REMEDIAL INVESTIGATION REPORT

VOLUME I

WORK ASSIGNMENT D007622-23

FORMER DRAPE MASTER
ASTORIA

SITE NO. 221114
QUEENS, NY

Prepared for:
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway, Albany, New York

Marc Gerstman, Acting Commissioner

DIVISION OF ENVIRONMENTAL REMEDIATION

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September 2015

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REMEDIAL BUREAU
WORK ASSIGNMENT NO. D007622-23

PREPARED BY:

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BUFFALO, NEW YORK 14202

SEPTEMBER 2015

I Mark Lang certify that I am currently a NYS registered professional engineer and that this Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

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LIST OF ACRONYMS AND ABBREVIATIONS

1,1-DCE	1,1-dichloroethene
1,1,1-TCA	1,1,1-trichloroethane
AEI	AEI Consultants, Inc.
amsl	above mean sea level
AST	above ground storage tank
ASTM	American Society for Testing and Materials
bgs	below ground surface
Bldg	building
BTEX	benzene, toluene, ethylbenzene, and xylene
cis-1,2-DCE	cis-1,2-dichloroethene
CD	compact disc
CESQG	conditionally exempt small quantity generator
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information Site
COC	chain-of-custody
CORRACTS	RCRA Corrective Action Site
Cm/sec	centimeters per second
CPC	compound of potential concern
CVOC	chlorinated volatile organic compounds
DEP	Department of Environmental Protection
DO	dissolved-oxygen
DOT	Department of Transportation
DUSR	data usability summary report
EDR	Environmental Data Resources, Inc.
ELAP	Environmental Laboratory Approval Program
FWRIA	Fish and Wildlife Resource Impact Analysis
FS	Feasibility Study
ft	foot/feet
GIS	geographic information system
HA	hazard assessment
HDPE	high density polyethylene
HHEA	Human Health Exposure Assessment
ID	inside diameter
IDW	investigation derived waste
Inc.	Incorporated
L	liter
LQG	large quantity generator
LLC	limited liability corporation
L/min	liters per minute
kg	kilograms
mg/kg	milligrams per kilogram
MIP	membrane interface probe
MTBE	methyl tert-butyl ether
MW	monitoring well
mV	millivolt
MNA	monitored natural attenuation
NAICS	North American Industry Classification System
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health

LIST OF ACRONYMS AND ABBREVIATIONS
(cont'd)

ORP	oxidation-reduction potential
PBS	Petroleum Bulk Storage
P.C.	professional corporation
PCB	polychlorinated biphenyl
PCE	perchloroethene, tetrachloroethene, tetrachloroethylene, or perchloroethylene
PDBs	passive diffusion bags
PID	photoionization detector
ppb	parts per billionppm parts per million
PRPs	potentially responsible parties
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SBL	section-block-lot
SC	Site Characterization
Shaw	Shaw Environmental & Infrastructure Engineering of New York, P.C.
SQG	small quantity generator
SCR	Site Characterization Report
SCGs	standards, criteria and guidance values
SIR	Site Inspection Report
sq ft	square foot
SVOC	semi-volatile organic compound
TAL	target analyte list
TCE	trichloroethene or trichloroethylene
TCL	target compound list
TIC	tentatively identified compound
TOC	total organic carbon
TOGS	Technical and Operational Guidance Series
TPH	total petroleum hydrocarbon
µg/L	micrograms per liter (parts per billion)
µg/kg	microgram per kilogram
$\mu g/m^3$	micrograms per cubic meter
URS	URS Corporation - New York
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WA	Work Assignment
Veritech	Hampton-Clarke Veritech Labortories
VFW	Veteran of Foreign War
YEC	YEC, Inc.
Zebra	Zebra Environmental, Inc.

1.0 INTRODUCTION

This Remedial Investigation (RI) Report has been prepared to summarize the field activities and analytical results associated with the RI performed at the Former Drape Master site (the Site), New York State Department of Environmental Conservation (NYSDEC) Site ID No. 241114, located in Astoria, Queens, New York (Figures 1-1 and 1-2). The work for the RI was issued to URS Corporation - New York (URS) as Work Assignment (WA) No. D007622-23 in December 2013 to investigate known chlorinated volatile organic compound (CVOC) contamination in the Site area. This report presents data and information gathered prior to and during the RI.

1.1 Site Location and Description

The Site is located at 89-01 Astoria Boulevard in a mixed residential/commercial neighborhood of Astoria, New York. The Site is identified as Block 1101 and Lot 45 on the New York City Tax Map with zoning designations as R6B and C1-1, which allows for low- to medium-density residential and commercial uses.

The Site consists of a 5,200 square foot (sq ft) two-story building with a basement. The first floor is occupied by an active laundromat, with storage in the basement. The second floor is apartments. Commercial properties, many with residences on the upper floors, are located along Astoria Blvd. Residential properties are located on the side streets. LaGuardia Airport is located approximately 2,000 feet (ft) to the north.

The topography of the Site area is relatively flat along Astoria Blvd and rises several feet to the north. The nearest water body is Bowery Bay located approximately 4,000 ft to the northeast. Groundwater occurs at a depth of approximately 10 ft below ground surface (bgs) with regional flow to the west-northwest toward Bowery Bay. The Site area is underlain by silts, sands or historic fill material. Bedrock occurs at an estimated depth of more than 100 ft bgs.

1.1.1 Site Background

The Former Drape Master Site has a history of previous use as a dry cleaner. Investigations to characterize subsurface contaminant conditions began in 2006. Previous investigations were performed by Hydro Tech Environmental Corporation (Hydro Tech) in 2006, EnviroTrac Environmental Services (EnviroTrac) in 2009, and Shaw Environmental &

Infrastructure Engineering of New York, P.C. (Shaw) in 2011. The following section presents a description of the Site background and previous investigations.

File Review

As part of their investigation in 2011, Shaw obtained an Environmental Data Resources, Inc. (EDR) report. The report included a Sanborn Map Report, Historical Topographic Map Report, Aerial Photo Decade Package, City Directory Abstract, Property Tax Map Report and an Environmental Lien Search Report for the Site and surrounding properties. Results of these reports indicate that several different dry cleaning services were historically operational at the Site including: Murjers Drapery Specialists Inc., Drapery King, Coit Drapery Cleaners, and Drape Master of America.

The Sanborn Map Report included maps from the years 1914, 1930, 1951, 1980, 1982, 1985, 1986, 1988, 1991, 1992, 1993, 1994, 1996, 1999, 2001, 2002, 2003, 2004, 2005, and 2006. According to the report, an unidentified use store is listed as being present at the Site in all of these maps except the 1930 map where the Site appears undeveloped.

The aerial photo package covered the years 1954, 1966, 1975, 1984, 1994, and 2006. There is a building visible at the Site in all photos. The topographic map report includes maps from the years 1897, 1947, 1966, 1979, and 1995. The maps indicated a building of unidentified usage on the property in 1947.

According to the EDR report, a spill, dated October 13, 2005, was reported at the Site due to equipment failure. According to information in the report, a NYSDEC representative visited the Site on October 13, 2005 as a follow up from previous visits in July and August 2005. The visit was performed to confirm that the dry cleaning company had removed its hazardous waste to an approved off-site facility and decontaminated the dry cleaning machines and any other contaminated equipment or areas noted during the July and August 2005 visits. During the inspection, it was determined that the above-mentioned machinery and hazardous waste had been removed; however, the inspector found that “a part of a filter associated with an old dry cleaning machine was leaking dry cleaning chemicals directly to the floor” and there was a strong odor of dry cleaning chemicals within the building. The operator on site was instructed to “immediately take steps to stop the leak and clean up the spill”. The hazmat unit within the New York City Department of Environmental Protection (DEP) and Division of Law Enforcement was notified

and the spill was reported to the NYSDEC's spill hotline. These agencies responded immediately and issued notices of violation and summons. According to the EDR report, the unnamed dry cleaner had gone out of business and had not managed their hazardous waste properly.

The Site was listed as a small quantity generator (SQG). According to the EDR report, Drape Master of America had several violations including compliance and records violations associated with their shipment of halogenated solvents.

The EDR report also provided information on the surrounding properties. A few properties in the report are identified as using dry cleaning products. Those properties are as follows:

- Airline Cleaners, Inc. located at 91-17 Astoria Boulevard¸ located approximately 1/8 mile upgradient (higher elevation) from the subject property, was identified in the report as being a Resource Conservation and Recovery Act (RCRA)-Large Quantity Generator (LQG) in November 1985, a RCRA SQG in July 1999 and a RCRA Non Gen in January 2006. This company reportedly shipped halogenated solvents, however no spills were listed for the facility.
- Jamel Cleaners was listed as being located at 91-17 Astoria Boulevard and included in the dry cleaner database.
- Sunil Cleaners, located at 93-13 Astoria Blvd, was identified in the dry cleaner database as a conditionally exempt SQG (CESQG). No spills or violations were reported for this location. It is located approximately 1/8 – 1/4 mile east/southeast (upgradient elevation) from the Site.
- MTA Bus Company – LaGuardia Depot at 85-01 24th Avenue is listed as a RCRA-CESQG that had halogenated solvents listed as one of their wastes. No spills or violations were listed for this property. This property is located between 1/8 and 1/4 mile west/northwest of the Site.

Several petroleum related spills were identified as being located within 1/8 mile of the Site.

The City Directory search from 1922 to 2005 indicated that several drapery cleaning services were operational at the Site from at least 1983 to 2000. During the City Directory

search, New York Telephone, NYNEX Information Resource Company and Cole information services were searched for records of businesses at the Site and surrounding properties. Businesses listed as being located at the Site from 1983 to 2000 include Drapemasters of America, Coit Drapery Cleaner Distinctive Draperies, Draperyking, and Murjers Drapery Specialists Inc. Prior to those dates, the property was listed under Avanti Carting Co., Fifth Avenue Carting Co (1939-1962), Sabanti Marion (1967), and Hazzard Albert (1970). No information was available regarding Site usage from 1922 to 1939 and 2000 to 2005.

Hydro Tech Investigation

In October 2006, Hydro Tech installed and sampled six groundwater monitoring wells adjacent to and within the Former Drape Master building. Analytical results from the sampling event indicated elevated levels of CVOCs, primarily trichloroethene (TCE), tetrachloroethene (PCE), and cis-1,2-dichloroethene (cis-1,2-DCE) in the central and northeastern portions of the Site. In addition to chlorinated solvents, the analytical results indicated elevated levels of 1,2,4-trimethylbenzene and naphthalene in monitoring wells located near the southeastern portion of the Site; these constituents were noted as being normally indicative of gasoline contamination. According to the Hydro Tech report, the Site had no known historical gasoline usage so the contamination was attributed to an off-site source. Based on these results, Hydro Tech recommended that the results be provided to the NYSDEC for review and comment.

EnviroTrac Investigation

In March 2009, EnviroTrac intended to conduct a soil vapor intrusion and groundwater investigation at the Site. However, due to the presence of shallow groundwater immediately beneath the basement floor, soil vapor samples could not be collected. Three groundwater samples, two indoor air, and one outdoor air sample were collected during this investigation. Analytical results indicated elevated levels of PCE in one of the basement ambient air samples and in the groundwater samples. Based on these results, EnviroTrac recommended that the data be reviewed by the NYSDEC and/or the New York State Department of Health (NYSDOH) to determine if additional investigation was required.

Shaw Investigation

In 2011, the NYSDEC retained Shaw to complete a focused investigation. The Shaw investigation included the advancement 11 direct-push borings to evaluate soil vapor, groundwater, and soil conditions at the Site. Shaw had intended to advance two soil borings in the building basement but was not granted access to the interior of the building. The following investigative points were advanced at the Site:

- Five borings were advanced to approximately 7 to 8 ft bgs and completed as permanent soil vapor points (SV-1 through SV-5).
- Four borings around the footprint of the building and across 89th Street were advanced to depths ranging from 25 to 32 ft bgs and completed as monitoring wells MW-1, MW-4, MW-5 and MW-6.
- Two borings (i.e., GW-2 and GW-3) were advanced to a depth of approximately 20 ft bgs to allow for the collection of groundwater samples – these borings were not completed as wells.
- Nine of the 11 soil borings were augmented by the use of Membrane Interface Probe (MIP) analysis. The MIP locations and associated borings/soil vapor points/monitoring wells are as follows:
    - MIP-1 – SV-4
    - MIP-2 – SV-1
    - MIP-3 – SV-2
    - MIP-4 – GW-2 - No associated soil vapor point
    - MIP-5 – SV-3
    - MIP-6 – No associated soil vapor point
    - MIP-7 – SV-5/MW-5
    - MIP-8 – MW-6 - No associated soil vapor point
    - MIP-9 – MW-4 - No associated soil vapor point

None of the soil samples contained contaminants at concentrations above the regulatory criteria.

Groundwater analytical results included detections of cis-1,2-DCE, chloroform, TCE, and PCE at concentrations above the NYSDEC Groundwater Standards.

Analytical results of soil vapor sampling indicated detections of TCE, PCE, 1,1,1-trichloroethane (1,1,1-TCA), chloroform, 1,1-dichloroethene (1,1-DCE), cis-1,2-DCE, and methyl tert-butyl ether (MTBE – a gasoline contaminant).

Based on the findings of the investigation, Shaw concluded the following:

- There were no analytes detected above the Soil Cleanup Objectives.
- Analytes exceeding the NYSDEC groundwater quality standards were found in five of the six groundwater samples collected. Contaminants exceeding the NYSDEC groundwater quality standards included cis-1,2-DCE, TCE, and PCE.
- All soil vapor samples (SV-1, SV-2, SV-3, SV-4, SV-5) contained TCE, 1,2-DCE, and/or PCE. The highest concentrations of PCE were detected in soil vapor points SV-1 and SV-2 located on Astoria Blvd adjacent to the Former Drape Master building.
- The results indicated that the Site was the likely source of the observed impacts.

1.1.2 Objectives of the RI

The objectives of the RI were to:

- Delineate the lateral and vertical extent of contaminants, in all media, at or emanating from the Former Drape Master Site;
- Determine the surface and subsurface characteristics of the Site, including topography and depth to groundwater;
- Collect and evaluate all data necessary to evaluate the actual and potential threats to public health and the environment;
- Identify the sources of contamination, the migration pathways, and actual or potential receptors of contaminants on or through air, soil, groundwater, utilities, and structures at a contaminated site, without regard to property boundaries; and

- Collect the data necessary to evaluate any release to an environmental medium and develop remedial alternative(s) to address the release through the completion of a Feasibility Study (FS).

1.1.3 Scope of RI

Tasks performed during the RI included:

- Utility clearance;
- Geophysical survey;
- Soil vapor (gas) survey;
- Soil vapor intrusion (SVI) study;
- Soil boring/monitoring well installations;
- Groundwater sampling;
- Laboratory analyses of soil, groundwater, soil vapor, indoor air, and ambient air;
- Location survey;
- Hydraulic conductivity testing; and
- Preparation of an RI report in accordance with NYSDEC DER-10.

1.2 Data Presentation

This RI Report has eight sections. Section 1 includes background information and a synopsis of previous Site investigations. Section 2 includes a description of field activities that occurred during the RI fieldwork. Section 3 includes a description of the subsurface conditions that have been found within the project study area. Section 4 includes a description and summary of the analytical results for the soil, groundwater, and soil vapor intrusion samples from locations sampled during the RI. Section 5 provides a discussion on contaminant fate and transport. Section 6 presents a qualitative Human Health Exposure Assessment (HHEA) and a Fish and Wildlife Resources Impact Analysis (FWRIA). Section 7 consists of the conclusions, recommendations and a conceptual site model. Section 8 contains a list of references cited. Tables, Figures, and Appendices immediately follow the text.

2.0 FIELD ACTIVITIES

The RI field investigation was performed in five phases during the period of April 2014 through June 2015. The first phase included: drilling; monitoring well and soil vapor implant installations; and soil, groundwater, and soil vapor sampling and analyses. The second phase consisted of a second round of groundwater sampling and analyses. The third phase consisted of a soil vapor intrusion study. The fourth phase consisted of the collection and analysis of water samples from basement sumps - one at the Former Drape Master building and the other from a nearby building. The fifth phase consisted of the installation of three additional monitoring wells and one soil vapor point and groundwater and soil vapor sampling and analyses. Details of the field activities are discussed below. The sampling locations from previous investigations and the current RI are shown on Figure 2-1.

2.1 Utility Clearance/Geophysical Survey

Prior to site work, URS' drilling subcontractor, Zebra Environmental, Inc. (Zebra), arranged for utility mark-outs.

On April 7, 2014, URS' geophysical subcontractor, Radar Solutions International, Inc., performed electromagnetic and ground-penetrating radar surveys of the six proposed monitoring well/soil vapor point locations. Five of the six locations were moved slightly to avoid possible subsurface obstructions identified during the geophysical survey. A copy of the geophysical survey report is provided in Appendix A.

Prior to drilling, Zebra manually cleared each boring location to a depth of approximately 5 ft bgs. Each cleared location was large enough to accommodate a monitoring well and adjacent soil vapor point.

2.2 Temporary Well Drilling

On April 7 and 8, 2014, Zebra used a portable, hydraulic-powered direct-push assembly to drill two temporary wells, identified as BB-1 and BB-2, in the basement of the Site building. At each location, the concrete basement floor slab, approximately 5 inches thick, was penetrated using a 3.5-inch diameter concrete core bit. The coring revealed that the concrete floor was

underlain by a layer of 9-inch thick cinder blocks which, in turn, was underlain by a 10-inch thick concrete floor slab. Groundwater was encountered within a couple inches of the top floor slab.

Each boring was advanced to a depth of 21 ft while continuously collecting soil samples using a 5-foot (ft) long, 2-inch diameter Macro core sampler. Due to the restricted ceiling height, the Macro core sampler was advanced in 3-ft increments.

Upon recovery, the soil samples were screened with a photoionization detector (PID). No elevated PID readings were observed. One soil sample was collected from each boring for chemical analysis.

Upon reaching the 21-ft depth, a temporary 1-inch diameter polyvinyl chloride (PVC) well screen and riser was placed into each borehole. Groundwater samples were then collected using polyethylene tubing equipped with a stainless steel check valve. Following completion of sampling on April 8, 2014, each borehole was backfilled with cement/bentonite grout and finished with concrete. A copy of the soil boring logs is provided in Appendix B.

2.3 Monitoring Well/Soil Vapor Point Installation

During the period of April 9 through April 11, 2014, Zebra utilized a truck-mounted 7720DT Geoprobe to advance the six soil borings for wells MW-7 through MW-12 and adjacent soil vapor points, identified as SV-7 through SV-12, at the locations shown on Figure 2-1. Zebra again mobilized to the Site on May 26, 2015 to install wells MW-13, MW-14, and MW-15 to better define the extent of groundwater impacts. A soil vapor point was installed adjacent to well MW-13.

With the exception of wells MW-13, MW-14, and MW-15, the monitoring well borings were initially advanced using a 5-ft long, 2-inch diameter Macro core sampler to approximately 8 ft into the groundwater table; the borings for wells MW-13, MW-14, and MW-15 were advanced without soil sampling.

Following completion of soil sampling, 3.25-inch solid stem augers were used to open the borehole for monitoring well installation. This was followed by the installation of 3.25-inch diameter temporary steel casing. Each boring was then completed as a 2-inch diameter PVC well

installed thorough the casing as the casing was slowly removed. Drilling depths ranged from 25 to 41 ft bgs.

The soil vapor points were installed in the same pre-cleared boring as the monitoring wells. To accomplish this, following installation of each monitoring well, the Geoprobe sampler was advanced to a depth of 8 ft and the soil vapor point installed following removal of the sampler.

Upon recovery, the soil samples were screened with a PID. No elevated PID readings were observed. One soil sample was retained for chemical analysis from the interval just above the water table. The soil samples from the temporary well locations in the basement were collected below the water table. Drilling observations are summarized below:

Drilling Observations

Location	Total Depth (ft bgs)	Depth to Groundwater (ft bgs)*	Maximum PID Reading (ppm)	Comments
BB-1	21	~0.25	0	Basement boring. Fine to coarse sand with some fine to medium gravel.
BB-2	21	~0.25	1.1	Basement boring. Fine to coarse sand with some fine to medium gravel.
MW-7	41	19	0	Fine to coarse sand with some fine to medium gravel.
MW-8	25	9	0.2	Fine to coarse sand with some fine to medium gravel. Fine to coarse sand with some fine to medium gravel.
MW-9	35	13.5	6.4	Fine to coarse sand with some fine gravel, trace clay and silt. Petroleum odor above 10 ft depth. Perched water at ~3.5 ft.
MW-10	35	13	6.4	Fine to medium sand with some silt and coarse gravel.
MW-11	25	9	0.9	Fine to coarse sand with some fine to medium gravel, trace silt.
MW-12	25	9	0	Fine to coarse sand with some fine to medium gravel, trace silt.
MW-13	40	25	0	Fine to coarse sand with some fine to coarse gravel, trace silt.
MW-14	25	11	0	Fine to medium sand with some fine to medium gravel, trace silt.
MW-15	25	9	0	Fine to coarse sand with some fine to medium gravel, trace silt.

* As observed during drilling

Soil boring logs are provided in Appendix B, monitoring well and soil vapor point construction logs are provided in Appendix C, and copies of the site supervisor's daily field notes are provided in Appendix D.

All soil samples were transported under chain-of-custody (COC) to Hampton-Clarke Veritech Laboratories (Veritech), a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) accredited laboratory. The soil samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) by USEPA Method 8260B.

Per the scope of work, up to three soil samples (or 30%) were analyzed for TCL semi-volatile organic compounds (SVOCs) by Method 8270C, TCL pesticides by Method 8081A, TCL polychlorinated biphenyls (PCBs) by Method 8082, chlorinated herbicides by Method 8151A, Target Analyte List (TAL) metals by Method 6010B/7471A, hexavalent chromium ($Cr^{+}6$) by Method 7196A and cyanide by Method 9010B.

All investigation-derived waste (IDW) generated from the soil borings was containerized in Department of Transportation (DOT) approved 55-gallon drums, temporarily stored in a fenced area adjacent to the Site building prior to offsite disposal.

2.3.1 Monitoring Well Construction

The nine borings outside the Former Drape Master building were completed as monitoring wells MW-7 through MW-15. The monitoring wells were constructed with 10-foot lengths of 2-inch inside diameter (ID), Schedule 40 PVC 0.010-inch slot screen and riser. A #2 size sand pack was installed from the bottom of the well up to approximately 1 ft above the top of the well screen. Two ft of granular bentonite was then installed around the riser above the sand pack. The remaining annular space was then backfilled with cement/bentonite grout to approximately 2 ft bgs. Each monitoring well was finished with a locking well cap and flush-mounted protective casing set in concrete. Keyed-alike locks were installed on all monitoring wells. A well construction summary is provided on Table 2-1.

2.3.2 Soil Vapor Point Construction

Soil vapor points SV-7 through SV-13 were installed within the same pre-cleared boreholes as their respective monitoring wells. Following drilling and well installation, the Geoprobe was used to advance the soil vapor point boring to a depth of 8 ft bgs. Upon reaching the target depth, a 6-inch long, stainless steel vapor sampling implant, connected to the Teflon tubing using a stainless steel swage-lock, was inserted down to the base of the borehole (i.e., 8 ft). The annular space around the vapor sampling implant was filled with # 2 silica sand. The sand pack extended no more than 6 inches above the implant. Granular bentonite was then placed above the silica sand to 1 ft bgs. The remaining 1 ft was backfilled with concrete. Each soil vapor sampling point was finished with a 5-inch diameter flush-mount protective casing set in the concrete.

Following installation, the water level in well MW-9 was observed to be approximately 7 ft bgs, which was above the depth of the soil gas implant. On June 17, 2014, URS removed the implant and installed a new implant to a depth of 6 ft bgs at the same location.

2.3.3 Monitoring Well Development

The existing and newly installed wells MW-7 through MW-12 were developed during the period of April 15 through 18, 2014 using the pump and surge development method. Wells MW-13, MW-14, and MW-15 were developed on May 28 and 29, 2015. Well development was accomplished using a Waterra Hydrolift II pump and dedicated high density polyethylene (HDPE) tubing and check valves. During well development, water quality parameters of pH, specific conductivity, temperature and turbidity were measured using a Hanna 991301 multi-meter and a Hanna 98703 turbidity meter. A monitoring well was considered developed when water quality parameters had stabilized. Well development logs are provided in Appendix E.

Well development water was collected into DOT approved 55-gallon drums and temporarily stored prior to offsite disposal.

2.4 Groundwater Level Measurements

Groundwater levels were collected in April and July 2014 prior to groundwater sampling. Water levels were measured using an electronic water level meter. Measurements were referenced to the top of the well risers. Table 2-2 presents the groundwater level measurements.

2.5 Groundwater Sampling

Two complete rounds and one partial round of groundwater sampling were performed during the RI. The first complete round of monitoring well sampling was performed during the period of April 28 through May 1, 2014. Ten groundwater samples, including from temporary wells BB-1 and BB-2, and one blind duplicate sample (from MW-8) were collected during this sampling event.

The second complete round of groundwater sampling was performed during the period of July 10 through 12, 2014. Nine groundwater samples and one blind duplicate sample (from MW-11) were collected during this sampling event. Access to well MW-4 was blocked by a vehicle, so that well was not sampled.

On June 4 and 5, 2015, groundwater samples were collected from wells MW-7, MW-8, MW-12, MW-13, MW-14, and MW-15. One blind duplicate sample, from MW-12, was collected during this sampling event.

Groundwater samples were collected using the low-flow sampling procedure. During well purging, water quality parameters of pH, specific conductivity, temperature, oxygen/reduction potential (ORP), dissolved-oxygen (DO), and turbidity were measured using a Hanna 991301 multi-parameter meter and a Hanna 98703 turbidity meter. A monitoring well was considered properly purged when water quality parameters had stabilized. The samples were transported under COC to Veritech for analysis of TCL VOCs by USEPA Method 8260B.

Per the scope of work, up to three groundwater samples (or 30%) were analyzed for the additional parameters TCL SVOCs by Method 8270C, TCL pesticides by Method 8081A, TCL PCBs by Method 8082, and TAL metals by Method 6010B/7470A.

Select samples were analyzed for the Monitored Natural Attenuation (MNA) parameters total and dissolved arsenic, iron and manganese by Method 6010B, alkalinity by Method 310.1, chloride by Method 325.3, nitrate by Method 3542.1, sulfate by Method 375.4, total organic carbon (TOC) by Method 415.1, dissolved gasses (i.e., methane, ethane, ethene) by Method RSK-SOP-175 and the field parameters conductivity, ORP, DO, pH and temperature. Groundwater sampling purge logs are provided in Appendix F.

2.6 Soil Vapor Sampling

URS collected soil vapor samples from points SV-1 through SV-5, SV-7, SV-8, and SV-10, SV-11, and SV-12 on May 1 and 2, 2014, from SV-9 on June 17, 2014 after the point was reinstalled to a shallower depth because of perched groundwater conditions, and from SV-13 on June 5, 2015.

During each sampling event, the soil vapor samples were collected using laboratory evacuated 6-liter Summa® canisters with 2-hour laboratory calibrated flow regulators. Upon opening the canister valve, the initial vacuum pressure was read from the built-in gauge on the flow controller and recorded. After the 2 hour sampling period, the canister vacuum was recorded and the valve was then closed.

One ambient outdoor air sample was collected from an upwind location concurrent with the soil vapor sampling. A blind duplicate soil vapor sample was collected from location SV-7 during the May 2014 sampling event.

2.7 Soil Vapor Intrusion Sampling

URS conducted indoor air, outdoor air, and subslab vapor sampling at properties in the Site area following procedures outlined in *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, Final, (NYSDOH, October 2006).

On December 9 and 10, 2014, URS conducted the soil vapor intrusion investigation. The investigation included the collection of the following samples:

- Two indoor air and one duplicate sample from the laundromat basement at 89-01 Astoria Blvd,

- Two indoor air, one subslab, and one subslab duplicate sample from the basement of a nearby residence on 89th Street (herein referred to as Building [Bldg] 1),
- Two indoor air samples from the basement of a nearby building on Astoria Blvd (herein referred to as Bldg 2),
- One indoor air sample from the basement of a nearby building on Astoria Blvd (herein referred to as Bldg 3), and
- One outdoor ambient air sample from the exterior of Bldg 1.

2.7.1 Indoor Air Quality Survey and Questionnaire

Prior to sampling, URS personnel conducted owner interviews and completed an inventory of chemicals found in the lower level (i.e., basement) of the laundromat, and Bldgs 1, 2 and 3. A RAE Systems ppbRAE 3000 parts-per-billion (ppb)-range PID was used to screen indoor air and identify potential sources of VOCs from chemicals prior to collecting the air samples. During this inventory, URS completed the NYSDEC Structure Sampling Questionnaire and Building Inventory form.

2.7.2 Indoor Air and Outdoor Air Sampling

URS selected the indoor air sampling locations in consultation with each of the owners. The indoor air locations were placed in the breathing zone (approximately 3 ft above the floor), central to the building and away from the foundation walls, equipment, and apparent penetrations. One outdoor sample was collected from the backyard of Bldg 1.

The indoor air and outdoor air samples were collected using laboratory evacuated 6-liter Summa® canisters with 24 hour (or 8 hour, depending on the location) laboratory-calibrated flow regulators. Upon opening the canister valve, the initial vacuum pressure was read from the built-in gauge on the flow controller and recorded onto the Indoor Air Quality Survey and Questionnaire. After the sampling period, the canister vacuum was recorded and the valve was then closed.

The outdoor air sample was collected concurrent with the indoor air and subslab soil vapor samples.

2.7.3 Subslab Soil Vapor Sampling

One subslab sample and duplicate were collected from Bldg 1. Subslab samples were intended to be collected from beneath the basement slabs at Bldg 2 and Bldg 3. However, groundwater levels in monitoring wells located immediately adjacent to these locations indicated that groundwater would be at or above the basement floor slabs. Therefore, subslab sampling was not attempted at these locations.

At the subslab sample location, an electric hammer drill was used to advance a 1-inch diameter hole approximately ½-inch into the concrete slab, followed by a ⅜-inch diameter hole through the remaining thickness of the concrete slab. All concrete debris was removed using a hand brush to prevent it from entering the hole. The subslab sample was collected through a ⅛-inch inside diameter by ¼-inch outside diameter Teflon-lined polyethylene tubing which was inserted through the hole in the slab. The tubing was sealed to the concrete slab with modeling clay.

A helium tracer gas was utilized during the sampling of the subslab soil vapor location. The tracer gas was used to evaluate whether indoor (ambient) air was short circuiting into the sample collection tubing. To perform the test, an enclosure, approximately 1 liter in size, was placed over the sealed subslab sample location. The sample tubing was run through a hole in the enclosure and a silicone gasket was used to seal the interface between the tubing and the enclosure. The enclosure was then sealed at the ground surface with a foam gasket. A tank containing ultra-high purity helium [99.999 percent (%)] was connected to the side port of the enclosure and enough helium was released to displace any ambient air and to maintain a positive pressure within the enclosure. Following the application of the tracer gas, 1 liter of soil vapor was purged using a Gillian GilAir-3 air sample pump at a rate of approximately 0.02 liters per minute (L/min) into a 1 liter Tedlar bag.

The contents of the Tedlar bag were measured for helium using a Radiodetection/Dielectric MGD-2002 Multi-gas Detector and for VOCs with the PID. If the helium concentration was less than 10%, the enclosure was removed and the tubing was connected to the Summa canister via the flow controller and sampling commenced. If the

concentration of helium exceeded 10%, the clay seal between the sample tubing and the concrete slab was redone and the seal was retested.

The subslab sample location passed the helium test the first time and the sample collection was initiated. The contents of the Tedlar bag containing the subslab purged vapor were subsequently discharged outdoors.

The subslab and duplicate samples were collected using two 6-liter Summa® canisters equipped with flow controller valves pre-calibrated at the laboratory. A tee fitting was used to enable the collection of the primary and duplicate sample from the same borehole at the same time.

Upon opening the canister valve, the initial vacuum pressure was read from the built-in gauge on the flow controller and recorded. After the sampling period, the canister vacuum was recorded and the valve was then closed. The tubing was removed and the subslab sample point was then filled to grade with hydraulic cement.

2.7.4 Sample Analysis

The air samples were delivered under COC to the Test America, Inc. laboratory located in Burlington, Vermont. Test America is a NYSDOH ELAP certified laboratory for the analysis of VOCs by USEPA Method TO-15. All soil vapor samples were analyzed for the TCL VOCs to a minimum detection limit of 1.0 microgram per cubic meter ($\mu g/m^3$) with the exception of alcohols and ketones. TCE, carbon tetrachloride, and vinyl chloride in all indoor and outdoor air samples were analyzed with a minimum target detection limit of 0.25 $\mu g/m^3$; actual detection limits varied depending upon the presence of elevated concentrations of other analytes in the samples.

2.8 Sump Sample Collection and Analysis

At the request of the NYSDEC, water samples were collected from the drainage sumps in the basements of the Former Drape Master Site and Bldg 2 on February 6, 2015. The samples were submitted to Veritech for analysis of TCL VOCs.

It is noted that historically, the basement of the Former Drape Master building had flooding problems. As discussed in Section 2.2 above, during the temporary well point installations URS observed that the basement floor had been recently raised with a layer of cinder block topped with a new concrete slab and that groundwater was present immediately below the upper concrete slab. Upon further inspection of the basement, URS observed a space, approximately 2-inches wide, between the concrete slab and the basement foundation walls at various locations and that groundwater was present in that space. It appeared that the sump was actively draining the groundwater present beneath the upper concrete slab.

2.9 Investigation-Derived Waste Disposal

Island Pump and Tank, Inc. was contracted by URS for the pick-up and disposal of all IDW at a permitted disposal facility. A copy of the waste manifests are provided in Appendix G.

2.10 Location Survey

With the exception of wells MW-13, MW-14, and MW-15 and soil vapor point SV-13, the well and soil vapor point locations and elevations were surveyed following installation by YEC, Inc. (YEC); MW-13, MW-14, and MW-15 and soil vapor point SV-13 were not surveyed. Horizontal datum was referenced to the North American Datum 1983, New York State Plane Coordinate System, Long Island Zone. Vertical datum was referenced to the North American Vertical Datum 1988. The elevations and horizontal locations were established within ± 0.01 ft relative to the datum used. The survey data are provided in Appendix H. Also included in Appendix H is survey information performed by C.T. Male Associates, P.C. for the Shaw investigation.

2.11 Hydraulic Conductivity Testing

On May 2, 2014, URS attempted to perform hydraulic conductivity testing on the six newly installed wells. Upon inserting the slug in the wells, there was little, if any, displacement of the water level in the wells, indicating a high hydraulic conductivity. Because of the minimal water level displacement, the slug test evaluation method could not be performed.

3.0 SUBSURFACE CONDITIONS

3.1 Environmental Setting

The topography of the Site is relatively flat along Astoria Blvd and rises substantially to the northeast. The ground surface elevation on the corner of Astoria Blvd and 89th Street, at well MW-11 in front of the Site building, is approximately 23.4 ft above mean sea level (amsl). The ground surface rises to the northeast where the elevation at well MW-4 is approximately 37.3 ft amsl.

The Site area is mixed residential/commercial. LaGuardia Airport is located approximately 2,000 ft to the north. The nearest water body, Bowery Bay, is adjacent to the airport at a distance of approximately 4,000 ft from the Site.

3.2 Regional Geology

The Site is located within the Coastal Plain physiographic province of New York State. The Site area is underlain by Pleistocene age glacial outwash deposits. Underlying formations consist of the Upper Glacial Till which is underlain by the Raritan clay. Bedrock is estimated to occur at estimated depths greater than 100 ft.

3.3 Site Geology

Figure 3-1 presents north-south geologic cross section A-A' through the Site and Figure 3-2 presents a west-east geologic cross section B-B' through the Site. Figure 3-3 identifies the locations of the lines of cross sections. Geologic conditions in the Site area are generally characterized by fine to coarse brown sand with varying amounts of silt and gravel. The deepest boring, MW-7, was advanced to a depth of 41 ft bgs and did not encounter bedrock.

Drilling observations indicated that as much as 13 ft of fill overlies the natural deposits. The fill appeared to be reworked sand and gravel with varying amounts of anthropogenic material including concrete and brick.

3.4 Investigation Area Hydrogeology

Groundwater occurs under unconfined conditions. The measured depth to groundwater ranges from approximately 6 ft bgs at well MW-15 located on the east side of the Site building, to

approximately 22 ft bgs at well MW-4, located on the north side of the Site building. As shown in the groundwater elevation contour maps for water level measurements recorded during the April/May and July 2014 groundwater sampling events (Figures 3-4 and 3-5, respectively), overall groundwater flow is to the west-southwest. Based on this data, the highest hydraulic gradient was approximately 0.01 ft/ft.

The minimal displacement of water during the hydraulic conductivity testing, along with rapid recovery during well development and purging prior to sampling, indicates a moderately high hydraulic conductivity of the sand and gravel formation. Based on the presence of sand and gravel, the estimated hydraulic conductivity would be on the order of 10^{-3} centimeters per second (cm/sec) or greater.

4.0 ANALYTICAL RESULTS

The following subsections discuss the results of the soil, groundwater, soil vapor, indoor air, and subslab sample analyses.

4.1 Standards, Criteria and Guidance Values

For each medium, detected concentrations of individual contaminants were compared to applicable standards, criteria and guidance values (SCGs). The SCGs were determined for the individual media are identified below.

4.1.1 Soil

Two sources of soil SCGs are considered appropriate for this site: the Part 375 Soil Cleanup Objectives (SCOs) and the CP-51 soil cleanup criteria. Hereafter, mention of Part 375 includes incorporation of CP-51 criteria values.

Part 375 Unrestricted Use Criteria are considered to assist in the development of a remedial alternative capable of achieving unrestricted future use as required by DER-10 Section 4.4 (b) 3 ii. In addition, soil criteria for the Protection of Groundwater are considered as SCGs for contaminants which exceed groundwater SCGs.

4.1.2 Groundwater and Sump Water

The SCGs for groundwater are the Class GA standards and guidance values presented in TOGS 1.1.1. Because the sump samples are essentially groundwater samples, the results are also compared to the TOGS 1.1.1 criteria.

4.1.3 Soil Vapor

There are no criteria for soil vapor analytical data.

4.2 Analytical Results

The analytical results were validated by URS following USEPA data-validation procedures. The validated data are presented in the Data Usability Summary Reports (DUSRs) presented in Appendix I.

4.3 Soil Analytical Results

During the RI, 11 soil samples were collected from eight well borings. Most of the samples were only analyzed for TCL VOCs. In accordance with the work plan, select samples (~30%: BB-1, MW-9, and MW-11) were also analyzed for TCL SVOCs, TCL pesticides, TCL herbicides, TCL PCBs, TAL metals, hexavalent chromium, and cyanide. A summary of the detected analytical results in soil samples as compared to Unrestricted Use and Protection of Groundwater criteria is presented in Table 4-1. The results are shown in Figure 4-1.

Review of the soil analytical results indicates only two organic compounds, both SVOCs, were detected at concentrations exceeding the criteria. Benzo(a)fluoranthene and indeno(1,2,3-cd)pyrene were detected in the soil sample from MW-9 at concentrations of 1.2 milligrams per kilogram (mg/kg) and 0.55 mg/kg, respectively, which are just slightly above their respective criterion of 1 mg/kg for benzo(a)fluoranthene and 0.5 mg/kg for indeno(1,2,3-cd)pyrene.

For the 30% samples (i.e., BB-1, MW-9, and MW-11), iron was the only inorganic compound detected at concentrations above Unrestricted Use criteria; there is no Protection of Groundwater criterion for iron. Iron was detected at concentrations above the Unrestricted Use criterion of 2,000 mg/kg in BB-1 (8,600 mg/kg), MW-9 (21,000 mg/kg), and MW-11 (9,400 mg/kg).

4.4 Groundwater and Sump Analytical Results

Groundwater samples were analyzed for TCL VOCs. Per the scope of work, up to three groundwater samples were analyzed for the additional parameters TCL SVOCs, TCL pesticides, TCL PCBs, and TAL metals. Select samples were analyzed for the MNA parameters total and dissolved arsenic, iron and manganese, alkalinity, chloride, nitrate, sulfate, TOC, dissolved gasses, and the field parameters conductivity, ORP, DO, pH and temperature. The sump water samples were only analyzed for TCL VOCs.

A summary of the detected parameters in the groundwater samples collected in April/May 2014, July 2014, and June 2015 and the sump samples collected in February 2015 are presented in Table 4-2. Results exceeding TOGS No. 1.1.1 Class GA groundwater criteria are circled. Figure 4-2 presents the groundwater and sump water VOC analytical results.

4.4.1 April 2014 Temporary Well Analytical Results

Temporary monitoring wells BB-1 and BB-2 were installed in the laundromat basement in April 2014. In the sample from BB-1, the analytical results show the presence of cis-1,2-DCE and PCE at concentrations above the groundwater criterion of 5 µg/L for each compound. In the sample from BB-2, cis-1,2-DCE, TCE and PCE were detected at concentrations above the groundwater criterion of 5 µg/L for each compound. PCE was the CVOC detected at the highest concentrations. PCE was detected at 670 µg/L in BB-1 and 470 µg/L in BB-2.

4.4.2 April/May 2014 Groundwater Analytical Results

A review of the April/May 2014 analytical results for samples from the permanent monitoring wells indicated exceedences of cis-1,2-DCE, PCE, and/or TCE:

- No exceedences were observed in the MW-4 and MW-5 samples.
- cis-1,2-DCE exceedences ranged from 6 to 35 µg/L, exceeding the 5 µg/L criterion in six of the ten sample locations;
- TCE exceedences ranged from 5.3 to 17 µg/L, exceeding the 5 µg/L criterion in six of the ten sample locations; and
- PCE exceedences ranged from 8.7 to 660 µg/L, exceeding the 5 µg/L criterion in nine of the ten sample locations.

Groundwater samples exceeding inorganic criteria were:

- Iron in MW-5, MW-6, MW-8, MW-9, MW-11 and MW-12;
- Magnesium in MW-11;
- Chloride in MW-11; and
- Nitrate/nitrogen in MW-6, MW-11 and MW-12.

Figure 4-3 presents the estimated extent of PCE contamination in groundwater based on the April/May 2014 sampling data. This figure includes the data for basement borings BB-1 and BB-2 and the sump sample from Building 89-01.

4.4.3 July 2014 Groundwater Analytical Results

A summary of the detected parameters in the groundwater samples collected in July 2014 are also presented in Table 4-2 and Figure 4-2. The analytical results were somewhat similar to

the April 2014 data with cis-1,2-DCE, PCE and TCE being the primary organic contaminants detected at a concentration above the Class GA groundwater criteria. Review of the analytical results indicates:

- No exceedences were observed in MW-4 or MW-5;
- MTBE in MW-11 was detected at 25 µg/L, exceeding the 10 µg/L criterion;
- cis-1,2-DCE exceedences ranged from 9.1 to 35 µg/L, exceeding the 5 µg/L criterion in five of the ten sample locations;
- TCE exceedences ranged from 6.2 to 16 µg/L, exceeding the 5 µg/L criterion in four of the ten sample locations; and
- PCE exceedences ranged from 7.7 to 700 µg/L, exceeding the 5 µg/L criterion in eight of the ten sample locations.

Groundwater samples exceeding inorganic criteria were:

- Iron in MW-5, MW-6, MW-8, MW-11 and MW-12;
- Magnesium in MW-6, MW-8,MW-11, and MW-12;
- Manganese in MW-6 and MW-12;
- Chloride in MW-11; and
- Nitrate/nitrogen in MW-5 and MW-11.

4.4.4 June 2015 Groundwater Analytical Results

A summary of the detected parameters in the groundwater samples collected in June 2015 are also presented in Table 4-2 and Figure 4-2. The analytical results for wells MW-7, MW-8, and MW-12 were somewhat similar to the July 2014 data with cis-1,2-DCE, PCE and TCE being the primary organic contaminants detected at a concentration above the Class GA groundwater criteria. Review of the analytical results indicates:

- No exceedences were observed in MW-15;
- cis-1,2-DCE was only detected at concentrations exceeding the 5 µg/L criterion in the MW-12 primary sample at 12 µg/L and duplicate at 11 µg/L (note that cis-1,2-DCE was previously detected above the criterion in MW-7 and MW-8);
- TCE was only detected at concentrations exceeding the 5 µg/L criterion in the MW-12 primary sample at 7.1 µg/L and duplicate at 7.0 µg/L (note that TCE was previously detected above the criterion in MW-8); and

- PCE exceedences were detected in wells MW-7, MW-8, MW-12, and MW13 with concentrations ranging from 15 µg/l (MW-13) to 430 µg/L (MW-12), exceeding the 5 µg/L criterion.

Figure 4-4 presents the estimated extent of PCE contamination in groundwater based on the 2014 and 2015 sampling data.

4.4.5 Sump Water Analytical Results

Two sump samples were collected in February 2015. Review of the analytical results, presented in Table 4-2, indicates that PCE was detected in the sample from the Former Drape Master Site basement sump at the at a concentration of 920 µg/L. No parameters were detected in the sample from the sump at Bldg 2. However, due to matrix interference due to the presence of an apparent soapy substance in the Bldg 2 sump water, the sample was analyzed by the laboratory at a dilution which resulted in elevated quantitation limits (e.g., 500 µg/L for PCE).

4.4.6 Groundwater MNA Analytical Results

The groundwater monitored natural attenuation (MNA) parameter results are presented in Table 4-3. In general, the results indicate that groundwater in the Site area is aerobic with a neutral pH and positive oxidation-reduction potential. Such conditions are generally not conducive to microbial reductive dechlorination of CVOCs. An evaluation of the MNA results will be discussed more detail in the Feasibility Report.

4.5 Soil Vapor Analytical Results

Twelve soil vapor samples and one duplicate sample (from SV-7) were collected during the RI. One ambient air sample was collected on each of the four days of sampling. A summary of detected VOCs in the soil vapor samples detected during the May/June 2014 and June 2015 sampling events is presented in Table 4-4 and Figure 4-5. Of the compounds listed on Table 4-4, cis-1,2-DCE, PCE, and TCE are site-specific CVOCs of concern, so the evaluation of the soil vapor results focuses on these compounds. However, it is noted that in the sample from SV-9, butane was detected at an elevated level of 18,000 µg/m^3 and 2,2,4-trimethylpentane was detected at an elevated level of 3,000,000 µg/m^3. The elevated concentrations of these two compounds, associated with gasoline releases, resulted in elevated detection levels for all other VOCs and

essentially masked the potential detections of other VOCs that may be present in the SV-9 sample.

The soil vapor results show the following:

- cis-1,2-DCE was detected in seven of the 12 sample locations at concentrations ranging from 0.95 to 260 µg/m^3.
- PCE was detected in 11 of the 12 soil vapor sample locations at concentrations ranging from 3.9 to 19,000 µg/m^3. The highest PCE concentrations were in the SV-11 and SV-2 samples located on Astoria Blvd near 89th Street just outside the Site building.
- TCE was detected in ten of the 12 soil vapor sample locations. TCE concentrations ranged from 0.22 to 1,500 µg/m^3. The highest concentration of 1,500 µg/m^3 was detected in SV-11.
- Vinyl chloride was detected in one of the 12 sample locations. Vinyl chloride was detected at a concentration of 0.13 µg/m^3 in SV-10.

Figure 4-6 presents the estimated extent of PCE contamination in soil vapors based on the May/June 2014 and June 2015 sampling data.

4.6 Indoor Air, Subslab Soil Vapor, and Outdoor Air Analytical Results

Six indoor air samples and one duplicate, one subslab and one duplicate, and one outdoor air sample were collected as part of the soil vapor intrusion investigation. A summary of detected VOCs in the samples is presented in Table 4-5 and Figure 4-7. Of the compounds listed on Table 4-4, PCE and TCE are site-specific CVOCs of concern, so the evaluation of the results focuses on these compounds. The results show the following:

- PCE was detected in the indoor air samples collected from the basement of the laundromat and Bldg 3. In the samples from the laundromat, PCE concentrations ranged from 230 to 250 µg/m^3. The sample from the Bldg 3 basement was 11 µg/m^3. PCE was not detected in the samples from Bldg 1 or the two samples from the basement of Bldg 2.
- TCE concentrations were low, ranging from non-detect in the two samples from Bldg 2, to 1.7 µg/m^3 in one of the samples (and duplicate) from the laundromat basement.
- PCE was detected in the subslab of Bldg 1 at a concentration of 250 µg/m^3.

4.7 Estimated Extent of Groundwater and Soil Vapor Impacts

Figures 4-3 and 4-4 present the estimated extent of PCE-impacted groundwater based on the April/May 2014, and July 2014 and June 2015 data, respectively. The extent of the PCE appears to be delineated to the north (MW-13), east (MW-14), south (MW-9), and west (MW-15). Both figures show the greatest impacts are located immediately south, southeast and west of the laundromat building. Figure 4-6 presents the estimated extent of PCE impacts in soil vapors. The estimated extent of PCE impacts in the soil vapor closely resembles the impacts to the groundwater.

5.0 CONTAMINANT FATE AND TRANSPORT

This section describes fate and transport processes that may influence the behavior of the contaminants detected at the Site. The discussion emphasizes the processes that are essential in evaluating potential exposure of human and environmental receptors to the Site contaminants detected at concentrations above the SCGs. The following items are presented in this section:

1. General description of fate and transport processes occurring in soil, soil vapor/air, and groundwater systems.
2. Identification and description of properties of contaminants detected above the SCGs in the various media at the Site.
3. Media-specific and contaminant-specific evaluation of potential fate and transport mechanisms occurring at the Site.

5.1 General Description of Fate and Transport Mechanisms

This section provides general descriptions of the fate and transport processes that can occur in the environment in which samples were collected as part of this RI and previous site investigations by others. In addition, the Site characteristics that can affect these processes are discussed. Based on the historical use of the Site as a dry cleaner, contaminants of potential concern (CPCs) consist of chlorinated VOCs, specifically PCE and TCE and their breakdown products.

5.1.1 Transport Processes

Contaminant transport processes on the ground surface can occur through volatilization, wind erosion, and as movement of dissolved contaminants in surface water runoff; however, as soils at the Site are not impacted by CPCs, this transport process is not applicable.

Contaminant transport in the subsurface can occur as movement of dissolved contaminants in groundwater and/or as migration of volatilized contaminants in soil vapor. The primary transport mechanisms are mass partitioning, advection, and dispersion.

Mass partitioning is a process in which contaminants move between different environmental media in response to concentration gradients. For example, contaminants

dissolved in groundwater may sorb (i.e., attach) onto soil particles or volatilize into the soil vapor. The process may involve mass transfer in any direction between any of the environmental media. The net result of mass partitioning is the distribution of the contaminant between all phases that remain in physical contact with each other. Typically, mass partitioning acts to inhibit the migration of contaminants in groundwater or soil vapor by immobilizing a part of the mass in the soil matrix (retardation). However, the process may be reversed, resulting in the slow release of the sorbed contamination into the groundwater or soil vapor.

In the unsaturated zone (i.e., between ground surface and the water table), the total mass of a contaminant is partitioned between the dissolved phase (soil moisture), the gas phase (soil vapor), and the solid phase (soil matrix). In the saturated zone, the soil vapor phase is absent and the partitioning occurs only between the soil matrix and groundwater. Under equilibrium conditions, each phase contains a fraction of the total contaminant mass present in the system (i.e., total of all phases equals 100 % of the contaminant mass present). The relative mass fractions are determined by the properties of each contaminant and by the nature of the soil matrix. Equilibrium conditions may be disturbed by phenomena such as migration of contaminated groundwater or soil vapor into an area, or removal of contaminant mass from one of the media through degradation processes or gravity flow. Under these circumstances, concentration gradients are created resulting in the occurrence of mass transfer between the media until equilibrium is re-established.

Transport of contaminants dissolved in the soil moisture in the unsaturated zone is generally limited as a result of very low flow rates in the absence of full saturation. The only significant mechanisms may be driven by water level fluctuations and gravity-driven downward flow during wet-weather periods, or possibly sewer lines and manholes/catch basins which may be leaking and/or act as preferential pathways. Such downward vertical transport of contaminants acts as a source for the saturated zone below.

The contaminant mass, especially VOCs, contained within the soil vapor in the unsaturated zone and within groundwater in the saturated zone is more mobile. Soil vapor can migrate in both vertical and horizontal directions in response to pressure gradients extending beyond the laundromat building. Soil vapor migration can create a discharge of contaminants into subsurface utility lines, nearby buildings, and/or nearby open excavations.

The primary transport mechanisms for contaminants dissolved in groundwater are advection and dispersion. Advection is the movement of the dissolved contaminants carried by the flow of groundwater. Dispersion refers to dissolved contaminants spreading due to the presence of non-uniformities of the groundwater flow field. Dispersion results in a general widening of a plume, as well in smearing of the plume boundaries. Processes similar to those that occur for soil vapor can enable dissolved contaminants to reach a previously uncontaminated area and enter other environmental media. Given the relatively high apparent hydraulic conductivity and the relatively steep hydraulic gradient observed in the groundwater levels, advection, as opposed to dispersion, is the primary transport mechanism in groundwater at this Site.

5.1.2 Mass Destruction Processes

The most significant mass destruction process that takes place in the subsurface environment is microbial degradation. The most significant microbial degradation processes for organic contaminants that operate in the subsurface are: biological oxidation (aerobic and anaerobic), reductive dechlorination, and cometabolic degradation. During degradation, organic compounds are transformed into daughter forms, which may be recalcitrant or further degradable. Daughter compounds can be either more or less toxic than the parent compounds. Contaminants at this Site, PCE and TCE, degrade to 1,2-DCE and vinyl chloride. Ultimately, PCE and TCE metabolize into carbon dioxide, methane, water, and chloride.

5.2 Properties of Site Contaminants

This section discusses the properties of the contaminants identified at the Site that will impact their fate and transport. As described in Section 4.0, compounds detected at concentrations above SCGs include CVOCs.

In general, VOCs readily volatilize into the atmosphere or soil vapor. At the surface, these compounds may decay and/or volatilize upon exposure to sunlight and to the atmosphere. VOCs are moderately to highly soluble in water and their dissolved contaminants are transported by advection and dispersion in groundwater and surface water. The same processes of advection and dispersion are responsible for the migration of these compounds in the atmosphere or the soil.

VOCs detected at concentrations above SCGs are primarily PCE and TCE. These chlorinated compounds have a low to moderate organic carbon-to-water partitioning coefficients

and do not readily partition into the soil, making them relatively mobile in the environment. Chlorinated VOCs undergo reductive dechlorination under anaerobic conditions, but are recalcitrant under aerobic conditions.

DO is the most favored electron acceptor in biodegradation of hydrocarbons. Levels of less than 1 mg/L indicate that aerobic degradation has occurred, oxygen has been largely utilized, and a shift to anaerobic processes taking place. Reductive dechlorination takes place under anaerobic conditions, generally when the DO levels are less than 0.5 mg/L. Table 4-3 presents the DO levels at the Site. The data shows none of the wells, except MW-12, having DO values below 0.5 mg/L. This suggests that a significant portion of the Site may be largely aerobic and that DO conditions to promote reductive dechlorination are generally not favorable.

ORP was also measured at the Site. Reductive dechlorination becomes possible at ORP levels of less than approximately 50 millivolts (mV). The likelihood of reductive dechlorination significantly increases for ORP values less than 100 mV. The recorded ORP values for the Site lie between 101 and 460 mV indicating that the ORP conditions at the Site are generally not suitable for reductive dechlorination.

The pH of the groundwater has an effect on the presence and activity of microbial populations. Generally, microorganisms that are most efficient biodegraders prefer neutral pH values (6 to 8). The range of values allowing reductive dechlorination processes to occur is between 5 and 9. The recorded pH values for the Site are within this range indicating that conditions are conducive for microbial growth, albeit aerobic, considering the DO and ORP conditions at the Site.

6.0 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT AND FISH AND WILDLIFE RESOURCES IMPACT ANALYSIS

This section presents the qualitative Human Health Exposure Assessment (HHEA) and Fish and Wildlife Resources Impact Analysis (FWRIA) for the Site. The qualitative HHEA uses data and information collected during the RI to assess human health exposure in the immediate and surrounding areas. The qualitative HHEA provides an evaluation of potential adverse health effects under current and potential future Site conditions that may result from exposure to contaminants attributable to former activities at the Site. The FWRIA was performed to determine if the Site may pose as a source of potential ecological impacts.

6.1 Qualitative Human Health Exposure Assessment

This qualitative HHEA follows the general format and procedures set forth in the USEPA's Risk Assessment Guidance for Superfund (USEPA 1997a). As such, the HHEA includes three of the four required components: Hazard Identification, Exposure Assessment, and Toxicity Assessment. The fourth component, Risk Characterization, is not included because this assessment is qualitative. This qualitative HHEA uses data and information collected during the RI to assess human health exposure in the immediate and surrounding areas and provides an evaluation of potential adverse health effects, under current and potential future Site conditions, that may result from exposure to contaminants at the Site.

6.1.1 Identification of Chemicals of Potential Concern

Based upon the analytical data obtained and presented in Section 4, CPCs were selected based on the frequency of detection, range of concentrations, and potential for migration, as well as whether the detected analytes exceeded applicable SCGs. A “medium of potential concern” is identified as a physical medium (e.g., soil, groundwater) in which one or more contaminants were detected at concentrations exceeding their SCGs. CPCs for the Site consist of CVOCs in the groundwater, sump water, indoor air, and soil vapor. The CVOCs include cis-1,2-DCE, TCE, and PCE.

6.2 Exposure Pathways

An exposure pathway is the manner by which an individual may come in contact with a contaminant. The elements of a completed exposure pathway include: the contaminated environmental media (e.g., soil, soil vapor/air, and groundwater); the receptor (e.g., construction worker, public) exposed to the contamination; and the routes of exposure or how the contaminant enters the body (e.g., inhalation, ingestion, and/or dermal contact).

The Site is currently occupied by an active laundromat and rental apartments. Adjacent structures include residences, a VFW lodge, gas station, automobile repair shop, and a restaurant/catering business. Under current and/or future conditions, human contact with the Site can be expected to occur primarily by three types of receptors: onsite residents; nearby construction/utility workers who may be involved in construction/repairs to existing buildings or systems or future buildings or systems; commercial building occupants, both transient and permanent.

Tables 6-1 and 6-2 present the exposure pathways assessed for the Site under current and future land use scenarios, respectively. The following subsections discuss the rationale for identifying completed exposure pathways.

6.2.1 Soil and Ground Surface Materials

The majority of the surface in the Site area is covered by buildings, pavement, and/or concrete. Access to surface soils is present only at residential properties that have gardens and/or lawns. These surface soils were not sampled as part of the RI or during previous investigations.

The chlorinated solvent release(s) likely occurred in the basement of the Former Drape Master building or in the fenced storage area immediately adjacent to the western side of the building. Consequently, there were likely no impacts to the surface soils. Therefore, there is not a potential completed exposure pathway for surface soil and ground surface material

6.2.2 Outdoor Air

An ambient outdoor air sample was collected during soil vapor and indoor air sampling at the Site. No elevated contaminant levels were detected in the samples. Therefore, there is no exposure pathway.

6.2.3 Indoor Air

Indoor air samples were collected from four buildings. Elevated PCE concentrations were detected in the primary and duplicate samples from the laundromat basement. There is a potentially completed indoor air pathway under current and future conditions to onsite employees, patrons, and residents.

There is a potential completed exposure pathway for construction/utility workers who could come into contact with soil vapors during intrusive activities nearby and/or in basements of the laundromat and nearby buildings both under current and future conditions. There is also a potential completed exposure pathway in the future if site conditions or use of the basement change.

6.2.4 Groundwater

Under the current use scenario, groundwater is not known to be used as a potable water supply or for any other known industrial purposes in the vicinity of the Site. Therefore, it is not a completed exposure pathway under the current use scenario. It is not anticipated that in the future that on-site groundwater would be used for potable purposes. Construction/utility workers may be exposed to groundwater contaminants during future intrusive activities through dermal contact or inhalation both under current and future conditions. Also, contact with contaminated groundwater through sump flooding may create an exposure pathway.

6.2.5 Routes of Exposure

CVOCs present the greatest exposure through inhalation, but can also provide exposure through dermal contact and ingestion.

6.2.6 Summary

Tables 6-1 and 6-2 present a summary of the potential routes of exposure, the potential receptors, and the potential completed pathways. Under current and future use conditions, there are completed exposure pathways from soil vapor, indoor air, groundwater, and sump water.

6.3 Fish and Wildlife Resources Impact Analysis

Per DER-10, section 3.10.1(b), a FWRIA is not needed because:

- The remediation is directed toward a specific discharge or spill event that does not adversely impact fish and wildlife resources.
- The areas of concern at the Site consist of a release to the subsurface, with no significant impact on surrounding surface water.
- The Site is a point source of contamination to the groundwater (i.e., former dry cleaner) which will be prevented from discharging to surface water, and there is no widespread soil contamination or habitat of an endangered, threatened or special concern species present.
- There are no ecological resources present on or in the vicinity of the Site, (e.g. an urban site which is not proximate to a surface water body, wetland or other ecologically significant area).

7.0 CONCLUSIONS

7.1 Conclusions

Based upon the results of the RI, the following conclusions are provided.

7.1.1 Hydrogeology

The soils underlying the Site area generally consist of fine to coarse brown sand with varying amounts of gravel. The deepest boring, MW-7, was advanced to a depth of 41 ft bgs and did not encounter bedrock.

Drilling observations indicated that as much as 13 ft of fill overlies the natural deposits. The fill appeared to be reworked sand and gravel with varying amounts of anthropogenic material including concrete and brick.

Groundwater occurs under unconfined conditions. The depth to groundwater ranges from approximately 7 ft bgs at well MW-9, located on the south side of Astoria Blvd, to approximately 22 ft bgs at well MW-4, located on the north side of the Site building. Overall groundwater flow is to the west-southwest. Based on the presence of sand and gravel, the estimated hydraulic conductivity would be on the order of 10^{-3} cm/sec or greater.

7.1.2 Soil

Based upon the investigation, the soils investigated do not appear to have been impacted by Site operations; no chlorinated solvents were detected in the soil samples.

7.1.3 Groundwater and Sump Water

Groundwater quality in the Site area has been impacted by chlorinated solvents. The Class GA standards for cis-1,2-DCE, TCE, and/or PCE were exceeded in eight of the 12 monitoring wells sampled. Groundwater impacts extend to the north, west and south of the Former Drape Master Site.

The sump water collected from the Former Drape Master basement contains elevated levels of PCE.

7.1.4 Soil Vapor

The soil vapor results indicated the presence of elevated levels of cis-1,2-DCE, TCE, and PCE in samples collected from soil vapor points adjacent to and in the vicinity of the Site. The data show the highest soil vapor concentrations closest to the Former Drape Master Site.

7.1.5 Indoor Air and Subslab Soil Vapor

Indoor air samples indicated elevated levels of PCE in the basement of the Former Drape Master building. Elevated levels of PCE were also detected in the subslab sample collected from Bldg 1, but not in the indoor air samples. Based on the results, per the NYSDOH guidance decision matrix, Bldg 1 should be monitored and the laundromat basement should be mitigated.

7.2 Recommendations

The following recommendations are offered for consideration by the NYSDEC:

It appears that no more additional data is required at this time. Therefore, URS recommends performing the FS to identify and evaluate appropriate remedial alternatives for this site.

The PCE and TCE soil vapor concentrations at some locations are at levels which warrant further action. According to the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006, action is recommended when TCE sub-slab concentrations exceed 5 $\mu g/m^3$ and/or PCE concentrations exceed 100 $\mu g/m^3$ and the indoor air concentrations are greater than 0.25 $\mu g/m^3$ for TCE and 3 $\mu g/m^3$ for PCE. Recommended actions include monitoring and/or mitigation, depending on the indoor air TCE and/or PCE concentration.

8.0 REFERENCES

Broughton, J.G., et al. 1966. Geology of New York: A Short Account. New York State Museum and Science Service Educational Leaflet No. 20. Albany, NY

Hydro Tech Environmental Corporation (Hydro Tech) in 2006, EnviroTrac Environmental Services, 2009

New York State Department of Environmental Conservation (NYSDEC). January 24, 1994. Technical and Administrative Guidance Memorandum (TAGM) #4046, Determination of Soil Cleanup Objectives and Cleanup Levels. (Revised), including the STARS Memo #1 compounds as per the NYSDEC Memorandum dated December 20, 2000

NYSDEC, Division of Water. April 2000. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. Technical and Operational Guidance Series (TOGS) No. 1.1.1, Class GA

NYSDOH, *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006

Shaw Environmental & Infrastructure Engineering of New York, P.C., 2011.

United States Environmental Protection Agency. 2006. *Validating Volatile Organic Analysis of Ambient Air in Canister by Method TO-15*, HW-31, Revision 4. Region 2. October.

United States Geologic Survey (USGS). 1982. Atlas of Eleven Selected Aquifers in New York. Albany, New York.

TABLES

Table 2-1
Well Construction Information
Former Drape Master Remedial Investigation

Well ID	Total Depth (ft bgs)	Diameter (in)	Screen (ft bgs)		Northing	Easting	Elevation (ft)		
			Top	Bottom			Ground	Top of Riser	Casing
MW-1	25.41*	2	NP	NP	217625.33	1017533.19	23.56	23.34	23.56
MW-4	32.78*	2	NP	NP	217699.58	1017541.22	37.33	36.88	37.33
MW-5	25.41*	2	NP	NP	217698.99	1017497.97	NP	NP	31.92
MW-6	25.41*	2	10	25	217719.66	1017444.67	30.58	30.24	30.58
MW-7	41.38*	2	31	41	217828.31	1017448.48	34.58	34.38	34.58
MW-8	25.32*	2	15	25	217656.73	1017357.86	21.84	21.54	21.84
MW-9	34.86*	2	25	35	217547.17	1017291.51	21.67	21.41	21.67
MW-10	30.37*	2	20	30	217516.65	1017482.93	23.23	22.90	23.23
MW-11	25.38*	2	15	25	217634.93	1017491.80	23.43	23.09	23.43
MW-12	25.37*	2	15	25	217601.40	1017607.03	24.07	23.74	24.07
MW-13	40	2	10	40	NS	NS	NS	NS	NS
MW-14	25	2	10	25	NS	NS	NS	NS	NS
MW-15	25	2	10	23.5	NS	NS	NS	NS	NS
SV-1	7	NA	6.5	7	217620.17	1017556.85	23.74	NA	NA
SV-2	7.5	NA	7	7.5	217631.96	1017514.70	23.53	NA	NA
SV-3	7	NA	6.5	7	217660.30	1017448.96	24.88	NA	NA
SV-4	8	NA	7.5	8	217698.82	1017535.15	36.65	NA	NA
SV-5	7	NA	6.5	7	217699.53	1017503.09	32.94	NA	NA
SV-7	8	NA	7.5	8	217827.75	1017448.38	34.56	NA	34.56
SV-8	8	NA	7.5	8	217656.55	1017358.57	21.82	NA	21.82
SV-9	8	NA	6.5	7	217546.37	1017291.72	21.70	NA	21.70
SV-10	8	NA	7.5	8	217516.38	1017483.71	23.23	NA	23.23
SV-11	8	NA	7.5	8	217634.67	1017492.67	23.41	NA	23.41
SV-12	8	NA	7.5	8	217601.48	1017606.19	24.01	NA	24.01
MIP-1	16	NA	NA	NA	217700.00	217700.00	36.38	NA	NA
MIP-2	32	NA	NA	NA	217622.90	1017552.68	23.76	NA	NA
MIP-2A	NP	NA	NA	NA	217621.50	1017552.09	23.77	NA	NA
MIP-3	30	NA	NA	NA	217630.50	1017518.00	23.52	NA	NA
MIP-4	36	NA	NA	NA	217639.25	1017490.98	23.52	NA	NA
MIP-5/SV-3	39	NA	NA	NA	217660.30	1017448.96	24.88	NA	NA
MIP-6	41	NA	NA	NA	217679.55	1017447.27	27.1	NA	NA
MIP-7	14	NA	NA	NA	217700.60	1017499.04	32.02	NA	NA
MIP-8	26	NA	NA	NA	217715.21	1017444.27	30.33	NA	NA
MIP-9	6	NA	NA	NA	217700.69	1017546.93	37.76	NA	NA
GW-2	NP	NA	NA	NA	217637.70	1017493.74	23.46	NA	NA
GW-3	NP	NA	NA	NA	217653.15	1017446.99	24.02	NA	NA

Notes:

New wells MW-7 through MW-12 and soil vapor points SV-7 through SV-12 surveyed by YEC, Inc. on April 29, 2014. The remaining investigation locations were surveyed by C.T. Male Associates, Inc. for Shaw Environmental, Inc. on September 10, 2010.

Horizontal Datum: NAD 83 from GPS observations

Vertical Datum: NAVD 88 from GPS observations

ft bgs: feet below ground surface

in: inch

NA: not applicable

NP - not provided

NS - not surveyed

* - Monitoring well depths as measured during well development on April 15 - 18, 2014.

TABLE 2-2
GROUNDWATER ELEVATION MEASUREMENTS
FORMER DRAPE MASTER REMEDIAL INVESTIGATION

Well	Top of Casing Elevation (ft amsl)	Date	Depth to Water (ft)	Water Elevation (ft amsl)
MW-1	23.34	4/18/14	8.83	14.51
		4/29/14	8.78	14.56
		7/11/14	5.51	17.83
MW-4	36.88	4/18/14	22.17	14.71
		4/30/14	22.13	14.75
		7/11/14	NM	
MW-5	NA	4/17/14	17.22	
		5/2/14	17.06	
		7/10/14	17.00	
MW-6	30.24	4/16/14	15.78	14.46
		4/28/14	15.75	14.49
		7/10/14	15.56	14.68
MW-7	34.38	4/17/14	19.76	14.62
		4/30/14	19.72	14.66
		7/12/14	19.55	14.83
		6/5/15	19.61	14.77
MW-8	21.54	4/15/14	7.34	14.20
		4/29/14	7.35	14.19
		7/11/14	7.22	14.32
		6/4/15	7.35	14.19
MW-9	21.41	4/16/14	7.23	14.18
		4/28/14	7.28	14.13
		7/12/14	7.18	14.23
MW-10	22.9	4/16/14	8.62	14.28
		4/30/14	8.61	14.29
		7/12/14	8.46	14.44
MW-11	23.09	4/17/14	8.78	14.31
		4/29/14	8.76	14.33
		7/10/14	8.56	14.53
MW-12	23.74	4/15/14	8.82	14.92
		4/29/14	8.85	14.89
		7/10/14	8.58	15.16
		6/4/15	8.78	14.96
MW-13	NS	6/5/15	19.98	NS
MW-14	NS	6/5/15	10.15	NS
MW-15	NS	6/5/15	5.85	NS

Notes:

amsl - above mean sea level

ft - feet

NA - not available

NM - not measured

NS - not surveyed

TABLE 4-1
SOIL ANALYTICAL RESULTS (APRIL 2014)
FORMER DRAPE MASTER SITE

Location ID				BB-01	BB-02	MW-07	MW-08	MW-09
Sample ID				BB - 01 (13 - 15')	BB - 02 (18 - 20')	MW - 7 (17 - 19')	MW - 8 (7.5 - 9.5')	MW-9 (8-10')
Matrix				Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)				13.0-15.0	18.0-20.0	17.0-19.0	7.5-9.5	8.0-10.0
Date Sampled				04/07/14	04/07/14	04/11/14	04/11/14	04/10/14
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**					
Volatile Organic Compounds								
Benzene	MG/KG	0.06	0.06					0.0039
Carbon disulfide	MG/KG	2.7 CP-51	2.7 CP-51					
Methyl tert-butyl ether	MG/KG	0.93	0.93					0.0011
Methylcyclohexane	MG/KG	-	-					0.012 J
Methylene chloride	MG/KG	0.05	0.05				0.0028	
Tetrachloroethene	MG/KG	1.3	1.3		0.053			0.0028
Semivolatile Organic Compounds								
1,1-Biphenyl	MG/KG	60 CP-51	-		NA	NA	NA	0.065
2-Methylnaphthalene	MG/KG	0.41 CP-51	36.4 CP-51		NA	NA	NA	0.042
Acenaphthene	MG/KG	20	98		NA	NA	NA	0.31
Anthracene	MG/KG	100	1000		NA	NA	NA	0.30
Benzo(a)anthracene	MG/KG	1	1		NA	NA	NA	0.79
Benzo(a)pyrene	MG/KG	1	22		NA	NA	NA	0.78
Benzo(b)fluoranthene	MG/KG	1	1.7		NA	NA	NA	1.2
Benzo(g,h,i)perylene	MG/KG	100	1000		NA	NA	NA	0.63
Benzo(k)fluoranthene	MG/KG	0.8	1.7		NA	NA	NA	0.41
bis(2-Ethylhexyl)phthalate	MG/KG	50 CP-51	435 CP-51	0.14	NA	NA	NA	
Carbazole	MG/KG	-	-		NA	NA	NA	0.14
Chrysene	MG/KG	1	1		NA	NA	NA	0.93
Dibenz(a,h)anthracene	MG/KG	0.33	1000		NA	NA	NA	0.22
Dibenzofuran	MG/KG	7	210		NA	NA	NA	0.18 J
Fluoranthene	MG/KG	100	1000		NA	NA	NA	1.4
Fluorene	MG/KG	30	386		NA	NA	NA	0.27

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria (1)

Concentration Exceeds Criteria (2)

- - No criteria.

Empty cell - not detected. J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-1
SOIL ANALYTICAL RESULTS (APRIL 2014)
FORMER DRAPE MASTER SITE

Location ID				BB-01	BB-02	MW-07	MW-08	MW-09
Sample ID				BB - 01 (13 - 15')	BB - 02 (18 - 20')	MW - 7 (17 - 19')	MW - 8 (7.5 - 9.5')	MW-9 (8-10')
Matrix				Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)				13.0-15.0	18.0-20.0	17.0-19.0	7.5-9.5	8.0-10.0
Date Sampled				04/07/14	04/07/14	04/11/14	04/11/14	04/10/14
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**					
Semivolatile Organic Compounds								
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	8.2		NA	NA	NA	0.55
Naphthalene	MG/KG	12	12		NA	NA	NA	0.11
Phenanthrene	MG/KG	100	1000		NA	NA	NA	1.3
Pyrene	MG/KG	100	1000		NA	NA	NA	1.3
Metals								
Aluminum	MG/KG	10000 CP-51	-	3,600	NA	NA	NA	6,700
Barium	MG/KG	350	820	28	NA	NA	NA	46
Calcium	MG/KG	10000 CP-51	-	1,200	NA	NA	NA	3,100
Chromium	MG/KG	30	NS	10	NA	NA	NA	17
Cobalt	MG/KG	20 CP-51	-	4.4	NA	NA	NA	5.9
Copper	MG/KG	50	1720	11	NA	NA	NA	31
Iron	MG/KG	2000 CP-51	-	8,600	NA	NA	NA	21,000
Lead	MG/KG	63	450		NA	NA	NA	32
Magnesium	MG/KG	-	-	1,900	NA	NA	NA	2,100
Manganese	MG/KG	1600	2000	230	NA	NA	NA	210
Nickel	MG/KG	30	130	7.6	NA	NA	NA	14
Potassium	MG/KG	-	-	690	NA	NA	NA	790
Sodium	MG/KG	-	-		NA	NA	NA	290
Vanadium	MG/KG	39 CP-51	-	18	NA	NA	NA	24
Zinc	MG/KG	109	2480	19	NA	NA	NA	46
Miscellaneous Parameters								
pH	S.U.	-	-	8.2	NA	NA	NA	7.7
Oxidation Reduction Potential	mV	-	-	190	NA	NA	NA	200

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria (1)

Concentration Exceeds Criteria (2)

- - No criteria.

Empty cell - not detected. J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-1
SOIL ANALYTICAL RESULTS (APRIL 2014)
FORMER DRAPE MASTER SITE

Location ID				MW-09	MW-10	MW-10	MW-11	MW-11
Sample ID				MW-9 (11.5-13.5')	MW - 10 (11 - 13')	MW - 10 (15 - 17')	MW-11 (7-9')	MW-11 (13-15')
Matrix				Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)				11.5-13.5	11.0-13.0	15.0-17.0	7.0-9.0	13.0-15.0
Date Sampled				04/10/14	04/10/14	04/10/14	04/09/14	04/09/14
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**					
Volatile Organic Compounds								
Benzene	MG/KG	0.06	0.06					
Carbon disulfide	MG/KG	2.7 CP-51	2.7 CP-51			0.0034		
Methyl tert-butyl ether	MG/KG	0.93	0.93					
Methylcyclohexane	MG/KG	-	-					
Methylene chloride	MG/KG	0.05	0.05			0.0061		
Tetrachloroethene	MG/KG	1.3	1.3	0.0031			0.0035	0.024
Semivolatile Organic Compounds								
1,1-Biphenyl	MG/KG	60 CP-51	-	NA	NA	NA	NA	
2-Methylnaphthalene	MG/KG	0.41 CP-51	36.4 CP-51	NA	NA	NA	NA	
Acenaphthene	MG/KG	20	98	NA	NA	NA	NA	
Anthracene	MG/KG	100	1000	NA	NA	NA	NA	
Benzo(a)anthracene	MG/KG	1	1	NA	NA	NA	NA	
Benzo(a)pyrene	MG/KG	1	22	NA	NA	NA	NA	
Benzo(b)fluoranthene	MG/KG	1	1.7	NA	NA	NA	NA	
Benzo(g,h,i)perylene	MG/KG	100	1000	NA	NA	NA	NA	
Benzo(k)fluoranthene	MG/KG	0.8	1.7	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	MG/KG	50 CP-51	435 CP-51	NA	NA	NA	NA	
Carbazole	MG/KG	-	-	NA	NA	NA	NA	
Chrysene	MG/KG	1	1	NA	NA	NA	NA	
Dibenz(a,h)anthracene	MG/KG	0.33	1000	NA	NA	NA	NA	
Dibenzofuran	MG/KG	7	210	NA	NA	NA	NA	
Fluoranthene	MG/KG	100	1000	NA	NA	NA	NA	
Fluorene	MG/KG	30	386	NA	NA	NA	NA	

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria (1)

Concentration Exceeds Criteria (2)

- - No criteria.

Empty cell - not detected. J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-1
SOIL ANALYTICAL RESULTS (APRIL 2014)
FORMER DRAPE MASTER SITE

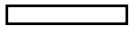
Location ID				MW-09	MW-10	MW-10	MW-11	MW-11
Sample ID				MW-9 (11.5-13.5')	MW - 10 (11 - 13')	MW - 10 (15 - 17')	MW-11 (7-9')	MW-11 (13-15')
Matrix				Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)				11.5-13.5	11.0-13.0	15.0-17.0	7.0-9.0	13.0-15.0
Date Sampled				04/10/14	04/10/14	04/10/14	04/09/14	04/09/14
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**					
Semivolatile Organic Compounds								
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	8.2	NA	NA	NA	NA	
Naphthalene	MG/KG	12	12	NA	NA	NA	NA	
Phenanthrene	MG/KG	100	1000	NA	NA	NA	NA	
Pyrene	MG/KG	100	1000	NA	NA	NA	NA	
Metals								
Aluminum	MG/KG	10000 CP-51	-	NA	NA	NA	NA	4,600
Barium	MG/KG	350	820	NA	NA	NA	NA	35
Calcium	MG/KG	10000 CP-51	-	NA	NA	NA	NA	
Chromium	MG/KG	30	NS	NA	NA	NA	NA	13
Cobalt	MG/KG	20 CP-51	-	NA	NA	NA	NA	5.9
Copper	MG/KG	50	1720	NA	NA	NA	NA	9.2
Iron	MG/KG	2000 CP-51	-	NA	NA	NA	NA	9,400
Lead	MG/KG	63	450	NA	NA	NA	NA	
Magnesium	MG/KG	-	-	NA	NA	NA	NA	1,400
Manganese	MG/KG	1600	2000	NA	NA	NA	NA	380
Nickel	MG/KG	30	130	NA	NA	NA	NA	8.9
Potassium	MG/KG	-	-	NA	NA	NA	NA	650
Sodium	MG/KG	-	-	NA	NA	NA	NA	
Vanadium	MG/KG	39 CP-51	-	NA	NA	NA	NA	15
Zinc	MG/KG	109	2480	NA	NA	NA	NA	18
Miscellaneous Parameters								
pH	S.U.	-	-	NA	NA	NA	NA	8.1
Oxidation Reduction Potential	mV	-	-	NA	NA	NA	NA	220

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria (1)



Concentration Exceeds Criteria (2)

- - No criteria.

Empty cell - not detected. J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-1
SOIL ANALYTICAL RESULTS (APRIL 2014)
FORMER DRAPE MASTER SITE

Location ID				MW-12
Sample ID				MW - 12 (7 - 9')
Matrix				Soil
Depth Interval (ft)				7.0-9.0
Date Sampled				04/09/14
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**	
Volatile Organic Compounds				
Benzene	MG/KG	0.06	0.06	
Carbon disulfide	MG/KG	2.7 CP-51	2.7 CP-51	
Methyl tert-butyl ether	MG/KG	0.93	0.93	
Methylcyclohexane	MG/KG	-	-	
Methylene chloride	MG/KG	0.05	0.05	0.0026
Tetrachloroethene	MG/KG	1.3	1.3	
Semivolatile Organic Compounds				
1,1-Biphenyl	MG/KG	60 CP-51	-	NA
2-Methylnaphthalene	MG/KG	0.41 CP-51	36.4 CP-51	NA
Acenaphthene	MG/KG	20	98	NA
Anthracene	MG/KG	100	1000	NA
Benzo(a)anthracene	MG/KG	1	1	NA
Benzo(a)pyrene	MG/KG	1	22	NA
Benzo(b)fluoranthene	MG/KG	1	1.7	NA
Benzo(g,h,i)perylene	MG/KG	100	1000	NA
Benzo(k)fluoranthene	MG/KG	0.8	1.7	NA
bis(2-Ethylhexyl)phthalate	MG/KG	50 CP-51	435 CP-51	NA
Carbazole	MG/KG	-	-	NA
Chrysene	MG/KG	1	1	NA
Dibenz(a,h)anthracene	MG/KG	0.33	1000	NA
Dibenzofuran	MG/KG	7	210	NA
Fluoranthene	MG/KG	100	1000	NA
Fluorene	MG/KG	30	386	NA

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria (1)

Concentration Exceeds Criteria (2)

- - No criteria.

Empty cell - not detected. J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-1
SOIL ANALYTICAL RESULTS (APRIL 2014)
FORMER DRAPE MASTER SITE

Location ID				MW-12
Sample ID				MW - 12 (7 - 9')
Matrix				Soil
Depth Interval (ft)				7.0-9.0
Date Sampled				04/09/14
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**	
Semivolatile Organic Compounds				
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	8.2	NA
Naphthalene	MG/KG	12	12	NA
Phenanthrene	MG/KG	100	1000	NA
Pyrene	MG/KG	100	1000	NA
Metals				
Aluminum	MG/KG	10000 CP-51	-	NA
Barium	MG/KG	350	820	NA
Calcium	MG/KG	10000 CP-51	-	NA
Chromium	MG/KG	30	NS	NA
Cobalt	MG/KG	20 CP-51	-	NA
Copper	MG/KG	50	1720	NA
Iron	MG/KG	2000 CP-51	-	NA
Lead	MG/KG	63	450	NA
Magnesium	MG/KG	-	-	NA
Manganese	MG/KG	1600	2000	NA
Nickel	MG/KG	30	130	NA
Potassium	MG/KG	-	-	NA
Sodium	MG/KG	-	-	NA
Vanadium	MG/KG	39 CP-51	-	NA
Zinc	MG/KG	109	2480	NA
Miscellaneous Parameters				
pH	S.U.	-	-	NA
Oxidation Reduction Potential	mV	-	-	NA

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria (1)

Concentration Exceeds Criteria (2)

- - No criteria.

Empty cell - not detected. J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			89-01	89-01	BB-01	BB-02	BLDG-02
Sample ID			20150206-FD-1	89-01 Sump	BB - 01	BB - 02	Bldg-2 Sump
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/06/15	02/06/15	04/08/14	04/08/14	02/06/15
Parameter	**Units**	**Criteria***	Field Duplicate (1-1)				
Volatile Organic Compounds							
1,2-Dichloroethene (cis)	UG/L	5		28	17	23	
Benzene	UG/L	1					
Chloroform	UG/L	7				1.3	
Methyl tert-butyl ether	UG/L	10				1.1	
Tetrachloroethene	UG/L	5	920 J	950 J	670	470	
Trichloroethene	UG/L	5		11		15	
Semivolatile Organic Compounds							
Caprolactam	UG/L	-	NA	NA		NA	NA
Metals							
Aluminum	UG/L	-	NA	NA	200,000	NA	NA
Arsenic	UG/L	25	NA	NA	49	NA	NA
Barium	UG/L	1000	NA	NA	2,300	NA	NA
Beryllium	UG/L	3	NA	NA	7.8	NA	NA
Cadmium	UG/L	5	NA	NA	4.1	NA	NA
Calcium	UG/L	-	NA	NA	92,000	NA	NA
Chromium	UG/L	50	NA	NA	460	NA	NA
Cobalt	UG/L	-	NA	NA	180	NA	NA
Copper	UG/L	200	NA	NA	320	NA	NA
Iron	UG/L	300	NA	NA	360,000	NA	NA
Lead	UG/L	25	NA	NA	140	NA	NA
Magnesium	UG/L	35000	NA	NA	77,000	NA	NA
Manganese	UG/L	300	NA	NA	20,000	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			89-01	89-01	BB-01	BB-02	BLDG-02
Sample ID			20150206-FD-1	89-01 Sump	BB - 01	BB - 02	Bldg-2 Sump
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/06/15	02/06/15	04/08/14	04/08/14	02/06/15
Parameter	**Units**	**Criteria***	Field Duplicate (1-1)				
Metals							
Nickel	UG/L	100	NA	NA	310	NA	NA
Potassium	UG/L	-	NA	NA	21,000	NA	NA
Selenium	UG/L	10	NA	NA	20	NA	NA
Sodium	UG/L	20000	NA	NA	90,000	NA	NA
Vanadium	UG/L	-	NA	NA	500	NA	NA
Zinc	UG/L	2000	NA	NA	590	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-01	MW-01	MW-04	MW-05	MW-05
Sample ID			MW-1	MW-1	MW-4	MW-5	MW-5
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/29/14	07/11/14	04/30/14	05/01/14	07/10/14
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,2-Dichloroethene (cis)	UG/L	5	29	27 J			
Benzene	UG/L	1					
Chloroform	UG/L	7		1.1	1.1		
Methyl tert-butyl ether	UG/L	10		1.7			
Tetrachloroethene	UG/L	5	650	470	1.9		
Trichloroethene	UG/L	5	17	16			
Semivolatile Organic Compounds							
Caprolactam	UG/L	-	NA	NA	NA	NA	NA
Metals							
Aluminum	UG/L	-	NA	NA	NA	NA	7,300
Arsenic	UG/L	25	NA	NA	NA		
Barium	UG/L	1000	NA	NA	NA	NA	89
Beryllium	UG/L	3	NA	NA	NA	NA	
Cadmium	UG/L	5	NA	NA	NA	NA	
Calcium	UG/L	-	NA	NA	NA	NA	45,000
Chromium	UG/L	50	NA	NA	NA	NA	
Cobalt	UG/L	-	NA	NA	NA	NA	5.2
Copper	UG/L	200	NA	NA	NA	NA	
Iron	UG/L	300	NA	NA	NA	650	13,000
Lead	UG/L	25	NA	NA	NA	NA	5.6
Magnesium	UG/L	35000	NA	NA	NA	NA	17,000
Manganese	UG/L	300	NA	NA	NA		200

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-01	MW-01	MW-04	MW-05	MW-05
Sample ID			MW-1	MW-1	MW-4	MW-5	MW-5
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/29/14	07/11/14	04/30/14	05/01/14	07/10/14
Parameter	**Units**	**Criteria***					
Metals							
Nickel	UG/L	100	NA	NA	NA	NA	
Potassium	UG/L	-	NA	NA	NA	NA	
Selenium	UG/L	10	NA	NA	NA	NA	
Sodium	UG/L	20000	NA	NA	NA	NA	18,000
Vanadium	UG/L	-	NA	NA	NA	NA	
Zinc	UG/L	2000	NA	NA	NA	NA	

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-06	MW-06	MW-07	MW-07	MW-07
Sample ID			MW - 6	MW-6	MW-7	MW-7	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/28/14	07/10/14	04/30/14	07/12/14	06/05/15
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,2-Dichloroethene (cis)	UG/L	5	25	35	1.1	1.1	1.0
Benzene	UG/L	1					
Chloroform	UG/L	7					1.2
Methyl tert-butyl ether	UG/L	10					
Tetrachloroethene	UG/L	5	660	700	100	56	69
Trichloroethene	UG/L	5		13	2.8	1.7	2.2
Semivolatile Organic Compounds							
Caprolactam	UG/L	-	NA	NA	NA	NA	NA
Metals							
Aluminum	UG/L	-	NA	2,500	NA	NA	NA
Arsenic	UG/L	25			NA	NA	NA
Barium	UG/L	1000	NA	88	NA	NA	NA
Beryllium	UG/L	3	NA		NA	NA	NA
Cadmium	UG/L	5	NA		NA	NA	NA
Calcium	UG/L	-	NA	89,000	NA	NA	NA
Chromium	UG/L	50	NA		NA	NA	NA
Cobalt	UG/L	-	NA	3.3	NA	NA	NA
Copper	UG/L	200	NA		NA	NA	NA
Iron	UG/L	300	1,800	4,600	NA	NA	NA
Lead	UG/L	25	NA		NA	NA	NA
Magnesium	UG/L	35000	NA	41,000	NA	NA	NA
Manganese	UG/L	300	110	330	NA	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-06	MW-06	MW-07	MW-07	MW-07
Sample ID			MW - 6	MW-6	MW-7	MW-7	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/28/14	07/10/14	04/30/14	07/12/14	06/05/15
Parameter	**Units**	**Criteria***					
Metals							
Nickel	UG/L	100	NA		NA	NA	NA
Potassium	UG/L	-	NA		NA	NA	NA
Selenium	UG/L	10	NA		NA	NA	NA
Sodium	UG/L	20000	NA	76,000	NA	NA	NA
Vanadium	UG/L	-	NA		NA	NA	NA
Zinc	UG/L	2000	NA		NA	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-08	MW-08	MW-08	MW-08	MW-09
Sample ID			DUP042914	MW-8	MW-8	MW-08	MW - 9
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/29/14	04/29/14	07/11/14	06/04/15	04/29/14
Parameter	**Units**	**Criteria***	Field Duplicate (1-1)				
Volatile Organic Compounds							
1,2-Dichloroethene (cis)	UG/L	5	27	26	3.2 J	2.3	
Benzene	UG/L	1					
Chloroform	UG/L	7	1.3	1.3			
Methyl tert-butyl ether	UG/L	10	0.53	0.57			
Tetrachloroethene	UG/L	5	390	380	43	73	8.7
Trichloroethene	UG/L	5	10	10	1.7		
Semivolatile Organic Compounds							
Caprolactam	UG/L	-	NA	NA	NA	NA	28
Metals							
Aluminum	UG/L	-	NA	NA	6,300	NA	1,600
Arsenic	UG/L	25				NA	
Barium	UG/L	1000	NA	NA	120	NA	77
Beryllium	UG/L	3	NA	NA		NA	
Cadmium	UG/L	5	NA	NA		NA	
Calcium	UG/L	-	NA	NA	85,000	NA	71,000
Chromium	UG/L	50	NA	NA		NA	
Cobalt	UG/L	-	NA	NA	4.8	NA	3.1
Copper	UG/L	200	NA	NA		NA	
Iron	UG/L	300	1,500	1,800	12,000	NA	3,900
Lead	UG/L	25	NA	NA		NA	
Magnesium	UG/L	35000	NA	NA	40,000	NA	31,000
Manganese	UG/L	300	200	210	220	NA	180

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-08	MW-08	MW-08	MW-08	MW-09
Sample ID			DUP042914	MW-8	MW-8	MW-08	MW - 9
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/29/14	04/29/14	07/11/14	06/04/15	04/29/14
Parameter	**Units**	**Criteria***	Field Duplicate (1-1)				
Metals							
Nickel	UG/L	100	NA	NA		NA	
Potassium	UG/L	-	NA	NA		NA	
Selenium	UG/L	10	NA	NA		NA	
Sodium	UG/L	20000	NA	NA	83,000	NA	41,000
Vanadium	UG/L	-	NA	NA		NA	
Zinc	UG/L	2000	NA	NA		NA	

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-09	MW-10	MW-10	MW-11	MW-11
Sample ID			MW-9	MW-10	MW-10	MW-11	FD-20140710
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/12/14	04/30/14	07/12/14	04/29/14	07/10/14
Parameter	**Units**	**Criteria***					Field Duplicate (1-1)
Volatile Organic Compounds							
1,2-Dichloroethene (cis)	UG/L	5		35	9.9	6.4	8.5
Benzene	UG/L	1			1.1		
Chloroform	UG/L	7					1.6
Methyl tert-butyl ether	UG/L	10	0.75	1.3	0.92	0.64	0.84
Tetrachloroethene	UG/L	5	7.7	96	59	200	230
Trichloroethene	UG/L	5		8.0	4.9	7.0	6.2
Semivolatile Organic Compounds							
Caprolactam	UG/L	-	NA	NA	NA		NA
Metals							
Aluminum	UG/L	-	NA	NA	NA	340	2,100
Arsenic	UG/L	25	NA	NA	NA		
Barium	UG/L	1000	NA	NA	NA	63	91
Beryllium	UG/L	3	NA	NA	NA		
Cadmium	UG/L	5	NA	NA	NA		
Calcium	UG/L	-	NA	NA	NA	110,000	110,000
Chromium	UG/L	50	NA	NA	NA		
Cobalt	UG/L	-	NA	NA	NA		2.3
Copper	UG/L	200	NA	NA	NA		
Iron	UG/L	300	NA	NA	NA	430	3,400
Lead	UG/L	25	NA	NA	NA		
Magnesium	UG/L	35000	NA	NA	NA	54,000	54,000
Manganese	UG/L	300	NA	NA	NA		170

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-09	MW-10	MW-10	MW-11	MW-11
Sample ID			MW-9	MW-10	MW-10	MW-11	FD-20140710
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/12/14	04/30/14	07/12/14	04/29/14	07/10/14
Parameter	**Units**	**Criteria***					Field Duplicate (1-1)
Metals							
Nickel	UG/L	100	NA	NA	NA		
Potassium	UG/L	-	NA	NA	NA		
Selenium	UG/L	10	NA	NA	NA		
Sodium	UG/L	20000	NA	NA	NA	78,000	80,000
Vanadium	UG/L	-	NA	NA	NA		
Zinc	UG/L	2000	NA	NA	NA		

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-11	MW-12	MW-12	MW-12	MW-12
Sample ID			MW-11	MW - 12	MW-12	DUP060415	MW-12
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/10/14	04/29/14	07/10/14	06/04/15	06/04/15
Parameter	**Units**	**Criteria***				Field Duplicate (1-1)	
Volatile Organic Compounds							
1,2-Dichloroethene (cis)	UG/L	5	9.1	6.0	16	12	11
Benzene	UG/L	1					
Chloroform	UG/L	7	1.6				
Methyl tert-butyl ether	UG/L	10	1.1	3.2	25	1.2	1.6
Tetrachloroethene	UG/L	5	220	160	640	430	420
Trichloroethene	UG/L	5	5.6	5.3	11	7.1	7.0
Semivolatile Organic Compounds							
Caprolactam	UG/L	-	NA	NA	NA	NA	NA
Metals							
Aluminum	UG/L	-	1,800	NA	74,000 J	NA	NA
Arsenic	UG/L	25			20	NA	NA
Barium	UG/L	1000	84	NA	730 J	NA	NA
Beryllium	UG/L	3		NA	3.0	NA	NA
Cadmium	UG/L	5		NA		NA	NA
Calcium	UG/L	-	110,000	NA	63,000 J	NA	NA
Chromium	UG/L	50		NA	150 J	NA	NA
Cobalt	UG/L	-	2.2	NA	45 J	NA	NA
Copper	UG/L	200		NA	120 J	NA	NA
Iron	UG/L	300	2,800	1,100	130,000 J	NA	NA
Lead	UG/L	25		NA	37 J	NA	NA
Magnesium	UG/L	35000	52,000	NA	38,000 J	NA	NA
Manganese	UG/L	300	160	51	5,700	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-11	MW-12	MW-12	MW-12	MW-12
Sample ID			MW-11	MW - 12	MW-12	DUP060415	MW-12
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/10/14	04/29/14	07/10/14	06/04/15	06/04/15
Parameter	**Units**	**Criteria***				Field Duplicate (1-1)	
Metals							
Nickel	UG/L	100		NA	98 J	NA	NA
Potassium	UG/L	-		NA	8,700 J	NA	NA
Selenium	UG/L	10		NA	11	NA	NA
Sodium	UG/L	20000	79,000	NA	130,000	NA	NA
Vanadium	UG/L	-		NA	220 J	NA	NA
Zinc	UG/L	2000		NA	170 J	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-13	MW-14	MW-15
Sample ID			MW-13	MW-14	MW-15
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-
Date Sampled			06/05/15	06/05/15	06/05/15
Parameter	**Units**	**Criteria***			
Volatile Organic Compounds					
1,2-Dichloroethene (cis)	UG/L	5			
Benzene	UG/L	1			
Chloroform	UG/L	7		2.5	
Methyl tert-butyl ether	UG/L	10			
Tetrachloroethene	UG/L	5	15		
Trichloroethene	UG/L	5			
Semivolatile Organic Compounds					
Caprolactam	UG/L	-	NA	NA	NA
Metals					
Aluminum	UG/L	-	NA	NA	NA
Arsenic	UG/L	25	NA	NA	NA
Barium	UG/L	1000	NA	NA	NA
Beryllium	UG/L	3	NA	NA	NA
Cadmium	UG/L	5	NA	NA	NA
Calcium	UG/L	-	NA	NA	NA
Chromium	UG/L	50	NA	NA	NA
Cobalt	UG/L	-	NA	NA	NA
Copper	UG/L	200	NA	NA	NA
Iron	UG/L	300	NA	NA	NA
Lead	UG/L	25	NA	NA	NA
Magnesium	UG/L	35000	NA	NA	NA
Manganese	UG/L	300	NA	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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Printed: 7/14/2015 11:23:58 AM
[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

Table 4-2
Groundwater and Sump Analytical Results (2014 - 2015)
Former Drape Master Site

Location ID			MW-13	MW-14	MW-15
Sample ID			MW-13	MW-14	MW-15
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-
Date Sampled			06/05/15	06/05/15	06/05/15
Parameter	**Units**	**Criteria***			
Metals					
Nickel	UG/L	100	NA	NA	NA
Potassium	UG/L	-	NA	NA	NA
Selenium	UG/L	10	NA	NA	NA
Sodium	UG/L	20000	NA	NA	NA
Vanadium	UG/L	-	NA	NA	NA
Zinc	UG/L	2000	NA	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: amk-temp gv
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[MATRIX] = 'WG' AND [LOCID] <> 'IDW-LIQUID' AND ([PRCCODE] <> 'MI' AND [PRCCODE] <> 'DMET'

TABLE 4-3
GROUNDWATER MNA ANALYTICAL RESULTS
FORMER DRAPE MASTER REMEDIAL INVESTIGATION

Sample ID			MW-5	MW-5	MW-6	MW-6	MW-8	MW-8	MW-8	MW-11	MW-11	MW-11	MW-12	MW-12
QA/QC								Duplicate			Duplicate			
Date Sampled			5/1/2014	7/10/2014	4/28/2014	7/10/2014	4/29/2014	4/29/2014	7/11/2014	4/29/2014	7/10/2014	7/10/2014	4/29/2014	7/10/2014
Parameter	**Units**	**Criteria**												
Total Metals														
Arsenic	ug/l	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20
Iron	ug/l	300	**650**	**13,000**	**1,800**	**4,600**	**1,800**	**1,500**	**12,000**	**430**	**2,800**	**3,400**	**1,100**	**130,000**
Manganese	ug/l	300	ND	200	110	**330**	210	200	220	ND	170	160	51	**5,700**
Dissolved Metals														
Arsenic	ug/l	-	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	ug/l	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese	ug/l	-	ND	ND	ND	ND	180	180	48	ND	ND	ND	ND	ND
Wet Chemistry														
Alkalinity	mg/l	-	120	70	150	170	200	190	150	140	140	140	120	170
Chloride	mg/l	250	21	27	240	220	180	180	180	**280**	**280**	**290**	230	210J
Nitrate	mg/l	10	6.5	**17**	**12**	9.9	7.0	7.0	5.6	**15**	**13**	**13**	**11**	6.5
Sulphate	mg/l	250	71J	54	83	68	52	50	47	120	110	110	120	85
Total Organic Carbon	mg/l	-	11	ND	ND	ND	7.6	6.8	ND	ND	ND	ND	ND	ND
Dissolved Gasses														
Ethane	ug/l		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethene	ug/l		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane	ug/l		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Field Parameters														
Conductivity	mS/cm	-	0.43	0.47	1.21	1.15	1.03	1.03	0.98	1.35	1.38	1.38	1.23	1.23
Oxidation-Reduction Potential	mV	-	257	203	195	101	154	154	460	183	175	175	203	203
Dissolved-Oxygen	mg/l	-	2.06	2.13	5.04	3.98	2.7	2.7	4.68	4.35	5.89	5.89	1.61	0.069
pH		-	6	6.14	6.71	6.76	6.87	6.87	7.04	6.75	6.95	6.95	6.31	8.39
Temperature	^{o}C	-	14.61	19.3	16.5	18.1	13.44	13.44	17.5	15.85	18	18	16.43	17.2

Notes:

Criteria - NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

- - No criteria

J - Reported concentration is an extimated value

ND - not detected

Bold and shading indicates parameter exceeds criterion

mg/l - milligrams per liter

ug/l - micrograms per liter

mS/cm - microSiemens per centimeter

mV - millivolt

^{o}C - degrees Celsius

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		AMBIENT AIR	AMBIENT AIR	AMBIENT AIR	AMBIENT AIR	SV-01
Sample ID		AMBIENT050114	AMBIENT050214	AA-06172014	SV-13 AMB.	SV-1
Matrix		Outdoor Air	Outdoor Air	Outdoor Air	Outdoor Air	Soil Gas
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/01/14	05/02/14	06/17/14	06/05/15	05/01/14
Parameter	**Units**					
Volatile Organic Compounds						
1,2,4-Trimethylbenzene	UG/M3			1.9		14
1,2-Dichloroethene (cis)	UG/M3					49
1,3,5-Trimethylbenzene (Mesitylene)	UG/M3					
1,3-Butadiene	UG/M3		0.44			
1,3-Dichlorobenzene	UG/M3					
2,2,4-Trimethylpentane	UG/M3	1.9	4.2	12		
4-Ethyltoluene	UG/M3					
Acetone	UG/M3		12	21		340
Benzene	UG/M3	0.96	1.7	2.3		
Butane	UG/M3	5.0	22	11	1.3	12
Carbon disulfide	UG/M3					
Carbon tetrachloride	UG/M3	0.42	0.42	0.48	0.45	3.3
Chlorodifluoromethane	UG/M3	2.2		2.0	1.8	
Chloroform	UG/M3					36
Chloromethane	UG/M3	1.3	1.2	1.7	1.7	
Cyclohexane	UG/M3		1.1	2.8		
Dichlorodifluoromethane	UG/M3	2.5	2.5	2.7	2.7	
Ethylbenzene	UG/M3			2.0		10
Heptane	UG/M3		1.2	3.4		4.4
Hexane	UG/M3	1.3	4.0	9.6		12
Isopropanol	UG/M3					
Isopropylbenzene (Cumene)	UG/M3					
Methyl ethyl ketone (2-Butanone)	UG/M3		1.8	2.0		

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		AMBIENT AIR	AMBIENT AIR	AMBIENT AIR	AMBIENT AIR	SV-01
Sample ID		AMBIENT050114	AMBIENT050214	AA-06172014	SV-13 AMB.	SV-1
Matrix		Outdoor Air	Outdoor Air	Outdoor Air	Outdoor Air	Soil Gas
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/01/14	05/02/14	06/17/14	06/05/15	05/01/14
Parameter	**Units**					
Volatile Organic Compounds						
Methylene chloride	UG/M3	4.0		5.0		
Naphthalene	UG/M3					
n-Propylbenzene	UG/M3					
Styrene	UG/M3					
Tetrachloroethene	UG/M3	1.9		3.3		1,100
Tetrahydrofuran	UG/M3					
Toluene	UG/M3	3.8	4.5	11	1.4	29
Trichloroethene	UG/M3					82
Trichlorofluoromethane	UG/M3	1.2	1.2	1.3	1.2	
Vinyl chloride	UG/M3				0.13	
Xylene (total)	UG/M3		3.2	9.1		44

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		SV-02	SV-03	SV-04	SV-05	SV-07
Sample ID		SV-2	SV-3	SV-4	SV-5	DUP050114
Matrix		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/01/14	05/01/14	05/02/14	05/01/14	05/01/14
Parameter	Units					Field Duplicate (1-1)
Volatile Organic Compounds						
1,2,4-Trimethylbenzene	UG/M3		14	6.4	13	16
1,2-Dichloroethene (cis)	UG/M3	310		0.95		
1,3,5-Trimethylbenzene (Mesitylene)	UG/M3		4.2	1.6	3.8	4.5
1,3-Butadiene	UG/M3					
1,3-Dichlorobenzene	UG/M3		2.4			1.5
2,2,4-Trimethylpentane	UG/M3		2.4		2.1	1.5
4-Ethyltoluene	UG/M3		4.2	1.7	4.2	4.6
Acetone	UG/M3		320 J	140 J	240 J	110 J
Benzene	UG/M3		2.1	0.92	2.0	1.8
Butane	UG/M3				2.1	23
Carbon disulfide	UG/M3		13	11	11	
Carbon tetrachloride	UG/M3			0.33	0.42	0.49
Chlorodifluoromethane	UG/M3					
Chloroform	UG/M3	180	2.2			
Chloromethane	UG/M3					
Cyclohexane	UG/M3			0.74		
Dichlorodifluoromethane	UG/M3		2.5	3.2	2.6	2.8
Ethylbenzene	UG/M3		12	2.2	11	11
Heptane	UG/M3		2.0		2.0	8.5
Hexane	UG/M3		1.5	1.2	1.3	5.5
Isopropanol	UG/M3		14			
Isopropylbenzene (Cumene)	UG/M3		1.1			1.0
Methyl ethyl ketone (2-Butanone)	UG/M3		5.3	25	2.7	1.9

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		SV-02	SV-03	SV-04	SV-05	SV-07
Sample ID		SV-2	SV-3	SV-4	SV-5	DUP050114
Matrix		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/01/14	05/01/14	05/02/14	05/01/14	05/01/14
Parameter	Units					Field Duplicate (1-1)
Volatile Organic Compounds						
Methylene chloride	UG/M3					
Naphthalene	UG/M3		4.7			
n-Propylbenzene	UG/M3		2.9		2.6	3.1
Styrene	UG/M3		0.86		0.88	0.83
Tetrachloroethene	UG/M3	14,000	26	16	3.9	110
Tetrahydrofuran	UG/M3			49		
Toluene	UG/M3		20	10	22	44
Trichloroethene	UG/M3	140	1.5	0.22	0.23	
Trichlorofluoromethane	UG/M3		2.9	1.2	1.2	1.6
Vinyl chloride	UG/M3					
Xylene (total)	UG/M3		57	13	49	53

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		SV-07	SV-08	SV-09	SV-10	SV-11
Sample ID		SV-7	SV-8	SV-9	SV-10	SV-11
Matrix		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/01/14	05/01/14	06/17/14	05/02/14	05/01/14
Parameter	**Units**					
Volatile Organic Compounds						
1,2,4-Trimethylbenzene	UG/M3	16	15		7.8	
1,2-Dichloroethene (cis)	UG/M3		1.0		1.9	260
1,3,5-Trimethylbenzene (Mesitylene)	UG/M3	4.6	4.2		2.0	
1,3-Butadiene	UG/M3				0.67	
1,3-Dichlorobenzene	UG/M3	1.6	4.5			
2,2,4-Trimethylpentane	UG/M3	1.5	7.0	3,000,000	3.6	
4-Ethyltoluene	UG/M3	4.6	4.8		2.1	
Acetone	UG/M3	100 J	270 J		490 J	
Benzene	UG/M3	1.8	3.9		3.2	
Butane	UG/M3	23	2.8	96,000	22	
Carbon disulfide	UG/M3		27		9.7	
Carbon tetrachloride	UG/M3	0.45	0.32		0.98	
Chlorodifluoromethane	UG/M3					
Chloroform	UG/M3		2.8			
Chloromethane	UG/M3		1.1			
Cyclohexane	UG/M3		1.4		3.5	
Dichlorodifluoromethane	UG/M3	2.6	2.7		2.8	
Ethylbenzene	UG/M3	11	12		3.1	
Heptane	UG/M3	7.9	19		16	
Hexane	UG/M3	5.4	7.7		11	
Isopropanol	UG/M3					
Isopropylbenzene (Cumene)	UG/M3	1.0	1.0			
Methyl ethyl ketone (2-Butanone)	UG/M3	2.4	5.3		39	

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		SV-07	SV-08	SV-09	SV-10	SV-11
Sample ID		SV-7	SV-8	SV-9	SV-10	SV-11
Matrix		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/01/14	05/01/14	06/17/14	05/02/14	05/01/14
Parameter	**Units**					
Volatile Organic Compounds						
Methylene chloride	UG/M3		3.5		1.9	
Naphthalene	UG/M3					
n-Propylbenzene	UG/M3	3.1	2.9		1.1	
Styrene	UG/M3	0.86				
Tetrachloroethene	UG/M3	130	270		51	19,000
Tetrahydrofuran	UG/M3				57	
Toluene	UG/M3	44	81		51	97
Trichloroethene	UG/M3	0.71	6.8		12	1,500
Trichlorofluoromethane	UG/M3	1.6	1.5			
Vinyl chloride	UG/M3				0.13	
Xylene (total)	UG/M3	53	54		17	

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		SV-12	SV-13
Sample ID		SV-12	SV-13
Matrix		Soil Gas	Soil Gas
Depth Interval (ft)		-	-
Date Sampled		05/01/14	06/05/15
Parameter	**Units**		
Volatile Organic Compounds			
1,2,4-Trimethylbenzene	UG/M3	13	
1,2-Dichloroethene (cis)	UG/M3	11	
1,3,5-Trimethylbenzene (Mesitylene)	UG/M3	3.8	
1,3-Butadiene	UG/M3		
1,3-Dichlorobenzene	UG/M3	2.5	
2,2,4-Trimethylpentane	UG/M3	3.1	
4-Ethyltoluene	UG/M3	3.6	
Acetone	UG/M3	310 J	200
Benzene	UG/M3	4.0	
Butane	UG/M3	2.1	68
Carbon disulfide	UG/M3		25
Carbon tetrachloride	UG/M3	4.3	
Chlorodifluoromethane	UG/M3		
Chloroform	UG/M3	20	
Chloromethane	UG/M3		
Cyclohexane	UG/M3	1.6	
Dichlorodifluoromethane	UG/M3	3.0	
Ethylbenzene	UG/M3	11	
Heptane	UG/M3	23	2.8
Hexane	UG/M3	9.3	6.4
Isopropanol	UG/M3		
Isopropylbenzene (Cumene)	UG/M3		
Methyl ethyl ketone (2-Butanone)	UG/M3	3.8	36

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-4
Soil Vapor Analytical Results (May - June 2014 and June 2015)
Former Drape Master Site

Location ID		SV-12	SV-13
Sample ID		SV-12	SV-13
Matrix		Soil Gas	Soil Gas
Depth Interval (ft)		-	-
Date Sampled		05/01/14	06/05/15
Parameter	**Units**		
Volatile Organic Compounds			
Methylene chloride	UG/M3	2.6	
Naphthalene	UG/M3		
n-Propylbenzene	UG/M3	2.5	
Styrene	UG/M3		
Tetrachloroethene	UG/M3	260	5.7
Tetrahydrofuran	UG/M3		140
Toluene	UG/M3	76	12
Trichloroethene	UG/M3	23	
Trichlorofluoromethane	UG/M3	1.2	
Vinyl chloride	UG/M3		
Xylene (total)	UG/M3	46	

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Table 4-5
Soil Vapor Intrusion Analytical Results (December 2014)
Former Drape Master Site

Location ID		89-01	89-01	89-01	BLDG-01	BLDG-01
Sample ID		LAUNDROMAT FD-1	LAUNDROMAT IA-1	LAUNDROMAT IA-2	Bldg-1 OA	Bldg-1 IA
Matrix		Indoor Air	Indoor Air	Indoor Air	Outdoor Air	Indoor Air
Depth Interval (ft)		-	-	-	-	-
Date Sampled		12/10/14	12/10/14	12/10/14	12/09/14	12/09/14
Parameter	**Units**	Field Duplicate (1-1)				
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/M3					
1,2-Dichloroethene (cis)	UG/M3	2.9	3.1	2.9		
1,4-Dichlorobenzene	UG/M3					
Acetone	UG/M3	16			16	17
Benzene	UG/M3	0.96	0.95	0.80	0.75	0.73
Butane	UG/M3	6.5	6.6	5.3	2.5	3.7
Carbon tetrachloride	UG/M3	0.89	0.98	0.95	0.70	0.63
Chlorodifluoromethane	UG/M3					
Chloroform	UG/M3	6.2	6.1	6.4		
Chloromethane	UG/M3	2.5	2.6	2.7	1.7	1.2
Dichlorodifluoromethane	UG/M3				4.0	3.2
Heptane	UG/M3				1.1	
Hexane	UG/M3					
Methyl ethyl ketone (2-Butanone)	UG/M3	2.3	2.5		2.8	2.7
Methylene chloride	UG/M3	59	61	63		
Tetrachloroethene	UG/M3	230	250	240		
Toluene	UG/M3	1.4	1.5	1.2	1.1	1.7
Trichloroethene	UG/M3	1.7	1.7	1.6		0.23
Trichlorofluoromethane	UG/M3	1.2			1.7	1.3

Flags assigned during chemistry validation are shown.

Only Detected Results Reported.

Table 4-5
Soil Vapor Intrusion Analytical Results (December 2014)
Former Drape Master Site

Location ID		BLDG-01	BLDG-01	BLDG-02	BLDG-02	BLDG-03
Sample ID		20141208-FD-1	Bldg-1 SS	Bldg-2 IA-1	Bldg-2 IA-2	Bldg-3 IA
Matrix		Subslab Vapor	Subslab Vapor	Indoor Air	Indoor Air	Indoor Air
Depth Interval (ft)		-	-	-	-	-
Date Sampled		12/09/14	12/09/14	12/09/14	12/09/14	12/09/14
Parameter	Units	Field Duplicate (1-1)				
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/M3	2.0				
1,2-Dichloroethene (cis)	UG/M3					
1,4-Dichlorobenzene	UG/M3			11	5.1	
Acetone	UG/M3	28		14		
Benzene	UG/M3			1.1	0.94	0.72
Butane	UG/M3				13	3.6
Carbon tetrachloride	UG/M3			0.48	0.46	0.50
Chlorodifluoromethane	UG/M3	5.1	3.5		12	
Chloroform	UG/M3					
Chloromethane	UG/M3	1.1		1.1	1.3	
Dichlorodifluoromethane	UG/M3	3.8				
Heptane	UG/M3					
Hexane	UG/M3			1.4	1.3	
Methyl ethyl ketone (2-Butanone)	UG/M3	3.4		4.8	1.8	2.0
Methylene chloride	UG/M3	2.9				
Tetrachloroethene	UG/M3	250	230			11
Toluene	UG/M3	1.8	1.6	2.5	1.7	1.1
Trichloroethene	UG/M3					0.26
Trichlorofluoromethane	UG/M3	8.5	7.4	1.9	1.8	1.7

Flags assigned during chemistry validation are shown.

Only Detected Results Reported.

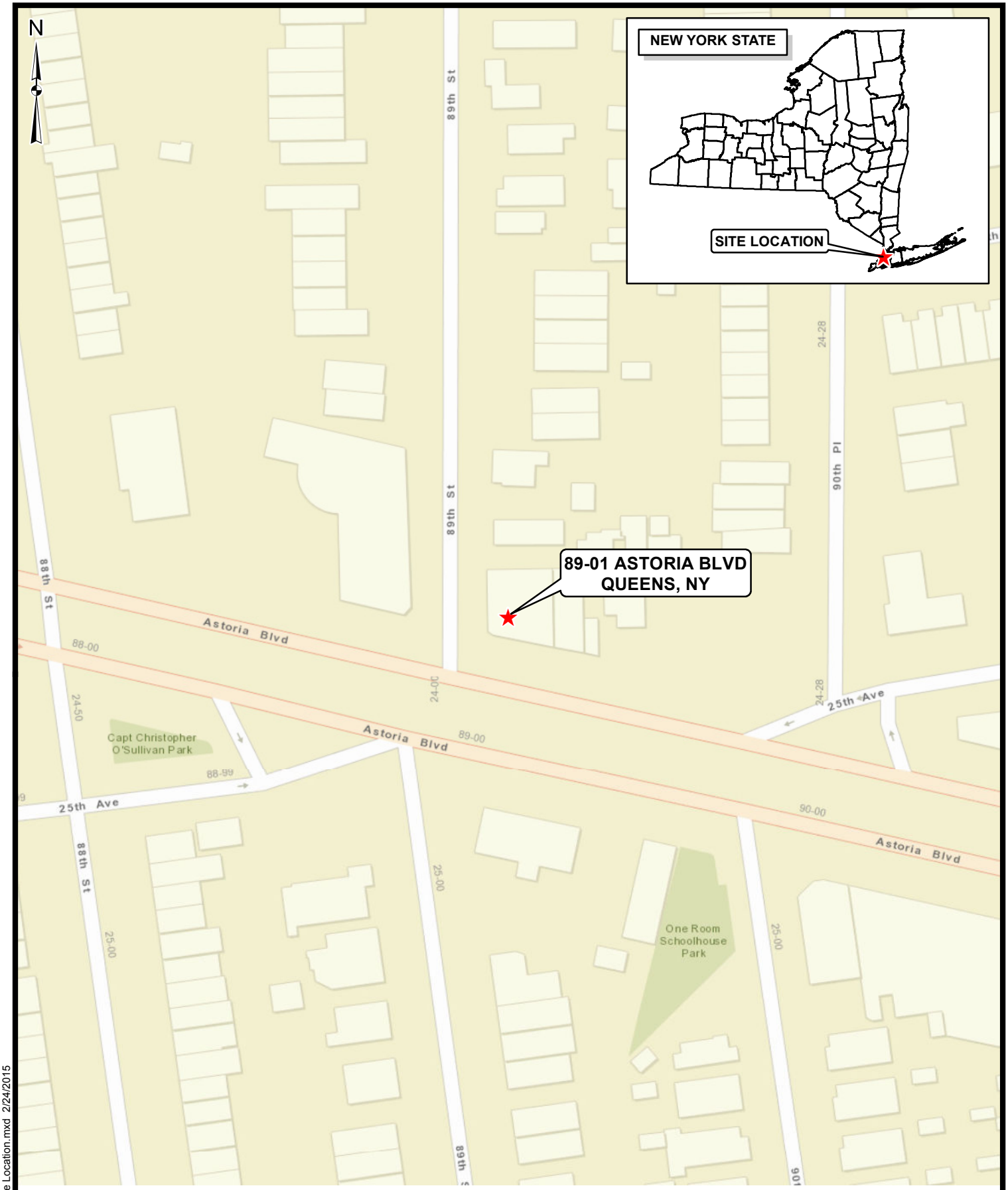
TABLE 6-1
POTENTIAL PATHWAYS OF EXPOSURE
CURRENT USE SCENARIO
FORMER DRAPE MASTER SITE
ELMHURST, NY

Potentially Contaminated Medium	CPCs	Potential Routes of Exposure	Potential Receptors	Potential Pathway Complete
Soil Vapor/Indoor Air	CVOCs	Inhalation of CVOCs from soil/groundwater that migrate into onsite building.	Onsite employees and laundromat patrons.	Yes. The Former Drape Master building is occupied.
Groundwater	CVOCs	Dermal contact, inhalation.	Construction/Utility workers, onsite employees.	Yes. Contact with groundwater may occur during intrusive activities and basement flooding.
		Ingestion.	None	No. No current potable water use at or near the site.

TABLE 6-2
POTENTIAL PATHWAYS OF EXPOSURE
FUTURE USE SCENARIO
FORMER DRAPE MASTER SITE
ELMHURST, NY

Potentially Contaminated Medium	CPCs	Potential Routes of Exposure	Potential Receptors	Potential Pathway Complete
Soil Vapor/Indoor Air	CVOCs	Inhalation of CVOCs from groundwater that migrate into onsite buildings.	Onsite employees, laundromat patrons, and residents.	Yes. Where onsite buildings are occuppied by employees, patrons and residents.
Groundwater	CVOCs	Dermal contact, inhalation.	Construction/Utility workers, Onsite employees	Yes. Contact with groundwater may occur during intrusive activities and basement flooding.
		Ingestion.	None	No. No current potable water use at or near the site.

FIGURES



SOURCE: ESRI World Map 2015

100 0 100 Feet

J:\Projects\11177058\DB\GIS\Site Location.mxd 2/24/2015

URS

FORMER DRAPE MASTER
SITE LOCATION

FIGURE 1-1

N

88TH ST

RESIDENCES

McDONALD'S

RESIDENCE
RESIDENCE
RESIDENCE
RESIDENCE
RESIDENCE

RESIDENCE
RESIDENCE

BRUNO'S
CATERING

ASTORIA BLVD

89TH ST

RESIDENCE
RESIDENCE
RESIDENCE
RESIDENCE

GARAGE

RESIDENCE
RESIDENCE

RESIDENCE

GARAGE

RESIDENCE

GARAGE

GARAGE

FORMER
DRAPE
MASTER

VFW
POST

GARAGE

STORAGE
TRAILER

RESIDENCES

RESIDENCE
RESIDENCE
RESIDENCE
RESIDENCE

90TH PL

25TH AVE

25TH AVE

ASTORIA BLVD

89TH ST

HESS
GAS
STATION

50 0 50 Feet

FORMER DRAPE MASTER
SITE PLAN

URS

FIGURE 1-2

J:\Projects\11177058\DB\GIS\Site Plan (11X17).mxd 7/10/2015

N

SV-13
MW-13
MW-07
SV-07
89TH STREET
MW-06
MIP-08
MW-15
MIP-06
MIP-05
SV-03
MW-08
SV-08
GW-03
MIP-07
MW-05
SV-05
MIP-01
MW-04
MIP-09
SV-04
BB-01
89-01-2
BB-02
89-01-1
89-01
MIP-04
GW-02
SV-02
MW-11
MIP-03
SV-11
MIP-02
MW-01
SV-01
MIP-02A
ASTORIA BOULEVARD
MW-12
SV-12
MW-14
MW-09
SV-09
SV-10
MW-10

Legend

- Sump
- Basement Well
- Indoor Air Location
- Monitoring Well
- Soil Vapor Point
- Membrane Interface Probe
- Cross Section
- Fence

50 0 50 Feet

FORMER DRAPE MASTER INVESTIGATION LOCATION MAP

URS

FIGURE 2-1

J:\Projects\11177058\DB\GIS\Investigation Location (11X17).mxd 7/14/2015

NORTH
A

SOUTH
A'

ELEVATION AMSL

89TH STREET

MW-07

ASPHALT

CONCRETE

MIP-07

SAND & GRAVEL FILL

14' TD

89-01 ASTORIA BOULEVARD

1ST FLOOR

BASEMENT

BB-01

BB-02

5" CONCRETE OVER CINDER BLOCK OVER 9" CONCRETE

ASTORIA BOULEVARD

MW-11

MW-10

ASPHALT

CONCRETE

SAND & GRAVEL FILL

FINE TO COARSE SAND
SOME SILT & GRAVEL

41' TD

21' TD

21' TD

25' TD

FINE TO COARSE SAND
SOME SILT & GRAVEL

35' TD

50 45 40 35 30 25 20 15 10 5 0 -5 -10 -15 -20

MW-10 ← Monitoring Well Number

← Potentiometric Surface July 2014

← Screened Interval of Monitoring Well

← Borehole Termination

35' TD = Total Depth

Sand and Gravel Fill

Fine to Coarse Sand with Trace Silt & Gravel

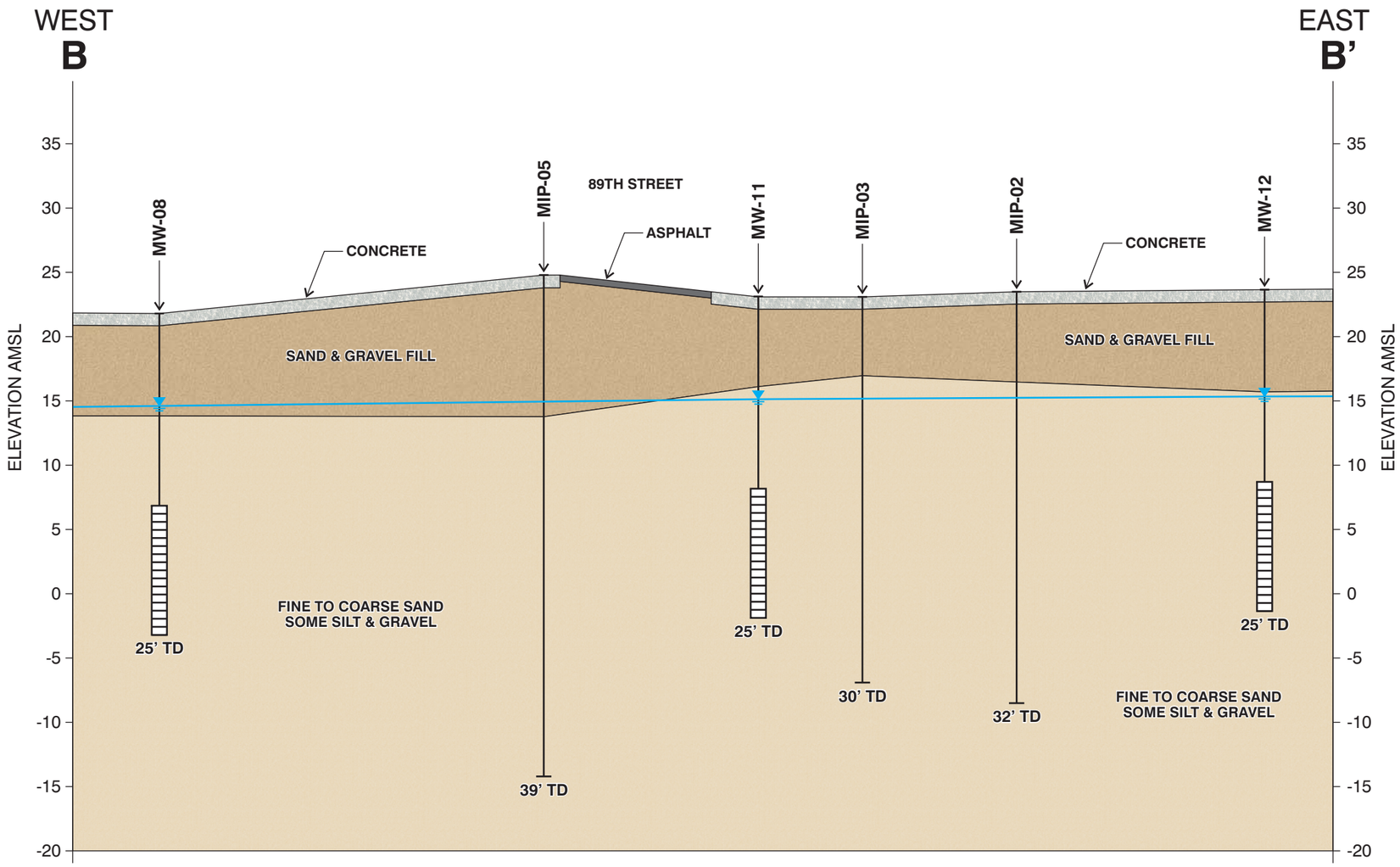
Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 10'

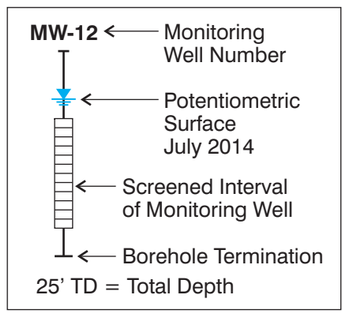
FORMER DRAPE MASTER SITE
CROSS SECTION A-A'

URS

FIGURE 3-1

AG21040-111170S8-032615-GCM





Sand and Gravel Fill

Fine to Coarse Sand with Trace Silt & Gravel

Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 10'

FORMER DRAPE MASTER SITE
CROSS SECTION B-B'

URS

FIGURE 3-2

AG21041-111705B-032615-GCM

N

MW-13
SV-13
89TH STREET
A
MW-07
SV-07
MW-06
MIP-08
MW-15
MIP-06
B
MW-08
SV-08
MIP-05
SV-03
GW-03
MIP-07
MIP-01
MW-04
MIP-09
MW-05
SV-05
SV-04
BB-01
89-01-2
BB-02
89-01-1
89-01
MIP-04
GW-02
SV-02
MW-11
MIP-03
SV-11
MIP-02
MW-01
SV-01
MIP-02A
SV-12
MW-12
B'
ASTORIA BOULEVARD
MW-14
MW-09
SV-09
SV-10
MW-10
A'

50 0 50 Feet

Legend

- Indoor Air Location
- Sump
- Basement Well
- Monitoring Well
- Soil Vapor Point
- Membrane Interface Probe
- Fence
- Cross Section

J:\Projects\11177058\DB\GIS\Cross Section (11X17).mxd 7/24/2015

FORMER DRAPE MASTER CROSS SECTION LOCATIONS

URS

FIGURE 3-3

N

89TH STREET

MW-07, 14.66

MW-06, 14.49

MW-05, NM

MW-04, 14.75

MW-08, 14.19

MW-11, 14.33

MW-01, 14.56

MW-12, 14.89

ASTORIA BOULEVARD

MW-09, 14.13

MW-10, 14.29

14.6

14.4

14.8

14.2

Legend

- Monitoring Well
- Groundwater Flow Direction
- Fence
- Groundwater Elevation Contour (feet amsl)

NOTE:
NM - Not Measured

50 0 50 Feet

FORMER DRAPE MASTER GROUNDWATER ELEVATION CONTOURS APRIL 2014

URS

FIGURE 3-4

J:\Projects\11177058\DB\GIS\GW Contours 042014 (11X17).mxd 7/24/2015

N

89TH STREET

MW-07, 14.83

MW-06, 14.68

MW-05, NM

MW-04, NM

MW-08, 14.32

MW-11, 14.53

MW-01, 17.83

MW-12, 15.16

ASTORIA BOULEVARD

MW-09, 14.23

MW-10, 14.44

14.4

14.6

14.8

15.0

Legend

- Monitoring Well
- Groundwater Flow Direction
- Fence
- Groundwater Elevation Contour (feet amsl) (14.8)

NOTES:
1. NM - Not Measured
2. MW-01 was not used to generate groundwater elevation contours due to anomalous reading.

50 0 50 Feet

FORMER DRAPE MASTER GROUNDWATER ELEVATION CONTOURS JULY 2014

URS

FIGURE 3-5

J:\Projects\11177058\DB\GIS\GW Contours 072014 (11X17).mxd 7/24/2015

N

MW-13, NS

MW-07

89TH STREET

BB-01 (13' - 15')| CRIT | 4/14		
MET:		
Iron	2000	8600

MW-15, NS

MW-08

BB-02

MW-11 (13' - 15')| CRIT | 4/14		
MET:		
Iron	2000	9400

ASTORIA BOULEVARD

MW-12

MW-14, NS

MW-09 (8' - 10')	CRIT	4/14
SVOCs:		
Benzo(b)fluoranthene	1	1.2
Indeno(1,2,3-cd)pyrene	0.5	0.55
MET:		
Iron	2000	21000

MW-10

Legend

- Soil Boring
- Monitoring Well
- Fence

Location ID — Depth — Criteria — Date

MW-09 (8' - 10')	CRIT	4/14
SVOCs:		
Benzo (b) fluoranthene	1	1.2

Parameter — Concentration (mg/kg)

NOTES:
1. New monitoring wells (MW-13, MW-14, and MW-14) were Not Sampled (NS).
2. Criteria - 6 NYCRR Part 375.6, Unrestrictive Use
3. Results shown are parameters exceeding criteria.
4. No results indicate no criteria exceedances.

50 0 50 Feet

FORMER DRAPE MASTER SOIL ANALYTICAL RESULTS

URS

FIGURE 4-1

J:\Projects\11177058\DB\GIS\Soil Analytical 2014 (11X17).mxd 7/24/2015

N

89TH STREET

ASTORIA BOULEVARD

MW-15

MW-14

MW-05

MW-04

MW-13	CRIT	6/15
VOCs:		
Tetrachloroethene	5	15

MW-07	CRIT	4/14	7/14	6/15
VOCs:				
Tetrachloroethene	5	100	56	69

MW-06	CRIT	4/14	7/14
VOCs:			
1,2-Dichloroethene (cis)	5	25	35
Tetrachloroethene	5	660	700
Trichloroethene	5	ND	13

BB-01	CRIT	4/14
VOCs:		
1,2-Dichloroethene (cis)	5	17
Tetrachloroethene	5	670

BB-02	CRIT	4/14
VOCs:		
1,2-Dichloroethene (cis)	5	23
Tetrachloroethene	5	470
Trichloroethene	5	15

89-01	CRIT	2/15
VOCs:		
1,2-Dichloroethene (cis)	5	28
Tetrachloroethene	5	950
Trichloroethene	5	11

MW-08	CRIT	4/14	7/14	6/15
VOCs:				
1,2-Dichloroethene (cis)	5	27	BC	BC
Tetrachloroethene	5	390	43	73
Trichloroethene	5	10	BC	ND

MW-11	CRIT	4/14	7/14
VOCs:			
1,2-Dichloroethene (cis)	5	6.4	9.1
Tetrachloroethene	5	200	230
Trichloroethene	5	7	6.2

MW-12	CRIT	4/14	7/14	6/15
VOCs:				
1,2-Dichloroethene (cis)	5	6	16	12
Methyl tert-butyl ether	10	BC	25	BC
Tetrachloroethene	5	160	640	430
Trichloroethene	5	5.3	11	7.1

MW-09	CRIT	4/14	7/14
VOCs:			
Tetrachloroethene	5	8.7	7.7

MW-01	CRIT	4/14	7/14
VOCs:			
1,2-Dichloroethene (cis)	5	29	27
Tetrachloroethene	5	650	470
Trichloroethene	5	17	16

MW-10	CRIT	4/14	7/14
VOCs:			
1,2-Dichloroethene (cis)	5	35	9.9
Benzene	1	ND	1.1
Tetrachloroethene	5	96	59
Trichloroethene	5	8	BC

Legend

- Sump
- Basement Well
- Monitoring Well
- Fence

Location ID — Criteria — Date

MW-07	CRIT	4/14
VOCs:		
Tetrachloroethene	5	100

Parameter — Concentration (µg/L)

NOTES:
ND - Not Detected
BC - Below Criteria
Criteria - NYSDEC TOGS 1.1.1, Class GA
No data indicates no compounds detected above criteria.

50 0 50 Feet

FORMER DRAPE MASTER
VOC GROUNDWATER ANALYTICAL RESULTS
2014 - 2015

URS

FIGURE 4-2

J:\Projects\11177058\DB\GIS\GW Analytical 2014-2015 (11X17).mxd 7/13/2015

N

MW-07, 100

100

200

300

400

500

600

89TH STREET

MW-06, 660

MW-05, ND

MW-04, 1.9

BB-01, 670

BB-02, 470

MW-08, 390

89-01, 950

100

MW-11, 200

MW-01, 650

ASTORIA BOULEVARD

MW-12, 160

MW-09, 8.7

MW-10, 96

Legend

- Sump
- Basement Well
- Monitoring Well
- Fence
- 100 Concentration (µg/L)

Location Identifier — MW-10, 96 — Tetrachloroethene Concentration (µg/L)

NOTES:
ND - Not Detected

50 0 50 Feet

FORMER DRAPE MASTER
PCE CONCENTRATIONS IN GROUNDWATER
APRIL/MAY 2014

URS

FIGURE 4-3

J:\Projects\11177058\DB\GIS\PCE Contours GW May 2014 (11X17).mxd 8/28/2015

N

MW-13, 15

89TH STREET

MW-07, 69

MW-06, 700

MW-05, ND

MW-04, NS

MW-15, ND

ASTORIA BOULEVARD

MW-08, 73

MW-11, 230

MW-01, 470

MW-12, 430

MW-14, ND

MW-09, 7.7

MW-10, 59

700

600

500

400

300

200

100

Legend

- Monitoring Well
- Fence
- 100 — Concentration (µg/L)

Location Identifier — MW-10, 59 — Tetrachloroethene Concentration (µg/L)

NOTES:
1. ND - Not Detected
2. NS - Not Sampled
3. Most recent PCE concentrations used for each monitoring well location

50 0 50 Feet

FORMER DRAPE MASTER
PCE CONCENTRATIONS IN GROUNDWATER
JULY 2014 - JUNE 2015

URS

FIGURE 4-4

J:\Projects\11177058\DB\GIS\PCE Contours GW 2015 (11X17).mxd 9/3/2015

N

SV-13	6/15
VOCs:	
Tetrachloroethene	5.7

SV-07	5/14
VOCs:	
1,3-Dichlorobenzene	1.6
Carbon tetrachloride	0.49
Dichlorodifluoromethane	2.8
Tetrachloroethene	130
Trichloroethene	0.71
Trichlorofluoromethane	1.6

89TH STREET

SV-05	5/14
VOCs:	
Carbon tetrachloride	0.42
Dichlorodifluoromethane	2.6
Tetrachloroethene	3.9
Trichloroethene	0.23
Trichlorofluoromethane	1.2

SV-04	5/14
VOCs:	
1,2-Dichloroethene (cis)	0.95
Carbon tetrachloride	0.33
Dichlorodifluoromethane	3.2
Tetrachloroethene	16
Trichloroethene	0.22
Trichlorofluoromethane	1.2

SV-03	5/14
VOCs:	
1,3-Dichlorobenzene	2.4
Chloroform	2.2
Dichlorodifluoromethane	2.5
Tetrachloroethene	26
Trichloroethene	1.5
Trichlorofluoromethane	2.9

SV-08	5/14
VOCs:	
1,2-Dichloroethene (cis)	1
1,3-Dichlorobenzene	4.5
Carbon tetrachloride	0.32
Chloroform	2.8
Chloromethane	1.1
Dichlorodifluoromethane	2.7
Methylene chloride	3.5
Tetrachloroethene	270
Trichloroethene	6.8
Trichlorofluoromethane	1.5

SV-02	5/14
VOCs:	
1,2-Dichloroethene (cis)	310
Chloroform	180
Tetrachloroethene	14000
Trichloroethene	140

SV-12	5/14
VOCs:	
1,2-Dichloroethene (cis)	11
1,3-Dichlorobenzene	2.5
Carbon tetrachloride	4.3
Chloroform	20
Dichlorodifluoromethane	3
Methylene chloride	2.6
Tetrachloroethene	260
Trichloroethene	23
Trichlorofluoromethane	1.2

SV-11	5/14
VOCs:	
1,2-Dichloroethene (cis)	260
Tetrachloroethene	19000
Trichloroethene	1500

ASTORIA BOULEVARD

SV-01	5/14
VOCs:	
1,2-Dichloroethene (cis)	49
Carbon tetrachloride	3.3
Chloroform	36
Tetrachloroethene	1100
Trichloroethene	82

SV-10	5/14
VOCs:	
1,2-Dichloroethene (cis)	1.9
Carbon tetrachloride	0.98
Dichlorodifluoromethane	2.8
Methylene chloride	1.9
Tetrachloroethene	51
Trichloroethene	12
Vinyl chloride	0.13

SV-09

Legend

- Soil Vapor Point
- Fence

Location ID — Date

SV-02	4/14
SVOCs:	
Trichloroethene	140

Parameter — Concentration (mg/m^3)

NOTE:
No data indicates no detected chlorinated compounds.

50 0 50 Feet

FORMER DRAPE MASTER
SOIL VAPOR ANALYTICAL RESULTS
DETECTED CHLORINATED COMPOUNDS

URS

FIGURE 4-5

J:\Projects\11177068\DB\GIS\Soil Gas Analytical (11X17).mxd 7/13/2015

N

SV-13	6/15
VOCs:	
Tetrachloroethene	5.7

SV-07	5/14
VOCs:	
Tetrachloroethene	130
Trichloroethene	0.71

89TH STREET

SV-05	5/14
VOCs:	
Tetrachloroethene	3.9
Trichloroethene	0.23

SV-04	5/14
VOCs:	
1,2-Dichloroethene (cis)	0.95
Tetrachloroethene	16
Trichloroethene	0.22

SV-03	5/14
VOCs:	
Tetrachloroethene	26
Trichloroethene	1.5

SV-02	5/14
VOCs:	
1,2-Dichloroethene (cis)	310
Tetrachloroethene	14000
Trichloroethene	140

SV-08	5/14
VOCs:	
1,2-Dichloroethene (cis)	1
Tetrachloroethene	270
Trichloroethene	6.8

SV-01	5/14
VOCs:	
1,2-Dichloroethene (cis)	49
Tetrachloroethene	1100
Trichloroethene	82

SV-11	5/14
VOCs:	
1,2-Dichloroethene (cis)	260
Tetrachloroethene	19000
Trichloroethene	1500

ASTORIA BOULEVARD

SV-12	5/14
VOCs:	
1,2-Dichloroethene (cis)	11
Tetrachloroethene	260
Trichloroethene	23

SV-09, ND

SV-10	5/14
VOCs:	
1,2-Dichloroethene (cis)	1.9
Tetrachloroethene	51
Trichloroethene	12
Vinyl chloride	0.13

Legend

- Soil Vapor Point
- Fence

Location ID — SV-13 | 6/15 — Date

Parameter — VOCs: Tetrachloroethene | 5.7 — Concentration ($\mu g/m^3$)

NOTES:
1. ND - Not Detected
2. SV-01 thru SV-12 sampled in May/June 2014. SV-13 sampled in June 2015.

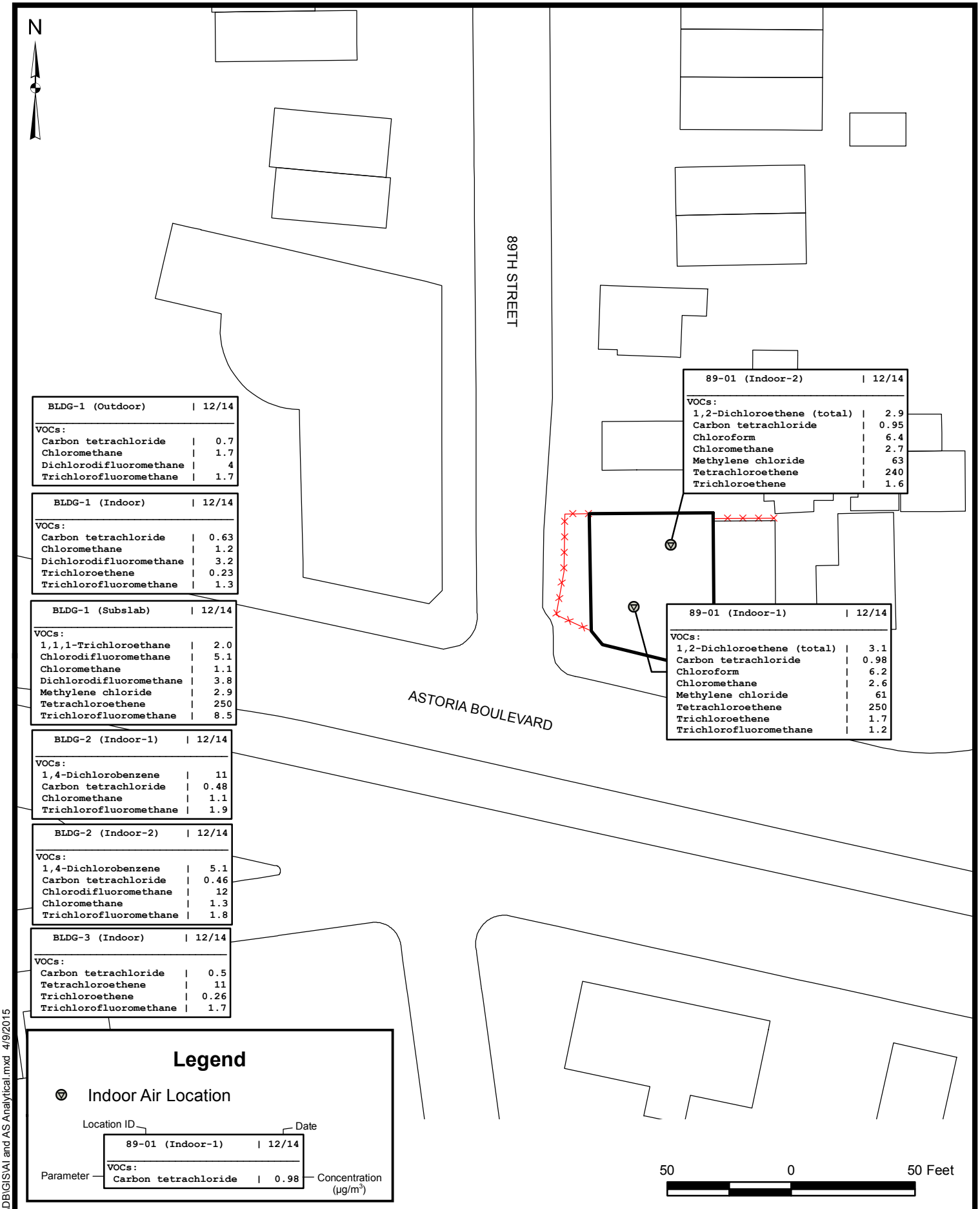
50 0 50 Feet

FORMER DRAPE MASTER
CVOCS DETECTED IN SOIL VAPOR
2014 - 2015

URS

FIGURE 4-6

J:\Projects\11177058\DB\GIS\CVOC Analytical SV 2015 (11X17).mxd 8/28/2015



J:\Projects\11177058\DB\GIS\AI and AS Analytical.mxd 4/9/2015

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FORMER DRAPE MASTER
INDOOR AIR AND SUBSLAB ANALYTICAL RESULTS
DETECTED CHLORINATED COMPOUNDS - 2014

FIGURE 4-7

APPENDIX A

GEOPHYSICAL SURVEY REPORT

Radar Solutions International, Inc.™ Geophysics for the 21St Century

April 16, 2014

Mr. Kevin Connare
Project Manager
URS Corporation, Inc.
257 West Genessee Street
4th Floor
Buffalo NY 14203

Re: Utility Clearance Survey using GPR and EM Induction
Draper Avenue Site
Queens, New York
NYSDEC Work Assignment No. D007622-23

Dear Kevin,

Please find below our finalized GPR, and EM induction (EMI) interpretations for the Draper Avenue site performed on April 7th, 2014. The purpose of these investigations were to confirm that the proposed monitoring well locations were clear of utilities and other obstructions. RSI Geophysicist Amy Ziter was on site to conduct ground penetrating radar (GPR) and EMI surveys to locate potential utilities. All locations were scheduled to be pre-cleared to a depth of 5 feet after the completion of the survey and prior to drilling. Key results are also summarized below:

Boring no.	Proposed Location	Recommended Location	Comments
MW-07	7.5E, 5N	7.5E, 9N	Location pre-cleared to 3' prior to investigation. 60Hz signal detected parallel 5N.
MW-08	5E, 8.5N	2.5E, 0N	60Hz detected parallel to 8E and 3N.
MW-09	5E, 5N	7.5E, 7.5N	60Hz detected parallel to10E. Cluster of GPR targets along 5N
MW-10	5E, 5N	10E, 10N	60Hz detected parallel to 0E. Cluster of GPR targets along 7.5E and 5N
MW-11	5E, 3N	5E, 9N	Weak 60Hz signal detected parallel 2.5N.
MW-12	5E, 2N	N/A	Looks OK.

51 Riverview Avenue, Waltham, MA 02453-3819
(781) 736-0550/ (781) 736-0004 (fax)
radar-solutions.com

- Additional EMI was performed in the basement of the building on site to trace out any possible unknown electric or water lines.

Please drill with caution as not all utilities may have been detected in the field. We appreciate this opportunity to work with URS Corporation, Inc. again. Please call should you have any inquiries regarding this or future assignments.

Sincerely,
RADAR SOLUTIONS INTERNATIONAL

Doria L. Kutrubes

Doria L. Kutrubes, M.Sc., P.G.
President and Sr. Geophysicist

51 Riverview Avenue, Waltham, MA 02453-3819
(781) 736-0550/ (781) 736-0004 (fax)
radar-solutions.com

APPENDIX B

SOIL BORING LOGS

URS Corporation							TEST BORING LOG	
PROJECT:	Former Drape Master						**BORING NO:**	BB-01
CLIENT:	NYSDEC						**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental						**JOB NO.:**	11177058
RIG TYPE:	Portable Direct-Push Rig						**BORING LOCATION:**	Laundromat Bsmnt - North
SAMPLER:	2" dia Macro core						**DATE STARTED:**	4/7/2014
GROUNDWATER:		**SURVEY DATA**					**DATE FINISHED:**	4/8/2014
DATE	**DEPTH**	**GROUND ELEVATION:**					**DRILLER:**	C. Hernandez
4/7/2014	~4"	**NORTHING:**					**GEOLOGIST:**	J. Crespo
		EASTING:					**REVIEWED BY:**	K. Connare

DEPTH FEET	SAMPLE STRATA SYMBOL	SAMPLE "S" NO.	SAMPLE "N" NO.	SAMPLE REC (%)	DESCRIPTION Color	DESCRIPTION Material Description	USCS	REMARKS PID (ppm)	REMARKS MOISTURE
						5" concrete over cinderblock over 9" concrete.			Wet
		1		33	Dk Brown	Crushed sand and gravel base.	GW	0	
		2		64	Gray Brown Brown	Fine to medium SAND, sone fine to medium gravel.	SW	0	Wet
5									
		3		100		Medium SAND, some fine to coarse gravel.	SW	0	
10		4		16		Fine to medium SAND, some fine to coarse gravel.	SW	0	
		5		97		Fine to coarse SAND, some fine to medium gravel.	SW	0	
15									
		6		67				0	
20		7		89				0	
						End of boring at 21'			
25									
30									

COMMENTS: Macro core sampled to 21'. Retain 13-15' sample for analysis. Set temporary well to 21', collect groundwater sample and remove well.

PROJECT NO.	11177058
BORING NO.	BB-01

URS Corporation						TEST BORING LOG	
PROJECT:	Former Drape Master					**BORING NO:**	BB-02
CLIENT:	NYSDEC					**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental					**JOB NO.:**	11177058
RIG TYPE:	Portable Direct-Push Rig					**BORING LOCATION:**	Laundromat Bsmnt - South
SAMPLER:	2" dia Macro core					**DATE STARTED:**	4/8/2014
GROUNDWATER:		**SURVEY DATA**				**DATE FINISHED:**	4/8/2014
DATE	**DEPTH**	**GROUND ELEVATION:**				**DRILLER:**	C. Green
4/8/2014	~4"	**NORTHING:**				**GEOLOGIST:**	J. Crespo
		EASTING:				**REVIEWED BY:**	K. Connare

	SAMPLE				DESCRIPTION			REMARKS	
DEPTH FEET	**STRATA SYMBOL**	**"S" NO.**	**"N" NO.**	**REC (%)**	**Color**	**Material Description**	**USCS**	**PID (ppm)**	**MOISTURE**
						5" concrete over cinderblock over 9" concrete.			Wet
		1		0		No recovery		0	
		2		0	Dk Brown	No recovery		0	Wet
5									
		3		19		Fine to coarse SAND, some fine gravel, trace silt.	SW	0	
10		4		44		Same as above	SW	0	
		5		64		Same as above, with medium gravel.	SW	0	
15		6		94		Fine to medium SAND, trace silt.		0	
20		7		92		Fine to medium SAND, some fine to medium gravel.		0	
						End of boring at 21'			
25									
30									

COMMENTS: Macro core sampled to 21'. Retain 18-20' sample for analysis. Set temporary well to 21', collect groundwater sample and remove well.

PROJECT NO.	11177058
BORING NO.	BB-02

URS Corporation							TEST BORING LOG	
PROJECT:	Former Drape Master						**BORING NO:**	MW-7/SG-7
CLIENT:	NYSDEC						**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental						**JOB NO.:**	11177058
RIG TYPE:	Geoprobe 7720DT						**BORING LOCATION:**	West side of 89th St
SAMPLER:	2" dia Macro core						**DATE STARTED:**	4/11/2014
GROUNDWATER:			**SURVEY DATA**	MW-7	SG-7		**DATE FINISHED:**	4/11/2014
DATE	**DEPTH**		**GROUND ELEVATION:**	34.58	34.58		**DRILLER:**	L. Caballeri
4/11/2014	14'		**NORTHING:**	217828.31			**GEOLOGIST:**	J. Crespo
			EASTING:	1017448.48			**REVIEWED BY:**	K. Connare

DEPTH FEET	SAMPLE STRATA SYMBOL	SAMPLE "S" NO.	SAMPLE "N" NO.	SAMPLE REC (%)	DESCRIPTION Color	DESCRIPTION Material Description	USCS	REMARKS PID (ppm)	REMARKS MOISTURE
		Hand Clear			Brown	Top soil		0	Dry
						Fine to medium SAND, trace silt and medium gravel (FILL).	SW	0	
5									
						Fine to medium SAND, some medium gravel, some brick and roots. No odor.	SW	0	
		1		30		Fine to medium SAND, some gravel.	SW	0	Moist
10									
		2		43				0	
					Lt Brown	Fine to medium SAND, trace silt, thin bands of brown sand.	SW		
15									
		3		53	Brown Beige Brown			0	
					Lt Brown	Fine to medium SAND, trace silt.	SW		
20									Wet
		4		45	Brown			0	
					Grey Brown	Thin layers of dark brown and grey sand. No odor.	SW		
25									
		5		97	Dk Brown Brown	Fine to medium SAND, trace silt, trace fine to medium gravel.	SW	0	
30									
		6		98		Same as above.	SW	0	
35									
		7		78	Brown	Same as above.	SW	0	
40						Same as above.	SW		
								0	
						End of boring at 41'			

COMMENTS: Drill using Macro core and 3.5" temporary casing then clear boring to depth with 3.25" solid stem augers and install 2" PVC well with screen 31 to 41' and adjacent soil gas point 7.5 to 8'. Retain 17-19' sample for analysis.

PROJECT NO.	11177058
BORING NO.	MW-7/SG-7

URS Corporation							TEST BORING LOG	
PROJECT:	Former Drape Master						**BORING NO:**	MW-8/SG-8
CLIENT:	NYSDEC						**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental						**JOB NO.:**	11177058
RIG TYPE:	Geoprobe 7720DT						**BORING LOCATION:**	Astoria Blvd at Bruno's
SAMPLER:	2" dia Macro core						**DATE STARTED:**	4/11/2014
GROUNDWATER:			**SURVEY DATA**	MW-8	SG-8		**DATE FINISHED:**	4/11/2014
DATE	**DEPTH**		**GROUND ELEVATION:**	21.84	21.84		**DRILLER:**	L. Caballeri
4/11/2014	9'		**NORTHING:**	217656.73			**GEOLOGIST:**	J. Crespo
			EASTING:	1017357.86			**REVIEWED BY:**	K. Connare

DEPTH FEET	SAMPLE STRATA SYMBOL	SAMPLE "S" NO.	SAMPLE "N" NO.	SAMPLE REC (%)	DESCRIPTION Color	DESCRIPTION Material Description	USCS	REMARKS PID (ppm)	REMARKS MOISTURE
		Hand Clear				Concrete over gravel		0	
					Brown	Fine to medium SAND, some medium gravel and cobbles (FILL).	SW	0	Moist
5									
		1		22	Grey Brown	Fine to medium SAND, trace silt, concrete, and fine to medium gravel (FILL).	SW	0	
					Grey	Fine to medium SAND, trace silt.	SW	0	Moist
10								0.2	Wet
		2		33	Brown	Fine to medium SAND, trace silt and fine to medium gravel.	SW	0	
15						Fine to medium SAND, trace silt and fine gravel.	SW	0	
		3		98		Same as above	SW	0	
20									
		4		98		Same as above	SW	0	
25									
						End of boring at 25'			
30									
35									
40									

COMMENTS: Drill using Macro core and 3.5" temporary casing, then clear boring to depth with 3.25" solid stem augers and install 2" PVC well with screen 15 to 25' and adjacent soil gas point 7.5 to 8'. Retain 7.5-9.5' sample for analysis.

PROJECT NO.	11177058
BORING NO.	MW-8/SG-8

URS Corporation

TEST BORING LOG

PROJECT:	Former Drape Master	**BORING NO:**	MW-9/SG-9
CLIENT:	NYSDEC	**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental	**JOB NO.:**	11177058
RIG TYPE:	Geoprobe 7720DT	**BORING LOCATION:**	Astoria Blvd at 25th
SAMPLER:	2" dia Macro core	**DATE STARTED:**	4/10/2014
GROUNDWATER:	**SURVEY DATA** MW-9 SG-9	**DATE FINISHED:**	4/10/2010
DATE / **DEPTH**	**GROUND ELEVATION:** 21.67 21.67	**DRILLER:**	C. Hernandez
4/10/2014 / 13.5'	**NORTHING:** 217547.17	**GEOLOGIST:**	J. Crespo
	EASTING: 1017291.51	**REVIEWED BY:**	K. Connare

DEPTH FEET	SAMPLE STRATA SYMBOL	SAMPLE "S" NO.	SAMPLE "N" NO.	SAMPLE REC (%)	DESCRIPTION Color	DESCRIPTION Material Description	USCS	REMARKS PID (ppm)	REMARKS MOISTURE
						Concrete over gravel		0	
		Hand Clear			Brown	Fine to medium SAND, some coarse gravel and brick.	SW	0	Moist
					Dk Brown	Perched water at 3.5'. Petroleum odor (FILL).			Wet
									Moist
5					Grey				
						Fine to coarse SAND, some silt, trace clay.	SW	0.5	
								2.1	
		1		33	Black	Fine to medium SAND, some gravel, strong petroleum		6.4	
						odor.	SW	2.3	
10									
					Grey		SW	3.4	
								0.1	
		2		58	Brown	Fine to medium SAND, trace silt and fine gravel.	SW	0	
									Wet
15									
						Same as above	SW	0	
		3		77					
20									
						Same as above	SW	0	
		4		97					
25									
						Same as above	SW	0	
		5		93					
30									
						Same as above	SW	0	
		6		87					
35									
						End of boring at 35'			
40									

COMMENTS: Drill using Macro core and 3.5" temporary casing, then clear boring to depth with 3.25" solid stem augers and install 2" PVC well with screen 25 to 35' and adjacent soil gas point 7.5 to 8'. Retain 8-10' sample for analysis. Later reinstalled soil gas point 5.5 to 6' because of high water table.

PROJECT NO.	11177058
BORING NO.	MW-9/SG-9

URS Corporation							TEST BORING LOG	
PROJECT:	Former Drape Master						**BORING NO:**	MW-10/SG-10
CLIENT:	NYSDEC						**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental						**JOB NO.:**	11177058
RIG TYPE:	Geoprobe 7720DT						**BORING LOCATION:**	Astoria Blvd at Hess Sta.
SAMPLER:	2" dia Macro core						**DATE STARTED:**	4/10/2014
GROUNDWATER:		**SURVEY DATA**		MW-10	SG-10		**DATE FINISHED:**	4/10/2010
DATE	**DEPTH**	**GROUND ELEVATION:**		23.23	23.23		**DRILLER:**	C. Hernandez
4/10/2014	13'	**NORTHING:**		217516.65			**GEOLOGIST:**	J. Crespo
		EASTING:		1017482.93			**REVIEWED BY:**	K. Connare

DEPTH FEET	SAMPLE STRATA SYMBOL	SAMPLE "S" NO.	SAMPLE "N" NO.	SAMPLE REC (%)	DESCRIPTION Color	DESCRIPTION Material Description	USCS	REMARKS PID (ppm)	REMARKS MOISTURE
		Hand Clear				Concrete over gravel		0	
					Brown	Fine to medium SAND, some concrete (FILL).	SW	0	Moist
5									
		1		5		Fine to medium SAND, some fine gravel and concrete (FILL).	SW	0	
10									
		2		23	Black / Brown	Fine to medium SAND, some fine gravel and concrete (FILL).	SW	0	
						Medium SAND, some silt and gravel.	SW		Wet
15									
		3		63		Same as above	SW	0	
20									
		4		80		Same as above	SW	0	
25									
		5		93		Fine to medium SAND, trace silt, and coarse gravel.	SW	0	
30									
		6		87		Same as above	SW	0	
35									
						End of boring at 35'			
40									

COMMENTS: Drill using Macro core and 3.5" temporary casing, then clear boring to deoth with 3.25" solid stem augers and install 2" PVC well with screen 20 to 30' and adjacent soil gas point 7.5 to 8'. Retain 11-13' and 15-17' samples for analysis.

PROJECT NO.	11177058
BORING NO.	MW-10/SG-10

URS Corporation							TEST BORING LOG	
PROJECT:	Former Drape Master						**BORING NO:**	MW-11/SG-11
CLIENT:	NYSDEC						**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental						**JOB NO.:**	11177058
RIG TYPE:	Geoprobe 7720DT						**BORING LOCATION:**	Astoria in front of laundromat
SAMPLER:	2" dia Macro core						**DATE STARTED:**	4/9/2014
GROUNDWATER:		**SURVEY DATA**		MW-11	SG-11		**DATE FINISHED:**	4/9/2014
DATE	**DEPTH**	**GROUND ELEVATION:**		23.43	23.43		**DRILLER:**	C. Hernandez
4/9/2014	9'	**NORTHING:**		217634.93			**GEOLOGIST:**	J. Crespo
		EASTING:		1017491.8			**REVIEWED BY:**	K. Connare

DEPTH FEET	SAMPLE STRATA SYMBOL	SAMPLE "S" NO.	SAMPLE "N" NO.	SAMPLE REC (%)	DESCRIPTION Color	DESCRIPTION Material Description	USCS	REMARKS PID (ppm)	REMARKS MOISTURE
		Hand Clear				Concrete over gravel		0	
					Brown	Fine to medium SAND, some medium gravel and concrete (FILL).	SW	0	Moist
5									
					Dk Brown	Fine to medium SAND, some silt and bvrick, trace concrete and gravel (FILL).	SW	0	
		1		22	Brown	Fine to medium SAND, trace silt, some faint layers of dark brown sand.	SW	0	
10									Wet
					Brown	Fine to medium SAND, some medium gravel.	SW	0	
		2		33				0.6	
15								0.9	
		3		98		Fine to medium SAND, trace silt.	SW	0	
20									
		4		98		Medium tro coarse SAND, some fine to medium gravel.	SW	0	
25									
						End of boring at 25'			
30									
35									
40									

COMMENTS: Drill using Macro core and 3.5" temporary casing, then clear boring to depth with 3.25" solid stem augers and install 2" PVC well with screen 15 to 25' and adjacent soil gas point 7.5 to 8'. Retain 7-9' sample for analysis.

PROJECT NO.	11177058
BORING NO.	MW-11/SG-11

URS Corporation							TEST BORING LOG	
PROJECT:	Former Drape Master						**BORING NO:**	MW-12/SG-12
CLIENT:	NYSDEC						**SHEET:**	1 of 1
CONTRACTOR:	Zebra Environmental						**JOB NO.:**	11177058
RIG TYPE:	Geoprobe 7720DT						**BORING LOCATION:**	Astoria Blvd at E of laundromat
SAMPLER:	2" dia Macro core						**DATE STARTED:**	4/9/2014
GROUNDWATER:		**SURVEY DATA**		MW-12	SG-12		**DATE FINISHED:**	4/9/2014
DATE	**DEPTH**	**GROUND ELEVATION:**		24.07	24.07		**DRILLER:**	C. Hernandez
4/9/2014	9'	**NORTHING:**		217601.4			**GEOLOGIST:**	J. Crespo
		EASTING:		1017607.03			**REVIEWED BY:**	K. Connare

	SAMPLE				DESCRIPTION			REMARKS	
DEPTH FEET	STRATA SYMBOL	"S" NO.	"N" NO.	REC (%)	Color	Material Description	USCS	PID (ppm)	MOISTURE
		Hand Clear				Concrete over gravel		0	
					Brown	Fine to medium SAND, some coarse gravel and concrete (FILL).	SW	0	Moist
5									
					Dk Brown	Fine to medium SAND, trace concrete (FILL).	SW	0	
		1		35			SW	0	
					Brown	Fine to medium SAND, trace silt.			
10									Wet
						Fine to coarse SAND, trace silt, some medium gravel.	SW	0	
		2		40					
15									
						Fine to medium SAND, trace silt, some coarse gravel.	SW	0	
		3		75					
20									
						Same as above, some fine gravel.	SW	0	
		4		82					
25									
						End of boring at 25'			
30									
35									
40									

COMMENTS: Drill using Macro core and 3.5" temporary casing, then clear boring to depth with 3.25" solid stem augers and install 2" PVC well with screen 15 to 25' and adjacent soil gas point 7.5 to 8'. Retain 7-9' sample for analysis.

PROJECT NO.	11177058
BORING NO.	MW-12/SG-12

URS Corporation

TEST BORING LOG

BORING/WELL NO:	**MW-13**
PROJECT:	Former Drape Master
SHEET:	1 of 2
CLIENT:	NYSDEC
JOB NO.:	11177058
BORING CONTRACTOR:	Zebra Environmental
BORING LOCATION:	89th St
GROUNDWATER (BTOC):	
GROUND ELEVATION:	
DATE STARTED:	05/27/15
DATE FINISHED:	05/27/15
DRILLER:	Quincy Brandt
GEOLOGIST:	John Crespo
REVIEWED BY:	Kevin Connare

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE	steel			
DIA.	3 1/4"	2"		
WT.				
FALL				

DEPTH FEET	STRAT. SYMBOL	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	REC. RQD	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS CLASS	REMARKS PID	REMARKS Moist.
		Hand Clear				brown	medium	Concrete 4" FILL: fine-med sand and gravel, crushed concrete and roots. fine-med SAND and gravel.		0.0	moist
5		1			43%		medium/dense	Fine-med SAND, fine-coarse subrounded gravel, trace silt. Crushed green rock at 7' and at 9'.	SM	0.0	
10		2			37%		medium	Fine-med SAND, some fine-coarse gravel		0.0	
15		3			13%		medium/loose	Fine-med SAND with fine black crushed gravel at 19'. Trace silt.		0.0	
20	▽	4			10%			Fine-med SAND. trace silt. Coarse black gravel at 24'.		0.0	
25		5			30%			Fine-med SAND, trace silt. Fine black subrounded gravel. Some coarse gravel at 29' bgs.		0.0	wet

COMMENTS: Boring advanced using a Geoprobe GP 20 Model 6610 DT.
SV-13 installed to 8' approx. 2' south
No soil samples for lab analysis collected.

PROJECT NO. 11177058.00000
BORING/WELL NO. MW-13

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URS Corporation

TEST BORING LOG

BORING/WELL NO:	**MW-13**
PROJECT:	Former Drape Master
SHEET:	2 of 2
CLIENT:	NYSDEC
JOB NO.:	11177058
BORING CONTRACTOR:	Zebra Environmental
BORING LOCATION:	89th Street
GROUNDWATER (BTOC):	
GROUND ELEVATION:	
DATE STARTED:	05/27/15
DATE FINISHED:	05/27/15
DRILLER:	Quincy Brandt
GEOLOGIST:	John Crespo
REVIEWED BY:	Kevin Connare

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE	steel			
DIA.	3 1/4"	2"		
WT.				
FALL				

DEPTH FEET	STRAT. SYMBOL	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	REC. RQD	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS CLASS	REMARKS PID	REMARKS Moist.
30		6			95%	brown		Fine-med SAND, trace silt. Dark brown band of sand 1" thick at 34'	SM	0.0	
35		7			96%			Fine-med SAND, trace silt.		0.0	
40								End of Boring at 40' bgs.			
45											
50											
55											

COMMENTS: Boring advanced using a Geoprobe GP 20 Model 6610 DT.
No soil samples for lab analysis collected.

PROJECT NO. 11177058.00000
BORING/WELL NO. MW-13

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URS Corporation

TEST BORING LOG

BORING/WELL NO:	**MW-14**
PROJECT:	Former Drape Master
SHEET:	1 of 1
CLIENT:	NYSDEC
JOB NO.:	11177058
BORING CONTRACTOR:	Zebra Environmental
BORING LOCATION:	Astoria Blvd
GROUNDWATER (BTOC):	
GROUND ELEVATION:	
DATE STARTED:	05/26/15
DATE FINISHED:	05/26/15
DRILLER:	Quincy Brandt
GEOLOGIST:	John Crespo
REVIEWED BY:	Kevin Connare

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE	steel			
DIA.	3 1/4"	2"		
WT.				
FALL				

DEPTH FEET	STRAT. SYMBOL	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	REC. RQD	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS CLASS	REMARKS PID	REMARKS Moist.
		Hand Clear				beige	dense	Concrete 4" FILL. Fine-med sand, fine gravel, crushed concrete.		0.0	dry
						brown	medium loose	Same as above with trace brick and concrete.	SM		moist
5		1			38%			Fine-med SAND and GRAVEL, trace silt. Trace coarse gravel at 9'.		0.0	
10	▽	2			75%			Fine-med SAND, trace silt. Fine-coarse gravel Same as above with some fine schist gravel.		0.0	wet
15		3			97%			Fine-med SAND, trace silt Fine-med SAND, trace silt, with some fine gravel.		0.0	
20		4			93%					0.0	
25								End of Boring at 25' bgs.			

COMMENTS: Boring advanced using a Geoprobe GP 20 Model 6610 DT.
No soil samples for lab analysis collected.

PROJECT NO. 11177058.00000
BORING/WELL NO. MW-14

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URS Corporation

TEST BORING LOG

BORING/WELL NO:	**MW-15**
PROJECT:	Former Drape Master
SHEET:	1 of 1
CLIENT:	NYSDEC
JOB NO.:	11177058
BORING CONTRACTOR:	Zebra Environmental
BORING LOCATION:	Astoria Blvd
GROUNDWATER (BTOC):	
GROUND ELEVATION:	
DATE STARTED:	05/26/15
DATE FINISHED:	05/26/15
DRILLER:	Quincy Brandt
GEOLOGIST:	John Crespo
REVIEWED BY:	Kevin Connare

	CAS.	SAMPLER	CORE	TUBE
TYPE	steel			
DIA.	3 1/4"	2"		
WT.				
FALL				

DATE	TIME	LEVEL	TYPE

DEPTH FEET	STRAT. SYMBOL	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	REC. RQD	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS CLASS	REMARKS PID	REMARKS Moist.
						beige		concrete 5"			
		Hand Clear				brown/ black	medium	Fill. Fine-med sand, med gravel and crushed concrete.		0.0	moist
						brown		Fine-med SAND, trace silt and fine gravel	SM		
5		1			73%	dk brown		Fine-med SAND, trace silt and med gravel.		0.0	
	▽										wet
10		2			67%			Fine-med SAND, fine gravel		0.0	
						brown/ gray	loose	Fine-med SAND, trace silt			
15		3			100%		medium/loose	Same with some med gravel.		0.0	
								Layer with some roots and dark brown sand.			
20		4			75%	brown	loose	Fine-med SAND, trace silt and some coarse gravel.		0.0	
25								End of Boring at 25' bgs.			

COMMENTS: Boring advanced using a Geoprobe GP 20 Model 6610 DT.
No soil samples were collected

PROJECT NO. 11177058.00000
BORING/WELL NO. MW-15

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APPENDIX C

MONITORING WELL CONSTRUCTION LOGS

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra

Driller: Luke Caballeri

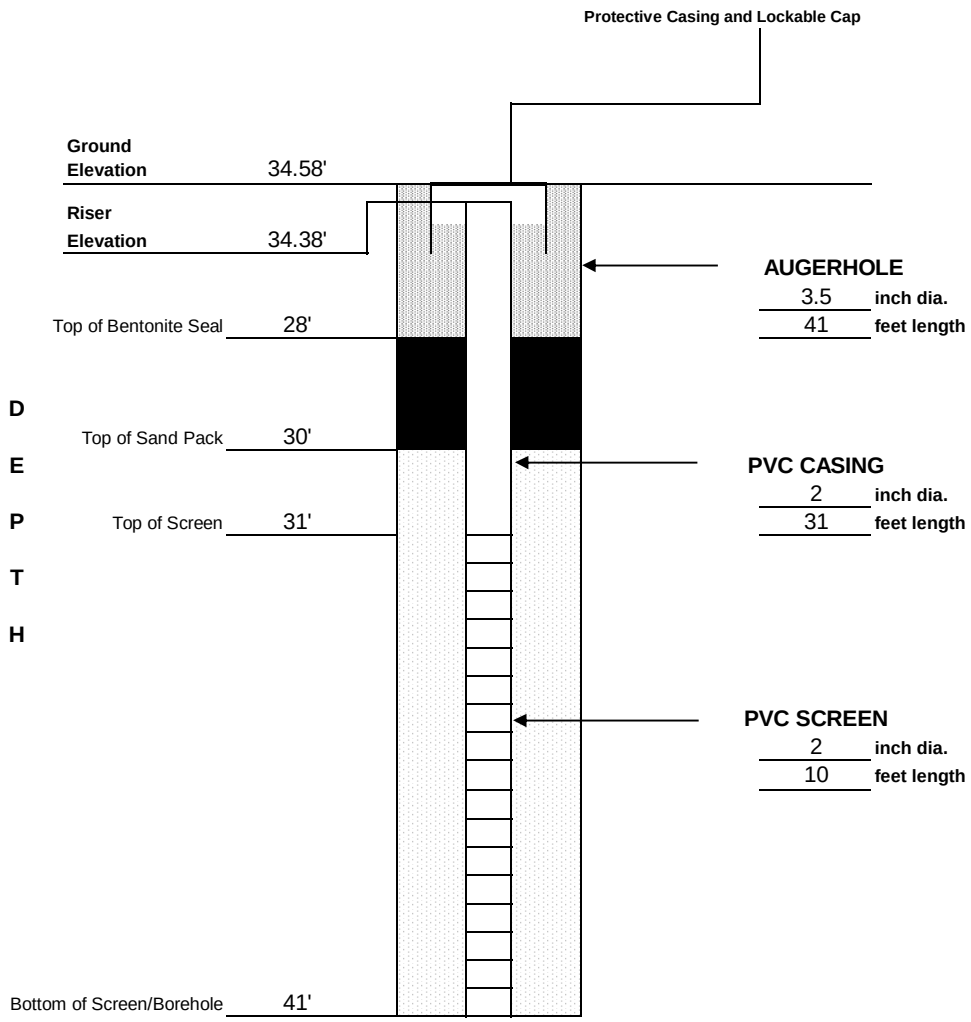
Rig Make/Model: GeoProbe

Date: 04/11/14

GEOLOGIC LOG

Depth(ft.)	Description
0 - 1'	Topsoil
1 - 41'	Fine to medium sand with varying amounts of silt and gravel.
	End of boring at 41'

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 30 - 41'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 28 - 30'

COMMENTS:
Installed soil vapor point adjacent to well to a depth of 7.5 to 8'.

LEGEND
- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058
URS Corporation	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** **MW-7**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra

Driller: Luke Caballeri

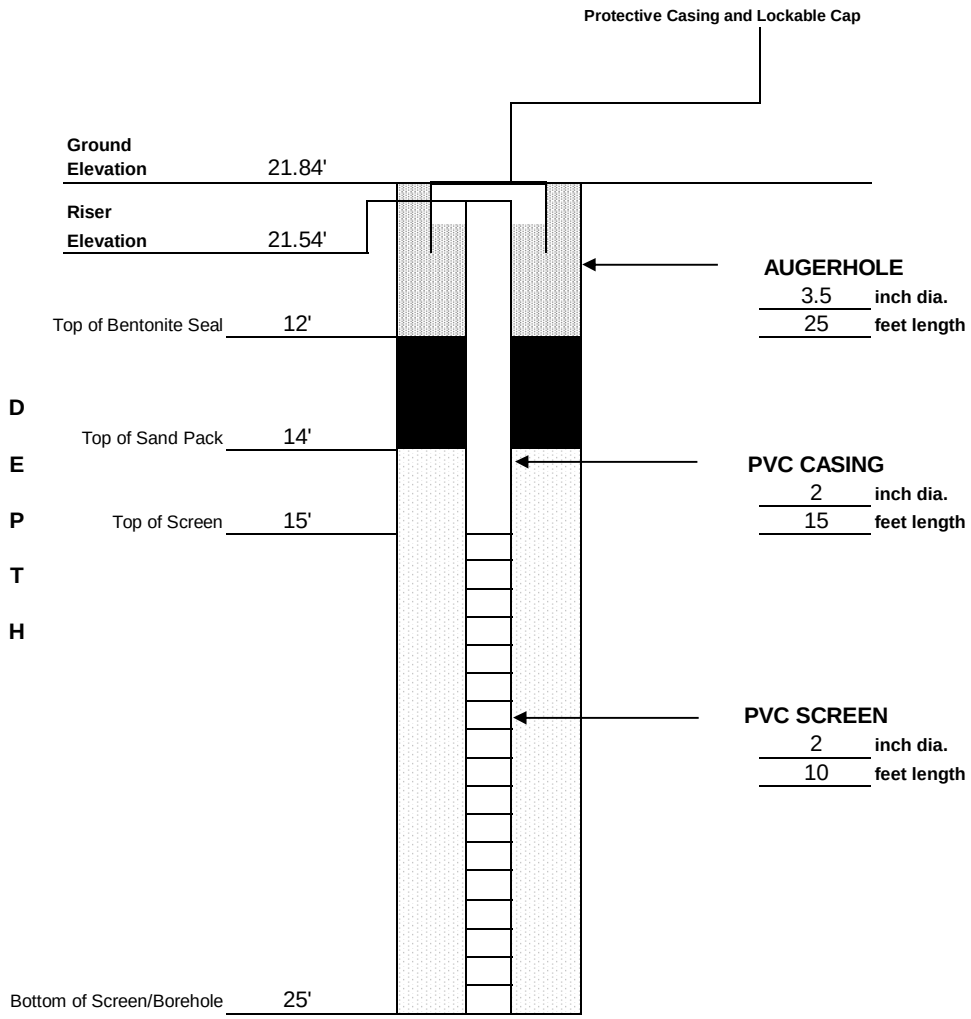
Rig Make/Model: GeoProbe

Date: 04/11/14

GEOLOGIC LOG

Depth(ft.)	Description
0 - 8"	Concrete and gravel
8" - 8'	Fill. Fine to med sand, med gravel and some cobbles and concrete.
8 - 25'	Fine to med SAND with varying amounts of silt and gravel
	End of boring at 25'

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 14 - 25'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 12 - 14'

COMMENTS:
Installed soil vapor point adjacent to well to a depth of 7.5 to 8'.

LEGEND
- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** **MW-8**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra

Driller: Carlos Hernandez

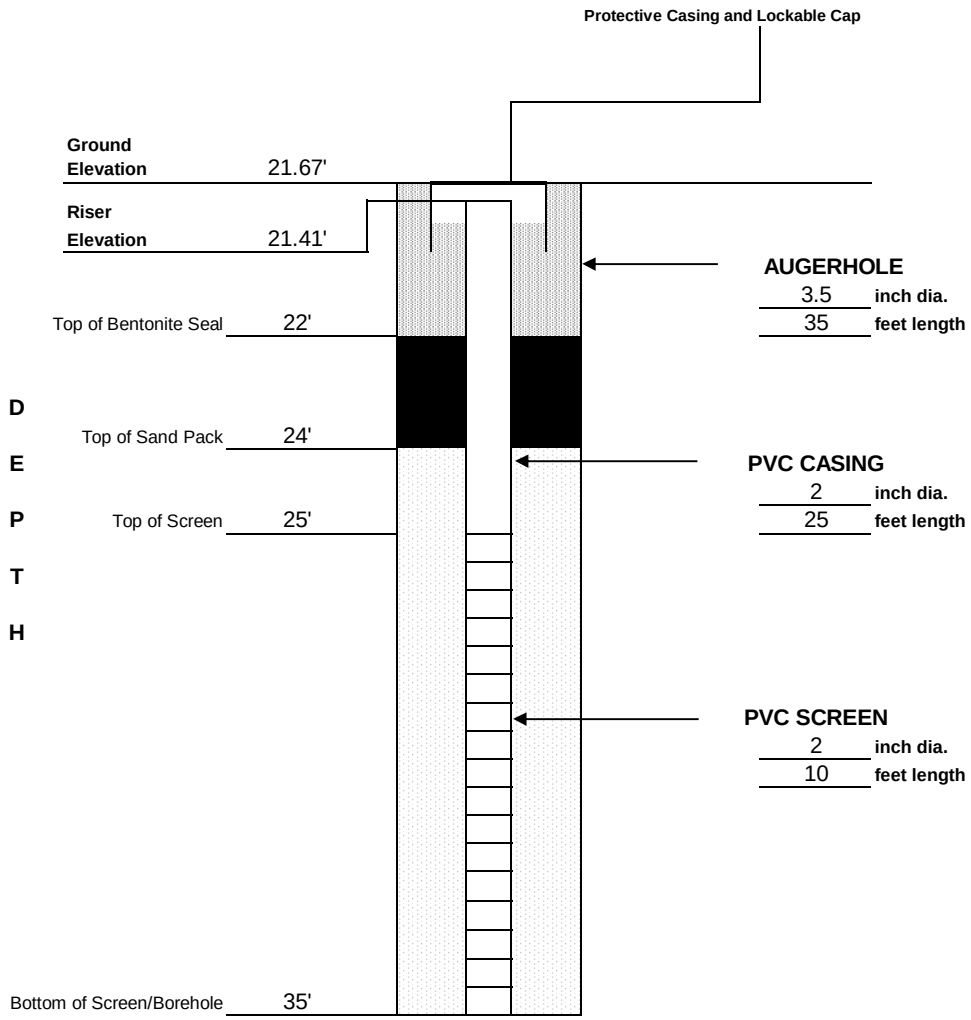
Rig Make/Model: GeoProbe

Date: 04/10/14

GEOLOGIC LOG

Depth(ft.)	Description
0 - 8"	Concrete and gravel
8" - 5'	Fill. Fine to med sand, med gravel, and some brick. Some odor.
5 - 35'	Fine to medium SAND with varying amounts of silt and gravel.
	End of boring at 35'

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 24 - 35'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 22 - 24'

COMMENTS:

Installed soil vapor point adjacent to well to a depth of 7.5 to 8'. Later reinstalled new soil vapor point 5.5 to 6' due to high water table.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	NYSDEC	**Location:**	Former Drape Master	**Project No.:**	11177058
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**		**Well Number:**	**MW-9**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra

Driller: Carlos Hernandez

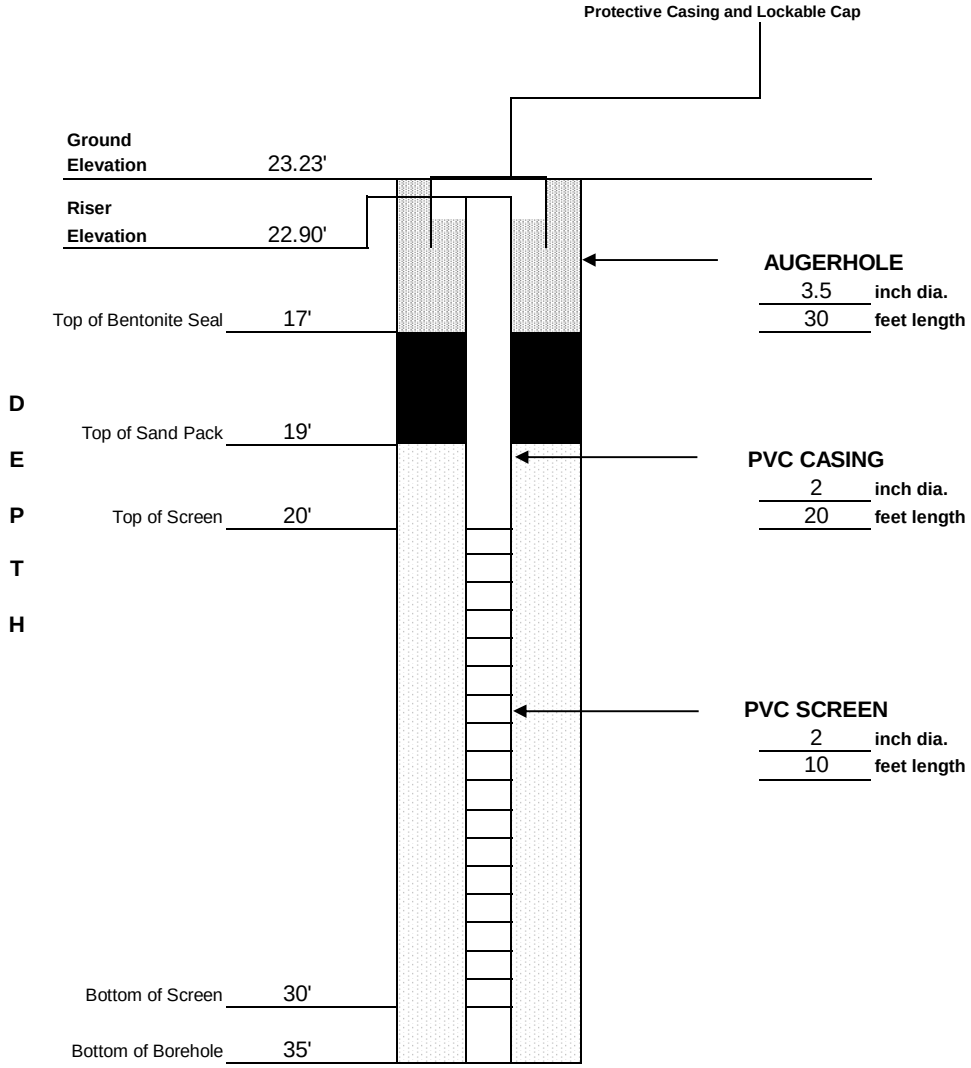
Rig Make/Model: GeoProbe

Date: 04/10/14

GEOLOGIC LOG

Depth(ft.)	Description
0 - 10"	Concrete and gravel
10" - 13'	Fill. Fine to med sand, med gravel and some brick and concrete.
13 - 35'	Fine to medium sand with varying amounts of silt and gravel.
	End of boring at 35'

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 19 - 30'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 17 - 19'

COMMENTS:
Installed soil vapor point adjacent to well to a depth of 7.5 to 8'.

LEGEND
- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** **MW-10**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra

Driller: Carlos Hernandez

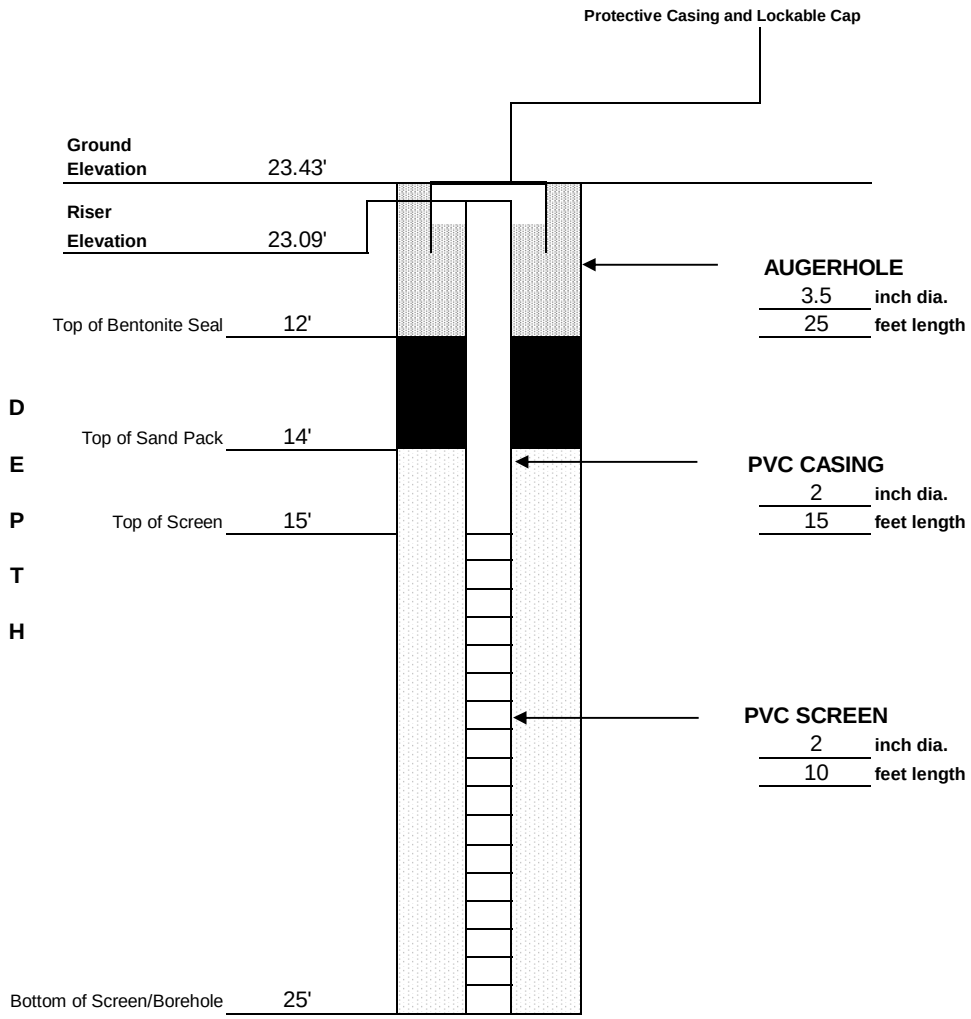
Rig Make/Model: GeoProbe

Date: 04/09/14

GEOLOGIC LOG

Depth(ft.)	Description
0 - 10"	Concrete and gravel
10" - 7'	Fill. Fine to med sand, med gravel, and concrete.
7 - 25'	Fine to coarse SAND with varying amounts of silt and gravel.
	End of boring at 25'

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 14 - 25'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 12 - 14'

COMMENTS:

Installed soil vapor point adjacent to well to a depth of 7.5 to 8'.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** **MW-11**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra

Driller: Carlos Hernandez

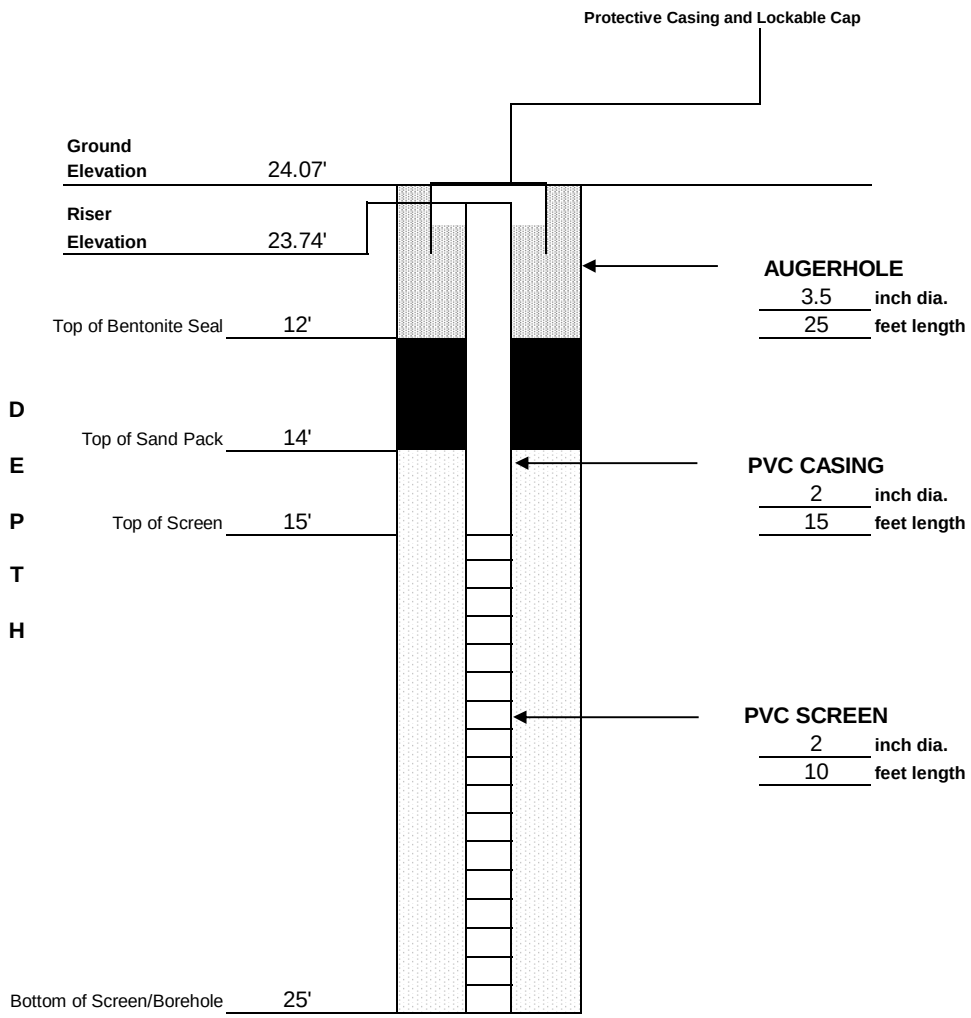
Rig Make/Model: GeoProbe

Date: 04/09/14

GEOLOGIC LOG

Depth(ft.)	Description
0 - 6"	Concrete
6" - 7'	Fill. Fine to med sand, med gravel, and concrete.
7 - 25'	Fine to medium sand with varying amounts of silt and gravel.
	End of boring at 25'

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 14 - 25'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 12 - 14'

COMMENTS:

Installed soil vapor point adjacent to well to a depth of 7.5 to 8'.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** **MW-12**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra Environmental

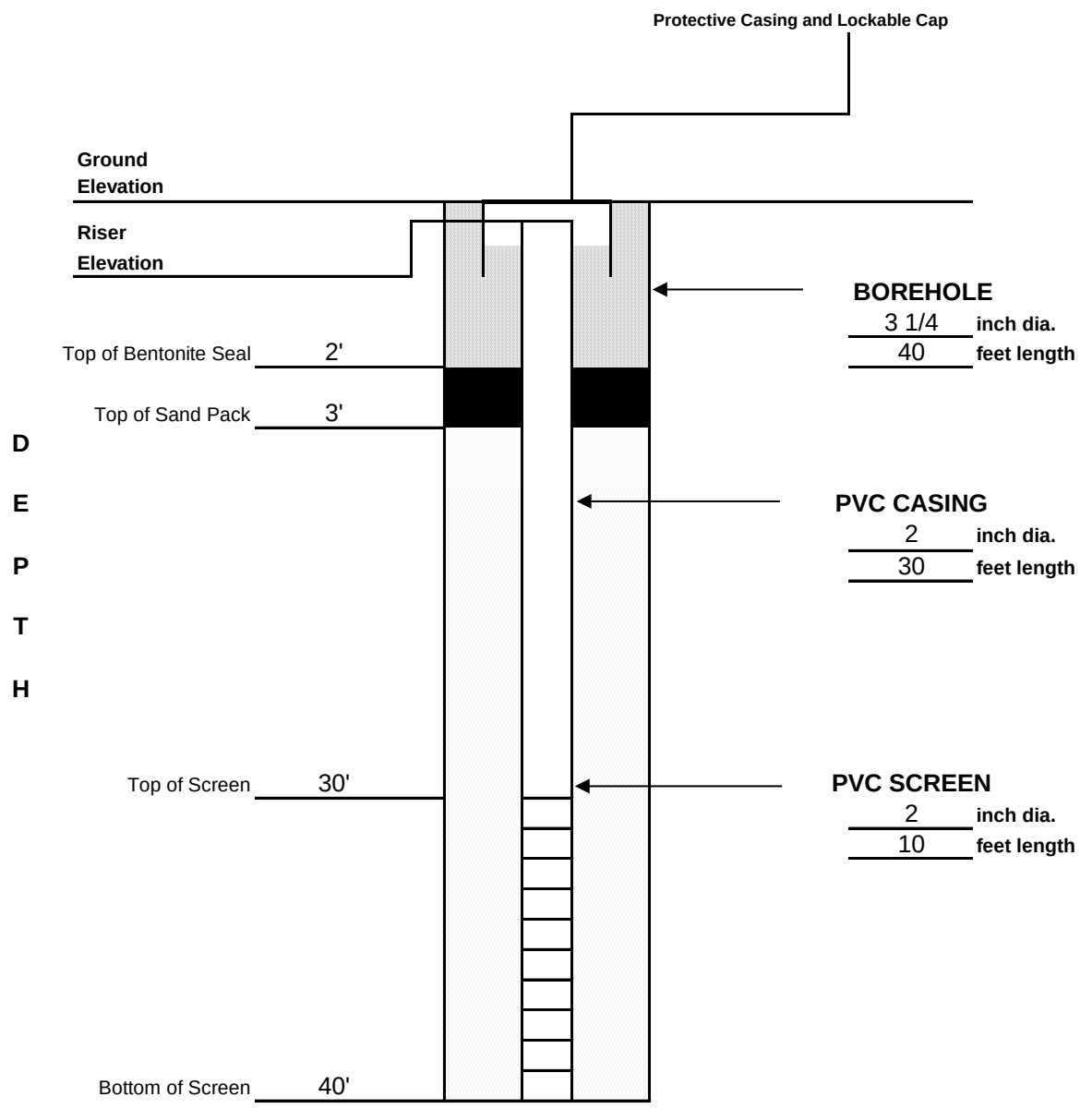
Driller: Quincy Brandt

Rig Make/Model: Geoprobe GP 20 Model 6610 DT

Date: 05/27/15

GEOLOGIC LOG

Depth(ft.)	Description
0 - 4"	concrete
4" - 5'	Fill. Fine to med sand crushed concrete, fine gravel and roots.
5' - 40'	Fine to med SAND, some fine gravel, trace silt.
	End of Boring at 40' bgs.



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 3' - 40'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 2' - 3'

COMMENTS:

Installed Soil Vapor Point SV-13 at location adjacent to MW-13
Total depth of SV-13 is 8' bgs.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058	
AECOM Corporation	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:**	**MW-13**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra Environmental

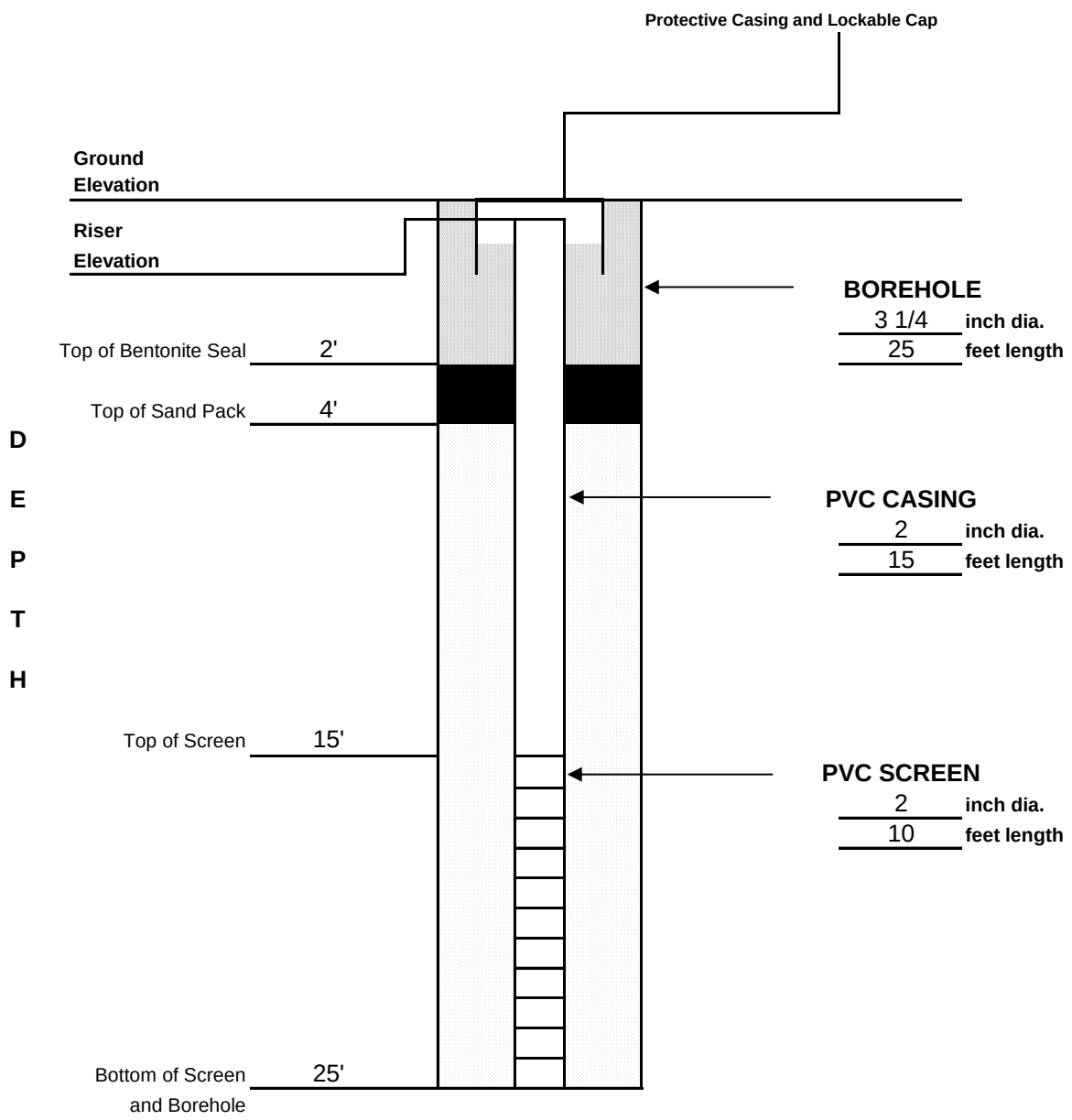
Driller: Quincy Brandt

Rig Make/Model: Geoprobe GP 20 Model 6610 DT

Date: 05/26/15

GEOLOGIC LOG

Depth(ft.)	Description
0 - 4"	concrete
4" - 5'	Fill: Fine to med sand, crushed concrete, brick, and fine gravel
5' - 25'	Fine to med SAND, trace silt, fine to coarse gravel.
	End of Boring at 25' bgs.



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 4' - 25'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 2' - 4'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058
AECOM Corporation	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** **MW-14**

DRILLING SUMMARY

Geologist: John Crespo

Drilling Company: Zebra Environmental

Driller: Quincy Brandt

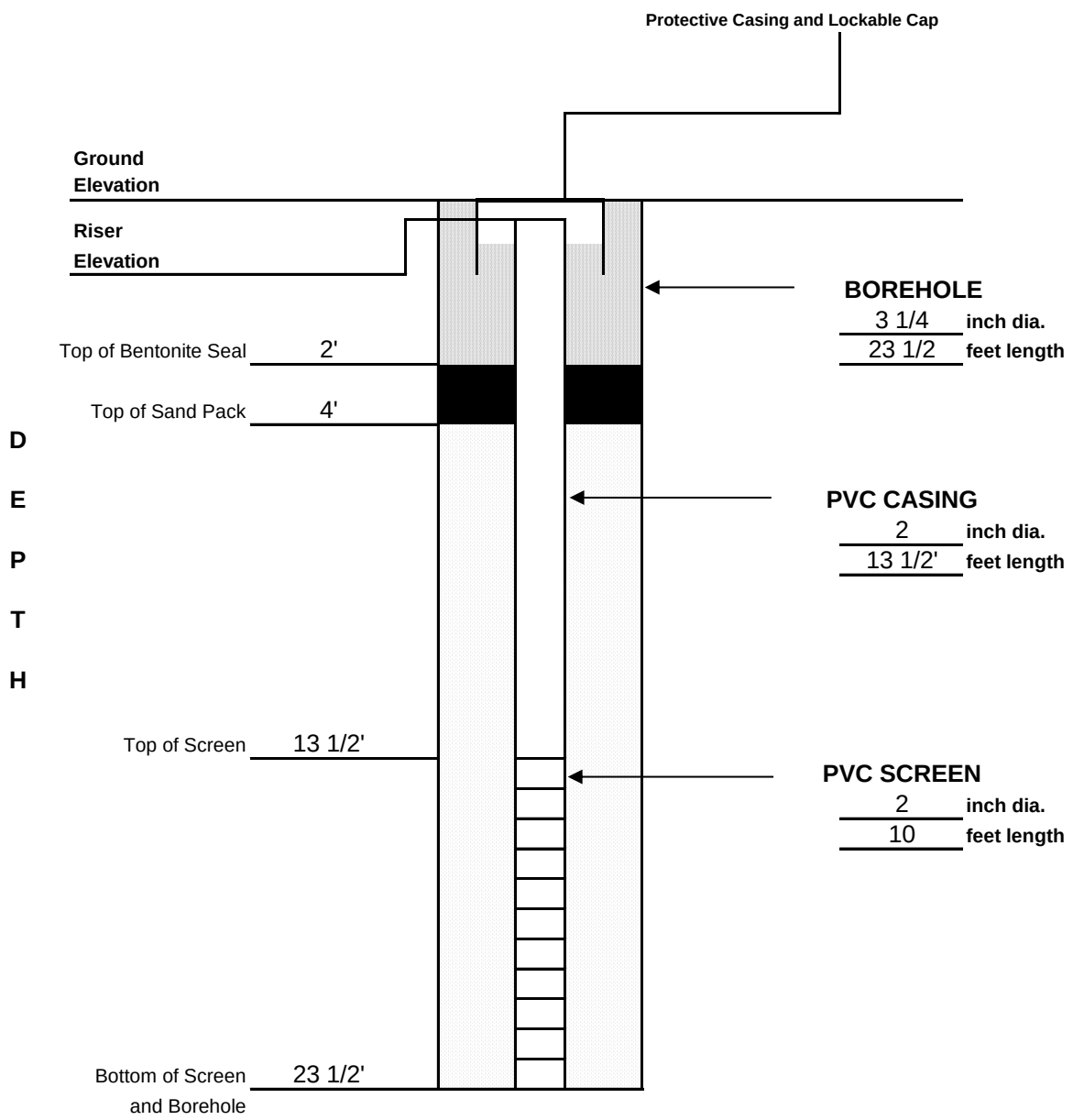
Rig Make/Model: Geoprobe GP 20 Model 6610 DT

Date: 05/26/15

GEOLOGIC LOG

Depth(ft.)	Description
0 - 5"	concrete
5" - 3'	Fill: Fine to med sand, some fine to med gravel.
3' - 25'	Fine to med SAND, trace silt, fine to coarse gravel.
	End of Boring at 25' bgs.

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Flush Mount Steel Cover	**Type:** 2" Schedule 40 PVC	**Type:** #2 Well Sand **Setting:** 4' - 23 1/2'
Riser: 2" Schedule 40 PVC	**Slot Size:** 0.020"	***SEAL MATERIAL*** **Type:** Bentonite **Setting:** 2' - 4'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	**Location:** Former Drape Master	**Project No.:** 11177058
AECOM Corporation	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** **MW-15**

APPENDIX D

FIELD NOTES

MONDAY 4/7/14

7:40 URS ON SITE (JOHN CROSS)
WEATHER - CLOUDY, TEMP ~ 40°F

7:50 ZEBRA ON SITE -
4 CREW MEN
CARLOS HERNANDEZ
WILSON
JOSE MARTINEZ
BEN DAVID

8:00 KEVIN LEMMONS ON SITE
NOTE: MET WITH PINE AT 7:30
~~[illegible]~~ AT A LOCATION NEARBY
AND THEY DELIVERED PID AND INTERFACE
WATER METER
8:15 GO OVER AREAS OF DRILLING
8:40 SAFETY MEETING
8:50 START CORING AT SB-01
LOCATED IN THE BASEMENT OF SITE.
9:40 CORED THROUGH FIRST
BORING LOCATION BUT IT SHOWS
SIGNS OF ANOTHER LAYER OF CONCRETE
BELOW.

4/7/14

WATER SEEMS TO BE AT 4" BELOW BASEMENT FLOOR

NOTE: ~~[illegible]~~ PREMIER IS ON SITE MARKING OUT GAS LINES

10:15 DRILLERS DETERMINE THAT THERE'S ANOTHER FLOOR (?) OR AT LEAST ANOTHER LAYER OF CONCRETE BELOW SB-1. THEY SAID THAT IT COULD BE A REMAINING FLOOR FOR GROUND WATER – EVEN AFTER VACUUMING OUT WATER, IT RETURNS TO 4". SUGGESTING THAT THIS IS THE LEVEL OF GROUND WATER

KEVIN TOLD THEM TO MOVE TO NEW LOCATION.

MEANWHILE – TWO OTHER ZOBRA CREWMEN ARE PROCEEDING AT BOTH WORK LOCATIONS IN THE STREET.

10:30 AMY FROM GEOPHYSICAL SURVEY IS ON SITE – SHE STARTS WORK ON STREET

10:50 DRILLERS CORE AND FIND SIMILAR CONDITIONS AT NEW

4/7/14

BORING LOCATION IN THE BASEMENT AGAIN ~~8~~ 5" OF CONCRETE OVER WHAT APPEARS TO BE CINDERBLOCK. WATER RISES UP TO 4" B.G.

10:53 DEC REP. ON SITE SADIQUE AHMED AND HE RECOMMENDS THE FLOOR TO BE DIFFERENT – THINKS THAT OWNER HAD A NEW FLOOR POURED OVER THE OLD ONE.

11:20 CREW (ONE – BEN) WENT BACK TO LYNBROOK TO ZOBRA'S YARD TO GET AN EXTENSION TO CORING MACHINE SO THAT IT CAN GO ~~FURTHER~~ FARTHER THAN 2 TO GET PAST THE SUBFLOOR

11:25 THE CREW PROCEEDING ON 89TH ST MOVED THE BORING 3' FURTHER NORTH BECAUSE GEOPHYSICAL PICKED UP A SIGNAL FOR ELECTRICAL LINE.

NOTE: DRILLING IN THE BASEMENT HAS STOPPED MOMENTARILY SO THAT EXTENSION CAN BE OBTAINED FROM YARD.

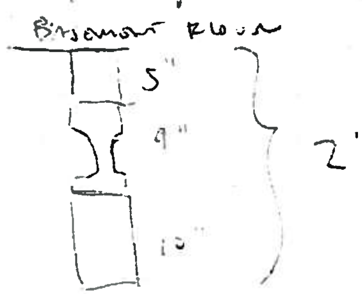
4/7/14

12:00 DEC asked that we install screen 10' into water table and that we will [illegible] as we drill so he can [illegible] us.

12:30 Crew members Wilson and Jose continuing to [illegible] while Carlos organizes and Ben is on his way back from shop.

12:40 Ben Rovers – Crew moves air compressor and [illegible] to air knife down to depth

13:13 Cut through floor below –



13:14 It appears we made it through. PID reading was zero

4/7/14

13:20 Coming through the ground using 3' samples. Begin to log in samples. DEC rep (Sadique Ahmed) told us that he wants [illegible] sample taken for water, in addition to soil.

13:30 Spoke with Lab and URS Buffalo about regarding the sampling to be done.

13:40 Call lab to [illegible] glassware and to schedule pick up.

14:00 Collect soil sample BB-01 [illegible] (13-15')

14:10 Begin to clean up & put away equipment. The portable drill rig will stay in basement.

14:30 Zebra left job site. URS left job site – end of workday

End of work day

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Tuesday 4/8/14

Weather: Rain, cloudy, temp ~ 46°F, then turning sunny, windy.

7:15 URS on site (John Crespo)

7:20 [illegible] on site. Carlos and Jose. Two other crew men and running late

7:30 Safety meeting

7:35 Start setting up in the basement. Laundromat is still closed to 9 am, but attendant came in at 7:35

8:00 [illegible] about where next boring to occur.

8:15 Start coring at BB-02

8:54 Cored through 2 of concrete

9:40 Sample 12-15 was stuck and the sample had to be pounded out

10:20 Finish drilling down to 20

Collect soil sampling BB-02 (18-20')

10:30 Set screen to 20

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10:20 Lab delivery of glassware and pick up.

11:00 Measure G.W. at two locations
MW-1 ≈ 8.73'
MW-6 ≈ 15.74

Crew is moving drill rig back to truck along with other equipment and mat'l.

11:45 Collect G.W. sample at BB-02
Purged about 0.75 gal. before sampling

12:00 Collect solid waste characterization sample
Sample ID w. @ 12:00
from soil cuttings

12:10 Collect G.W. sample at BB-01 the following samples were collected at BB-01
[illegible] VOC, BNA, Pest/PCB, [illegible] metals, [illegible], CN
This is part of 3.2 sampling

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4/8/14

12:40 CLEAN UP OF EQUIPMENT IN BASEMENT BEGINS

13:00 CREW PRE CLEARING BORING FOR MW-11

13:15 FINISH PACKING COOLER WITH ALL SAMPLES LABELED

NOTE: ZEBRA BROUGHT UP THE ISSUE THAT POINT MW-8 IS LOCATED AT A BUS STOP AND ~~NEW~~ NYC RULES STATE (AS PER PERMIT) THAT WE CANNOT DO DRILLING WITHIN 20' OF NO STANDING SIGN - NYSDEC REP SPOKE WITH KEVIN C. AND THEY DECIDED THAT ZEBRA WILL CALL IN UTILITIES FOR MARK OUTS AND THEY'LL PRE CLEAR TO 5' AS USUAL. BORING WILL BE RELOCATED

14:10 FINISH PRE CLEARING MW-11 (MW-12 WAS COMPLETED EARLIER) START CLEAN UP ALL THOSE BORINGS SEALED UNDER BASEMENT WITH CONCRETE, SOIL CUTTINGS LEFT THERE BECAUSE OF NO SPACE IN DRUM OUTSIDE.

14:40 ZEBRA LEFT SITE

13:40 NYSDEC LEFT SITE

15:00 ML LEFT SITE

END OF WORK DAY

WEDNESDAY 4/9/14

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CONDITION: SUNNY, TEMP. ~50 F

7:20 LRS ON SITE (J RUSSO)

7:45 ZEBRA ON SITE
EQUIPMENT: 650 PROBE GP 34
IN A BOX TRUCK
UTILITY TRUCK WITH EQUIPMENT TO PRE CLEAR AND INSTALL WELL VAULTS

7:50 SAFETY MEETING
CREW OF ZEBRA (4)
WILSON HERNANDEZ
CARLOS HERNANDEZ
JOSE ~~HERNANDEZ~~ MARTINEZ
LUIS CASALONGA

8:05 CALL PINE ENV. TO HAVE INTERFACE PROBE REPLACED BECAUSE THE ONE SENT TO US SHOWED OF PRODUCT NOP

8:20 START TO PRE CLEAR BY HOSE STATION AT MW-10

8:30 START TO DRILL AT MW-12
COLLECT FIRST SAMPLES 5'-10

4/9/14

OBSERVED WATER TABLE AT AROUND 9'. WILL SET SV POINT AT 8

9:20 collect soil sample MW-12 (7-9') For TCL VOC analysis EPA METHOD 8260B

9:35 START TO SET SOIL VAPOR POINT ADJACENT TO MW-12

9:50 FINISH PRE CLEARING MW-10

10:12 START SETTING UP ON MW 9 MEANWHILE CREW IS FINISHING UP INSTALLING MANHOLE FOR MW-12 THEY WILL COMPLETE IT AND MOVE OVER TO NEXT POINT

10:20 called Sadique Ahmed (NYSDEC) WITH UPDATE ON WORK

10:28 START TO SAW CUT AT MW-9 TO MOVE BARRICADES FROM MW 9 OVER TO MW-11 IN order TO BETTER CLOSE OFF WORK AREA TO PEDESTRIANS

11:05 START SETTING UP DRILL RIG ON MW-11

4/9/14

11:30 START Drilling at MW-11

11:40 USIC on site to mark out utilities.

11:45 Reached water at 9' B.G. - collect sample MW 11 (7-9')

12:10 Sample at 13 15' - PID 20.9 MW-11 (13-15')

12:20 Finish [illegible] GEO [illegible] marking OUT UTILITIES

12:18 CALL SADIQUE (NYSDEC) TO GIVE UPDATE. HE SAID TO SAMPLE AT (13-15')

12:15 - 1245 Lunch on break

12:45 MW-9 Pre Clearing Done. NOTE, Saw GROUND WATER IN THIS hole. LOOKS FROM ABOUT 3-4' - POSSIBLY PERCHED WATER. WILL VACUUM OUT AND DRILL TOMORROW

13:05 BEGIN TO INSTALL WELL USING 3 1/2 CASING. NOTE: THIS WELL WILL BE EXACTLY AS PREVIOUS WELL

4/9/14

13:40 Finish closing up MW-9
Move equipment over to MW-8
Decide that it's too late to start
up on clearing MW-8, instead
crew will focus on cleaning out
basement rotary work.
Other crew members continue to
finish MW-11

14:05 Spoke with attendant at
Dry Cleaners to show the condition
of area and if she had any problems
She declined and said that it should
all be OK. I took photos of
boring locations

14:15 Put drums inside enclosure
at corner of 89th St + [illegible] Blvd.
Note one solid drum, one liquid, one empty
Zebra continues to put away
equipment.

14:30 Take photos of work.
14:45 Zebra left site
15:00 URS left site
End of work day

Thursday 4/10/14

Weather: Sunny, temp ~ 50°F

7:20 URS on site ([illegible])
7:40 Calibrated PID
7:50 Zebra on site
7:55 Safety meeting
Ross
Carlos
Wilson
Luis

8:00 Spoke with laundromat attendant
and got gate to drums opened
8:20 Start setting up on
hand clearing MW-8 and
drilling at MW-9
Note there was a crew of road
pavers - they moved by the
time that we had to work on
that spot

8:30 Set up drill rig on
MW-9

4/10/14

9:00 Start Drilling at MW 9 Other Crew continues to P&A Clean MW-8.

9:30 Samples interval MW-9 8-10 is very contaminated PID is low (max ≈ 6.4) But the smell is strong and color is Black.

9:40 Called Sadique to give update, He said to collect sample at this location for HOT. Also said to collect sample for VOC soils at interval above water

9:50 Collect MW-9 (8-10')

10:00 GW observed ≈ 13½' According to wet sheen and Driller's observation

10:10 Collect Soil Sample MW-9 (11½-13½) Justification — Above GW location

10:25 Lab Delivers Glassware. Asked him if he could wait until I finish sampling for FB using DI water and he claims that he is delivering

4/10/14

10:30 Collect (finish) sampling FB041014

10:38 Reach 35' NYSDEC Sadique said to put well at 35' with screen 25-35'

10:40 Begin to set well

10:55 Begin to set soil gas point to 12' (justification - at least 1' above GW level)

Note At 9:50 Drillers working on P&A closing MW-8 called me to show me that they had [illegible] the 5½ level with no incident — only fill with Brown sand. No incidents or utilities. They closed up the boring and then came over to MW-9 to help set soil vapor point and to install the casing.

11:20 Spoke with Kevin about Duplicates said to call lab and ask them to run dups from MW 9 (8-10)

11:30 Crew setting up Drill Rig

4/10/14

AT MW-10
11:50 Rosewood CW AT MW-10
AT 13'
12:00 Call Sadiano and informed him.
He said to collect sample at 12-13'
Because of staining and PID ~1.7
12:15 Discard all soil samples
13:15 Spoke with Sadiano - said
to put vapor to 20-30' screen.
vapor point to 8'
In fact, all vapor points are
to be installed to 8' unless
The water is too high -
13:30 lunch
14:00 Finish packaging samples
14:15 One driller came back from
lunch - the other still out
14:35 2nd driller finally came
Back from lunch - (1 hr 45 min?)
14:38 Crew begin to install
well - screen 20-30'
Soil vapor point to 8'
15:08 The car that was parked
in front of MW-7 is still there.

4/10/14

Possibly because the owner works nights?
There is a clearance of 5½' bet.
Fence and tree adjacent to point
Dual rig is 5' wide. It may work
15:32 Crew is setting concrete on
well points.
15:50 Finish well vault concrete
16:05 After signing Zebra's drivers
they left site.
16:10 Update notes.
16:15 Take photo and leave site.
End of work day

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Friday 4/11/14

Weather: Cloudy, temp. ~ 50F

7:25 was on site: John Cross ?
7:35 Calibrate PID
7:40 Inspect location for MW-7. The parking spots next to it are occupied. We may be unable to sample by-
7:45 [illegible] on site. Discuss today's events with drillers (Lukas and Wilson - only two today)
7:50 Safety meeting. We will be drilling near (adjacent to) bus stop. We must be extra careful.
8:10 Got key from Laundry Mat attendant for gate at corner so we can access waste drums
8:20 Label the drums.
Continue setting up on bus stop MW-8
8:45 Take photo of set up at MW-8
8:46 Start drilling at MW-8

4/11/14

9:00 Reached GW at 9½'
9:20 Reached 25' stopped to get directions from NYSDEC.
9:30 Collect soil sample MW-8 (7½ - 9½')
While waiting for [illegible] to call back. (I left message a few min. ago)
9:40 Call [illegible] again
9:45 [illegible] crew went across the street to reset soil vapor point at MW-9 (which was set to 12' originally)
10:05 Fix depth of screen to 8' by simply pulling up entire tubing.
Note: Had difficulty opening up with box because cover was stuck. Had to use hammer + punch to loosen cover.
10:10 Spoke with Kevin [illegible]. Have not been able to contact [illegible] at his office and the operator at main number said that he was out today.

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4/11/14

ATTEMPTED TO CALL HIS PERSONAL CELL, BUT GOT MESSAGE THAT NUMBER IS INCORRECT

MW-8

10:15 BEGIN TO INSTALL M-WELL SET SCREEN 15-2'

SOIL VAPOR POINT SET TO 8'

10:45 FINISH INSTALLING CASING AND SCREEN FOR M-WELL AND START PB.

11:00 BEGIN TO MOVE EQUIPMENT OVER TO NEXT LOCATION MW-7

11:20 SPEAK WITH SADLER (DIFFERENT CELL #) HE SAID TO LET HIM KNOW WHEN WE REACH G.W. AT MW 2 AND THAT HE WAS OK WITH THE WAY THAT MW 8 WAS SET UP.

11:45 START DRILLING AT MW-7

NOTE: THE CAR PARKED IN FRONT OF BUILDING

11:16 WE REACHED G.W. AT 19'

STARTED TO CALL SADLER ON HIS CELL #. LEFT TWO MESSAGES.

4/11/14

12:25 CALLED KEVIN ABOUT ~~WHAT~~ WHAT TO DO.

12:27 TOLD BOYS TO CONTINUE WHILE I ATTEMPT TO REACH SADLER AGAIN.

12:30 SPOKE WITH SADLER, HYSDTC HE SAID TO SET WELL TO 41' SCREEN 31-41 AS LONG AS PID READINGS CONTINUE TO BE ZERO.

12:45 TOLD DRILLERS INFORMED ME THEY ONLY HAD 6 MORE RODS TO SAMPLE DOWN TO 40 BUT WE DID HAVE ENOUGH TO SET WELL TO 41'.

13:15 REACHED 40 SAMPLES. NO PID READINGS, NO SMELL, AND STAINING.

NOTE COLLECTED SOIL SAMPLE MW-7 (17-19')

WHICH WAS RIGHT ABOVE G.W.

13:30 CALLED SADLER AND LEFT MESSAGES.

13:40 SADLER CALLED BACK. HE SAID THAT IT WAS OK TO SET WELL TO 41' EVEN THOUGH

4/11/14

WE ONLY SAMPLED TO 40' AS LAST AS P.I.D READINGS HAVE BEEN ZERO ALL ALONG.

MEANWHILE, CREW IS WORKING ON SETTING WELL TO 41'.

13:57 CREW TAKES A SHORT BREAK

14:00 LAB DRIVERS GLASSWARE FOR TCLP SAMPLING OF LIQUID.

14:10 COLLECT WATER SAMPLES FOR TCLP BRIAN DRIVE WITH CHAIN OF CUSTODY

14:20 HAND OVER TO LAB DRIVER ALL SAMPLES

14:40 CREW RINSES EQUIPMENT AND PPE FOR WORK - THEY BEGIN TO CLEAN UP.

14:45 CLOSE UP ALL DRUMS AND LOCK GATES

15:15 TETRA LEFT SITE

15:30 LAB LEFT SITE AFTER TOOLBOX ATTENDANCE AT DAY CLEARANCE THAT WORK IS FINISHED FOR TODAY.

EMAILED KEVIN C. WITH UPDATE.

END OF WORK DAY

Tuesday 4/15/19

Weather; wind driven rain, heavy at times. Temp ~ 60°F

7:30 VRS arrive on site:
Go over work plan - inspect site - get keys for gate.

8:00 Call Zobra - ask them to bring empty drums - originally called waste disposal contractor, but they said that they were not responsible for supplying drums.
Zobra said they'll deliver [illegible] morning

8:30 Pine delivers equipment and materials. The a small compressor was not ordered.
8:40 went to Home Depot to rent a portable compressor and fitting for surging tool.
Pine delivered a fitting that was not usable in its shape.

4/15/19

[illegible]:00 return from Home Depot.
Set up on MW-12
Note - rain is very heavy at times
10:30 Put together equipment. Lexan material that is to be used for weighted base
11:00 Start purging MW-12
11:15 Built a surging block using fittings purchased at Home Depot and fitting provided by Pine only.
14:05 Finish developing MW-12
Break down equipment
14:30 Set up on MW-08
15:05 Start purging well
15:45 Stopped developing because I have to go rent a vehicle for [illegible].
Note GW sampling and soil gas sampling have been postponed by client.
16:00 Put away all materials.
16:15 VRS left site. Will continue developing MW-8 at later date.
End of work day

WEDNESDAY 4/16/14

WEATHER: SUNNY, COLD, TEMP ~ 45°F
SLIGHT TO STRONG WIND

7:30 ARRIVE AT HOME DEPOT LOCATED ON 50-10 NORTHERN BLVD AND RETURN PORTABLE GENERATOR THAT WAS RENTED YESTERDAY.
7:45 MEET WITH PINE ENV. DRIVER AND TAKE DELIVERY OF GENERATOR AND TUBING
8:05 ARRIVE AT JOB SITE. GO TO STORE WITH LAUNDROMAT ATTENDANT AND GET KEY FROM HIM. GOT BLOCK OF CINDER BLOCK TO BE USED FOR SUPPORT/STAND FOR WATERRA PUMP.
8:30 START TO SET UP ON MW-9
8:55 START PURGING MW-9.
NOTE: EVERY TIME BUCKET FILLS WITH WATER, I HAVE TO WALK ACROSS THE STREET TO DUMP IT INTO 55 GAL DRUM.
11:10 FINISH DEVELOPING WELL
BREAK DOWN EQUIPMENT

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DUMP PURGE WATER.
MOVE TO NEXT LOCATION.
11:35 GO TO GAS STATION, GET GAS FOR VEHICLE AND GENERATOR.
12:05 START PURGING MW 10
NOTE: THE GATE FOR GATED AREA WHERE DRUMS ARE KEPT WAS LOCKED BY SOMEONE WHO LEFT A BIKE THERE. THEY THEN WALKED AWAY.
14:30 FINISHED DEVELOPING WELL.
TURBIDITY DOWN TO ≈ 150 NTU.
14:45 MOVE TO NEXT LOCATION
14:50 SET UP ON MW-6
15:05 START PURGING MW-6
17:15 FINISH developing MW-6
17:30 WAS LEFT SITE
END OF WORK DAY

THURSDAY 4/17/14

WEATHER: SUNNY, COOL, TEMP. ~ 31-47°F

7:30 ARRIVE ON SITE. BEGIN TO SET UP ON MW-11

7:40 SPEAK WITH ATTENDANT AT LAUNDROMAT EXPLAIN WHY WE ARE HERE AND THAT WE NEED ACCESS TO GATE SO WE CAN DUMP PURGE WATER

8:05 START PURGING AT MW-6

9:50 SPEAK WITH SCOTT MCCABE TO GO OVER PROCEDURE FOR DEVELOPING WELLS:
CONTINUE PURGING WELL.
SURGE IT TWICE.

11:03 FINISH DEVELOPING WELL AFTER TURBIDITY REACHES 61.8.

11:10 MOVE TO NEXT LOCATION

11:15 START SETTING UP ON MW-7

11:40 BEGIN TO PURGE WELL MW-7
NOTE USED H.D. PE TUBING THAT WAS DELIVERED BY PINE TWO HOURS EARLIER.

13:15 RAN OUT OF GAS
WALKED TO GAS STATION WITH GENERATOR TO FILL IT WITH GAS

13:30 CONTINUE PURGING

14:24 FINISHED DEVELOPING WELL MW-7 AFTER IT REACHED TURBIDITY OF

MOVE TO NEXT LOCATION MW-

14:35 KNOCK ON ALL DOOR IN THE HOUSE WHOSE DRIVEWAY CONTAINS ONE OF THE WELLS THAT NEED TO BE DEVELOPED. THESE WELLS WERE USED FOUR YEARS AGO - EAD [illegible] WANTS TO USE THEM AGAIN.
NO ONE ANSWERED DOOR AFTER SEVERAL TRIES.

14:45 BEGIN TO SET UP ON WELL

14:55 START PURGING MW-5

15:06 WELL RAN DRY -
SHUT DOWN PUMP TO ALLOW TO RECHARGE.

15:20 CALLED SCOTT MCCABE AGAIN AND ASKED FOR ADVICE.

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HE SAID TO TRY AGAIN. IF IT HAPPENS AGAIN - WOULD TURN IT IN AND COME BACK LATER - DOCUMENT EVENT WELL.
15:34 WL RECHARGED TO 18.41
AFTER 28 min - WILL ATTEMPT TO RUN STEADILY AT SLOWER FLOW RATE
BEGIN WITH FLOWRATE OF 700 ml/min,
BUT WATER LEVEL DROPPED QUICKLY
- LOWERED RATE TO 40 ml/min.
15:43 RAISED TO 200 ml/min
CONTINUED RUNNING. IT AT 200 ml/min
FOR 20 min - LEVEL AT G.W. STEADY
16:03 INCREASED FLOW TO 600 ml/min
SO IT IS CLOSER TO DEVELOPING RATE.
TURBIDITY INCREASED TO 900 NTU
THEN FLOW COLLAPSED
W.L. G.W. LEVEL DROPPED 24.41

16:25 FLOW STEADY AT 300 ml/min
NOW TURBIDITY TO 405
16:28 LOTS OF AIR BUBBLES FLOW IS LOW BUT IT CONTINUES

16:40 TURBIDITY DROPPING RAPIDLY

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16:50 FINISH DEVELOPING. 20 GAL DUMP WATER. 180 DRUM
17:15 URS LEFT SITE

Friday 4/18/14

Weather - Cloudy, Cool, temp. 38-50F

7:30 URS on site
Stop by gas station across the street to get gas for generator and water for decontaminating formica.

7:40 Start setting up on MW-1
7:50 Start pumping out of well Develop well.
8:30 Label all drums that are to be picked up today
9:10 Seal all those drums containing developing well
9:10 Continuing developing MW-1
NOTE: The cloudiness of water has not changed in the last 40 min. of purging.
10:12 Purge water is still cloudy - turbidity is over 1000 NTU
Raised tubing to top of screen
Turbidity unchanged.

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10:25 Turbidity fluctuating around 1000 - 900 NTU still cloudy.
It has been almost 40 gal and 2½ hrs purging - decided to end developing well. (40 Gal)
Break equipment down.
10:45 Gas station - gas up vehicle and tap off generator.
10:50 Start to set up on MW-8
Recalibrate Horiba to make sure that turbidity meter is working properly. It was working well.
11:00 Begin developing well
Since well - entire 10' of screen
NOTE: This well was previously developed on 4/15/14 for about 45 min. and it was purged once at that event
12:00 Is and pump + tank on site to pick up waste drums

4/18/14

12 25 Island Pump & tank
Picked up 8 Drums
Soil - 3
Liquid - 5
Continue to purge MW-8
The well is clearing up better than previous work
13:10 Finished developing well MW-8
Non purged 33 gal,
Final turbidity ~45 NTU
13:15 Broke down equipment move to next location
13:30 Knock on doors at three different apartments to let them know that I'll be doing work on their driveway (MW-4)
No one answers doors
Note: It was the same yesterday when no one answered the knocking on their doors.
13:45 Began to set up on MW-4 at the top of the driveway.

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13:55 Begin to purge MW-4 to develop it.
14:10 One of the tenants at residence walked up the driveway going back to her apartment. I explained what I was doing and if she had any questions. She said the owner's name is Sergio and he does not live at this residence. She also said that she had no problem with our work.
I continued to develop well.
16:30 Finished developing MW-4
The turbidity did not go below 100 NTU even after 2 1/2 hours of purging. It was hovering around 110 for 30 min
Broke down equipment & put away tools - close up purge drums
17:18 was left site after calling [illegible] with update.
End of work day

Monday 4/28/14

Rain

09:40 URS Arrive on site. John Crespo
accept delivery of equipment by
Fine Environmental.
10.00 Begin to sample well MW-09
Note. chemical reagent used for
Fe^{++} testing was not ordered.
10:10 Delivery of glassware
11:40 make arrangements for fine to
send reagent for Fe^{++} testing.
11.55 collect MW-09 sample.
12:30 Begin to sample MW-10
13:30 Speak with Kevin C. He said
that since Fe^{++} test not ready to
move to wells that don't require it
stop sampling MW-10. move to
MW-6
16:05 collect sample of MW-06
Too late to start new well.
Clean up - put away equipment.
17.15 URS left site

Tuesday 4/29/14

Cloudy temp ~45°F
7.00 URS on site. Setup on MW 12
John Crespo
8:45 collect sample MW-12
Move to next location. MW-11
10:15 Sadiaur from NYS DEC
on site.
* We went over sampling procedure.
11.40 collect sample MW-11 + 30%
samples
12:00 move over to next location
13.50 collect sample at 13.50
note. Turbidity was slow to go
down.
14:10 move to next location
at MW-8
note: light rain begins to fall
15:30 collect sample MW-8
and also DUP042914
15:30 Sadiaur from NYS left site
16:30 Clean up - put away tools
17.00 URS left site

WEDNESDAY 4/30/14

Heavy Rain at times Temp. ~ 45°F–50°F
7:00 VRS on site. John Crosby
Set up on MW-10
7:35 Begin Purging well.
Difficult to attain lower turbidity.
9:05 collect sample MW-10
~~[illegible]~~ moved across the street to MW 7 – Rain falling Heavy
11:00 Lab picked up samples
11:22 Collect sample at MW-7
12:00 move to next location MW-4
It was difficult to set up because well is on uneven ground and expensive car parked right next to it.
13:58 Collect sample MW-4
Moved to next location MW 5 But because of rain water keeps pouring into well vault – decided to wait till tomorrow.
14:50 Put away equipment – Rain Heavy.
15:30 VRS left site

THURSDAY 5/1/14

7:00 VRS on site John Crosby and [illegible]
7:15 Start to set up on MW-5
80 notes. Flow rate Had to be slowed down to ~150 ml/min Because well did not recharge well and water column only 8'.
8:50 Collect sample MW-5 also collected MS/MSD sample
9:30 Begin to set up for soil vapor sampling.
Sampled the following points.
SV-5, SV-1, SV-2, SV-3,
SV-7, SV-8, SV-11, SV-12

Note Couldn't sample SV-9 Because DTW is too shallow and water got in the sample line.
11:30 Finish putting away Equipt.
12:00 VRS left site

Friday 5/2/14

7:00 Arrive on site
John Crespo
Meghan Dascoli
Weather Cloudy, Temp ~ 52°F
Location Gas Station 11-55 at corner of Astoria Blvd and 89th St.

7:15 Calibrate PID
Start setting up for Round
Soil gas sampling at MW-10
7:30 Start Sampling Begin to set up for SVG testing
Initial DTW 8.27

16:50	8.26
17:20	8.27
17:50	8.27
18:10	8.27
18:40	8.27
19:10	8.27
19:28	8.27

Pull up

20:10	8.28
20:10	8.28
20:40	8.28
21:10	8.27
21:30	8.27
21:55	8.27
22:20	
22:40	

5/2/14

MW-10 050214 (2) START DATA LOGGING 8:03

8 55 40	8 28	8.58.14	8.28
8 56:03	8.28	8:58:45	8.28
56 20	8.27	8:59:05	8.28
56:34	8.28	8:59.40	8.28
57:01	8.27	STOP RECORDING	
57:15	8.28		
57:27	8.28		

PULL UP

MW-10 0502 (3) START LOGGING 9:02:40

9 03:57	8.27	9.06 50	8.28
9 04:10	8.27	9:07.10	8.29
04 31	8.28	9:07:24	8.28
04 50	8.28	9:07:45	8.28
05:25	8.28	9 08:08	8.28
05 50	8.28	9 08 52	8.28

06.30 PULL UP SWC

5/2/14

~~Sampling Surface Water Sampling~~
SW dc

START SWC TESTING AT MW-9

DTW 6.93 MW-9 050214(1)

START DATA LOG 10:09:40

TIME	DTW	TIME	DTW
INSERT SWC 10:10:11		10:15:05	6.93
10:10 39	6.93	10:15 18	6.92
10:11:05	6.92	10:15 36	6.92
10:11 28	6.92	10:15 58	6.92
10:11:55	6.92	10.16 18	6.92
10:12 26	6.91	10.16 40	6.92
10:12:33	6.91	10.16 53	6.92
10:12 55	6.92		
10:13 11	6.92		
10:13:29	6.92		
10.13.45	6.92		
10:14:02	6.92		

STOP DATA LOGGING AT 10:18:30

PULL UP SWC

MW-9 050214 (2)

START DATA LOGGING 10:20:45

INSERT SWC 10:21:45 SWC only 1/2 way down

10:22:06 6.91

10:22.33 6.92

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Time	DTW
10:23:09	6.92
10:23:26	6.92
10:23:32	6.92
10:23:50	6.92
10:24:12	6.92
10:24:21	6.92
10:24:38	6.92
10:24:56	6.92
10:25:45	6.92

Pull slug out

10:25:54	6.94
10:26:01	6.93
10:26:10	6.92
10:26:17	6.92
10:26:30	6.92
10:26:45	6.92
10:26:57	6.92
10:27:26	6.92
10:28:45	6.92
10:29:10	6.92

Stop data logging @ 10:30:45

Slug test for MW-12
Initial DTW 8.51
Start test MW-12 050214 (1)
Start data logging 10:59:32
Insert slug 11:00:40

Time	DTW
11:00:53	7.52
11:01:40	8.51
11:02:04	8.51
11:02:[illegible]	8.51
11:02:45	8.52
11:03:07	8.51
11:03:20	8.51
11:03:35	8.51

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Time	DTW
11:04:10	8.51
11:05:10	8.51

Pull up slug @ 11:05:29

11:05:35	8.54
11:05:42	8.53
11:05:56	8.53
11:06:09	8.53
11:06:31	8.53
11:06:46	8.52
11:07:01	8.52
11:07:12	8.53
11:07:40	8.53
11:07:53	8.53
11:08:34	8.52
11:09:01	8.53
11:09:28	8.53
11:09:42	8.52
11:10:05	8.53
11:10:40	8.52
11:12:38	8.52
11:13:12	8.52
11:14:20	8.52
11:15:05	8.52
11:16:10	8.52
11:17:06	8.52
11:17:50	8.52
11:18:30	8.52

Shut off data logger @ 11:19:55

Slug test for MW-11
Start DTW 8.49
Install transducer @ 11:3[illegible]
Start data log 11:40:3?
Insert slug 11:41:35

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Time	DTW
11:41 :5?	8.51
11:41 02	8.50
11:41 12	8.49
11:41 33	8.49
11:42 41	8.49
11:42 53	8.49
11:43 20	8.49
11:44:15	8.49
11:44:50	8.49
11:45 26	8.49

Pull up SWS 11:45:40

11:45:49	8.51
11:45:52	8.51
11:46:03	8.50
11:46:25	8.50
11:46:47	8.50
11:47 05	8.50
11:47 57	8.50
11:48:15	8.50
11:48:37	8.49
11:48.58	8.49
11:50:05	8.45
11:51:07	8.50
11:51 37	8.49
11:52:40	8.49
11:53 31	8.49

STOP DATA LOGGING @ 11:55:10

5/2/14

SWS TEST FOR MW-08

START DTW 6.98 , SAMPLE ??

??? TRANSDUCER 8.09.15

START DATA LOG 12:12 08

INSERT LOG @ 12.12 58

TIME	DTW
12:13 11	6.98
12:13:48	6.98
12:13.58	6.98
12:14.15	6.98
12:14:47	6.98
12:15:40	6.97
12:16 37	6.97
12:16:57	6.97

Pull up SWS 12:17 ??

12:17 20	6.98
12:17 46	6.98
12:18:24	6.98
12:19:26	6.98

STOP D 12:22.20

SWS TEST FOR MW 08

START DTW 19.32

AFTER TRANSDUCER DTW 19.37

START DATA 12.35:01

DTW @ 12.42 19.37

5/2/14

Time	DTW
12:43:48	19.38
12:43:58	19.38
12:44:10	19.38
12:44:34	19.38
12:45:53	19.38
12:47:08	19.38
12:47:49	19.38

→ Pull SWG out @ 12:48:25

12:48:38	19.38
12:48:52	19:38
12:49:[illegible]	19.38
12:49:51	19.38
12:50:48	19.38

Stop data logging (12:54:?)

Note also collected soil vapor samples at SV-4 and SV-10

Could not sample SV-9 because water table is too high. Also SV-10 continued to have problems with vacuum staying high

DRAFT MASTER

FRIDAY 5/9/14

7:40 NRS ARRIVE ON SITE
(CONSTRUCTION ON ASHOKAN BLVD)

8:20 MEASURE DTW AT MW-09
IT WAS DETERMINED TO BE 7.04'

8:37 GO TO LAUNDROMAT TO
OPEN GATES FOR STORAGE FOR DRUMS
WAITING FOR DRUM PICK UP

UPDATE DAILY FIELD NOTES OF PREVIOUS
WORKS

9:15 CALL PUMP AND TANK TO FIND OUT
WHEN THEY WILL BE ARRIVING TO PICK UP
DRUMS LINE GETS DISCONNECTED

9:30 LEFT MESSAGES FOR MATT S
IN HIS VOICE MAIL MAILBOX ABOUT PICK UP
9:37 MATT CALLS BACK SAYING THAT
TRUCK WILL BE ARRIVING SHORTLY

9:40 TRUCK ARRIVES ON SITE

5/9/14

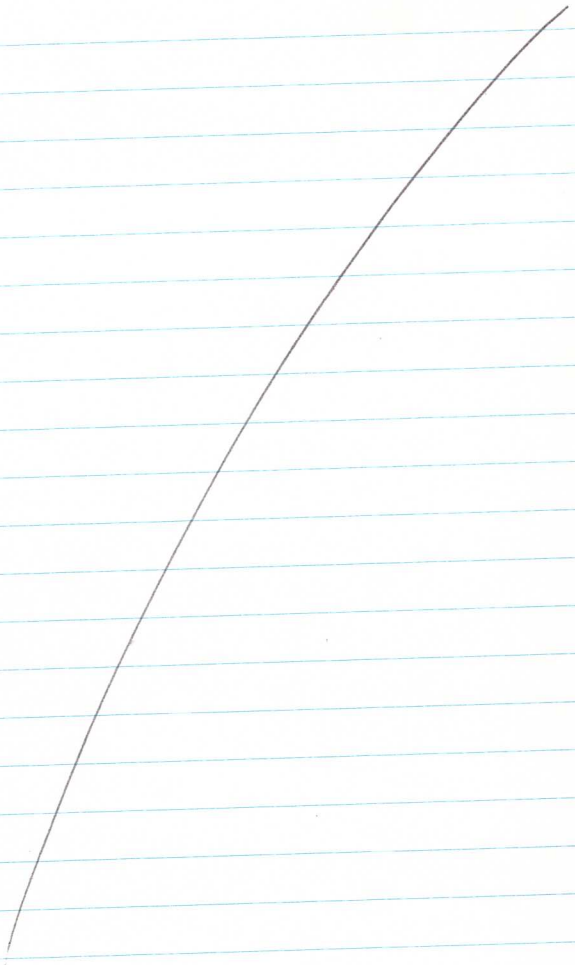
only one person and hand truck he brought to move Drums is not the type usually used for Drums.

9:52 Finish pick up some manifest.

9:53 Told Laundromat attendant that we are done for the day.

10:04 Finish updating field logs.

10:10 URS left site



TUESDAY 5/26/15

SITE: FORMOSA DRAPE MISSION

WEATHER: SUNNY, TEMPS. 70-85°F

7:35 ARS on SITE.
7:40 ZEBRA CALLED SAYING THAT THERE WAS A MIX-UP AT THE SHOP AND THAT THEY WILL BE ARRIVING AT 9-9:30 AM.
8:10 Find Parking and go over work plan.
8:25 - 8:40 SPOKE WITH LISA - OPERATOR OF "D.S.M. LAUNDROMAT + DRY CLEANING" AND ASKED IF WE COULD STORE DRUMS IN AREA ADJACENT TO LAUNDROMAT - AFTER THE EXPLANATION SHE AGREED.
8:40 ZEBRA CALLED SAYING THEY'LL BE HERE IN 20 MIN. MOVE TO LOCATION OF 1ST WELL
8:52 ZEBRA ON SITE. (OPP. SIDE OF ATLANTIC BLVD) MOVE RIG + TRUCK OVER THE OTHER SIDE.

5/26/15

9:10 Set truck next to where
 1st well will be installed
 MW-14.
9:20 Safety meeting.
 Wilber Hernandez } Zebra
 Quincy Brandt } crew
9:30 Start to set up to saw cut
 sidewalk.
Note: Zebra drilled 3" hole in
 side walk and then used sampler
 to pre clear. When it ~~hit~~ reached
 rock, they used rig to break apart.
9:55 Start drilling.
10:45 Sadique arrived on site.
11:00 Reached 25'
 Saw cut floor to install well
11:10 Sadique told Zebra to saw
 cut first then pre clear to
 prevent any dust from going into
 well.
NOTE crew using Geoprobe
 model GP 20 model
 6610DT

5/26/15

12:10 Finish installation of well
 25-15 screen
 25-4 sand
 4-2 Bentonite
 2-1 sand
 1-0 concrete
12:20 Begin to mobilize to next
 point
12:40 Set up on next location
 MW-15
12:45 Sadique asked if 'One Call'
 had come in. He called Kevin C.
 Kevin said that the ticket was done
 on Wed. last wk. - that it should
 be ok.
12:50 Zebra said that Nat'l grid
 was 2 days late. So they did not
 think that one call was done
 already. Called Kevin - no answer.
12:55 - 13:20 lunch.
13:25 Speak with Sadique. Told
 him what I had heard, that we'll
 pre clear to 5' and that we'll use the
 old mark outs to make sure.

5/26/15

He agreed that if we are careful, we should be ok.

13:30 Zebra returns from lunch. They start to set up to pre clear by drilling a 3" hole through concrete. 1

13:40 Zebra using a hand digger to pre clear to 5'. Sadique ok with it.

14:00 Reached 5' preclearing. Sadique left site. Crew setting up to saw cut hole.

14:15 Saw cut hole into concrete. Kevin C. called back. Gave him update.

14:20 Start drilling for soil sampling.

15:00 Finish by reaching 25'. Start setting up well down to 25' B.G.

15:40 Well riser came up as casings were being pulled out. Quincy attempted several ways to get it into the ground

5/26/15

but would not. Finally, he simply cut the riser so that total well depth is 23 1/3'

23 1/3 – 13 1/3 screen

23 1/3 – 4 sand

4 – 2 bentonite

2 – 1 sand

1 – 0 concrete/grout

16:05 Called Sadique to let him know. We got disconnected but he sent a text saying that it looks ok.

16:10 Called Kevin C. to inform. He said that it should be fine but to make sure Sadique knows and that he's ok with it.

16:15 Crew began constructing well pad.

16:20 Placed drums inside caged area next to laundromat. Attendant opened gate by unlocking lock. (Lisa). Two empty drums were left there.

5/26/15

NOTES:

ARRIVED @ 14:50 PROVISION TECH CAME BY TO ASK WHERE MARK OUTS ARE SUPPOSED TO BE. I SHOWED HIM IN THE MAP.

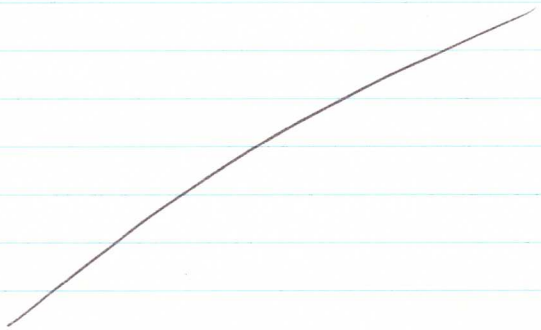
16:30 ZEBRA LEFT SITE AFTER CLEANING UP.

16:32 URS LEFT SITE - END OF WORK DAY

Summary

ZEBRA ARRIVED LATE

INSTALLED MW-14 (TO 25' b.c.) AND MW-15 (TO 25' b.c.)



WEDNESDAY 5/27/15

FOREMAN DRAPE MASTER,

WEATHER: CLOUDY, WINDY, ~ 85°F

7:40 URS ON SITE.

WALK TO SEE WHERE NEW WORK IS TO BE INSTALLED. SURVEYED AREA. I DID NOT SEE ANY MARKINGS.

7:55 ZEBRA ON SITE. THEY PARKED AT 89TH and ASTORIA BLVD.

8:10 WALK THROUGH WITH QUINCY from ZEBRA.

THEY BROUGHT EXTRA EMPTY DRUM.

8:20 ZEBRA PARKED TRUCK AND DRILL RIG - BEGAN TO SET UP EQUIPMENT.

8:22 CALIBRATE PID

MINIRAE 3000 - 11.7 eV

PID SER. # 21573

8:30 TALKED TO ATTENDANT AT DSM LAUNDROMAT. GOT GATE OPENED AND PLACED EMPTY DRUM INSIDE.

8:50 TAILGATE SAFETY MEETING.

QUINCY BRANDT
WILMAN HERNANDEZ
} ZEBRA

5/27/15

Go over Pinch points, chemical HAZARDS.

9:10 SET up Rig AT place where MW-13 is to BE located

9:15 SET up Rig UNDER TREE. HAD TO MOVE TREE Branches.

9:20 Start Drilling. – PUNCH HOLE THROUGH CONCRETE – Then Hand clear TO 5'.

9:50 Hand clear TO 5' – FIRST location.

9:58 RESIDENT OF Property in Front of where we are working came out TO say that there were gas lines nearby in THIS area – we told her that we will BE PRE CLEARING TO 5'.

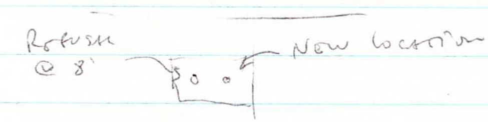
10:00 SAW CUT concrete where points will be installed

10:20 START drilling after Pre-clearing.

11:00 REFUSAL AT 8'

move location of well to where Soil vapor point was going to be located

5/27/15



RE-PRE CLEAR NEW location DOWN TO 4' JUST TO MAKE SURE THERE ARE NO GAS LINES.

11:25 START drilling AFTER PRE-CLEARING

11:45 USIC on site TO DO MARK OUTS – TOLD Him WE WERE on The LAST Boring. They left soon after.

12:30 Reached 40'.

SADIQUE CALLED – HE SAID OK TO INSTALL well TO 40', 10' SCREEN.

BENTONITE

40 - 3 – SAND

3 - 2 – Bentonite

1 - 0 – Soil / Grout.

12:40 START installing well

13:15 Pine called – They are Running LATE – NOT SURE the TIME that they'll get here told Them TO Deliver FIRST THING TOMORROW MORNING.

5/27/15

13:35 Finish installation of MW-13. Start installing SV point SV-13

SAD. RUG said to install to 8'.

13:40 - 13:10 BREAK.

13:57 Start to Install S.V. Point to 8' B.G.

14:05 S.V. Point installed SV-13

8-4' Sand

4-3' Bentonite

3-1 Sand

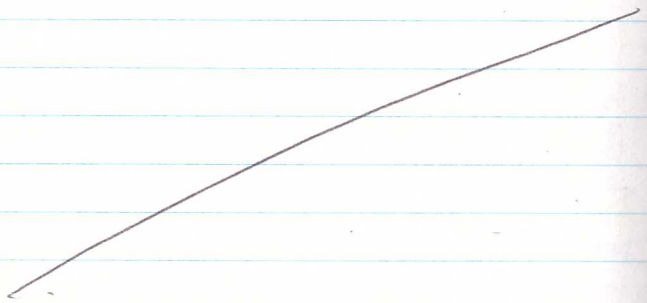
1-0 Grout.

15:05 Finish concrete pad. Start cleaning up.

15:30 TEAM finished - left site.

Summary

INSTALLED one MW to 40', one S.V.P. to 8'



THURSDAY 5/28/15

FORMER DRAPE MASTON

WEATHER: Cloudy, TEMP. ~ 73°F

7:35 ARS on site. Meet with P.W.S who delivered equipment.

7:45 Go to speak with attendant at LAUNDROMAT. Showed him where Drums are stored. Told him what we are planning to do - Fill them with purge water, then take them away. He opened gate and left it open for me to use.

8:05 Go around looking for a well that has space near so that I can park and set up equipment.

8:15 Start setting up at MW-15, in front of McDonalds.

NOTE: I borrowed cinder block brick to use as base for material. Also, had to improvise a stand for pump. Tubing is 3/8 x 1/2 HDPE.

Should use one site laptop.

5/28/15

8:40 START DEVELOPING WELL.
NOTE: HAD TO STOP GENERATOR, PUT IT AWAY AND LOCK CAR EVERYTIME I HAD TO STOP AWAY FROM WELL SO IT DOES NOT GET STOLEN. IT SLOWED DOWN PROCESS
9:30 KEVIN CHANNEL CALLED - GAVE HIM UP DATE. SAID THAT BOTTOM PUMP TO USE IS A WELL PUMP.
HAVING LOTS OF TROUBLE GETTING THE TURBIDITY DOWN - BOTTOM OF WELL WITH ½" OF SAND, VERY FINE WITH TRACE MICA.
~~TURBIDITY~~ 13:30 STILL PURGING WELL - TURBIDITY SEEMS TO STABILIZE
12:00 MOVED TUBING TO BOTTOM OF WELL. PURE SAND AT BOTTOM - CLOSING CHECK VALVE AND TUBING RIGHT AWAY.
12:30 ATTAIN FLOW BY RAISING TUBING A FEW INCHES OFF BOTTOM - FINALLY ALL SAND HAS BEEN PUMPED OUT.
13:00 WATER FINALLY CLEARING UP. MOVED TUBING TO ~ 20' B.G. CONTINUE PURGING.
13:43 STOPPED PURGING - TURBIDITY HAS STABILIZED FOR THE LAST ~ 10 gal AT ~ 400 NTU'S. ~~AC~~

ALREADY PURGED 60 GALS.
14:00 BREAK DOWN EQUIPMENT. ~~MOVE~~
14:10 GO TO 7-11 TO PURCHASE MORE WATER.
14:15 GO TO GAS STATION - TAP OFF GAS FOR GENERATOR.
14:25 SET UP ON MW-14 TO DEVELOP WELL.
14:30 START TO PURGE WELL.
14:40 MOVE TO BOTTOM OF WELL
15:00 MOVE TO MIDDLE OF SCREEN
15:28 MOVE TO TOP OF SCREEN.
NOTE: THE SILT IN THIS WELL IS LIGHT BROWN CLAY. THE MATERIAL IN MW-15 IS DARK GREENISH/BROWN
16:00 MOVED TO THE MIDDLE OF THE SCREEN AFTER PURGING THE BOTTOM OF
16:48 STOPPED TO SURGE SCREEN. USED SURGE TOOL - 1
16:52 RESTART DEVELOPING WELL. AFTER TAKING READING, TURBIDITY WENT UP HIGH AGAIN
17:30 TURBIDITY DOES NOT ~~SEA~~ GO BELOW 1000 IN SPITE OF LIMES

5/28/15

VOLUME OF WATER BEING PUMPED OUT. SLOWED DOWN RATE TO ~ 800 GPM - SAME RESULTS.

17:45 MOVED PUMP TO MIDDLE OF SCREEN

18:00 COLLECTED LAST READINGS PURGED 45 GALS. AND TURBIDITY STILL STAYS ABOVE 1000 NTU. STOPPED DEVELOPING WELL.

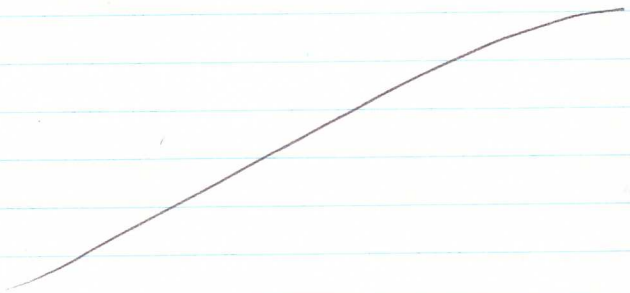
18:10 LABEL DRUMS WITH "NON-HAZ" LABELS.

18:15 SPOKE WITH ATTENDANT OF LAUNDROMAT.

18:25 CLEAN UP AND LEAVE SITE - END OF WORK DAY.

SUMMARY

DEVELOPED (?) MW-14 AND MW-15



FRIDAY 5/29/15

- FOREMAN DRAPE LAST DAY

WEATHER: SUNNY. TEMP. ~ 70°F

7:00 URS ON SITE.

MEET WITH CARY RICHMAN AND GAVE HIM ABSORBENT SOCKS TO BE USED AT COLLEGE POINT.

7:15 STOPPED AT 7-11 - PURCHASE WATER

7:20 GO TO GAS STATION - TOP OFF GENERATOR WITH GAS.

7:35 STOP BY LAUNDROMAT AND SPOKE WITH ATTENDANT - L.J.S.A. EXPLAINED WORK FOR TODAY - SITE OPENED GATE AND LEFT IT OPEN FOR ME TO USE.

7:45 FIND PARKING AND START TO SET UP ON MW-13

8:20 START BY SURVEYING ENTIRE LENGTH OF SCREEN USING SURGE BLOCK.

8:25 START DEVELOPING WELL BY SETTING UP AT BOTTOM OF WELL (~ 1' FROM BOTTOM)

5/29/15

8:30 SEDIMENT IS VERY THICK WITH SILT, COLOR BROWN (LIGHT BROWN)

8:55 STOPPED TO SURGE ENTIRE SCREEN AGAIN. (AFTER ROUGHLY 5 GAL. PURGED)

9:00 RESTART - TURBIDITY ~~APPEAR~~ IMPROVEMENT - LIQUID LOOKS THICK WITH SILT.

9:20 STOPPED TO INSPECT CHECK VALVE AND TO MOVE CHECK VALVE TO TOP OF SCREEN. (11 GAL. SO FAR)

9:42 PUMP RATE IS ~ 800 ml/min.

10:00 MOVED TUBING INTAKE TO ABOUT THE MIDDLE OF SCREEN.

10:20 CONFIRM FLOW RATE ~ 800 ml/min

10:25 CALLED KEVIN CONVARD TO GIVE UPDATE - LEFT VOICE MAIL.

NOTE: TODAY I BROUGHT A BIKE CHAIN FROM HOME SO THAT GENERATOR CAN BE SECURED (CHAINED UP TO) BY TREE WHILE I GO DUMP PURGE WATER.

11:17 KEVIN CALLED BACK, GAVE HIM UPDATE. HE WANTS TO SAMPLE ~~[illegible]~~ FOR MS/MSD AT ONE OF THE WELLS - WILL CALL IT AT MW-13

11:30 FINISHED DEVELOPING MW-13

5/29/15

11:45 BEGIN TO BREAK DOWN and clean up EQUIPMENT.

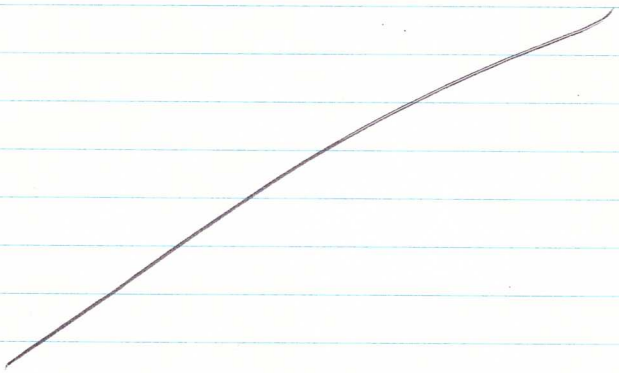
12:15 DUMPED WATER - SOME DRUMS.

12:30 TALKED TO OPERATOR OF LAUNDROMAT. EXPLAINED THAT WE WILL BE COMING BACK.

13:20 LEFT SITE TO GO MEET PINE ~~[illegible]~~ DRIVER SO I CAN RETURN RENTAL EQUIPMENT.

14:00 MEET WITH DRIVER AT JAMAICA, QUEENS, ON THE SERVICE ROAD AND HAND OVER THE RENTAL EQUIPMENT.

14:30 END OF WORK DAY



APPENDIX E

MONITORING WELL DEVELOPMENT LOGS

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-1

Date: 4/18/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.83	Depth to Well Bottom:	25.41	Well Diameter:	2	Screen Length:	Unknown
Casing Type:	PVC			Volume in 1 Well Casing (liters):	10.2		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0753	7.17	13.3	1.40	7.45	>1000	283	1100	9.21
0807	6.74	14.8	1.33	4.37	>1000	268	1100	9.16
0810	Surged well							
0815	6.74	14.4	1.33	4.71	>1000	267	1100	9.26
0825	6.68	15.1	1.32	4.69	>1000	263	1200	9.26
0832	Lowered pump							
0833	6.53	15.1	1.40	3.91	NR	263	800	NR
0843	Raised pump							
0844	6.36	14.63	1.32	5.86	>1000	262	1100	9.18
0855	6.63	14.95	1.32	4.70	>1000	264	1100	9.14
0916	6.67	15.13	1.33	4.62	>1000	262	1100	9.14
0926	6.67	15.6	1.330	4.74	>1000	257.0	1100	9.10
0936	6.68	15.2	1.33	4.65	>1000	255.0	1100	9.06
0951	6.69	15.1	1.33	4.68	>1000	254.0	1100	9.05
1006	6.67	14.4	1.34	4.39	>1000	253	1100	9.03
1016	6.68	14.3	1.32	4.45	>1000	253	1100	9.01
1021	6.68	15.0	1.32	4.11	875.0	254	800	8.95
1028	6.68	15.0	1.33	4.18	>1000	254	1100	9.08
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-4

Date: 4/18/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	22.17	Depth to Well Bottom:	32.78	Well Diameter:	2	Screen Length:	Unknown
Casing Type:	PVC			Volume in 1 Well Casing (liters):	6.5		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1358	7.13	14.5	9.16	9.07	>1000	161	1100	22.47
1407	6.17	16.4	1.07	1.61	NR	171	1100	NR
1416	6.14	16.5	1.08	1.33	>1000	168	1100	22.43
1423	6.13	16.3	1.05	0.93	>1000	165	1100	22.45
1438	6.1	16.5	1.40	0.94	>1000	170	1200	22.43
1453	6.21	16.4	1.07	1.31	>1000	169	1200	22.43
1501	6.14	16.45	1.07	1.01	811.00	173	1200	22.33
1509	6.12	16.54	1.07	1.01	645.00	178	1200	22.33
1516	6.12	16.43	1.06	1.02	395.00	131	1100	22.33
1524	6.14	16.2	1.070	1.02	257.0	132.0	1100	22.33
1532	6.11	16.3	1.07	1.07	216.0	184.0	1000	22.35
1541	6.10	16.3	1.07	1.02	174.0	185.0	1000	22.34
1600	6.16	15.5	1.08	1.01	122.0	185	1000	22.26
1609	6.15	16.3	1.08	1.03	104.0	136	1100	22.26
1614	6.15	16.3	1.08	1.23	122.0	138	1000	22.26
1620	6.17	16.4	1.08	1.07	105.0	188	1000	22.23
1625	6.14	16.3	1.08	1.05	110.0	187	1000	22.23
1630	6.14	16.8	1.09	1.05	120.0	NR	1000	22.23
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-5

Date: 4/17/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	17.22	Depth to Well Bottom:	25.41	Well Diameter:	2	Screen Length:	Unknown
Casing Type:	PVC			Volume in 1 Well Casing (liters):	5.1		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1452	6.13	13.5	0.45	11.18	>1000	223	1100	NR
1501	6.13	14.2	0.49	4.75	>1000	218	1100	23.65
1545	6.07	12.8	0.50	3.75	312.0	241	200	19.95
1550	6.05	12.2	0.49	3.07	255.0	240	200	20.23
1555	6.05	13.2	0.50	2.68	266.0	238	200	20.36
1600	6.04	13.3	0.45	2.63	229.0	238	200	20.45
1605	6.04	13.41	0.45	2.64	198.00	238	200	20.45
1608	6	13.91	0.44	2.62	175.00	238	600	22.41
1613	6.09	14.07	0.44	2.75	250.00	237	600	22.81
1618	5.99	14.3	0.443	3.58	>1000	240.0	650	24.41
1628	5.97	14.2	0.44	8.73	116.0	241.5	300	24.44
1633	5.96	14.9	0.44	9.12	44.3	255.0	300	24.51
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-6

Date: 4/16/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	15.78	Depth to Well Bottom:	25.41	Well Diameter:	2	Screen Length:	15
Casing Type:	PVC			Volume in 1 Well Casing (liters):	5.9		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1512	6.63	14.4	1.19	6.90	677.0	129	650	15.81
1517	6.63	14.6	1.22	4.07	726.0	126	650	15.81
1522	6.61	14.6	1.23	3.57	286.0	130	650	15.80
1532	6.71	14.0	1.23	5.91	>1000	137	700	15.38
1537	6.71	14.4	1.18	3.81	>1000	136	700	15.87
1544	6.75	14.5	1.20	3.52	>1000	137	700	15.86
1551	6.71	13.57	1.22	4.86	>1000	143	700	15.80
1556	6.77	14.38	1.18	3.33	>1000	148	700	15.81
1601	6.74	14.41	1.19	3.55	>1000	147	700	15.82
1606	6.73	14.5	1.200	3.38	>1000	145.0	700	15.82
1611	6.71	14.8	1.22	3.59	>1000	150.0	700	15.81
1616	6.70	14.3	1.22	3.98	>1000	154.0	700	15.81
1621	6.68	14.6	1.24	3.39	>1000	155	700	15.81
1626	6.65	14.5	1.24	3.31	833.0	157	700	15.82
1631	6.65	14.5	1.25	3.22	711.0	158	700	15.82
1636	6.68	14.4	1.25	3.15	507.0	160	700	15.82
1641	6.67	14.5	1.25	2.93	377.0	162	700	15.82
1646	6.71	14.5	1.26	3.51	334.0	165	700	15.82
1651	6.71	14.3	1.26	3.68	265.0	166	700	15.82
1655	6.69	14.4	1.25	3.44	215.0	163	700	15.82
1701	6.69	14.1	1.26	3.56	198.0	163	700	15.82
1706	6.69	14.1	1.26	3.52	191.0	166	700	15.82
1711	6.68	13.1	1.26	3.40	179.0	167	700	15.82
1716	6.69	12.9	1.26	3.36	163.0	167	700	15.82
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-7

Date: 4/17/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	19.76	Depth to Well Bottom:	41.38	Well Diameter:	2	Screen Length:	10
Casing Type:	PVC			Volume in 1 Well Casing (liters):	13.3		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1137	7.08	14.5	1.15	3.92	>1000	-17	700	19.82
1150	6.82	15.3	1.24	2.45	>1000	-26	700	19.83
1208	6.79	15.5	1.26	2.38	>1000	-30	700	19.88
1215	6.73	15.8	1.27	2.32	>1000	-36	700	19.83
1238	6.75	15.8	1.23	11.38	>1000	22	1100	19.85
1243	6.75	15.7	1.28	11.02	>1000	20	1100	19.85
1250	6.71	15.81	1.30	10.35	>1000	37	1100	19.85
1256	6.71	15.83	1.30	9.75	>1000	45	1100	19.85
1300	6.73	15.25	1.30	9.53	>1000	45	1100	19.85
1305	6.73	16.0	1.300	8.99	462.0	51.0	1100	19.85
1310	6.73	15.6	1.30	8.57	321.0	57.0	1100	19.85
1329	6.76	15.7	1.29	8.58	>1000	73.0	1100	19.85
1334	6.76	15.8	1.3	8.78	341.0	71	1100	19.85
1341	6.76	15.8	1.30	8.36	290.0	77	1100	19.85
1346	6.71	15.9	1.30	7.89	172.0	75	1100	19.85
1353	6.70	15.3	1.30	6.75	143.0	86	1100	19.85
1403	6.71	15.3	1.30	6.25	122.0	75	1100	19.85
1408	6.71	15.4	1.30	6.03	137.0	80	1100	19.85
1415	6.72	15.7	1.30	5.78	96.3	81	1100	19.85
1421	6.71	15.2	1.30	5.66	58.7	82	1100	19.85
1429	6.71	15.4	1.30	5.92	45.2	82	1100	19.85
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-8

Date: 4/15/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.34	Depth to Well Bottom:	25.32	Well Diameter:	2	Screen Length:	10
Casing Type:	PVC			Volume in 1 Well Casing (liters):	11.1		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1502	6.99	13.9	0.88	9.39	>1000	-40	1000	7.35
1507	7.05	13.8	0.98	5.25	>1000	-63	700	7.36
1512	7.06	13.8	1.09	4.45	>1000	-71	700	7.35
1517	7.12	13.8	1.05	3.96	>1000	-72	700	7.35
1522	7.04	13.9	1.07	3.60	>1000	-68	700	NR
1530	7.36	13.9	1.01	3.50	>1000	-99	800	7.35
1535	7.08	13.72	1.05	3.57	>1000	-89	750	7.35
1540	7.03	13.77	1.07	3.73	>1000	-81	750	7.36
1545	7.02	13.83	1.08	3.08	>1000	-76	750	7.36
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-8

Date: 4/18/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.34	Depth to Well Bottom:	25.32	Well Diameter:	2	Screen Length:	10
Casing Type:	PVC			Volume in 1 Well Casing (liters):	11.1		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1116	6.25	12.6	0.98	3.49	>1000	51	1000	7.42
1125	6.62	13.2	1.09	2.88	>1000	-1	1000	7.43
1140	6.7	13.9	1.05	2.66	>1000	-10	1000	7.43
1149	6.73	13.9	1.10	2.91	>1000	-17	1000	7.43
1157	6.73	13.9	1.10	2.54	>1000	2	1000	7.43
1205	6.74	13.4	1.11	2.49	351.0	4	1000	7.43
1222	6.75	13.57	1.12	2.38	173.00	-6	1000	7.43
1227	6.79	13.66	1.12	2.31	133.00	-9	1000	7.43
1235	6.75	13.74	1.12	2.30	102.00	-11	1000	7.43
1240	6.74	13.6	1.120	2.35	82.5	-10.0	1000	7.43
1249	6.74	13.4	1.12	2.32	65.7	-8.0	1000	7.43
1255	6.74	13.6	1.13	2.33	56.4	-5.0	1000	7.43
1300	6.74	13.8	1.12	2.38	47.8	-3	1000	7.43
1305	6.74	13.7	1.12	2.34	48.3	-1	1000	7.43
1310	6.74	13.8	1.13	2.32	44.3	-1	1000	7.43
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-9

Date: 4/16/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.23	Depth to Well Bottom:	34.86	Well Diameter:	2	Screen Length:	10
Casing Type:	PVC			Volume in 1 Well Casing (liters):	17.0		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0858	6.69	12.0	0.92	18.63	>1000	-38	200	7.36
0905	6.66	11.9	0.90	1.63	>1000	-39	400	7.36
0908	6.63	13.1	0.91	0.94	>1000	-45	1000	7.36
0913	6.69	14.2	0.92	0.32	>1000	-52	1000	7.36
0930	6.7	14.2	0.95	0.64	>1000	-94	1000	7.36
0935	6.63	14.5	0.91	0.61	>1000	-99	1000	7.36
0940	6.61	14.62	0.91	0,62	>1000	-97	1000	7.36
0945	6.6	14.33	0.91	0.64	>1000	-96	1000	7.36
0950	6.61	14.43	0.91	0,67	>1000	-95	1000	7.36
0955	6.62	14.6	0.905	0.72	>1000	-96.0	1000	7.36
1002	6.8	14.1	0.91	0.69	>1000	-117.0	1000	7.36
1007	6.72	15.0	0.83	0.45	>1000	-134.0	1000	7.40
1012	6.67	14.8	0.914	0.50	>1000	-128	1000	7.41
1017	6.60	14.9	0.90	0.57	>1000	-117	1000	7.41
1022	6.6	14.8	0.90	0.60	985.0	-115	1000	7.40
1027	6.59	14.7	0.90	0.64	753.0	-113	1000	7.40
1032	6.59	14.7	0.90	0.67	649.0	-109	1000	7.40
1037	6.58	14.7	0.89	0.59	505.0	-106	1000	7.39
1042	6.62	14.7	0.89	0.52	396.0	-106	1000	7.39
1047	6.61	14.7	0.88	0.45	267.0	-104	1000	7.39
1052	6.58	14.8	0.89	0.52	244.0	-102	1000	7.38
1057	6.6	14.8	0.89	0.48	231.0	-102	1000	7.38
1102	6.61	14.8	0.89	0.47	207.0	-102	1000	7.38
1107	6.60	14.8	0.89	0.48	185.0	-101	1000	7.38
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-10

Date: 4/16/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.62	Depth to Well Bottom:	30.37	Well Diameter:	2	Screen Length:	10
Casing Type:	PVC			Volume in 1 Well Casing (liters):	13.4		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1212	6.56	13.2	1.93	9.35	>1000	78	800	8.65
1217	6.60	13.3	1.95	1.13	>1000	22	800	8.67
1222	6.63	13.7	1.47	1.08	>1000	16	800	8.67
1227	6.65	13.8	1.48	1.04	>1000	3	800	8.67
1232	6.65	13.8	1.48	0.80	>1000	-18	800	8.67
1239	6.69	13.0	1.48	1.93	>1000	-13	800	8.67
1244	6.67	13.89	1.45	0.50	>1000	-81	800	8.67
1245	6.68	13.94	1.46	0.69	>1000	-88	800	8.67
1254	6.69	14.02	1.47	0.98	>1000	-87	800	8.67
1259	6.69	14.0	1.480	0.82	>1000	-86.0	NR	NR
1309	6.72	13.4	1.44	0.64	>1000	-95.0	800	8.67
1314	6.72	14.1	1.46	0.49	>1000	-103.0	800	8.67
1319	6.72	14.0	1.48	0.59	>1000	-95	1000	8.68
1324	6.71	14.0	1.48	0.60	>1000	-91	1000	8.69
1329	6.71	14.1	1.49	0.69	>1000	-88	1000	8.69
1339	6.74	14.0	1.49	7.63	340.0	-70	1000	8.65
1344	6.7	14.0	1.50	6.08	>1000	-75	1000	8.65
1355	6.71	13.8	1.50	5.56	541.0	-75	1000	8.65
1400	6.7	13.9	1.50	5.20	398.0	-74	1000	8.68
1405	6.7	13.8	1.50	4.88	288.0	-73	1000	8.68
1410	6.7	13.9	1.50	4.35	239.0	-72	1000	8.68
1415	6.69	13.9	1.50	4.16	185.0	-71	1000	8.68
1420	6.69	13.9	1.50	3.79	182.0	-70	1000	8.68
1425	6.69	13.9	1.51	3.57	138.0	-63	1000	8.68
1430	6.69	13.9	1.51	3.45	99.0	-68	NR	NR
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-11

Date: 4/17/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.78	Depth to Well Bottom:	25.38	Well Diameter:	2	Screen Length:	10
Casing Type:	PVC			Volume in 1 Well Casing (liters):	10.2		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0806	7.07	15.4	1.37	9.57	>1000	71	1000	8.87
0812	7.08	15.5	1.39	6.22	>1000	60	1000	8.87
0822	6.93	15.7	1.38	6.07	>1000	101	1100	8.85
0828	6.85	15.3	1.35	5.91	>1000	112	1100	8.85
0833	6.87	15.0	1.35	7.06	>1000	53	1100	8.85
0843	6.91	16.1	1.35	5.85	>1000	71	1200	8.85
0910	6.93	16.07	1.31	11.62	>1000	73	1100	8.85
0920	6.86	15.98	1.36	11.05	>1000	120	1100	8.85
0935	6.89	16.02	1.39	10.30	>1000	157	1100	8.85
0940	6.86	16.2	1.380	9.50	>1000	163.0	1400	8.85
0945	6.9	16.0	1.38	6.08	920.0	174.0	1400	8.85
0950	6.88	16.1	1.39	5.68	760.0	173.0	1400	8.85
0955	6.86	16.2	1.39	5.55	561.0	176	1400	8.85
1004	6.82	16.1	1.39	5.87	256.0	177	1400	8.85
1009	6.87	16.2	1.35	5.89	255.0	175	1400	8.85
1016	6.87	16.1	1.35	5.91	263.0	178	1400	8.85
1025	6.87	16.3	1.39	5.87	185.0	177	1400	8.85
1038	6.9	16.0	1.41	5.75	351.0	174	1300	8.85
1050	6.83	15.9	1.40	5.32	96.2	175	1300	8.85
1055	6.88	16.0	1.40	5.09	24.5	174	1300	8.85
1100	6.87	16.0	1.40	5.11	61.8	173	1300	8.85
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

DEVELOPMENT LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-12

Date: 4/15/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/ Sampling Device:	Pump			Tubing Type:	Poly		Pump/Tubing Inlet Location:	Varies	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.82	Depth to Well Bottom:	25.37	Well Diameter:	2	Screen Length:	10
Casing Type:	PVC			Volume in 1 Well Casing (liters):	10.2		Estimated Purge Volume (liters):		

WATER QUALITY PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1112	6.23	16.6	1.21	9.61	>1000	219	800	8.90
1117	6.32	16.5	1.21	3.07	>1000	217	800	8.87
1122	6.41	16.5	1.20	4.65	>1000	218	800	8.85
1127	6.54	16.3	1.20	4.79	>1000	220	440	8.85
1132	6.42	16.3	1.21	4.56	>1000	219	440	8.85
1147	6.44	16.4	1.21	4.54	380.0	217	440	8.85
1152	6.42	16.31	1.21	4.62	243.00	216	440	8.85
1157	6.43	16.32	1.21	4.75	124.00	220	440	8.85
1216	6.46	16.50	1.17	4.60	>1000	173	440	8.85
1221	6.5	16.3	1.170	3.34	>1000	154.0	400	8.85
1226	6.46	16.5	1.20	1.82	>1000	142.0	450	8.85
1231	6.49	16.5	1.20	1.61	>1000	139.0	450	8.85
1236	6.48	16.5	1.21	1.60	>1000	133	450	8.85
1241	6.46	16.4	1.21	1.49	>1000	137	450	8.85
1253	6.49	16.2	1.20	3.35	>1000	154	450	8.85
1258	6.49	16.5	1.17	1.75	>1000	153	NR	8.85
1303	6.51	16.5	1.19	1.48	>1000	153	NR	8.85
1308	6.52	16.6	1.20	1.39	>1000	155	450	8.85
1313	6.52	16.5	1.21	1.44	>1000	156	700	8.85
1318	6.52	16.5	1.21	1.51	>1000	158	700	8.85
1323	6.52	16.4	1.21	1.43	>1000	160	700	8.85
1328	6.48	16.6	1.21	2.25	>1000	162	700	8.85
1333	6.46	16.5	1.21	2.63	>1000	166	700	8.85
1338	6.48	16.5	1.22	1.53	814.0	164	700	8.85
1345	6.48	16.5	1.21	2.25	636.0	165	700	8.85
1350	6.49	16.5	1.21	2.66	562.0	164	700	8.85
1355	6.49	16.5	1.21	2.09	448.0	165	700	8.85
1400	6.48	16.4	1.21	1.53	387.0	167	700	8.85
1405	6.47	16.6	1.21	1.88	329.0	167	700	8.85
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

WELL DEVELOPMENT LOG

AECOM Corporation

PROJECT TITLE: Former Drape Master | WELL NO. **MW-13**

PROJECT NO.: 11177058 | PAGE: 1 of 1

STAFF: John Crespo

DATE(S): 5/29/2015

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	40.36
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	20.09
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	20.27
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	3.45
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _5_)	=	17.23
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	35

WELL ID.	VOL. (GAL/FT)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35			
pH	6.98	6.65	6.40	6.65	6.68	6.45	6.53	6.74			
SPEC. COND. (ms/cm)	1.08	0.99	0.793	1.15	1.17	1.21	1.46	1.21			
TEMPERATURE (°C)	18.6	18.2	18.9	19.7	20.1	19.8	17.9	17.5			
TURBIDITY (NTU)	>1000	>1000	>1000	725	343	136	61	28.9			
DEPTH TO WATER	20.09	20.19	20.14	20.15	20.15	20.14	20.13	20.14			
TIME	8:23	8:48	9:11	9:52	10:09	10:40	11:01	11:28			

COMMENTS:

* Collected readings using a Horiba U-52 multi-meter
* Purged well using a Waterra pump with 3/8" x 1/2" tubing
* Surged entire screen twice.
* Color of sediment was light brown.

WELL DEVELOPMENT LOG

AECOM Corporation

PROJECT TITLE: Former Drape Master | WELL NO. **MW-14**

PROJECT NO.: 11177058 | PAGE: 1 of 1

STAFF: John Crespo

DATE(S): 5/28/2015

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	25.33
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	10.21
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	15.12
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.57
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _5_)	=	12.83
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	45

WELL ID.	VOL. (GAL/FT)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35	40	45	
pH	8.34	7.07	6.98	6.90	6.92	6.87	6.88	6.85	6.99	6.89	
SPEC. COND. (ms/cm)	0.81	1.39	1.43	1.51	1.47	1.48	1.51	1.46	1.49	1.53	
TEMPERATURE (°C)	17.81	17.90	17.97	18.16	19.08	18.06	17.88	17.92	18.74	18.33	
TURBIDITY (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	992	965	>1000	>1000	
DEPTH TO WATER	10.21	10.72	10.68	10.55	10.41	10.57	10.45	10.41	10.42	10.39	
TIME	14:31	14:43	14:54	15:23	15:44	16:08	16:26	16:57	17:27	18:00	

COMMENTS:

* Collected readings using a Horiba U-52 multi-meter
* Purged well using a Waterra pump with 3/8" x 1/2" tubing
* Surged entire screen once.
* Color of sediment was light brown.
* Finished developing after 45 gals were purged but turbidity remained >1000.

WELL DEVELOPMENT LOG

AECOM Corporation

PROJECT TITLE: Former Drape Master | WELL NO. **MW-15**

PROJECT NO.: 11177058 | PAGE: 1 of 2

STAFF: John Crespo

DATE(S): 5/28/2015

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	21.25
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	3.41
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	17.87
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	3.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _5_)	=	15.29
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	60

WELL ID.	VOL. (GAL/FT)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35	40	45	50
pH	9.19	9.19	8.10	7.85	7.45	7.60	7.43	7.36	7.10	6.39	6.67
SPEC. COND. (ms/cm)	1.36	0.811	0.904	0.897	0.879	0.889	0.850	0.826	0.834	0.867	0.785
TEMPERATURE (°C)	16.99	17.36	18.22	18.06	19.20	18.34	18.70	18.31	17.84	18.59	18.06
TURBIDITY (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	848	973	627
DEPTH TO WATER	8.66	15.52	10.48	13.25	12.91	13.95	13.58	12.11	9.95	9.20	9.55
TIME	8:50	9:16	9:50	10:29	10:48	11:23	11:55	12:19	12:400	12:59	13:11

COMMENTS:

* Collected readings using a Horiba U-52 multi-meter
* Purged well using a Waterra pump with 3/8" x 1/2" tubing
* Surged entire screen.
* Color of sediment was greenish/dark brown.
* Lots of fines at the bottom of well. Foot valve clogged frequently during the first 20 gals of purging.
* Stopped developing after 60 gals because turbidity seems to have stabilized.

WELL DEVELOPMENT LOG

AECOM Corporation

PROJECT TITLE:	Former Drape Master	WELL NO.	**MW-15**
PROJECT NO.:	11177058	PAGE:	2 of 2
STAFF:	John Crespo		
DATE(S):	5/28/2015		

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	21.25
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	3.41
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	17.87
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	3.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _5_)	=	15.29
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	60

WELL ID.	VOL. (GAL/FT)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

OR

V=0.0408 x (CASING DIAMETER)²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	55	60									
pH	6.65	6.74									
SPEC. COND. (ms/cm)	0.784	0.803									
TEMPERATURE (°C)	18.24	18.54									
TURBIDITY (NTU)	404	401									
DEPTH TO WATER	9.11	9.05									
TIME	13:32	13:48									

COMMENTS:

APPENDIX F

MONITORING WELL PURGE LOGS

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-1

Date: 4/29/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.78 Depth to Well Bottom: 25.18 Well Diameter: 2 Screen Length: Unknown

Casing Type: PVC Volume in 1 Well Casing (liters): 10.1 Estimated Purge Volume (liters):

Sample ID: MW-1 Sample Time: 13:50 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1258	7.14	15.0	1.44	8.67	768.0	171	300	8.86
1303	6.92	15.4	1.43	3.65	134.0	170	300	8.86
1308	6.87	15.8	1.42	3.42	139.0	173	300	8.85
1313	6.77	15.5	1.40	3.37	135.0	179	300	8.84
1318	6.67	15.5	1.37	3.54	149.0	187	300	8.84
1323	6.67	15.5	1.37	3.55	127.0	191	300	8.84
1328	6.65	15.4	1.36	3.30	94.5	194	300	8.84
1333	6.64	15.4	1.36	3.35	78.3	195	300	8.84
1338	6.63	15.4	1.36	3.33	58.4	195	300	8.84
1343	6.63	15.47	1.36	3.25	54.50	194	300	8.84
1348	6.63	15.44	1.35	3.32	40.80	194	300	8.84
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-4

Date: 4/30/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 22.13 Depth to Well Bottom: 32.78 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 6.6 Estimated Purge Volume (liters):

Sample ID: MW-4 Sample Time: 13:58 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1245	6.50	14.5	0.95	15.86	234.0	253	200	22.15
1254	6.54	13.5	1.03	10.50	237.0	233	NR	NR
1317	6.31	14.9	1.09	8.31	534.0	254	300	22.15
1322	6.28	15.1	1.10	8.31	164.0	252	300	22.15
1327	6.27	15.3	1.11	8.05	122.0	240	300	22.15
1332	6.28	15.5	1.11	8.50	69.5	233	300	22.15
1337	6.26	15.4	1.10	6.97	34.8	220	300	22.15
1342	6.26	15.5	1.10	6.89	39.5	218	300	22.15
1347	6.27	15.4	1.12	6.48	22.8	216	300	22.15
1352	6.28	15.55	1.12	6.23	16.20	207	300	22.15
1355	6.28	15.40	1.12	6.19	14.00	205	300	22.15
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-5

Date: 5/2/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 17.06 Depth to Well Bottom: NR Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-5 Sample Time: 8:50 QA/QC: MS-8:55 MSD-9:00

Sample Parameters: VOC, Alkalinity, Metals, Dissolved Metals, NO_3, SO_4, Chloride, TOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0750	6.35	13.9	0.45	11.15	317.0	270	280	17.52
0755	6.12	14.3	0.46	6.36	340.0	268	220	17.75
0800	6.06	14.4	0.45	4.75	272.0	269	220	17.86
0805	6.04	14.5	0.45	3.91	217.0	269	220	17.92
0810	6.02	14.5	0.44	3.35	160.0	269	150	17.79
0815	6.01	14.5	0.44	3.11	99.1	268	150	17.68
0820	6	14.5	0.44	2.86	81.1	266	150	17.65
0825	6	14.6	0.43	2.41	56.3	262	NR	17.65
0830	6	14.6	0.43	2.32	47.2	261	150	17.65
0835	6	14.60	0.43	2.23	43.30	259	NR	17.65
0840	6	14.62	0.43	2.16	34.30	258	NR	17.65
0845	6	14.61	0.43	2.06	30.40	257	150	17.65
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-6

Date: 4/28/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 15.75 Depth to Well Bottom: 25.35 Well Diameter: 2 Screen Length: 15

Casing Type: PVC Volume in 1 Well Casing (liters): 5.9 Estimated Purge Volume (liters):

Sample ID: MW-6 Sample Time: 16:05 QA/QC: N/A

Sample Parameters: VOC + MNA(Arsenic, Iron, Manganese, Alkalinity, Chloride, NO_3, SO_4, TOC, Dissolved Gases)

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1456	7.12	18.3	1.19	6.86	839.0	182	250	15.75
1501	6.85	17.0	1.21	6.67	796.0	175	250	15.75
1506	6.69	16.5	1.21	6.30	432.0	190	250	15.75
1511	6.68	16.4	1.21	6.11	339.0	195	250	15.75
1516	6.70	16.4	1.21	5.92	253.0	197	250	15.75
1521	6.7	16.4	1.21	5.89	226.0	197	250	15.75
1526	6.69	16.5	1.20	5.71	173.0	198	250	15.75
1531	6.69	16.5	1.20	5.61	145.0	199	250	15.75
1536	6.7	16.5	1.20	5.49	108.0	198	250	15.75
1541	6.7	16.48	1.20	5.37	90.30	198	250	15.75
1547	6.7	16.51	1.20	5.17	60.90	197	250	15.75
1551	6.7	16.46	1.21	5.12	46.80	197	250	15.75
1558	6.71	16.4	1.210	5.17	42.0	196.0	250	15.75
1601	6.71	16.5	1.21	5.04	39.5	195.0	250	15.75
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-7

Date: 4/30/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 19.72 Depth to Well Bottom: 41.38 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 13.4 Estimated Purge Volume (liters):

Sample ID: MW-7 Sample Time: 11:22 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1040	6.69	11.4	1.29	14.51	275.0	186	160	19.72
1045	6.65	11.8	1.29	10.12	102.0	186	160	19.72
1050	6.63	13.7	1.30	4.15	269.0	176	260	19.72
1055	6.63	13.7	1.30	3.65	115.0	171	260	19.72
1100	6.62	13.8	1.30	3.63	82.6	169	260	19.73
1105	6.62	13.7	1.30	3.43	48.7	167	260	19.73
1110	6.62	13.8	1.30	3.41	40.6	167	260	19.73
1115	6.62	13.9	1.30	3.32	28.2	165	260	19.73
1120	6.62	14.0	1.30	3.38	25.1	165	260	19.73
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-8

Date: 4/29/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 7.35 Depth to Well Bottom: 25.28 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 11.1 Estimated Purge Volume (liters):

Sample ID: MW-8 Sample Time: 15:30 QA/QC: DUP 042914 - 12:00

Sample Parameters: VOC + MNA(Arsenic, Iron, Manganese, Alkalinity, Chloride, NO_3, SO_4, TOC, Dissolved Gases)

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1430	7.35	12.7	0.92	5.57	314.0	194	250	7.36
1435	6.89	13.3	0.96	3.28	336.0	188	300	7.36
1440	6.88	13.4	0.97	3.16	273.0	186	300	7.36
1445	6.88	13.5	0.99	3.08	198.0	184	300	7.36
1450	6.88	13.5	0.89	2.87	158.0	182	300	7.36
1500	6.88	13.5	1.01	2.86	64.9	169	300	7.36
1505	6.87	13.5	1.02	2.78	47.5	169	300	7.36
1510	6.83	13.5	1.02	2.78	33.8	160	300	7.36
1515	6.87	13.5	1.03	2.71	26.6	157	300	7.36
1520	6.87	13.43	1.03	2.68	24.50	155	300	7.36
1525	6.87	13.44	1.03	2.70	21.30	154	300	7.36
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-9

Date: 4/28/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 7.28 Depth to Well Bottom: 35.03 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 17.1 Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 11:55 QA/QC: N/A

Sample Parameters: VOC, SVOC, Pesticides, PCBs, TAL Metals

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1048	5.82	16.0	0.84	7.39	796.0	183	320	7.28
1053	6.45	15.6	0.77	6.08	>1000	95	250	7.28
1058	6.50	15.6	0.77	5.67	>1000	90	250	7.28
1103	6.52	15.6	0.77	5.16	652.0	86	250	7.28
1108	6.52	15.6	0.77	4.38	504.0	83	250	7.28
1113	6.53	15.6	0.77	4.62	393.0	81	250	7.28
1118	6.53	15.7	0.77	4.59	259.0	81	250	7.28
1123	6.53	15.7	0.77	4.19	147.0	81	250	7.28
1128	6.53	15.7	0.77	4.05	114.0	81	250	7.28
1133	6.53	15.76	0.77	3.72	83.20	81	250	7.28
1138	6.54	15.73	0.77	3.56	79.20	82	250	7.28
1143	6.54	15.76	0.77	3.34	66.50	82	250	7.28
1148	6.54	15.8	0.772	3.31	63.1	83.0	250	7.28
1153	6.54	15.8	0.77	3.18	60.8	83.0	250	7.28
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-10

Date: 4/30/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.61 Depth to Well Bottom: 30.31 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 13.4 Estimated Purge Volume (liters):

Sample ID: MW-10 Sample Time: 9:05 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0821	6.64	12.6	1.45	7.75	497.0	162	280	8.62
0826	6.59	13.1	1.46	3.55	410.0	128	280	8.62
0831	6.59	13.2	1.46	2.33	318.0	123	280	8.62
0836	6.59	13.3	1.46	1.96	206.0	120	280	8.62
0841	6.59	13.4	1.46	1.78	109.0	119	280	8.62
0846	6.59	13.4	1.46	1.66	85.6	118	280	8.62
0851	6.59	13.3	1.46	1.53	45.0	120	280	8.62
0856	6.59	13.3	1.46	1.51	38.7	120	280	8.62
0901	6.58	13.2	1.46	1.50	34.5	121	280	8.62
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-11

Date: 4/29/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.76 Depth to Well Bottom: 25.26 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 10.2 Estimated Purge Volume (liters):

Sample ID: MW-11 Sample Time: 11:40 QA/QC: N/A

Sample Parameters: VOC + MNA(Arsenic, Iron, Manganese, Alkalinity, Chloride, NO_3, SO_4, TOC, Dissolved Gases)

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1044	7.02	15.0	1.36	14.92	720.0	212	300	8.76
1051	6.71	15.8	1.39	5.40	223.0	198	300	8.77
1056	6.75	15.8	1.39	5.14	192.0	196	300	8.77
1101	6.74	15.9	1.39	4.95	194.0	197	300	NR
1105	6.76	15.9	1.40	4.82	164.0	198	300	NR
1111	6.74	15.3	1.39	4.72	102.0	198	300	8.77
1116	6.74	16.0	1.39	4.73	64.5	195	300	8.77
1121	6.79	15.9	1.39	4.51	51.5	191	300	NR
1126	6.74	15.9	1.39	4.66	40.5	190	300	8.75
1131	6.75	15.91	1.39	4.65	28.30	186	300	8.75
1136	6.75	15.85	1.35	4.35	20.50	183	300	NR
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks: NR - Not Recorded

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-12

Date: 4/29/2014 Sampling Personnel: John Crespo Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.85 Depth to Well Bottom: 25.22 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 10.1 Estimated Purge Volume (liters):

Sample ID: MW-12 Sample Time: 8:45 QA/QC:

Sample Parameters: VOC + MNA(Arsenic, Iron, Manganese, Alkalinity, Chloride, NO_3, SO_4, TOC, Dissolved Gases)

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0756	6.28	16.2	1.23	2.13	709.0	213	250	8.85
0801	6.32	16.3	1.23	2.08	344.0	215	300	8.85
0806	6.32	16.4	1.23	1.97	257.0	216	300	8.85
0811	6.31	16.4	1.23	1.75	139.0	215	300	8.85
0816	6.32	16.4	1.23	1.71	119.0	214	300	8.85
0821	6.32	16.4	1.23	1.70	65.2	210	300	8.85
0826	6.32	16.4	1.23	1.66	46.8	207	300	8.85
0831	6.32	16.4	1.23	1.61	28.4	205	300	8.85
0836	6.32	16.4	1.23	1.62	19.8	203	300	8.85
0841	6.31	16.43	1.23	1.61	16.20	203	300	8.85
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-1

Date: 7/11/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 5.51 Depth to Well Bottom: 25.41 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 12.3 Estimated Purge Volume (liters):

Sample ID: MW-1 Sample Time: 6:55 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0610	7.33	18.3	1.44	4.47	1000.0	184	200	5.56
0615	7.30	18.0	1.42	4.18	946.0	187	200	5.56
0620	7.23	17.9	1.40	4.15	657.0	189	200	5.56
0625	6.96	17.9	1.32	4.80	300.0	195	200	5.56
0630	6.85	17.8	1.28	5.01	160.0	197	200	5.56
0635	6.77	17.8	1.25	5.11	90.0	201	200	5.57
0640	6.72	17.7	1.23	5.07	54.3	202	200	5.57
0645	6.68	17.6	1.22	5.09	56.8	204	200	5.57
0650	6.67	17.7	1.22	5.03	52.3	205	200	5.57
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-5

Date: 7/10/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 17.00 Depth to Well Bottom: 25.42 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 5.2 Estimated Purge Volume (liters):

Sample ID: MW-5 Sample Time: 13:45 QA/QC:

Sample Parameters: VOC, Metals, Dissolved Metals, Alkalinity, NO3, SO4, Chloride, TOC, Dissolved Gases

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1300	6.30	22.1	0.51	8.09	566.0	175	200	17.53
1305	6.18	20.5	0.50	2.75	480.0	192	200	17.53
1310	6.16	21.2	0.50	2.59	414.0	196	200	17.59
1315	6.16	22.0	0.50	2.67	363.0	197	200	17.59
1320	6.15	19.7	0.49	2.50	278.0	198	200	17.59
1325	6.14	19.4	0.47	2.20	279.0	200	200	17.59
1330	6.14	19.3	0.47	2.17	276.0	201	200	17.59
1335	6.13	19.4	0.47	2.11	278.0	202	200	17.59
1340	6.14	19.3	0.47	2.13	274.0	203	200	17.59
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-6

Date: 7/10/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 15.56 Depth to Well Bottom: 25.41 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 6.1 Estimated Purge Volume (liters):

Sample ID: MW-6 Sample Time: 15:10 QA/QC: N/A

Sample Parameters: VOC, Metals, Dissolved Metals, Alkalinity, NO3, SO4, Chloride, TOC, Dissolved Gases

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1430	6.69	20.4	1.18	12.33	1000.0	192	200	15.59
1435	6.73	18.7	1.17	4.46	786.0	192	200	15.59
1440	6.74	19.4	1.13	3.30	285.0	188	200	15.59
1445	6.74	18.3	1.14	4.05	220.0	187	200	15.59
1450	6.74	18.4	1.14	4.00	224.0	187	200	15.59
1455	6.75	18.2	1.15	3.99	119.0	184	200	15.59
1500	6.75	18.1	1.15	3.97	110.0	183	200	15.59
1505	6.76	18.1	1.15	3.98	101.0	183	200	15.59
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-7

Date: 7/12/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 19.55 Depth to Well Bottom: 41.38 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 13.5 Estimated Purge Volume (liters):

Sample ID: MW-7 Sample Time: 9:25 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0835	6.96	21.9	1.24	4.49	1000.0	175	250	19.55
0840	6.91	18.9	1.26	3.68	1000.0	174	250	19.55
0845	6.83	17.7	1.27	3.20	1000.0	174	250	19.55
0850	6.84	17.6	1.27	3.15	876.0	172	250	19.55
0855	6.83	17.5	1.27	3.11	583.0	172	250	19.55
0900	6.83	17.6	1.27	3.04	469.0	172	250	19.55
0905	6.83	17.5	1.27	2.97	300.0	172	250	19.55
0910	6.83	17.5	1.27	2.90	283.0	172	250	19.55
0915	6.83	17.5	1.28	2.89	278.0	172	250	19.55
0920	6.85	17.57	1.28	2.87	270.00	172	250	19.55
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-8

Date: 7/11/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 7.22 Depth to Well Bottom: 25.32 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 11.2 Estimated Purge Volume (liters):

Sample ID: MW-8 Sample Time: 8:05 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0720	7.08	17.8	0.96	9.79	1000.0	181	200	7.23
0725	7.06	17.5	0.93	5.31	1000.0	188	200	7.23
0730	7.05	17.4	0.93	5.09	953.0	190	200	7.23
0735	7.05	17.4	0.94	5.06	850.0	191	200	7.23
0740	7.05	17.4	0.94	4.90	790.0	191	200	7.23
0745	7.05	17.5	0.96	4.86	600.0	192	200	7.23
0750	7.05	17.4	0.97	4.67	477.0	192	200	7.23
0755	7.05	17.5	0.98	4.76	463.0	192	200	7.23
0800	7.04	17.5	0.98	4.68	460.0	193	200	7.20
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-9

Date: 7/12/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 7.18 Depth to Well Bottom: 34.86 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 17.1 Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 7:00 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0610	6.88	18.9	0.80	8.86	1000.0	81	200	7.20
0615	6.68	17.2	0.78	1.10	1000.0	16	200	7.20
0620	6.65	17.0	0.77	0.98	570.0	34	200	7.22
0625	6.64	16.9	0.77	0.91	292.0	54	200	7.20
0630	6.63	16.9	0.77	0.72	203.0	65	200	7.20
0635	6.63	16.9	0.78	0.66	135.0	73	200	7.20
0640	6.62	16.8	0.78	0.84	72.9	80	200	7.22
0645	6.62	16.8	0.79	0.50	39.0	87	200	7.22
0650	6.62	16.8	0.79	0.52	39.1	87	200	7.22
0655	6.62	16.83	0.79	0.53	38.60	89	200	7.22
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-10

Date: 7/12/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.46 Depth to Well Bottom: 30.37 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 13.5 Estimated Purge Volume (liters):

Sample ID: MW-10 Sample Time: 7:55 QA/QC: N/A

Sample Parameters: VOC

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0715	6.73	20.1	1.30	6.79	1000.0	152	200	8.48
0720	6.76	18.6	1.31	6.76	778.0	149	200	8.48
0725	6.76	18.5	1.31	1.00	573.0	148	200	8.48
0730	6.77	18.5	1.31	0.95	383.0	147	200	8.48
0735	6.78	18.4	1.33	0.83	257.0	146	200	8.48
0740	6.8	18.5	1.33	0.80	151.0	145	200	8.48
0745	6.81	18.5	1.33	0.78	148.0	143	200	8.48
0750	6.81	18.5	1.33	0.79	140.0	147	200	8.48
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-11

Date: 7/10/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.56 Depth to Well Bottom: 25.38 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 10.4 Estimated Purge Volume (liters):

Sample ID: MW-11 Sample Time: 11:35 QA/QC: FD-20140710 - 11:40

Sample Parameters: VOC, Metals, Dissolved Metals, Alkalinity, NO3, SO4, Chloride, TOC, Dissolved Gases

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1055	6.92	18.7	1.38	6.99	737.0	175	250	8.58
1100	6.92	18.2	1.38	6.48	180.0	178	250	8.58
1105	6.92	18.0	1.38	6.18	120.0	176	250	8.58
1110	6.92	18.1	1.38	6.00	100.0	176	250	8.58
1115	6.93	17.9	1.38	6.02	50.0	175	250	8.58
1120	6.94	18.0	1.38	5.95	48.0	176	250	8.58
1125	6.95	17.9	1.38	5.90	46.7	175	250	8.58
1130	6.95	18.0	1.38	5.89	49.8	175	250	8.58
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: Former Drape Master RI Site: Former Drape Master Well I.D.: MW-12

Date: 7/10/2014 Sampling Personnel: M. Abdelaziz Company: URS Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Poly Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.58 Depth to Well Bottom: 25.37 Well Diameter: 2 Screen Length: 10

Casing Type: PVC Volume in 1 Well Casing (liters): 10.4 Estimated Purge Volume (liters):

Sample ID: MW-12 Sample Time: 7:40 QA/QC: MS-07:45 MSD-07:50

Sample Parameters: VOC, Metals, Dissolved Metals, Alkalinity, NO3, SO4, Chloride, TOC, Dissolved Gases

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0645	7.74	19.3	1.31	5.78	1000.0	182	250	8.59
0650	8.31	17.4	1.24	1.07	1000.0	183	250	8.59
0655	8.40	17.3	1.24	0.91	900.0	181	250	8.59
0700	8.41	17.2	1.24	0.90	911.0	180	250	8.59
0705	8.41	17.3	1.24	0.88	863.0	181	250	8.59
0710	8.43	17.3	1.24	0.83	621.0	180	250	8.59
0715	8.5	17.3	1.23	0.81	400.0	176	250	8.59
0720	8.41	17.2	1.23	0.69	210.0	175	250	8.59
0725	8.4	17.2	1.23	0.68	208.0	174	250	8.59
0730	8.39	17.22	1.23	0.64	206.00	173	250	8.59
0735	8.39	17.20	1.23	0.69	203.00	173	250	8.59
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: NYS DEC Various Sites Site: Former Drape Master Well I.D.: **MW - 07**

Date: 6/5/2015 Personnel: John Crespo Company: AECOM Corporation

Purging/ Sampling Device:	Bladder Pump	Tubing Type:	Disposable	Pump/Tubing Inlet Location:	Screen midpoint		
Measuring Point:	Below Top of Riser	Initial Depth to Water:	19.61	Depth to Well Bottom:	41.31	Well Diameter:	2"
Screen Length:	10'						
Casing Type:	PVC	Volume in 1 Well Casing (liters):	13.4	Estimated Purge Volume (liters):	11.7		

Sample ID: MW - 07 Sample Time: 15:05 QA/QC: None

Sample Parameters: VOC's

PURGE PARAMETERS

TIME	TEMP (ºC)	pH	ORP (mV)	COND. (mS/cm)	TURB. (NTU)	DISS. O_2 (mg/l)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:06	17.02	9.12	142	1.17	410	8.26	220	19.61
14:11	16.48	7.53	155	1.2	346	10.26	210	19.67
14:16	16.43	7.05	164	1.21	216	9.79	180	19.68
14:21	16.38	7.07	165	1.21	192	9.65	180	19.66
14:26	16.32	7.01	172	1.21	157	9.47	180	19.65
14:31	16.35	6.98	175	1.21	124	9.34	200	19.65
14:36	16.36	6.97	178	1.21	108	9.27	195	19.67
14:41	16.41	6.97	180	1.21	94.5	9.16	195	19.68
14:46	16.48	6.97	181	1.21	83.5	9.05	195	19.68
14:51	16.51	6.98	181	1.21	80.5	9.02	195	19.67
14:56	16.48	6.95	182	1.21	77.6	8.98	195	19.67
15:01	16.47	6.95	183	1.21	73.4	8.94	195	19.67
Tolerance:	**---**	**0.1**	**+ or - 10**	**3%**	**10%**	**10%**	**---**	**---**

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: NYS DEC Various Sites Site: Former Drape Master Well I.D.: **MW - 08**

Date: 6/4/2015 Personnel: John Crespo Company: AECOM Corporation

Purging/ Sampling Device:	Bladder Pump			Tubing Type:	Disposable		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	7.35	Depth to Well Bottom:	25.16	Well Diameter:	2"	Screen Length:	10'
Casing Type:	PVC			Volume in 1 Well Casing (liters):	11.0		Estimated Purge Volume (liters):	12.7	

Sample ID: MW - 08 Sample Time: 15:35 QA/QC: None

Sample Parameters: VOC's

PURGE PARAMETERS

TIME	TEMP (ºC)	pH	ORP (mV)	COND. (mS/cm)	TURB. (NTU)	DISS. O_2 (mg/l)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:38	16.74	6.77	200	0.842	685	8.03	350	7.37
14:43	15.44	7.05	161	0.852	602	5.6.	190	7.38
14:48	15.36	7.09	188	0.858	571	5.31	200	7.37
14:53	15.15	7.11	186	0.856	466	5.98	200	7.37
14:58	15.02	7.12	184	0.873	381	5.01	200	7.37
15:03	14.97	7.13	184	0.876	315	4.84	200	7.36
15:08	14.92	7.14	184	0.879	281	4.75	200	7.36
15:13	14.88	7.12	184	0.884	210	4.66	200	7.36
15:18	14.84	7.13	183	0.887	164	4.56	200	7.37
15:23	14.85	7.13	182	0.886	140	4.58	200	7.38
15:28	14.83	7.13	182	0.885	135	4.57	200	7.38
15:33	14.76	7.14	182	0.884	127	4.59	200	7.38
Tolerance:	**---**	**0.1**	**+ or - 10**	**3%**	**10%**	**10%**	**---**	**---**

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: NYS DEC Various Sites Site: Former Drape Master Well I.D.: **MW - 12**

Date: 6/4/2015 Personnel: John Crespo Company: AECOM Corporation

Purging/ Sampling Device:	Bladder Pump		Tubing Type:	Disposable		Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water: 8.78	Depth to Well Bottom:	25.03	Well Diameter:	2"	Screen Length: 10'
Casing Type:	PVC	Volume in 1 Well Casing (liters):	10.0	Estimated Purge Volume (liters):	16.1		

Sample ID: MW - 12 Sample Time: 17:45 QA/QC: None

Sample Parameters: VOC's

PURGE PARAMETERS

TIME	TEMP (ºC)	pH	ORP (mV)	COND. (mS/cm)	TURB. (NTU)	DISS. O_2 (mg/l)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
16:23	18.65	7.01	182	1.06	905	14.2	215	8.81
16:28	17.95	6.58	195	1.07	678	10.45	200	8.82
16:33	17.83	6.55	203	1.07	574	9.84	200	8.8
16:43	17.74	6.53	214	1.06	392	8.62	200	8.79
16:48	17.69	6.53	214	1.06	316	8.62	200	8.79
16:53	17.62	6.55	216	1.06	280	7.59	200	8.79
16:58	17.62	6.53	220	1.06	242	7.17	200	8.79
17:03	17.58	6.56	219	1.06	207	6.72	200	8.79
17:08	17.53	6.56	217	1.06	198	6.38	200	8.79
17:13	17.57	6.56	215	1.06	185	6.01	200	8.79
17:18	17.53	6.55	211	1.06	155	5.72	200	8.79
17:23	17.54	6.53	208	1.06	107	5.44	200	8.79
17:28	17.49	6.54	207	1.06	63.1	5.05	200	8.79
17:33	17.49	6.55	205	1.08	43.5	4.89	200	8.79
17:38	17.47	6.55	202	1.09	41.7	4.72	200	8.79
17:43	17.44	6.56	201	1.09	39.8	4.61	200	8.79
Tolerance:	**---**	**0.1**	**+ or - 10**	**3%**	**10%**	**10%**	**---**	**---**

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: NYS DEC Various Sites | Site: Former Drape Master | Well I.D.: **MW - 13**

Date: 6/5/2015 | Personnel: John Crespo | Company: AECOM Corporation

Purging/ Sampling Device:	Bladder Pump		Tubing Type:	Disposable		Pump/Tubing Inlet Location:	Screen midpoint
Measuring Point:	Below Top of Riser	Initial Depth to Water: 19.98	Depth to Well Bottom:	40.02	Well Diameter:	2"	Screen Length: 10'
Casing Type:	PVC	Volume in 1 Well Casing (liters):	12.4	Estimated Purge Volume (liters):	14.4		

Sample ID: MW - 13 | Sample Time: 13:08 | QA/QC: None

Sample Parameters: VOC's

PURGE PARAMETERS

TIME	TEMP (ºC)	pH	ORP (mV)	COND. (mS/cm)	TURB. (NTU)	DISS. O_2 (mg/l)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:52	16.08	6.86	142	1.21	>1000	7.35	160	19.98
11:57	15.65	6.98	102	1.21	>1000	3.9	185	19.98
12:02	15.55	6.99	90	1.21	>1000	2.89	185	19.98
12:07	15.57	6.99	87	1.21	>1000	2.71	185	19.98
12:12	15.58	7.02	86	1.21	>1000	2.61	180	19.98
12:17	15.61	7.02	87	1.21	975	2.56	180	19.98
12:22	15.63	7.02	88	1.21	798	2.51	180	19.98
12:27	15.66	7.03	88	1.21	497	2.45	180	19.98
12:32	15.64	7.01	89	1.21	371	2.42	180	19.98
12:37	15.61	7.03	88	1.21	247	2.44	180	19.98
12:42	15.59	7.03	88	1.21	198	2.44	180	19.98
12:47	15.58	7.02	89	1.21	184	2.43	180	19.98
12:52	15.59	7.02	88	1.21	162	2.43	180	19.98
12:57	15.58	7.02	88	1.21	155	2.41	180	19.98
13:02	15.6	7.03	88	1.21	151	2.39	180	19.98
13:07	15.59	7.03	89	1.21	144	2.39	180	19.98
Tolerance:	**---**	**0.1**	**+ or - 10**	**3%**	**10%**	**10%**	**---**	**---**

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: NYS DEC Various Sites Site: Former Drape Master Well I.D.: **MW - 14**

Date: 6/5/2015 Personnel: John Crespo Company: AECOM Corporation

Purging/ Sampling Device:	Bladder Pump			Tubing Type:	Disposable		Pump/Tubing Inlet Location:	Screen midpoint	
Measuring Point:	Below Top of Riser	Initial Depth to Water:	10.15	Depth to Well Bottom:	25.22	Well Diameter:	2"	Screen Length:	10'
Casing Type:	PVC	Volume in 1 Well Casing (liters):		9.3	Estimated Purge Volume (liters):		17.5		

Sample ID: MW - 14 Sample Time: 8:55 QA/QC: None

Sample Parameters: VOC's

PURGE PARAMETERS

TIME	TEMP (ºC)	pH	ORP (mV)	COND. (mS/cm)	TURB. (NTU)	DISS. O_2 (mg/l)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
7:20	16.11	6.67	209	1.27	>1000	5.36	250	10.17
7:25	15.17	7.18	180	1.28	564	88.44	180	10.18
7:30	15.11	7.26	168	1.28	>1000	8.14	180	10.21
7:35	15.06	7.21	161	1.28	984	7.75	180	10.17
7:40	15.03	7.24	156	1.28	801	7.33	180	10.18
7:45	15.01	7.28	151	1.28	659	6.94	180	10.18
7:50	15.02	7.26	151	1.27	542	6.69	180	10.18
7:55	14.99	7.22	150	1.26	451	6.29	180	10.18
8:00	15.01	7.24	148	1.26	415	6.11	180	10.18
8:05	14.99	7.23	147	1,27	267	5.79	180	10.18
8:10	14.98	7.23	146	1.27	230	5.63	180	10.18
8:15	15	7.28	143	1.27	188	5.44	180	10.18
8:20	144.99	7.31	141	1.27	123	5.26	180	10.18
8:25	14.98	7.29	139	1.27	104	5.04	180	10.18
8:30	15.01	7.3	138	1.27	93.7	4.91	180	10.18
8:35	15.05	7.32	137	1.27	81.5	4.82	180	10.18
8:40	15.04	7.32	135	1.28	62.3	4.65	180	10.18
8:45	15.03	7.29	137	1.28	60.1	4.61	180	10.18
8:50	15.05	7.31	136	1.28	57.5	4.53	180	10.18
Tolerance:	**---**	**0.1**	**+ or - 10**	**3%**	**10%**	**10%**	**---**	**---**

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: NYS DEC Various Sites Site: Former Drape Master Well I.D.: **MW - 15**

Date: 6/5/2015 Personnel: John Crespo Company: AECOM Corporation

Purging/Sampling Device: Bladder Pump Tubing Type: Disposable Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 5.85 Depth to Well Bottom: 22.58 Well Diameter: 2" Screen Length: 10'

Casing Type: PVC Volume in 1 Well Casing (liters): 10.3 Estimated Purge Volume (liters): 12.2

Sample ID: MW - 15 Sample Time: 10:53 QA/QC: None

Sample Parameters: VOC's

PURGE PARAMETERS

TIME	TEMP (ºC)	pH	ORP (mV)	COND. (mS/cm)	TURB. (NTU)	DISS. O_2 (mg/l)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:54	14.97	7.89	-8	0.806	326	4.53	240	6.22
9:59	14.61	7.55	-27	0.813	290	1.84	200	6.18
10:04	14.53	7.41	-35	0.809	228	1.15	200	6.18
10:09	14.52	7.26	34	0.805	174	0.98	200	6.18
10:14	14.51	7.27	-36	0.802	146	0.83	200	6.18
10:19	14.47	7.22	-35	0.801	116	0.76	200	6.18
10:24	14.51	7.21	-36	0.802	103	0.73	200	6.18
10:29	14.51	7.18	-36	0.798	94.1	0.69	200	6.18
10:34	14.55	7.11	-36	0.797	75.2	0.66	200	6.18
10:39	14.56	7.15	-38	0.798	63.6	0.64	200	6.18
10:44	14.58	7.17	-40	0.798	62.5	0.62	200	6.18
10:49	14.59	7.15	-39	0.798	57.2	0.62	200	6.18
Tolerance:	**---**	**0.1**	**+ or - 10**	**3%**	**10%**	**10%**	**---**	**---**

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

APPENDIX G

INVESTIGATION DERIVED WASTE (IDW) DISPOSAL DOCUMENTS

157490-14

1813829

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NYCESQG
2. Page 1 of: 2
3. Emergency Response Phone: 518-402-8660
4. Manifest Tracking Number: 006611042 FLE

5. Generator's Name and Mailing Address: NYSDEC - DER, 625 BROADWAY, 12TH FLOOR, ALBANY NY 12233, 518 402-9660
Att: SADIQUE AHMED

Generator's Site Address (if different than mailing address): FORMER DRAPER MASTER SITE, 89-01 ASTORIA BOULEVARD, ASTORIA NY 11369

6. Transporter 1 Company Name: ISLAND PUMP & TANK CORP.
U.S. EPA ID Number: NYR000191729

7. Transporter 2 Company Name: REPUBLIC ENVIRONMENTAL SYSTEMS (TRANSPORTATION GROUP), LLC
U.S. EPA ID Number: PAD982661381

8. Designated Facility Name and Site Address: NORTHEAST ENVIRONMENTAL, 276 ALLENS AVENUE, PROVIDENCE RI 02905, 401 781-6340
U.S. EPA ID Number: RID040088352

Facility's Phone:

9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1 ~~NON-RCRA & NON-DOT REGULATED SOLIDS (DRILL CUTTINGS)~~	3	DM	MFS 385 3	P	NONE		3/55
	2. NON-RCRA & NON-DOT REGULATED LIQUIDS (PURGE WATER)	5	DM	MFS 375 5	G	NONE		5/55
	3							
	4							

14. Special Handling Instructions and Additional Information
Line #1 - 639939-00
Line #2 - 639938-00

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of the consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: JOHN CRESPO (WAS ACTING AS AGENT OF NYS DEC) Signature: John Crespo Month: 4 Day: 18 Year: 14

INTL

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Joseph D. Sisca Signature: Joseph E. Sisca Month: 04 Day: 18 Year: 14
Transporter 2 Printed/Typed Name: A.A. Terrier Signature: [illegible] Month: 5 Day: 2 Year: 14

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☑ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H141 2. H141 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Karen Bunyan Signature: [signature] Month: 05 Day: 28 Year: 14

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. NMD000731355 DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type (Form designed for use on elite (12-pitch) typewriter.) Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number CESOG	22. Page 2 of 2	23. Manifest Tracking Number 006611042 FLE

24 Generator's Name N4CDEC
625 Broadway 12th Floor Albany NY 12233

25 Transporter 3 Company Name US Environmental INC — U.S. EPA ID Number PAR000524041

26. Transporter ____ Company Name — U.S. EPA ID Number

27a. HM	27b U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28 Containers No.	28 Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31 Waste Codes		

Trans Only

32. Special Handling Instructions and Additional Information

TRANSPORTER

33 Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name Thomas R Ruley III — Signature — Month 5 Day 28 Year 14

34 Transporter ____ Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

35. Discrepancy

36 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

1.6431 1-14 ~~157490-14~~

1819144 ~~1813827~~

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NYCESQG
2. Page 1 of 1
3. Emergency Response Phone: 518-402-9656
4. Manifest Tracking Number: 006611098 FLE

Att SADIQUE AHMED

5. Generator's Name and Mailing Address: NYSDEC - DER, 625 BROADWAY, 12TH FLOOR, ALBANY NY 12233

Generator's Site Address (if different than mailing address): FORMER BIG V MASTER SITE, 89-01 ASTORIA BOULEVARD, ASTORIA NY 11369

Generator's Phone: 518 402-9656

6. Transporter 1 Company Name: ISLAND PUMP & TANK CORP. — U.S. EPA ID Number: NYR000191729

7. Transporter 2 Company Name: REPUBLIC ENVIRONMENTAL SYSTEMS (TRANSPORTATION GROUP), LLC — U.S. EPA ID Number: PAD982661381

8. Designated Facility Name and Site Address: NORTHLAND ENVIRONMENTAL, 275 ALLENS AVENUE, PROVIDENCE RI 02905 — U.S. EPA ID Number: RID040098352

Facility's Phone: 401 781-6340

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-RCRA & NON-DOT REGULATED LIQUIDS (PURGE WATER)	003	DM	00165	G	NONE
	2.					
	3.					
	4.					

3/55

14. Special Handling Instructions and Additional Information: 638938-00

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: JOHN CRESPO (URS AS AGENT OF NYSDEC) — Signature: John Crespo — Month/Day/Year: 5 9 14

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only)

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: ASHTON ALT — Signature — 5 9 14
Transporter 2 Printed/Typed Name: Ala Tenier — Signature — 5 21 14

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H141 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Karin Bunyan — Signature — Month/Day/Year: 05 28 14

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. MAD000387633 DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Copy

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21 Generator ID Number	22 Page 2 of 2	23. Manifest Tracking Number
	CESQG		006611098 FLE

24 Generator's Name NYSDEC
625 Broadway 12th FL Albany NY 12233

25 Transporter 3 Company Name US Environmental Inc — U.S. EPA ID Number PAR000524041

26 Transporter _____ Company Name — U.S. EPA ID Number

GENERATOR

27a. HM	27b U S DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28 Containers No.	28 Containers Type	29. Total Quantity	30 Unit Wt./Vol	31 Waste Codes		

trans only

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name Phenry R Riley III — Signature — Month 5 Day 28 Year 14

34. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i e , codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Manifest Tracking Number: 006611038 FLE

GENERATOR

5. Generator's Name and Mailing Address

625 BROADWAY 15TH FL
BAYONNE NJ 7002

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name: REPUBLIC ENVIRONMENTAL SYSTEMS (TRANSPORTATION GROUP), LLC

U.S. EPA ID Number: RID 2 8 2 6 5 3 3 1

8. Designated Facility Name and Site Address

275 ALLENS AVENUE
PROVIDENCE RI 02905
401 781-6410

U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1.	003			G	NONE
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

623 132-00

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: JOHN CRESPO (WR

Signature

Month: | Day: 9 | Year:

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: ASHTON

Signature

Month: 5 | Day: 9 | Year: 16

Transporter 2 Printed/Typed Name

Signature

Month: | Day: | Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator)

Month: | Day: | Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name

Signature

Month: | Day: | Year:

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NY[illegible]

2. Page 1 of [illegible]

3. Emergency Response Phone: [illegible]

4. Manifest Tracking Number: 006611042 FLE

5. Generator's Name and Mailing Address: [illegible]
625 BROADWAY, 12TH FLOOR
ALBANY NY 12233

Generator's Site Address (if different than mailing address): [illegible]
23-61 ASTORIA BOULEVARD
ASTORIA NY 11369

Generator's Phone: 518 402-9868

6. Transporter 1 Company Name: ISLAND PUMP & TANK CORP — U.S. EPA ID Number: NYR000019729

7. Transporter 2 Company Name: REPUBLIC ENVIRONMENTAL SYSTEMS (TRANSPORTATION GROUP) LLC — U.S. EPA ID Number: PAD982661381

8. Designated Facility Name and Site Address: NORTHLAND ENVIRONMENTAL
275 ALLENS AVENUE
PROVIDENCE RI 02905

Facility's Phone: 401 781-6340 — U.S. EPA ID Number: RID040098352

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-RCRA & NON-DOT REGULATED SOLIDS (DRILL CUTTINGS)	3	DM	3	P	NONE
	2. NON-RCRA & NON-DOT REGULATED LIQUIDS (PURGE WATER)	5	DM	5	G	NONE
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: JOHN CRESPO (URS AS AGENT OF NYS DEC) — Signature: [signature] — Month 4 Day 18 Year 14

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: [illegible] — Signature: [signature] — Month 4 Day 18 Year 14
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

APPENDIX H

SURVEY INFORMATION

FORMER DRAPE MASTER SITE

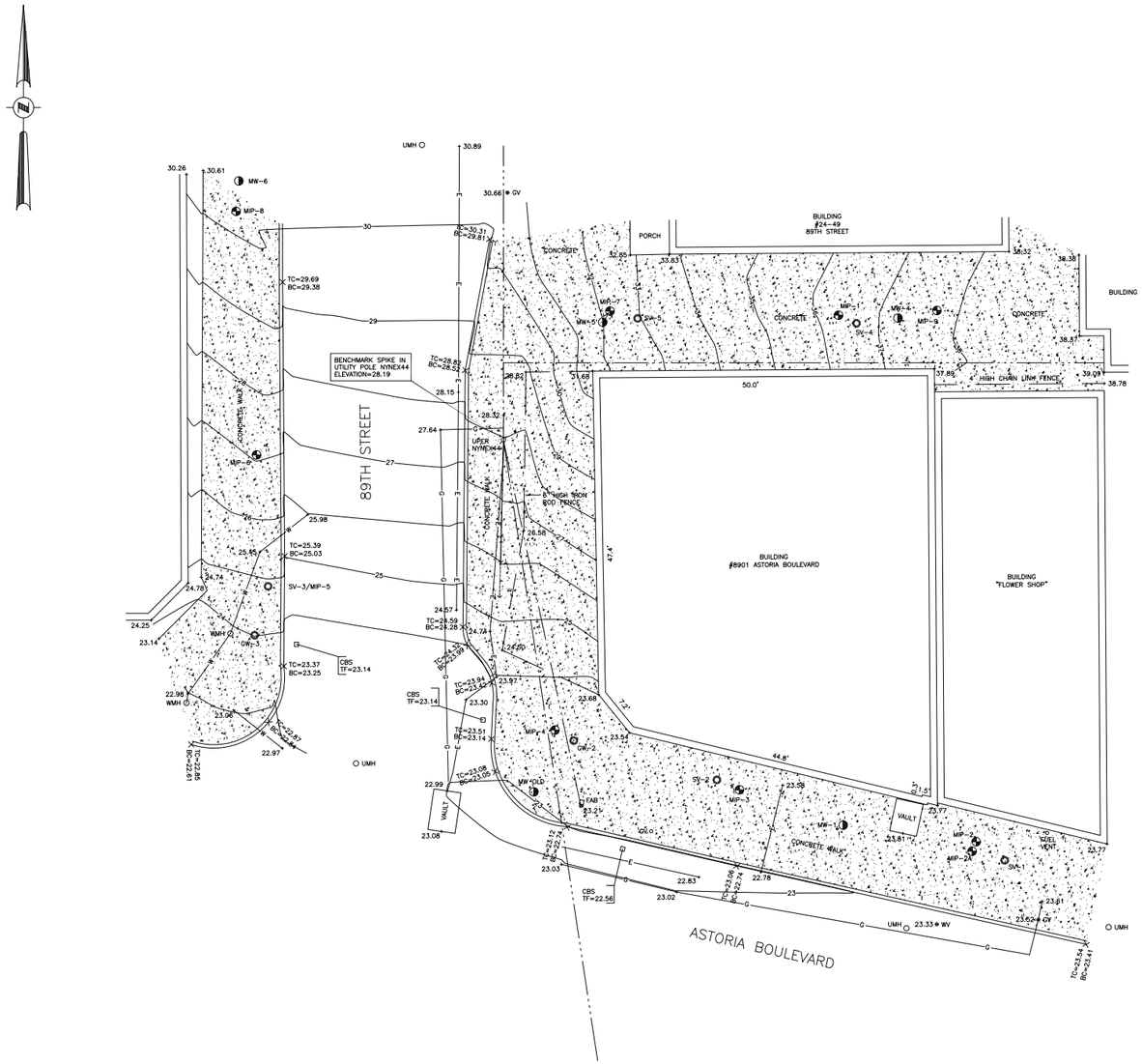
WELL I.D.	NORTHING	EASTING	TOP OF CASING	TOP OF PVC	GROUND
MW-7	217828.31	1017448.48	34.58	34.38	34.58
MW-8	217656.73	1017357.86	21.84	21.54	21.84
MW-9	217547.17	1017291.51	21.67	21.41	21.67
MW-10	217516.65	1017482.93	23.23	22.90	23.23
MW-11	217634.93	1017491.80	23.43	23.09	23.43
MW-12	217601.40	1017607.03	24.07	23.74	24.07
SG-7	217827.75	1017448.38	34.56		34.56
SG-8	217656.55	1017358.57	21.82		21.82
SG-9	217546.37	1017291.72	21.70		21.70
SG-10	217516.38	1017483.71	23.23		23.23
SG-11	217634.67	1017492.67	23.41		23.41
SG-12	217601.48	1017606.19	24.01		24.01

DATE OF FIELD SURVEY: APRIL 29, 2014
HORIZONTAL DATUM: NAD 83 FROM GPS OBSERVATIONS
VERTICAL DATUM: NAVD 88 FROM GPS OBSERVATIONS

XREFS: NONE

PROJECT NUMBER: 10.1521

CAD DWG. FILE NAME: TS.DWG



Map Notes:

1. North orientation and bearings are referenced to Grid North and are based on the New York State Plane Coordinate System, Long Island Zone, NAD 83 obtained from GPS observations made on September 20, 2010. The distances shown are horizontal ground distances, Grid lengths may be obtained by a multiplier of .999999795 (Combined factor).
2. Vertical datum shown hereon is NAVD 88 and was obtained through GPS observations.
3. Underground facilities, structures, and utilities have been plotted from data obtained from previous maps and record drawings. Surface features such as catch basin rims, manhole covers, water valves, gas valves, etc. are the result of field survey unless noted otherwise. There may be other underground utilities, the existence of which is not known to the undersigned. Size and location of all underground utilities and structures must be verified by the appropriate authorities. Dig Safely New York must be notified prior to conducting test borings, excavation and construction.

Monitoring Well Chart September 20, 2010					
Monitoring Well	Northing	Easting	Elevation	Top of Casing	Top of PVC
MW-1	217625.3345	1017533.1932	23.56	23.56	23.34
MW-4	217699.5765	1017541.2153	37.33	37.33	36.88
MW-5	217698.9852	1017497.9674	31.92		
MW-6	217719.6619	1017444.6691	30.58	30.58	30.24
MIP-1	217700.0017	1017532.5175	36.38		
MIP-2	217622.8994	1017552.6813	23.76		
MIP-2A	217621.5044	1017552.0886	23.77		
MIP-3	217630.4971	1017518.0029	23.52		
MIP-4	217639.2502	1017490.9812	23.52		
MIP-5	217660.2980	1017448.9603	24.88		
MIP-6	217679.5467	1017447.2718	27.10		
MIP-7	217700.6038	1017499.0442	32.02		
MIP-8	217715.2061	1017444.2749	30.33		
MIP-9	217700.6901	1017546.9329	37.76		
SV-1	217620.1689	1017556.8541	23.74		
SV-2	217631.9612	1017514.6971	23.53		
SV-3	217660.2980	1017448.9603	24.88		
SV-4	217698.8155	1017535.1507	36.65		
SV-5	217699.5339	1017503.0879	32.94		
GW-2	217637.7033	1017493.7368	23.46		
GW-3	217653.1453	1017446.9876	24.02		

Legend

CBS □	Catch Basin Square
FAB □D	Fire Alarm Box
GV o	Gas Valve
------→	Guy Wire
MW ◑	Monitoring Well
TC= BC= ×	Top & Bottom Curb Elevation
UMH ○	Unknown Manhole
UPER ⌀	Utility Pole W/Electric Riser
WMH ○	Water Manhole
WV o	Water Valve
——— - - - ———	Overhead Wires
———E———	Underground Electric Line
———G———	Underground Gas Line
———W———	Underground Water Line

BAR SCALE
10 0 5 10 20
1 inch = 10 ft.

"ONLY COPIES OF THIS MAP SIGNED IN RED INK AND EMBOSSED WITH THE SEAL OF AN OFFICER OF C.T. MALE ASSOCIATES, P.C. OR A DESIGNATED REPRESENTATIVE SHALL BE CONSIDERED TO BE A VALID TRUE COPY".

PROGRESS PRINT

JAMES F. COOK
PLS NO. 49260

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				

APPROVED: _____
DRAFTED : SMW
CHECKED : JM
PROJ. NO: 10.1521
SCALE : 1"=10'
DATE : SEPT. 20, 2010

TOPOGRAPHIC AND SAMPLE LOCATION SURVEY
8901 ASTORIA BOULEVARD
PREPARED FOR
SHAW ENVIRONMENTAL, INC

QUEENS COUNTY — STATE OF NEW YORK

C.T. MALE ASSOCIATES, P.C.
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ENVIRONMENTAL SERVICES • SURVEY & LAND INFORMATION SERVICES

SHEET 1 OF 1
DWG. NO: 10-541

CAD DWG. FILE NAME: TS.DWG

APPENDIX I

DATA USABILITY SUMMARY REPORT

(ON COMPACT DISC)