rate of 160 SF/gallon to achieve a film thickness of 10 mils.
 - 3. Apply second coat 10 mil coat to achieve a total thickness of 20 mils. Repeat as necessary to achieve specified thickness.
 - 4. If a flooring material will be placed over Retro-Coat after it is applied, or appearance is not a priority, (1) 20 mil coat can be applied.

2.3 Protection of Finished Work

- A. Prohibit foot traffic on floor for 24 hours after laying (at 70°F). At 50°F, this time should be extended to 48 hours.
- B. Rinse off any chemicals that may come in contact within 7 days of installation with the freshly laid floor immediately.

2.4 Cleanup

- A. Properly dispose of all unused and waste materials.
- B. Tools can be washed in warm, soapy water when wet, but after drying, can only be cleaned by grinding or with a paint stripper.
- C. Unused resin can be set off with proper amount of hardener and disposed of in regular trash bins.

Part 3 – Quality Control

3.1 Warranty

- A. Installer shall provide a one year warranty against delamination, chemical attack and normal wear and tear.
- B. Manufacturer will provide a one year material warranty.

3.2 Quality Control

- A. Installer shall use a notched squeegee to apply Retro-Coat to the specified mil thickness and calculations shall be done to determine if the correct amount of material has been applied. Retro-Coat contains 100% solids at the time of application; therefore no material shrinkage will occur during the curing process. One gallon will cover 80 square feet.
- B. A wet mil film gauge can be used to spot check the Retro-Coat thickness to make certain the minimum 20 mil thickness has been applied, though some discretion should be used because high points or low points on the underlying surface can adversely affect the thickness measurements.

3.3 Floor Care

- A. The standard smooth surface of Retro-Coat should be cleaned on a regular basis by damp mopping the floor with conventional commercial cleaners. It is important to first remove any grease or oils by a suitable cleaner, preferably a citrus based cleaner. Rinse with clear water to help eliminate film buildup and then allow to dry. Never use abrasive powder cleaners like Ajax or Comet as they tend to scratch the floor.
- B. Additional steps can also be taken to prolong the look and life of a seamless floor:
 - 1. Protect the floor during transference of heavy equipment
 - 2. Educate the drivers inside the building the importance of avoiding "jack-rabbit" starts and stops, as well as keeping the metal forks lifted
 - 3. Regular cleaning should take place as to not allow the buildup of abrasive material, such as sand or dirt, on the coating
 - 4. Eliminate all metal wheels
 - 5. Change over to light-colored polyurethane wheels
 - 6. Do not slide heavy metal totes, drums or bins across the floor
 - 7. Immediately hose down chemical spills, especially on newly laid floors.

Retro-Coat Installation Procedure

Protect Existing Structures From Vapor Intrusion in Just Four Steps:

1

Slab Preparation

Before Retro-Coat® can be installed, the existing slab must first be cleaned and abraded.



2

Seal Cracks and Penetrations

Retro-Coat Gel and fillers are used to repair concrete cracks and other imperfections.



3

Primer Application

Retro-Coat PRIMER is applied to the concrete surface as final preparation. This increases adhesion between the concrete slab and the Retro-Coat, as well as address moisture vapor transmission.



4

Retro-Coat Application

Finally, Retro-Coat is applied to a nominal thickness of 20 dry mils



Are You Planning a Vapor Intrusion Mitigation Project?
Contact us today for a free estimate.

1011 Calle Sombra, San Clemente, CA 92673

(949)-481-8118

landsciencetech.com



 **Land Science®**
a division of REGENESIS®

Appendix F

In-Situ Chemical Oxidation Pilot Test Work Plan

In-Situ Chemical Oxidation (ISCO) Pilot Test Work Plan

for 2921 Westchester Avenue Remedial Action Work Plan

2921 Westchester Avenue
Bronx, New York
BCP Site # C203140

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
Ralford Realty Corp.
c/o Anthony Scovotti
8 West 40th Street
New York, NY 10018

Prepared by:



121 West 27th Street, Suite 702
New York, NY 10001

January 2025

Introduction

As discussed in the Remedial Action Work Plan (RAWP) prepared by Matthew M. Carroll, PE and Tenen Environmental, LLC (Tenen), the proposed remedy includes the completion of a pilot test to evaluate the potential full-scale use of in-situ chemical oxidation (ISCO) technology. Implementation of ISCO involves the introduction of oxidants into the subsurface via injection to break down contaminants into less toxic compounds. A pilot test will be completed in order to determine the type and dosing of the oxidant to treat chlorinated volatile organic compounds (cVOCs), specifically tetrachloroethene (PCE). This work plan describes the methodology to be used to perform the ISCO pilot test.

Background

As documented in Tenen's Draft Remedial Investigation Report (RIR), PCE was detected in the groundwater above the Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations – Class GA (Class GA Standard) of 5 micrograms per liter (ug/L). During the Remedial Investigation (RI), PCE was detected at a maximum concentration of 42,000 ug/L in offsite and downgradient monitoring well, MW-5, located in the basement adjoining the Site to the north. This location is immediately downgradient of the PCE source area in soil detected in the northwestern portion of the Site basement during the RI and previous investigations. In onsite groundwater monitoring wells, PCE was detected at a maximum concentration of 170 ug/L in MW-3, located in the eastern portion of the Site basement, during the most recent sampling event in March 2021. The PCE plume in groundwater is shown in Figure 6 of the RAWP.

ISCO Pilot Test

The pilot test will include one round of groundwater sampling at the Site. Groundwater samples will be collected from two previously installed permanent groundwater monitoring wells, MW-3 and MW-5. These monitoring well locations contained the highest cVOC concentrations during the RI. All groundwater samples will be analyzed for chemical oxidant demand. Given the lithology of the Site, soil oxidant demand (SOD) will be estimated based on soil type.

Groundwater samples will be collected using low-flow techniques in accordance with EPA Region 1 Low-Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells. (EQASOP-GW 001 Revision 3 dated July 30, 1996 Revised: January 19, 2010). All groundwater samples will be collected directly from dedicated tubing and placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to the designated laboratory for analysis. Prior to sample collection, the monitoring wells will be purged by pumping, using a peristaltic pump and dedicated low-density polyethylene (LDPE) tubing. The wells will be purged until at least three well volumes have been evacuated, turbidity reaches 50 NTU or less, or stabilized above 50 NTU, and pH, temperature, and conductivity measurements stabilize. Stability is defined as variation between field measurements of ten percent or less and no overall upward or downward trend in measurements.

Conclusions

Site-specific data collected during the ISCO pilot test will be used to determine the following:

- Lateral spacing for injection points;
- The volume and concentration of chemical oxidant to be injected; and,
- The potential for rebound of chemical concentrations following one injection of chemical oxidant to evaluate the solution strength and frequency of additional injections (if needed) during the full-scale ISCO implementation.

Following implementation of the ISCO pilot test, an ISCO Design Document will be submitted to NYSDEC and NYSDOH for review and approval prior to full-scale ISCO implementation. The ISCO Design Document will describe the results of the pilot test, the type of treatment chemical to be utilized, proposed temporary and permanent injection points, and the dosing of the proposed injection points.

Appendix G

Environmental Footprint Analyses and Climate Change Vulnerability Checklist

Track 1 SCOs

Environmental Footprint Summary

Core Element	Metric		Unit of Measure	Footprint						
				Hotspot Excavation	Groundwater Injections	SSDS	< Component 4 >	< Component 5 >	< Component 6 >	Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	5.7	1.8	2.0	0.0	0.0	0.0	9.5
	M&W-2	% of refined materials from recycled or reused material	%	0.0%	0.0%	0.0%				0.0%
	M&W-3	Unrefined materials used on-site	Tons	100.000	0.000	0.000	0.000	0.000	0.000	100.0
	M&W-4	% of unrefined materials from recycled or reused material	%	0.0%						0.0%
	M&W-5	On-site hazardous waste disposed of off-site	Tons	100.0	0.0	0.6	0.0	0.0	0.0	100.6
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	2.0	0.0	0.0	0.0	0.0	0.0	2.0
	M&W-7	Recycled or reused waste	Tons	10.0	0.0	1.1	0.0	0.0	0.0	11.1
	M&W-8	% of total potential waste recycled or reused	%	8.9%		65.5%				9.8%
Water (used on-site)	W-1	Public water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	107.5	121.6	178.0	0.0	0.0	0.0	407.1
	E-2	Energy voluntarily derived from renewable resources								
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	0.055	0.411	8.795	0.000	0.000	0.000	9.3
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	0.0	32.2	0.0	0.0	0.0	0.0	32.2
	A-2	On-site HAP emissions	Pounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	A-3	Total NOx, SOx, and PM emissions	Pounds	244.2	121.8	141.5	0.0	0.0	0.0	507.4
	A-3A	Total NOx emissions	Pounds	81.5	78.4	64.0	0.0	0.0	0.0	224.0
	A-3B	Total SOx emissions	Pounds	97.4	36.3	62.9	0.0	0.0	0.0	196.6
	A-3C	Total PM emissions	Pounds	65.2	7.0	14.6	0.0	0.0	0.0	86.8
	A-4	Total HAP emissions	Pounds	10.1	3.0	1.7	0.0	0.0	0.0	14.7
	A-5	Total greenhouse gas emissions	Tons CO2e*	7.0	8.6	9.6	0.0	0.0	0.0	25.2
Land & Ecosystems		Qualitative Description								

* Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.

"MMBtu" = millions of Btus

"MG" = millions of gallons

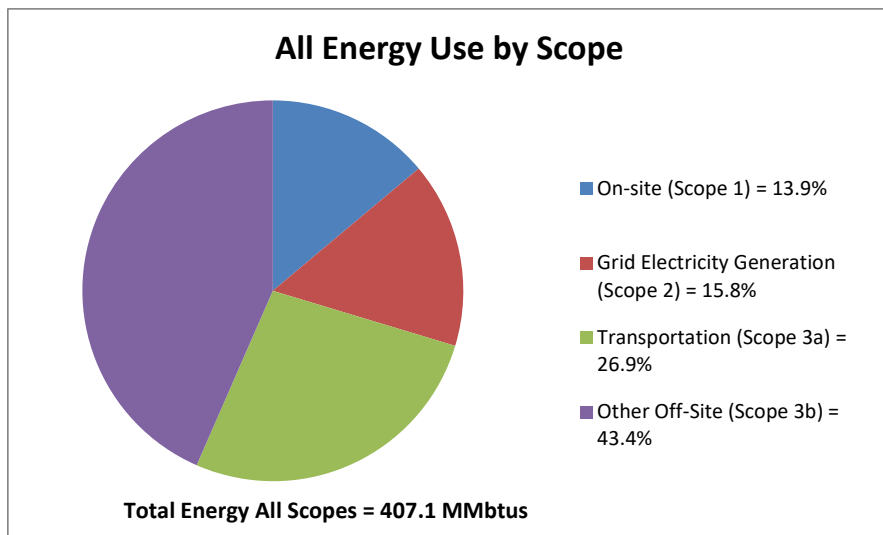
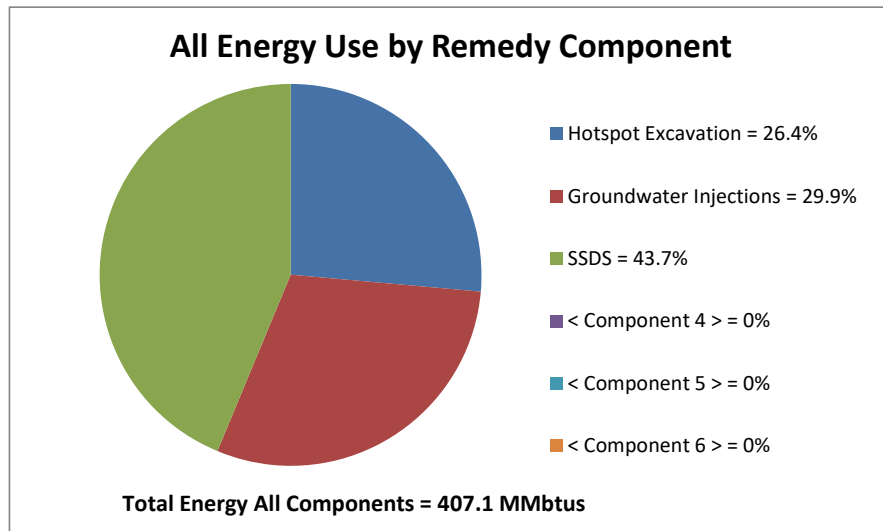
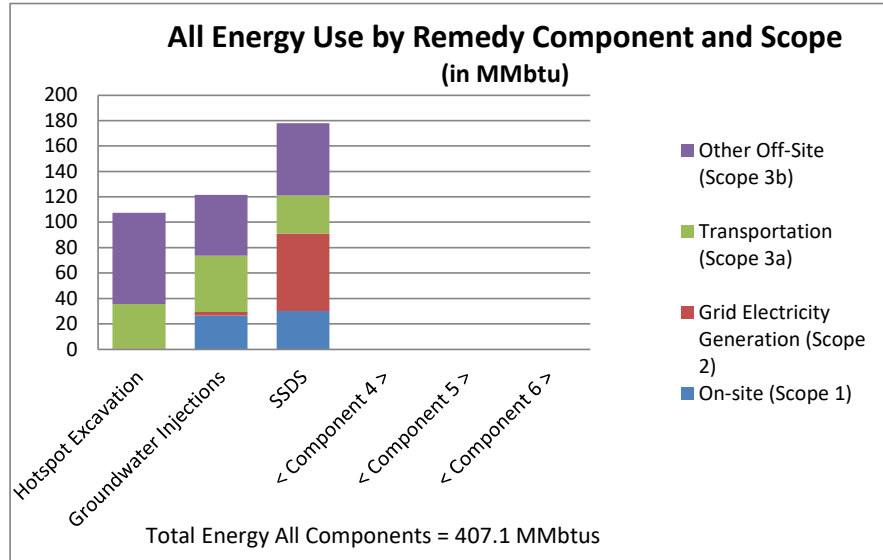
"CO2e" = carbon dioxide equivalents of global warming potential

"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)

"Tons" = short tons (2,000 pounds)

The above metrics are consistent with EPA's Methodology for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February 2012

Notes:



Total Energy MMbtus	Hotspot	Ex Groundwa	SSDS	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	0.2	26.4	30.0	0.0	0.0	0.0	56.6	
Grid Electricity Generation (Scope 2)	0.4	2.8	60.9	0.0	0.0	0.0	64.2	d Electricity
Transportation (Scope 3a)	35.0	44.4	30.1	0.0	0.0	0.0	109.5	Trar
Other Off-Site (Scope 3b)	72.0	47.9	56.9	0.0	0.0	0.0	176.8	Oth
Total	107.5	121.6	178.0	0.0	0.0	0.0	407.1	

Hotspot Excavation = 26.4%

Groundwater Injections = 29.9%

SSDS = 43.7%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 13.9%

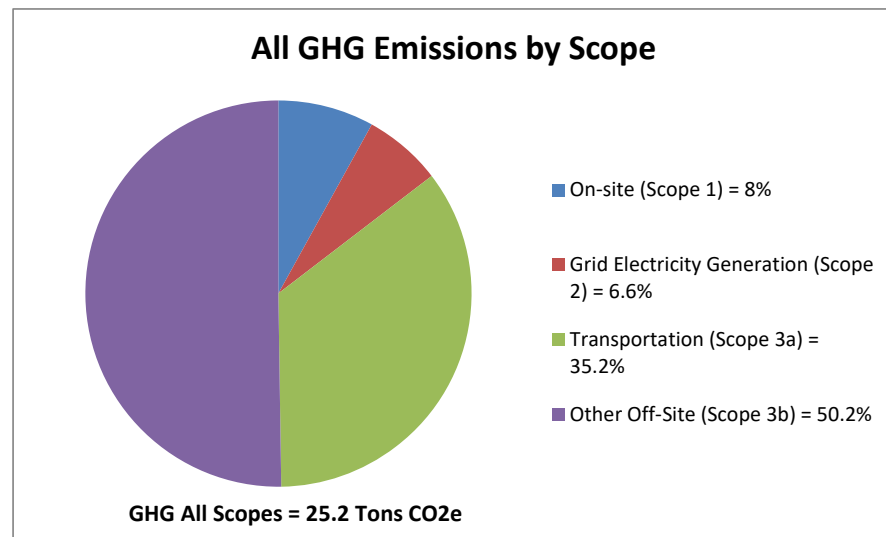
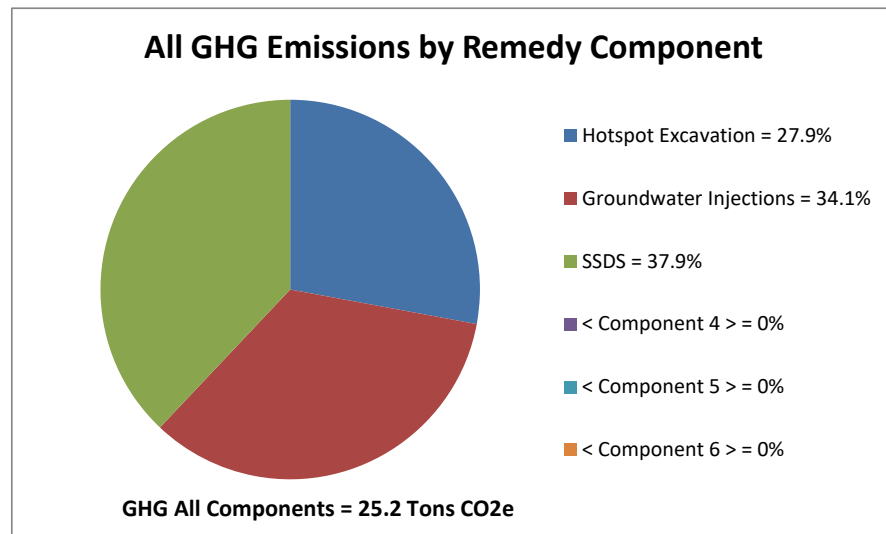
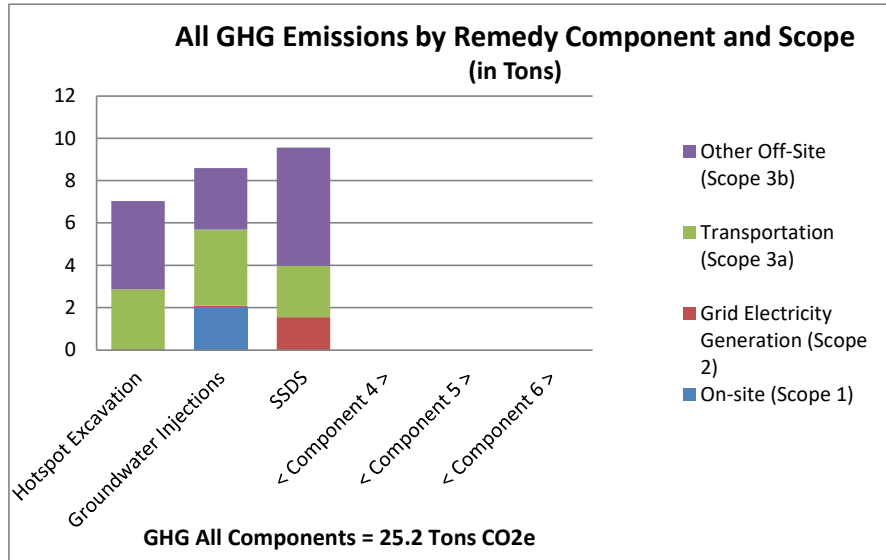
Grid Electricity Generation (Scope 2) = 15.8%

Transportation (Scope 3a) = 26.9%

Other Off-Site (Scope 3b) = 43.4%

Total Energy All Components = 407.1 MMBtus

Total Energy All Scopes = 407.1 MMBtus



GHG Tons CO2e							
	Hotspot Ex Groundwa	SSDS	< Component 4	< Component 5	< Component 6	Total	
On-site (Scope 1)	0.0	2.0	0.0	0.0	0.0	0.0	2.0
Electricity Generation (Scope 2)	0.0	0.1	1.5	0.0	0.0	0.0	1.7 d Electricity
Transportation (Scope 3a)	2.8	3.6	2.4	0.0	0.0	0.0	8.9 Trar
Other Off-Site (Scope 3b)	4.2	2.9	5.6	0.0	0.0	0.0	12.7 Oth
Total	7.0	8.6	9.6	0.0	0.0	0.0	25.2

Hotspot Excavation = 27.9%

Groundwater Injections = 34.1%

SSDS = 37.9%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 8%

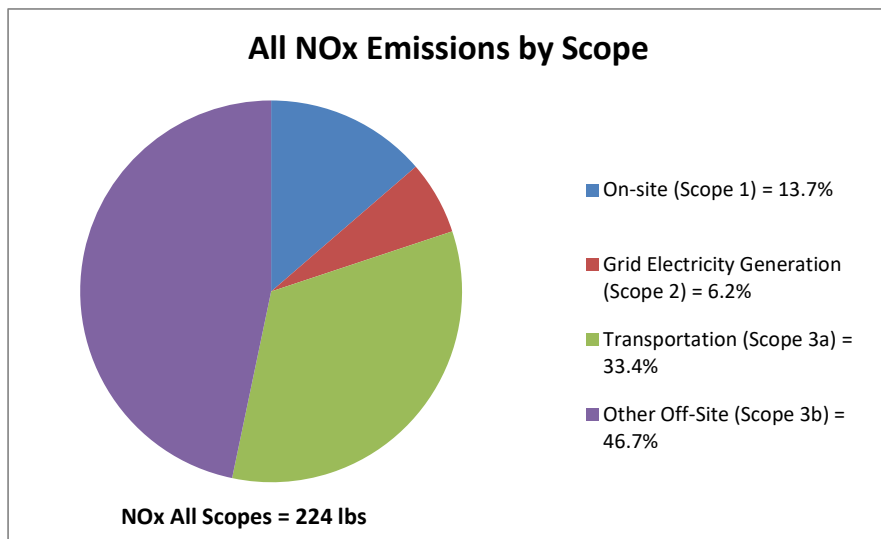
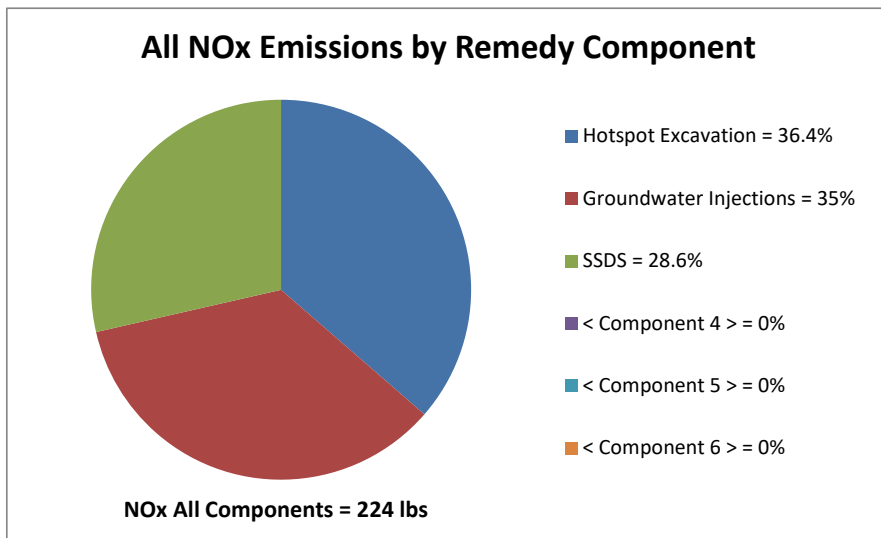
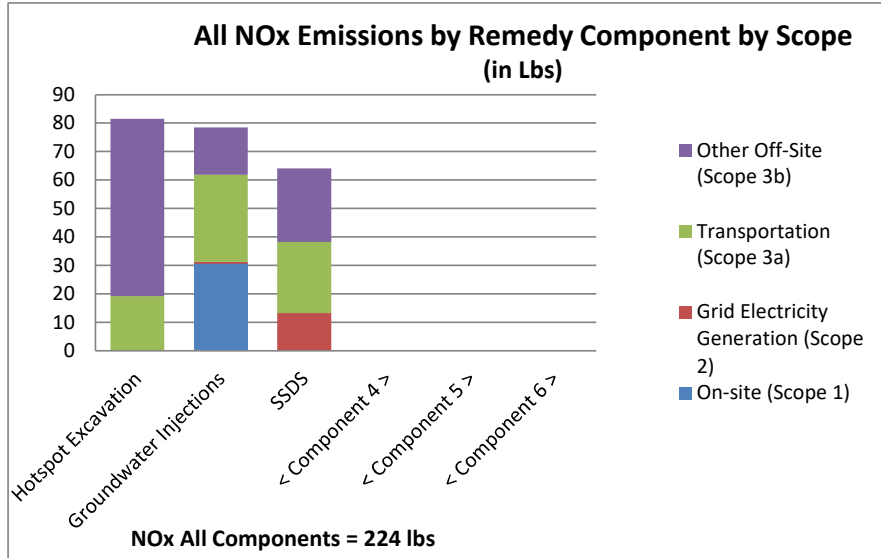
Grid Electricity Generation (Scope 2) = 6.6%

Transportation (Scope 3a) = 35.2%

Other Off-Site (Scope 3b) = 50.2%

GHG All Components = 25.2 Tons CO2e

GHG All Scopes = 25.2 Tons CO2e

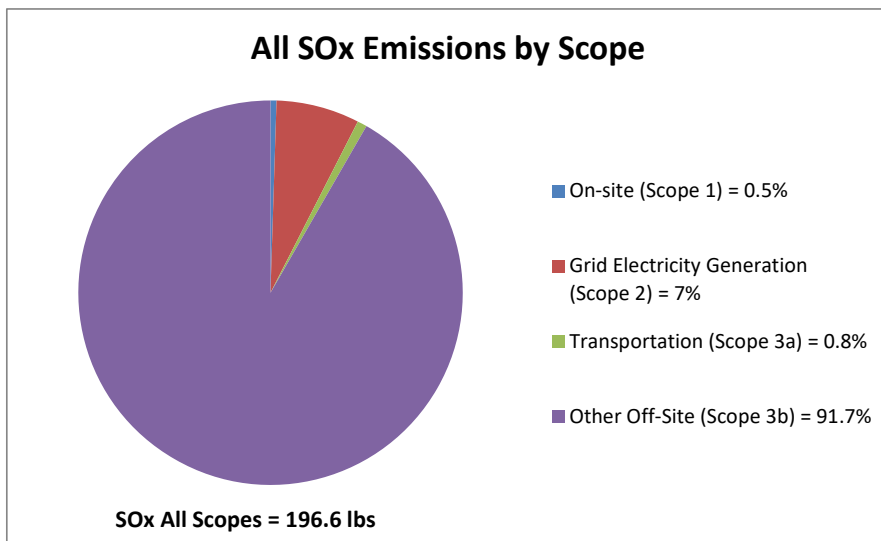
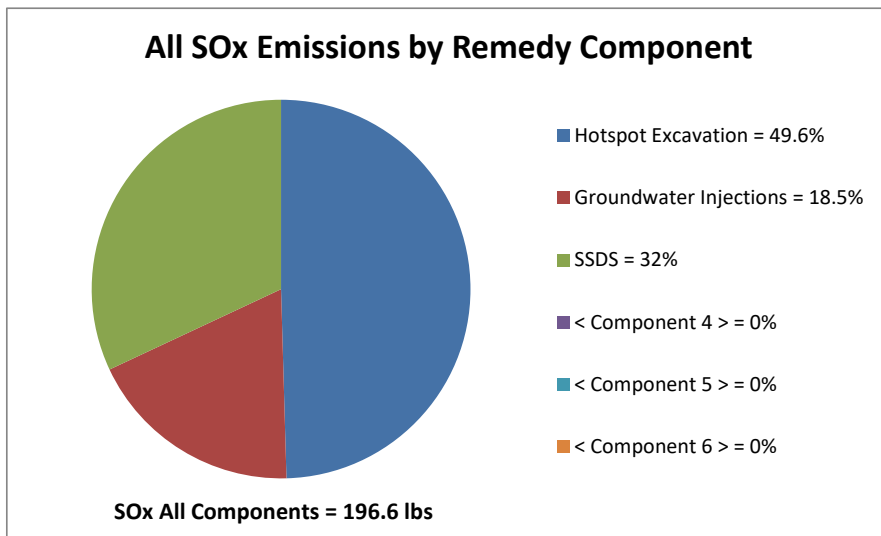
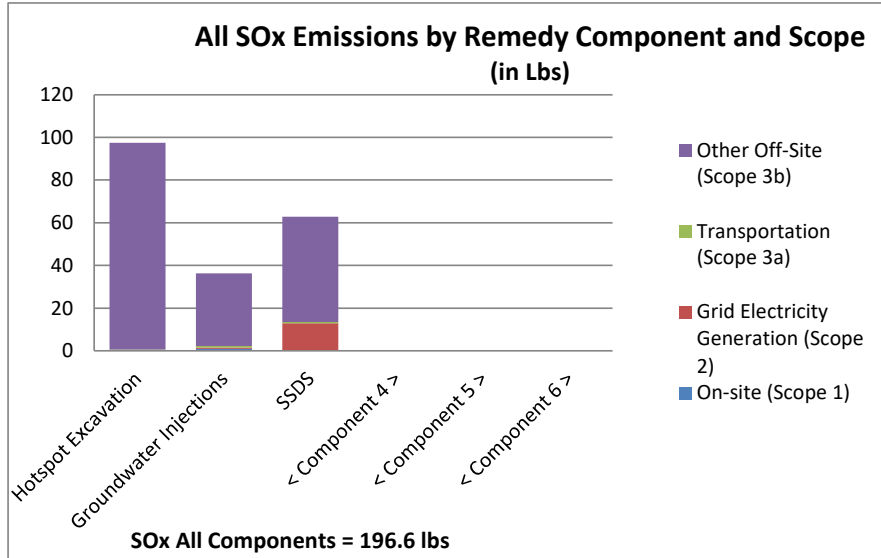


NOx lbs	Hotspot Ex	Groundwater	SSDS	< Component 4	< Component 5	< Component 6	Total	
On-site (Scope 1)	0.0	30.6	0.0	0.0	0.0	0.0	30.6	
Electricity Generation (Scope 2)	0.1	0.6	13.2	0.0	0.0	0.0	14.0	Grid Electricity
Transportation (Scope 3a)	19.1	30.6	25.0	0.0	0.0	0.0	74.8	Tram
Other Off-Site (Scope 3b)	62.2	16.6	25.8	0.0	0.0	0.0	104.6	Other
Total	81.5	78.4	64.0	0.0	0.0	0.0	224.0	

Hotspot Excavation = 36.4%
 Groundwater Injections = 35%
 SSDS = 28.6%
 < Component 4 > = 0%
 < Component 5 > = 0%
 < Component 6 > = 0%

On-site (Scope 1) = 13.7%
 Grid Electricity Generation (Scope 2) = 6.2%
 Transportation (Scope 3a) = 33.4%
 Other Off-Site (Scope 3b) = 46.7%

NOx All Components = 224 lbs
 NOx All Scopes = 224 lbs



SOx lbs	Hotspot	Ex Groundwa	SSDS	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	0.0	1.0	0.0	0.0	0.0	0.0	1.0	
Generation (Scope 2)	0.3	0.6	12.9	0.0	0.0	0.0	13.8	d Electricity
Transportation (Scope 3a)	0.3	0.7	0.6	0.0	0.0	0.0	1.6	Trar
Other Off-Site (Scope 3b)	96.9	34.1	49.3	0.0	0.0	0.0	180.3	Oth
Total	97.4	36.3	62.9	0.0	0.0	0.0	196.6	

Hotspot Excavation = 49.6%

Groundwater Injections = 18.5%

SSDS = 32%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 0.5%

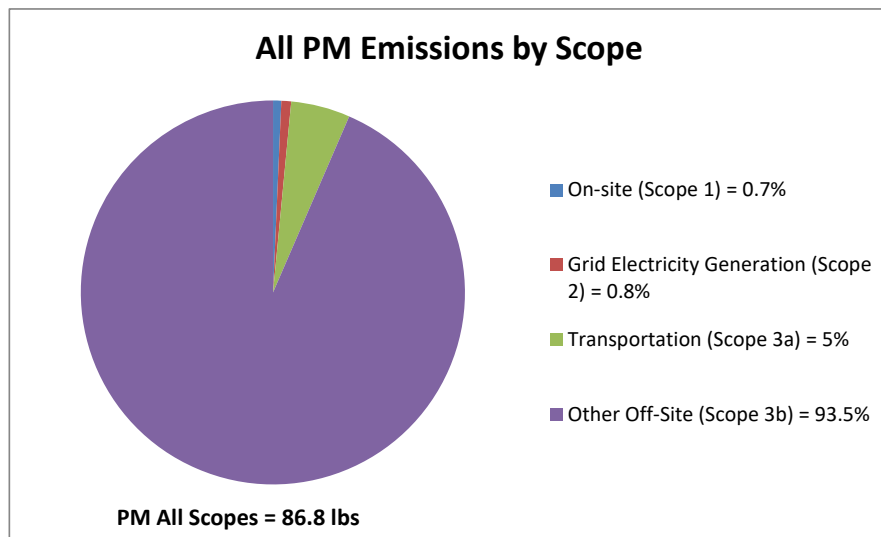
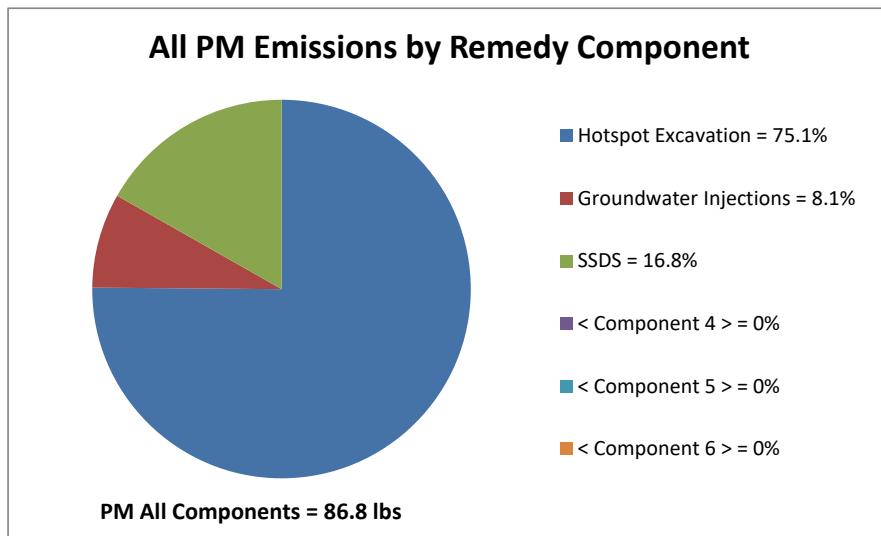
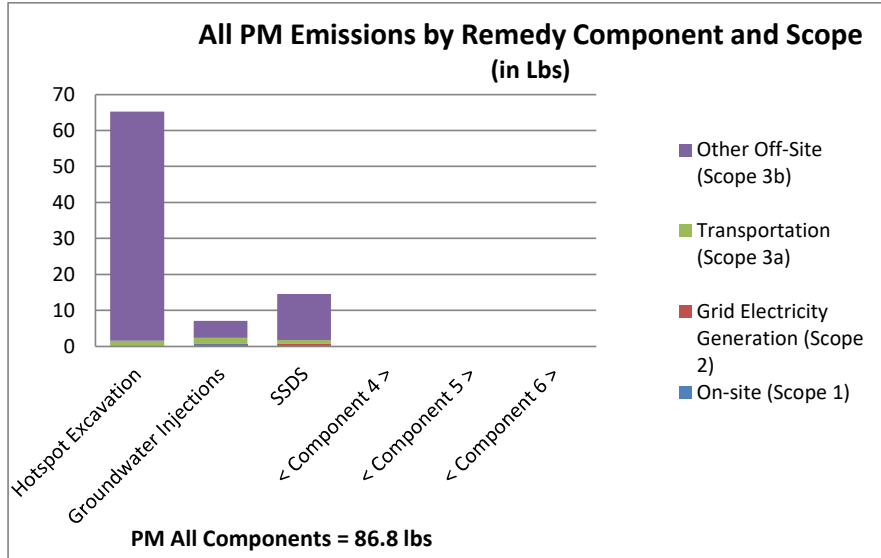
Grid Electricity Generation (Scope 2) = 7%

Transportation (Scope 3a) = 0.8%

Other Off-Site (Scope 3b) = 91.7%

SOx All Components = 196.6 lbs

SOx All Scopes = 196.6 lbs

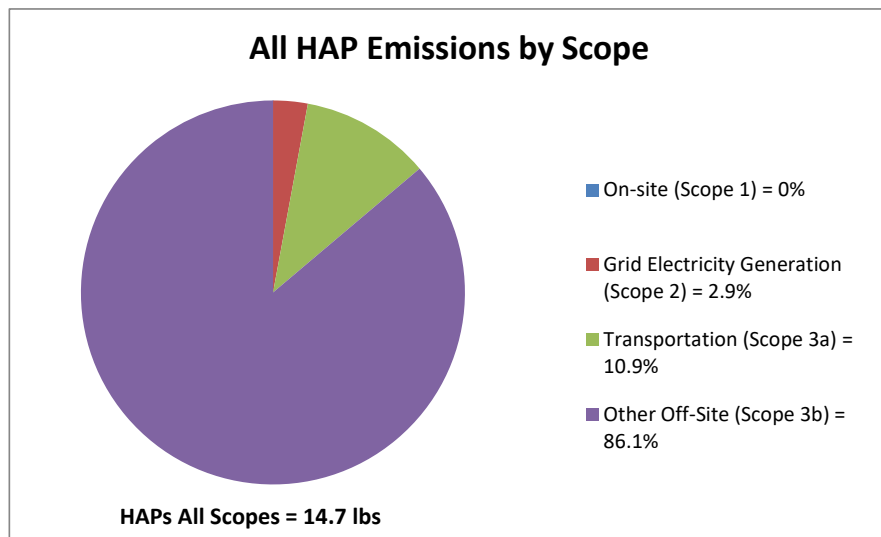
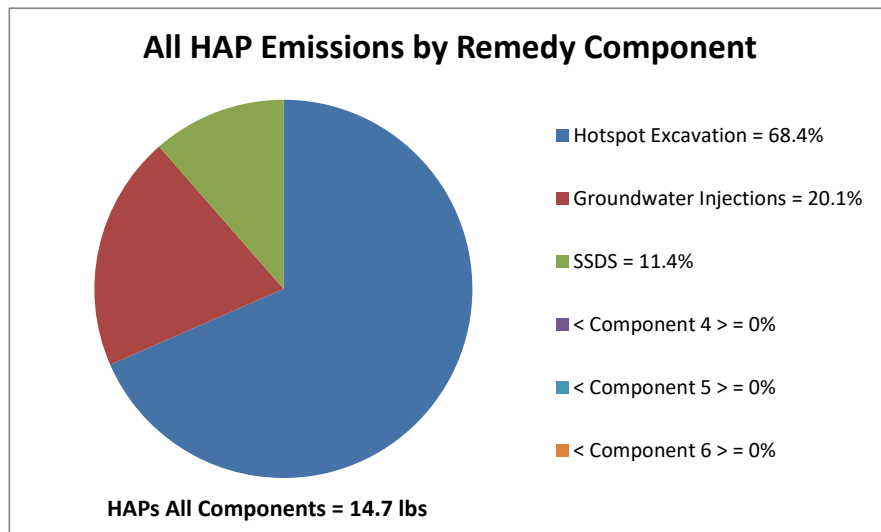
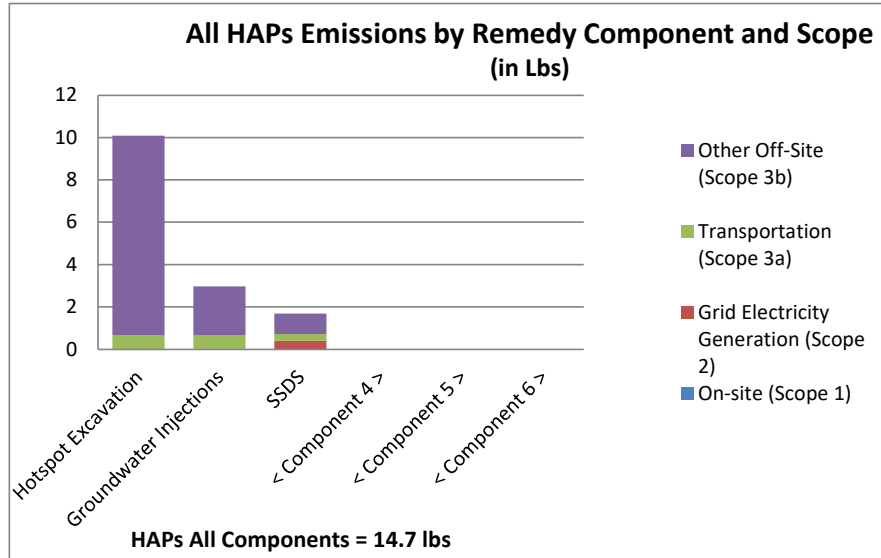


PM lbs	Hotspot Ex Groundwa	SSDS	< Component 4 >	< Component 5 >	< Component 6 >	Total	
On-site (Scope 1)	0.0	0.6	0.0	0.0	0.0	0.6	
Electricity Generation (Scope 2)	0.0	0.0	0.7	0.0	0.0	0.7	Grid Electricity
Transportation (Scope 3a)	1.5	1.8	1.1	0.0	0.0	4.3	Tram
Other Off-Site (Scope 3b)	63.7	4.6	12.8	0.0	0.0	81.2	Other
Total	65.2	7.0	14.6	0.0	0.0	86.8	

Hotspot Excavation = 75.1%
Groundwater Injections = 8.1%
SSDS = 16.8%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

On-site (Scope 1) = 0.7%
Grid Electricity Generation (Scope 2) = 0.8%
Transportation (Scope 3a) = 5%
Other Off-Site (Scope 3b) = 93.5%

PM All Components = 86.8 lbs
PM All Scopes = 86.8 lbs



HAPs lbs	Hotspot Ex	Groundwa	SSDS	< Compon	< Compon	< Compon	Total
On-site (Scope 1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generation (Scope 2)	0.0	0.0	0.4	0.0	0.0	0.0	0.4
Transportation (Scope 3a)	0.6	0.6	0.3	0.0	0.0	0.0	1.6
Other Off-Site (Scope 3b)	9.4	2.3	1.0	0.0	0.0	0.0	12.7
Total	10.1	3.0	1.7	0.0	0.0	0.0	14.7

Hotspot Excavation = 68.4%

Groundwater Injections = 20.1%

SSDS = 11.4%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 0%

Grid Electricity Generation (Scope 2) = 2.9%

Transportation (Scope 3a) = 10.9%

Other Off-Site (Scope 3b) = 86.1%

HAPs All Components = 14.7 lbs

HAPs All Scopes = 14.7 lbs

Remedy Component Number →		Input Summary														Remedy Component Subtotals							Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																					
		Hotspot Excavation	GW Injections	SSDS	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6		
Item																							
On-Site																							
<i>On-site Renewable Energy</i>																							
Renewable electricity generated on-site	MWh	0	0	0												0	0	0	0	0	0		
Landfill gas combusted on-site for energy use	ccf CH ₄	0	0	0												0	0	0	0	0	0		
On-site biodiesel use	gal	0	0	0												0	0	0	0	0	0		
On-site biodiesel use - Other	gal	0	0	0												0	0	0	0	0	0		
User-defined on-site renewable energy use #1	TBD	0	0	0												0	0	0	0	0	0		
User-defined on-site renewable energy use #2	TBD	0	0	0												0	0	0	0	0	0		
<i>On-Site Conventional Energy</i>																							
Grid electricity	MWh	0.05536	0.4106	8.7946												0.05536	0.4106	8.7946	0	0	0	9.26056	
On-site diesel use - Other	Gal	0	180	0												0	180	0	0	0	180		
On-site diesel use <75 hp	Gal	0	0	0												0	0	0	0	0	0		
On-site diesel use 75-hp<750	Gal	0	0	0												0	0	0	0	0	0		
On-site diesel use >750 hp	Gal	0	0	0												0	0	0	0	0	0		
On-site gasoline use - Other	Gal	0	0	0												0	0	0	0	0	0		
On-site gasoline use <25 hp	Gal	0	0	0												0	0	0	0	0	0		
On-site gasoline use >25 hp	Gal	0	0	0												0	0	0	0	0	0		
On-site natural gas use	ccf	0	0	0												0	0	0	0	0	0		
On-site compressed natural gas use - Other	ccf	0	0	0												0	0	0	0	0	0		
On-site compressed natural gas use	ccf	0	0	0												0	0	0	0	0	0		
On-site liquified petroleum gas use - Other	gal	0	0	0												0	0	0	0	0	0		
On-site liquified petroleum gas use	gal	0	0	0												0	0	0	0	0	0		
Other forms of on-site conventional energy use #1	TBD	0	0	0												0	0	0	0	0	0		
Other forms of on-site conventional energy use #2	TBD	0	0	0												0	0	0	0	0	0		
<i>Other On-site Emissions</i>																							
On-site HAP process emissions	Lbs	0	0	0												0	0	0	0	0	0		
On-site GHG emissions	Lbs CO ₂ e	0	0	0												0	0	0	0	0	0		
On-site carbon storage	Lbs CO ₂ e	0	0	0												0	0	0	0	0	0		
GHG avoided by flaring on-site landfill methane	ccf CH ₄	0	0	0												0	0	0	0	0	0		
Other on-site NO _x emissions or reductions	Lbs	0	0	0												0	0	0	0	0	0		
Other on-site SO _x emissions or reductions	Lbs	0	0	0												0	0	0	0	0	0		
Other on-site PM emissions or reductions	Lbs	0	0	0												0	0	0	0	0	0		
Electricity Generation																							
Grid electricity	MWh	0.05536	0.4106	8.7946												0.05536	0.4106	8.7946	0	0	0	9.26056	
Voluntary purchase of renewable electricity	MWh	0	0	0												0	0	0	0	0	0		
Voluntary purchase of RECs	MWh	0	0	0												0	0	0	0	0	0		
Transportation																							
<i>Transportation Fuel Use Breakdown</i>																							
Biodiesel use - Personnel Transport	gal	0	0	0												0	0	0	0	0	0		
Biodiesel use - Personnel Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Biodiesel use - Equipment Transport	gal	0	0	0												0	0	0	0	0	0		
Biodiesel use - Equipment Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Biodiesel use - Material Transport	gal	0	0	0												0	0	0	0	0	0		
Biodiesel use - Material Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Biodiesel use - Waste Transport	gal	0	0	0												0	0	0	0	0	0		
Biodiesel use - Waste Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Diesel use - Personnel Transport - other vehicles	gal	0	0	0												0	0	0	0	0	0		
Diesel use - Personnel Transport - car	gal	0	0	0												0	0	0	0	0	0		
Diesel use - Personnel Transport - passenger truck	gal	185.4	185.4	92.7												185.4	185.4	92.7	0	0	0	463.5	
Diesel use - Personnel Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Diesel use - Equipment Transport	gal	0	11.7	0												0	11.7	0	0	0	11.7		
Diesel use - Equipment Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Diesel use - Material Transport	gal	14.999	100.832	106.665												14.999	100.832	106.665	0	0	0	222.496	
Diesel use - Material Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Diesel use - Waste Transport	gal	30	0	6.7												30	0	6.7	0	0	36.7		
Diesel use - Waste Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Gasoline use - Personnel Transport - other vehicles	gal	0	0	0												0	0	0	0	0	0		
Gasoline use - Personnel Transport - car	gal	24	24	12												24	24	12	0	0	60		
Gasoline use - Personnel Transport - passenger truck	gal	0	0	0												0	0	0	0	0	0		
Gasoline use - Personnel Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Gasoline use - Equipment Transport	gal	0	0	0												0	0	0	0	0	0		
Gasoline use - Equipment Transport - User Defined	gal	0	0	0												0	0	0	0	0	0		
Natural Gas use - Personnel Transport	ccf	0	0	0												0	0	0	0	0	0		
Natural Gas use - Personnel Transport - User Defined	ccf	0	0	0												0	0	0	0	0	0		
Natural Gas use - Equipment Transport	ccf	0	0	0												0	0	0	0	0	0		

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
		Hotspot Excavation	GW Injections	SSDs	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
Item		1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3	4	5	6	
Conventional Energy																						
Transportation diesel use	gal	230.399	297.932	206.065												230.399	297.932	206.065	0	0	0	734.396
Transportation gasoline use	gal	24	24	12												24	24	12	0	0	0	60
Transportation natural gas use	ccf	0	0	0												0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD	10	10	10												10	10	10	0	0	0	30
User-defined conventional energy transportation #2	TBD	0	0	0												0	0	0	0	0	0	0
Renewable Energy																						
Transportation biodiesel use	gal	0	0	0												0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD	0	0	0												0	0	0	0	0	0	0
Off-Site																						
Construction Materials																						
Aluminum, Rolled Sheet	lb	0	0	0												0	0	0	0	0	0	0
Asphalt, mastic	lb	0	0	0												0	0	0	0	0	0	0
Asphalt, paving-grade	lb	0	0	0												0	0	0	0	0	0	0
Ethanol, Corn, 95%	lb	0	0	0												0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb	0	0	0												0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb	0	0	0												0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb	0	0	0												0	0	0	0	0	0	0
Gravel/sand/clay	lb	0	0	0												0	0	0	0	0	0	0
HDPE	lb	0	0	0												0	0	0	0	0	0	0
Photovoltaic system (installed)	W	0	0	0												0	0	0	0	0	0	0
PVC	lb	0	48	0												0	48	0	0	0	0	48
Portland cement, US average	lb	0	30	950												150	0	0	0	0	0	150
Ready-mixed concrete, 20 MPa	ft3	150	0	0												200000	0	90	0	0	0	200090
Round Gravel	lb	200000	0	90												0	1311	0	0	0	0	1311
Sand	lb	0	1311	0												0	0	2500	0	0	0	2500
Stainless Steel	lb	0	0	2500												0	0	0	0	0	0	0
Steel	lb	0	0	0												0	0	0	0	0	0	0
Other refined construction materials	lb	0	0	530												0	0	530	0	0	0	530
Other unrefined construction materials	lb	0	0	0												0	0	0	0	0	0	0
Treatment Materials & Chemicals																						
Cheese Whey	lbs	0	0	0												0	0	0	0	0	0	0
Emulsified vegetable oil	lbs	0	0	0												0	0	0	0	0	0	0
Granular activated carbon, primary	lbs	0	0	0												0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs	0	0	0												0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0	0												0	0	0	0	0	0	0
Iron (II) Sulfate	lbs	0	0	0												0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs	0	0	0												0	0	0	0	0	0	0
Molasses	lbs	0	0	0												0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs	0	0	0												0	0	0	0	0	0	0
Potassium Permanganate	lbs	0	0	0												0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs	0	0	0												0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs	0	2204	0												0	2204	0	0	0	0	2204
Material Type																						
Total Virgin Refined Materials	tons	5.658275	1.7965	2.035												5.658275	1.7965	2.035	0	0	0	9.489775
Total Recycled Refined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Reused Refined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Refined Material	tons	5.658275	1.7965	2.035												5.658275	1.7965	2.035	0	0	0	9.489775
Total Virgin Unrefined Materials	tons	100	0	0												100	0	0	0	0	0	100
Total Recycled Unrefined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Unrefined Material	tons	100	0	0												100	0	0	0	0	0	100
Fuel Processing																						
Biodiesel produced	gal	0	0	0												0	0	0	0	0	0	0
Diesel produced	gal	230.399	477.932	206.065												230.399	477.932	206.065	0	0	0	914.396
Gasoline produced	gal	24	24	12												24	24	12	0	0	0	60
Compressed natural gas produced	ccf	0	0	0												0	0	0	0	0	0	0
Liquified petroleum gas produced	gal	0	0	0												0	0	0	0	0	0	0
Natural gas produced	ccf	0	0	0												0	0	0	0	0	0	0
Water Use																						
Public Water Supply	gal x 1000	0	2.38	0												0	2.38	0	0	0	0	2.38
Extracted Groundwater	gal x 1000	0	0	0												0	0	0	0	0	0	0
Surface Water	gal x 1000	0	0	0												0	0	0	0	0	0	0
Reclaimed Water	gal x 1000	0	0	0												0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000	0	0	0												0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000	0	0	0												0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0	0												0	0	0	0	0	0	0

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Hotspot Excavation	GW Injections	SSDs	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
<u>Waste/Recycle Handling</u>																						
Hazardous waste incineration	lbs	0	0	0												0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000	0	0	0												0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons	2	0	0												2	0	0	0	0	0	2
Off-site hazardous waste landfill	tons	100	0	0.6												100	0	0.6	0	0	0	100.6
Recycled/Reused On-Site	tons	0	0	0												0	0	0	0	0	0	0
Recycled/Reused Off-Site	tons	10	0	1.14												10	0	1.14	0	0	0	11.14
<u>Solid Waste Totals</u>																						
Total Non-Hazardous Waste	tons	2	0	0												2	0	0	0	0	0	2
Total Hazardous Waste	tons	100	0	0.6												100	0	0.6	0	0	0	100.6
Total Recycled/Reused	tons	10	0	1.14												10	0	1.14	0	0	0	11.14
Total Waste (all types)	tons	112	0	1.74												112	0	1.74	0	0	0	113.74
<u>Lab Services</u>																						
Off-site Laboratory Analysis - Other	sample	51	30	0												51	30	0	0	0	0	81
Off-site Laboratory Analysis - Metals	sample	17	0	0												17	0	0	0	0	0	17
Off-site Laboratory Analysis - Mercury	sample	17	0	0												17	0	0	0	0	0	17
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Sulfate	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - PCBs	sample	17	0	0												17	0	0	0	0	0	17
Off-site Laboratory Analysis - VOCs	sample	18	30	10												18	30	10	0	0	0	58
Off-site Laboratory Analysis - SVOCs	sample	17	0	0												17	0	0	0	0	0	17
<u>Resource Extraction for Electricity</u>																						
Coal extraction and processing	MWh	0.0168848	0.024636	0.527676												0.0168848	0.024636	0.527676	0	0	0	0.5691968
Natural gas extraction and processing	MWh	0.018767	0.04106	0.87946												0.018767	0.04106	0.87946	0	0	0	0.939287
Nuclear fuel extraction and processing	MWh	0.0109613	0.008212	0.175892												0.0109613	0.008212	0.175892	0	0	0	0.1950653
Oil extraction and processing	MWh	0.0003875	0.02053	0.43973												0.0003875	0.02053	0.43973	0	0	0	0.4606475
Other fuel extraction and processing	MWh	5.536E-05	0	0												5.536E-05	0	0	0	0	0	5.536E-05
<u>Electricity Transmission</u>																						
Transmission and distribution losses	MWh	0.05536	0.4106	8.7946												0.05536	0.4106	8.7946	0	0	0	9.26056

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
		Hotspot Excavation	GW Injections	SSDS	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
		Item																				
<u>Other</u>																						
User-defined material #1	n2	605	0	0												605	0	0	0	0	0	605
User-defined material #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0												0	0	0	0	0	0	0
<u>User-defined Waste Destinations</u>																						
User-defined recycled/reused on-site #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused on-site #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined non-hazardous waste destination #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0												0	0	0	0	0	0	0

Hotspot Excavation - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
<u>On-site Renewable Energy</u>														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.000063	0	0.00076	0	0.000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
<u>On-site Conventional Energy</u>														
On-site grid electricity	MWh	0.05536	3.413	0.1889437										
On-site diesel use - Other	Gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				0		0		0		0		0		0
Notes:														
<u>Other On-site Emissions</u>														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				0.19		0		0		0		0		0

Hotspot Excavation - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.05536	6.929	0.3835894	1124.3	62.241248	2.2421	0.1241227	4.6078874	0.2550926	0.057518	0.0031842	0.2102371	0.0116387
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Hotspot Excavation - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
<u>Conventional Energy</u>														
Transportation diesel use	gal	44,999	0.139	6.254861	22.5	1012.4775	0.17	7.64983	0.0054	0.2429946	0.0034	0.1529966	0.0000052	0.000234
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	10	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				35		5,667		19		0		2		1
Notes:														
<u>Renewable Energy</u>														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	npg or pmg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				35		5667		19		0		2		1

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Construction Materials</u>														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	150	0.217	32.55	19.5	2925	0.0975	14.625	0.154	23.1	0.057	8.55	0.0141	2.115
Round Gravel	lb	200000	0.0000248	4.96	0.0024	480	0.000018	3.6	4.52E-06	0.904	2.61E-06	0.522	3.08E-07	0.0616
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	0	0.01885	0	2.115	0	0.0040375	0	0.0051325	0	0.0014428	0	0.0001625	0
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBTus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	230,399	0.017	3.916783	3.02	695.80498	0.0051	1.1750349	0.0062	1.4284738	0.0017	0.3916783	0.0011	0.2534389
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				4.708783		763.00498		1.2854349		1.5484738		0.4276783		0.2774389
Notes:														
<i>Public water</i>	gal x 1000	0	0.0092	0	5	0	0.0097	0	0.0059	0	0.016	0	0.000015	0
<i>User-defined water resource #1</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>User-defined water resource #2</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Off-Site Services</u>														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	2	0.16	0.32	25	50	0.14	0.28	0.075	0.15	0.4	0.8	0.0014	0.0028
Off-site hazardous waste landfill	ton	100	0.18	18	27.5	2750	0.154	15.4	0.0825	8.25	0.44	44	0.00154	0.154
Off-site Laboratory Analysis - Other	sample	51	0.058071	2.9616225	6.8534384	349.52536	0.131402	6.7014998	0.3038758	15.497664	0.0455698	2.324061	0.0330165	1.683843
Off-site Laboratory Analysis - Metals	sample	17	0.212	3.604	27.4693	466.9781	0.6423	10.9191	1.5072	25.6224	0.2264	3.8488	0.1643	2.7931
Off-site Laboratory Analysis - Mercury	sample	17	0.0731715	1.243915	9.325458	158.53279	0.2127439	3.6166463	0.4982396	8.4700732	0.0747359	1.270511	0.0542332	0.9219637
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	17	0.0512769	0.8717073	5.224902	88.823334	0.0833339	1.416676	0.1904774	3.2381165	0.0284393	0.4834688	0.0212083	0.3605403
Off-site Laboratory Analysis - VOCs	sample	18	0.0762045	1.3716808	9.016814	162.30265	0.104498	1.8809647	0.2270738	4.0873284	0.0339508	0.6111151	0.0235892	0.424606
Off-site Laboratory Analysis - SVOCs	sample	17	0.0715602	1.2165231	7.870422	133.79717	0.1459445	2.4810568	0.3373038	5.7341646	0.0504853	0.8582508	0.0372577	0.6333816
Notes:														
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.0168848	3.1	0.0515628	180.0	3.039264	0.8	0.0130013	0.2	0.0025327	0.0	0.0003039	NP	
Natural gas extraction and processing	MWh	0.018767	1.6	0.0306241	270.0	5.0671008	0.2	0.0033781	13.0	0.2439715	0.0	0.0001332	NP	
Nuclear fuel extraction and processing	MWh	0.0109613	0.2	0.0017042	25.0	0.274032	0.2	0.0016442	0.5	0.0054806	0.0	1.644E-05	NP	
Oil extraction and processing	MWh	0.0003875	2.3	0.0008895	270.0	0.1046304	1.7	0.0006588	0.1	2.674E-05	0.0	1.628E-05	NP	
Other fuel extraction and processing	MWh	5.536E-05	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				0.0847805		8.4850272		0.0186823		0.2520116		0.0004699		0
Notes:														
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	0.05536	1.0342	0.0572533	112.43	6.2241248	0.22421	0.0124123	0.4607887	0.0255093	0.0057518	0.0003184	0.0210237	0.0011639
Notes:														

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtu	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>User-defined Materials</u>														
User-defined material #1	ft2	605	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
<u>User-defined Waste Destinations</u>														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu)		lbs CO2e		lbs/unit		lbs/unit		M(lbs/unit)		Ps(lbs/unit)	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				71.950266		8342.6735		62.237473		96.879741		63.696673		9.4294373

Hotspot Excavation - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.05536	3.413	0.1889437										
<u>Electricity Generation</u>														
Grid electricity	MWh	0.05536	6.929	0.3835894	1124.3	62.241248	2.2421	0.1241227	4.6078874	0.2550926	0.057518	0.0031842	0.2102371	0.0116387
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.0168848	3.1	0.0515628	180.0	3.039264	0.8	0.0130013	0.2	0.0025327	0.0	0.0003039	NP	
Natural gas extraction and processing	MWh	0.018767	1.6	0.0306241	270.0	5.0671008	0.2	0.0033781	13.0	0.2439715	0.0	0.0001332	NP	
Nuclear fuel extraction and processing	MWh	0.0109613	0.2	0.0017042	25.0	0.274032	0.2	0.0016442	0.5	0.0054806	0.0	1.644E-05	NP	
Oil extraction and processing	MWh	0.0003875	2.3	0.0008895	270.0	0.1046304	1.7	0.0006588	0.1	2.674E-05	0.0	1.628E-05	NP	
Other fuel extraction and processing	MWh	5.536E-05	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	0.05536	1.0342	0.0572533	112.43	6.2241248	0.22421	0.0124123	0.4607887	0.0255093	0.0057518	0.0003184	0.0210237	0.0011639
Total Grid Electricity Footprint				1		77		0		1		0		0
Total Fuel Footprints														
<u>Total Gasoline Footprint</u>														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00061	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Total Gasoline Footprint	24		3.768		541.68		0.7584		0.12864		0.108		0.1848	
<u>Total Diesel Footprint</u>														
On-site diesel use - Other	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75-hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	44.999	0.139	6.254861	22.5	1012.4775	0.17	7.64983	0.0054	0.2429946	0.0034	0.1529966	0.000052	0.000234
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00025	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
Diesel produced	gal	230.399	0.017	3.916783	3.02	695.80498	0.0051	1.1750349	0.0062	1.4284738	0.0017	0.3916783	0.0011	0.2534389
Total Diesel Footprint	230.399		35.942244		5888.1255		19.670765		1.7085484		1.8424749		0.7366399	
<u>Total Biodiesel Footprint</u>														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint	0		0		0		0		0		0		0	
<u>Total Natural Gas Footprint</u>														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint	0		0		0		0		0		0		0	
<u>Total Liquefied Petroleum Gas Footprint</u>														
On-site liquefied petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquefied petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquefied petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint	0		0		0		0		0		0		0	
<u>Total Compressed Gas Footprint</u>														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint	0		0		0		0		0		0		0	

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

Groundwater Injections - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
<i>On-site Renewable Energy</i>														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.000063	0	0.00076	0	0.000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
<i>On-site Conventional Energy</i>														
On-site grid electricity	MWh	0.4106	3.413	1.4013778										
On-site diesel use - Other	Gal	180	0.139	25.02	22.5	4050	0.17	30.6	0.0054	0.972	0.0034	0.612	0.000052	0.000936
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				26		4,050		31		1		1		0
Notes:														
<i>Other On-site Emissions</i>														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				26.42		4,050		31		1		1		0

Groundwater Injections - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.4106	6.929	2.8450474	352	144.5312	1.504	0.6175424	1.46966	0.6034424	0.07546	0.0309839	0.0454035	0.0186427
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Groundwater Injections - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
<i>Conventional Energy</i>														
Transportation diesel use	gal	112,532	0.139	15.641948	22.5	2531.97	0.17	19.13044	0.0054	0.6076728	0.0034	0.3826088	0.0000052	0.0005852
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	10	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				44		7,186		31		1		2		1
Notes:														
<i>Renewable Energy</i>														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	npg or pmg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				44		7186		31		1		2		1

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Construction Materials</u>														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	48	0.0262	1.2576	2.02	96.96	0.004	0.192	0.00274	0.13152	0.000372	0.017856	0.000375	0.018
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	0	0.217	0	19.5	0	0.0975	0	0.154	0	0.057	0	0.0141	0
Round Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Sand	lb	1311	0.0000248	0.0325128	0.0024	3.1464	0.000018	0.023598	4.52E-06	0.0059257	2.61E-06	0.0034217	3.08E-07	0.0004038
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	0	0.01885	0	2.115	0	0.0040375	0	0.0051325	0	0.0014428	0	0.0001625	0
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBTus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	2204	0.015	33.06	1.67	3680.68	0.003	6.612	0.0065	14.326	0.00061	1.34444	0.000016	0.035264
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	477,932	0.017	8.124844	3.02	1443.3546	0.0051	2.4374532	0.0062	2.9631784	0.0017	0.8124844	0.0011	0.5257252
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				8.916844		1510.5546		2.5478532		3.0831784		0.8484844		0.5497252
Notes:														
<i>Public water</i>	gal x 1000	2.38	0.0092	0.021896	5	11.9	0.0097	0.023086	0.0059	0.014042	0.016	0.03808	0.000015	0.0000357
<i>User-defined water resource #1</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>User-defined water resource #2</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs		
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs	
			Factor		Factor		Factor		Factor		Factor		Factor		
<u>Off-Site Services</u>															
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0	
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP		
Off-site non-hazardous waste landfill	ton	0	0.16	0	25	0	0.14	0	0.075	0	0.4	0	0.0014	0	
Off-site hazardous waste landfill	ton	0	0.18	0	27.5	0	0.154	0	0.0825	0	0.44	0	0.00154	0	
Off-site Laboratory Analysis - Other	sample	30	0.058071	1.7421309	6.8534384	205.60315	0.131402	3.9420587	0.3038758	9.116273	0.0455698	1.3670947	0.0330165	0.9904959	
Off-site Laboratory Analysis - Metals	sample	0	0.212	0	27.4693	0	0.6423	0	1.5072	0	0.2264	0	0.1643	0	
Off-site Laboratory Analysis - Mercury	sample	0	0.0731715	0	9.325458	0	0.2127439	0	0.4982396	0	0.0747359	0	0.0542332	0	
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0	
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0	
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0	
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0	
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0	
Off-site Laboratory Analysis - PCBs	sample	0	0.0512769	0	5.224902	0	0.0833339	0	0.1904774	0	0.0284393	0	0.0212083	0	
Off-site Laboratory Analysis - VOCs	sample	30	0.0762045	2.2861346	9.016814	270.50442	0.104498	3.1349412	0.2270738	6.812214	0.0339508	1.0185252	0.0235892	0.7076766	
Off-site Laboratory Analysis - SVOCs	sample	0	0.0715602	0	7.870422	0	0.1459445	0	0.3373038	0	0.0504853	0	0.0372577	0	
Notes:															
<u>Resource Extraction for Electricity</u>															
Coal extraction and processing	MWh	0.024636	3.1	0.0752334	180.0	4.43448	0.8	0.0189697	0.2	0.0036954	0.0	0.0004434	NP		
Natural gas extraction and processing	MWh	0.04106	1.6	0.0670017	270.0	11.0862	0.2	0.0073908	13.0	0.53378	0.0	0.0002915	NP		
Nuclear fuel extraction and processing	MWh	0.008212	0.2	0.0012767	25.0	0.2053	0.2	0.0012318	0.5	0.004106	0.0	1.232E-05	NP		
Oil extraction and processing	MWh	0.02053	2.3	0.0471246	270.0	5.5431	1.7	0.034901	0.1	0.0014166	0.0	0.0008623	NP		
Other fuel extraction and processing	MWh	0	0	0	0	0	0	0	0	0	0	0	0	0	
Resource Extraction Subtotals					0.1906364		21.26908		0.0624933		0.542998		0.0016096		0
Notes:															
<u>Electricity Transmission</u>															
Transmission and distribution losses	MWh	0.4106	1.0342	0.4246425	35.2	14.45312	0.1504	0.0617542	0.146966	0.0603442	0.007546	0.0030984	0.0045403	0.0018643	
Notes:															

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtu	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>User-defined Materials</u>														
User-defined material #1	ft2	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
<u>User-defined Waste Destinations</u>														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu)		lbs CO2e		lbs/unit		lbs/unit		M(lbs/unit)		Ps(lbs/unit)	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				47.932397		5815.0708		16.599785		34.092495		4.64261		2.3034654

Groundwater Injections - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.4106	3.413	1.4013778										
<u>Electricity Generation</u>														
Grid electricity	MWh	0.4106	6.929	2.8450474	1124.3	461.63758	2.2421	0.9206063	4.6078874	1.8919986	0.057518	0.0236169	0.2102371	0.0863233
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.024636	3.1	0.0752334	180.0	4.43448	0.8	0.0189697	0.2	0.0036954	0.0	0.0004434	NP	
Natural gas extraction and processing	MWh	0.04106	1.6	0.0670017	270.0	11.0862	0.2	0.0073908	13.0	0.53378	0.0	0.0002915	NP	
Nuclear fuel extraction and processing	MWh	0.008212	0.2	0.0012767	25.0	0.2053	0.2	0.0012318	0.5	0.004106	0.0	1.232E-05	NP	
Oil extraction and processing	MWh	0.02053	2.3	0.0471246	270.0	5.5431	1.7	0.034901	0.1	0.0014166	0.0	0.0008623	NP	
Other fuel extraction and processing	MWh	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	0.4106	1.0342	0.4246425	112.43	46.163758	0.22421	0.0920606	0.4607887	0.1891999	0.0057518	0.0023617	0.0210237	0.0086323
Total Grid Electricity Footprint				5		529		1		3		0		0
Total Fuel Footprints														
<u>Total Gasoline Footprint</u>														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00061	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Total Gasoline Footprint	24			3.768		541.68		0.7584		0.12864		0.108		0.1848
<u>Total Diesel Footprint</u>														
On-site diesel use - Other	gal	180	0.139	25.02	22.5	4050	0.17	30.6	0.0054	0.972	0.0034	0.612	0.0000052	0.000936
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75-hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	112.532	0.139	15.641948	22.5	2531.97	0.17	19.13044	0.0054	0.6076728	0.0034	0.3826088	0.0000052	0.0005852
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Diesel produced	gal	477.932	0.017	8.124844	3.02	1443.3546	0.0051	2.4374532	0.0062	2.9631784	0.0017	0.8124844	0.0011	0.5257252
Total Diesel Footprint	477.932			74.557392		12205.168		63.013793		4.5799312		3.1048932		1.0102134
<u>Total Biodiesel Footprint</u>														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint	0			0		0		0		0		0		0
<u>Total Natural Gas Footprint</u>														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint	0			0		0		0		0		0		0
<u>Total Liquefied Petroleum Gas Footprint</u>														
On-site liquefied petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquefied petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquefied petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint	0			0		0		0		0		0		0
<u>Total Compressed Gas Footprint</u>														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint	0			0		0		0		0		0		0

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

SSDS - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
<u>On-site Renewable Energy</u>														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.000063	0	0.00076	0	0.000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
<u>On-site Conventional Energy</u>														
On-site grid electricity	MWh	8,7946	3.413	30.01597										
On-site diesel use - Other	Gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75-4hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				30		0		0		0		0		0
Notes:														
<u>Other On-site Emissions</u>														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				30.02		0		0		0		0		0

SSDS - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	8.7946	6.929	60.937783	352	3095.6992	1.504	13.227078	1.46966	12.925072	0.07546	0.6636405	0.0454035	0.3993056
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

SSDS - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
<i>Conventional Energy</i>														
Transportation diesel use	gal	113.365	0.139	15.757735	22.5	2550.7125	0.17	19.27205	0.0054	0.612171	0.0034	0.385441	0.0000052	0.0005895
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	92.7	0.139	12.8853	22.545	2089.9215	0.0585	5.42295	0.0002	0.01854	0.007	0.6489	0.002605	0.2414835
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	12	0.124	1.488	19.77	237.24	0.027	0.324	0.00036	0.00432	0.003	0.036	0.0067	0.0804
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	10	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				30		4,878		25		1		1		0
Notes:														
<i>Renewable Energy</i>														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	npg or pmg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				30		4878		25		1		1		0

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Construction Materials</u>														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	0	0.217	0	19.5	0	0.0975	0	0.154	0	0.057	0	0.0141	0
Round Gravel	lb	90	0.0000248	0.002232	0.0024	0.216	0.000018	0.00162	4.52E-06	0.0004068	2.61E-06	0.0002349	3.08E-07	2.772E-05
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	2500	0.0116	29	3.4	8500	0.0075	18.75	0.012	30	0.0044	11	0.000144	0.36
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	530	0.01885	9.9905	2.115	1120.95	0.0040375	2.139875	0.0051325	2.720225	0.0014428	0.7646575	0.0001625	0.0861383
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	206.065	0.017	3.503105	3.02	622.3163	0.0051	1.0509315	0.0062	1.277603	0.0017	0.3503105	0.0011	0.2266715
Gasoline produced	gal	12	0.033	0.396	2.8	33.6	0.0046	0.0552	0.005	0.06	0.0015	0.018	0.001	0.012
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				3.899105		655.9163		1.1061315		1.337603		0.3683105		0.2386715
Notes:														
<i>Public water</i>														
Public water	gal x 1000	0	0.0092	0	5	0	0.0097	0	0.0059	0	0.016	0	0.000015	0
User-defined water resource #1	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtu	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Off-Site Services</u>														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	0	0.16	0	25	0	0.14	0	0.075	0	0.4	0	0.0014	0
Off-site hazardous waste landfill	ton	0.6	0.18	0.108	27.5	16.5	0.154	0.0924	0.0825	0.0495	0.44	0.264	0.00154	0.000924
Off-site Laboratory Analysis - Other	sample	0	0.058071	0	6.8534384	0	0.131402	0	0.3038758	0	0.0455698	0	0.0330165	0
Off-site Laboratory Analysis - Metals	sample	0	0.212	0	27.4693	0	0.6423	0	1.5072	0	0.2264	0	0.1643	0
Off-site Laboratory Analysis - Mercury	sample	0	0.0731715	0	9.325458	0	0.2127439	0	0.4982396	0	0.0747359	0	0.0542332	0
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	0	0.0512769	0	5.224902	0	0.0833339	0	0.1904774	0	0.0284393	0	0.0212083	0
Off-site Laboratory Analysis - VOCs	sample	10	0.0762045	0.7620449	9.016814	90.16814	0.104498	1.0449804	0.2270738	2.270738	0.0339508	0.3395084	0.0235892	0.2358922
Off-site Laboratory Analysis - SVOCs	sample	0	0.0715602	0	7.870422	0	0.1459445	0	0.3373038	0	0.0504853	0	0.0372577	0
Notes:														
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.527676	3.1	1.611417	180.0	94.98168	0.8	0.4063105	0.2	0.0791514	0.0	0.0094982	NP	
Natural gas extraction and processing	MWh	0.87946	1.6	1.4351028	270.0	237.4542	0.2	0.1583028	13.0	11.43298	0.0	0.0062442	NP	
Nuclear fuel extraction and processing	MWh	0.175892	0.2	0.0273463	25.0	4.3973	0.2	0.0263838	0.5	0.087946	0.0	0.0002638	NP	
Oil extraction and processing	MWh	0.43973	2.3	1.0093562	270.0	118.7271	1.7	0.747541	0.1	0.0303414	0.0	0.0184687	NP	
Other fuel extraction and processing	MWh	0	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals					4.0832223	455.56028		1.3385381		11.630419		0.0344748		0
Notes:														
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	8.7946	1.0342	9.0953753	35.2	309.56992	0.1504	1.3227078	0.146966	1.2925072	0.007546	0.0663641	0.0045403	0.0399306
Notes:														

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtu	Conv.	lbs CO2e	Factor	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>User-defined Materials</u>														
User-defined material #1	ft2	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
<u>User-defined Waste Destinations</u>														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu)		lbs CO2e		lbs/unit		lbs/unit		M(lbs/unit)		Ps(lbs/unit)	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				56,94048		11148.881		25.796253		49.301399		12.83755		0.9615842

SSDS - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Total Grid Electricity Footprint														
On-site grid electricity	MWh	8.7946	3.413	30.01597										
<u>Electricity Generation</u>														
Grid electricity	MWh	8.7946	6.929	60.937783	1124.3	9887.7688	2.2421	19.718373	4.6078874	40.524527	0.057518	0.5058478	0.2102371	1.8489511
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.527676	3.1	1.611417	180.0	94.98168	0.8	0.4063105	0.2	0.0791514	0.0	0.0094982	NP	
Natural gas extraction and processing	MWh	0.87946	1.6	1.4351028	270.0	237.4542	0.2	0.1583028	13.0	11.43298	0.0	0.0062442	NP	
Nuclear fuel extraction and processing	MWh	0.175892	0.2	0.0273463	25.0	4.3973	0.2	0.0263838	0.5	0.087946	0.0	0.0002638	NP	
Oil extraction and processing	MWh	0.43973	2.3	1.0093562	270.0	118.7271	1.7	0.747541	0.1	0.0303414	0.0	0.0184687	NP	
Other fuel extraction and processing	MWh	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	8.7946	1.0342	9.0953753	112.43	988.77688	0.22421	1.9718373	0.4607887	4.0524527	0.0057518	0.0505848	0.0210237	0.1848951
Total Grid Electricity Footprint			104			11332		23		56		1		2
Total Fuel Footprints														
<u>Total Gasoline Footprint</u>														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	12	0.124	1.488	19.77	237.24	0.027	0.324	0.00036	0.00432	0.003	0.036	0.0067	0.0804
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	12	0.033	0.396	2.8	33.6	0.0046	0.0552	0.005	0.06	0.0015	0.018	0.001	0.012
Total Gasoline Footprint		12		1.884		270.84		0.3792		0.06432		0.054		0.0924
<u>Total Diesel Footprint</u>														
On-site diesel use - Other	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75-hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	113.365	0.139	15.757735	22.5	2550.7125	0.17	19.27205	0.0054	0.612171	0.0034	0.385441	0.000052	0.0005895
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	92.7	0.139	12.8853	22.545	2089.9215	0.0585	5.42295	0.0002	0.01854	0.007	0.6489	0.002605	0.2414835
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
Diesel produced	gal	206.065	0.017	3.503105	3.02	622.3163	0.0051	1.0509315	0.0062	1.277603	0.0017	0.3503105	0.0011	0.2266715
Total Diesel Footprint		206.065		32.14614		5262.9503		25.745932		1.908314		1.3846515		0.4687445
<u>Total Biodiesel Footprint</u>														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		0		0		0		0		0		0		0
<u>Total Natural Gas Footprint</u>														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
<u>Total Liquefied Petroleum Gas Footprint</u>														
On-site liquefied petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquefied petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquefied petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
<u>Total Compressed Gas Footprint</u>														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		0		0		0		0		0		0		0

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

Track 4 SCOs

Environmental Footprint Summary

Core Element	Metric		Unit of Measure	Footprint						
				Hotspot Excavation	Groundwater Injections	SSDS	< Component 4 >	< Component 5 >	< Component 6 >	Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	5.7	1.8	2.0	0.0	0.0	0.0	9.5
	M&W-2	% of refined materials from recycled or reused material	%	0.0%	0.0%	0.0%				0.0%
	M&W-3	Unrefined materials used on-site	Tons	100.000	0.000	0.000	0.000	0.000	0.000	100.0
	M&W-4	% of unrefined materials from recycled or reused material	%	0.0%						0.0%
	M&W-5	On-site hazardous waste disposed of off-site	Tons	100.0	0.0	0.6	0.0	0.0	0.0	100.6
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-7	Recycled or reused waste	Tons	10.0	0.0	1.1	0.0	0.0	0.0	11.1
	M&W-8	% of total potential waste recycled or reused	%	9.1%		65.5%				10.0%
Water (used on-site)	W-1	Public water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	106.2	121.6	178.0	0.0	0.0	0.0	405.8
	E-2	Energy voluntarily derived from renewable resources								
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	0.055	0.411	8.795	0.000	0.000	0.000	9.3
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	0.0	32.2	0.0	0.0	0.0	0.0	32.2
	A-2	On-site HAP emissions	Pounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	A-3	Total NOx, SOx, and PM emissions	Pounds	241.6	121.8	141.5	0.0	0.0	0.0	504.9
	A-3A	Total NOx emissions	Pounds	80.1	78.4	64.0	0.0	0.0	0.0	222.5
	A-3B	Total SOx emissions	Pounds	97.2	36.3	62.9	0.0	0.0	0.0	196.4
	A-3C	Total PM emissions	Pounds	64.4	7.0	14.6	0.0	0.0	0.0	86.0
	A-4	Total HAP emissions	Pounds	10.1	3.0	1.7	0.0	0.0	0.0	14.7
	A-5	Total greenhouse gas emissions	Tons CO2e*	6.9	8.6	9.6	0.0	0.0	0.0	25.1
Land & Ecosystems		Qualitative Description								

* Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.

"MMBtu" = millions of Btus

"MG" = millions of gallons

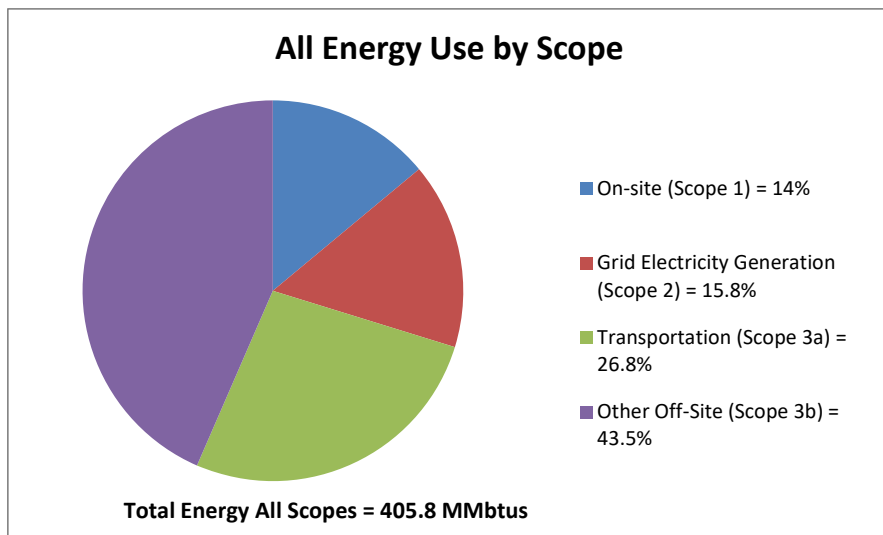
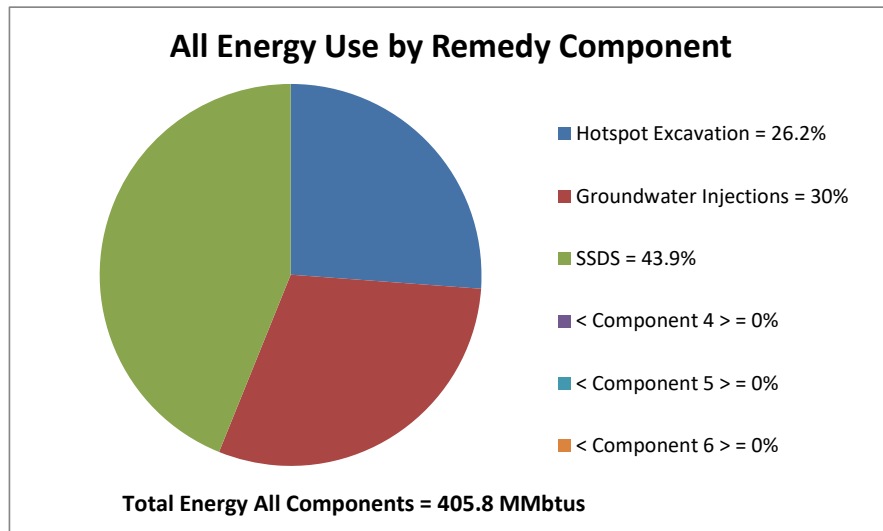
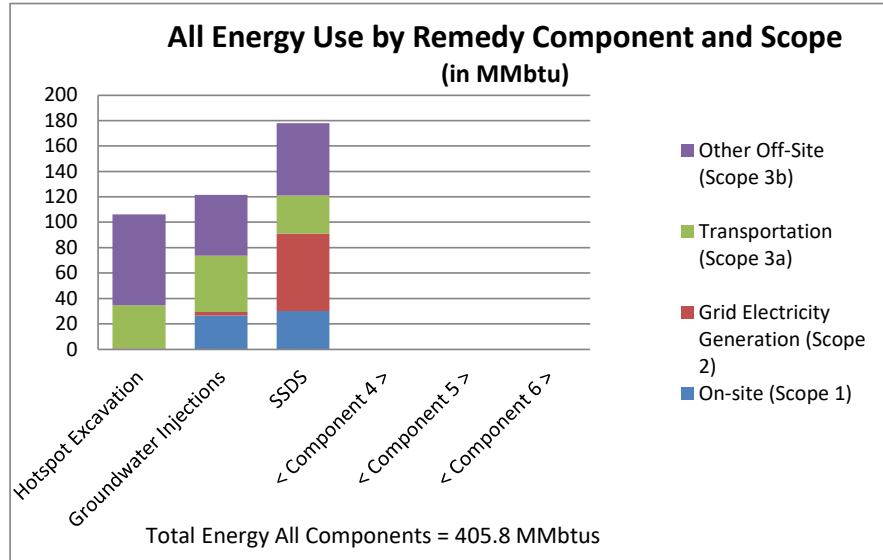
"CO2e" = carbon dioxide equivalents of global warming potential

"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)

"Tons" = short tons (2,000 pounds)

The above metrics are consistent with EPA's Methodology for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February 2012

Notes:



Total Energy MMbtus	Hotspot	Ex Groundwa	SSDS	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	0.2	26.4	30.0	0.0	0.0	0.0	56.6	
Grid Electricity Generation (Scope 2)	0.4	2.8	60.9	0.0	0.0	0.0	64.2	d Electricity
Transportation (Scope 3a)	34.1	44.4	30.1	0.0	0.0	0.0	108.6	Trar
Other Off-Site (Scope 3b)	71.5	47.9	56.9	0.0	0.0	0.0	176.4	Oth
Total	106.2	121.6	178.0	0.0	0.0	0.0	405.8	

Hotspot Excavation = 26.2%

Groundwater Injections = 30%

SSDS = 43.9%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 14%

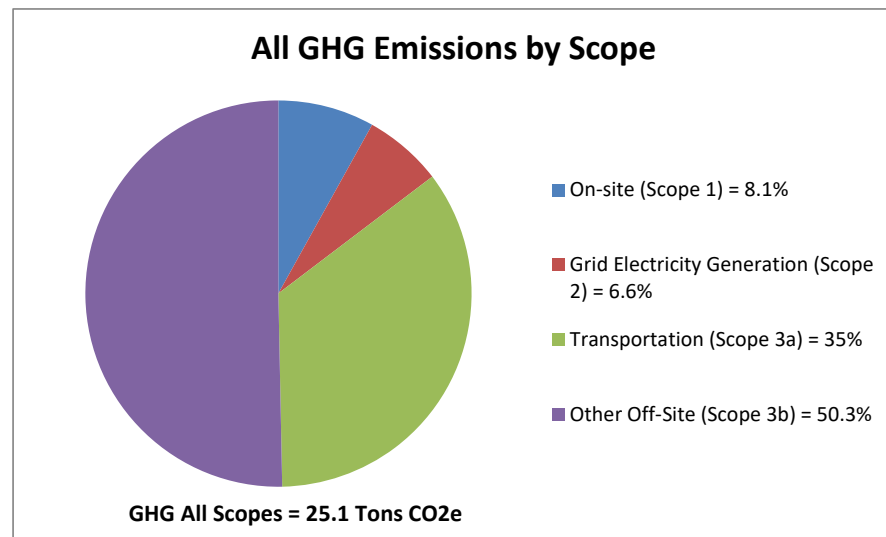
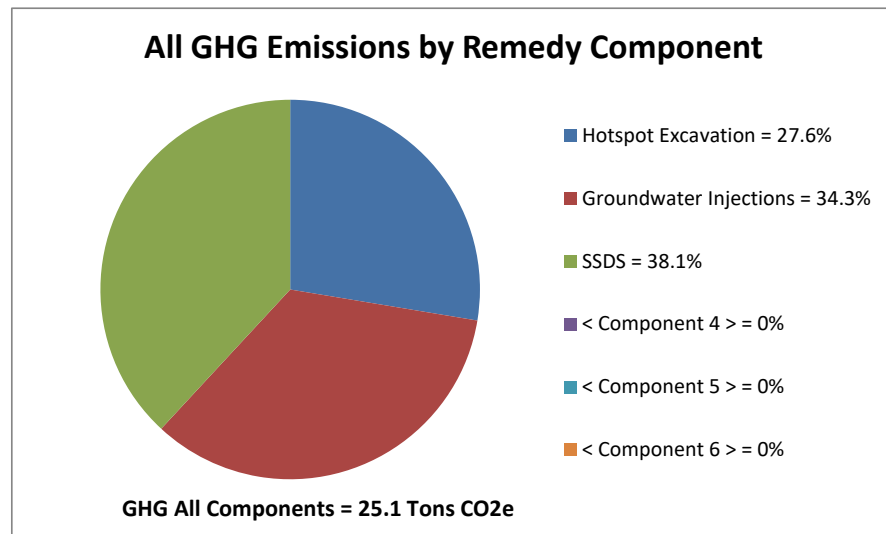
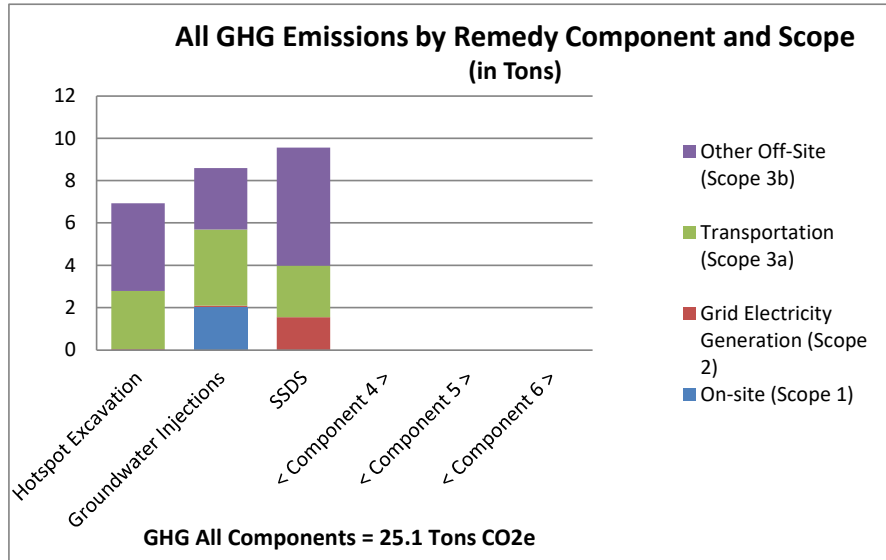
Grid Electricity Generation (Scope 2) = 15.8%

Transportation (Scope 3a) = 26.8%

Other Off-Site (Scope 3b) = 43.5%

Total Energy All Components = 405.8 MMBtus

Total Energy All Scopes = 405.8 MMBtus



GHG Tons CO2e							
	Hotspot Ex Groundwa	SSDS	< Component 4	< Component 5	< Component 6	Total	
On-site (Scope 1)	0.0	2.0	0.0	0.0	0.0	0.0	2.0
Electricity Generation (Scope 2)	0.0	0.1	1.5	0.0	0.0	0.0	1.7 d Electricity
Transportation (Scope 3a)	2.8	3.6	2.4	0.0	0.0	0.0	8.8 Trar
Other Off-Site (Scope 3b)	4.1	2.9	5.6	0.0	0.0	0.0	12.6 Oth
Total	6.9	8.6	9.6	0.0	0.0	0.0	25.1

Hotspot Excavation = 27.6%

Groundwater Injections = 34.3%

SSDS = 38.1%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 8.1%

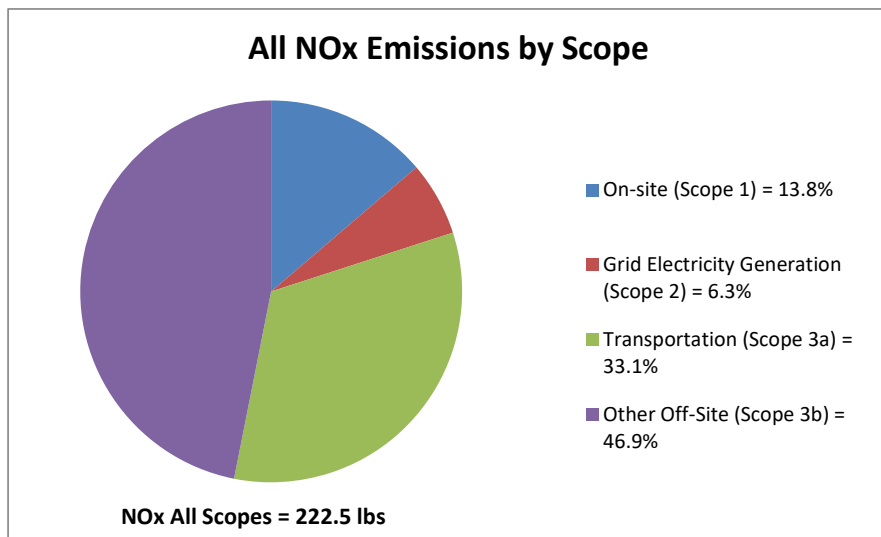
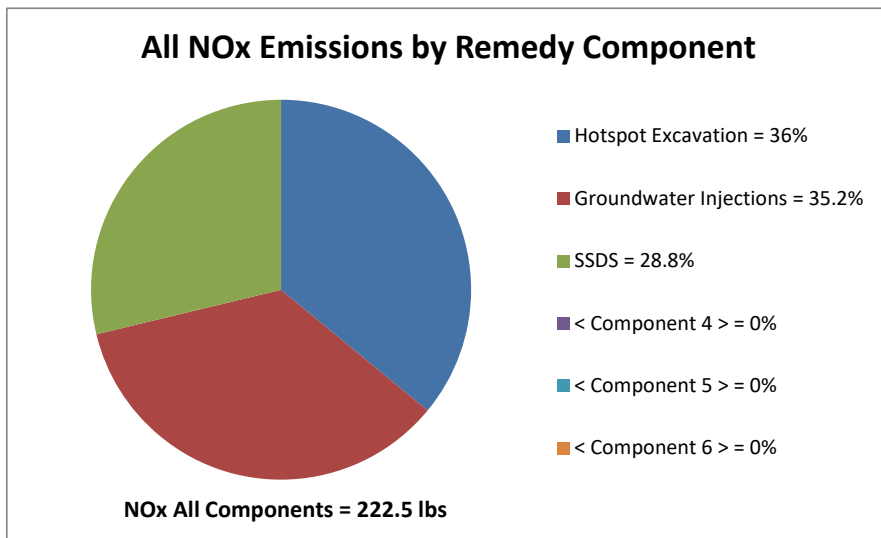
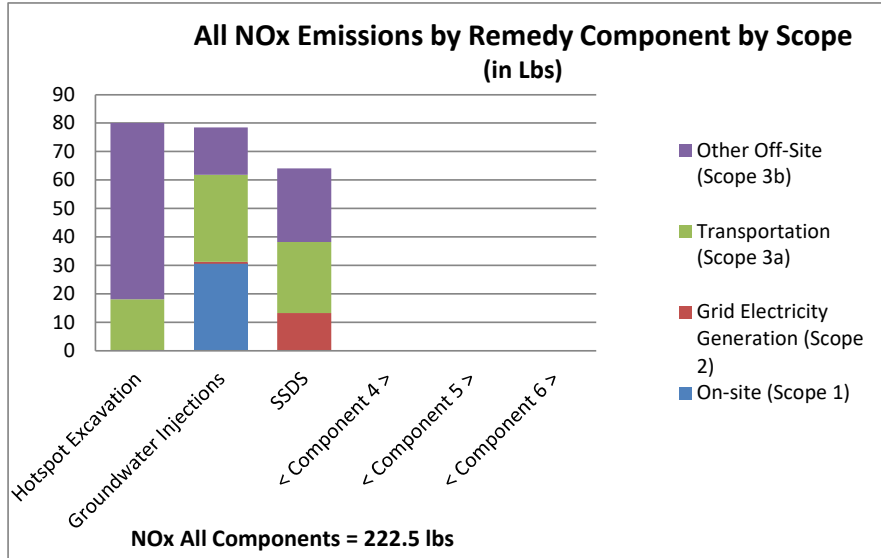
Grid Electricity Generation (Scope 2) = 6.6%

Transportation (Scope 3a) = 35%

Other Off-Site (Scope 3b) = 50.3%

GHG All Components = 25.1 Tons CO2e

GHG All Scopes = 25.1 Tons CO2e



NOx lbs	Hotspot	Ex Groundwa	SSDS	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	0.0	30.6	0.0	0.0	0.0	0.0	30.6	
Generation (Scope 2)	0.1	0.6	13.2	0.0	0.0	0.0	14.0	d Electricity
Transportation (Scope 3a)	18.0	30.6	25.0	0.0	0.0	0.0	73.6	Trar
Other Off-Site (Scope 3b)	61.9	16.6	25.8	0.0	0.0	0.0	104.3	Oth
Total	80.1	78.4	64.0	0.0	0.0	0.0	222.5	

Hotspot Excavation = 36%

Groundwater Injections = 35.2%

SSDS = 28.8%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 13.8%

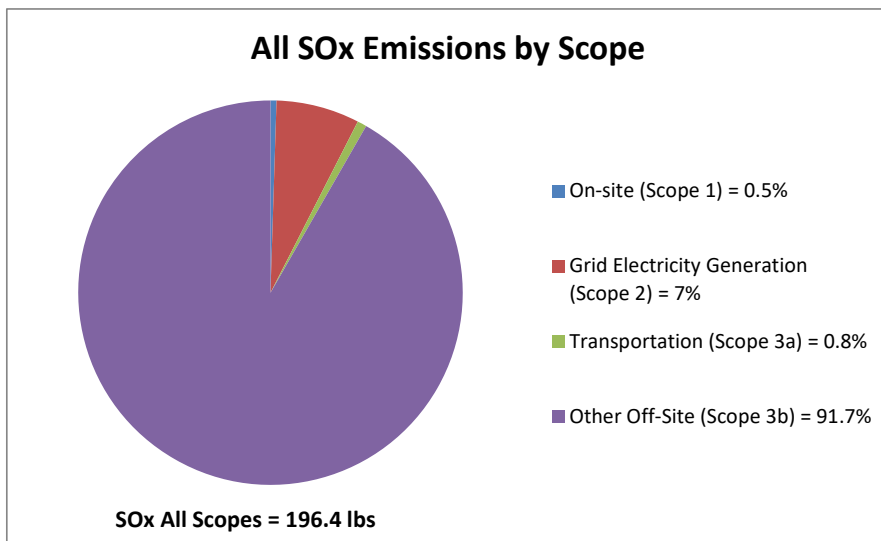
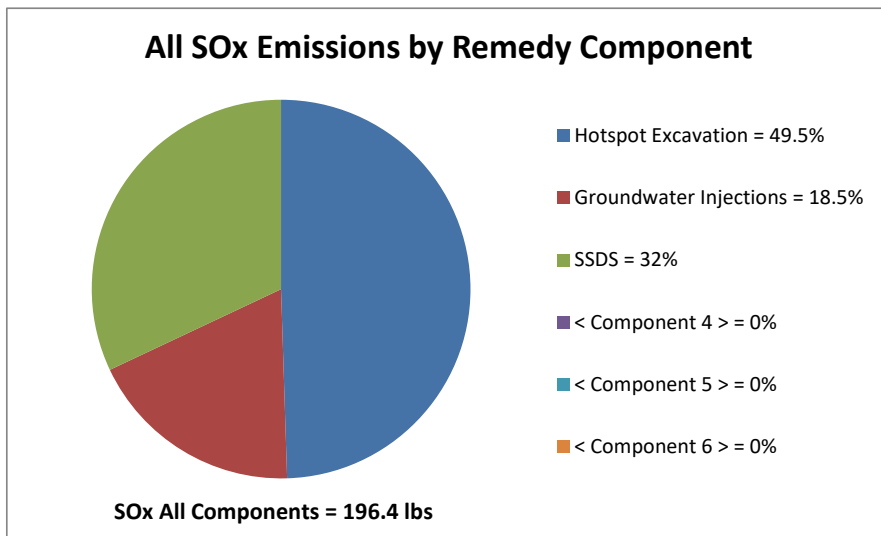
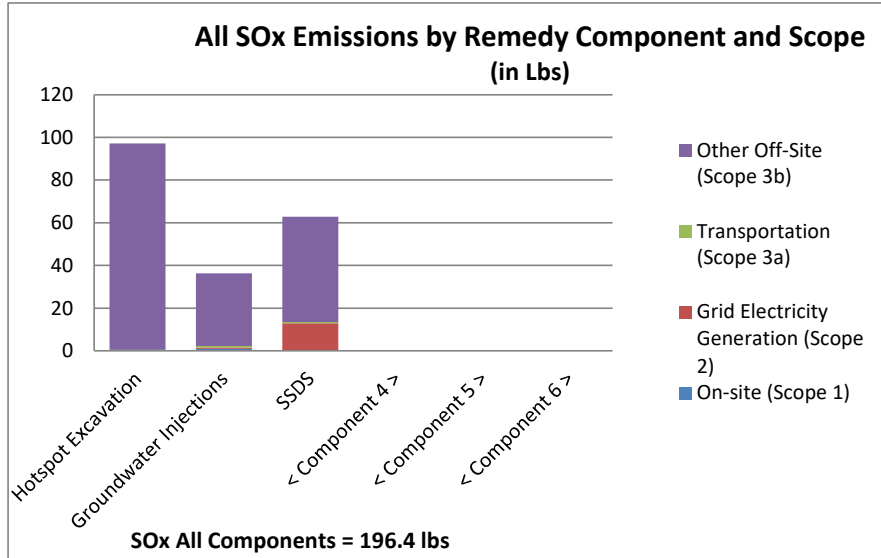
Grid Electricity Generation (Scope 2) = 6.3%

Transportation (Scope 3a) = 33.1%

Other Off-Site (Scope 3b) = 46.9%

NOx All Components = 222.5 lbs

NOx All Scopes = 222.5 lbs



SOx lbs	Hotspot	Ex Groundwa	SSDS	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	0.0	1.0	0.0	0.0	0.0	0.0	1.0	
Generation (Scope 2)	0.3	0.6	12.9	0.0	0.0	0.0	13.8	d Electricity
Transportation (Scope 3a)	0.3	0.7	0.6	0.0	0.0	0.0	1.5	Trar
Other Off-Site (Scope 3b)	96.7	34.1	49.3	0.0	0.0	0.0	180.1	Oth
Total	97.2	36.3	62.9	0.0	0.0	0.0	196.4	

Hotspot Excavation = 49.5%

Groundwater Injections = 18.5%

SSDS = 32%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 0.5%

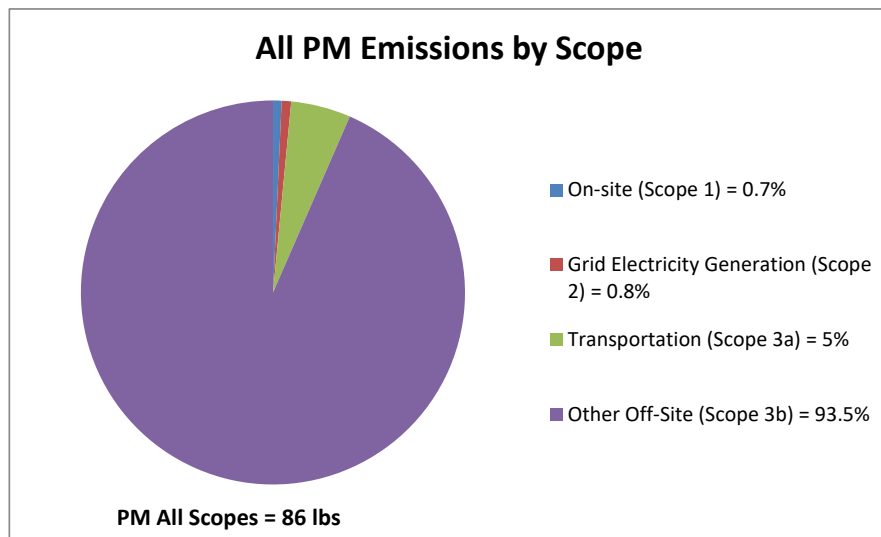
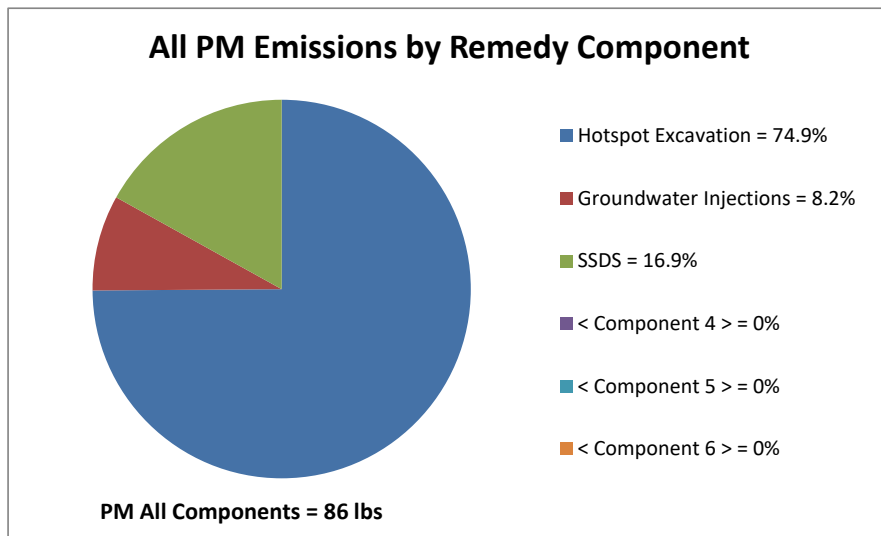
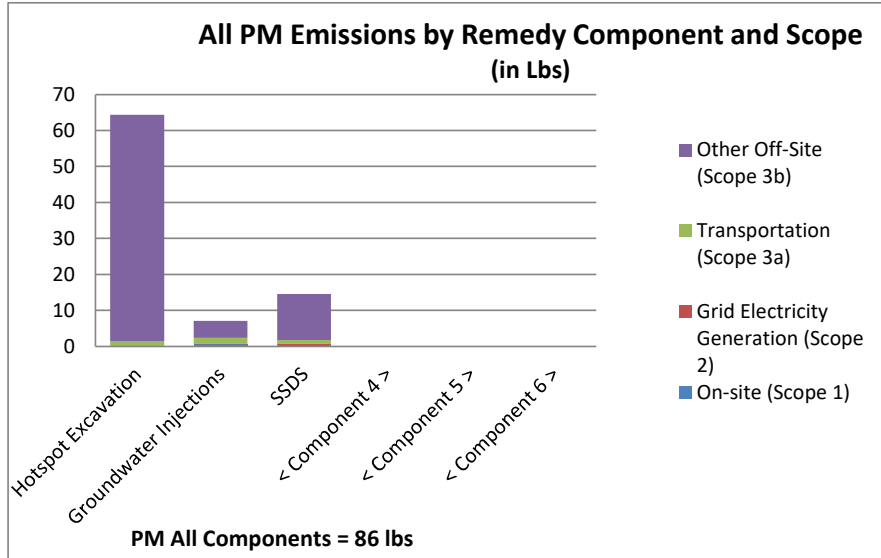
Grid Electricity Generation (Scope 2) = 7%

Transportation (Scope 3a) = 0.8%

Other Off-Site (Scope 3b) = 91.7%

SOx All Components = 196.4 lbs

SOx All Scopes = 196.4 lbs



PM lbs	Hotspot Ex	Groundwa	SSDS	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	0.0	0.6	0.0	0.0	0.0	0.0	0.6	
Generation (Scope 2)	0.0	0.0	0.7	0.0	0.0	0.0	0.7	d Electricity
Transportation (Scope 3a)	1.5	1.8	1.1	0.0	0.0	0.0	4.3	Trar
Other Off-Site (Scope 3b)	62.9	4.6	12.8	0.0	0.0	0.0	80.4	Oth
Total	64.4	7.0	14.6	0.0	0.0	0.0	86.0	

Hotspot Excavation = 74.9%

Groundwater Injections = 8.2%

SSDS = 16.9%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 0.7%

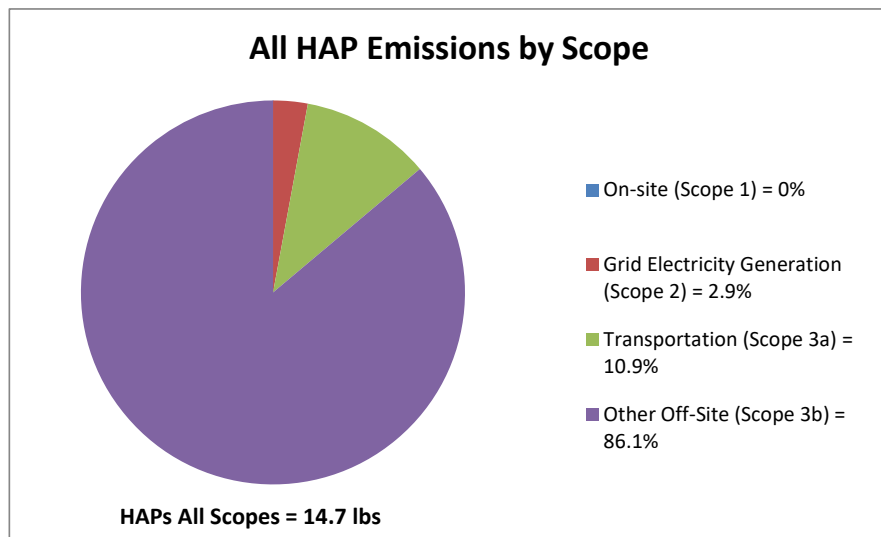
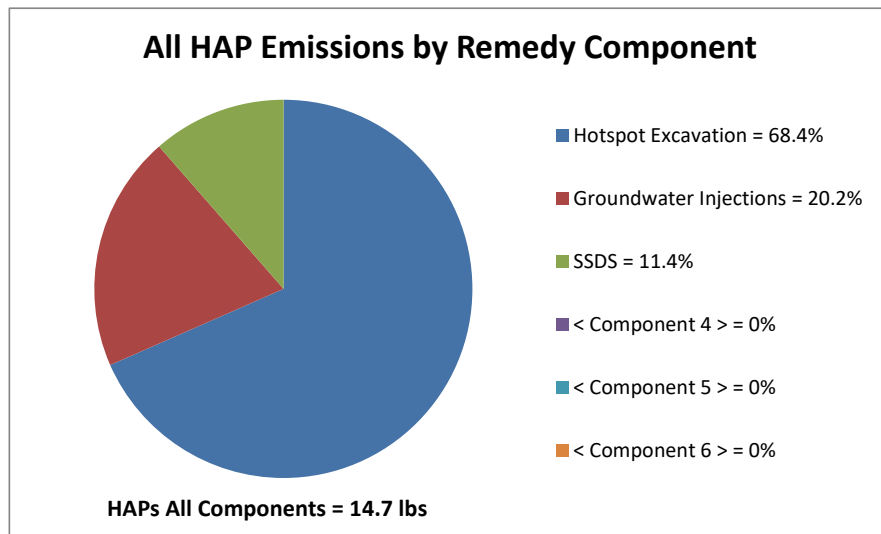
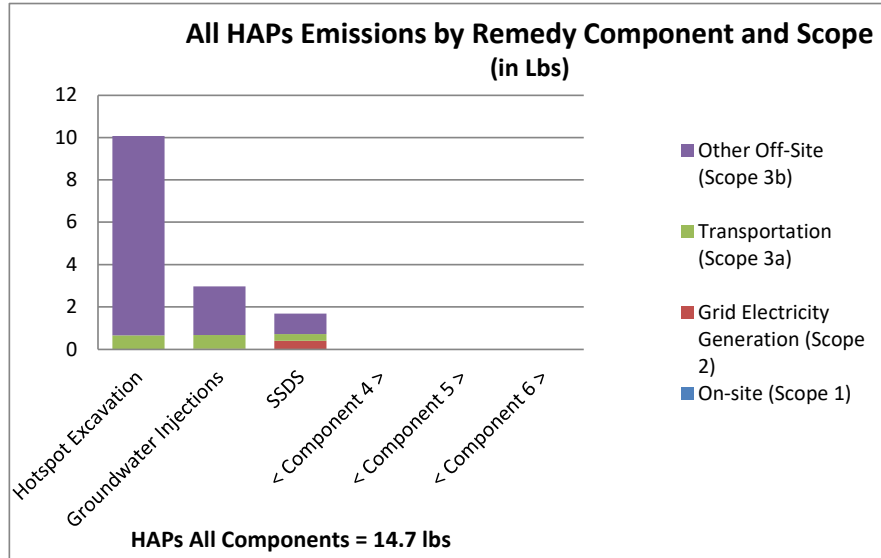
Grid Electricity Generation (Scope 2) = 0.8%

Transportation (Scope 3a) = 5%

Other Off-Site (Scope 3b) = 93.5%

PM All Components = 86 lbs

PM All Scopes = 86 lbs



HAPs lbs	Hotspot Ex	Groundwa	SSDS	< Compon	< Compon	< Compon	Total
On-site (Scope 1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generation (Scope 2)	0.0	0.0	0.4	0.0	0.0	0.0	0.4
Transportation (Scope 3a)	0.6	0.6	0.3	0.0	0.0	0.0	1.6
Other Off-Site (Scope 3b)	9.4	2.3	1.0	0.0	0.0	0.0	12.7
Total	10.1	3.0	1.7	0.0	0.0	0.0	14.7

Hotspot Excavation = 68.4%

Groundwater Injections = 20.2%

SSDS = 11.4%

< Component 4 > = 0%

< Component 5 > = 0%

< Component 6 > = 0%

On-site (Scope 1) = 0%

Grid Electricity Generation (Scope 2) = 2.9%

Transportation (Scope 3a) = 10.9%

Other Off-Site (Scope 3b) = 86.1%

HAPs All Components = 14.7 lbs

HAPs All Scopes = 14.7 lbs

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
		Hotspot Excavation	GW Injections	SSDS	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
Item																						
On-Site																						
<i>On-site Renewable Energy</i>																						
Renewable electricity generated on-site	MWh	0	0	0												0	0	0	0	0	0	
Landfill gas combusted on-site for energy use	ccf CH ₄	0	0	0												0	0	0	0	0	0	
On-site biodiesel use	gal	0	0	0												0	0	0	0	0	0	
On-site biodiesel use - Other	gal	0	0	0												0	0	0	0	0	0	
User-defined on-site renewable energy use #1	TBD	0	0	0												0	0	0	0	0	0	
User-defined on-site renewable energy use #2	TBD	0	0	0												0	0	0	0	0	0	
<i>On-Site Conventional Energy</i>																						
Grid electricity	MWh	0.05536	0.4106	8.7946												0.05536	0.4106	8.7946	0	0	0	9.26056
On-site diesel use - Other	Gal	0	180	0												0	180	0	0	0	180	
On-site diesel use <75 hp	Gal	0	0	0												0	0	0	0	0	0	
On-site diesel use 75-hp<750	Gal	0	0	0												0	0	0	0	0	0	
On-site diesel use >750 hp	Gal	0	0	0												0	0	0	0	0	0	
On-site gasoline use - Other	Gal	0	0	0												0	0	0	0	0	0	
On-site gasoline use <25 hp	Gal	0	0	0												0	0	0	0	0	0	
On-site gasoline use >25 hp	Gal	0	0	0												0	0	0	0	0	0	
On-site natural gas use	ccf	0	0	0												0	0	0	0	0	0	
On-site compressed natural gas use - Other	ccf	0	0	0												0	0	0	0	0	0	
On-site compressed natural gas use	ccf	0	0	0												0	0	0	0	0	0	
On-site liquified petroleum gas use - Other	gal	0	0	0												0	0	0	0	0	0	
On-site liquified petroleum gas use	gal	0	0	0												0	0	0	0	0	0	
Other forms of on-site conventional energy use #1	TBD	0	0	0												0	0	0	0	0	0	
Other forms of on-site conventional energy use #2	TBD	0	0	0												0	0	0	0	0	0	
<i>Other On-site Emissions</i>																						
On-site HAP process emissions	Lbs	0	0	0												0	0	0	0	0	0	
On-site GHG emissions	Lbs CO ₂ e	0	0	0												0	0	0	0	0	0	
On-site carbon storage	Lbs CO ₂ e	0	0	0												0	0	0	0	0	0	
GHG avoided by flaring on-site landfill methane	ccf CH ₄	0	0	0												0	0	0	0	0	0	
Other on-site NO _x emissions or reductions	Lbs	0	0	0												0	0	0	0	0	0	
Other on-site SO _x emissions or reductions	Lbs	0	0	0												0	0	0	0	0	0	
Other on-site PM emissions or reductions	Lbs	0	0	0												0	0	0	0	0	0	
Electricity Generation																						
Grid electricity	MWh	0.05536	0.4106	8.7946												0.05536	0.4106	8.7946	0	0	0	9.26056
Voluntary purchase of renewable electricity	MWh	0	0	0												0	0	0	0	0	0	
Voluntary purchase of RECs	MWh	0	0	0												0	0	0	0	0	0	
Transportation																						
<i>Transportation Fuel Use Breakdown</i>																						
Biodiesel use - Personnel Transport	gal	0	0	0												0	0	0	0	0	0	
Biodiesel use - Personnel Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Biodiesel use - Equipment Transport	gal	0	0	0												0	0	0	0	0	0	
Biodiesel use - Equipment Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Biodiesel use - Material Transport	gal	0	0	0												0	0	0	0	0	0	
Biodiesel use - Material Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Biodiesel use - Waste Transport	gal	0	0	0												0	0	0	0	0	0	
Biodiesel use - Waste Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Diesel use - Personnel Transport - other vehicles	gal	0	0	0												0	0	0	0	0	0	
Diesel use - Personnel Transport - car	gal	0	0	0												0	0	0	0	0	0	
Diesel use - Personnel Transport - passenger truck	gal	185.4	185.4	92.7												185.4	185.4	92.7	0	0	0	463.5
Diesel use - Personnel Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Diesel use - Equipment Transport	gal	0	11.7	0												0	11.7	0	0	0	11.7	
Diesel use - Equipment Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Diesel use - Material Transport	gal	14.999	100.832	106.665												14.999	100.832	106.665	0	0	0	222.496
Diesel use - Material Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Diesel use - Waste Transport	gal	23.3	0	6.7												23.3	0	6.7	0	0	30	
Diesel use - Waste Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Gasoline use - Personnel Transport - other vehicles	gal	0	0	0												0	0	0	0	0	0	
Gasoline use - Personnel Transport - car	gal	24	24	12												24	24	12	0	0	60	
Gasoline use - Personnel Transport - passenger truck	gal	0	0	0												0	0	0	0	0	0	
Gasoline use - Personnel Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Gasoline use - Equipment Transport	gal	0	0	0												0	0	0	0	0	0	
Gasoline use - Equipment Transport - User Defined	gal	0	0	0												0	0	0	0	0	0	
Natural Gas use - Personnel Transport	ccf	0	0	0												0	0	0	0	0	0	
Natural Gas use - Personnel Transport - User Defined	ccf	0	0	0												0	0	0	0	0	0	
Natural Gas use - Equipment Transport	ccf	0	0	0												0	0	0	0	0	0	

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
		Hotspot Excavation	GW Injections	SSDS	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)							
Item		1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3	4	5	6	Total
<u>Conventional Energy</u>																						
Transportation diesel use	gal	223.699	297.932	206.065												223.699	297.932	206.065	0	0	0	727.696
Transportation gasoline use	gal	24	24	12												24	24	12	0	0	0	60
Transportation natural gas use	ccf	0	0	0												0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD	10	10	10												10	10	10	0	0	0	30
User-defined conventional energy transportation #2	TBD	0	0	0												0	0	0	0	0	0	0
<u>Renewable Energy</u>																						
Transportation biodiesel use	gal	0	0	0												0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD	0	0	0												0	0	0	0	0	0	0
<u>Off-Site</u>																						
<u>Construction Materials</u>																						
Aluminum, Rolled Sheet	lb	0	0	0												0	0	0	0	0	0	0
Asphalt, mastic	lb	0	0	0												0	0	0	0	0	0	0
Asphalt, paving-grade	lb	0	0	0												0	0	0	0	0	0	0
Ethanol, Corn, 95%	lb	0	0	0												0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb	0	0	0												0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb	0	0	0												0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb	0	0	0												0	0	0	0	0	0	0
Gravel/sand/clay	lb	0	0	0												0	0	0	0	0	0	0
HDPE	lb	0	0	0												0	0	0	0	0	0	0
Photovoltaic system (installed)	W	0	0	0												0	0	0	0	0	0	0
PVC	lb	0	48	0												0	48	0	0	0	0	48
Portland cement, US average	lb	0	30	950												150	0	0	0	0	0	150
Ready-mixed concrete, 20 MPa	ft3	150	0	0												150	0	0	0	0	0	150
Round Gravel	lb	200000	0	90												200000	0	90	0	0	0	200090
Sand	lb	0	1311	0												0	1311	0	0	0	0	1311
Stainless Steel	lb	0	0	2500												0	0	2500	0	0	0	2500
Steel	lb	0	0	0												0	0	0	0	0	0	0
Other refined construction materials	lb	0	0	530												0	0	530	0	0	0	530
Other unrefined construction materials	lb	0	0	0												0	0	0	0	0	0	0
<u>Treatment Materials & Chemicals</u>																						
Cheese Whey	lbs	0	0	0												0	0	0	0	0	0	0
Emulsified vegetable oil	lbs	0	0	0												0	0	0	0	0	0	0
Granular activated carbon, primary	lbs	0	0	0												0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs	0	0	0												0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0	0												0	0	0	0	0	0	0
Iron (II) Sulfate	lbs	0	0	0												0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs	0	0	0												0	0	0	0	0	0	0
Molasses	lbs	0	0	0												0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs	0	0	0												0	0	0	0	0	0	0
Potassium Permanganate	lbs	0	0	0												0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs	0	0	0												0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs	0	2204	0												0	2204	0	0	0	0	2204
<u>Material Type</u>																						
Total Virgin Refined Materials	tons	5.658275	1.7965	2.035												5.658275	1.7965	2.035	0	0	0	9.489775
Total Recycled Refined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Reused Refined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Refined Material	tons	5.658275	1.7965	2.035												5.658275	1.7965	2.035	0	0	0	9.489775
Total Virgin Unrefined Materials	tons	100	0	0												100	0	0	0	0	0	100
Total Recycled Unrefined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons	0	0	0												0	0	0	0	0	0	0
Total Unrefined Material	tons	100	0	0												100	0	0	0	0	0	100
<u>Fuel Processing</u>																						
Biodiesel produced	gal	0	0	0												0	0	0	0	0	0	0
Diesel produced	gal	223.699	477.932	206.065												223.699	477.932	206.065	0	0	0	907.696
Gasoline produced	gal	24	24	12												24	24	12	0	0	0	60
Compressed natural gas produced	ccf	0	0	0												0	0	0	0	0	0	0
Liquified petroleum gas produced	gal	0	0	0												0	0	0	0	0	0	0
Natural gas produced	ccf	0	0	0												0	0	0	0	0	0	0
<u>Water Use</u>																						
Public Water Supply	gal x 1000	0	2.38	0												0	2.38	0	0	0	0	2.38
Extracted Groundwater	gal x 1000	0	0	0												0	0	0	0	0	0	0
Surface Water	gal x 1000	0	0	0												0	0	0	0	0	0	0
Reclaimed Water	gal x 1000	0	0	0												0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000	0	0	0												0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000	0	0	0												0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0	0												0	0	0	0	0	0	0

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Hotspot Excavation	GW Injections	SSDs	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
<u>Waste/Recycle Handling</u>																						
Hazardous waste incineration	lbs	0	0	0												0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000	0	0	0												0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons	0	0	0												0	0	0	0	0	0	0
Off-site hazardous waste landfill	tons	100	0	0.6												100	0	0.6	0	0	0	100.6
Recycled/Reused On-Site	tons	0	0	0												0	0	0	0	0	0	0
Recycled/Reused Off-Site	tons	10	0	1.14												10	0	1.14	0	0	0	11.14
<u>Solid Waste Totals</u>																						
Total Non-Hazardous Waste	tons	0	0	0												0	0	0	0	0	0	0
Total Hazardous Waste	tons	100	0	0.6												100	0	0.6	0	0	0	100.6
Total Recycled/Reused	tons	10	0	1.14												10	0	1.14	0	0	0	11.14
Total Waste (all types)	tons	110	0	1.74												110	0	1.74	0	0	0	111.74
<u>Lab Services</u>																						
Off-site Laboratory Analysis - Other	sample	51	30	0												51	30	0	0	0	0	81
Off-site Laboratory Analysis - Metals	sample	17	0	0												17	0	0	0	0	0	17
Off-site Laboratory Analysis - Mercury	sample	17	0	0												17	0	0	0	0	0	17
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - Sulfate	sample	0	0	0												0	0	0	0	0	0	0
Off-site Laboratory Analysis - PCBs	sample	17	0	0												17	0	0	0	0	0	17
Off-site Laboratory Analysis - VOCs	sample	18	30	10												18	30	10	0	0	0	58
Off-site Laboratory Analysis - SVOCs	sample	17	0	0												17	0	0	0	0	0	17
<u>Resource Extraction for Electricity</u>																						
Coal extraction and processing	MWh	0.0168848	0.024636	0.527676												0.0168848	0.024636	0.527676	0	0	0	0.5691968
Natural gas extraction and processing	MWh	0.018767	0.04106	0.87946												0.018767	0.04106	0.87946	0	0	0	0.939287
Nuclear fuel extraction and processing	MWh	0.0109613	0.008212	0.175892												0.0109613	0.008212	0.175892	0	0	0	0.1950653
Oil extraction and processing	MWh	0.0003875	0.02053	0.43973												0.0003875	0.02053	0.43973	0	0	0	0.4606475
Other fuel extraction and processing	MWh	5.536E-05	0	0												5.536E-05	0	0	0	0	0	5.536E-05
<u>Electricity Transmission</u>																						
Transmission and distribution losses	MWh	0.05536	0.4106	8.7946												0.05536	0.4106	8.7946	0	0	0	9.26056

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
		Hotspot Excavation	GW Injections	SSDS	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
		Item																				
<u>Other</u>																						
User-defined material #1	n2	605	0	0												605	0	0	0	0	0	605
User-defined material #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0												0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0												0	0	0	0	0	0	0
<u>User-defined Waste Destinations</u>																						
User-defined recycled/reused on-site #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused on-site #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined non-hazardous waste destination #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0												0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0												0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0												0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0												0	0	0	0	0	0	0

Hotspot Excavation - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
<u>On-site Renewable Energy</u>														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.000063	0	0.00076	0	0.000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
<u>On-site Conventional Energy</u>														
On-site grid electricity	MWh	0.05536	3.413	0.1889437										
On-site diesel use - Other	Gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				0		0		0		0		0		0
Notes:														
<u>Other On-site Emissions</u>														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				0.19		0		0		0		0		0

Hotspot Excavation - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.05536	6.929	0.3835894	1124.3	62.241248	2.2421	0.1241227	4.6078874	0.2550926	0.057518	0.0031842	0.2102371	0.0116387
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Hotspot Excavation - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
<i>Conventional Energy</i>														
Transportation diesel use	gal	38.299	0.139	5.323561	22.5	861.7275	0.17	6.51083	0.0054	0.2068146	0.0034	0.1302166	0.0000052	0.0001992
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	10	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				34		5,516		18		0		2		1
Notes:														
<i>Renewable Energy</i>														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	npg or pmg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				34		5516		18		0		2		1

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Construction Materials</u>														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	150	0.217	32.55	19.5	2925	0.0975	14.625	0.154	23.1	0.057	8.55	0.0141	2.115
Round Gravel	lb	200000	0.0000248	4.96	0.0024	480	0.000018	3.6	4.52E-06	0.904	2.61E-06	0.522	3.08E-07	0.0616
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	0	0.01885	0	2.115	0	0.0040375	0	0.0051325	0	0.0014428	0	0.0001625	0
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	223,699	0.017	3.802883	3.02	675.57098	0.0051	1.1408649	0.0062	1.3869338	0.0017	0.3802883	0.0011	0.2460689
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				4.594883		742.77098		1.2512649		1.5069338		0.4162883		0.2700689
Notes:														
<i>Public water</i>	gal x 1000	0	0.0092	0	5	0	0.0097	0	0.0059	0	0.016	0	0.000015	0
<i>User-defined water resource #1</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>User-defined water resource #2</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Off-Site Services</u>														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	0	0.16	0	25	0	0.14	0	0.075	0	0.4	0	0.0014	0
Off-site hazardous waste landfill	ton	100	0.18	18	27.5	2750	0.154	15.4	0.0825	8.25	0.44	44	0.00154	0.154
Off-site Laboratory Analysis - Other	sample	51	0.058071	2.9616225	6.8534384	349.52536	0.131402	6.7014998	0.3038758	15.497664	0.0455698	2.324061	0.0330165	1.683843
Off-site Laboratory Analysis - Metals	sample	17	0.212	3.604	27.4693	466.9781	0.6423	10.9191	1.5072	25.6224	0.2264	3.8488	0.1643	2.7931
Off-site Laboratory Analysis - Mercury	sample	17	0.0731715	1.243915	9.325458	158.53279	0.2127439	3.6166463	0.4982396	8.4700732	0.0747359	1.270511	0.0542332	0.9219637
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	17	0.0512769	0.8717073	5.224902	88.823334	0.0833339	1.416676	0.1904774	3.2381165	0.0284393	0.4834688	0.0212083	0.3605403
Off-site Laboratory Analysis - VOCs	sample	18	0.0762045	1.3716808	9.016814	162.30265	0.104498	1.8809647	0.2270738	4.0873284	0.0339508	0.6111151	0.0235892	0.424606
Off-site Laboratory Analysis - SVOCs	sample	17	0.0715602	1.2165231	7.870422	133.79717	0.1459445	2.4810568	0.3373038	5.7341646	0.0504853	0.8582508	0.0372577	0.6333816
Notes:														
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.0168848	3.1	0.0515628	180.0	3.039264	0.8	0.0130013	0.2	0.0025327	0.0	0.0003039	NP	
Natural gas extraction and processing	MWh	0.018767	1.6	0.0306241	270.0	5.0671008	0.2	0.0033781	13.0	0.2439715	0.0	0.0001332	NP	
Nuclear fuel extraction and processing	MWh	0.0109613	0.2	0.0017042	25.0	0.274032	0.2	0.0016442	0.5	0.0054806	0.0	1.644E-05	NP	
Oil extraction and processing	MWh	0.0003875	2.3	0.0008895	270.0	0.1046304	1.7	0.0006588	0.1	2.674E-05	0.0	1.628E-05	NP	
Other fuel extraction and processing	MWh	5.536E-05	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				0.0847805		8.4850272		0.0186823		0.2520116		0.0004699		0
Notes:														
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	0.05536	1.0342	0.0572533	112.43	6.2241248	0.22421	0.0124123	0.4607887	0.0255093	0.0057518	0.0003184	0.0210237	0.0011639
Notes:														

Hotspot Excavation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtu	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>User-defined Materials</u>														
User-defined material #1	ft2	605	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
<u>User-defined Waste Destinations</u>														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu/y)		lbs CO2e/y		lbs/unit		lbs/unit		M(lbs/unit)		Ps(lbs/unit)	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				71.516366		8272.4395		61.923303		96.688201		62.885283		9.4192673

Hotspot Excavation - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.05536	3.413	0.1889437										
<u>Electricity Generation</u>														
Grid electricity	MWh	0.05536	6.929	0.3835894	1124.3	62.241248	2.2421	0.1241227	4.6078874	0.2550926	0.057518	0.0031842	0.2102371	0.0116387
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.0168848	3.1	0.0515628	180.0	3.039264	0.8	0.0130013	0.2	0.0025327	0.0	0.0003039	NP	
Natural gas extraction and processing	MWh	0.018767	1.6	0.0306241	270.0	5.0671008	0.2	0.0033781	13.0	0.2439715	0.0	0.0001332	NP	
Nuclear fuel extraction and processing	MWh	0.0109613	0.2	0.0017042	25.0	0.274032	0.2	0.0016442	0.5	0.0054806	0.0	1.644E-05	NP	
Oil extraction and processing	MWh	0.0003875	2.3	0.0008895	270.0	0.1046304	1.7	0.0006588	0.1	2.674E-05	0.0	1.628E-05	NP	
Other fuel extraction and processing	MWh	5.536E-05	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	0.05536	1.0342	0.0572533	112.43	6.2241248	0.22421	0.0124123	0.4607887	0.0255093	0.0057518	0.0003184	0.0210237	0.0011639
Total Grid Electricity Footprint				1		77		0		1		0		0
Total Fuel Footprints														
<u>Total Gasoline Footprint</u>														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00061	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Total Gasoline Footprint	24			3.768		541.68		0.7584		0.12864		0.108		0.1848
<u>Total Diesel Footprint</u>														
On-site diesel use - Other	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75-hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	38.299	0.139	5.323561	22.5	861.7275	0.17	6.51083	0.0054	0.2068146	0.0034	0.1302166	0.000052	0.0001992
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00025	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
Diesel produced	gal	223.699	0.017	3.802883	3.02	675.57098	0.0051	1.1408649	0.0062	1.3869338	0.0017	0.3802883	0.0011	0.2460689
Total Diesel Footprint	223.699			34.897044		5717.1415		18.497595		1.6308284		1.8083049		0.7292351
<u>Total Biodiesel Footprint</u>														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint	0			0		0		0		0		0		0
<u>Total Natural Gas Footprint</u>														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint	0			0		0		0		0		0		0
<u>Total Liquefied Petroleum Gas Footprint</u>														
On-site liquefied petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquefied petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquefied petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint	0			0		0		0		0		0		0
<u>Total Compressed Gas Footprint</u>														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint	0			0		0		0		0		0		0

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

Groundwater Injections - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
<i>On-site Renewable Energy</i>														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.000063	0	0.00076	0	0.000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
<i>On-site Conventional Energy</i>														
On-site grid electricity	MWh	0.4106	3.413	1.4013778										
On-site diesel use - Other	Gal	180	0.139	25.02	22.5	4050	0.17	30.6	0.0054	0.972	0.0034	0.612	0.000052	0.000936
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				26		4,050		31		1		1		0
Notes:														
<i>Other On-site Emissions</i>														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				26.42		4,050		31		1		1		0

Groundwater Injections - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.4106	6.929	2.8450474	352	144.5312	1.504	0.6175424	1.46966	0.6034424	0.07546	0.0309839	0.0454035	0.0186427
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Groundwater Injections - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
<i>Conventional Energy</i>														
Transportation diesel use	gal	112,532	0.139	15.641948	22.5	2531.97	0.17	19.13044	0.0054	0.6076728	0.0034	0.3826088	0.0000052	0.0005852
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	10	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				44		7,186		31		1		2		1
Notes:														
<i>Renewable Energy</i>														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	npg or pmg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				44		7186		31		1		2		1

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Construction Materials</u>														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	48	0.0262	1.2576	2.02	96.96	0.004	0.192	0.00274	0.13152	0.000372	0.017856	0.000375	0.018
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	0	0.217	0	19.5	0	0.0975	0	0.154	0	0.057	0	0.0141	0
Round Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Sand	lb	1311	0.0000248	0.0325128	0.0024	3.1464	0.000018	0.023598	4.52E-06	0.0059257	2.61E-06	0.0034217	3.08E-07	0.0004038
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	0	0.01885	0	2.115	0	0.0040375	0	0.0051325	0	0.0014428	0	0.0001625	0
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBTus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	2204	0.015	33.06	1.67	3680.68	0.003	6.612	0.0065	14.326	0.00061	1.34444	0.000016	0.035264
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	477,932	0.017	8.124844	3.02	1443.3546	0.0051	2.4374532	0.0062	2.9631784	0.0017	0.8124844	0.0011	0.5257252
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				8.916844		1510.5546		2.5478532		3.0831784		0.8484844		0.5497252
Notes:														
<i>Public water</i>	gal x 1000	2.38	0.0092	0.021896	5	11.9	0.0097	0.023086	0.0059	0.014042	0.016	0.03808	0.000015	0.0000357
<i>User-defined water resource #1</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>User-defined water resource #2</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Off-Site Services</u>														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	0	0.16	0	25	0	0.14	0	0.075	0	0.4	0	0.0014	0
Off-site hazardous waste landfill	ton	0	0.18	0	27.5	0	0.154	0	0.0825	0	0.44	0	0.00154	0
Off-site Laboratory Analysis - Other	sample	30	0.058071	1.7421309	6.8534384	205.60315	0.131402	3.9420587	0.3038758	9.116273	0.0455698	1.3670947	0.0330165	0.9904959
Off-site Laboratory Analysis - Metals	sample	0	0.212	0	27.4693	0	0.6423	0	1.5072	0	0.2264	0	0.1643	0
Off-site Laboratory Analysis - Mercury	sample	0	0.0731715	0	9.325458	0	0.2127439	0	0.4982396	0	0.0747359	0	0.0542332	0
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	0	0.0512769	0	5.224902	0	0.0833339	0	0.1904774	0	0.0284393	0	0.0212083	0
Off-site Laboratory Analysis - VOCs	sample	30	0.0762045	2.2861346	9.016814	270.50442	0.104498	3.1349412	0.2270738	6.812214	0.0339508	1.0185252	0.0235892	0.7076766
Off-site Laboratory Analysis - SVOCs	sample	0	0.0715602	0	7.870422	0	0.1459445	0	0.3373038	0	0.0504853	0	0.0372577	0
Notes:														
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.024636	3.1	0.0752334	180.0	4.43448	0.8	0.0189697	0.2	0.0036954	0.0	0.0004434	NP	
Natural gas extraction and processing	MWh	0.04106	1.6	0.0670017	270.0	11.0862	0.2	0.0073908	13.0	0.53378	0.0	0.0002915	NP	
Nuclear fuel extraction and processing	MWh	0.008212	0.2	0.0012767	25.0	0.2053	0.2	0.0012318	0.5	0.004106	0.0	1.232E-05	NP	
Oil extraction and processing	MWh	0.02053	2.3	0.0471246	270.0	5.5431	1.7	0.034901	0.1	0.0014166	0.0	0.0008623	NP	
Other fuel extraction and processing	MWh	0	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				0.1906364		21.26908		0.0624933		0.542998		0.0016096		0
Notes:														
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	0.4106	1.0342	0.4246425	35.2	14.45312	0.1504	0.0617542	0.146966	0.0603442	0.007546	0.0030984	0.0045403	0.0018643
Notes:														

Groundwater Injections - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtu	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>User-defined Materials</u>														
User-defined material #1	ft2	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
<u>User-defined Waste Destinations</u>														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu)		lbs CO2e		lbs/unit		lbs/unit		M(lbs/unit)		Ps(lbs/unit)	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				47.932397		5815.0708		16.599785		34.092495		4.64261		2.3034654

Groundwater Injections - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.4106	3.413	1.4013778										
<u>Electricity Generation</u>														
Grid electricity	MWh	0.4106	6.929	2.8450474	1124.3	461.63758	2.2421	0.9206063	4.6078874	1.8919986	0.057518	0.0236169	0.2102371	0.0863233
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.024636	3.1	0.0752334	180.0	4.43448	0.8	0.0189697	0.2	0.0036954	0.0	0.0004434	NP	
Natural gas extraction and processing	MWh	0.04106	1.6	0.0670017	270.0	11.0862	0.2	0.0073908	13.0	0.53378	0.0	0.0002915	NP	
Nuclear fuel extraction and processing	MWh	0.008212	0.2	0.0012767	25.0	0.2053	0.2	0.0012318	0.5	0.004106	0.0	1.232E-05	NP	
Oil extraction and processing	MWh	0.02053	2.3	0.0471246	270.0	5.5431	1.7	0.034901	0.1	0.0014166	0.0	0.0008623	NP	
Other fuel extraction and processing	MWh	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	0.4106	1.0342	0.4246425	112.43	46.163758	0.22421	0.0920606	0.4607887	0.1891999	0.0057518	0.0023617	0.0210237	0.0086323
Total Grid Electricity Footprint				5		529		1		3		0		0
Total Fuel Footprints														
<u>Total Gasoline Footprint</u>														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	24	0.124	2.976	19.77	474.48	0.027	0.648	0.00036	0.00864	0.003	0.072	0.0067	0.1608
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00061	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	24	0.033	0.792	2.8	67.2	0.0046	0.1104	0.005	0.12	0.0015	0.036	0.001	0.024
Total Gasoline Footprint		24		3.768		541.68		0.7584		0.12864		0.108		0.1848
<u>Total Diesel Footprint</u>														
On-site diesel use - Other	gal	180	0.139	25.02	22.5	4050	0.17	30.6	0.0054	0.972	0.0034	0.612	0.0000052	0.000936
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75-hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	112.532	0.139	15.641948	22.5	2531.97	0.17	19.13044	0.0054	0.6076728	0.0034	0.3826088	0.0000052	0.0005852
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00025	0
Transportation diesel use - passenger truck	gal	185.4	0.139	25.7706	22.545	4179.843	0.0585	10.8459	0.0002	0.03708	0.007	1.2978	0.002605	0.482967
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Diesel produced	gal	477.932	0.017	8.124844	3.02	1443.3546	0.0051	2.4374532	0.0062	2.9631784	0.0017	0.8124844	0.0011	0.5257252
Total Diesel Footprint		477.932		74.557392		12205.168		63.013793		4.5799312		3.1048932		1.0102134
<u>Total Biodiesel Footprint</u>														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		0		0		0		0		0		0		0
<u>Total Natural Gas Footprint</u>														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
<u>Total Liquefied Petroleum Gas Footprint</u>														
On-site liquefied petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquefied petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquefied petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
<u>Total Compressed Gas Footprint</u>														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		0		0		0		0		0		0		0

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

SSDS - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
<u>On-site Renewable Energy</u>														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.000063	0	0.00076	0	0.000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
<u>On-site Conventional Energy</u>														
On-site grid electricity	MWh	8,7946	3.413	30.01597										
On-site diesel use - Other	Gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	Gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				30		0		0		0		0		0
Notes:														
<u>Other On-site Emissions</u>														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				30.02		0		0		0		0		0

SSDS - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	8.7946	6.929	60.937783	352	3095.6992	1.504	13.227078	1.46966	12.925072	0.07546	0.6636405	0.0454035	0.3993056
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

SSDS - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
<i>Conventional Energy</i>														
Transportation diesel use	gal	113.365	0.139	15.757735	22.5	2550.7125	0.17	19.27205	0.0054	0.612171	0.0034	0.385441	0.0000052	0.0005895
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	92.7	0.139	12.8853	22.545	2089.9215	0.0585	5.42295	0.0002	0.01854	0.007	0.6489	0.002605	0.2414835
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	12	0.124	1.488	19.77	237.24	0.027	0.324	0.00036	0.00432	0.003	0.036	0.0067	0.0804
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	10	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				30		4,878		25		1		1		0
Notes:														
<i>Renewable Energy</i>														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	npg or pmg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				30		4878		25		1		1		0

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Construction Materials</u>														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	0	0.217	0	19.5	0	0.0975	0	0.154	0	0.057	0	0.0141	0
Round Gravel	lb	90	0.0000248	0.002232	0.0024	0.216	0.000018	0.00162	4.52E-06	0.0004068	2.61E-06	0.0002349	3.08E-07	2.772E-05
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	2500	0.0116	29	3.4	8500	0.0075	18.75	0.012	30	0.0044	11	0.000144	0.36
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	530	0.01885	9.9905	2.115	1120.95	0.0040375	2.139875	0.0051325	2.720225	0.0014428	0.7646575	0.0001625	0.0861383
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	206.065	0.017	3.503105	3.02	622.3163	0.0051	1.0509315	0.0062	1.277603	0.0017	0.3503105	0.0011	0.2266715
Gasoline produced	gal	12	0.033	0.396	2.8	33.6	0.0046	0.0552	0.005	0.06	0.0015	0.018	0.001	0.012
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				3.899105		655.9163		1.1061315		1.337603		0.3683105		0.2386715
Notes:														
<i>Public water</i>	gal x 1000	0	0.0092	0	5	0	0.0097	0	0.0059	0	0.016	0	0.000015	0
<i>User-defined water resource #1</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>User-defined water resource #2</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>Off-Site Services</u>														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	0	0.16	0	25	0	0.14	0	0.075	0	0.4	0	0.0014	0
Off-site hazardous waste landfill	ton	0.6	0.18	0.108	27.5	16.5	0.154	0.0924	0.0825	0.0495	0.44	0.264	0.00154	0.000924
Off-site Laboratory Analysis - Other	sample	0	0.058071	0	6.8534384	0	0.131402	0	0.3038758	0	0.0455698	0	0.0330165	0
Off-site Laboratory Analysis - Metals	sample	0	0.212	0	27.4693	0	0.6423	0	1.5072	0	0.2264	0	0.1643	0
Off-site Laboratory Analysis - Mercury	sample	0	0.0731715	0	9.325458	0	0.2127439	0	0.4982396	0	0.0747359	0	0.0542332	0
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	0	0.0512769	0	5.224902	0	0.0833339	0	0.1904774	0	0.0284393	0	0.0212083	0
Off-site Laboratory Analysis - VOCs	sample	10	0.0762045	0.7620449	9.016814	90.16814	0.104498	1.0449804	0.2270738	2.270738	0.0339508	0.3395084	0.0235892	0.2358922
Off-site Laboratory Analysis - SVOCs	sample	0	0.0715602	0	7.870422	0	0.1459445	0	0.3373038	0	0.0504853	0	0.0372577	0
Notes:														
<u>Resource Extraction for Electricity</u>														
Coal extraction and processing	MWh	0.527676	3.1	1.611417	180.0	94.98168	0.8	0.4063105	0.2	0.0791514	0.0	0.0094982	NP	
Natural gas extraction and processing	MWh	0.87946	1.6	1.4351028	270.0	237.4542	0.2	0.1583028	13.0	11.43298	0.0	0.0062442	NP	
Nuclear fuel extraction and processing	MWh	0.175892	0.2	0.0273463	25.0	4.3973	0.2	0.0263838	0.5	0.087946	0.0	0.0002638	NP	
Oil extraction and processing	MWh	0.43973	2.3	1.0093562	270.0	118.7271	1.7	0.747541	0.1	0.0303414	0.0	0.0184687	NP	
Other fuel extraction and processing	MWh	0	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				4.0832223		455.56028		1.3385381		11.630419		0.0344748		0
Notes:														
<u>Electricity Transmission</u>														
Transmission and distribution losses	MWh	8.7946	1.0342	9.0953753	35.2	309.56992	0.1504	1.3227078	0.146966	1.2925072	0.007546	0.0663641	0.0045403	0.0399306
Notes:														

SSDS - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtu	Conv.	lbs CO2e	Factor	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<u>User-defined Materials</u>														
User-defined material #1	ft2	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
<u>User-defined Waste Destinations</u>														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu/y)		lbs CO2e/y		lbs CO2e/unit		lbs CO2e/unit		lbs CO2e/unit		lbs CO2e/unit	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				56,940.48		11148.881		25.796253		49.301399		12.83755		0.9615842

SSDS - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Total Grid Electricity Footprint														
On-site grid electricity	MWh	8.7946	3.413	30.01597										
<i>Electricity Generation</i>														
Grid electricity	MWh	8.7946	6.929	60.937783	1124.3	9887.7688	2.2421	19.718373	4.6078874	40.524527	0.057518	0.5058478	0.2102371	1.8489511
<i>Resource Extraction for Electricity</i>														
Coal extraction and processing	MWh	0.527676	3.1	1.611417	180.0	94.98168	0.8	0.4063105	0.2	0.0791514	0.0	0.0094982	NP	
Natural gas extraction and processing	MWh	0.87946	1.6	1.4351028	270.0	237.4542	0.2	0.1583028	13.0	11.43298	0.0	0.0062442	NP	
Nuclear fuel extraction and processing	MWh	0.175892	0.2	0.0273463	25.0	4.3973	0.2	0.0263838	0.5	0.087946	0.0	0.0002638	NP	
Oil extraction and processing	MWh	0.43973	2.3	1.0093562	270.0	118.7271	1.7	0.747541	0.1	0.0303414	0.0	0.0184687	NP	
Other fuel extraction and processing	MWh	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<i>Electricity Transmission</i>														
Transmission and distribution losses	MWh	8.7946	1.0342	9.0953753	112.43	988.77688	0.22421	1.9718373	0.4607887	4.0524527	0.0057518	0.0505848	0.0210237	0.1848951
Total Grid Electricity Footprint				104		11332		23		56		1		2
Total Fuel Footprints														
<i>Total Gasoline Footprint</i>														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	12	0.124	1.488	19.77	237.24	0.027	0.324	0.00036	0.00432	0.003	0.036	0.0067	0.0804
Transportation gasoline use - passenger truck	gal	0	0.124	0	19.79	0	0.035	0	0.00036	0	0.003	0	0.00661	0
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	12	0.033	0.396	2.8	33.6	0.0046	0.0552	0.005	0.06	0.0015	0.018	0.001	0.012
Total Gasoline Footprint		12		1.884		270.84		0.3792		0.06432		0.054		0.0924
<i>Total Diesel Footprint</i>														
On-site diesel use - Other	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
On-site diesel use <75 hp	gal	0	0.139	0	22.21	0	0.1565	0	0.000145	0	0.0145	0	0.00004	0
On-site diesel use 75-hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	113.365	0.139	15.757735	22.5	2550.7125	0.17	19.27205	0.0054	0.612171	0.0034	0.385441	0.000052	0.0005895
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	92.7	0.139	12.8853	22.545	2089.9215	0.0585	5.42295	0.0002	0.01854	0.007	0.6489	0.002605	0.2414835
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.000052	0
Diesel produced	gal	206.065	0.017	3.503105	3.02	622.3163	0.0051	1.0509315	0.0062	1.277603	0.0017	0.3503105	0.0011	0.2266715
Total Diesel Footprint		206.065		32.14614		5262.9503		25.745932		1.908314		1.3846515		0.4687445
<i>Total Biodiesel Footprint</i>														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		0		0		0		0		0		0		0
<i>Total Natural Gas Footprint</i>														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
<i>Total Liquefied Petroleum Gas Footprint</i>														
On-site liquefied petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquefied petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquefied petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
<i>Total Compressed Gas Footprint</i>														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		0		0		0		0		0		0		0

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

Climate Screening Checklist

Background Information

- Project Manager: **Matthew Carroll, PE**
- Site Name: **2921 Westchester Avenue**
- Site Number: **C203140**
- Site Location: **2921 Westchester Avenue, Bronx, NY 10461**
- Site Elevation (average above sea level): **45 feet above sea level (from USGS Flushing-NY Topographic Maps [2013]).**
- ClimAID Region ([Responding Climate Change in New York State \(ClimAID\) - NYSERDA](#)): **Region 4 (NYC and Long Island)**
- Remedial Stage/site classification: **Remedial Action Implementation - Class 1**
- Contamination - Media Impacted/ Contaminants of Concern: **Soil, groundwater, and soil vapor at the Site are impacted with chlorinated VOCs, specifically PCE and its breakdown products.**
- Proposed/Current Remedy: **Excavation of cVOC hotspots, onsite composite cover system, installation of vapor barrier/vapor sealant systems, use of ISCO onsite and offsite and groundwater monitoring, onsite and offsite SSDS, Institutional Controls (Environmental Easement).**
- What is the predicted timeframe of the remedy? Will components of the remedy still be in place in 10+ years? **The remedy is anticipated to be completed in 2025 with COC issuance for the Site anticipated in December 2025. Post-remedial groundwater monitoring at the Site will continue for a minimum of eight quarters (two years). The SSDS will operate in perpetuity until permission to shut down the system is granted in writing by NYSDEC and NYSDOH based on post-remedial soil vapor intrusion results. It is anticipated that the SSDS system will be shut down and groundwater monitoring will be stopped in less than 10 years.**
- Is the site in proximity to any sensitive receptors? (e.g. wetlands, waterbodies, residential properties, hospitals, schools, drinking water supplies, etc.) **There are no sensitive receptors within 500 feet of the Site.**

Is the site in a disadvantaged community (DAC) or potential environmental justice area (PEJA) (Use DECinfoLocator: [DECinfo Locator \(ny.gov\)](#))?

☒ Yes ☐ No

If the site is in a DAC or PEJA, will climate impacts be magnified? If yes, list how and why.

☐ Yes ☒ No

Should thresholds of concern be lowered to account for magnification of impacts? If yes, indicate how lower thresholds will be used in the screening.

☐ Yes ☒ No

Climate Screening Table*

Potential Climate Hazards	Relevant to the Site Location (Y/N/NA) ¹	Projected Change (Reference data source/Model) ³	Potential to Impact Remedy (Y/N)	Is remedy/site already resilient? (Y/N) ⁴
Precipitation	Potentially	N - per FEMA RAPT	N/A	N/A
Temperature ² (Extreme Heat or Cold Weather Impacts)	Y	Y - per FEMA RAPT	Y	Y - A telemetry system will be installed with the SSDS to alert project contacts in the event of any power outages or surges
Sea Level Rise	N	N/A	N/A	N/A
Flooding	N	N/A	N/A	N/A
Storm Surge	N	N/A	N/A	N/A
Wildfire	N	N/A	N/A	N/A
Drought	N	N/A	N/A	N/A
Storm Severity	Y	Y - per FEMA RAPT	Y	Y - A telemetry system will be installed with the SSDS
Landslides	N	N/A	N/A	N/A
Other Hazards:	N/A	N/A	N/A	N/A

* Links to potential data sources can be found on the following page

¹ If the first column is N --> The rest of the columns will be N/A, the hazard is not applicable to the site.

² Extreme Heat: periods of three or more days above 90°F- Extreme Cold: Individual days with minimum temperatures at or below 0 degrees F (NYSERDA ClimAID report)

³ List the projected change in specific terms or units e.g. inches of rain fall, feet of sea level rise, etc.

⁴ If final column is Y, provide reasoning, if the final column is N --> Climate Vulnerability Assessment (CVA) required.

Required Next Steps (If no further action is required, provide justification):

The remedial action will be implemented. Following remedial action implementation, annual inspections of all engineering controls will be conducted, as well as inspections following any severe weather event. A telemetry system will be installed on the SSDS to increase its resiliency to potential climate hazards.

Potential Data Sources (not an exhaustive list)- from [Superfund Climate Resilience: Vulnerability Assessment | US EPA](#)

NYSERDA ClimAID report- [Responding Climate Change in New York State \(ClimAID\) - NYSERDA](#)

FEMA- [National Flood Hazard Layer | FEMA.gov](#)

NOAA- [National Storm Surge Risk Maps - Version 3 \(noaa.gov\)](#)

Department of Agriculture Forest Service [Wildfire Risk to Communities](#)

EPA [Climate Change Indicators in the United States](#)

EPA [Climate Resilience Evaluation & Awareness Tool \(CREAT\) | U.S. Climate Resilience Toolkit](#)

EPA [National Stormwater Calculator](#)

National Integrated Drought Information System [U.S. Drought Portal](#)

National Interagency Coordination Center [National Interagency Fire Center](#)

National Oceanic and Atmospheric Administration Coastal Services [Digital Coast](#)

- Resources to help communities assess coastal hazards, such as the [Sea Level Rise Viewer](#) for visualizing community-level impacts of flooding or sea level rise and [downloadable LIDAR data](#)

National Oceanic and Atmospheric Administration [National Centers for Environmental Information](#) website

National Oceanic and Atmospheric Administration [Sea Level Trends](#)

National Weather Service [Climate Prediction Center](#)

National Weather Service [National Hurricane Center](#)

National Weather Service [Sea, Lake, and Overland Surges from Hurricanes \(SLOSH\)](#)

National Weather Service [Storm Surge Hazard Maps](#)

U.S. Federal Government Climate Resilience Toolkit: [The Climate Explorer](#)

U.S. Army Corps of Engineers [Climate Preparedness and Resilience](#)

U.S. Geological Survey [Coastal Change Hazards Portal](#)

U.S. Geological Survey [Landslide Hazards Program](#)

U.S. Geological Survey [National Ground-water Monitoring Network Data Portal](#)

U.S. Geological Survey [National Climate Change Viewer](#)

U.S. Geological Survey [National Water Dashboard](#)

U.S. Geological Survey [StreamStats](#)

NYS Department of State- [Assess | Department of State \(ny.gov\)](#)

NYSERDA NY Coastal Floodplain Mapper- [Home Page \(ny.gov\)](#)

NYSDEC Coastal Erosion Hazards- [Coastal Areas Regulated By The CEHA Permit Program - NYDEC](#)

NYSDOH Heat Index- [health.ny.gov/environmental/weather/vulnerability_index/county_maps.htm](#)