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REMEDIAL INVESTIGATION ALTERNATIVES ANALYSIS REPORT

211 Franklin Street
City of Olean, Cattaraugus County, New York

BCP Site Number: C905038

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Project #: 4884S-13

Date: January 2015

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1.0 INTRODUCTION

This Remedial Investigation/Alternatives Analysis (RI/AA) report, prepared by Day Environmental, Inc. (DAY) on behalf of Silence Dogood, LLC (the Owner), describes studies and remedial activities conducted to date at the property addressed 211 Franklin Street, City of Olean, Cattaraugus County, New York, Tax Parcel 94.040-1-21 (hereinafter referred to as the "Site"). This report also describes an evaluation of remedial activities to be implemented to address remaining environmental impacts identified during the RI.

The work completed at the Site was done under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC) in accordance with Brownfield Cleanup Agreement (BCA) Index # C905038-05-14, which was executed on May 22, 2014. As outlined in the BCA, Silence Dogood, LLC is a Volunteer with respect to the requirements of the BCP. A Project Locus Map is included as Figure 1 and Property Survey Map is included as Figure 2.

1.1 Purpose of Report

The purpose of this report is to present the findings of the RI completed as part of this BCP project to provide an understanding of the subsurface and environmental conditions at the Site pursuant to the development of a Conceptual Site Model. The information obtained during this study was used to: evaluate the nature and extent of contamination related to previous activities conducted at the Site; identify potential routes of exposure and potential receptors and to evaluate the fate and transport of contaminants. In addition, this report describes an Interim Remedial Measure (IRM) conducted during the RI, describes additional IRMs proposed for the Site, and presents the results of this work. Finally, proposed remedial activities to address residual contamination present in the surface soil, soil gas and groundwater at the Site are presented in this report.

1.2 Report Organization

This report is divided into twelve sections with Section 2.0 through Section 8.0 presenting the findings of the studies and remedial activities conducted as part of the RI. Section 9.0 presents an analysis of remedial alternatives, and conclusions of this RI/AA report are presented in Section 10.0. The contents of Section 2.0 through Section 12.0 are discussed further below.

Section 2.0 - Background: This section presents a description of the Site, an overview of the site history and historic operations at the Site. In addition, this section identifies the previous environmental studies conducted at the Site.

Section 3.0 - Remedial Investigation Approach: The methods used to evaluate environmental conditions at the Site are presented in this section. Generally, the work conducted included: a geophysical survey in exterior portions of the Site; soil vapor screening within the building and at select exterior locations; an evaluation of basement and vault areas within the building; review of documentation/maps to evaluate the location and type of buried utilities present within and in the vicinity of the Site, and the collection of vapor samples from select sanitary sewers that traverse the Site; advancement of test borings and the installation of groundwater monitoring

wells; testing of samples of surface soil, subsurface soil, groundwater, and sub-slab vapors; and determination of groundwater monitoring well elevations and the development of site maps.

Section 4.0 - Physical Characteristics of the Site: This section of the report presents the physical characteristics of the Site such as geology, lithology, hydrogeology, demography and land use.

Section 5.0 – Remedial Investigation Findings: The contaminants of concern encountered and the distribution of these contaminants within the environmental media and features of the Site (i.e., basement/vault areas and utilities) are discussed in this section of the report. The results Data Use Summary Reports (DUSRs) completed to assess the suitability of the analytical laboratory data generated during this study are also discussed in this section.

Section 6.0 - Contaminant Fate and Transport: This section of the report presents information on the fate and transport of contaminants detected at the Site. This includes information on potential routes of migration, contaminant persistence, and contaminant migration patterns. In addition, the findings of the assessment of the potential for soil vapors to migrate away from the Site are presented in this section.

Section 7.0 - Interim Remedial Measure: The results of the IRM conducted to remove a 10,000 gallon diesel fuel oil underground storage tank (UST) and field studies conducted to date to assess other potential IRMs are presented in this section.

Section 8.0 - Exposure Assessment: This section of the report summarizes the results of a qualitative human health exposure assessment and a fish and wildlife resources impact analysis conducted as part of this project.

Section 9.0 – Remedial Alternatives Analysis: This analysis of potential remedial alternatives including the identification of remedial action objectives, applicable Standards, Criteria and Guidance (SCGs) and the presentation of the recommended remedial alternatives for the Site are presented in this section.

Section 10.0 – RI/AA Conclusions: A summary of the work completed, a conceptual site model based on the findings of the work completed and a discussion of the proposed remedial measures are identified in this section.

Section 11.0 – References: References used in the preparation of this RI/AA report are cited in this section.

Section 12.0– Acronym List: Acronyms cited in the text of this RI/AA report are listed in this section.

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2.0 BACKGROUND

This section presents a description of the current Site conditions, the history and operations conducted at the Site, and a summary of the previous studies and remedial activities.

2.1 Property and Site Description

The Site is located in an industrial-use urban area in the Northwest Quadrant district of the City of Olean, New York and is within the boundary of the New York State Department of State (NYSDOS) Brownfield Opportunity Area (BOA) identified as the City of Olean Northwest BOA. The Site is bound to the north-northwest by Franklin Street followed by a parking lot, athletic field, and undeveloped land, to the east-northeast by a grass-covered area with a residential neighborhood beyond, to the south-southeast by a railroad Right-of-Way (ROW) with a residential neighborhood beyond, and to the west-northwest by a railroad ROW with industrial properties beyond. The approximate 5.79 acre Site is currently developed with an approximate 280,000-square foot, two-story industrial building with a partial basement. The building covers the majority of the Site except for grass-covered and landscaped areas on the northern portion of the Site and gravel-covered areas on the western and southern portions of the Site.

2.2 Previous Environmental Studies and Reports

To date, various studies have been conducted to evaluate the nature and extent of contamination at the Site. These studies are summarized in the following documents:

- *Phase I Environmental Site Assessment, Henkel Corporation, 211 Franklin Street, Olean, New York* dated May 2007 prepared by Environmental Resources Management (ERM).

- *Phase I Environmental Site Assessment, 119, 202 & 211 Franklin Street and 120 West Connell Street, City of Olean New York* dated November 1, 2013 prepared by DAY.

- *Preliminary Phase II Environmental Site Assessment, 119 Franklin Street, 211 Franklin Street, 202 Franklin Street and 120 West Connell Street, Olean, New York dated* October 17, 2013 prepared by DAY.

2.3 Site History

Based on information obtained from Sanborn Fire Insurance (Sanborn) maps, historic records, and historic directories from the City of Olean, industrial activities have been conducted on the Site since at least 1882 and these include the following:

- The Olean Chemical Company was located on the western portion of the Site between at least 1882 until around 1898, and operations included the manufacturing and storage of muriatic, sulphuric, mixed acids and ammonia. A 1894 Sanborn map depicts various buildings, acid tanks, coal/coke storage structures, sulphur and soda storage structures, and acid pipelines at this facility. An oil house is depicted on an earlier Sanborn map, dated 1886, in the approximate location of one of the acid tanks depicted on the 1894

Sanborn Map. Multiple railroad spur lines that connect the Olean Chemical Company buildings to railroad lines adjacent to the south and west are also depicted on the Site. The Olean Chemical Company was partially destroyed by fire sometime around 1898.

- A glass bottle manufacturing facility was constructed on the Olean Chemical Co. property (i.e., the western portion of the Site) in the about 1906. The facility was destroyed after a fire and explosion the following year.

- Olean Metal Cabinet Works was constructed on the western portion of the Site sometime around 1932 and the facility operated until around 1934. As depicted on a 1932 Sanborn map, the building contained office space, carting (shipping) area, a factory floor, a spray painting area, a coal room, a boiler room and storage areas.

- The Daystrom Corporation occupied the building on the western portion of the Site sometime after 1934, subsequently expanded the building, and operated until at least 1961, manufacturing metal furniture and metal wares. Daystrom Corporation conducted painting, polishing, and plating operations in the central portion of the building, and a boiler room was located in the northwest portion of the building. In addition, historic documentation indicates that a 10,000-gallon tank, a press room building, a waste paper shed, and two unnamed buildings were removed in order to construct an addition on the south side of the main building. Daystrom Corporation constructed another addition on the eastern side the building at the Site sometime between 1943 and 1949, and this addition was constructed over the Spruce Street ROW and a portion of the West Connell Avenue ROW.

- Hysol, a Division of the Dexter Corporation occupied the Site sometime after 1966, and operated until at least 1996, manufacturing plastics and epoxy resins. As depicted on a Sanborn map dated 1969, painting operations were completed in the central and southern portions of the building, and raw materials (including solvents) were stored in the southern portion of the building. A boiler room is also depicted in the southern portion of the building.

- The Henkel Corporation occupied the Site in 2001, and operated until 2011, manufacturing adhesive and sealants. Reportedly, solvents were stored/used at the facility, and raw material resins and 'off-spec' product waste were stored in tanks located in the southern and northwestern portion of the building, respectively. Heating oil for the facility was stored in underground storage tanks. Based on information included in a Phase I ESA completed at the Site in 2013 (refer to Section 2.2), wastes generated by Henkel Corporation included:

  - Flammable liquids (MIBK, propylene glycol monoethyl ether, toluene, xylene, cyclohexane);
  - Hazardous waste liquids and solids (acetone, MIBK, MIBK rags);
  - resin mixtures;
  - aerosols;
  - paint related materials;
  - Corrosive liquid (triethanolamine);
  - Mercury;

- Caustic alkali liquids (sodium hydroxide/triethanolamine);
- Amines (benzyl dimethylamine);
- aluminum powder; and
- Methanol mixture.

- SolEpoxy, Inc. has occupied the building at the Site since 2010, and currently manufactures epoxy resins for use by others to manufacture electric components at off-site locations.

In addition to operations conducted on the Site, industrial activities including an oil refinery, oil production/storage operations, and railroad lines are/were located in proximity of the Site.

Copies of select historic documents and site plans are included in Appendix A to depict conditions at the Site since its development. These include:

- A 1894 Sanborn Map showing the Olean Chemical Company that includes the approximate locations of former buildings, former railroad spur lines, and former street right-of-ways

- Site Plan showing the approximate building footprint, former railroad spur lines and former street right-of-ways in 1932 (Olean Cabinet)

- Site Plan showing the approximate building footprint and former facility layout in 1943 (Daystrom Corporation)

- Site Plan showing the approximate building footprint and former railroad spur lines in 1969 (Hysol Corporation)

- Site Plan showing the former facility layout and former waste management units identified as part of a 1997 RCRA Facility Assessment

- Site Plan showing the approximate current locations of drains and select underground utilities

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3.0 REMEDIAL INVESTIGATION APPROACH

This section describes the investigative work conducted and the methods used as part of this project. The work was done in general accordance with the provisions outlined in a document titled *Remedial Investigation/Remedial Alternatives Analysis Work Plan, 211 Franklin Street, Olean, New York 14760, NYSDEC Site Number C905038-05-14* prepared by DAY dated May 2014 (the RIWP) and a document titled *Supplemental Remedial Investigation/Remedial Alternatives Analysis Work Plan, 211 Franklin Street, Olean, New York 14760, NYSDEC Site Number C905038-05-14* prepared by DAY dated October 2014 (the Supplemental RIWP).

The studies performed included a review of available records pertaining to the types and locations of buried utilities in proximity of the Site that could serve as preferential contaminant pathways, and a review of available records pertaining to the sanitary sewer system, a portion of which is located on the Site. The field work included: a geophysical survey over selected exterior portions of the Site and the advancement of test pits to evaluate the magnetic anomalies identified by the geophysical survey; the completion of soil vapor screening and subsequent vapor sampling focused around 'hot spots' identified during screening; an assessment of the basements, vaults, and a UST, and subsequent sampling/testing of various media associated with these structures; collection and testing of surface soil samples, advancement of test borings, installation of groundwater monitoring wells, evaluation of groundwater flow conditions and hydraulic conductivities, coupled with the collection and testing of soil, groundwater and vapor samples.

3.1 Geophysical Survey

Between June 7 and 8, 2014, AMEC Environment and Infrastructure, Inc. (AMEC) completed a geophysical survey over four exterior areas around the perimeter of the Site. The geophysical survey was conducted to evaluate the potential presence of USTs and/or other buried anomalies that may have been formerly utilized at the Site. The geophysical survey areas were selected based on a review of historical documents relating to the past uses of the Site. The approximate areas surveyed are depicted on Figure 3.

AMEC completed the geophysical survey using a Geonics EM-61 high sensitivity, high resolution time domain electromagnetic metal detector capable of detecting both ferrous and non-ferrous metallic objects to depths of approximately 10 feet (ft.) below ground surface (bgs). The EM-61 instrument collected continuous readings along transects spaced approximately three feet apart and extending across predefined reference grids established in each of the four discrete survey areas. Due to the necessity to establish the reference grids in a rectilinear pattern, portions of the area surveyed extend past the Site perimeter.

The electromagnetic responses recorded by the EM-61instrument are expressed in units of milliSiemens per meter (mS/M), and are displayed on Figure 3 as a colorized contour map. Metallic surface features and anomalies that were interpreted by AMEC to be potentially significant from an environmental perspective (i.e., labeled as A through F) are also displayed on Figure 3. A copy of the report prepared by AMEC is provided in Appendix B.

On August 4, 2014, Richard Peck Construction (RPC) advanced two test pits (designated TP-1 and TP-2) to evaluate anomalies A and C, respectively. The test pits were advanced using a

Hitachi model 160 LC excavator equipped with an approximate 4 foot wide excavator bucket. Test Pit TP-1 was advanced approximately 8 ft. bgs in the area of anomaly A. Test Pit TP-2 was advanced to approximately 7 ft. bgs in the area of anomaly C. Copies of the test pit logs prepared for TP-1 and TP-2 are included in Appendix C.

3.2 Soil Vapor Screening

Soil vapor screening was completed at the Site to evaluate the nature and extent of volatile organic compounds (VOCs) within the soil vapor and to assess the need for remedial actions to address potential exposures related to soil vapor intrusion. Initially, a screening level evaluation of the soil vapor beneath the building at the Site was completed in order to; 1) identify possible contaminant source areas below the building footprint; and 2) assess the extent (if any) of contaminant migration along buried utilities located below the building footprint.

Based on the results of the initial soil vapor screening, additional study was completed in order to: 1) further evaluate sub-slab vapors in locations where elevated concentrations were detected previously; 2) determine if (and to what extent) the elevated concentrations of VOCs that were detected in the sub-slab soil vapor samples are migrating into or from the 24-inch diameter sanitary sewer and/or the parallel 10-inch diameter sanitary sewer located below the building footprint; and 3) assess soil vapor conditions at select locations along the perimeter of the Site that are in proximity to residences.

3.2.1 Initial Soil Vapor Screening

On May 28, 2014 and May 29, 2014, DAY conducted the initial soil vapor screening at 20 temporary sub-slab vapor sampling points (designated as SV-01 through SV-20) in the locations identified on Figure 4a and Figure 4d. The sampling was conducted in general accordance with Section 2.7.2 of the New York State Department of Health (NYSDOH) document titled *Guidance for Evaluation Soil Vapor Intrusion in the State of New York*, dated October 2006 (the NYSDOH Guidance Document). The soil vapor samples were collected over a 2-hour period using Summa Canisters and pre-calibrated regulators provided by the analytical laboratory. Sampling logs for sub-slab vapor points SV-1 through SV-20, are presented in Appendix D, and include details regarding the construction of each sample point.

Sub-slab vapor samples SV-1 through SV-20 were delivered under chain-of-custody control to ALS Environmental, Inc. (ALS) in Rochester, NY on May 30, 2014 for testing (refer to Section 3.7). A copy of the laboratory report provided by ALS is provided on the compact disc included in Appendix E, and the VOCs detected by ALS are summarized on Table 1a.

3.2.2 Supplemental Soil Vapor Screening

On November 19, 2014, six additional sub-slab vapor samples (designated as SV-21 through SV-26) were collected in the vicinity of the sanitary sewer utilities and the laterals extending from the sanitary sewers and the locations are depicted on Figure 4a, Figure 4c, and Figure 4d.

On November 25, 2014, vapor samples were also collected from the 10-inch diameter sanitary sewer (designated SanVap-1, SanVap-3 and San Vap-5) and the parallel 24-inch diameter sanitary sewer (designated SanVap-2, SanVap-4 and San Vap-6), at the locations depicted on

Figure 4a and Figure 4d. These samples were collected using summa canisters by suspending polyethylene tubing into sewer manholes with the tubing intakes 1 to 2 feet above the sewer inverts.

On November 25, 2014, three soil vapor points (designated SV-27 through SV-29) were installed along the perimeter of the Site (i.e., in proximity to nearby residential properties). Nothnagle Drilling Inc. (Nothnagle) was retained to advance three test borings using direct-push methods, and to subsequently construct soil vapor points SV-27 through SV-29 within the test borings at depths between 9 ft. and 10 ft. bgs. Copies of the test boring logs prepared for SV-27 through SV-29 are included in Appendix C, and include details regarding the construction of the soil vapor points. On December 2, 2014, soil vapor sample points SV-27 through SV-29 were tested for potential surface air infiltration using a helium tracer gas test in accordance with the provisions outlined in the NYSDOH Guidance Document, and on December 3, 2014 soil vapor samples SV-27 through SV-29 were collected.

Soil vapor samples SV-21 through SV-29 and sanitary sewer vapor samples San Vap-1 through San Vap-6 were collected over a 2-hour period using Summa Canisters and pre-calibrated regulators provided by the analytical laboratory. Sampling logs for sub-slab vapor points SV-21 through SV-29 and sanitary sewer vapor samples San Vap-1 through San Vap-6, are also presented in Appendix D. The results of the helium tracer gas test for soil vapor sample points SV-27 through SV-29 are included on their respective sampling logs.

Sub-slab vapor samples SV-21 through SV-26, soil vapor samples SV-27 through SV-29, and sanitary sewer vapor samples Sanvap-1 through Sanvap-6 were delivered under chain-of-custody control to Spectrum Analytical, Inc. in Agawam, MA (Spectrum MA) for testing (refer to Section 3.7). A copy of the laboratory report provided by Spectrum is provided on the compact disc included in Appendix E, and the VOC compounds detected by Spectrum MA are summarized on Table 1b.

3.3 Basement/Vault/UST Assessment

On October 6 and October 23, 2014, a basement/vault/UST assessment was completed that consisted of determining (to the extent possible) the approximate dimensions and construction materials of each such area identified, and evaluating (to the extent possible) the integrity of floors, walls, and containment structures to assess the potential for releases to the subsurface. The basement/vault assessment was completed for the basement area located in the north-central portion of the facility, the closed (i.e., walled-off) basement located in the west-central portion of the facility, the vault located beneath the facility's boiler room, two vaults located beneath the facility's epoxy room, and an empty UST located beneath the floor in the south-central portion of the facility. The facility layout diagram presented as Figure 4b shows the location of the basements, vaults and the empty UST within the building at the Site. A summary of the observations and measurements collected during the assessment is presented in Appendix F, and this appendix also includes a figure depicting the areas observed and sketches of various features of the basements, vaults, and the empty UST.

On November 25, 2014, Nothnagle advanced two test borings using direct push drilling equipment (designated UST-1 and UST-2) in proximity to the empty UST. [Note: Attempts to penetrate the apparent steel wall of UST using the direct push equipment were unsuccessful.

Therefore, test borings UST-1 and UST-2 were off-set immediately adjacent to the northwest and southeast (respectively) sidewalls of the UST.] Test borings UST-1 and UST-2 were advanced to depths of approximately 20 ft. below the concrete floor (i.e., approximately 8 ft. below the bottom of the UST). DAY observed the soil samples recovered from the test borings in order to develop a stratigraphic description of the subsurface conditions encountered and to evaluate the recovered samples for evidence of suspect contamination (e.g. staining, unusual odors, etc.). Soil samples were collected continuously throughout the soil column and portions of the recovered samples were screened with a photoionization detector (PID). The DAY representative recorded pertinent information for each test boring and copies of the test boring logs are included in Appendix C. Soil samples collected from depths between 15 and 16 feet below the concrete floor at test boring locations UST-1 and UST-2 were delivered under chain-of-custody control to Spectrum Analytical, Inc. in North Kingstown, RI (Spectrum RI) for testing (refer to Section 3.7).

Between November 20, 2014 and December 1, 2014, select locations within the basement/vault areas were prepared for sampling in the manner described below:

- The basement sump pit (refer to Appendix F and Figure 4a and Figure 4c) was dye tested to assess the outfall location of the sump pump discharge. Subsequently, the sump pit was decommissioned by removing the pump from the sump pit, capping the discharge piping, plugging the apparent under-drain outfall in the sump pit, removing the contents of the sump pit, cleaning the bottom and sidewalls of the sump pit, and placing the material removed into New York State Department of Transportation (NYSDOT)-approved 55-gallon drums. Following cleaning, the sump was subsequently observed to determine the integrity of the sump crock and test borings were advanced through the sump crock into the soil/fill (see below).
- Contents were removed (to the extent possible) from the sump pits located in the epoxy room tank vaults (i.e., designated VLT-3 and VLT-4 on Figure 4d) and containerized in 5-gallon buckets.
- Standing water in the boiler room vault was pumped into the sanitary sewer system, with the permission of the City of Olean. A sample of the sediment within the floor cut-out located adjacent to the northeast of the low wall in the boiler room vault (designated VLT-2) was collected and delivered under chain-of-custody control to Spectrum MA for testing. [Note: Sediment sample VLT-2 was collected and tested for future waste characterization, and the test results are not further discussed in this report. The floor cut-out located to the southwest of VLT-2 was probed, but did not contain sufficient sediment to collect a sample.]

On December 2, 2014, DAY representatives advanced the following test borings at select locations within the basement/vault areas using the combination of a concrete coring device and handheld Geoprobe Systems direct-push sampling equipment:

- Test boring “Basement Sump” was advanced through the bottom of the basement sump concrete crock to a depth of approximately 1.6 ft. beneath the bottom of the sump crock. A soil sample [designated Basement Sump (7.2-8.8’)] was collected (i.e., at a depth approximately 7.2 to 8.8 ft. beneath the basement floor).

- Test boring VLT-1 was advanced through the brick and concrete floor of the boiler room vault at a location adjacent to the floor cut-out located to the southwest of the low wall. A soil sample [designated VLT-1 (soil)] was collected from a depth of approximately 0 to 3.6 ft. beneath the bottom of the boiler room vault floor. [Note: It was determined at the time of sampling that the floor cut-out located to the southwest of the low wall in the boiler room vault was too narrow to allow for the insertion of the concrete coring equipment. Therefore, a sample was not collected from beneath this floor cut-out, but was offset to a location adjacent to the south.]
- Test boring VLT-2 was advanced through the bottom of the brick and concrete floor cut-out, located adjacent to the northeast of the low wall in the boiler room vault. A soil sample [designated VLT-2 (soil)] was collected from a depth of approximately 0 to 2.6 ft. beneath the bottom of the floor cut-out.
- Test boring VLT-3 was advanced through the concrete floor of the eastern epoxy room tank vault at a location adjacent to the sump pit in the north corner of the vault. A soil sample [designated VLT-3 (soil)] was collected from a depth of approximately 0 to 1.5 ft. beneath the bottom of the epoxy room tank vault floor. [Note: An attempt to core through the sump pit located in the northeast corner of the eastern epoxy room tank vault was unsuccessful due to equipment refusal on apparent steel. Therefore, a sample was not collected from beneath this sump pit, but was offset to a location adjacent to the south.]
- Test boring VLT-4 was advanced through the bottom of the concrete sump pit, located along the northwestern edge of the western epoxy room tank vault. A soil sample [designated VLT-4 (soil)] was collected from a depth of approximately 0 to 1.7 ft. beneath the bottom of the sump pit.

A DAY representative observed the samples recovered in order to develop a stratigraphic description of the subsurface conditions and to evaluate the recovered samples for evidence of suspect contamination (e.g. staining, unusual odors, etc.). Soil samples were collected continuously throughout the soil column and portions of the recovered samples were screened with a PID. The DAY representative recorded pertinent information for each test boring, and copies of the test boring logs prepared for the Basement Sump and VLT-1 though VLT-4 are included in Appendix C.

In addition, the following samples were also collected on December 2, 2014 from within the basement/vault areas using handheld sampling equipment (refer to Figure 4c and Figure 4d):

- A soil sample [designated Basement Sump (4')] was collected though the north sidewall of the sump at a depth approximately 4 ft. below the basement floor.
- A sludge sample (designated Basement Pipes) was collected from within the cut-off pipes in the pipe chase located at the top of the basement wall adjacent to the northeast of the basement sump (refer to Appendix F).
- A sludge sample [designated VLT-3 (SC)] was collected of the containerized sump contents removed from the sump located in the eastern epoxy room tank vault.
- A hardened resin sample [designated VLT-4 (SC)] was collected from the residual material in the sump located in the western epoxy room tank vault.

The soil and sludge samples collected on December 2, 2014 were delivered under chain-of-custody control to Spectrum RI for testing (refer to Section 3.7).

3.4 Utilities Evaluation

DAY reviewed utility maps generated for the Site by SolEpoxy, Inc. In addition, DAY reviewed sanitary sewer utility maps and drawings at the City of Olean offices. The utility location map presented as Figure 5 was developed using the information obtained from SolEpoxy, Inc. and from the City of Olean.

On July 31, 2014, Solepoxy representatives de-energized each of the electrical transformers in two transformer rooms located in the south-central portion of the facility (refer to Figure 4d). DAY representatives advanced test borings (designated SUB-1 and SUB-2) in the transformer rooms using a concrete core device, and subsequently collected a soil/fill sample from each location using dedicated hand sampling equipment. The soil/fill samples were collected from just below the concrete floor to depths of 0.7 feet and 0.8 feet (respectively). The DAY representative recorded pertinent information for each test boring and subsequently prepared test boring logs. Copies of the test boring logs are included in Appendix C. Soil samples SUB-1 and SUB-2 were delivered under chain-of-custody control to Spectrum RI for testing(refer to Section 3.7).

During the efforts to de-energize electrical equipment on July 31, 2014 (see above), a previously unknown groundwater production well was encountered by SolEpoxy, Inc. personnel, located under a steel floor plate in an electrical distribution room in the south-central portion of the facility. The SolEpoxy Facilities Manager indicated that the groundwater production well is not currently in use. The approximate location of the groundwater production well (herein designated production well) is depicted on Figure 4d. On August 4, 2014 DAY representatives observed the production well and measured the diameter (approximately 1 foot) and depth (approximately 64.5 ft. bgs or elevation 1365.5 ft. A concrete casing was noted extending from the floor surface to a depth approximately 1 ft. below the floor surface, and a steel casing was observed from the base of the concrete to the top of the groundwater surface. The production well was sampled using low flow sampling techniques during the September 2014 groundwater sampling event and the sample results are discussed in Section 5.6.

On November 20, 2014, DAY representatives traced the outfall location of the sump pump located in the basement sump (refer to Figure 4c) by pumping potable water mixed with a non-toxic, fluorescent dye into the discharge piping subsequent to disconnecting the sump pump. The 8-10 inch and the 24-inch sanitary sewer systems were subsequently monitored via the manholes located in Franklin Street for evidence of the dyed water. It was determined that water from the basement sump discharged into the 24-inch sanitary sewer system.

3.5 Surface Soil Samples

On June 27, 2014, eight surface soil samples (designated SS-1 through SS-8) were collected from the approximate locations depicted on Figure 4a and Figure 4d, in order to characterize the limited surface soil exposed at the Site. Each surface soil was collected from depths of 0 to 2 inches bgs using dedicated disposable hand sampling equipment. Prior to sample collection, the

vegetation at/above the ground surface was removed (if present). A DAY representative screened portions of the samples recovered with a PID, and observed the samples in order to develop a description of the surface soil conditions encountered and to evaluate the recovered samples for evidence of suspect contamination. The surface soil samples collected on June 27, 2014 were delivered under chain-of-custody control to Spectrum RI for testing (refer to Section 3.7).

On November 25, 2014, delineation test borings (designated DTB-1 through DTB-8) were advanced to assess the extent of impact associated with the polychlorinated biphenyls (PCBs) and metals, which were detected in surface soil sample SS-5 (i.e., collected from this area on June 25, 2014). A DAY representative advanced test boring DTB-1 in the approximate location of SS-5 to an approximate depth of 2 ft. bgs using a hand auger. Nothnagle advanced test boring DTB-2 through DTB-8 to approximate depths of 2 ft. bgs using direct push drilling equipment. Test borings DTB-2 through DTB-4 were advanced approximately 5 ft. to the northeast, southwest and southeast (respectively) of DTB-1. Test borings DTB-5 and DTB-6 were advanced approximately 10 ft. to the south and east (respectively) of DTB-1. Test borings DTB-7 and DTB-8 were advanced approximately 20 ft. to the south and east (respectively) of DTB-1. A DAY representative observed the samples recovered from the test borings in order to develop a stratigraphic description of the subsurface conditions encountered, and to evaluate the recovered samples for evidence of suspect contamination. Soil samples were collected continuously throughout the soil column and portions of the recovered samples were screened with a PID. The DAY representative recorded pertinent information for each test boring, and copies of the test boring logs prepared for DTB-1 through DTB-8 are included in Appendix C. Select samples collected from DTB-1 through DTB-8 were submitted to Spectrum RI for testing (refer to Section 3.7).

3.6 Test Borings and Monitoring Wells

The advancement of test borings, installation of monitoring wells, soil and groundwater sampling and hydraulic conductivity testing are discussed in this section.

3.6.1 Test Boring Advancement and Monitoring Well Installation

Between June 11, 2014 and July 2, 2014, a total of 34 test borings (designated as TB-101 through TB-126, and MW-F through MW-N) were advanced through overburden material at interior and exterior locations at the Site. [Note: Test borings/monitoring wells MW-B, MW-C, MW-D and MW-E were completed in September 2013 as part of a Preliminary Phase II ESA conducted at the Site.] A portion of the test borings were completed as groundwater monitoring wells, with the remainder backfilled with grout upon completion. The locations of the test borings and monitoring wells completed during the Preliminary Phase II ESA and the RI are shown on Figure 4a and Figure 4d.

Eighteen test borings (designated as TB-101, TB-105, TB-107, TB-108, TB-112 through TB-114, TB-118/MW-N, TB-121, TB-122 and MW-F through MW-M) were advanced by Nothnagle using a truck-mounted rotary-drilling rig. Soil samples collected using the rotary-drilling rig were generally collected in four-foot intervals using a macro core soil sampler with a new disposable acetate liner for each sample. Where height clearance or other restrictions impeded use of macro core sampling, a split-spoon sampling device driven with a 140-pound

hammer free falling 30-inches (in accordance with ASTM 1586) in two-foot intervals was used and blow counts/N-Values were recorded. Following sample collection, a test boring was advanced to the next sample interval using hollow-stem augers. The test borings advanced using rotary drilling techniques were advanced to depths between approximately 28 ft. and 52 ft. bgs. Equipment refusal was encountered in one test boring advanced using rotary drilling techniques (i.e., TB-122) at a depth of approximately 30 feet bgs.

Thirteen direct-push test borings (designated as TB-102, TB-103, TB-106, TB-109 through TB-111, TB-115, TB-116, TB-119, TB-120, and TB-123 through TB-125) were advanced by Nothnagle using vehicle-mounted Geoprobe Systems sampling equipment. Soil samples were collected in four-foot intervals using a macro core soil sampler with a disposable acetate liner for each sample. A core saw was used to advance through the concrete floor slab prior to use of the Geoprobe Systems sampling equipment to advance test borings in interior locations. These test borings were advanced to depths between approximately 5 ft. and 20 ft. bgs. [Note: Approximately 0.93 feet of the concrete floor slab was encountered at test boring TB-111 before entering a previously unidentified closed basement area (location indicated on Figure 4b). The closed basement in this location is approximately 9.7 ft. high extending between the basement floor and the bottom of the facility floor slab. Access restrictions prevented the continuation of the test boring through the basement floor and therefore no soil samples were collected at TB-111.]

Three test borings (designated as TB-104, TB-117 and TB-126) were advanced by DAY using hand-operated Geoprobe Systems sampling equipment on July 2, 2014. Soil samples were collected from these test borings in two-foot intervals using a macro core soil sampler with a disposable acetate liner for each sample. Prior to advancing these test borings, a core saw was used to access the underlying soil. Equipment refusal was encountered in TB-104 at approximately 5 ft. bgs. [Note: TB-104 was advanced through the floor of the basement located in the northwest portion of the facility]. Test borings TB-117 and TB-126 were advanced to depths of 12 ft. bgs and 12.5 ft. bgs (respectively).

A DAY representative observed the soil samples recovered from the test borings in order to develop a stratigraphic description of the subsurface conditions encountered and to evaluate the recovered samples for evidence of suspect contamination (e.g. staining, unusual odors, etc.). In general, soil samples were collected continuously throughout the soil column. Portions of the recovered samples were also screened with a PID equipped with an 11.7 eV bulb. Additionally, headspace PID readings were also taken. The DAY representative recorded pertinent information for each test boring and subsequently prepared test boring logs. Copies of the test boring logs are included in Appendix C.

Drilling equipment was cleaned prior to arriving on the Site. Re-usable drilling and sampling equipment that came into contact with overburden materials (e.g., split-spoon sampling devices, hollow-stem augers, etc.) were decontaminated on-site prior to each use at a designated decontamination pad designed to capture decontamination fluids. The decontamination procedure included Alconox® (soap) and tap water wash and tap water rinse using a pressure washing system. Decontamination fluids and soil cuttings were transferred to NYSDOT-approved 55-gallon drums. These drums were labeled as study-derived waste and staged on-site as described in the RI Work Plan. The boreholes not completed as groundwater monitoring wells

were backfilled with grout and a concrete patch was placed in the upper one foot of test borings advanced through the building floor.

During the various studies completed at the Site, groundwater monitoring wells were installed, including 1-inch inside diameter (ID) wells and 2-inch ID wells. The locations of the monitoring wells installed at the Site are depicted on Figure 4a and Figure 4d.

1-inch Diameter Monitoring Wells

Select test borings advanced by rotary drilling techniques during the preliminary Phase II ESA were subsequently completed as nominal 1-inch ID groundwater monitoring wells. These include:

- MW-B: installed on September 11, 2013 with a screened interval between 18 ft. and 28 ft. bgs; located in the northwestern corner of the Site, adjacent to the flammable storage room.
- MW-C: installed between September 11, 2013 and September 12, 2013 with a screened interval between 18 ft. and 28 ft. bgs; located adjacent to the building in the southeastern corner of the Site, in proximity to the trash compactor overhead door.
- MW-D: installed on September 12, 2013 with a screened interval between 20 ft. and 30 ft. bgs; located in the south-central portion of the site, adjacent to southeastern edge of the building/former southern flammable storage room.
- MW-E: installed on September 13, 2013 with a screened interval between 23 ft. and 33 ft. bgs; located within the shipping warehouse area in the southeastern portion of the building.

The above monitoring wells were constructed of a pre-cleaned flush-coupled nominal 1-inch ID No. 10 slot Schedule 40 polyvinyl chloride (PVC) well screen and attached riser casing of the same material. To the extent possible, the well installation included a washed and graded sand pack surrounding the screen, and extending approximately 1 foot above the well screen. A minimum one-foot bentonite seal was placed above the sand pack and the remaining annulus was filled with cement/bentonite seal. The monitoring wells were completed with a protective curb box installed at the ground surface. Monitoring well installation diagrams are included in Appendix C.

2-inch Diameter Monitoring Wells

Select test borings advanced by rotary drilling techniques during the RI were subsequently completed as 2-inch ID groundwater monitoring wells. These include:

- MW-F: installed on June 17, 2014 with a screened interval between 17.5 ft. and 27.5 feet bgs; located in the west-central portion of the Site adjacent to the shipping and receiving area.
- MW-G: installed on June 26, 2014 with a screened interval between 20 ft. and 33 ft. bgs; located in the southwestern portion of the building within the maintenance department area.
- MW-H: installed on June 23, 2014 with a screened interval between 22 ft. and 30 ft. bgs; located in the center of the building in the ovens area.

- MW-I: installed on June 24, 2014 with a screened interval between 23.5 ft. and 33.5 ft. bgs; located in the center of the building in the packaging room.
- MW-J: installed on June 19, 2014 with a screened interval between 22.5 ft. and 33.5 ft. bgs; located on the loading ramp on the southeastern side of the building, outside the flash dryer area.
- MW-K: installed on June 16, 2014 with a screened interval between 15 ft. and 30 ft. bgs; located in the northeastern corner of the site, outside the laboratory area.
- MW-L: installed on June 18, 2014 with a screened interval between 22 feet and 34 feet bgs; located in the west-central section of the building within a storage room.
- MW-M: installed on June 17, 2014 with a screened interval between 18 ft. and 28 ft. bgs; located on the northern side of the facility within a lawn area adjacent to the Franklin Street sidewalk.
- MW-N: installed in test boring TB-118 on June 20, 2014 with a screened interval between 23.5 ft. and 33.5 ft. bgs; located in the former epoxy room in the south-central portion of the building, adjacent to the UST.

A summary of the test borings and monitoring wells completed to date at the Site is presented in Table 2.

3.6.2 Well Development

Well development was performed between June 24, 2014 and June 30, 2014 for monitoring wells MW-F through MW-N. Monitoring wells MW-B through MW-E were developed on September 19, 2013 as part of the preliminary Phase II ESA. Development was performed utilizing dedicated polyethylene bailers and dedicated cord or using a Pacific Hydrostar 1-inch gasoline-powered centrifugal water pump and dedicated 1-inch polyethylene 50 LPDE tubing in accordance with the procedures outlined in the RI Work Plan. No fluids were added to the wells during development and well development monitoring equipment was decontaminated prior to development of each well. In general, the well development continued until a minimum of three well volumes were removed, and stabilized in-situ readings of pH, specific conductivity, and turbidity were observed. Copies of monitoring well development logs are included in Appendix G.

During development, groundwater removed from the wells was visually checked for evidence of non-aqueous phase liquid (NAPL). NAPL was not observed to be present in development water collected however, oil sheen was observed during the development of monitoring well MW-H.

Development water collected was transferred to NYSDOT-approved 55-gallon drums. These drums were labeled as study-derived waste and staged on-site as described in the May 2014 Work Plan.

3.6.3 Soil and Groundwater Sampling

Soil samples were collected during the advancement of the test borings for observation, field screening and subsequent analytical laboratory testing. Generally, the selection of samples submitted for analytical laboratory testing was based upon observation and field screening results

to evaluate potentially impacted soil/fill. Soil samples submitted for VOC testing were collected using United States Environmental Protection Agency (USEPA) Method 5035. Soil samples submitted for testing of other parameters were placed into sample containers provided by the analytical laboratory. The soil samples submitted for analytical laboratory testing and the test parameters/methods utilized are described in Section 3.7.

Two groundwater sampling events were completed at the Site for monitoring wells MW-B through MW-N. The first sampling event was completed between July 7, 2014 and July10, 2014 and the second sampling event was performed between September 29, 2014 and September 30, 2014. Groundwater samples were collected utilizing low-flow purging and sampling methods, which generally consisted of procedures described in ASTM D6771-02, *Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality and Investigations*. Copies of the sampling logs for each groundwater monitoring event are included in Appendix G.

Prior to used and between wells, the portable bladder pump and other reusable equipment (e.g. water quality meter) that came into contact with groundwater was decontaminated using a wash with Alconox soap and rinse with potable water. Following collection, groundwater samples were placed in an insulated cooler with ice or refrigerated, and subsequently transmitted to the analytical laboratory for testing under chain-of-custody control (refer to Section 3.7).

3.6.4 Hydraulic Conductivity Testing

On November 5, 2014, the depth to water within monitoring wells MW-G, MW-I, and MW-K was measured. A Heron Instruments Inc., Model DipperLog, water level meter was then configured to collect continuous water level measurements at one-second intervals, and the water level meter was subsequently lowered to the bottom of each monitoring well to complete the hydraulic conductivity testing. Thereafter a solid slug of known volume (i.e., length of PVC pipe filled with concrete and capped at each end) was introduced into each well ("slug in"), the water level within the well was allowed to recover to within 90% of the pre-test water level, and the solid slug was subsequently extracted ("slug out"). Measurements with the water level meter continued until the water level within the well was allowed to recover to within 90% of the pre-test water level.

The data from each slug test was then input into Super Slug, an aquifer slug test analysis software program, and evaluated using the Bouwer and Rice evaluation method. The results of the hydraulic conductivity testing from the slug tests are provided in Appendix H.

3.7 Analytical Laboratory Testing

Select samples from the potentially impacted media collected during the RI (e.g., surface soil, subsurface soil/fill, soil vapor, groundwater, etc.) were submitted under chain-of-custody control to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory for testing (i.e., ALS, Spectrum RI and Spectrum MA). The analytical laboratory testing program for the samples submitted for analysis is included on Table 3. Copies of analytical laboratory reports and executed chain-of-custody documentation for the samples tested are included on a compact disc included in Appendix E. Summaries of the compounds/analytes detected by the analytical laboratory are presented in Table 1a and Table 1b

(Soil Vapor Samples), Table 4a through Table 4d (Surface Soil Samples), Table 5a through Table 5d (Soil/Fill Samples), Table 6a through Table 6d (Basement/Vault Samples), and Table 7a through Table 7d (Groundwater Samples). These tables include the Standards, Criteria and Guidance (SCG) summarized below.

- The soil vapor and sanitary sewer vapor results are compared to guidance values for indoor air, as published by the NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006 and/or 90th percentile indoor air concentrations measured by the USEPA during a two year study of air quality conducted at 100 randomly selected public and commercial office buildings across the United States, also referenced in Table C2 of the above referenced NYSDOH document. [Note: While no guidance values have been published by the NYSDOH for VOCs in sub-slab soil vapor or within sanitary sewer vapors, the soil vapor and sanitary vapor test results are compared to indoor air guidance values on Table 1a and Table 1b to represent a 'worst case' scenario of soil vapor intrusion into the indoor air of the building at the Site.]

- The soil test results are compared to the Unrestricted Use, and Commercial Use (i.e., the most appropriate scenario for the Site) Soil Cleanup Objectives (SCO) presented in 6 NYCRR Part 375-6.8(a) and (b).

- The groundwater test results are compared to the groundwater standards and guidance values as referenced in the NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 document titled "*Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*" (TOGS 1.1.1) dated June 1998 (as amended by an April 2000 addendum).

3.8 Quality Assurance/Quality Control and Reporting

Specific QA/QC measures implemented during this RI are outlined below:

- During sampling activities, personnel used disposable nitrile gloves. Between the collection of each sample, personnel performing the sampling discarded used nitrile gloves and put on new nitrile gloves.
- Soil, groundwater and sediment samples retained for testing were placed in new laboratory-grade sample containers provided by the analytical laboratory. The samples were collected using USEPA Method 5035 sampling techniques into laboratory-preserved sample containers when VOC analysis was to be performed. Efforts were made to obtain a sufficient volume (i.e., as specified by the analytical laboratory) to ensure that the laboratory had adequate sample to perform the specified analyses.
- Soil vapor and sanitary sewer vapor samples were collected in batch certified clean Summa Canisters provided by the analytical laboratory.
- Samples that were collected as part of the project were handled using chain-of-custody control and this documentation accompanied samples from their inception to their analysis. Executed copies of the chain-of-custody documentation are included with the laboratory reports.

- The laboratory analyzed the samples using the lowest practical quantitation limits (PQL) possible. The laboratory that performed the analyses provided internal QA/QC data that are required by NYSDEC ASP protocol.
- Unless otherwise noted, sample holding times and preservation protocols were adhered to during this project. Soil samples were reported on a dry-weight basis.

In order to provide control over the collection, analysis, review, and interpretation of data generated by the analytical laboratories, QA/QC samples were collected/tested in conjunction with some of the soil and groundwater samples tested during this study. The laboratory reports that include these QA/QC samples are included in Appendix E. As outlined in the May 2014 Work Plan, the following types of QA/QC samples were collected and analyzed as part of this project:

- Trip blanks that accompanied shipments to and from the analytical laboratory were analyzed for VOCs using USEPA Method 8260.
- Matrix spike/matrix spike duplicate (MS/MSD) were generally analyzed for each 20 samples of each matrix (i.e., soil, groundwater, etc.). Specific parameters that MS/MSD samples were tested for depended upon the test parameters of the samples that were analyzed.
- Field blank samples were collected during both groundwater sampling events and during soil sampling events. Specific parameters that field blank samples were tested for depended upon the test parameters of the samples that were analyzed, but were generally analyzed for full TCL/TAL parameters.

Data Usability Summary Report

To date, Data Usability Summary Reports (DUSRs) have been prepared by Data Validation Services (DVS) for the following data generated for this study:

- A DUSR, dated November 1, 2014 was prepared for the data packages N0891, N1080, N1151, N1128, N1200 N1382, N1384, and N1385 generated by Spectrum RI. The samples reviewed in the November 1, 2014 DUSR include surface soil samples, subsurface soil samples collected during the advancement of test pits, test borings, and monitoring wells, and the first round of groundwater samples. Refer to Table 3 for a complete list of the samples collected from the Site which are included in these data packages. Full validation was not performed. Specifically, VOCs and SVOCs which were reported in the data packages listed above, but are not listed on the tables entitled, *Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) for Solid Samples* included in NYSDEC ASP Exhibit C, dated 1-2005, were not reviewed for this DUSR. The scope of the DUSR covered: data completeness, laboratory narrative discussion, custody documentation, holding times, surrogate and internal standard recoveries, matrix spike recoveries and duplicate correlations, equipment/trip/method blanks, laboratory control samples, instrument tunes, calibration standards, ICP serial dilution evaluations, ICP interference check samples, method compliance, and sample result verification.

- A DUSR, dated December 3, 2014 was prepared for the data package N1847 generated by Spectrum RI. The samples reviewed in the December 3, 2014 DUSR include the second round of groundwater samples. The scope of the DUSR covered: data completeness, laboratory narrative discussion, custody documentation, holding times, surrogate and internal standard recoveries, matrix spike recoveries and duplicate correlations, equipment/trip/method blanks, laboratory control samples, instrument tunes, calibration standards, method compliance, and sample result verification.

Copies of the above DUSRs are included with the analytical laboratory reports presented in Appendix E.

As of the writing of this draft report, a DUSR is being prepared for the data packages N2309, N2310, N2349 and N2383 generated by Spectrum RI, and data packages SC00426 and SC00800 generated by Spectrum RI. The samples which will be reviewed in this DUSR include the samples collected as part of the October 2014 Supplemental RI work plan for the Site. It is anticipated that this DUSR will be incorporated into this RI/AA report prior to its finalization.

3.9 Survey and Site Mapping

The test locations depicted on Figure 4a, Figure 4c and Figure 4d, were determined in the field by tape measuring from fixed locations inside and outside of the building at the Site, and/or using a Trimble Model Geo XH Global Positioning System (GPS) receiver. In addition, the locations and elevations of the groundwater monitoring wells (i.e., MW-B through MW-N) were surveyed by D. Michael Canada, a licensed surveyor (New York State License No. 49215). The survey information measured at each location included the UTM NAD 83 coordinates of the well casing (in feet) and the ground surface and top of well casing elevations, referenced to the North American Vertical Datum (in feet).

3.10 Study-Derived Waste Disposal

The waste materials generated during the RI included: soil cuttings from the advancement of test borings and monitoring wells; groundwater and sediment from the development and sampling of groundwater monitoring wells; standing water accumulated in the basement vault; sediment/sludge removed from the basement and vault sumps; excess grout from backfill activities; disposable sampling materials; and materials (i.e., sediment, wash waters, poly-sheeting, etc.) generated during decontamination of re-usable equipment.

The standing water accumulated in the boiler room vault was sampled on May 21, 2014 and subsequently tested for waste characterization parameters listed in the Site specific City of Olean Industrial Pretreatment Program Wastewater Discharge Permit No. E-1-12. With approval from the City of Olean Department of Public Works, the water was pumped from the boiler room vault and discharged to the City of Olean sanitary sewer system.

Other study-derived waste generated at the Site was containerized in steel 55-gallon drums and stored in an unoccupied portion of the Site. Pending approval of Waste Profile 113759NY by Waste Management, Inc. (WM) the drums containing soil cuttings and solid waste materials (i.e., excess grout, disposable sampling materials, etc.) will be shipped to the WM Model City Facility

in Model City, New York to be disposed of as non-hazardous waste. Pending approval from the City of Olean Department of Public Works, it is anticipated that the containerized groundwater and decontamination rinse waters will be discharged through the SolEpoxy wastewater treatment system and subsequently into the sanitary sewer system. It is anticipated that the drums containing the sediment and sludge materials removed from the basement and vault sumps will be disposed of at the WM Model City Facility under a separate waste profile.

DRAFT

4.0 PHYSICAL CHARACTERISTICS OF THE SITE

This section presents a discussion of the physical setting of the Site and vicinity including a discussion of land and water usage, surface features/conditions, geologic setting and groundwater conditions.

4.1 Topography and Drainage

The Site is located at latitude (north) 42° 5' 41.225" and longitude (west) 78° 26' 23.622" and the ground surface elevation at the Site is approximately 1,430± ft. above sea level (USGS Datum). The ground surface at the Site and the surrounding area is relatively level with a gentle slope generally to the south and southeast. The Site is located in a glacially filled valley, and the ground surface to the north and northwest (i.e., approximately 2,500+ ft. from the Site) raises to elevations ranging between about 1,800 ft. and 2,000 ft. above sea level.

Rainwater and snowmelt that collects on the roof of the building that covers the majority of the Site is directed to the municipal sewer system through roof drains. There are no catch basins in exterior portions of the Site. As such, depending on location, surface water generated during precipitation and/or snowmelt events that does not infiltrate into the subsurface appears to flow off the Site generally to the north, toward storm water catch basins located along Franklin Street that enter the City of Olean storm sewer system, and to the south/southeast discharging onto the ground surface. The nearest surface water bodies to the Site include Olean Creek (listed as a Class C water body by the NYSDEC), which is located approximately 2,400 ft. east-southeast of the Site, and Two Mile Creek, which is intermittingly connected to an unnamed creek, (listed as a Class D water body by the NYSDEC) that is located approximately 1,500 ft. north of the Site.

4.2 Wetlands and Floodplains

There are no surface water bodies on or adjoining the Site. In addition**,** no NYSDEC or Federal wetlands are located within ½ mile of the Site. The 100-year floodplain for Olean Creek is located approximately 2,000 ft. southeast of the Site at its nearest point. The 100-year floodplain of the unnamed creek associated with Two Mile Creek is located approximately 1,250 ft. north of the Site at its nearest point.

4.3 Geologic Setting

The Site is located in the glaciated Allegheny Plateau, which is characterized by steep valley walls, wide ridge tops and flat-topped hills that are intersected with drainage ways that flow towards the valley floor.

During the Pleistocene ice age, the Site and surrounding area experienced several advances and retreats of glacial ice. The ice age began about 300,000 years ago and ended during the late Wisconsin glaciation about 12,000 to 17,000 years ago. The more recent advances of the glacier covered or destroyed the earlier glacial deposits leaving the current unconsolidated overburden deposits, which have also been altered by post-glacial meltwaters. The overburden thickness at the Site is estimated to exceed 200 ft., and based upon available information (Tesmer, 1975) the rock underlying the overburden is comprised of Upper Devonian period (i.e., approximately 355 million years ago) gray and black shale interbedded with gray siltstone and sandstone of the

Conneaut Group, also referred to as the Chadakoin Formation. These sedimentary rocks are relatively flat lying and they dip gently to the south at an approximate rate of 40 ft. per mile. The overburden material at the Site generally consists of stratified drift deposits comprised of outwash and kame deposits consisting primarily of sand and gravel with lesser amounts of silt in some locations. With depth, lacustrine silts and clays (i.e., the remnants of glacial lakes and post-glacial lakes that formed as the glaciers retreated northward) are evident near the bottom of the outwash deposits in the valley floor and in proximity to the bedrock surface.

A summary of the geologic conditions identified at the Site based upon the explorations completed to date is presented below.

- The ground surface in exterior portions of the Site to the northwest and northeast (i.e., in proximity of Franklin Street and former residential property, respectively) is covered by approximately 0.5 ft. of topsoil and roots in landscaped areas or about 0.7 ft. of asphalt pavement (e.g., in proximity of monitoring well MW-K, which is located near the eastern end of the property). [Note: An approximate 0.5-foot thick concrete pad was encountered below the topsoil in test boring TB-101, which was located near the northwestern corner of the building at the Site.] Heterogeneous fill consisting primarily of reworked soil intermixed with lesser amounts of slag, bricks, and concrete underlies the topsoil and/or asphalt pavement, and this fill extends to depths of about 4 ft. to 5.5 ft. bgs or to approximate elevations 1426 ft. to 1424.5 ft.

- The ground surface in exterior portions of the Site to the southeast and southwest is typically covered with an approximate 0.5-foot thick layer of gravel/stone fill that overlies a heterogeneous fill comprised of reworked soil (e.g., typically sand and gravel) intermixed with lesser amounts of slag, ash, bricks, concrete and glass that generally extend to a depths ranging between about 2 ft. and 5.5 ft. bgs or approximate elevations 1428 ft. to 1424.5 ft. However, the fill was thicker in test boring MW-B where about 9.0 ft. of heterogeneous fill was encountered (i.e., extending to approximate elevation 1421 ft.). It is likely that this fill was placed to backfill the basement of a former structure, and the material encountered in test boring MW-B appeared to include a mixture of construction and demolition (C&D)-type debris and reworked soil.

- The concrete floor slab of the building on the Site is approximately 4 ft. higher than the ground surface in exterior portions of the Site (i.e., the concrete floor of the building at the Site ranged in elevation between about 1433.9 ft. and 1434.25 ft. in the locations of the monitoring wells installed during this study). The increase in elevation was created by the placement of fill material that generally consists of reworked soil fill (i.e., typically fine to medium sand and gravel that contains varying amounts of concrete, brick, cinders and ash depending on location) and the concrete floor slab. [Note: Locations containing more cinders and ash appear to be in proximity to former railroad spur lines that previously traversed the Site.] The fill material beneath the building at the Site generally extends to depths ranging between 5 ft. and 8 ft. bgs or approximate elevations 1429 ft. to 1426 ft. However, in some locations (i.e., particularly in the western portion of the building, which was the location of earliest industrial development on the Site) the fill extends to depths ranging between about 12 ft. and 15 ft. bgs or approximate elevations 1422 ft. to 1419 ft. (e.g., in proximity of test boring TB-107). The fill in this area appears to be a mixture of

reworked soil and C&D-type material. In addition, near the bottom of the fill encountered in test boring TB-107 apparent degraded concrete (i.e., a former basement floor was encountered). The fill thickness was also greater in locations near buried utilities (e.g., MW-I where fill extended to a depth of about 10 ft. bgs or approximate elevation 1424 ft.).

- An open former basement area was encountered below the concrete slab in test boring TB-111. The concrete slab at this location was about 0.9 ft. thick and a void that extended to a depth of about 9.7 ft. bgs (i.e., approximate elevation 1424.3 ft.) was encountered below the concrete. It appears that this former basement was a portion of a larger basement that was filled with gravel and concrete in 1996 to strengthen the floor in this area. The former unfilled basement in proximity of TB-111 is no longer assessable, and based on observations made by DAY on October 23, 2014 this basement area measures approximately 19 ft. to 25 ft.

- The indigenous soil beneath the fill at the Site generally consists of fine to medium sand and fine to coarse gravel deposits that extended to the bottom of the test borings advanced during this study. Bedrock was not encountered in the test borings advanced during this study. The deepest test boring (i.e., test boring TB-108) extended to a depth of 52.0 ft. bgs or an elevation of about 1378 ft.

- In some locations, alternating layers of medium to coarse sand were encountered within the sand and gravel deposits, and frequent cobbles were encountered during the advancement of test borings between elevations 1418 ft. and 1410 ft. Generally, the shallower sand and gravel deposits contained more silt than the deeper sand and gravel deposits.

- In several of the test borings, sandy clay or silty clay deposits were encountered below the sand and gravel deposits extending to the bottom of the test borings. These include test borings TB-101, MW-M and MW-K, which are located in proximity of Franklin Street and test boring MW-G, which is located in the southwestern quadrant of the building at the Site. Specifically, sandy clay was encountered between about elevation 1397 ft. and 1390.5 ft. in test boring TB-101; silty clay was encountered between about elevation 1404.5 ft. and 1402.5 ft. in test boring MW-M; clayey sand was encountered between about elevation 1403 ft. and 1400 ft. in test boring MW-K; and clayey sand was encountered between about elevation 1405 ft. and 1401 ft. in test boring MW-G.

- Although some of the fill material contained evidence of apparent C&D-type debris and/or remnants of previous railroad spur lines (e.g., ash, coal, etc.), limited field evidence of potential environmental impact (i.e., staining, unusual odors, elevated PID readings, etc.) was detected within the fill material in the test borings advanced during this study. PID readings in excess of 10 ppm were only measured in fill samples collected from test borings TB-122, MW-F, MW-G and MW-K. [Note: The maximum PID readings in samples of the fill material collected from test borings TB-122, MW-F, MW-G and MW-K exceeded 100 ppm.] The fill encountered in test boring MW-F emitted a faint petroleum-type odor and the fill encountered in test boring MW-G emitted a “burnt-type” odor. Unusual odors were not encountered in samples of the fill material collected from the other test borings advanced during this study.

- Field evidence of petroleum impact in the soil (i.e., petroleum odors, staining, elevated PID readings, etc.) was encountered in some of the test borings advanced to a depth of at least 28 ft. bgs. Specifically, test borings located in the approximate western half of the Site [i.e., locations west of, and including test borings MW-I and TB-118 (MW-N)] contained field evidence of petroleum impact that was initially detected at approximate elevations ranging between 1412.5 ft. to 1405 ft. with the average first indication of impact identified at approximately elevation 1408.75 ft. The maximum PID readings in samples collected from these test borings were measured between about elevations 1408 ft. and 1402.5 ft., with the average elevation of the maximum PID reading occurring at about elevation 1404.5 ft. The first indication of petroleum-impacted soil is located in proximity to the observed groundwater table, but the petroleum impact (where present) extended down from the groundwater surface through the entire depth of the test borings advanced during this study (e.g., petroleum-impact was identified in test boring TB-108 between depths of about 24 ft. bgs and 52 ft. bgs or approximately elevation 1406 ft. to elevation 1378 ft., although petroleum odors and PID readings generally decreased with depth over this range).

Geologic cross section A-A', running generally from west to east across the Site (i.e., oriented generally in the direction of groundwater flow), and geologic cross section B-B', running from generally from south to north (i.e., generally perpendicular to groundwater flow), depict subsurface conditions. Geologic cross sections A-A' and B-B' are presented as Figure 6 and Figure 7, respectively.

4.4 Hydrogeology

The Site is located within an area designated by the United States Department of the Interior Geological Survey (USGS) as a primary water supply aquifer (Olean). A primary water supply aquifer is defined as: "A highly productive aquifer that is being used as a source of water supply in major public-supply systems." According to USGS Water-Resources report 85-4157 *Hydrogeology of the Olean Area, Cattaraugus County, New York* dated 1987 prepared by Phillip J. Zarriello and Richard J. Reynolds, the total saturated thickness of the outwash aquifer in proximity of the Site ranges between approximately 20 ft. and 40 ft. and this aquifer is capable of producing water at rates in excess of 1,000 gallons per minute (GPM) depending on the size and construction of the supply well(s).

Regionally, groundwater flow is generally to the southwest eventually discharging into the Allegheny River; however in proximity of the Site groundwater appears to flow generally to the east-southeast with a southwesterly component in the southern portion of the Site that is more pronounced as the groundwater levels decrease seasonally. Groundwater flow at the Site is in the direction of Olean Creek, which is located about 2,000 ft. east of the Site. Olean Creek flows generally to the south and discharges into the Alleghany River approximately 8,300 ft. south-southwest of the Site.

As described in USGS Water-Resources report 85-4082 titled *Effect of Reduced Industrial Pumpage on the Migration of Dissolved Nitrogen in an Outwash Aquifer at Olean, New York* dated 1987 prepared by Marcel P. Bergeron, extensive pumping was undertaken in the 1970s and 1980s to contain a dissolved nitrogen spill and prevent contaminated groundwater from impacting the municipal water supply wells. Some of the wells that were pumped at rates as high as 10 million gallons per day included wells located adjacent to the southwest boundary of

the Site. During this pumping, a 20 ft. to 30 ft. deep cone of depression was created. The continuous pumping has stopped and water levels have since returned to pre-pumping levels. It is suspected that the extensive pumping that occurred in proximity of the Site may have contributed to the vertical distribution of the petroleum-impact identified in test borings at the Site such as the more than 25 ft. of petroleum impact identified in test boring TB-108.

The depth to groundwater at the Site varies seasonally. The groundwater elevations ranged from about 1.9 ft. (MW-L) to about 2.2 ft. (MW-G, MW-M and MW-N) lower during the September 30, 2014 sampling event than they were during the July 10, 2014 sample event. The groundwater elevations ranged between about 1412.5 ft. (MW-B) and 1410.6 ft. (MW-F and MW-G) on July 10, 2014 and between about 1410.3 ft. (MW-B) and 1408.4 ft. (MW-F and MW-G) on September 30, 2014. These groundwater elevations represent depths to groundwater ranging between about 17.6 ft. bgs and 21 ft. bgs on July 10, 2014 in monitoring wells positioned in exterior locations, and about 23.1 ft. bgs and 23.4 ft. bgs in monitoring wells positioned in interior locations. On September 30, 2014, the depth to groundwater in exterior monitoring wells ranged between about 19.7 ft. bgs and 23.4 ft. bgs, and between about 25.2 ft. bgs and 25.6 ft. bgs in interior monitoring wells.

The average of the ”slug in” and “slug out” hydraulic conductivities measured in select monitoring wells ranged between 1.63 ft/day or 5.7×10^{-4} cm/sec and 4.68 ft/day or 1.6×10^{-3} cm/sec. These values are consistent with the generalized soil permeability values ranging between 0.6 inches/hour and 6 inches/hour presented in Zarriello and Reynolds 1987.

Based upon measurements made at various times during this study, the average hydraulic gradient between the monitoring wells installed in the northern portion of the Site ranged between about 0.001 ft/ft and 0.007 ft/ft. The hydraulic gradients were lower in monitoring wells installed in the southern portion of the Site, and the gradients in this portion of the Site appeared to vary seasonally as indicated by comparing the gradients measured on July 10, 2014 and September 30, 2014. Specifically, the hydraulic gradients measured in monitoring wells located in the southern portion of the Site on July 10, 2014 ranged between about 0.0007 ft/ft and 0.009 ft/ft, whereas the gradients measured on September 30, 2014 ranged between about 0.001 ft/ft and 0.002 ft/ft. Using the range of calculated hydraulic conductivities and average horizontal gradients and an estimated porosity of 0.3 (i.e., as referenced in Groundwater, by R. Allan Freeze & John A., Cherry, 1979), groundwater flow at the Site was calculated to range between about 0.0038 ft./day and 0.109 ft./day.

Groundwater contour maps developed for measurements taken on July 10, 2014 and September 30, 2014 are presented as Figure 8 and Figure 9, respectively.

4.5 Demography, Land Use and Water Use

The Site is located in the City of Olean, Cattaraugus County, New York. According to the 2010 census listed by the U.S. Census Bureau, the City of Olean had a population of 14,452 and the population of Cattaraugus County was reported as 80,317.

The Site (tax parcel 94.040-1-21) is zoned I (industrial) and it is currently used for industrial purposes to manufacture specialized epoxy coatings for use in computers and other electrical equipment. Adjacent property to the east is zoned R-3 (Residential) and property to the south

(i.e., beyond the railroad tracks abutting the Site is zoned GC (general commercial) and R-3 (residential). The Site is serviced by a public water system and public sanitary sewer systems.

The City of Olean obtains drinking water from groundwater supply wells located on Richmond Avenue (Well Site M18, which produced 278 million gallons of water in 2013), East River Road (Well Sites M37/M38, which produced 325 million gallons of water in 2013), and from Olean Creek (296 million gallons of water were obtained from this location in 2013). The water intake for Olean Creek is located at the River Street water treatment plant, approximately 2,000 ft. east of the Site, and hydraulically upgradient of the Site. Well Site M18 is located about 2.3 miles southeast of the Site (i.e., beyond Olean Creek), and Well Sites M37/M38 are located about 2.45 miles southeast of the Site (i.e., beyond the confluence of Olean Creek and the Allegheny River).

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5.0 REMEDIAL INVESTIGATION FINDINGS

The section presents and discusses the results of the testing completed during this study and based upon this testing identifies the contaminants of concern (COC). Where applicable, test results are compared to SCG values.

5.1 Geophysical Survey Results

As shown on Figure 3, magnetic anomalies designated A through F were identified during the geophysical survey. Magnetic anomalies B, D, and E are located outside of the Site boundaries, and therefore were not further evaluated for this study. Magnetic anomaly F, located adjacent to the southeast edge of the facility, was interpreted to be the water main piping that supplies potable water to the facility. As such only magnetic anomalies A and C were further evaluated for this study.

Test Pit TP-1 was advanced to an approximate depth of 8 ft. bgs in the area of anomaly A. Fill materials consisting of a sand and/or gravel matrix with lesser amounts of cobbles, bricks, slag, and coal fragments were encountered in this test pit starting below a covering of crushed rock and gravel, and extending to a depth of approximately 4.5 ft. bgs. A series of northwest-southeast trending timber railroad ties were also encountered in test pit TP-1 at a depth of approximately 2 ft. bgs, and several of these timber railroad ties had metallic hardware (i.e., anchor spikes and tie plates) attached to them. These railroad ties and metallic hardware were determined to be the cause of anomaly A. Apparent native soils, consisting of a coarse sand and gravel matrix, were encountered in test pit TP-1 between approximately 4.5 ft. bgs and the bottom of the test pit. A soil/fill sample was collected from test pit TP-1 at an approximate depth of 2 ft. bgs, and submitted to the analytical laboratory for testing (refer to Section 3.7). The analytical laboratory test results for the sample from TP-1 are discussed in Section 5.5.

Test Pit TP-2 was advanced to an approximate depth of 7 ft. bgs in the area of anomaly C. Fill materials consisting of a sand and/or gravel matrix with lesser amounts of clay, cobbles, and coal fragments were encountered in the test pit starting below the topsoil at the surface, and extending to a depth of approximately 3.5 ft. bgs. Two adjacent steel plates, approximately 2-ft. by 2-ft. in size, were encountered in the area of anomaly C approximately 0.5 feet bgs. A 3-foot long, 2-inch diameter steel bar was also encountered below the steel plates. These metallic objects were determined to be the cause of anomaly C. Apparent native soils, consisting of a coarse sand and gravel matrix, were encountered in test pit TP-2 between approximately 3.5 ft. bgs and the bottom of the test pit.

5.2 Soil Vapor and Sanitary Sewer Vapor

As shown on Tables 1a and Table 1b, various chlorinated and/or non-chlorinated VOCs were detected in sub-slab soil vapor samples SV-1 through SV-26 and within the three exterior perimeter soil vapor samples evaluated during this study (i.e., SV-27 through SV-29). Several chlorinated and non-chlorinated VOCs were also detected in the sanitary sewer vapor samples Sanvap-1 through Sanvap-6 (refer to Table 1b), however the concentrations detected were generally lower that those detected in the sub-slab soil vapor samples.

The VOCs detected in one or more of the vapor samples tested during this study at concentrations that exceed the indoor air guidance values presented in the NYSDOH Guidance Document NYSDOH document are listed below.

1,2-Dichloroethane [1 of 29 samples]	Chloroform [9 of 29 samples]
1,4-Dichlorobenzene [1 of 29 samples]	Ethanol [1 of 29 samples]
1,2,4-Trimethylbenzene [1 of 29 samples]	Ethyl Acetate [4 of 29 samples]
1,3,5-Trimethylbenzene [1 of 29 samples]	Ethylbenzene [1 of 29 samples]
1,1,2-Trichloro-1,2,2-trifluoroethane [16 of 29 samples]	Hexane [5 of 29 samples]
2-Butanone (MEK) [7 of 29 samples]	m/p-Xylene [2 of 29 samples]
4-Methyl-2-Pentanone (MIBK) [11 of 29 samples]	o-Xylene [2 of 29 samples]
Acetone [10 of 29 samples]	Tetrachloroethene [3 of 29 samples]
Benzene [1 of 29 samples]	Toluene [3 of 29 samples]
Carbon Disulfide [5 of 29 samples]	Trichloroethene [12 of 29 samples]
Carbon Tetrachloride [9 of 29 samples]	Trichlorofluoromethane [12 of 29 samples]

Note: The soil vapor samples were tested by different analytical laboratories and the list of VOCs reported by each laboratory varied. Although similar VOCs were reported by each laboratory some constituents may have been reported as unknown Tentatively Identified Compounds (TICs). As such, the number of detections that exceeded the indoor air guidance values shown above may vary.

The six sanitary sewer samples tested during this study contained the following VOCs at concentrations that exceeded the indoor air guidance values: 1,2,4-Trimethylbenzene (1 sample), Acetone (1 sample), Chloroform (5 samples), Ethyl Acetate (6 samples), Hexane (1 sample), and o-Xylene (1 sample).

As stated in Section 3.7, no guidance values have been published by the NYSDOH for VOCs in soil vapor or sanitary sewer vapor. Therefore comparison of the soil vapor and sewer vapor sample results collected during this study to the indoor air guidance values should be considered as indicators of potential impact.

A site plan that includes the results of the soil vapor testing for select VOCs that were detected at generally higher concentrations and/or constituents that were historically used at the Site are summarized on Figure 10. These VOCs include acetone, MIBK, tetrachloroethene (PCE) and trichloroethene (TCE). In addition, this figure also includes the results for SV-14 (i.e., the one location where the elevated gasoline-related VOCs of ethylbenzene, m/p-xylene, o-xylene and toluene were detected. As shown on Figure 10, soil vapor impacted with TCE, and to a lesser extent PCE, is located in the central portion of the Site (i.e., west and in proximity of the 24-inch and 10-inch sanitary sewer lines). The highest TCE concentration was measured in the sample collected from SV-12 [2,700 ug/m^3 or parts per billion (ppb)], with lower concentrations (but in excess of the indoor air guidance value of 5 ppb) in adjacent samples. The areal extent of soil vapor containing TCE concentrations in excess of the indoor air guidance value in this portion of

the Site is estimated to be approximately 11,575 square feet (SF). The soil vapor samples in the area impacted with elevated concentrations typically also contained PCE, some of which exceeded the PCE indoor air guidance value of 30 ppb. However, the highest PCE concentration measured in the soil vapor was obtained from SV-18, which is positioned in the south central portion of the Site and not within the apparent area of TCE impact described above (refer to Figure 10). The area of PCE impacted soil gas appears to be of limited extent since similar impact was not identified in nearby soil vapor samples. Although concentrations of acetone and MIBK were detected throughout the Site, the highest concentrations were typically found in areas east of the 24-inch and 10-inch sanitary sewer lines that bisect the Site. Further, the highest acetone concentrations were detected in the southeastern portion of the Site (i.e., SV-26 and SV-20, which are located in the current Pilot Plant area of the building). The areal extent of acetone impact in this portion of the Site appears limited as adjacent samples were not similarly impacted. Although the highest concentration of MIBK in the soil gas was measured in the sample collected from SV-15 (i.e., located in the western portion of the Site, refer to Figure 10), the soil vapor samples containing the highest concentrations of MIBK were generally located in the eastern portion of the Site and in proximity to locations where elevated acetone concentrations were measured.

5.2.1 Site Perimeter Soil Vapor Evaluation

The potential for elevated concentrations of VOCs to migrate through the soil vapor into off-site residential locations (i.e., generally east and southeast of the Site) was evaluated as part of this study. As shown on Figure 10, several sub-slab points located in proximity of the eastern and southeastern side of the building did not contain concentrations of acetone, MIBK, PCE or TCE that exceeded the indoor air guidance values presented in the NYSDOH Guidance Document. These include SV-16, SV-19, and SV-08. However, elevated concentrations of these VOCs were detected in SV-18, SV-25 and SV-20. As such, soil vapor points SV-27 through SV-29 were installed in exterior locations near the perimeter of the Site (i.e., between the Site and potential off-site receptors). As shown on Figure 10, with the exception of acetone, no COCs (MIBK, PCE or TCE) were detected in the samples collected from these locations, and the acetone concentrations detected were below the indoor air guidance values presented in the NYSDOH Guidance Document. [Note: An elevated acetone concentration was detected in a sub-slab soil vapor sample collected from SV-26. This sample was collected at the same time as SV-27 through SV-29, and an exterior sample was not collected between this location and the property line. As such, off-site acetone impact in the soil vapor may be present in this area.]

5.3 PID Screening Results

The PID screening results measured above soil/fill samples collected during surface soil sampling and the advancement of test borings are summarized on the logs included in Appendix C. The peak PID readings measured in each of these samples are summarized on the following table.

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Sample Location	Peak PID Reading (ppm)	Remarks
TP-1 and TP-2	0.0	
Surface Soil SS-1 to SS-8	0.0	
TB-101	722 @ 26.5 ft. bgs	Petroleum Odor
TB-102	0.7 @ 8 ft. bgs	
TB-103	0.0	
TB-104	0.0	
TB-105	1277 @ 27 ft. bgs	Petroleum Odor
TB-106	0.0	
Sample Location	**Peak PID Reading (ppm)**	**Remarks**
TB-107	1292 @ 27 ft. bgs	Petroleum Odor
TB-108	925 @ 32 ft. bgs	Petroleum Odor
TB-109	39.2 @ 13 ft. bgs	
TB-110	0.0	
TB-111	-	Open Basement
TB-112	250.6 @ 26 ft. bgs	Petroleum Odor
TB-113	273 @ 16 ft. bgs	154 @ 25 ft. bgs Petroleum Odor
TB-114	78.9 @ 26.5 ft. bgs	Petroleum Odor
TB-115	0.3 @ 10.5 ft. bgs	
TB-116	0.0	
TB-117	30 @ 1.5 ft. bgs	
TB-118(MW-N)	501.2 @ 28 ft. bgs	Petroleum Odor
TB-119	3.0 @ 4 ft. bgs	
TB-120	0.4 @ 10.5 ft. bgs	
TB-121	0.0	
TB-122	3874 @ 2 ft. bgs, 492 @ 5 ft. bgs, 640 @ 24 ft. bgs	Possible equipment malfunction
TB-123	0.0	
TB-124	0.5 @ 3 ft. bgs	
TB-125	0.7 @ 0.5 ft. bgs	
TB-126	0.0	
UST-1	120 @ 15.5 ft. bgs	
UST-2	80 @ 15.5 ft. bgs	
VLT-1 through VLT-4	0.0	
Basement Sump	20.7 @ 1.5 ft. bgs	Bgs = bottom of sump, which is 6.3 ft. below the basement floor surface
SV-27	0.9 @ 2 ft. bgs	
SV-28	24.5 @ 9.5 ft. bgs	
SV-29	15.3 @ 0.5 ft. bgs	
MW-B	605 @ 24 ft. bgs	Petroleum Odor
MW-C	0.8 @ 24 ft. bgs	
MW-E	0.6 @ 30 ft. bgs	
MW-F	315 @ 27 ft. bgs	Petroleum Odor
MW-G	483 @14 ft. bgs, 8999 @ 19 ft. bgs (equipment malfunction?)	223 @ 27.5 ft. bgs Petroleum Odor
MW-H	925.9 @ 29 ft. bgs	Petroleum Odor
MW-I	164.7 @ 31ft. bgs	
MW-J	3.4 @ 2.5 ft. bgs	
MW-K	124 @ 1.5 ft. bgs	
MW-L	264 @ 24 ft. bgs	
MW-M	1079 @ 25.5 ft. bgs	Petroleum Odor

5.4 Surface Soil

As indicated on the sampling logs included in Appendix C, the surface soil observed at the Site generally consists of a silty or clayey sand with intermixed gravel fill below a topsoil layer containing organic matter in locations in proximity of Franklin Street. Glass and/or metal debris was observed intermixed with reworked soil in the several locations. Black discoloration of the surface soil was noted in samples SS-4 and SS-8.

As shown on Table 4a, VOCs were not detected at concentrations exceeding Unrestricted Use SCO in the surface soil samples tested.

As shown on Table 4b, various SVOCs generally consisting of polyaromatic hydrocarbons (PAHs), were detected in surface soil samples SS-1 through SS-8. The concentrations of the following PAH SVOCs exceed their respective Unrestricted Use SCO in one or more surface soil samples: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene. The concentrations of the SVOC benzo(a)pyrene in surface soil samples SS-6, SS-7 and SS-8 also exceed the Restricted Commercial Use SCO.

As shown in Table 4c, one or more pesticide/herbicide and/or PCB compounds were detected in surface soil samples SS-2 through SS-8. PCB compounds were also detected in the near-surface soil samples tested from delineation test borings DTB-1 and the surface soil and DTB-8. The concentrations of the following pesticide/herbicide and/or PCB compounds exceed their respective Unrestricted Use SCO in one or more surface soil samples: 4,4´-DDE, 4,4´-DDT, endrin, and PCBs . The concentration of PCBs in surface soil sample SS-5 exceeds the Commercial Use SCO.

As shown in Table 4d, various metals were detected in surface soil samples SS-1 through SS-8 and in the surface soil and near-surface soil samples tested from delineation test borings DTB-1 through DTB-8. The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more surface soil samples: arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. The concentrations of arsenic in surface soil samples SS-4, SS-7 and SS-8, and the concentrations of cadmium, copper, and nickel in surface soil sample SS-5 also exceed the Commercial Use SCO.

Surface soil samples containing concentrations of constituents that exceed Commercial Use SCO are shown on Figure 11.

5.5 Soil/Fill

As shown on Table 5a and Table 6a, various VOCs were detected in the subsurface soil/fill samples tested. The concentrations of the following VOCs exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: acetone, benzene, methylene chloride, 1,2,4-trimethylbenzene, and mixed xylenes. The concentrations of VOCs reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO.

As shown on Table 5b and Table 6b, various SVOCs were detected in the subsurface soil/fill samples tested. The concentrations of the following SVOCs exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples tested: benzo(a)anthracene, benzo(a)pyrene,

benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, and phenol. The concentrations of the SVOC benzo(a)pyrene in subsurface soil/fill samples MW-K(1-2'), TB-107(12.5'), TB-110(4') and TB-124(2-4') also exceed the Commercial Use SCO. Further, the concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene in subsurface soil/fill sample TB-107(12.5') exceed the Commercial Use SCO, and the concentration of hexachlorobenzene in subsurface soil/fill sample MW-F(1.5') exceeds the Commercial Use SCO.

As shown on Table 5c and Table 6c, various pesticide/herbicide compounds were detected in the subsurface soil/fill samples tested. The concentrations of the following pesticide/herbicide compounds exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: 4,4'-DDT, 4,4'-DDD, and alpha chlordane. The concentrations of pesticide/herbicide and reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO. PCBs were not detected in the subsurface soil/fill samples at concentrations greater than the quantitation limits reported by the analytical laboratory.

As shown on Table 5d and Table 6d, various metals were detected in the sub-surface soil/fill samples tested. The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. The concentrations of the following metals also exceed their respective Commercial Use SCO in the samples listed:

- arsenic: MW-G(1-3'), TB-101(40'), TB-102(11-12'), TB-107(12.5'), TB-110(4'), TB-114(3'), SUB-1, and TP-1(2');
- barium: MW-G(1-3');
- cadmium: MW-G(1-3'), TB-110(4'), and TB-117(0-2');
- copper: MW-G(1-3'), TB-107(12.5'), TB-110(4'), andTB-117(0-2');
- lead: MW-G(1-3') and TB-110(4');
- mercury: MW-G(1-3');
- nickel: TP-1(2'); and
- zinc: TB-110(4').

Subsurface soil/fill samples containing concentrations of constituents that exceed Restricted Commercial Use SCO are shown on Figure 11.

5.6 Groundwater

As shown on Table 7a and Table 7b, VOCs and SVOCs were not detected in the groundwater samples tested at concentrations exceeding groundwater standards or guidance values during either of the sample rounds completed during this study. However, VOC TICs were identified in samples from monitoring wells MW-B, MW-D, MW-E, MW-F, MW-G, MW-H, MW-I, MW-L, MW-M and MW-N during at least one of the sample events completed during this study. Total VOC TIC concentration is excess of 100 ug/l or ppb were reported in samples collected from MW-B, MW-G, and MW-M. In addition, SVOC TICs were identified in samples from each of the monitoring wells during at least one of the sample events completed during this study. Total SVOC TIC concentration is excess of 100 ug/l or ppb were reported in samples collected from

MW-B, MW-G, and MW-H. [Note: VOC or SVOC TICs were not identified in the sample collected from the Production Well on September 30, 2014, which was the only time this well was sampled during this study.] As shown on Table 7c, pesticide/herbicide and PCB compounds were not detected in the groundwater samples tested at concentrations greater than the quantitation limits reported by the analytical laboratory.

As shown on Table 7d, various metals were detected in groundwater samples MW-B through MW-N and Production Well. The concentrations of the following metals measured during at least one of the sample events completed during this study exceed their respective groundwater standards or guidance values in the wells listed below:

- barium: MW-I, MW-M;
- chromium: MW-N;
- iron: MW-C, MW-D, MW-F, MW-G, MW-H, MW-I, MW-J, MW-K, MW-L, MW-M, MW-N, and Production Well;
- magnesium: MW-H;
- manganese: MW-B, MW-D, MW-F, MW-G, MW-H, MW-I, MW-K, MW-L, MW-M, and MW-N;
- selenium: MW-J;
- sodium: MW-B, MW-C, MW-D, MW-E, MW-F, MW-G, MW-H, MW-I, MW-J, MW-K, MW-L, MW-M, MW-N, and Production Well; and
- thallium: MW-B, MW-E, MW-F, MW-G, and MW-H

Although the concentrations of iron, manganese and sodium exceeded their respective groundwater standards or guidance values, the concentrations measured are typical of background conditions and, as such, apparently not attributable to contaminants at the Site. The concentrations of barium, selenium and thallium that exceeded groundwater standards or guidance values were only measured during one of the sample events completed during this study. However, the concentrations of chromium and magnesium measured above groundwater standards or guidance values were detected during each sample event completed during this study. The chromium concentrations detected in samples from monitoring well MW-N (i.e., 309.0 ug/l and 148.0 ug/l) were two orders of magnitude higher than detected in the other wells sampled, and these concentrations were about 3 to 6 times higher than the groundwater standard of 50 ug/l.

5.7 Basement/Vaults

Currently, the basement located beneath the north/central portion of the facility is divided into three rooms (herein designated northern, central and southern). The northern room contains rows of metal framed shelves that were empty of contents at the time of the assessment. The central room contains fire suppression piping and access to a freight elevator. The southern room contains access to a freight elevator, an electrical powered compressor, empty storage cabinets, an oven, a sump pit and pump, and metal framed shelves that were empty of contents at the time of the assessment. The floors in each room of the basement are constructed of poured concrete, and cracks trending generally southwest-northeast were observed in the concrete floor of the northern room. These cracks ranged from several feet long to the entire width of the room (i.e., approximately 19 ft.). The cracks were less than approximately ½ inch wide and 1/8 inch

deep. In addition, an L-shaped concrete patch was observed in the floor near the southern corner of the northern room. Intermittent areas of faded, purple-black staining and areas of apparent dry resin were also observed on the floor in the northern room. Cracking and staining were not observed on the concrete floors in the central and southern rooms.

The walls of the basement are constructed of poured concrete, except for the wall separating the northern and central rooms (i.e., constructed of plywood and lumber) and a portion of the northern wall of the northern room (i.e., an apparent former loading dock or door, currently filled with a concrete block wall). Foam-board insulation covered most of the wall surface in the northern room, and only the bottom (i.e., approximately 0.5 ft.) of the wall surface was visible. The southern wall of the southern room was apparently unconnected (structurally) to the adjacent walls, and appeared to have been constructed at a later date, and reportedly this wall was constructed in order to fill in the portion of the basement located further to the south.

Test boring TB-104 (refer to Figure 4a) was advanced to a depth of 5 ft. below the floor surface in the northern room of the basement. This test boring encountered fill material consisting of reworked soil consisting primarily of sand and gravel intermixed with trace amounts of broken brick and ash. Field evidence of apparent impact (i.e., staining, unusual odors, elevated PID readings, etc.) was not observed during the advancement of this test boring. A soil/fill sample from test boring TB-104 was submitted for testing by the analytical laboratory, and this sample contained detectable concentrations of VOCs (4-methyl-2-pentanone and acetone), SVOCs (e.g., benzo(a)anthracene, indeno(1,2,3-cd)pyrene, benzo(a) pyrene, chrysene, etc.), and metals (e.g., arsenic, barium, copper, etc.). However, with the exception of benzo(a)anthracene and indeno(1,2,3-cd)pyrene none of the concentrations exceeded the Unrestricted Use SCO. [Note: The concentrations of benzo(a)anthracene and indeno(1,2,3-cd)pyrene did not exceed the Commercial Use SCO.]

The three vault areas within the building at the Site include:

- Two epoxy room tank vaults (i.e., adjacent vaults) that are located beneath the south-central portion of the building. These vaults are separated by a concrete block wall. Each vault contains a single-walled, steel, liquid storage tank that was measured to be approximately 10 ft. in diameter and approximately 15 ft. long. These tanks are suspended approximately 1 foot above the floor on concrete saddles.

  The tanks in the epoxy room vaults were empty of liquids at the time of the fieldwork completed for this study, and a square section on the northeast sidewall of each tank had been cut out, rendering the tanks unusable. Reportedly the epoxy room vault tanks formerly contained castor oil and epoxy resin.

  The floor and sidewalls of the epoxy room tank vaults are constructed of poured concrete. Black stains, sticky resin, and/or a hardened translucent resin covered portions of the epoxy room tank vault floors at the time of the assessment. The southwest epoxy room tank vault (i.e., designated herein as VLT-4) contains a rectangular shaped sump pit (i.e., located in the floor northwest of the storage tank). This sump pit was filled to the level of the floor with a hard, translucent resin material. The northeast epoxy room tank vault (i.e., designated herein as VLT-3) contains a circular sump pit that is located in the northern corner of the vault. This sump pit was probed with a hand tool, and an apparent

hard bottom was observed approximately 5 inches below the surface of the floor. The sump contained approximately 2 inches of a viscous amber colored liquid.

A portion of the concrete block wall that separated the two vaults was missing at the floor level, creating an approximate 0.5-foot square conduit between the two vaults. Black staining (i.e., not indicative of petroleum) was observed on the base of the walls (i.e., starting at the floor surface and extending up the walls approximately 0.5 ft.) around the perimeter of both epoxy room tank vaults. This staining was more pronounced in the northeast vault. Portions of the walls above this perimeter staining were also stained black, and this staining had the appearance of splashed liquid. Black staining was also observed on the ceiling and upper portion of the south wall in the southeast corner of the eastern vault and this staining appeared to originate from cracks in the ceiling.

- The boiler room vault is approximately 15 ft. wide (generally north to south) and approximately 70 ft. long (generally east to west). An approximate 2.1 ft. high brick wall bisects the vault and separates the western-most 23 ft. of this vault from the remaining vault. The boiler room vault is approximately 6 ft. deep.

  During an assessment conducted on October 6, 2014, residual standing water (i.e., less than 0.25 ft. thick) was encountered on the floor in portions of the boiler room vault and a thin layer (i.e., approximately 0.05 ft. thick) of sediment was observed across both wet and dry areas of the vault floor. This sediment was fine grained (i.e., silt to clay size) and it exhibited a brown color at the surface and a black, inky-type sediment was observed in areas where the sediment was disturbed (i.e., by foot traffic during the assessment). A faint petroleum-type odor was noted in the vault subsequent to disturbing the sediments.

  In locations not covered with sediment, the boiler room vault floor was observed to be constructed of brick and mortar. The wall that bisects the vault also appeared to be constructed of brick and mortar. Floor cut-outs were observed on either side of the low wall (i.e., one on each side) near the northwest wall of the boiler room vault. The openings of these floor cut-outs measured approximately 0.5 ft. by 1.0 ft. (northwest side) and 0.5 ft. by 1.5 ft. (southeast side) and each floor cut-out is approximately 0.5 ft. deep. Both floor cut-outs contained approximately 2 inches of sediment. Residual standing water was observed to be approximately the same depth on both sides of the wall, and it is assumed that these floor cut-outs are connected via a conduit to allow liquid levels to equilibrate on either side of the low wall. The walls of the boiler room vault are constructed of poured concrete, and a layer of apparent tar paper covered portions of the walls. The tar paper had deteriorated and fallen off of the concrete walls in some areas, and dissolved tar paper may have been the source of the black sediment and faint petroleum odors observed at the time of the assessment.

The contents of the sump pits within the epoxy room vaults were removed to the extent possible and containerized for subsequent disposal. Samples collected from each sump pit were submitted for analytical laboratory testing. As summarized on Tables 6a through 6b, select VOCs and SVOCs were detected, but the concentrations measured were below the Unrestricted Use SCO. As presented on Table 6c, the sample from each sump pit contained a PCB concentration that exceeded the Commercial Use SCO (i.e., the VLT-3 sample contained a PCB concentration of 5.7 ppm, and the VLT-4 sample contained a PCB concentration of 1.2 ppm

compared to the Commercial Use SCO of 1 ppm). Each sump sample contained various TAL metals (refer to Table 6d), but only the sample from VLT-4 contained concentrations that exceeded the Unrestricted Use SCO (i.e., chromium, copper and nickel). The nickel concentration in the sample from VLT-4 also exceeded the Commercial Use SCO.

A test boring advanced through the floor of VLT-3 encountered approximately 0.5 ft. of concrete above apparent indigenous soil comprised primarily of sand and gravel. Field evidence of apparent environmental impact (e.g., staining, odors, and elevated PID readings) was not detected in the soil samples collected from this location. A sample of the soil collected from the test boring advanced below VLT-3 was submitted for analytical laboratory testing. As summarized on Table 6a through Table 6d, this sample contained detectable concentrations of VOCs (i.e., acetone and TCE), SVOCs (e.g., di-n-butylphalate and TICs), and metals (e.g., arsenic, chromium, copper, and zinc). However, only the zinc concentration exceeded the Unrestricted Use SCO. [Note: The soil sample collected from VLT-3 did not contain a detectable PCB concentration.]

A test boring advanced through the bottom of the sump pit in VLT-4 encountered approximately 0.25 ft. of concrete above reworked soil fill material consisting of sand and gravel intermixed with brick fragments. Field evidence of apparent environmental impact (e.g., staining, odors, and elevated PID readings) was not detected in the soil/fill samples collected from this location. A sample of the soil collected from the test boring advanced below VLT-4 was submitted for analytical laboratory testing. As summarized on Table 6a through Table 6d, this sample contained detectable concentrations of VOCs (i.e., acetone, methylene chloride, and TCE), SVOCs (e.g., benzo(a)pyrene, di-n-butylphalate, pyrene and TICs), and metals (e.g., aluminum, arsenic, chromium, copper, lead, nickel, and zinc). However, only the lead, nickel, and zinc concentration exceeded the Unrestricted Use SCO. [Note: The soil sample collected from VLT-4 did not contain a detectable PCB concentration.]

The two test borings advanced through the floor of the boiler room vault (designated VLT-1 and VLT-2) encountered approximately 1.5 ft. and 1.7 ft. of concrete, respectively above an indigenous sand and gravel deposit. Field evidence of apparent environmental impact (e.g., staining, odors, and elevated PID readings) was not detected in the soil samples collected from these locations. A sample of the soil collected from both of the test borings advanced below the boiler room vault was submitted for analytical laboratory testing. As summarized on Table 6a through Table 6d, each sample contained VOCs (e.g., acetone and TCE), and SVOCs (di-n-butyl phthalate and TICs) at comparable concentrations, but the reported concentrations did not exceed the Unrestricted Use SCO. Metals were detected in each sample, but only the concentrations of cadmium, copper, nickel and zinc in the sample from VLT-2 exceeded the Unrestricted Use SCO. The cadmium and nickel concentrations in this sample also exceeded the Commercial Use SCO. The samples from VLT-1 and VLT-2 did not contain detectable concentrations of pesticides/herbicide/PCBs.

5.8 Utilities

A 6-inch diameter municipal water line that services the Site is located within West Connell Street, and this line enters the building near the southeastern corner of the building (i.e., within the current Receiving Warehouse). The 6-inch diameter water line is approximately 6 ft. bgs in proximity of the Site (approximate invert elevation 1424 ft.). A second 8-inch diameter

municipal water line is located on the southern side of Franklin Street in proximity of the Site. This line is connected to fire hydrants in proximity of the Site, but is does not enter the building. The locations of the municipal water lines and water supply lines within the building are depicted on the figure titled *Site Plan showing the Approximate Locations of Drains and Select Underground Utilities*, which is included in Appendix A.

A 15-inch municipal storm sewer line that connects to an 18-inch municipal storm sewer line in proximity of the northeastern corner of the Site is located on the north side of Franklin Street in proximity of the Site. These municipal storm sewer lines flow to the northeast in the area of the Site. Catch basins for the municipal storm sewer in this area are located within Franklin Street, and this line is also connected to the building at the Site in the current Lab Utility Room that is located in the northeastern corner of the building (refer to Figure 4b for the location of the Lab Utility Room). A 12-inch storm sewer line is located on the northern side of the current Receiving Warehouse in the building, and this line flows to the northeast where it connects to an 18-inch municipal storm sewer line near the southeastern corner of the Site (i.e., within West Connell Street). The municipal storm sewers are approximately 3 ft. bgs in proximity of the Site (approximate invert elevation 1427 ft.). Roof drains and select drains within the building collect surface water and discharge either into the municipal storm sewers or sanitary sewers. The locations of the municipal storm sewers in proximity of the Site and storm drains within the building are depicted on Figure 5.

Two large municipal sanitary sewer lines are located beneath the building at the Site, and these lines bisect the property in the approximate center of the building. These lines were originally constructed within the West Connell Street and Spruce Street right-of-ways and subsequently covered with the building as it expanded to its current configuration. The municipal sanitary sewer lines include a 24-inch diameter sewer line located along the southern side of West Connell Street that enters the Site near its southeastern corner. This line extends along the northern side of the Receiving Warehouse to the western end of the warehouse where the line makes a 90° turn to the northwest and runs through the building exiting on Franklin Street where the line makes a 90° turn to the southwest. The 24-inch sanitary sewer line is approximately 17 ft. bgs deep (approximate invert elevation 1413 ft.) within the building at the Site. An 8 to 10-inch diameter line is located adjacent to the 24-inch sanitary sewer line and this line is approximately 6 ft. bgs deep (approximate invert elevation 1424 ft.) within the building at the Site. The 24-inch sanitary sewer line generally flows from east to west and the 8 to 10-inch sanitary sewer line generally flows from west to east. Other smaller diameter sanitary sewer lines that connect to the larger sewers are also located within the building. The location and flow directions of the sanitary sewer lines in proximity of the Site are depicted on Figure 5.

5.9 Data Usability Summary

The information presented in the DUSRs described in Section 3.8 and included in Appendix E was used to adjust the analytical laboratory data as appropriate. These adjustments are incorporated into the summary tables presented in this document.

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5.10 Contaminants of Concern

Based upon the work completed to date, the contaminants of concern (COC) identified within the media in excess of Restricted Commercial Use SCO and/or other applicable SCGs applicable to the proposed future commercial use of the Site are presented below.

Soil Vapor

- TCE
- PCE

Note: Although elevated concentrations of acetone and MIBK were identified at the Site, these constituents continue to be used in the manufacturing process and the highest concentrations measured were below the applicable Occupational Safety and Health Administration (OSHA) permissible levels. As such, remediation/mitigation of acetone and MIBK is not required. Furthermore, in the locations where the highest acetone concentrations were detected (i.e., within the current Pilot Plant in the southeastern portion of the building at the Site), no evidence of acetone migration within subsurface media was apparent Therefore acetone and MIBK in soil vapor are not identified as COC.

Surface Soil

- PAHs: benzo(a)pyrene
- PCBs: location SS-5
- Metals: arsenic, cadmium, copper, mercury and nickel

Note: COC in the surface soil is based on the presence of constituents in one or more samples tested that had concentrations that exceeded the Commercial Use SCO.

Soil/Fill

- PAHs: benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- SVOCs: hexachlorobenzene
- Metals: arsenic, barium, cadmium, copper, lead, mercury, nickel, and zinc

Note: COC in the surface soil is based on the presence of constituents in one or more samples tested that had concentrations that exceeded the Commercial Use SCO.

Groundwater

- Metals: chromium and potentially barium, selenium, thallium and magnesium

Note: The groundwater in the western portion of the Site is impacted with petroleum that originated from an off-site location. This impact is characterized by elevated PID readings, petroleum odors, stained soil and elevated concentrations of VOC and SVOC TICs. The petroleum-impacted groundwater does not degrade further as it migrates across the Site,

suggesting that the Site is not contributing to the further degradation of the groundwater. As such, petroleum-impact and VOC/SVOC TICs are not identified as a COC for the Site.

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6.0 CONTAMINANT FATE AND TRANSPORT

This section includes an evaluation of the fate and transport of the COC identified for the Site including identifying potential routes of migration, contaminant persistence and contaminant migration patterns.

6.1 Potential Routes of Migration

Potential routes of migration for the COC identified for this Site include:

- transport of impacted soil/fill via fugitive dust generation;
- transport of impacted soil/fill via surface water runoff;
- leaching from the soil into the groundwater through infiltration of stormwater and/or contact with groundwater;
- migrating via groundwater flow; and
- volatilization to air or soil void spaces.

Approximately 89% of the Site is covered with the building footprint. As such, unless the concrete slab is penetrated during construction activity, the only soil/fill impacted with COC that is subject to migration via fugitive dust generation is located in the approximate 11% of the Site outside of the building footprint. The potential for fugitive dust migration from excavations completed inside the building is considered an unlikely scenario since impacts would be limited to the interior of the building and control measures would be established as part of a Site management Plan (SMP). However, the migration pathway of COC through fugitive dust generation is relevant for the 11% of the Site located outside of the building footprint.

Roof drains transport rainwater and snowmelt that collects on the roof of the building at the Site to the municipal sewer system. Therefore only the 11% of the Site not covered with the building footprint is potentially susceptible to transport of COC-impacted soil/fill via surface water runoff. The potential for such transport is considered low given the relatively flat topography of the Site, groundcover, permeability of the soils, and the relative distance to nearest 100-year floodplains for Olean Creek (i.e., approximately 2,000 ft. southeast of the Site) and the unnamed creek associated with Two Mile Creek (i.e., approximately 1,250 ft. north of the Site at its nearest point).

The soil/fill above the top of groundwater (i.e., typically within surface soil and fill areas extending to a depth of up to approximately 12.5 ft. bgs) in localized areas of the Site contains COC; however, the majority of these areas are covered by the building, thus preventing precipitation from infiltrating into the COC-impacted soils and potentially leaching/transporting these COC. As such, potential routes of migration for COC-impacted soil/fill above the top of groundwater are primarily restricted to those limited areas currently outside of the footprint of the building.. The soil in proximity of the groundwater table (i.e., typically detected at depths of about 21 ft. to 25 ft. bgs) in locations generally positioned in the approximate western one-half of the Site contains elevated PID readings and several petroleum-related VOCs and SVOCs

apparently associated with petroleum contamination migrating onto the Site and not contamination attributable to the Site (i.e., trends of increasing petroleum-impact were not detected as groundwater migrated through the Site). As such, leaching of petroleum-related impacts in the soil into the groundwater is not considered a migration pathway attributable to the Site. With the possible exception of several heavy metals (e.g., iron, manganese, chromium, thallium and magnesium), the leaching of other COC identified in the soil/fill does not appear to represent a migration pathway attributable to conditions at the Site.

Groundwater flows to the east-southeast, with some flow to the southwest depending on location, across and off the Site. COC within the dissolved groundwater may be transported across the Site via this pathway. The groundwater in the western portion of the Site is impacted with petroleum-related VOCs and SVOCs. In addition, elevated PID readings were obtained on the soil in proximity of the groundwater in this area of the Site. However, the source of this petroleum-impact is from locations hydraulically upgradient of the Site, and the petroleum-impact does not degrade further as it migrates through and off the Site. Thus in accordance with DER-10 Section 4.1(d)4.iii where an off-site source of groundwater contamination was identified with no on-site source or contribution the remedial party will "…have no remedial responsibilities with respect to such groundwater contamination migrating under the site" except for the following items listed in DER-10 Section 4.1(d)4.iii(2)B:

"develop and evaluate remedial alternatives which eliminate or mitigate on-site environmental impacts or human exposures, to the extent feasible, resulting from the off-site contamination entering the site"

The only potential COC detected in the dissolved groundwater during each sample round conducted at the Site that is not attributable to off-site sources and/or background/naturally occurring groundwater conditions is chromium, which was detected at concentrations exceeding SCGS in samples collected from monitoring well MW-N, and potentially magnesium in samples collected from monitoring well MW-H. In both cases, an apparently localized source area, as opposed to a Site-wide contaminant plume, is indicated. [Note: Barium, selenium, and thallium were detected at concentrations exceeding SCGS in samples collected during the first sample round conducted in July 2014, but not the second sample round conducted in September 2014. As such, it is unknown if these metals are present at concentrations in the groundwater that represent a concern.] Although transport of COC attributable to the Site is a relevant migration pathway, the Site and surrounding area are serviced by municipal water systems and potable supply wells were not identified in proximity of the Site. As such, it is not expected that groundwater impacted with COC would reach receptors.

VOCs were detected in soil vapor samples collected beneath the concrete slab in several locations within the building at the Site (i.e., particularly TCE detected in locations in the central portion of the building and acetone detected in the southeastern corner of the building). VOCs can be released into the ambient air within the building through volatilization from the soil pore space. The TCE impact is considered a relevant potential pathway that must be mitigated; however, since acetone is used at the Site, mitigation for potential soil vapor intrusion of acetone is not required. Evidence of petroleum-related VOCs attributable to the groundwater in the western portion of the Site that was impacted by an off-site source was not detected in the soil vapor. Therefore mitigation of petroleum-related VOCs is not required at the Site.

6.2 Contaminant Persistence

The COC attributable to the Site includes organic constituents (VOCs and SVOCs), and various metals. The persistence of these constituents is further discussed in this section of the report.

Organic Constituents

The VOCs detected in the soil vapor at the Site are generally associated with chlorinated and non-chlorinated solvents. The SVOCs detected in the soil/fill are likely attributable to cinders, etc. associated with railroad ballast and combustion engine byproducts/exhaust. The majority of SVOCs detected in the soil/fill are considered PAHs. The VOCs and SVOCs encountered at the Site biodegrade aerobically and anaerobically. These VOCs and SVOCs in an aqueous setting will biodegrade faster under aerobic conditions when compared to biodegradation rates under anaerobic conditions. Most of the SVOCs detected at the Site would generally be anticipated to persist longer than most of the VOCs that were detected at the Site.

In addition to biodegradation, SVOC concentrations in the soil/fill would presumably decrease as the distance from the source area is increased due to processes such as advection, dispersion, sorption, diffusion, etc. The analytical laboratory test results for samples collected as part of this study support the presumption that contamination concentrations decrease as the distance from the suspected source area is increased.

Inorganics

Various metals were detected in samples of surface soil, subsurface soil, subsurface fill, and groundwater. Some of the metals detected may be associated with contamination from past uses of the Site, and other metals may be associated with naturally occurring concentrations of metals in soil or groundwater for the area of the Site. Metals can change form (e.g., Fe^{+2}, Fe^{+3}), but are persistent in the environment and do not degrade. Some of the metals detected at the Site can bioaccumulate.

The metals arsenic, barium, cadmium, copper, lead, mercury, nickel, and zinc were detected in one or more soil/fill sample at concentrations that exceeded the Commercial Use SCO. The metals chromium and potentially barium, selenium, thallium and magnesium were detected in groundwater samples that exceed SCGs TOGS 1.1.1 groundwater standards or guidance values.

Processes such as advection, dispersion, sorption, diffusion, etc. can result in decreases in metals concentrations dissolved in groundwater as the distance away from their source is increased.

6.3 Exposure Pathways

The most-likely exposure pathways through which COC at the Site could potentially migrate to other areas/media include fugitive dust emissions from exterior locations when impacted soil/fill is disturbed and volatilization into the indoor air. To a lesser extent, transport of impacted soil/fill via surface water runoff, and leaching of COC attributable to the Site and migration via groundwater transport are also considered potential exposure pathways.

These exposure pathways will be addressed by the remedial activities identified in Section 9.0, an Environmental Easement that will restrict groundwater use as a potable source, and the development and implementation of a SMP that will outline procedures for handling material that is impacted with COC or unanticipated contaminants that may be encountered during future construction activities.

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7.0 INTERIM REMEDIAL MEASURES

As this project progressed an Interim Remedial Measure (IRM) was implemented to remove a fuel oil UST that is no longer used. In addition, studies were completed to evaluate other IRMs that will be implemented in 2015. The activities completed are discussed in this section.

7.1 Fuel Oil UST Removal

A 10,000-gallon UST formerly used to store diesel fuel was removed from the Site on October 14, 2014. The removal of the UST was completed by RPC and New York Environmental Technologies, Inc. (NYTECH), and the work was monitored/documented by DAY. Following the completion of the work, and the receipt of applicable closure documentation, DAY prepared a report titled *Interim Remedial Measures, Construction Completion Report, 211 Franklin Street, Olean, New York 14760, NYSDEC Site Number C905038-05-14* dated November 2014. This report describes the work completed and includes copies of confirmatory test results and disposal documentation.

7.2 Sump Pit Closure

The sump pit located in the southern room of the basement is constructed of an apparent poured 2.7 ft. diameter concrete crock that extends to an approximate depth of 6.3 ft. below the surface of the basement floor (i.e., the elevation of the bottom of the sump pit is approximately 1417.1 ft.). Approximately 0.5 feet of sediment was measured in the bottom of the sump pit during an evaluation completed on July 29, 2014. A sample of the sediment collected from the sump pit on July 29, 2014 was submitted for analytical laboratory testing. As shown on Table 6a, this sample contained several VOCs including 1,1-dichloroethene, cis-1,2-dichloroethene, toluene and xylene that were measured at concentrations in excess of the Unrestricted Use SCO. [Note: The sediment sample collected from the sump pit contained a total VOC concentration of 195.6 ppm of which 190 ppm was reported to be cis-1,2-dichloroethene.]

The purpose of this sump pit is uncertain, as the bottom of the pit (elevation approximately 1417.1 ft.) is above the top of the groundwater, which was measured on July 10, 2014 in the nearest monitoring wells MW-B and MW-M at elevation 1412.47 ft. and 1412.12 ft., respectively. As such, the bottom of the sump is 5 $^{\pm}$ ft. above the top of the groundwater, and thus it is unlikely the sump pit was required to prevent groundwater from infiltrating into the basement. At the time of the RI fieldwork, a pump was mounted to a cover plate over the sump pit, and the discharge pipe for this pump extended from the bottom of the sump pit into a pipe that entered the northeast basement wall. [Note: Dye testing of the pipe entering the basement wall determined that this pipe discharged into the municipal sanitary sewer system located in Franklin Street.] Two small diameter condensate drain lines from a refrigeration unit associated with the cold storage room located above the basement were observed entering the top of the sump pit. In addition, an approximate 2-inch diameter pipe was also observed entering the sump pit approximately 2.3 ft. from the top pf the sump pit. This 2-inch diameter pipe trended to the southwest and it is suspected that this pipe may have been a drain line. A video scope was used in an attempt to locate the source of this pipe. The pipe was traced approximately 5.2 ft. to the south where a Y-junction was encountered. The video scope entered the southeast branch of the junction and advanced an additional 1.3 ft. where refusal was encountered. Attempts to advance the video scope in the southwest branch of the Y-junction were not successful. The piping

observed during the use of video scope appeared to be intact and generally free of accumulated debris. The only water entering the sump pit was from the condensate drain lines. A sketch of the sump pit is included as Figure 3 in the site observation report included in Appendix F.

In November 2014, the pump was removed from the sump pit and the discharge piping and the apparent drain tile were capped. Subsequently, the sediment was removed from the sump pit and containerized. Following removal of the sediment and cleaning of the sump pit to the extent possible, test borings were advanced through the bottom of the sump pit and through the side wall of the sump pit. The test boring advanced through the bottom of the sump pit encountered 0.9 ft. of concrete above apparent indigenous soil consisting primarily of sand and gravel. A peak PID reading of 16.9 ppm was measured above a soil sample collected from this test boring, but evidence of other potential environmental impact (e.g., staining, unusual odors, etc.) was not identified. A soil sample collected from below the sump pit contained detectable concentrations of VOCs including cis-1,2-dichloroethene, toluene and xylene, which were detected in the sediment sample collected from the sump pit on July 29, 2014, but only the xylene concentration exceeded the Unrestricted Use SCO. [Note: The cis-1,2-dichloroethene concentration in the soil sample collected from below the sump pit was 0.25 ppm.] The sample from the sidewall of the sump pit also contained VOCs, but the concentrations were lower than those measured in the sample collected from below the sump pit, and none of the concentrations measured in the sidewall sample exceeded the Unrestricted Use SCO. [Note: The cis-1,2-dichloroethene concentration in the sidewall sample was 0.0310 ppm.]

A sample of sediment/debris was collected from the discharge pipe when the sump pit was decommissioned. This sample contained several VOCS including cis-1,2-dichloroethene, toluene and xylene, but the with the exception of acetone (detected at a concentration of 0.06 ppm compared to the Unrestricted Use SCO of 0.05 ppm) the detected VOC concentrations were below the Unrestricted Use SCO. [Note: The cis-1,2-dichloroethene concentration in the sample collected from the discharge pipe was 0.002 ppm.]

The soil sample collected from below the sump pit was also tested for SVOCs, pesticides/herbicides/PCBs and TAL metals and cyanide. This sample contained relatively low concentrations of SVOCs (i.e., di-n-butylphalate and various TICs) and pesticides (i.e., alpha-BHC and heptachlor) that were below the Unrestricted Use SCO. This sample did contain various TAL metals including arsenic, chromium, copper, nickel and zinc that were measured at concentrations exceeding the Unrestricted Use SCO. The arsenic concentration (i.e., 16.2 ppm) also exceeded the Commercial Use SCO (i.e., 16 ppm).

Based upon the above test results, the sump pit will be closed as outlined in the Supplemental RIWP. Specifically, the condensate piping will be re-routed to the sanitary sewer and the sump crock will be filled to the ground surface with concrete. A report documenting the work completed as part of this IRM will be submitted to the NYSDEC.

7.3 Empty UST Closure

The empty UST located in the south-central portion of the building (refer to Figure 4b) is about 10.3 ft. in diameter and approximately 17.5 ft. long (i.e., an approximate capacity of 10,000 gallons). This UST is located about 1.8 ft. beneath the floor of the building, and the only access to the tank is an opening in the floor. As such, the invert of the tank is approximately 12.1 ft.

below the floor surface or approximate elevation 1421.9 ft. The former use of this tank is not known. At the time of this study the tank was empty and the interior surfaces were covered with rust and scale was present on the invert and end walls of the tank. A line of rust/discoloration is evident approximately 3 ft. from the invert of the tank suggesting that liquid may have been present in this tank at that level. Apparent product supply piping extends from above the invert of the tank and this piping is connected to the north sidewall/top of the tank with a pipe flange. The extent of this piping outside of the tank is not known. An additional pipe protrudes from the northeast end wall of the tank, and the end of this pipe closed with a threaded pipe cap. A diagram of this UST is included as Figure 7 in Appendix A.

To assess subsurface conditions pursuant to closure of this tank as part of an IRM, two test borings (designated UST-1 and UST-2) were completed in proximity of the UST as described in Section 3.3. Suspected fill consisting of reworked soil (primarily sand and gravel) was encountered to approximately 17 ft. bgs. Evidence of staining or unusual odors was not detected on the fill material, but a peak PID reading of 120 ppm was measured above a sample collected from 15.5 ft. bgs in test boring TB-1. A peak PID reading of 80 ppm was measured above a sample collected from 15.5 ft. bgs in test boring TB-2. As shown on Table 6a, several VOCs were detected in soil/fill samples collected from this test borings (e.g., cis-1,2-dichloroethene and TCE), but the reported VOC concentrations were below their applicable Unrestricted Use SCO. As shown on Table 6b, with the exception of di-n-butylphalate in samples from both UST-1 and UST-2 and bis(2-ethylhexyl)phalate, which were detected below their Unrestricted Use SCO and relatively low SVOC TICs; SVOCs were not detected in the samples tested. In addition, pesticides, herbicides and PCBs were not detected in either of the samples tested from UST-1 and UST-2. Several metals were detected in the samples form UST-1 and UST-2 (see Table 6d), and the sample from UST-1 contained a concentration of chromium, manganese, and zinc that exceeded the Unrestricted Use SCO. The sample from UST-2 contained a concentration of copper, manganese and zinc that exceeded the Unrestricted Use SCO. None of the metal concentrations exceeded the Commercial Use SCO, but the chromium concentration in the sample from UST-1 of 1,090 ppm approached the Commercial Use SCO of 1,500 ppm. Monitoring well MW-N is located approximately 3 ft. north of the abandoned UST. Low-flow groundwater samples collected on July 7, 2014 and September 29, 2014 from MW-N contained total chromium concentrations of 309 ug/l and 148 ug/l, respectively. Both of these concentrations exceed the TOGS 1.1.1 standard of 50 ug/l. The total chromium concentrations measured in monitoring wells MW-D and MW-J, which are positioned in generally hydraulic downgradient positions relative to the UST did not contain chromium concentrations that exceeded TOGS 1.1.1.

It is anticipated that an IRM will be completed to close the empty UST in place in accordance with applicable provisions outlined in Section 5.5 of DER-10 and the NYSDEC guidance document titled *Permanent Closure of Petroleum Tanks* dated January 20, 1987 and modified December 3, 2003. This closure will likely include the removal of piping from the interior of the tank, and the filling of the tank with flowable fill. However, prior to completing this work a groundwater sample will be collected from monitoring well MW-N and tested for total and hexavalent chromium. Depending on the test results, additional treatment may be recommended prior to the closure of the UST.

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8.0 EXPOSURE ASSESSMENT

The results of the qualitative human health exposure assessment and the fish and wildlife impact assessment conducted for the Site are presented in this section.

8.1 Qualitative Human Health Exposure Assessment

This qualitative human health exposure assessment includes a characterization of the exposure setting (including the physical environment and potentially exposed human populations); identification of exposure pathways; and evaluation of fate and transport for the COC at the Site.

8.1.1 Potential Receptors

The identification of potential human receptors is based on the characteristics of the Site, surrounding land uses, and currently anticipated future land uses. Under current and future use conditions receptors at the Site would include adult site workers and construction workers that would be responsible for such activities as utility repairs or other construction activities that could encounter potentially impacted media. The Owner is considered a Volunteer under the BCP, and as such not responsible for the evaluation or remediation of offsite impacts. However, for purposes of this qualitative human health risk assessment impacts present at the Site that have the potential to migrate to off-site receptors were evaluated. These media include soil impacted with COC, groundwater that contains petroleum-impact associated with an upgradient source relative to the Site and select metals that may or may not have originated at the Site (e.g., chromium, thallium, etc.) and potentially the indoor air impacted with VOCs migrating from the soil gas.

8.1.2 Exposure Pathways

According to NYSDEC DER-*10 Technical Guidance for Site Investigation and Remediation* (DER-10) dated May 3, 2010 (Appendix 3B NYS DEC of Health Qualitative Human Health Exposure Assessment); an exposure pathway is "the means by which an individual may be exposed to contaminants originating from a site." An exposure pathway is comprised of the following components:

1. a contaminant source;
2. contaminant release and transport mechanisms;
3. point of exposure;
4. route of exposure; and
5. receptor population.

Each element is described below as it pertains to the Site:

- <u>Contaminant Source</u>: The contaminant sources identified vary by media and location (i.e., including upgradient off-site source areas that impact the Site). The identified COC are described in Section 5.0, but generally the primary constituents include SVOCs, PCBs and metals in surface soil, SVOCs plus TICs, metals and petroleum-related constituents in subsurface soil, SVOC TICs and metals in groundwater and VOCs in soil vapor.

- Contaminant release and transport mechanisms: Contaminant release and transport mechanisms are specific to the type of contaminant and the use of the Site. For the non-volatile constituents present in exposed soil/fill, release mechanisms generally include fugitive dust migration and direct contact. In locations where impacted soil/fill is covered (e.g., beneath the building slab), direct contact during construction activities is the only viable release mechanism for non-volatile constituents in the soil/fill. The groundwater contains petroleum impact that has migrated onto the Site and that does not degrade further as it migrates across and off the Site. Based on soil vapor testing completed, the petroleum impact in the groundwater has not migrated from the groundwater into the soil gas in sufficient quantities to warrant remediation or mitigation on the Site. Several metals detected in the groundwater (e.g., chromium) appear attributable to past operations at the Site and in localized areas these constituents migrate through the groundwater. Isolated locations have been identified within the building at the Site where soil vapor intrusion of chlorinated VOCs (particularly TCE) into the indoor air is a potential concern.

- Point of exposure: Potential human contact with a contaminated medium may occur through inhalation of soil vapor containing COC, contact with soil impacted with COC during future excavation activities, and/or contact with groundwater containing COC at concentrations that exceed SCG. Due to the depth of groundwater (i.e., 15. 5 ft. bgs to more than 25 ft. bgs depending on season and location) and the fact that drinking and process water at the Site, and in proximity of the Site, is obtained from a municipal source, exposure to groundwater containing COC is considered to be unlikely.

- Routes of exposure: The potential route of exposure for soil vapor is inhalation by occupants of the building at the Site or future buildings constructed on or near the areas of residual COC impact in the soil vapor. Based on testing conducted during this study, off-site exposure to soil vapor containing COC impact does not appear to be a viable route of exposure.

  The route of exposure for residual soil containing concentrations of COC exceeding SCG would be dermal contact with these soils and inhalation of dust generated during potential future excavation activities. The concrete slab that covers the majority of the Site prevents incidental human contact so this route of exposure is not anticipated unless COC impacted soil is encountered during future construction activities (e.g., utility repairs). In exterior locations, COC exceeding SCG was identified in some locations within the surface soil. As such, dermal contact and inhalation would remain potential route of exposure if these areas are disturbed.

  A route of exposure for groundwater impacted with COC at the Site is not anticipated since groundwater beneath the Site is not used as a potable source or as part of the industrial process. Groundwater impact from petroleum-related constituents that have migrated through the Site and metals that may be related to both on-site and off-site impacts to off-site locations is possible if groundwater is used by downgradient receptors. However, since a municipal source of potable water is available off-site groundwater impact is not considered a likely route of exposure.

- Receptor population: The receptor population includes:

  - Construction workers that may enter buried utility confined spaces, or disturb soil/fill containing concentrations of COC that exceed SCG as part of their work.
  - Occupants of the building in the vicinity of residual COC impact within the soil vapor.

8.1.3 Exposure Assessment Summary

This human health exposure assessment identified the following potential exposure scenarios attributable to conditions at the Site:

- Future workers could be exposed to COC present in soil/fill at concentrations exceeding SCGs via direct contact and inhalation. These exposures could occur during construction activities, while assessing buried utility confined spaces, etc.
- Until remediated, Site workers and trespassers could be exposed to surface soil containing COC at concentrations exceeding SCGs via direct contact.
- The adjacent population could be exposed to fugitive dust containing COC at concentrations exceeding SCGs when surface soil in exterior portions of the Site is disturbed.
- Future potential use of groundwater could pose a potential exposure pathway to COC that are present in groundwater at concentrations exceeding SCGs.
- Occupants of the building could be exposed through vapor intrusion due to volatilization unless properly addressed/remediated.

8.2 Fish and Wildlife Resources Impact Analysis

A copy of a completed Fish and Wildlife Resources Impact Analysis (FWRIA) Decision Key is included in Appendix I. The findings of the site investigation completed during this study were used to assist in completing the FWRIA Decision Key. As described previously in this report, the Site contains soil, groundwater and soil vapor impacted with concentrations of COC that exceed SCG, however, the data generated during this RI does not demonstrate that migration of COC is impacting surface water or sediments within the nearest surface waters, which are located approximately 2,400 ft. east-southeast (Olean Creek) and 1,500 ft. north (Two Mile Creek, which is intermittingly connected to an unnamed creek) of the Site. Also, the Site is not within or near an area with rare plants, rare animals and/or significant natural communities. Therefore, it is concluded that a Fish and Wildlife Resources Impact Analysis is not needed since the data indicates that the COC identified for this Site are not migrating into, or otherwise impacting, any on-site or off-site habitats of endangered, threatened or special concern species, or other fish and wildlife resources.

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9.0 REMEDIAL ALTERNATIVES ANALYSIS

This section presents an analysis of remedial alternatives and describes the recommended remedial approach using the Remedy Selection Evaluation Criteria outlined in Section 4.2 DER-10. Per DER-10, the following alternatives, as defined in 6 New York Codes, Rules and Regulations (NYCRR) part 375, were evaluated to address COC impact based on cleanup tracks defined by the NYSDEC.

Track 1-Unrestricted Use: The Site can be used for any purpose without restrictions and land/groundwater use restrictions or institutional controls (IC/EC) cannot be employed to obtain remedial action objectives. [Note: A BCP Volunteer who has acted to reduce groundwater contamination to an asymptotic level, and otherwise conforms to Track 1 may employ groundwater use restrictions.] The soil cleanup must achieve the Unrestricted Use criteria at any depth above bedrock.

Track 2-Restricted Commercial Use: Under this scenario, land and groundwater use restrictions are allowed, but IC/ECs can not be relied upon to prevent exposures and obtain remedial action objectives.

Track 4-Restricted Commercial Use: Under this scenario, land use and groundwater restrictions are allowed and IC/ECs can be implemented to prevent exposures to soil contamination. Contaminated soil/fill containing concentrations that exceed applicable SCO must be covered with the equivalent of one foot of "clean" soil/fill.

9.1 Remedial Action Objectives

The site-specific Remedial Action Objectives (RAOs) for the proposed remedial actions assume the Site will be used for industrial and commercial purposes as outlined in the BCP application, and that applicable SCGs will be achieved. These RAOs will include the following:

Groundwater

Public Health Protection

i. Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
ii. Prevent contact with, or inhalation of volatiles, emanating from contaminated groundwater. [Although groundwater in the western portion of the Site is impacted with petroleum-related constituents that originated from an off-site source, data collected during the RI did not identify petroleum impacts in the soil vapor. However, chlorinated VOC impact was identified within the soil vapor in some portions of the Site. The specific source of this impact was not identified, as chlorinated VOC impact was not detected in the soil or groundwater at the Site. However, as discussed below the soil vapor RAO will be achieved through the installation of a sub-slab depressurization system (SSDS) and subsequent indoor air testing.]
iii. Implement and maintain EC/ICs to assure that the Site use is restricted to either commercial or industrial use in the future.

Environmental Protection

i. Address the source of Site-related ground water contamination to eliminate/minimize further adverse impact and contaminant mobility, and document via long-term monitoring that Site-related groundwater contamination is not migrating off-site.

Soil/Fill

Public Health Protection

i. Prevent ingestion/direct contact with contaminated soil.
ii. Prevent inhalation of volatilizing contaminants in the soil and soil vapor. [Petroleum-impacted soil was identified in proximity to the groundwater in western portion of the Site during the RI. However, petroleum impacts in the soil vapor attributable to this contamination were not identified. Chlorinated VOC impact was identified within the soil vapor in some portions of the Site, however, the specific source of this impact was not identified, as chlorinated VOC impact was not detected in the soil or groundwater at the Site. As discussed below, the soil vapor RAO will be achieved through the installation of a SSDS and subsequent indoor air testing.]
iii. Implement and maintain EC/ICs to assure that the Site use is restricted to either commercial or industrial use in the future.

Environmental Protection

i. Prevent soil/fill impacted with metals from further degrading groundwater quality.
ii. Prevent off-site migration of contaminated soil/fill via fugitive dust.

Soil Vapor

Public Health Protection

i. Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into the building at the Site.
ii. Implement and maintain EC/ICs to assure that the Site use is restricted to either commercial or industrial use in the future.

9.1.1 Contaminants of Concern

The COC vary by the media impacted and the soil cleanup track utilized. However, the COC for the Site generally include chlorinated VOCs within the soil vapor; PAHs, PCBs and metals in the surface soil; PAHs and metals in soil/fill and metals in the groundwater. The COC applicable to the cleanup tracks evaluated are presented in Section 9.4.1 Unrestricted Use Alternative, 9.4.2 Track 2-Restricted Commercial Use Alternative, and Section 9.4.3 Track 4-Restricted Commercial Use Alternative.

9.1.2 General Response Actions

The general response actions to address the identified contamination at the Site can include one or more of the following: treatment, containment, excavation, extraction, disposal, environmental engineering controls, and institutional controls. Potentially applicable remedial technologies to address the media impacted with COC at the Site are discussed below.

- Soil/fill impacted with VOC and SVOC can be treated via bioremediation. This includes the introduction of nutrients to increase naturally occurring microbe populations that will biodegrade various organic constituents (i.e., particularly VOCs and typically to a lesser degree SVOCs). Microbe populations can also be augmented by introducing additional microbes supplemented with nutrients. However, bioremediation is not an effective method for treating soil/fill impacted with metals.

- In-situ chemical oxidation is an advanced oxidation process used to reduce contaminant concentrations of organic contaminants by injecting strong chemical oxidants into the contaminated soil/fill. Chemical oxidation is a relatively rapid treatment process, but it requires careful planning and monitoring to control the injection process and maximize its effectiveness. Chemical oxidation is generally not an effective method to treat metals impacted soil/fill.

- Soil vapor extraction is an in-situ technology that reduces volatile constituents absorbed to soil/fill in the vadose zone, but it is less effective in the treatment of soil/fill impacted with SVOCs, and not an effective method of treating soil/fill impacted with metals.

- Solidification and stabilization is a widely used treatment technology to reduce/mitigate migration and exposure of contaminants in soil/fill and other media. Solidification refers to a process that binds a contaminated media with a reagent and stabilization refers to the process that involves a chemical reaction that reduces the leachability of the waste. The suitability and effectiveness of solidification and stabilization is dependent on the nature of the waste materials and subsurface conditions. Bench scale testing is generally required to determine specific admixtures required (e.g., proportion of lime, cement, etc.). Stabilization and solidification is an effective method for soil/fill impacted with VOCs, SVOCs and metals.

- Excavation and disposal is an effective method to address soil/fill at the Site that is impacted with VOC, SVOC and metals. This method requires the use of excavation equipment to physically remove impacted soil and transport the material to an off-site location for disposal. The extent of excavation required depends on field screening and confirmatory testing to assure soil/fill containing concentrations exceeding SCO is removed. Depending on the depth of excavation precautions are required to stabilize the excavation (i.e., shoring and potentially dewatering of the exaction) to prevent cave-in and protect buried utilities in the area of the excavation. In addition, excavations within the building at the Site would require the cutting and removal of the floor slab to allow access to the impacted soil/fill. Following receipt of confirmatory test results, the excavated areas would require backfill with “clean” fill and the floor slab would have to be restored.

- Environmental engineering controls and institutional controls are generally only applicable to the Track 4-Restricted Commercial Cleanup Use option, and these include physical barriers (e.g., the existing floor slab, installation of asphalt pavement, placement of a "clean" soil layer, etc.) to restrict access to soil/fill containing concentrations that exceed the commercial use SCO. Institutional controls are non-physical means of enforcing a restriction on the use property impacted with COC. Such actions would include the development of an environmental easement to control the future use of the property, development of a Site Management Plan (SMP) that would outline procedures for the handling of impacted soil if encountered in the future, etc.

General response actions to address the identified contamination in groundwater can include one or more of the following: treatment, containment, extraction, disposal, environmental engineering controls, institutional controls, and monitored natural attenuation. The response actions are primarily evaluated for application in addressing groundwater contamination deemed attributable to the Site (i.e., metals particularly chromium and potentially barium, selenium, thallium and magnesium) that exceeds NYSDEC TOGS 1.1.1 groundwater standards or guidance values. Potentially applicable remedial technologies to address groundwater at the Site that is impacted with COC are discussed below.

- Monitored natural attenuation (MNA) relies on natural biological and physiochemical processes that are controlled and monitored in conjunction with other cleanup actions (e.g., remediation of soil/fill impacted with COC) to achieve RAOs. Natural attenuation processes include a variety of physical, chemical and biological processes that can reduce mass, toxicity, mobility, volume and concentration of contaminants in the groundwater. Long-term monitoring is required to document the treatment process. MNA is generally considered effective for VOCs and SVOCs, but its effectiveness on addressing groundwater impacted with metals is largely dependent on the degree that the soil/fill remediation has reduced/eliminated contaminant loading.

- In-situ bioremediation of groundwater is similar to the bioremediation processes used to treat soil/fill, and its effectiveness can be increased by adding microbes if required. This method is effective in treating VOCs and to a lesser degree SVOCs, but it is not an effective method in the treatment of groundwater impacted with metals.

- In-situ chemical oxidation involves the injection of chemical oxidants into the groundwater plume to oxidize/destroy COC. This method is effective in the treatment of VOC and SVOC COC, but it is not particularly effective in the treatment of metals.

- A permeable reactive barrier (PRB) is a continuous barrier constructed to intercept and treat a contaminant plume. The treatment zone can include the placement of zero valent iron (ZVI) to treat and physically limit migration and the PBB can be augmented with carbon releasing material and nutrients to enhance microbe growth. As such, a PRB can provide a combination of physical, chemical and biological treatment. This treatment option is considered effective for the treatment of the VOC, SVOC and metals present at the Site.

- Pump and treat systems physically extract groundwater for aboveground treatment. The treatment system required depends on the nature of the contamination, but it could

include a combination of filters and granular activated carbon to treat groundwater impacted with VOCs, SVOCs and metals. The treated groundwater can be disposed off-site (e.g., into the municipal sewer system) or injected into the contaminated groundwater zone to assist in the flushing of the contaminants to expedite the treatment process.

- An air sparging system that includes the injection of air or oxygen enhanced air into the groundwater is an in-situ treatment process that serves to enhance microbe growth to biologically treat the groundwater and to physically strip contaminants to allow treatment. This method can be effective in the treatment of VOC and SVOCs but it is generally not effective in the treatment of metals.

General response actions to address the potential impact to the indoor air attributable to vapor intrusion can include one or more of the following: treatment, extraction, environmental engineering controls (e.g., mitigation), and institutional controls. The response actions are primarily evaluated for application in addressing NYSDOH indoor air guidance values attributable to the migration of soil gas. Potentially applicable remedial technologies to address soil vapor at the Site that is impacted with COC are discussed below.

- Treatment of soil vapor impacted with COC at the Site is not practical since a specific source was not identified. Further, it is not known if the soil vapor impacted with COC has resulted in adverse impact to the indoor air, since testing of adjacent soil vapor and indoor air has not been completed at the Site. Therefore the only practical way to address the potential impact to indoor air from soil gas that contains COC is to install a sub-slab depressurization system (SSDS) in the area of the impacted soil vapor to mitigate potential impacts to the indoor air. The SSDS initially requires testing to assess the zone of influence created by pumping air from the sub-slab at various rates to determine the size and spacing of collection fans. Following this determination, collection points are constructed, fans installed, and the soil vapor is transported via piping to the outdoor air. The SSDS is routinely monitored to assure it is functioning as designed.

9.2 Standards, Criteria and Guidance

DER-10 describes SCG as; “standards and criteria that are generally applicable, consistently applied, and officially promulgated, that are either directly applicable or not directly applicable but are relevant and appropriate, unless good cause exists why conformity should be dispensed with, and with consideration being given to guidance determined, after the exercise of scientific and engineering judgment, to be applicable. This term incorporates both the CERCLA concept of ‘applicable or relevant and appropriate requirements’ (ARARs) and the USEPA’s ‘to be considered’ (TBCs) category of non-enforceable criteria or guidance. The most common applicable SCGs are identified on the DEC website identified in the table of contents. For purposes of this Guidance, ‘soil SCGs’ means the soil cleanup objectives and supplemental soil cleanup objectives identified in 6 NYCRR 375-6.8 and the Commissioner Policy on *Soil Cleanup Guidance* (CP-Soil)”.

The SCG values used for this project are discussed in Section 3.67 and presented below:

- Appropriate SCO and other guidance as set forth in 6 NYCRR Part 375-3 Brownfield Cleanup Program dated December 14, 2006.

- Appropriate Soil Cleanup Levels (SCL) and other guidance as set forth in NYSDEC Policy CP-51/Soil Cleanup Guidance dated October 21, 2010.

- Guidelines referenced in the NYSDEC document titled "DER-10 Technical Guidance for Site Investigation and Remediation", May 2010.

- Appropriate water quality standards and guidance values (WQS/GV) as set forth in NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) document titled "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations", June 1998 and amended by a January 1999 Errata Sheet, an April 2000 Addendum and a June 2004 Addendum.

- City of Olean Sewer Use Permit Effluent Standards.

9.3 Future Use Evaluation

SolEpoxy, Inc. has occupied the building at the Site since 2010, and currently manufactures epoxy resins for use by others to manufacture electric components at off-site locations. It is anticipated that SolEpoxy, Inc. will continue this use in the future. However, portions of the building may be developed for uses to be determined. It is anticipated that these uses may include industrial uses similar to those completed by SolEpoxy, Inc., but it is also possible that commercial operations may also be housed within the building.

The remedial alternatives discussed herein assume that the future use of the Site will be restricted commercial use, which is consistent with the potential use of the facility and consistent with zoning of the area. In addition to the evaluation of remedial alternatives based on the anticipated future use of the Site, the unrestricted use scenario, which is considered under 6NYCRR Part 375-2.8 to represent cleanup to pre-disposal conditions, is also presented herein.

9.4 Alternatives Evaluation

The remedial actions proposed to address residual COC impacts at the Site are outlined in this section. In accordance with the provisions set forth in the DER-10 document, the effectiveness and acceptability of these remedial actions were evaluated for the following criteria, which are consistent with 6NYCRR Part 375-1.8(f).

- Protection of Human Health and the Environment. The ability of the proposed remedial actions to protect public health and the environment, and assesses how risks posed through existing or potential pathways of exposure are eliminated, reduced or controlled.

- Compliance with Standards, Criteria and Guidance (SCG). Compliance with SCG addresses whether or not the proposed remedial actions will meet applicable environmental laws, regulations, standards and guidance.

- Short-Term Impacts and Effectiveness. The potential short-term adverse impacts and risks of the proposed remedial actions upon the community, site workers and the environment during its construction and/or implementation of remedial actions including

identified adverse impacts and health risks to the community or workers at the Site, and how such issues will be controlled, and the effectiveness of said controls.

- Long-Term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the proposed remedial actions after implementation. The residual COC impact at the Site was assessed for the following items:
    - The magnitude of the remaining risks (i.e., Will there be significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals?);
    - The adequacy of the engineering and institutional controls intended to limit the risk;
    - The reliability of the these controls; and,
    - The ability of the remedy to continue to meet remedial action objectives in the future.
- Reduction of Toxicity, Mobility and Volume. The ability of the proposed remedial actions to reduce the toxicity, mobility or volume of COC.
- Implementability. The technical and administrative feasibility of implementing the proposed remedial actions. Technical feasibility includes the differences associated with the construction and the ability to monitor the effectiveness of the remedy. Administrative feasibility includes the availability of the necessary personnel and material, as well as, potential differences in obtaining specific operating approvals access for construction, etc.
- Cost Effectiveness. The relative overall cost effectiveness of the proposed remedial actions.
- Planned Future Use of the Site. This criterion is intended to evaluate the proposed remedial alternatives in relation to the planned future use of the Site. Presently, it is anticipated that the future uses of the Site would be the same as the past uses - that being industrial with the possibility of commercial use in portions of the building currently located on the Site.
- Community Acceptance. This criterion is intended to select remedial actions that are acceptable to the community.

9.4.1 Unrestricted Use Alternative

Remediation of the Site to pre-existing (i.e., uncontaminated conditions) assumes that soil/fill in locations throughout the Site (i.e., including locations beneath the building) would have to be remediated to achieve Unrestricted Use SCO.

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9.4.1.1 Contaminant Analysis

As summarized below, one or more surface soil and subsurface soil sample tested during this study contained concentrations of the following constituents that exceeded the Unrestricted Use SCO.

Surface Soil

VOCs: None
SVOCs: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Indeno(1,2,3-cd)pyrene
PESTICIDES/ PCBs: 4,4´-DDE, 4,4´-DDT, Endrin, Heptachlor, total PCBs
METALS: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Zinc

Subsurface Soil/Fill

VOCs: Acetone, Benzene, Methylene Chloride, Xylene (mixed), 1,2,4-Trimethylbenzene
SVOCs: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, Phenol
PESTICIDES/ PCBs: 4,4'-DDT, 4,4'-DDD, Chlordane (alpha)
METALS: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Zinc

Groundwater

A petroleum-impacted groundwater plume is located the in the western portion of the Site [i.e., the portion of the Site located generally west of the area where the 24-inch diameter sanitary sewer line bisects the Site (refer to Figure 5)]. This petroleum-impacted groundwater plume originated off-site and evidence was not detected during this study that conditions at the Site contributed to this plume. As such, this plume does not have to be remediated under the Unrestricted Use scenario, but monitoring is required to assure that conditions at the Site do not contribute to increasing impact as the plume migrates through the Site. Two monitoring wells contained elevated metal concentrations during each monitoring event conducted during the study that may be attributable to the Site (i.e., magnesium in groundwater samples from MW-H and chromium in groundwater samples from monitoring well MW-N). In addition, during one of the monitoring events the concentrations of thallium (MW-B, MW-E, MW-F, MW-G and MW-H), barium (MW-I and MW-M), and selenium (MW-J) contained elevated metal concentrations. The groundwater impact in MW-H and MW-N appears to be a localized occurrence since similar impact was not detected in the other monitoring wells, and the impact of thallium, barium and selenium is questionable since concentrations exceeding SCG were only measured during one of the monitoring events. Monitoring wells MW-H and MW-N are located within the limits of the petroleum-impacted groundwater plume. The impact to the groundwater from magnesium and chromium (and potentially other metals as discussed in Section 5.10) that appears attributable to the Site and must be addressed.

Soil Vapor

Soil vapor samples collected throughout the building at the Site contained concentrations of various VOCs that exceeded indoor guidance values established by the NYSDOH. The types and concentrations of the VOCs detected varied by location, but generally chlorinated VOCs (i.e., primarily TCE) were detected in the central portion of the building west of the 24-inch sanitary sewer line, and non-chlorinated VOCs (i.e., primarily acetone) were detected locations in the eastern portion of the building.

The estimated extent of soil/fill containing concentrations exceeding the Unrestricted Use SCO in the western portion of the Site is assumed to extend to a depth of 12.5 ft. bgs, and this area comprises about 154,000 ft^2. The estimated extent of soil/fill containing concentrations exceeding the Unrestricted Use SCO in the eastern portion of the Site extends to a depth of approximately 5 ft. bgs, and this area comprises about 103,000 square feet. The petroleum-impacted groundwater and the chlorinated VOC-impacted soil vapor areas are within the western portion of the Site where soil/fill containing concentrations exceeding the Unrestricted Use SCO was identified. The non-chlorinated VOC-impacted area is located within the eastern portion of the Site where soil/fill containing concentrations exceeding the Unrestricted Use SCO was identified.

9.4.1.2 Remedy Selection

Eleven metals are among the parameters that exceeded the Unrestricted Use SCO. Concentrations of metals in soils cannot be effectively reduced through in-situ treatment, and must be physically removed to meet the remedial objective. As such, source area excavation and removal was selected as the Unrestricted Use remedy.

Based on the contaminant analysis summarized in Section 9.4.1.1, it is estimated that source excavation and removal for this remedy would require removal of Site soils to a depth of up to 12.5 ft. bgs in the western portion of the Site (154,000 square feet), and to a depth of up to 5 ft. bgs in the eastern portion of the Site (103,000 square feet). Observed exceedances of the Unrestricted Use SCO were widespread throughout the footprint of the building, and it is assumed that closure and demolition of the building would be required to complete the source area excavation and removal remedial activity.

Completion of the source excavation and removal remedy would meet Unrestricted Use SCO, and is also expected to address any potential soil vapor intrusion issues at the Site. The source excavation remedy would not address remediation of petroleum contaminated groundwater, which originates off-site and is not the responsibility of the Owner under the BCP. However, subsequent to the soil removal groundwater monitoring would be conducted to document the effectiveness of MNA in reducing petroleum impact to the extent possible. In addition, it is anticipated that groundwater monitoring would assess the effectiveness of the removal action in reducing the concentrations of metals detected in the groundwater that may be attributable to the Site, and to confirm that mobility of these groundwater contaminants is not a concern.

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9.4.1.3 Remedy Assessment

Protection of Human Health and the Environment. It is anticipated that the Unrestricted Use remedy would be fully protective of human health and the environment, as removing contaminated soil and fill from the Site would eliminate potential exposure pathways to these materials. Groundwater concerns primarily relating to off-site contamination sources would remain; however, the Site soils/fill would have no known potential adverse impacts upon groundwater.

Compliance with Standards, Criteria and Guidance (SCG). It is anticipated that the Unrestricted Use remedy would be fully compliant with applicable SCG for surface and subsurface soil/fill, including Unrestricted Use SCO, thus resulting in a clean Site with no future use restrictions. Groundwater concerns primarily relating to off-site contamination sources would remain; however, the Site soils/fill would have no known potential adverse impacts upon groundwater.

Short-Term Impacts and Effectiveness. Short-term adverse impacts include: (1) the loss of the building for corporate use and employment purposes; (2) disturbance of contaminated soil and fill, creating risks of potential exposure to workers and area residents during completion of the source area removal and disposal activities; and (3) miscellaneous adverse impacts upon local residents resulting from noise, truck traffic, equipment exhaust, demolition dust, etc. Health risks to the community and workers at the Site can be effectively minimized through the development and implementation of a Site-specific work plan and health and safety plan, including a community air monitoring program component. Other adverse impacts are essentially unavoidable, but can be somewhat minimized through management and control of the remedial activities, including selective scheduling of activities, routing of traffic, etc.

Long-Term Effectiveness and Permanence. The Unrestricted Use remedy would result in contaminated soil and fill being permanently removed from the Site, with no significant residuals remaining, and no IC/ECs required for Site management. Upon completion of the source removal and disposal activities, no known significant threats, exposure pathways, or risks to the community and environment would remain. Groundwater concerns relating to off-site contamination sources may persist; however, the Site soils/fill would have no remaining potential adverse impacts upon groundwater.

Reduction of Toxicity, Mobility and Volume. Removing contaminated soil and fill from the Site to Unrestricted Use SCO levels would result in a complete and permanent reduction in the volume of contaminants in the Site soils. Metals in groundwater that resulted from leaching from the soil/fill at the Site would be reduced, but contaminants attributable to off-site contamination sources would not be reduced.

Implementability. The Unrestricted Use remedy is technically and administratively feasible, though it is anticipated that the size and scope of this activity would limit the amount of contractors that are capable of completing the job. Engineering, design, and construction requirements to replace the 250,000+ square foot building following remedial completion is similarly technically and administratively feasible, but would require significant work, expertise and permitting.

Planned Future Use of the Site. Presently, it is anticipated that the future uses of the Site would be the same as the past uses - that being industrial with the possibility of commercial use in portions of the building currently located on the Site. Remediation to Unrestricted Use standards is fully compatible with the planned future use of the Site.

Community Acceptance. Response of the community to the short-term impacts identified above is unknown. Temporary loss of employment is a potentially significant impact that is typically viewed negatively. This could potentially be offset by temporary construction employment, though it is unknown how much local labor would be qualified and/or utilized for this given the size and scope of the project. It is assumed that the community would have no long-term issues with the remedy, as the future use of the Site would be the same as it has been in the past.

Cost Effectiveness. Due to the need for closure and demolition of the building, remedial costs (including construction of a new building upon completion of source excavation and removal activities) are very high. As shown in Table 8, total capital/initial remedial costs exceed $42,000,000.00 for this alternative, and as such, remediation to the unrestricted use standards is not considered a cost effective remedial option for this Site.

9.4.2 Track 2-Restricted Commercial Use Alternative

This scenario assumes that IC/ECs can not be used as part of the remediation of the Site. As such, soil/fill containing concentrations exceeding the commercial SCO can not be left in place without treatment or removal.

9.4.2.1 Contaminant Analysis

As described in Section 5.10 and summarized below, surface soil and subsurface soil samples from portions of the Site that were tested during this study contained concentrations of the following constituents that exceeded the Commercial Use SCO.

Surface Soil

VOCs: None
SVOCs: Benzo(a)pyrene
PESTICIDES/ PCBs: total PCBs
METALS: Arsenic, Cadmium, Copper, Mercury, Nickel

Subsurface Soil/Fill

VOCs: None
SVOCs: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, Phenol
PESTICIDES/ PCBs: None
METALS: Arsenic, Barium, Cadmium, Copper, Lead, Mercury, Nickel, Zinc

Groundwater

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The impacts to the groundwater under the Track 2-Restricted Commercial Use alternative are the same as discussed in Section 9.4.1

Soil Vapor

As detailed in Section 5.2, the areal extent of soil vapor containing COC (i.e., TCE and PCE) impacts in excess of NYSDOH indoor air guidance values is approximately 11,575 ft^2. This area is located in the central portion of the building (refer to Figure 12).

Based upon the work completed to date, the soil/fill in apparently localized areas in interior and exterior portions of the Site contains concentrations that exceed the Commercial Use SCO. For purposes of this evaluation, it is assumed that the soil/fill in the following locations inside the building at the Site contain concentrations that exceed the Commercial Use SCO to the approximate depths indicated.

Location in Current Building	**Areal Extent**	**Concrete Floor Thickness**	**Thickness of Soil/Fill with Concentrations exceeding Commercial Use SCO**	**Estimated Removal Quantities**
Room north of Finished Goods Cooler (former Raw Material Storage Area)	3,000 ft^2	5.5 inches (assume 0.5 ft.)	11.5 ft.	56 yd^3 concrete 1,278 yd^3 soil/fill
Production Area below Mezzanine	4,000 ft^2	5 inches (assume 0.4 ft.)	12.1 ft.	60 yd^3 concrete 1,793 yd^3 soil/fill
Maintenance Department	2,400 ft^2	assume 0.5 ft.	4.1 ft.	45 yd^3 concrete 2,400 yd^3 soil/fill
Boiler Room Vault	1,300 ft^2	N/A	4.5 ft.	217 yd^3 consisting of bricks/concrete/soil/fill
Packaging Area	4,225 ft^2	4 inches (assume 0.3 ft.)	4.2 ft.	47 yd^3 concrete 657 yd^3 soil/fill
Lab Area	900 ft^2	assume 0.5 ft.	4 ft.	17 yd^3 concrete 133 yd^3 soil/fill
Flammable Storage Room	750 ft^2	1 ft.	2.5 ft.	28 yd^3 concrete 56 yd^3 soil/fill
			Total	**253 yd^3 concrete** **4,490 yd^3 soil/fill**

It is assumed that the soil/fill in the following locations in exterior portions of the Site contain concentrations that exceed the Commercial Use SCO to the approximate depths indicated (refer to Figure 11 for approximate locations).

Location	Areal Extent	Thickness of Soil/Fill with Concentrations exceeding Commercial Use SCO	Estimated Removal Quantities
Landscape Area in Proximity of Franklin Street	1,125 ft^2	1 ft.	42 yd^3 soil/fill
Western Portion of Site	7,500 ft^2	3.5 ft.	972 yd^3 soil/fill
Southern Portion of Site	10,800 ft^2	3.5 ft.	1,400 yd^3 soil/fill
Eastern Portion of Site	7,200 ft^2	1 ft.	267 yd^3 soil/fill
		Total	**2,681 yd^3 soil/fill**

Note: The areal extent and thickness of soil/fill that contains concentrations exceeding Commercial Use SCO may vary. The actual extent of impact would be determined at the time of remediation via confirmatory testing.

9.4.2.2 Remedy Selection

Under this scenario, the presence of arsenic, barium, cadmium, copper, lead, mercury, nickel, zinc and PCBs in the surface soil and the soil/fill at concentrations that exceed the Commercial Use SCO require a remedy that either includes solidification/stabilization or excavation/removal. While solidification/stabilization is a viable option, the difficulty of implementing this option inside the building and the uncertain extent of some of the locations requiring treatment make this option unfeasible. Therefore only the excavation/removal option is considered herein.

The currently anticipated extent of soil/fill requiring removal is summarized in Section 9.4.1. However, as stated the actual quantity of material requiring removal is dependent on confirmatory test results. As such, the quantities may be greater than tabulated above.

The portion of the Site containing COC in the soil vapor will be mitigated by the installation of a SSDS and the subsequent testing of indoor air samples to confirm that this system is adequate to address impacts.

Groundwater impacted with petroleum-related constituents from an off-site source migrating onto the Site is not the responsibility of the Owner under the BCP. However, groundwater impacted with metals that may be attributable to the Site must be addressed under this scenario. To this end, groundwater monitoring will be conducted to assess the effectiveness of the soil/removal on groundwater quality. It is anticipated that the groundwater monitoring program would include the following:

Year 1: Quarterly Samples

- Sample monitoring wells MW-B through MW-N (12 wells), 1 trip blank, 1 field blank and 1 MS/MSD sample using Low-Flow sampling methods
- Test each sample via ASP protocol for TCL VOCs plus TICS, TCL SVOCs plus TICs and TAL metals (except the trip blank, which would only be tested for TCL VOCs plus TICs)
- Complete a DUSR following receipt of the analytical laboratory data

Year 2 through Year 5: Bi-Annual Samples

- Sample monitoring wells MW-B through MW-N (12 wells), 1 field blank and 1 MS/MSD sample using Low-Flow sampling methods
- Test each sample via ASP protocol for TAL metals
- Complete a DUSR following receipt of the analytical laboratory data

Year 6 through Year 30: Annual Samples

- Sample six monitoring wells (specific wells to be determined), 1 field blank and 1 MS/MSD sample using Low-Flow sampling methods
- Test each sample via ASP protocol for TAL metals
- Complete a DUSR following receipt of the analytical laboratory data

9.4.2.3 Remedy Assessment

Protection of Human Health and the Environment. It is anticipated that the Track 2- Restricted Commercial Use remedy would be protective of human health and the environment, as removing soil and fill from the Site that contains concentrations that exceed the Commercial Use SCO would reduce exposure pathways to these materials. Groundwater concerns relating to off-site contamination sources would remain; however, the elimination of soil/fill containing concentrations of metals that exceed the Commercial Use SCO should help to reduce impacts to the groundwater from these constituents.

Compliance with Standards, Criteria and Guidance (SCG). The Track 2- Restricted Commercial Use remedy would be compliant with applicable SCG, including Commercial Use SCO, and IC/ECs would not be required.

Short-Term Impacts and Effectiveness. Short-term adverse impacts include: (1) disruption of manufacturing operations in areas where soil removal activities are conducted; (2) disturbance of contaminated soil and fill, creating risks of potential exposure to workers and site workers during completion of the source area removal and disposal activities; and (3) miscellaneous adverse impacts upon local residents resulting from noise, truck traffic, equipment exhaust, demolition dust, etc. Health risks to the community and workers at the Site can be effectively minimized through the development and implementation of a Site-specific work plan and health and safety plan, including a community air monitoring program component. Other adverse impacts are essentially unavoidable, but can be somewhat minimized through management and control of the remedial activities, including selective scheduling of activities, routing of traffic, etc.

Long-Term Effectiveness and Permanence. The Track 2- Restricted Commercial Use remedy would result in some contaminated soil and fill being permanently removed from the Site. While some constituents would remain at concentrations that exceed the Unrestricted Use SCO, no significant residuals would remain, and no IC/ECs would be required for the intended future use of the Site. Upon completion of the source removal and disposal activities, significant threats, exposure pathways, or risks to the community and environment would be reduced. Groundwater concerns relating to off-site contamination sources may persist; however, impacts to the groundwater from metals present in the soil/fill at concentrations exceeding the Commercial Use SCO would be reduced following excavation and removal.

Reduction of Toxicity, Mobility and Volume. Removing contaminated soil and fill from the Site to Track 2- Restricted Commercial Use SCO would server to reduce the volume of contaminants in the Site soils. Metals in groundwater that resulted from leaching from the soil/fill at the Site would be reduced, but contaminants attributable to off-site contamination sources would not be reduced.

Implementability. The Track 2- Restricted Commercial Use remedy is technically and administratively feasible, though the size and scope of this activity may limit the amount of contractors that are capable of completing the job. Engineering, design, and construction requirements are similarly technically and administratively feasible, but would require significant expertise.

Planned Future Use of the Site. Presently, it is anticipated that the future uses of the Site would be the same as the past uses - that being industrial with the possibility of commercial use in portions of the building currently located on the Site. Remediation to Track 2- Restricted Commercial Use remedy is compatible with the planned future use of the Site.

Community Acceptance. Response of the community to the short-term impacts identified above is unknown. It is assumed that the community would have no long-term issues with the remedy, as the future use of the Site would be the same as it has been in the past.

Cost Effectiveness. The excavation of localized areas within the building will require the removal and replacement of building floor slabs as well as the relocation of manufacturing operations during this work. Since confirmatory testing is required to determine if sufficient soil/fill has been removed, an extended removal and reconstruction process will be required. In the event confirmatory test results detect additional soil/fill requiring removal, the timeframe for the remedial work and associated costs would increase. As such, the cost to implement this remedy is considered high and subject to increases due to numerous unknowns. As shown in Table 9, total capital/initial remedial costs are estimated to exceed $2,350,000 for this alternative (total 30-year present worth cost of about $2,480,000).. As such, the Track 2- Restricted Commercial Use is not considered a cost effective remedial option for this Site.

9.4.3 Track 4-Restricted Commercial Use Alternative

This scenario assumes that IC/ECs can be used as part of the remediation of the Site. As such, soil/fill containing concentrations exceeding the commercial SCO can be left in place without treatment or removal provided applicable IC/ECs are implemented and maintained.

9.4.3.1 Contaminant Analysis

As described in Section 5.10 and summarized below, surface soil and subsurface soil/fill samples from portions of the Site that were tested during this study contained concentrations of the following constituents that exceeded the Commercial Use SCO.

Surface Soil

VOCs: None
SVOCs: Benzo(a)pyrene
PESTICIDES/ PCBs: total PCBs
METALS: Arsenic, Cadmium, Copper, Mercury, Nickel

Subsurface Soil/Fill

VOCs: None
SVOCs: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, Phenol
PESTICIDES/ PCBs: None
METALS: Arsenic, Barium, Cadmium, Copper, Lead, Mercury, Nickel, Zinc

The locations on the Site where soil/fill samples tested during this study contained concentrations of constituents that exceeded the Commercial Use SCO are presented on Figure 11. As shown, an approximate area of 26,625 ft^2 in exterior portions of the Site contains soil/fill at concentrations of constituents that exceed the Commercial Use SCO. The extent of soil/fil in interior locations that contain constituent concentrations that exceed the Commercial Use SCO likely exceeds the 16,575 ft^2 listed in Section 9.4.2. However, since all of this material is currently below the concrete floor of the building, which is deemed a suitable EC the extent of such impact is not relevant under the Track 4-Restricted Commercial Use remedy.

Groundwater

The impacts to the groundwater under the Track 4-Restricted Commercial Use alternative are the same as discussed in Section 9.4.1

Soil Vapor

As detailed in Section 5.2, the areal extent of soil vapor containing COC (i.e., TCE and PCE) impacts in excess of NYSDOH indoor air guidance values is approximately 11,575 ft^2. This area is located in the central portion of the building (refer to Figure 12).

9.4.3.2 Remedy Selection

The metals arsenic, barium, cadmium, copper, lead, mercury, nickel, and zinc as well as total PCBs were detected in the surface soil and the soil/fill at concentrations that exceed the Commercial Use SCO. Concentrations of these constituents in soil cannot be effectively reduced through in-situ treatment, and must be physically removed to meet the remedial objective or left in place and addressed through use of IC/ECs. Under the contaminant analysis summarized in

Section 9.4.3.1, it is estimated that soil/fill containing concentrations in excess of the Commercial Use SCO is present in an approximate 26,625 ft^2 area in exterior portions of the Site, and an area of at least 16,575 ft^2 in interior portions of the Site contains concentrations in excess of the Commercial Use SCO. In consideration of the contaminants, concentrations, hazards, and remedial costs, a Restricted Commercial Use – Track 4 remedy was selected that would include the following remedial components (refer to Figure 2 for remedy component locations):

- Excavation and removal of an estimated 42 cubic yards of contaminated soil in a landscape area located adjacent to Franklin Street.

- Install an asphalt cover (approximately 25,000 square feet) around perimeter of building to prevent stormwater infiltration and contact with soils.

- Maintaining the current floor slab that covers soil/fill impacted with concentrations of COC that exceed the Commercial Use SCO to prevent stormwater infiltration and contact with soils.

- Install a SSDS and complete indoor air monitoring to address potential soil vapor intrusion.

- Monitoring the condition of the cover, operation of the SSDS and groundwater to confirm that IC/ECs are effective.

Implementation of the above remedy would meet BCP Track 4 requirements for Restricted Commercial Use, and is also expected to address potential soil vapor intrusion issues at the Site. This remedy would not address remediation of petroleum contaminated groundwater, which originates off-site and is not the responsibility of the Owner under the BCP, but the long-term groundwater monitoring program described below would be implemented to address impacts that may be attributable to the Site.

<u>Year 1: Quarterly Samples</u>

- Sample monitoring wells MW-B through MW-N (12 wells), 1 trip blank, 1 field blank and 1 MS/MSD sample using Low-Flow sampling methods
- Test each sample via ASP protocol for TCL VOCs plus TICS, TCL SVOCs plus TICs and TAL metals (except the trip blank, which would only be tested for TCL VOCs plus TICs)
- Complete a DUSR following receipt of the analytical laboratory data

<u>Year 2 through Year 5: Bi-Annual Samples</u>

- Sample monitoring wells MW-B through MW-N (12 wells), 1 field blank and 1 MS/MSD sample using Low-Flow sampling methods
- Test each sample via ASP protocol for TAL metals
- Complete a DUSR following receipt of the analytical laboratory data

Year 6 through Year 30: Annual Samples

- Sample six monitoring wells (specific wells to be determined), 1 field blank and 1 MS/MSD sample using Low-Flow sampling methods
- Test each sample via ASP protocol for TAL metals
- Complete a DUSR following receipt of the analytical laboratory data

9.4.3.3 Remedy Assessment

Protection of Human Health and the Environment. It is anticipated that the Restricted Commercial Use remedy would effectively provide protection of human health and the environment. Maintenance of Site cover (building and surrounding asphalt) minimizes potential exposure pathways to the underlying soils, and continued monitoring will ensure that adversely impacted groundwater is not further impacted and does not migrate off-site.

Compliance with Standards, Criteria and Guidance (SCG). It is anticipated that the Restricted Commercial Use remedy would be compliant with BCP Track 4 requirements applicable for Restricted Commercial Use, which allows for conditional exceedance of select Restricted Commercial Use SCO.

Short-Term Impacts and Effectiveness. Short-term adverse impacts are minimal, as the remedy involves limited disturbance of contaminated soil and fill. A relatively small (approximately 1,100 square foot) area will be disturbed for excavation and removal of contaminated soil outside of the front of the building, and several small holes will be drilled through the facility's concrete slab for installation of the SSDS. These minor disturbances will create low risks of potential exposure to workers and area residents during implementation of the remedy. Health risks to the community and workers at the Site can be effectively addressed through the development and implementation of a Site-specific work plan and health and safety plan, including a community air monitoring program component.

Long-Term Effectiveness and Permanence. The Restricted Commercial Use remedy would result in impacted soil and fill being left in place at the Site, some of which exceeds SCO for restricted commercial use, and would rely on IC/ECs for Site management. This remedy is a standard BMP Track 4 approach that has proven long-term effectiveness at many sites, and.is dependent upon the effectiveness of the IC/ECs in eliminating the potential exposure pathways. Future monitoring at the Site will ensure that the remedy remains effective in providing continued protection of human health and the environment.

Reduction of Toxicity, Mobility and Volume. The proposed remedy will result in limited reduction of toxicity and volume through limited excavation and removal of material. Much of the impacted soil and fill will remain in place, but the mobility of these materials will be minimized/eliminated through the use of IC/ECs, which provide impermeable cover and minimize/eliminate potential migration and exposure pathways. Contaminants in groundwater would not be reduced, but these are isolated and localized, and would be monitored to confirm they remain relatively immobile.

Implementability. The Restricted Commercial Use remedy is technically and administratively feasible in relation to the anticipated future use of the Site for industrial/commercial building use. In addition, labor and material needs for this remedy are limited and readily available.

Planned Future Use of the Site. Presently, it is anticipated that the future uses of the Site would be the same as the past uses - that being industrial with the possibility of commercial use in portions of the building currently located on the Site. Remediation to Restricted Commercial Use standards is fully compatible with the planned future use of the Site.

Community Acceptance. It is anticipated that there would be no community objections to the short-term impacts identified above. It is similarly assumed that the community would have no long-term issues with the remedy, as the future use of the Site would be the same as it has been in the past.

Cost Effectiveness. As shown in Table 9, total capital/initial remedial costs are estimated at $318,000.00 for this option (total, 30-year present worth cost of about $478,000). As such, remediation to the restricted commercial use standards is much more cost effective than the alternative remediation to unrestricted use standards evaluated in Section 9.4.1 or the Track 2-Restricted Commercial Use standards evaluated in Section 9.4.2.

9.5 Recommended Remedial Measure

The recommended remedial measure for this Site is Track 4-Restricted Commercial Use Alternative described in Section 9.4.3 coupled with the IRMs described in Section 7.0. The recommended remedial measure is presented on Figure 12.

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10.0 RI/AA CONCLUSIONS

The findings and conclusions of the RI and a conceptual model developed based on the work completed are summarized in this section. In addition, the recommended remedial measures to address contamination identified are also presented.

10.1 RI Summary and Conclusions

Background and Site History

The Site is located in an industrial-use urban area in the Northwest Quadrant district of the City of Olean, New York, and is within the boundary of the New York State Department of State (NYSDOS) Brownfield Opportunity Area (BOA) identified as the City of Olean Northwest BOA. The approximate 5.79 acre Site is currently developed with an approximate 280,000-square foot, two-story industrial building with a partial basement. Approximately 89% of the Site is covered with the building footprint. The remaining 11% of the Site is comprised of grass-covered and landscaped areas on the northern portion and gravel-covered areas on the western and southern portions.

Industrial activities have been conducted on the Site since at least 1882 and these include:

- The Olean Chemical Company was located on the western portion of the Site between at least 1882 until around 1898 when a portion of the facility was partially destroyed by a fire.

- A glass bottle manufacturing facility was constructed on the Olean Chemical Co. property in about 1906 and this facility was destroyed by a fire and explosion in 1907.

- Olean Metal Cabinet Works was constructed on the western portion of the Site sometime around 1932 and the facility operated until around 1934.

- The Daystrom Corporation occupied the building on the western portion of the Site sometime after 1934, subsequently expanded the building, and operated until at least 1961 to manufacture metal furniture and metal wares. Daystrom Corporation constructed another addition on the eastern side the building at the Site sometime between 1943 and 1949, and this addition was constructed over the Spruce Street ROW and a portion of the West Connell Avenue ROW.

- Hysol, a Division of the Dexter Corporation, occupied the Site sometime after 1966, and operated until at least 1996, manufacturing plastics and epoxy resins.

- The Henkel Corporation occupied the Site in 2001, and operated until 2011, manufacturing adhesive and sealants.

- SolEpoxy, Inc. has occupied the building at the Site since 2010, and currently manufactures epoxy resins for use by others to manufacture electric components at off-site locations.

Utilities

A 6-inch diameter municipal water line that services the Site is located within West Connell Street, and this line enters the building near the southeastern corner of the building (i.e., within the current Receiving Warehouse).

A 15-inch municipal storm sewer line that connects to an 18-inch municipal storm sewer line in proximity of the northeastern corner of the Site is located on the north side of Franklin Street in proximity of the Site. Catch basins for the municipal storm sewer in this area are located within Franklin Street, and this line is also connected to the building at the Site in the current Lab Utility Room. A 12-inch storm sewer line is located on the northern side of the current Receiving Warehouse in the building, and this line flows to the northeast where it connects to an 18-inch municipal storm sewer line near the southeastern corner of the Site (i.e., within West Connell Street). The municipal storm sewers are approximately 3 ft. bgs in proximity of the Site (approximate invert elevation 1427 ft.). Roof drains and select drains within the building collect surface water and discharge either into the municipal storm sewers or sanitary sewers.

Two large municipal sanitary sewer lines are located beneath the building at the Site, and these lines bisect the property in the approximate center of the building. These lines were originally constructed within the West Connell Street and Spruce Street right-of-ways and subsequently covered with the building as it expanded to its current configuration. The municipal sanitary sewer lines include a 24-inch diameter sewer line and an adjacent an 8 to 10-inch diameter line. The 24-inch sanitary sewer line is approximately 17 ft. bgs deep (approximate invert elevation 1413 ft.) within the building at the Site. The 8 to 10-inch diameter line is approximately 6 ft. bgs deep (approximate invert elevation 1424 ft.) within the building at the Site. Other smaller diameter sanitary sewer lines that connect to the larger sewers are also located within the building.

Site Features and Subsurface Conditions

The Site is located at latitude (north) 42° 5’ 41.225” and longitude (west) 78° 26’ 23.622” and the ground surface elevation at the Site is approximately $1{,}430^{\pm}$ ft. above sea level (USGS Datum). The nearest surface water bodies to the Site include Olean Creek (listed as a Class C water body by the NYSDEC), which is located approximately 2,400 ft. east-southeast of the Site, and Two Mile Creek, which is intermittingly connected to an unnamed creek, (listed as a Class D water body by the NYSDEC) that is located approximately 1,500 ft. north of the Site.

The Site is located within an area designated by the USGS as a primary water supply aquifer (Olean). A primary water supply aquifer is defined as: “A highly productive aquifer that is being used as a source of water supply in major public-supply systems.” The City of Olean obtains drinking water from groundwater supply wells located on Richmond Avenue (located about 2.3 miles southeast of the Site), East River Road (located about 2.45 miles southeast of the Site), and from Olean Creek. The water intake for Olean Creek is located at the River Street water treatment plant, approximately 2,000 ft. east of the Site, and hydraulically upgradient of the Site.

The Site is located in the glaciated Allegheny Plateau, which is characterized by steep valley walls, wide ridge tops and flat-topped hills that are intersected with drainage ways that flow towards the valley floor.

The overburden material at the Site generally consists of stratified drift deposits comprised of outwash and kame deposits consisting primarily of sand and gravel with lesser amounts of silt in some locations. With depth, lacustrine silts and clays (i.e., the remnants of glacial lakes and post-glacial lakes that formed as the glaciers retreated northward) are evident near the bottom of the outwash deposits. The overburden thickness at the Site is estimated to exceed 200 ft., and the rock underlying the overburden is comprised of gray and black shale interbedded with gray siltstone and sandstone of the Conneaut Group, also referred to as the Chadakoin Formation.

The ground surface in exterior portions of the Site to the northwest and northeast is covered by approximately 0.5 ft. of topsoil and roots in landscaped areas or about 0.7 ft. of asphalt pavement. The ground surface in exterior portions of the Site to the southeast and southwest is typically covered with an approximate 0.5-foot thick layer of gravel/stone fill. Heterogeneous fill typically comprised of reworked soil (e.g., primarily sand and gravel) intermixed with lesser amounts of slag, ash, bricks, concrete and glass that generally extend to a depths ranging between about 2 ft. and 5.5 ft. bgs or approximate elevations 1428 ft. to 1424.5 ft. underlies the surfical cover material.

The concrete floor slab of the building on the Site is approximately 4 ft. higher than the ground surface in exterior portions of the Site (i.e., the concrete floor of the building at the Site ranged in elevation between about 1433.9 ft. and 1434.25 ft. in the locations of the monitoring wells installed during this study). The increase in elevation was created by the placement of fill material that generally consists of reworked soil fill (i.e., typically fine to medium sand and gravel that contains varying amounts of concrete, brick, cinders and ash depending on location) and the concrete floor slab. [Note: Locations containing more cinders and ash appear to be in proximity to former railroad spur lines that previously traversed the Site.] The fill material beneath the building at the Site generally extends to depths ranging between 5 ft. and 8 ft. bgs or approximate elevations 1429 ft. to 1426 ft. However, in some locations (i.e., particularly in the western portion of the building, which was the location of earliest industrial development on the Site) the fill extends to depths ranging between about 12 ft. and 15 ft. bgs or approximate elevations 1422 ft. to 1419 ft.

The indigenous soil beneath the fill at the Site generally consists of fine to medium sand and fine to coarse gravel deposits that extended to the bottom of the test borings advanced during this study. Bedrock was not encountered in the test borings advanced during this study. The deepest test boring completed during this study extended to a depth of 52.0 ft. bgs or an elevation of about 1378 ft.

Groundwater Conditions

Regionally groundwater flow is generally to the southwest eventually discharging into the Allegheny River; however in proximity of the Site groundwater appears to flow generally to the east-southeast with a southwesterly component in the southern portion of the Site that is more pronounced as the groundwater levels decrease seasonally.

The depth to groundwater at the Site varies seasonally. The groundwater elevations ranged from about 1.9 ft. to about 2.2 ft. lower during the September 30, 2014 sampling event than they were during the July 10, 2014 sample event. On July 10, 2014, the depth to groundwater ranged between about 17.6 ft. bgs and 21 ft. bgs in monitoring wells positioned in exterior locations, and

about 23.1 ft. bgs and 23.4 ft. bgs in monitoring wells positioned in interior locations. On September 30, 2014, the depth to groundwater in exterior monitoring wells ranged between about 19.7 ft. bgs and 23.4 ft. bgs, and between about 25.2 ft. bgs and 25.6 ft. bgs in interior monitoring wells.

Using the range of calculated hydraulic conductivities (1.63 ft/day to 4.68 ft/day) and average horizontal gradients (0.0007 ft/ft to 0.007 ft/ft), and an estimated porosity of 0.3; groundwater flow at the Site was calculated to range between about 0.0038 ft./day and 0.109 ft./day.

Extensive pumping was undertaken in the 1970s and 1980s to contain a dissolved nitrogen spill and prevent contaminated groundwater from impacting the municipal water supply wells. Some of the wells that were pumped at rates as high as 10 million gallons per day included wells located adjacent to the southwest boundary of the Site. During this pumping, a 20 ft. to 30 ft. deep cone of depression was created.

Field Evidence of Environmental Impact

Although some of the fill material contained evidence of apparent C&D-type debris and/or remnants of previous railroad spur lines (e.g., ash, coal, etc.), limited field evidence of potential environmental impact (i.e., staining, unusual odors, elevated PID readings, etc.) was detected within the fill material in the test borings advanced during this study.

Field evidence of petroleum impact in the soil (i.e., petroleum odors, staining, elevated PID readings, etc.) was encountered in test borings located in the approximate western half of the Site that were advanced into the top of the groundwater table. The petroleum impact (where present) extended from around the groundwater surface to the bottom of the test borings advanced during this study (e.g., petroleum-impact was identified in test boring TB-108 between depths of about 24 ft. bgs and 52 ft. bgs or approximately elevation 1406 ft. to elevation 1378 ft.). It is suspected that the extensive pumping in the 1970s and 1980s to control a nitrogen plume lowered the groundwater and created the extensive smear zone of petroleum-impacted soil.

Soil Vapor

Various chlorinated and/or non-chlorinated VOCs were detected in sub-slab soil vapor samples and three exterior perimeter soil vapor samples evaluated during this study. VOCs that were detected at generally higher concentrations and/or are constituents that were historically used at the Site include acetone, MIBK, tetrachloroethene (PCE) and trichloroethene (TCE). Soil vapor impacted with TCE, and to a lesser extent PCE, is located the central portion of the Site (i.e., west and in proximity of the 24-inch and 10-inch sanitary sewer lines). The soil vapor samples in the area impacted with elevated concentrations of TCE typically also contained PCE. Although concentrations of acetone and MIBK were detected throughout the Site, the highest concentrations were typically found in areas east of the 24-inch and 10-inch sanitary sewer lines, with the highest acetone concentrations detected in the southeastern portion of the Site within the current Pilot Plant area of the building. The areal extent of acetone impact in this portion of the Site appears limited as adjacent samples were not similarly impacted. Additionally, one soil vapor sample, collected from the northwest portion of the Site, contained elevated gasoline-related VOCs of ethylbenzene, m/p-xylene, o-xylene and toluene. However, the areal extent of

gasoline-related VOCs in this portion of the Site appears limited as adjacent samples were not similarly impacted.

The potential for elevated concentrations of VOCs to migrate through the soil vapor into off-site residential locations (i.e., generally east and southeast of the Site) was evaluated as part of this study. With the exception of acetone that was detected at concentrations below the indoor air guidance values presented in the NYSDOH Guidance Document, MIBK, PCE or TCE were not detected in the samples collected from these locations.

Surface Soil

The concentrations of the following PAH SVOCs exceed their respective Unrestricted Use SCO in one or more surface soil samples: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene. The concentrations of the SVOC benzo(a)pyrene in surface soil samples SS-6, SS-7 and SS-8 also exceed the Commercial Use SCO.

The concentrations of the following pesticide/herbicide and/or PCB compounds exceed their respective Unrestricted Use SCO in one or more surface soil samples: 4,4´-DDE, 4,4´-DDT, endrin, and PCBs . The concentration of PCBs in surface soil sample SS-5 also exceeds the Commercial Use SCO.

The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more surface soil samples: arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. The concentrations of arsenic in surface soil samples SS-4, SS-7 and SS-8, and the concentrations of cadmium, copper, and nickel in surface soil sample SS-5 also exceed the Commercial Use SCO.

Soil/Fill

The concentrations of the following VOCs exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: acetone, benzene, methylene chloride, 1,2,4-trimethylbenzene, and mixed xylenes. The concentrations of VOCs reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO.

The concentrations of the following SVOCs exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples tested: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, and phenol. The concentrations of the SVOC benzo(a)pyrene in subsurface soil/fill samples MW-K(1-2'), TB-107(12.5'), TB-110(4') and TB-124(2-4') also exceed the Commercial Use SCO. Further, the concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene in subsurface soil/fill sample TB-107(12.5') exceed the Commercial Use SCO, and the concentration of hexachlorobenzene in subsurface soil/fill sample MW-F(1.5') exceeds the Commercial Use SCO.

The concentrations of the following pesticide/herbicide and PCB compounds exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: 4,4'-DDT, 4,4'-

DDD, and alpha chlordane. The concentrations of pesticide/herbicide and reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO. PCBs were not detected in the subsurface soil/fill samples.

The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. The concentrations of the following metals also exceed their respective Commercial Use SCO in one or more subsurface soil/fill samples: arsenic, barium, cadmium, copper, lead, mercury, and zinc.

Groundwater Samples

VOCs and SVOCs were not detected in the groundwater samples tested at concentrations exceeding groundwater standards or guidance values during either of the sample rounds completed during this study. However, VOC TICs were identified in samples from monitoring wells MW-B, MW-D, MW-E, MW-F, MW-G, MW-H, MW-I, MW-L, MW-M and MW-N during at least one of the sample events completed during this study. Total VOC TIC concentration is excess of 100 ug/l or ppb were reported in samples collected from MW-B, MW-G, and MW-M. In addition, SVOC TICs were identified in samples from each of the monitoring wells during at least one of the sample events completed during this study. Total SVOC TIC concentration is excess of 100 ug/l or ppb were reported in samples collected from MW-B, MW-G, and MW-H.

Pesticide/herbicide and PCB compounds were not detected in the groundwater samples tested during this study.

The concentrations of the following metals measured during at least one of the sample events completed during this study exceed their respective groundwater standards or guidance values barium, chromium, iron, magnesium, manganese, selenium, sodium, and thallium. Although the concentrations of iron, manganese and sodium exceeded their respective groundwater standards or guidance values, the concentrations measured are typical of background conditions and, as such, apparently not attributable to contaminants at the Site. The chromium concentrations detected in samples from monitoring well MW-N (i.e., 309.0 ug/l and 148.0 ug/l) were two orders of magnitude higher than detected in the other wells sampled, and these concentrations were about 3 to 6 times higher than the groundwater standard of 50 ug/l.

Contaminants of Concern

The contaminants of concern identified at the Site include:

Soil Vapor

- TCE
- PCE

Surface Soil

- PAHs: benzo(a)pyrene
- PCBs: location SS-5
- Metals: arsenic, cadmium, copper, mercury and nickel

Soil/Fill

- PAHs: benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- SVOCs: hexachlorobenzene
- Metals: arsenic, barium, cadmium, copper, lead, mercury, nickel, and zinc

Groundwater

- Metals: chromium and potentially barium, selenium, thallium and magnesium

Note: The groundwater in the western portion of the Site is impacted with petroleum that originated from an off-site location. This impact is characterized by elevated PID readings, petroleum odors, stained soil and elevated concentrations of VOC and SVOC TICs. The petroleum-impacted groundwater does not degrade further as it migrates across the Site, suggesting that contaminants at the site are not contributing to the further degradation of the groundwater. As such, petroleum-impact and VOC/SVOC TICs are not identified as a COC for the Site.

Interim Remedial Measures

On October 14, 2014, an IRM was completed to remove a 10,000-gallon UST formerly used to store diesel fuel.

Studies were completed to assess other IRMs to be completed at the Site and these include:

- The evaluation of a sump pit located a basement in the northern portion of the building where approximately 0.5 feet of sediment was containing several VOCs including 1,1-dichloroethene, cis-1,2-dichloroethene, toluene and xylene was encountered. The sediment sample collected from the sump pit contained a total VOC concentration of 195.6 ppm of which 190 ppm was reported to be cis-1,2-dichloroethene. Test borings advanced through the bottom and sidewall of the sump pit did not detect evidence of apparent environmental impact, and only arsenic was detected at a concentration that exceeded the Commercial Use SCO (i.e., 16.2 ppm compared to the Commercial Use SCO of 16 ppm). Based on the above findings, the sump pit will be closed as outlined in the Supplemental RIWP by re-routing the condensate piping to the sanitary sewer and filling the sump crock to the ground surface with concrete.

- The assessment of an empty UST located in the south-central portion of the building. This UST is about 10 ft. in diameter and approximately 17.5 ft. long (i.e., an approximate capacity of 10,000 gallons). The former use of this tank is not known. At the time of this

study the tank was empty and the interior surfaces were covered with rust and scale was present on the invert and end walls of the tank. Two test borings were completed in proximity of the UST. Evidence of staining or unusual odors was not detected on the fill material, but peak PID readings of 80 ppm and 120 ppm were measured above samples collected from 15.5 ft. bgs in these test borings. Several VOCs were detected in soil/fill samples collected from these test borings (e.g., cis-1,2-dichloroethene and TCE), but the reported VOC concentrations were below their applicable Unrestricted Use SCO. None of the metal concentrations exceeded the Commercial Use SCO, but the chromium concentration in the sample from UST-1 of 1,090 ppm approached the Commercial Use SCO of 1,500 ppm. Monitoring well MW-N is located approximately 3 ft. north of the abandoned UST. Low-flow groundwater samples collected on July 7, 2014 and September 29, 2014 from MW-N contained total chromium concentrations of 309 ug/l and 148 ug/l, respectively. An IRM will be completed to close the empty UST in place in accordance with applicable provisions outlined in Section 5.5 of DER-10 and the NYSDEC guidance document titled *Permanent Closure of Petroleum Tanks* dated January 20, 1987 and modified December 3, 2003. Prior to completing this work a groundwater sample will be collected from monitoring well MW-N and tested for total and hexavalent chromium. Depending on the test results, additional treatment may be recommended prior to the closure of the UST.

10.2 Conceptual Site Model

The conceptual site model presented in this section identifies and describes: (1) the known or potential sources of contamination; (2) the types of contaminants and affected media; 3) release mechanisms and potential migration pathways; and 4) actual/potential human health and environmental receptors.

The Site is currently developed with an approximate 280,000-square foot, two-story industrial building with a partial basement that occupies approximately 89% of the 5.79 acre property. The Site is currently operated by SolEpoxy to manufacture epoxy resins for use by others to manufacture electric components at off-site locations. Industrial activities were conducted at the Site by various entities since at least 1882. Some of the chemicals, hazardous substances and waste products used/generated during the historic use of the Site include: materials and waste products associated with Olean Chemical Company (e.g., acids, sulfur waste, coal/coke associated with a heating plant); plating and paint waste associated with operations conducted during the manufacturing of metal furniture and cabinets by Olean Metal Cabinet Works and Daystrom Industries; and liquid resins and waste solvents used during epoxy manufacturing operations conducted by Hysol, a division of the Dexter Corporation and the Henkel Corporation.

Electrical transformers are currently located within rooms located in the center portion of the building approximately 95 ft. from the southern boundary of the Site. These transformers are documented to currently be free of polychlorinated biphenyls (PCBs), but the historic contents of previous transformers that were reported to also be located within these rooms is not known. Railroad spur lines that serviced the manufacturing facilities were formerly located on the Site, and apparent railroad ballast including cinders and ash may remain in portions of the Site where these rail lines were previously located.

Based upon the studies conducted to date, the contaminants of concern vary by the media impacted and they include:

Soil Vapor

- TCE
- PCE

Surface Soil

- PAHs: benzo(a)pyrene
- PCBs: one location only
- Metals: arsenic, cadmium, copper, mercury and nickel

Soil/Fill

- PAHs: benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- SVOCs: hexachlorobenzene
- Metals: arsenic, barium, cadmium, copper, lead, mercury, nickel, and zinc

Groundwater

- Metals: chromium and potentially barium, selenium, thallium and magnesium

Note: The groundwater in the western portion of the Site is impacted with petroleum that originated from an off-site location. This impact is characterized by elevated PID readings, petroleum odors, stained soil and elevated concentrations of VOC and SVOC TICs. The petroleum-impacted groundwater does not degrade further as it migrates across the Site, suggesting that contaminants at the site are not contributing to the further degradation of the groundwater. As such, petroleum-impact and VOC/SVOC TICs are not identified as a COC for the Site.

The specific source of the COC detected in the soil vapor was not identified during the RI as groundwater and soil/fill samples tested during the study contained elevated VOC concentrations. Although not documented during the RI, the COC within the soil vapor can be released into the indoor air through the concrete floor slab under certain conditions. Testing conducted during the RI did not detect concentrations of COC in the soil vapor that represented a concern to potential off-site receptors (i.e., nearby residences). As such, the only potential receptors of COC within the soil vapor are site workers within the building at the Site.

The COC in the soil/fill at the Site is associated with either waste materials (e.g., PCBs) or heterogeneous fill materials placed during the historic use of the Site (e.g., railroad ballast). The primary route of exposure of soil/fill containing COC is via direct contact or inhalation. Direct contact with COC in the soil/fill could occur if trespassers come into contact with exposed soil/fill in exterior portions of the Site. Direct contact to soil/fill containing COC in the interior of the Site would be limited to construction workers during future construction activities or

utility repairs. COC within soil/fill could migrate via fugitive dust to site workers and off-site receptors when impacted soil is disturbed unless proper precautions are implemented.

Contaminants within the groundwater will migrate via groundwater flow (i.e., generally to the east-southeast with a southwesterly component in the southern portion of the Site). The only contaminants in the groundwater that are potentially attributable to the Site are the metals chromium and possibly barium, selenium, thallium and magnesium. Since groundwater obtained from the Site is not used as a potable source or as process water at the Site, on-site receptors are not anticipated. Although off-site groundwater supply wells were not identified in locations hydraulically downgradient of the Site, groundwater that is impacted with COC attributable to the Site could impact off-site receptors if groundwater is used in the future and/or result in environmental impact.

10.3 Proposed Remedial Measures

The remedial method proposed for the Site includes the following activities.

- Completion of the following IRMs
    - Removal of a 10,000-gallon UST formerly used to store diesel fuel (completed on October 14, 2014)
    - Decommissioning and closure of a sump pit located in a basement in the northwest portion of the building at the Site (to be completed)
    - Closure of an empty approximate 10,000-gallon UST located in southern portion of the building at the Site (to be completed)
- Implementation of a Track 4 – Restricted Commercial Use Remedy
    - Excavation and removal of an estimated 42 cubic yards of contaminated soil in a landscape area located adjacent to Franklin Street.
    - Install an asphalt cover (approximately 25,000 square feet) around perimeter of building.
    - Maintain the current floor slab in the building that covers soil/fill impacted with concentrations of COC that exceed the Commercial Use SCO.
    - Install a SSDS and complete indoor air monitoring to address potential soil vapor intrusion.
    - Monitor the condition of the cover, operation of the SSDS and groundwater to confirm that IC/ECs are effective.

The proposed remedial measures to be implemented at the Site are shown on Figure 12.

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11.0 REFERENCES

Previous Reports and Documents

Phase I Environmental Site Assessment, Henkel Corporation, 211 Franklin Street, Olean, New York dated May 2007 prepared by Environmental Resources Management (ERM).

Phase I Environmental Site Assessment, 119, 202 & 211 Franklin Street and 120 West Connell Street, City of Olean New York dated November 1, 2013 prepared by DAY.

Preliminary Phase II Environmental Site Assessment, 119 Franklin Street, 211 Franklin Street, 202 Franklin Street and 120 West Connell Street, Olean, New York dated October 17, 2013 prepared by DAY.

Regulatory Documents

ASTM D 1586. "Standard Test Method for Penetration Test and Split-barrel Sampling of Soils" (D 1586-99), American Society for Testing and Materials, 2003.

ASTM D6771-02, "Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality and Investigations", American Society for Testing and Materials.

Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006 prepared by the New York State Department of Health

NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 document titled "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (TOGS 1.1.1) dated June 1998, including April 2000 Addendum Table 1.

NYSDEC *DER-10 Technical Guidance for Site Investigation and Remediation*, May 3, 2010.

Reference Materials

Bulletin of the Buffalo Society of Natural Sciences, Volume 27, 1975 *Geology of Cattaraugus County* by Irving Tesmer, Plate 14. Geologic Map

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United States Department of the Interior Geological Survey, Water-Resources Investigations Report 85-4082, *Effect of Reduced Industrial Pumpage on the Migration of Dissolved Nitrogen in an Outwash Aquifer at Olean, Cattaraugus County, New York*, Marcel P. Bergeron, 1987.

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(www.atsdr.cdc.gov/ToxProfiles/phs8920.html).

Federal Remediation Technologies Roundtable (www.frtr.gov)

US Census Bureau information (http://factfinder.census.gov).

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12.0 Acronym List

ALS	ALS Environmental, Inc.
AMEC	AMEC Environment and Infrastructure, Inc.
ASP	Analytical Services Protocol
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substance of Disease Registry
BOA	Brownfield Opportunity Area
bgs	below ground surface
BCP	Brownfield Cleanup Program
COC	Contaminants of Concern
DAY	Day Environmental, Inc.
cis-1,2-DCE	cis-1,2-dichloroethene
1	
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
EC	Engineering Controls
EDV	Environmental Data Validation, Inc.
ELAP	Environmental Laboratory Approval Program
FEMA	Federal Emergency Management Agency
ft.	feet
GIS	Geographic Information System
GPS	Global Positioning System
HASP	Health and Safety Plan
IC	Institutional Controls
ID	Inside Diameter
IRM	Interim Remedial Measure
kg	Kilogram
l	Liter
mg	Milligram
ml	Milliliter
MNA	Monitored Natural Attenuation
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MW	Monitoring Well

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NAPL	Non-Aqueous Phase Liquid
Nothnagle	Nothnagle Drilling, Inc.
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
OD	Outside Diameter
ORP	Oxygen Reduction Potential
Owner	Silence Dogood LLC
PCE	Perchloroethene or Tetrachloroethene
Phase I ESA	Phase I Environmental Site Assessment
Phase II ESA	Phase II Environmental Site Assessment
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works
ppb	Parts Per Billion or ug/kg or ug/l
ppm	Parts Per Million or mg/kg or mg/l
psi	pounds per square inch
PQL	Practical Quantification Limit
PVC	Polyvinyl Chloride
RA	Remedial Alternatives
RAO	Remedial Action Objective
REC	Recognized Environmental Condition
RI	Remedial Investigation
RIWP	Remedial Investigation Work Plan
ROW	Right-of-Way
RPC	Richard Peck Construction
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objectives
Site	211 Franklin Street, Olean, New York, BCP Site C905038
SMP	Site Management Plan
Spectrum	Spectrum Analytical, Inc.
SSDS	Sub-Slab Depressurization System
SVOC	Semi-Volatile Organic Compound
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TB	Test Boring
TCE	Trichloroethene
TCL	Target Compound List
TIC	Tentatively Identified Compound
TOGS	Technical and Operational Guidance Series

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USEPA	United States Environmental Protection Agency
ug	micrograms
ug/kg	micrograms per kilogram or ppb
ug/l	micrograms per liter or ppb
USGS	United States Geological Survey
UST	Underground Storage Tank
VC	Vinyl Chloride
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compounds
QA/QC	Quality Assurance/Quality Control

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TABLES

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TABLE 1a
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF VOLATILE ORGANIC COMPOUNDS
IN
SOIL VAPOR SAMPLES COLLECTED MAY 29, 2014

Detected Constituent	NYSDOH Indoor Air Guidance Value (ug/m3)[1]	Sample Designation and Date																																									
		SV-01		SV-02		SV-03		SV-04		SV-05		SV-06		SV-07		SV-08		SV-09		SV-10		SV-11		SV-12		SV-13		SV-14		SV-15		SV-16		SV-17		SV-18		SV-19		SV-20	
		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014		5/29/2014	
1,1-Dichloroethene	**1.4**	U		U		U		U		0.033	J	U		U		U		U		U		U		U		U		U		U		U		U		U		U		U	
1,4-Dichlorobenzene	**5.5**	0.19	J	1.2	J	1.6	J	**18**	J	1.7	J	5.4	J	0.29	J	0.33	J	0.72	J	0.62	J	0.27	J	U		0.42	J	0.59	J	1.1	J	0.11	J	0.16	J	0.28	J	0.28	J	U	
1,1,1-Trichloroethane	**20.6**	0.59	J	0.21	J	0.09	J	2.20	J	3.0		U		0.81	J	0.1	J	0.7	J	1.5		2	J	U		2.5		U		2		0.78	J	1.8	J	0.69	J	0.67	J	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	**3.5**	**4.5**		**3.9**		2.3		**4.4**		**13**		1.4	J	**14**		**7.1**		**16**		**10**		**31**		**6.2**	J	**13**		3.2		**3.8**		2.6		**8.4**		**15**		**7.4**		**8.2**	J
2-Butanone (MEK)	**12**	4.8		1.5	J	1.1		**22.00**		1.1	J	8.4	J	2.9		2.4		**19**		**19**		2.7	J	3.3	J	5.2		2	J	**13**		0.98	J	0.99	J	2.6	J	1.6	J	**17**	J
2-Hexanone (MBK)	**NA**	0.57	J	0.43	J	0.23	J	2.50	J	U		U		0.5	J	0.36	J	3.4	J	4.5		1.6	J	U		1.8		U		2.2		0.21	J	U		U		0.32	J	3.4	J
4-Methyl-2-Pentanone (MIBK)	**6**	2.7	J	1.1	J	1.0	J	**13**	J	0.9	J	**7.5**	J	**6.3**		1.8		**9.70**	J	**19**		1.2	J	U		4.2		1.4	J	**31**		0.62	J	5.4		3.7	J	1.1	J	**7.3**	J
Acetone	**98.9**	29		11	J	15		**460**	D	30		**460.0**		44		17		**270**	D	**180**	D	16	J	29	J	93	D	34	J	**180**	D	6.5	J	5.3	J	46	J	32		**2600**	
Benzene	**9.4**	1.4	J	0.39	J	0.093	J	1.2	J	1.5		1.1	J	0.34	J	0.25	J	5.10		8.60		1.8	J	3.4	J	2.1		2.6	J	2.2		0.27	J	1.1	J	0.99	J	0.43	J	2.3	J
Bromodichloromethane	**NA**	U		U		U		U		U		U		U		0.16	J	U		1.4		1.2	J	U		U		U		U		U		U		U		11		U	
Carbon Disulfide	**4.2**	2.3		0.7	J	0.98		1.7	J	1.2		2.2	J	0.81	J	0.7		5		2.8		1.4	J	2.6	J	2.7		1.3	J	**4.3**		1.3		**8.9**		**5.1**		1.7		U	
Carbon Tetrachloride	**1.3**	0.59		0.69		0.53		0.49	J	**2.4**		U		0.22		0.45		U		**1.5**		**5.2**		**6.5**		0.77		U		**9.6**		**2.5**		0.8		**1.6**		0.51		U	
Chloroethane	**1.1**	U		U		U		U		U		U		U		U		U		U		U		U		0.62	J	U		U		U		0.14	J	U		U		U	
Chloroform	**1.1**	0.4	J	0.56	J	0.13	J	0.81	J	U		U		U		0.53	J	U		**11**		**14**		**7.7**	J	**10**		0.99	J	**1.3**		0.34	J	**3.4**		**29**		**74**		U	
Chloromethane	**3.7**	U		U		U		0.85	J	U		3.7	J	U		U		0.88	J	0.24	J	U		U		U		U		0.3	J	0.12	J	U		U		U		U	
cis-1,2-Dichloroethene	**1.9**	U		U		U		U		U		U		U		U		U		U		U		1.7	J	0.33	J	1.2	J	U		U		U		U		U		U	
Dibromochloromethane	**NA**	U		U		U		U		U		U		U		U		U		0.071	J	U		U		U		U		U		U		U		U		0.15	J	U	
Ethylbenzene	**5.7**	0.55	J	0.11	J	0.044	J	0.64	J	1.3	J	0.65	J	0.35	J	0.16	J	1.5	J	1.1		0.88	J	0.96		0.92	J	**270**		0.56	J	0.13	J	1.7	J	0.28	J	0.64	J	U	
m/p-Xylene	**22.2**	2.0	J	0.61	J	0.22	J	2.7	J	8.1		2.2	J	2.1	J	0.9	J	9.5	J	5		2	J	4.1	J	3.2	J	**690**		1.9	J	0.57	J	6.30	J	0.78	J	3.5	J	9.4	J
Methylene Chloride	**60[2]**	1.0	J	0.76	J	0.36	J	3.5	J	1.7		5	J	0.44	J	0.58	J	1.4	J	1.5		0.61	J	2.1	J	1.3		1.2	J	1.1		0.5	J	0.63	J	1.4	J	0.44	J	U	
Methyl tert-Butyl Ether	**11.5**	U		U		U		U		U		U		U		U		U		U		U		U		U		0.69	J	U		U		U		U		U		U	
o-Xylene	**7.9**	0.69	J	0.48	J	0.13	J	1.2	J	3.70		0.89	J	0.75	J	0.35	J	3.2	J	2.2		1	J	1.7	J	1.3	J	**140**		0.9	J	0.27	J	3.1		0.48	J	1.4	J	7.5	J
Styrene	**1.9**	U		U		0.034	J	U		U		U		U		U		U		U		3	J	U		U		U		U		U		U		0.65	J	U		U	
Tetrachloroethene	**30[3]**	6.5		5.6		0.84		5.4		9.2		1.6	J	6.6		0.6		1.2		**33**		**47**		22		8.7		8.8		1.2		6.5		2.4		**550**		6.7		U	
Toluene	**43**	2.0	J	0.85	J	0.38	J	3.9	J	19		3.9	J	1.2		0.61	J	9.4		6.30		1.8	J	5.7	J	3		**48**		3.1		1		2.3		1.2	J	1.7		1.7	J
trans-1,2-Dichloroethene	**NA**	U		0.053	J	0.023	J	U		0.14	J	U		0.094	J	0.11	J	U		0.026	J	0.16	J	0.63	J	1.1	J	0.79	J	0.04	J	U		0.053	J	0.81	J	U		U	
Trichloroethene	**5[2]**	1.7		**150**		**5.9**		2.4		4.8		U		U		U		U		**81**		**370**		**2700**	D	**53**		**83**		0.17		1.8		2		**380**		0.77		U	
Trichlorofluoromethane	**18.1**	**180**		**80**		**51**		**51**		14		9.9	J	3.4		7.2		4	J	8.1		**32**		**47**		**52**		**190**		**46**		9.6		16		11		8		5.8	J
Total TICs		278.7		162.4		35.4		188		215		U		277.4		165.5		1642		353		472		180		491.5		202		127.8		32.3		498		142		368.6		U	
Total VOCs + TICs		520.18		422.54		117.38		785.89		331.77		513.84		362.50		207.19		2002.7		751.46		1008.82		3024.59		752.66		1681.76		433.57		69.00		568.87		1193.56		522.91		2662.6	

NOTES

Volatile organic compound (VOC) concentrations are presented in micrograms per cubic meter (μ/m^3).

U = Not detected at concentration above analytical laboratory reporting limit. Refer to the analytical laboratory report for the associated reporting limit.

NA = Not Available.

J = Estimated Value.

D = Sample Diluted.

No NYSDOH criteria is available for soil vapor samples

[1] Unless otherwise noted the Indoor Air guidance value shown is the 90th percentile referenced in Table C2 of the NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006.

[2] NYSDOH derived air guidance values in NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006.

[3] Value identified in NYSDOH September 2013 Fact Sheet "Tetrachloroethene (PERC) in Indoor and Outdoor Air".

Highlighted value exceeds referenced NYSDOH indoor air guidance value

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TABLE 1b
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF VOLATILE ORGANIC COMPOUNDS
In
SOIL VAPOR and SANITARY SEWER VAPOR SAMPLES COLLECTED NOVEMBER 19, 2014 AND DECEMBER 3, 2014

Detected Constituent	NYSDOH Indoor Air Guidance Value (ug/m3)[1]	Sample Designation and Date																													
		SV-21		SV-22		SV-23		SV-24		SV-25		SV-26		SV-27		SV-28		SV-29		San Vap -1		San Vap -2		San Vap -3		San Vap -4		San Vap -5		San Vap -6	
		11/19/2014		11/19/2014		11/19/2014		11/19/2014		11/19/2014		11/19/2014		12/3/2014		12/3/2014		12/3/2014		11/19/2014		11/19/2014		11/19/2014		11/19/2014		11/19/2014		11/19/2014	
1,2-Dichloroethane	**0.9**	U		**11.13**	D	U	D	U	D	U		U	D	U		U		U		U		U	D	U	D	U		U		U	D
1,1,1-Trichloroethane	**20.6**	U		U	D	3.49	JD	U	D	15.33		U	D	U		U		U		U		U	D	U	D	U		U		U	D
1,2,4-Trimethylbenzene	**9.5**	3.93		U	D	6.88	D	**9.93**	D	7.03		U	D	U		U		U		4.13		7.87	JD	**36.18**	D	7.18	D	2.51		U	D
1,3,5-Trimethylbenzene	**3.7**	1.77	J	U	D	U	D	**4.33**	JD	4.82		U	D	U		1.67	J	U		U		U	D	U	D	U		U		U	D
2-Butanone (MEK)	**12**	3.95		**25.51**	D	8.61	D	10.09	D	**30.08**		U	D	U		4.98		U		5.16		U	D	U	D	U		U		8.85	D
2-Hexanone (MBK)	**NA**	U		U	D	U	D	U	D	7.42		U	D	U		U		U		U		U	D	U	D	U		U		U	D
4-Ethyltoluene	**NA**	2.21	J	U	D	U	D	4.82	JD	3.10		U	D	U		U		U		2.46		U	D	29.94	JD	4.62	JD	2.06	J	U	D
4-Isopropyltoluene	**NA**	U		U	D	U	D	U	D	U		U	D	U		2.25	J	2.36	J	U		U	D	61.71	D	U		U		U	D
4-Methyl-2-Pentanone (MIBK)	**6**	**15.33**		**14.34**	D	**12.54**	D	**17.05**	D	U		U	D	U		U		U		2.13		U	D	U	D	U		1.52	J	3.03	JD
Acetone	**98.9**	70.10		86.02	D	**120.00**	D	**151.84**	D	**155.17**		**6368.43**	D	10.60		9.79		5.37		13.26		18.44	D	**102.66**	D	27.33	D	6.72		15.83	D
Benzene	**9.4**	1.69		U	D	5.87	D	4.08	D	**10.50**		U	D	1.56	J	1.63		1.50	J	1.34	J	U	D	U	D	U		U		2.81	JD
Bromodichloromethane	**NA**	U		U	D	U	D	U	D	U		U	D	U		U		U		U		U	D	U	D	U		6.70		4.29	JD
Carbon Disulfide	**4.2**	2.15		U	D	**8.15**	D	**5.98**	D	3.55		U	D	2.24		U		U		U		U	D	U	D	U		U		U	D
Carbon Tetrachloride	**1.3**	U		U	D	**11.07**	D	U	D	**2.52**	J	U	D	U		U		U		U		U	D	U	D	U		U		U	D
Chloroform	**1.1**	U		U	D	**17.72**	D	U	D	U		U	D	U		U		U		U		**24.14**	D	**47.55**	D	**28.33**	D	**15.82**		**14.11**	D
Cyclohexane	**NA**	U		10.15	D	U	D	U	D	22.51		U	D	1.48	J	1.55	J	U		1.62	J	15.28	D	U	D	8.67	D	U		3.72	D
Dibromochloromethane	**NA**	U		U	D	U	D	U	D	U		U	D	U		U		U		U		U	D	47.03	JD	U		5.45		U	D
Dichlorodifluoromethane	**16.5**	2.52		14.59	D	10.68	D	U	D	2.37	J	U	D	2.82		2.67		2.67		2.57		U	D	U	D	U		2.62		U	D
Ethanol	**210**	10.54		64.48	D	18.25	D	**352.58**	D	35.07		187.79	D	3.85		3.39		3.05		14.20		12.37	D	38.65	D	42.61	D	3.34		29.60	D
Ethyl acetate	**5.4**	**6.52**		**1030.54**	D	**14.85**	D	3.24	JD	**6.05**		U	D	U		U		U		**241.78**		**87.56**	D	**77.47**	D	**10.09**	D	**15.35**		**439.60**	D
Ethylbenzene	**5.7**	U		U	D	U	D	U	D	5.20		U	D	U		U		U		U		U	D	U	D	U		U		U	D
Hexane	**10.2**	2.89		**28.38**	D	**12.41**	D	**11.00**	D	**25.45**		U	D	5.61		**24.68**		2.08		9.66		6.20	JD	**15.97**	JD	6.98	D	U		U	D
Isopropyl alcohol	**NA**	8.20		31.41	D	5.40	D	9.62	D	8.81		U	D	U		1.28		U		5.77		12.66	D	91.29	D	14.13	D	4.49		15.21	D
Isopropylbenzene	**NA**	U		U	D	U	D	U	D	U		U	D	2.31	J	2.46		2.31	J	U		U	D	28.56	JD	U		U		U	D
m/p-Xylene	**22.2**	7.15		U	D	11.27	D	13.87	D	**24.84**		U	D	U		U		U		U		U	D	U	D	8.67	D	U		U	D
Methylene Chloride	**60[2]**	U		12.50	D	4.10	D	U	D	U		U	D	U		U		U		3.09		U	D	U	D	10.00	D	1.42		3.96	D
Methyl tert-Butyl Ether (MTBE)	**11.5**	U		U	D	U	D	U	D	U		U	D	U		1.15	J	U		U		U	D	U	D	U		U		U	D
Naphthalene	**NA**	U		U	D	U	D	6.39	D	U		U	D	U		1.94	J	U		U		U	D	61.78	D	U		U		U	D
n-Butylbenzene	**NA**	U		U	D	U	D	U	D	U		U	D	U		U		U		U		U	D	69.16	D	U		U		U	D
n-Heptane	**NA**	2.75		10.66	D	6.72	D	14.51	D	43.44		U	D	U		U		U		1.68	J	U	D	U	D	U		U		U	D
o-Xylene	**7.9**	2.90		U	D	4.94	D	5.90	D	**8.19**		U	D	U		U		U		1.78	J	U	D	**25.80**	JD	4.25	JD	1.82	J	U	D
sec-Butylbenzene	**NA**	U		U	D	U	D	U	D	U		U	D	U		U		U		U		U	D	50.50	D	U		U		U	D
Tetrachloroethene	**30[3]**	U		U	D	26.04	D	24.55	D	11.26		U	D	U		U		U		U		U	D	U	D	U		U		U	D
Toluene	**43**	5.16		**57.57**	D	11.89	D	9.86	D	**69.99**		U	D	1.51	J	1.84	J	1.84	J	12.83		11.29	D	28.79	D	9.86	D	2.26		29.05	D
Trichloroethene	**5[2]**	2.85		**42.19**	D	**601.91**	D	**11.93**	D	**26.49**		U	D	U		U		U		U		U	D	U	D	U		U		U	D
Trichlorofluoromethane	**18.1**	**38.83**		U	D	**59.57**	D	**18.43**	D	2.81		U	D	U		U		U		U		U	D	U	D	U		U		U	D
Total VOCs		191.44		1439.47		982.36		690.00		532.00		6556.22		31.98		61.28		21.18		323.46		195.81		813.04		182.72		72.08		570.06	

NOTES

Volatile organic compound (VOC) concentrations are presented in micrograms per cubic meter (μ/m^3).

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[2] NYSDOH derived air guidance values in NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006.

[3] Value identified in NYSDOH September 2013 Fact Sheet "Tetrachloroethene (PERC) in Indoor and Outdoor Air".

Highlighted value exceeds referenced NYSDOH indoor air guidance value

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TABLE 2
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF TEST BORINGS/MONITORING WELLS

Designation	Completion Date	Final Depth (ft bgs)
TB-101	6/16/2014	40.0
TB-102	6/24/2014	12.0
TB-103	6/25/2014	12.0
TB-104	7/2/2014	5.0
TB-105	6/16/2014	46.0
TB-106	6/24/2014	12.0
TB-107	6/25/2014	28.0
TB-108	6/18/2014	52.0
TB-109	6/25/2014	20.0
TB-110	6/24/2014	12.0
TB-111	6/24/2014	9.7
TB-112	6/23/2014	28.0
TB-113	6/24/2014	28.0
TB-114	6/17/2014	28.0
TB-115	6/24/2014	12.0
TB-116	6/25/2014	11.3
TB-117	7/2/2014	12.0
TB-118(MW-N)	6/19/2014	34.0
TB-119	6/24/2014	12.0
TB-120	6/24/2014	12.0
TB-121	6/18/2014	32.0
TB-122	6/17/2014	30.0
TB-123	6/25/2014	12.0
TB-124	6/25/2014	12.0
TB-125	6/24/2014	12.0
TB-126	7/2/2014	12.0
MW-B	9/11/2013	28.0
MW-C	9/11/2013	28.0
MW-D	9/12/2013	30.0
MW-E	9/13/2013	33.0
MW-F	6/17/2014	28.0
MW-G	6/26/2014	33.0
MW-H	6/22/2014	30.0
MW-I	6/24/2014	33.5
MW-J	6/19/2014	36.0
MW-K	6/16/2014	30.0
MW-L	6/18/2014	34.0
MW-M	6/16/2014	28.0
MW-N(TB-118)	6/19/2014	34.0

Designation	Completion Date	Final Depth (ft bgs)
Basement Sump	12/2/2014	2.6
DTB-1	11/25/2014	2.0
DTB-2	11/25/2014	2.0
DTB-3	11/25/2014	2.0
DTB-4	11/25/2014	2.0
DTB-5	11/25/2014	2.0
DTB-6	11/25/2014	2.0
DTB-7	11/25/2014	2.0
DTB-8	11/25/2014	2.0
SUB-1	7/31/2014	0.7
SUB-2	7/31/2014	0.8
SV-27	11/25/2014	10.0
SV-28	11/25/2014	10.0
SV-29	11/25/2014	10.0
TP-1	8/4/2014	8.0
TP-2	8/4/2014	8.0
UST-1	11/25/2014	20.0
UST-2	11/25/2014	20.0
VLT-1	12/2/2014	5.1
VLT-2	12/2/2014	4.3
VLT-3	12/2/2014	2.0
VLT-4	12/2/2014	2.0

TABLE 3
211 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO. C905038

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ANALYTICAL LABORATORY TESTING PROGRAM

Sample Designation	Sample Type	Sample Date	Depth Interval (ft bgs)	Test Parameters	UTM NAD 83 Coordinates (ft)		Laboratory Report ID
					Northing (Y)	Easting (X)	
SV-01	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763235.0	1186911.0	R1404008
SV-02	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763333.2	1187059.7	R1404008
SV-03	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763399.2	1187068.9	R1404008
SV-04	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763383.3	1187192.2	R1404008
SV-05	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763447.3	1187245.5	R1404008
SV-06	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763537.5	1187298.0	R1404008
SV-07	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763452.5	1187336.3	R1404008
SV-08	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763434.2	1187411.4	R1404008
SV-09	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763354.5	1187364.4	R1404008
SV-10	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763340.5	1187223.3	R1404008
SV-11	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763283.2	1187250.6	R1404008
SV-12	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763286.1	1187171.4	R1404008
SV-13	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763214.7	1187138.3	R1404008
SV-14	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763200.2	1186965.4	R1404008
SV-15	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763108.7	1187006.2	R1404008
SV-16	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763010.2	1187031.3	R1404008
SV-17	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763140.2	1187153.7	R1404008
SV-18	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763132.9	1187265.3	R1404008
SV-19	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763285.9	1187439.6	R1404008
SV-20	Soil Vapor	5/29/2014	sub-slab	TO-15 VOCs + TICs	763358.6	1187462.0	R1404008
SV-21	Soil Vapor	11/19/2014	sub-slab	TO-15 VOCs	763311.7	1187028.8	SC00426
SV-22	Soil Vapor	11/19/2014	sub-slab	TO-15 VOCs	763401.2	1187164.6	SC00426
SV-23	Soil Vapor	11/19/2014	sub-slab	TO-15 VOCs	763318.3	1187216.6	SC00426
SV-24	Soil Vapor	11/19/2014	sub-slab	TO-15 VOCs	763275.8	1187271.2	SC00426
SV-25	Soil Vapor	11/19/2014	sub-slab	TO-15 VOCs	763171.9	1187323.5	SC00426
SV-26	Soil Vapor	11/19/2014	sub-slab	TO-15 VOCs	763345.1	1187502.7	SC00426
SV-27	Soil Vapor	12/3/2014	9 to 10	TO-15 VOCs	763392.3	1187496.6	SC00800
SV-28	Soil Vapor	12/3/2014	9 to 10	TO-15 VOCs	763178.5	1187442.3	SC00800
SV-29	Soil Vapor	12/3/2014	9 to 10	TO-15 VOCs	763082.3	1187298.5	SC00800
SanVap-1	Air	11/19/2014	4	TO-15 VOCs	763503.8	1187123.8	SC00426
SanVap-2	Air	11/20/2014	14	TO-15 VOCs	763496.8	1187123.5	SC00426
SanVap-3	Air	11/21/2014	11	TO-15 VOCs	763214.3	1187314.8	SC00426
SanVap-4	Air	11/22/2014	19	TO-15 VOCs	763202.0	1187314.4	SC00426
SanVap-5	Air	11/23/2014	8	TO-15 VOCs	763391.5	1187593.0	SC00426
SanVap-6	Air	11/24/2014	16	TO-15 VOCs	763401.0	1187627.6	SC00426
DTB-1 (0.5-1')	Soil/FIll	11/25/2014	0.5 to 1	TCL PCBs; TAL Metals	763104.1	1187307.4	N2309
DTB-1 (1-2')	Soil/FIll	11/25/2014	1 to 2	TCL PCBs; TAL Metals	763104.1	1187307.4	N2309
DTB-2 (0.5-1')	Soil/FIll	11/25/2014	0.5 to 1	Metals (As, Cd, Cu, Hg)	763104.6	1187313.0	N2310
DTB-2 (0-2")	Soil/FIll	11/25/2014	0 to 0.2	TCL PCBs; TAL Metals	763104.6	1187313.0	N2309
DTB-3 (0-2")	Soil/FIll	11/25/2014	0 to 0.2	TCL PCBs; TAL Metals	763099.5	1187306.0	N2309
DTB-4 (0.5-1')	Soil/FIll	11/25/2014	0.5 to 1	Metals (As, Cd, Cu, Hg)	763099.8	1187311.2	N2310
DTB-4 (0-2")	Soil/FIll	11/25/2014	0 to 0.2	TCL PCBs; TAL Metals	763099.8	1187311.2	N2309
DTB-5 (0-2")	Soil/FIll	11/25/2014	0 to 0.2	Metals (As, Cd, Cu, Hg)	763093.3	1187307.3	N2310
DTB-6 (0.5-1')	Soil/FIll	11/25/2014	0.5 to 1	Metals (As, Cd, Cu, Hg)	763101.0	1187317.6	N2310
DTB-6 (0-2")	Soil/FIll	11/25/2014	0 to 0.2	Metals (As, Cd, Cu, Hg)	763101.0	1187317.6	N2310
DTB-7 (0-2")	Soil/FIll	11/25/2014	0 to 0.2	Metals (As, Cd, Cu, Hg)	763087.5	1187307.3	N2310
DTB-8 (0-2")	Soil/FIll	11/25/2014	0 to 0.2	Metals (As, Cd, Cu, Hg)	763098.1	1187325.0	N2310
MW-F (1.5')	Soil/Fill	6/17/2014	1.5	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763116.7	1186950.5	N1080
MW-G (1-3')	Soil/Fill	6/26/2014	1 to 3	Full TCL/TAL	763017.2	1187086.7	N1151
MW-G (20')	Soil/Fill	6/26/2014	20	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763017.2	1187086.7	N1151
MW-K (1-2')	Soil/Fill	6/16/2014	1 to 2	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763535.3	1187249.6	N1080
MW-M (15')	Soil/Fill	6/16/2014	15	TCL VOC +TICs	763399.8	1187052.6	N1080
MW-N (14-16')/TB-11	Soil/Fill	6/19/2014	14 to 16	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763132.5	1187282.1	N1151
SS-1	Soil/FIll	6/27/2014	0 to 0.15	Full TCL/TAL	763305.3	1186892.0	N1151

TABLE 3
211 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO. C905038

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ANALYTICAL LABORATORY TESTING PROGRAM

Sample Designation	Sample Type	Sample Date	Depth Interval (ft bgs)	Test Parameters	UTM NAD 83 Coordinates (ft)		Laboratory Report ID
					Northing (Y)	Easting (X)	
SS-2	Soil/FIll	6/27/2014	0-0.15	Full TCL/TAL	763174.1	1186912.2	N1151
SS-3	Soil/FIll	6/27/2014	0-0.15	Full TCL/TAL	763032.4	1186994.1	N1151
SS-4	Soil/FIll	6/27/2014	0-0.15	Full TCL/TAL	762934.0	1187055.6	N1151
SS-5	Soil/FIll	6/27/2014	0-0.15	Full TCL/TAL	763104.1	1187307.4	N1151
SS-6	Soil/FIll	6/27/2014	0-0.15	Full TCL/TAL	763299.6	1187506.3	N1151
SS-7	Soil/FIll	6/27/2014	0-0.15	Full TCL/TAL	763398.1	1187035.2	N1151
SS-8	Soil/FIll	6/27/2014	0-0.15	Full TCL/TAL	763467.1	1187420.0	N1151
SUB-1	Soil/Fill	7/31/2014	0.4 to 0.7	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals; PCBs	763181.5	1187284.5	N1382
SUB-2	Soil/Fill	7/31/2014	0.5 to 0.8	SVOCs+TICs; PCBs	763209.2	1187300.4	N1382
Sump (4')	Soil/FIll	12/2/2014	4	TCL VOC +TICs	763293.7	1187031.3	N2349
Sump (7.2-8.8')	Soil/FIll	12/2/2014	7.2-8.8	Full TCL/TAL	763293.7	1187031.3	N2349
TB-101 (27')	Soil/Fill	6/13/2014	27	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763135.8	1186918.0	N1080
TB-101 (40')	Soil/Fill	6/16/2014	40	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763135.8	1186918.0	N1080
TB-102 (11-12')	Soil/Fill	6/24/2014	11 to 12	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763321.8	1186918.3	N1128
TB-104 (0-3')	Soil/Fill	7/2/2014	0 to 3	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763335.1	1186997.0	N1200
TB-105 (27')	Soil/Fill	6/16/2014	27	Full TCL/TAL	763047.1	1186996.5	N1080
TB-107 (12.5')	Soil/Fill	6/25/2014	12.5	Full TCL/TAL	763196.2	1186964.9	N1128
TB-107 (27')	Soil/Fill	6/25/2014	27	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763196.2	1186964.9	N1128
TB-108 (28')	Soil/Fill	6/18/2014	28	Full TCL/TAL	762929.5	1187045.8	N1128
TB-108 (52')	Soil/Fill	6/18/2014	52	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	762929.5	1187045.8	N1128
TB-109 (15')	Soil/Fill	6/25/2014	15	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763239.1	1187031.9	N1128
TB-110 (4')	Soil/Fill	6/25/2014	4	Full TCL/TAL	763308.5	1187130.7	N1151
TB-112 (28')	Soil/Fill	6/23/2014	28	Full TCL/TAL	763281.5	1187160.3	N1128
TB-113 (25')	Soil/Fill	6/25/2014	25	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763253.6	1187097.1	N1128
TB-114 (3')	Soil/Fill	6/17/2014	3	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763047.1	1186996.5	N1128
TB-115 (2-4')	Soil/Fill	6/24/2014	2 to 4	Full TCL/TAL	762999.9	1186998.5	N1128
TB-117 (0-2')	Soil/Fill	7/2/2014	0 to 2	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763093.0	1187264.0	N1200
TB-119 (11-12')	Soil/Fill	6/24/2014	11 to 12	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763158.1	1187291.5	N1128
TB-120 (1-4')	Soil/Fill	6/24/2014	1 to 4	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763298.0	1187513.0	N1128
TB-121 (32')	Soil/Fill	6/18/2014	32	Full TCL/TAL	763369.8	1187526.0	N1128
TB-122 (4-5')	Soil/Fill	6/17/2014	4 to 5	Full TCL/TAL	763271.7	1187435.0	N1128
TB-124 (2-4')	Soil/Fill	6/24/2014	2 to 4	Full TCL/TAL	763455.5	1187360.0	N1128
TB-126 (0-4')	Soil/Fill	7/2/2014	0 to 4	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763332.6	1187480.8	N1200
TP-1 (2')	Soil/Fill	8/4/2014	2	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763253.1	1186849.0	N1382
TR-1 (13')	Soil/FIll	10/14/2014	13	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	762996.4	1187151.8	N1943
TR-2 (11')	Soil/FIll	10/14/2014	11	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	762999.2	1187155.2	N1943
TR-3 (11')	Soil/FIll	10/14/2014	11	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763001.2	1187159.0	N1943
TR-4 (11')	Soil/FIll	10/14/2014	11	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763004.0	1187162.7	N1943
TR-5 (11')	Soil/FIll	10/14/2014	11	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763006.5	1187166.7	N1943
TR-6 (14')	Soil/FIll	10/14/2014	14	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763009.0	1187170.8	N1943
UST-1 (15-16')	Soil/FIll	11/25/2014	15 to 16	Full TCL/TAL	763125.6	1187272.7	N2309
UST-1 (16-17')	Soil/FIll	11/25/2014	16 to 17	TCL VOCs +TICs	763125.6	1187272.7	N2310
UST-2 (15-16')	Soil/FIll	11/25/2014	15 to 16	Full TCL/TAL	763115.6	1187280.6	N2309
VLT-1 (soil)	Soil/FIll	12/2/2014	1.5 to 5.1	Full TCL/TAL	763038.7	1187163.0	N2349
VLT-2 (soil)	Soil/FIll	12/2/2014	2.2 to 4.8	Full TCL/TAL	763044.0	1187166.8	N2349
VLT-3 (soil)	Soil/FIll	12/2/2014	0.5 to 2	Full TCL/TAL	763145.4	1187307.5	N2349
VLT-4 (soil)	Soil/FIll	12/2/2014	0.8 to 2.5	Full TCL/TAL	763133.0	1187287.8	N2349
MW-B	Groundwater	7/9/2014	20	Full TCL/TAL	763238.7	1186876.9	N1200
MW-B	Groundwater	9/30/2014	20	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763238.7	1186876.9	N1847
MW-B 080414	Groundwater	8/4/2014	N/C	TCL VOCs +TICs	763238.7	1186876.9	N1382
MW-C	Groundwater	7/10/2014	23	Full TCL/TAL	763269.0	1187528.8	N1200
MW-C	Groundwater	9/29/2014	23	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763269.0	1187528.8	N1847
MW-D	Groundwater	7/9/2014	24	Full TCL/TAL	763074.0	1187262.9	N1200
MW-D	Groundwater	9/29/2014	25	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763074.0	1187262.9	N1847

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TABLE 3
211 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO. C905038

ANALYTICAL LABORATORY TESTING PROGRAM

Sample Designation	Sample Type	Sample Date	Depth Interval (ft bgs)	Test Parameters	UTM NAD 83 Coordinates (ft)		Laboratory Report ID
					Northing (Y)	Easting (X)	
MW-E	Groundwater	7/9/2014	26	Full TCL/TAL	763206.5	1187346.0	N1200
MW-E	Groundwater	9/29/2014	26	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763206.5	1187346.0	N1847
MW-F	Groundwater	7/8/2014	23	Full TCL/TAL	763116.7	1186950.5	N1200
MW-F	Groundwater	9/30/2014	23	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763116.7	1186950.5	N1847
MW-G	Groundwater	7/7/2014	27	Full TCL/TAL	763017.2	1187086.7	N1200
MW-G	Groundwater	9/30/2014	27	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763017.2	1187086.7	N1847
MW-H	Groundwater	7/8/2014	26	Full TCL/TAL	763178.9	1187126.7	N1200
MW-H	Groundwater	9/29/2014	26	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763178.9	1187126.7	N1847
MW-I	Groundwater	7/8/2014	26	Full TCL/TAL	763277.9	1187194.3	N1200
MW-I	Groundwater	9/30/2014	26	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763277.9	1187194.3	N1847
MW-J	Groundwater	7/10/2014	26	Full TCL/TAL	763125.0	1187345.7	N1200
MW-J	Groundwater	9/29/2014	26	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763125.0	1187345.7	N1847
MW-K	Groundwater	7/10/2014	23	Full TCL/TAL	763535.3	1187249.6	N1200
MW-K	Groundwater	9/30/2014	23	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763535.3	1187249.6	N1847
MW-L	Groundwater	7/7/2014	26	Full TCL/TAL	763466.4	1187402.8	N1200
MW-L	Groundwater	9/30/2014	26	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763466.4	1187402.8	N1847
MW-M	Groundwater	7/9/2014	24	Full TCL/TAL	763399.8	1187052.6	N1200
MW-M	Groundwater	9/30/2014	24	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763399.8	1187052.6	N1847
MW-N	Groundwater	7/7/2014	27	Full TCL/TAL	763132.5	1187282.1	N1200
MW-N	Groundwater	9/29/2014	27	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763132.5	1187282.1	N1847
Production Well	Groundwater	9/30/2014	47	TCL VOCs +TICs; TCL SVOCs +TICs; TAL Metals	763197.7	1187287.4	N1847
Boiler Vault	Water	5/21/2014	N/A	pH, TSS, BOD, Metals, Halogenated VOCs, Oil and Grease	763021.0	1187155.7	N0891
Sump Water	Water	5/21/2014	N/A	Full TCL/TAL	763293.7	1187031.3	N0891
Sump Sediment	Sediment	7/29/2014	N/A	TCL VOCs +TICs	763293.7	1187031.3	N1385
Basement Pipes	Sludge	12/2/2014	N/A	TCL VOC +TICs	763296.4	1187034.6	N2349
VLT-3 (SC)	Sludge	12/2/2014	N/A	Full TCL/TAL	763146.2	1187307.0	N2349
VLT-4 (SC)	Sludge	12/2/2014	N/A	Full TCL/TAL	763133.0	1187287.8	N2349
FB071014	Field Blank	7/10/2014	N/A	Full TCL/TAL	N/A	N/A	N1200
FB072914	Field Blank	7/29/2014	N/A	Full TCL/TAL	N/A	N/A	N1385
FB092914	Field Blank	9/29/2014	N/A	Full TCL/TAL	N/A	N/A	N1847
FB112514	Field Blank	11/25/2014	N/A	Full TCL/TAL	N/A	N/A	N2283
TB052114	Trip Blank	5/21/2014	N/A	TCL VOC +TICs	N/A	N/A	N0891
TB061814	Trip Blank	6/18/2014	N/A	TCL VOC +TICs	N/A	N/A	N1080
TB062614	Trip Blank	6/26/2014	N/A	TCL VOC +TICs	N/A	N/A	N1128
TB071014	Trip Blank	7/10/2014	N/A	TCL VOC +TICs	N/A	N/A	N1200
TB080114	Trip Blank	8/5/2014	N/A	TCL VOC +TICs	N/A	N/A	N1385
TB080514	Trip Blank	8/5/2014	N/A	TCL VOC +TICs	N/A	N/A	N1382
TB093014	Trip Blank	9/30/2014	N/A	TCL VOC +TICs	N/A	N/A	N1847
TB120414	Trip Blank	12/4/2014	N/A	TCL VOC +TICs	N/A	N/A	N2349

Notes:

TIC = Tentatively Identified Compound

TO-15 VOCs = Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method TO-15

Full TCL/TAL = TCL VOCs, TCL SVOC, TCL PCBs, TCL Pesticides, TAL Metals and Cyanide (as described below)

TCL VOCs = New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) Target Compound List (TCL) Volatile Organic Compounds by USEPA Method 8260

TCL SVOCs =NYSDEC ASP TCL Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270

TCL Pesticides = NYSDEC ASP TCL Pesticides by USEPA Method 8081

TCL PCBs = NYSDEC ASP TCL Polychlorinated Biphenyls USEPA Method 8082

TAL Metals = NYSDEC ASP Target Analyte List Metals by USEPA Methods 6010 and 7470

Cyanide by USEPA Method 9012

N/C = Not Collected N/A - Not Applicable

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TABLE 4a
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS (VOCS) IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	**B** Commercial Use (SCO)	SS-1 6/27/2014		SS-2 6/27/2014		SS-3 6/27/2014		SS-4 6/27/2014		SS-5 6/27/2014		SS-6 6/27/2014		SS-7 6/27/2014		SS-8 6/27/2014	
Acetone	67-64-1	0.05	500	UJ		UJ		UJ		UJ		UJ		UJ		0.004	J	0.004	J
Ethanol[1]	64-17-5	NA	NA	U		U		U		U		U		0.68		U		U	
Total TICs				U		U		U		U		U		U		U		U	
Total VOCs and TICs				**U**		**U**		**U**		**U**		**U**		**0.68**		**0.004**		**0.004**	

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NA = Not Available

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

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

[1] Analyte was not validated.

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TABLE 4b
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	**B** Commercial Use (SCO)	SS-1 6/27/2014		SS-2 6/27/2014		SS-3 6/27/2014		SS-4 6/27/2014		SS-5 6/27/2014		SS-6 6/27/2014		SS-7 6/27/2014		SS-8 6/27/2014	
1-Methylnaphthalene[1]	90-12-0	NA	NA	U		U		U		0.12 J		U		U		U		U	
2,4-Dimethylphenol	105-67-9	NA	NA	U		U		U		U		0.18 J		U		U		U	
2-Methylnaphthalene	91-57-6	NA	NA	U		U		U		0.17 J		U		U		U		U	
Acenaphthene	83-32-9	20	500	U		U		U		U		U		0.17 J		0.11 J		0.21 J	
Acenaphthylene	208-96-8	100	500	U		U		U		U		U		0.34 J		0.15 J		U	
Anthracene	120-12-7	100	500	U		U		0.12 J		0.081 J		0.078 J		0.55		0.4 J		0.4 J	
Benzo(a)anthracene	56-55-3	1	5.6	U		0.27 J		0.62		0.27 J		0.27 J		2	**A**	1.4	**A**	1.4	**A**
Benzo(a)pyrene	50-32-8	1	1	U		0.31 J		0.68		0.28 J		0.28 J		2	**AB**	1.3	**AB**	1.4	**AB**
Benzo(b)fluoranthene	205-99-2	1	5.6	U		0.43		0.97		0.42		0.51		3.3	**A**	1.7	**A**	1.9	**A**
Benzo(g,h,i)perylene	191-24-2	100	500	U		0.21 J		0.48		0.36 J		0.2 J		0.92		0.62		0.64	
Benzo(k)fluoranthene	207-08-9	0.8	56	U		0.16 J		0.39		0.17 J		0.19 J		1.2	**A**	0.73		0.77	
Bis(2-ethylhexyl)phthalate	117-81-7	NA	NA	U				0.085 J		0.1 J		0.51		U		U		0.092 J	
Butylbenzylphthalate	85-68-7	NA	NA	U				U		U		0.56		0.17 J		U		U	
Carbazole	86-74-8	NA	NA	U				0.079 J		U		U		0.38 J		0.18 J		0.3 J	
Chrysene	218-01-9	1	56	U		0.32 J		0.76		0.33 J		0.36 J		2.5	**A**	1.4	**A**	1.6	**A**
Dibenzo(a,h)anthracene	53-70-3	0.33	0.56	U		U		0.13 J		U		U		0.23 J		0.14 J		U	
Dibenzofuran	132-64-9	7	350	U		U		U		U		U		0.12 J		0.089 J		0.091 J	
Di-n-butylphthalate	84-74-2	NA	NA	U		0.093 J		0.076 J		0.78		0.78		0.35 J		0.2 J		0.22 J	
Fluoranthene	206-44-0	100	500	0.12 J		0.48		1.4		0.61		0.62		4.5		3.1		3.4	
Fluorene	86-73-7	30	500	U		U		U		U		U		0.17 J		0.12 J		0.17 J	
Hexachlorobenzene	118-74-1	NA	NA	U		0.34 J		U		U		0.077 J		0.31 J		U		U	
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	5.6	U		0.23 J		0.52	**A**	0.21 J		0.21 J		1.1	**A**	0.69	**A**	0.72	**A**
Phenanthrene	85-01-8	100	500	U		0.23 J		0.64		0.39 J		0.26 J		2.3		1.7		2.3	
Pyrene	129-00-0	100	500	0.088 J		0.4		0.95		0.45		0.41		3.5		2.3		2.8	
Total TICs				3.46		6.16		3.89		13.43		31.18		43.37		14.37		22.26	
Total SVOCs and TICs				**3.7**		**9.6**		**11.8**		**18.2**		**36.7**		**69.5**		**30.7**		**40.7**	

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

[1] Analyte was not validated.

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

N = Considered To Be Positively Identified

NA = Not Available

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

A = Exceeds Unrestricted Use SCO
B (Highlighted Value) = Exceeds Restricted Commercial Use SCO

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TABLE 4c
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF PESTICIDE/HERBICIDE/PCBS IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	**B** Commercial Use (SCO)	SS-1 6/27/2014		SS-2 6/27/2014		SS-3 6/27/2014		SS-4 6/27/2014		SS-5 6/27/2014		SS-6 6/27/2014		SS-7 6/27/2014		SS-8 6/27/2014	
4,4´-DDE	72-55-9	0.0033	62	U		UJ		U		U		U		0.062 P	**A**	U		UJ	
4,4´-DDT	50-29-3	0.0033	47	UJ		UJ		UJ		0.035 NJ	**A**	0.096 NJ	**A**	U		0.048 J	**A**	0.017 J	**A**
alpha-BHC	319-84-6	0.02	3.4	U		U		U		0.0058 NJ		U		U		U		UJ	
alpha-Chlordane	5103-71-9	0.094	24	U		0.0058 NJ		0.015 J		0.0099 NJ		UJ		UJ		UJ		0.013 NJ	
Endosulfan I	959-98-8	2.4	200	U		U		U		0.0023 J		U		U		U		UJ	
Endrin	72-20-8	0.014	89	U		0.0039		U		0.019 J	**A**	U		U		U		UJ	
Heptachlor	76-44-8	0.042	15	U		U		U		0.0021		0.33	**A**	U		U		UJ	
Polychlorinated biphenyls	1336-36-3	0.1	1	U		0.179	**A**	U		0.5 P	**A**	1.5	**AB**	0.32 NJ	**A**	U		U	

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	**B** Commercial Use (SCO)	DTB-1 (0.5-1') 11/25/2014		DTB-1 (1-2') 11/25/2014		DTB-2 (0-2") 11/25/2014		DTB-3 (0-2") 11/25/2014		DTB-4 (0-2") 11/25/2014	
4,4´-DDE	72-55-9	62	62	NT		NT		NT		NT		NT	
4,4´-DDT	50-29-3	47	47	NT		NT		NT		NT		NT	
alpha-BHC	319-84-6	3.4	3.4	NT		NT		NT		NT		NT	
alpha-Chlordane	5103-71-9	24	24	NT		NT		NT		NT		NT	
Endosulfan I	959-98-8	200	200	NT		NT		NT		NT		NT	
Endrin	72-20-8	89	89	NT		NT		NT		NT		NT	
Heptachlor	76-44-8	15	15	NT		NT		NT		NT		NT	
Polychlorinated biphenyls	1336-36-3	1	1	U		U		U		U		U	

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NA = Not Available

NT = Not Tested

P = Lower of Two Values Reported From Primary And Confirmation Analyses When > 25% Difference Detected

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

A = Exceeds Restricted Commercial Use SCO

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

NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative

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TABLE 4d
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF TAL METALS AND CYANIDE IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	SS-1 6/27/2014		SS-2 6/27/2014		SS-3 6/27/2014		SS-4 6/27/2014		SS-5 6/27/2014		SS-6 6/27/2014		SS-7 6/27/2014		SS-8 6/27/2014		DTB-1 (0.5-1') 11/25/2014		DTB-1 (1-2') 11/25/2014	
Aluminum	7429-90-5	NA	NA	13300		6630		6780		7110		7100		9500		8890		10900		8580		10300	
Antimony	7440-36-0	NA	NA	U N		8.6		3.4		3.5		20.7		41.8		2.1		5.3		1.9 *		2.6 *	
Arsenic	7440-38-2	13	16	12.6 N		14.6	A	13		20	AB	14	A	12.1		33.8	AB	25	AB	21.2 *	AB	11.9 *	
Barium	7440-39-3	350	400	53.8 N		193		78.4		168		136		122		335		143		128		165	
Beryllium	7440-41-7	7.2	590	0.58 N		0.36		0.2 b		0.63		0.35		0.42		0.51		0.59		0.54		0.72	
Cadmium	7440-43-9	2.5	9.3	0.031 bN		2.8	A	0.69		2.9	A	16.3	AB	1.9		1.1		0.56		11.7	AB	1.3	
Calcium	7440-70-2	NA	NA	1260		18700		83500		1570		1810		10500		2470		2440		3280		1720	
Chromium	7440-47-3	30	1,500	14.1 N		66.1	A	10		104	A	398	A	18.8		16.9		18.5		61.7 N	A	297 N	A
Cobalt	7440-48-4	NA	NA	12.3 N		5.9		4.9		24.2		11.2		8		7.2		8.4		11.2 *		8.6 *	
Copper	7440-50-8	50	270	17 N		127	A	183	A	254	A	311	AB	84.9	A	110	A	63.8	A	328 N*	AB	63.8 N*	A
Iron	7439-89-6	NA	NA	27800		25000		15600		37400		57700		21800		25700		31600		24100 *E		18300 *E	
Lead	7439-92-1	63	1000	18.4		84.1	A	66.6	A	785	A	151	A	61.2		422	A	177	A	183	A	171	A
Magnesium	7439-95-4	NA	NA	2260		4140		5130		1430		2030		4070		1580		1980		2430		1730	
Manganese	7439-96-5	1600	10,000	636		602		349		554		760		776		359		546		522		1270	
Mercury	7439-97-6	0.18	2.8	0.039 b		0.63	A	0.025 b		0.86	A	1.7	A	0.17		0.2	A	0.3	A	0.15 *		0.29 *	A
Nickel	7440-02-0	30	310	18.4		42	A	21.2		75.6	A	522	AB	27.4		23.4		19.4		118	A	24.3	
Potassium	7440-09-7	NA	NA	884		490		437		584		522		845		863		865		403 *		659 *	
Selenium	7782-49-2	3.9	1,500	0.58 bN		U		U		4	A	U		U		1.4 b		2.7		2.3		2.5	
Silver	7440-22-4	2	1,500	U		0.16 b		0.74 b		3.2	A	0.6 b		0.34 b		0.58 b		0.19 b		0.84 b		0.35 b	
Sodium	7440-23-5	NA	NA	10.1 b		76.2		87.5		38.5 b		21.3 b		51.1		84.8		27.2 b		35.3 *E		35.7 b*E	
Thallium	7440-28-0	NA	NA	U N		U		2.8		U		U		U		U		U		U		U	
Vanadium	7440-62-2	NA	NA	22 N		12.1		9.5		27.4		13.2		15.8		19.2		21.3		13.9		16.9	
Zinc	7440-66-6	109	10,000	56.9 N		210	A	321	A	583	A	529	A	465	A	246	A	186	A	748 *E	A	431 *E	A
Total Cyanide	NA	27	27	U		U		U		U		U		U		U		U		NT		NT	

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	DTB-2 (0-2") 11/25/2014		DTB-2 (0.5-1') 11/25/2014		DTB-3 (0-2") 11/25/2014		DTB-4 (0-2") 11/25/2014		DTB-4 (0.5-1') 11/25/2014		DTB-5 (0-2") 11/25/2014		DTB-6 (0-2") 11/25/2014		DTB-6 (0.5-1') 11/25/2014		DTB-7 (0-2") 11/25/2014		DTB-8 (0-2") 11/25/2014	
Aluminum	7429-90-5	NA	NA	10200		NT		3000		6380		NT		NT		NT		NT		NT		NT	
Antimony	7440-36-0	NA	NA	39.3 *		NT		14 *		74.4 *		NT		NT		NT		NT		NT		NT	
Arsenic	7440-38-2	13	16	13.4 *	A	18.2	AB	5.6 *		14.3 *	A	10.4		12.1		9.4		18.6	AB	8.6		12.1	
Barium	7440-39-3	350	400	202		NT		62.7		125		NT		NT		NT		NT		NT		NT	
Beryllium	7440-41-7	7.2	590	0.41		NT		0.13 b		0.28		NT		NT		NT		NT		NT		NT	
Cadmium	7440-43-9	2.5	9.3	18.6	AB	68.4	AB	3.2	A	8.8	A	1.9		8.6	A	3	A	5.7	A	1.7		4.4	A
Calcium	7440-70-2	NA	NA	3120		NT		1950		4130		NT		NT		NT		NT		NT		NT	
Chromium	7440-47-3	30	1,500	282 N	A	NT		37.2 N	A	77 N	A	NT		NT		NT		NT		NT		NT	
Cobalt	7440-48-4	NA	NA	8.1 *		NT		2.8 *		12.9 *		NT		NT		NT		NT		NT		NT	
Copper	7440-50-8	50	270	197 N*	A	813	AB	37.1 N*		185 N*	A	54.5	A	153	A	57.1	A	242	A	60.4	A	115	A
Iron	7439-89-6	NA	NA	25300 *E		NT		6590 *E		18900 *E		NT		NT		NT		NT		NT		NT	
Lead	7439-92-1	63	1000	273	A	NT		145	A	168	A	NT		NT		NT		NT		NT		NT	
Magnesium	7439-95-4	NA	NA	1910		NT		877		2170		NT		NT		NT		NT		NT		NT	
Manganese	7439-96-5	1600	10,000	685		NT		177		495		NT		NT		NT		NT		NT		NT	
Mercury	7439-97-6	0.18	2.8	1.8 *	A	0.38	A	1.5 *	A	3.5 *	AB	0.14		2.4	A	0.87	A	0.11		0.32	A	1.5	A
Nickel	7440-02-0	30	310	192	A	NT		53.9	A	113	A	NT		NT		NT		NT		NT		NT	
Potassium	7440-09-7	NA	NA	573 *		NT		209 *		493 *		NT		NT		NT		NT		NT		NT	
Selenium	7782-49-2	3.9	1,500	3		NT		0.63 b		2		NT		NT		NT		NT		NT		NT	
Silver	7440-22-4	2	1,500	1.9		NT		0.44 b		3.8	A	NT		NT		NT		NT		NT		NT	
Sodium	7440-23-5	NA	NA	38.8 b*E		NT		11.7 b*E		134 *E		NT		NT		NT		NT		NT		NT	
Thallium	7440-28-0	NA	NA	U		NT		U		U		NT		NT		NT		NT		NT		NT	
Vanadium	7440-62-2	NA	NA	12.4		NT		3.5		10		NT		NT		NT		NT		NT		NT	
Zinc	7440-66-6	109	10,000	1010 *E	A	NT		213 *E	A	853 *E	A	NT		NT		NT		NT		NT		NT	
Total Cyanide	NA	27	27	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

b = Trace Concentration Below Reporting Limit And Equal To Or Above Detection Limit

* = Relative Percent Difference for duplicate analyses is outside of the control limit

E = estimated concentration due to the presence of interferences

N = Matrix Spike Recovery Falls Outside Control Limit NA = Not Available NT = Not Tested

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

A = Exceeds Unrestricted Use SCO

B (Highlighted Value) = Exceeds Restricted Commercial Use SCO

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TABLE 5a
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS (VOCS) IN SOIL/FILL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	MW-F (1.5') 6/17/2014	MW-G (1-3') 6/26/2014	MW-G (20') 6/26/2014	MW-K (1-2') 6/16/2014	MW-M (15') 6/16/2014	MW-N (14-16') 6/19/2014	TB-101 (27') 6/13/2014	TB-101 (40') 6/16/2014	TB-102 (11-12') 6/24/2014	TB-104 (0-3') 7/2/2014	TB-105 (27') 6/16/2014	TB-107 (12.5') 6/25/2014	TB-107 (27') 6/25/2014	TB-108 (28') 6/18/2014	TB-108 (52') 6/18/2014
1,2,3-Trichloropropane[1]	96-18-4	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,4-Dichloro-2-butene[1]	110-57-6	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
4-Methyl-2-pentanone	108-10-1	NA	NA	U	0.0087	U	U	U	U	U	U	U	0.00094 J	U	U	U	U	U
Acetone	67-64-1	0.05	500	UJ	0.23 J **A**	0.0019 J	UJ	UJ	0.0018 J	UJ	UJ	0.004 J	0.0042 J	UJ	0.012 J	UJ	UJ	0.0033 J
Benzene	71-43-2	0.06	44	U	0.064 **A**	U	U	U	U	U	0.1 J	U	U	U	U	U	U	U
cis-1,2-Dichloroethene	156-59-2	0.25	500	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Dichlorodifluoromethane	75-71-8	NA	NA	UJ	UJ	UJ	UJ	U	U	U	U	0.017 J+	UJ	U	U	U	U	U
Ethylbenzene	100-41-4	1	390	U	U	U	U	U	U	U	0.026 NJ	U	U	U	U	U	U	U
Isopropylbenzene	98-82-8	NA	NA	U	UJ	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	75-09-2	0.05	500	U	0.083 **A**	U	U	U	U	U	U	0.0018 J+	U	U	0.0018 J+	U	U	U
n-Butylbenzene	104-51-8	12	500	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
n-Propylbenzene[1]	103-65-1	3.9	500	U	U	U	U	U	U	U	U	U	U	U	U	U	0.051 J	U
Naphthalene[1]	91-20-3	12	500	U	U	U	U	U	U	U	U	U	U	U	0.0013 J	U	U	U
sec-Butylbenzene[1]	135-98-8	11	500	U	U	U	U	U	U	0.14 J	U	U	U	0.097 J	U	U	0.098 J	0.0016
tert-Butylbenzene[1]	98-06-6	5.9	500	U	U	U	U	U	U	0.31	U	U	U	0.32	U	0.091	0.22	0.0046
Tetrachloroethene	127-18-4	1.3	150	U	U	U	U	U	U	U	U	U	U	U	U	U	0.047 J+	U
Tetrahydrofuran	109-99-9	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	0.48	U
Toluene	108-88-3	0.7	500	U	0.0052	U	U	U	U	U	0.07 J	U	U	U	U	U	0.15 J+	U
Trichloroethene	79-01-6	0.47	200	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,2,4-Trimethylbenzene[1]	95-63-6	3.6	190	U	U	U	U	U	U	U	U	U	U	U	U	U	0.15 J	U
1,3,5- Trimethylbenzene[1]	108-67-8	8.4	190	U	U	U	U	U	U	U	U	U	U	U	U	U	0.077 J	U
Xylene (mixed)	1330-20-7	0.26	500	U	U	U	U	U	U	U	0.128 J	U	U	U	U	U	0.354 NJ+ **A**	U
Total TICs				U	U	U	U	U	U	96.3	4.42	U	U	84.2	U	47.5	61.4	0.849
VOCs + TICs				**U**	**0.3909**	**0.0019**	**U**	**U**	**0.0018**	**96.75**	**4.744**	**0.0228**	**0.00514**	**84.617**	**0.0151**	**47.591**	**63.027**	**0.8585**

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	TB-109 (15') 6/25/2014	TB-110 (4') 6/25/2014	TB-112 (28') 6/23/2014	TB-113 (25') 6/25/2014	TB-114 (3') 6/17/2014	TB-115 (2-4') 6/24/2014	TB-117 (0-2') 7/2/2014	TB-119 (11-12') 6/24/2014	TB-120 (1-4') 6/24/2014	TB-121 (32') 6/18/2014	TB-122 (4-5') 6/17/2014	TB-124 (2-4') 6/24/2014	TB-126 (0-4') 7/2/2014	SUB-1 7/31/14	TP-1 (2') 8/4/14
1,2,3-Trichloropropane[1]	96-18-4	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	UJ	UJ	U
trans-1,4-Dichloro-2-butene[1]	110-57-6	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	UJ	UJ	U
4-Methyl-2-pentanone	108-10-1	NA	NA	U	U	U	U	U	U	120 D	U	U	U	U	U	UJ	UJ	U
Acetone	67-64-1	0.05	500	U J	0.0025 J	UJ	UJ	UJ	UJ	3.6 J **A**	0.0022 J	0.0067 J	0.0026 J	0.0034 J	UJ	0.032 J	0.0051 J	UJ
Benzene	71-43-2	0.06	44	U	U	U	U	U	U	U	U	U	U	U	U	UJ	UJ	U
cis-1,2-Dichloroethene	156-59-2	0.25	500	U	U	U	U	U	U	U	U	U	U	U	U	UJ	0.00082 J	U
Dichlorodifluoromethane	75-71-8	NA	NA	U	UJ	U	U	U	U	UJ	U	U	U	U	U	UJ	UJ	U
Ethylbenzene	100-41-4	1	390	U	U	U	U	U	U	0.5	U	U	U	U	U	UJ	UJ	U
Isopropylbenzene	98-82-8	NA	NA	U	U	U	U	U	U	0.22 J	U	U	U	U	U	UJ	UJ	U
Methylene chloride	75-09-2	0.05	500	U	U	U	U	U	U	U	0.004	0.0012 J+	0.0038	0.0054	0.0039 J+	0.0017 J	UJ	U
n-Butylbenzene	104-51-8	12	500	U	U	U	U	U	U	0.16 J	U	U	U	U	U	UJ	UJ	U
n-Propylbenzene[1]	103-65-1	3.9	500	U	U	U	U	U	U	0.3 J	U	U	U	U	U	UJ	UJ	U
Naphthalene[1]	91-20-3	12	500	U	U	U	U	U	U	0.068 J	U	U	U	U	U	UJ	0.0022 J	U
sec-Butylbenzene[1]	135-98-8	11	500	U	U	U	0.05	U	U	0.088 J	U	U	U	U	U	UJ	UJ	U
tert-Butylbenzene[1]	98-06-6	5.9	500	U	U	0.3	0.23	U	U	U	U	U	U	U	U	UJ	UJ	U
Tetrachloroethene	127-18-4	1.3	150	U	U	U	U	U	U	U	U	U	U	U	U	UJ	0.00028 J	U
Tetrahydrofuran	109-99-9	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	UJ	UJ	U
Toluene	108-88-3	0.7	500	U	U	U	U	U	U	0.088 J	U	U	U	U	U	UJ	0.0003 J	U
Trichloroethene	79-01-6	0.47	200	U	U	U	U	U	U	U	U	U	U	U	U	UJ	0.00054 J	U
1,2,4-Trimethylbenzene[1]	95-63-6	3.6	190	U	U	U	U	U	U	3.7 **A**	U	U	U	U	U	UJ	0.0003 J	U
1,3,5- Trimethylbenzene[1]	108-67-8	8.4	190	U	U	U	U	U	U	1.9	U	U	U	U	U	UJ	UJ	U
Xylene (mixed)	1330-20-7	0.26	500	U	U	U	U	U	U	3.7 **A**	U	U	U	U	U	UJ	0.00123 J	U
Total TICs				4.22	U	97.2	229.6	0.112	U	6.86	U	U	0.0077	U	U	U	0.011	0.0037
VOCs + TICs				**4.22**	**0.0025**	**97.5**	**229.88**	**0.112**	**U**	**141.184**	**0.0062**	**0.0079**	**0.0141**	**0.0088**	**0.0039**	**0.0337**	**0.02177**	**0.0037**

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NA = Not Available D = Diluted Sample

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.

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

J+ = The analyte was positively identified; the numerical value is an estimated quantity that may be biased high.

[1] Analyte not validated.

A = Exceeds Unrestricted Use

DRAFT

TABLE 5b
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) IN SOIL/FILL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	MW-F (1.5') 6/17/2014	MW-G (1-3') 6/26/2014	MW-G (20') 6/26/2014	MW-K (1-2') 6/16/2014	MW-N (14-16') 6/19/2014	TB-101 (27') 6/13/2014	TB-101 (40') 6/16/2014	TB-102 (11-12') 6/24/2014	TB-104 (0-3') 7/2/2014	TB-105 (27') 6/16/2014	TB-107 (12.5') 6/25/2014	TB-107 (27') 6/25/2014	TB-108 (28') 6/18/2014	TB-108 (52') 6/18/2014	TB-109 (15') 6/25/2014
1-Methylnaphthalene[1]	90-12-0	NA	NA	U	U	U	U	U	U	U	U	U	U	0.38	U	U	U	U
2-Methylnaphthalene	91-57-6	NA	NA	U	U	U	U	U	U	U	U	U	U	0.36 J	U	U	U	U
2,4-Dimethylphenol	105-67-9	NA	NA	U	12 D	U	U	U	U	U	U	U	U	U	U	UJ	UJ	U
2-Methylphenol	95-48-7	NA	NA	U	2	U	U	U	U	U	U	U	U	U	U	U	U	U
4-Methylphenol	106-44-5	NA	NA	U	9.1 D	U	U	U	U	U	U	U	U	U	U	U	U	U
Acenaphthene	83-32-9	20	500	U	U	U	0.1 J	U	U	U	U	0.15 J	U	1.2	U	U	U	U
Acenapthylene	208-96-8	100	500	U	U	U	0.27 J	U	U	U	U	U	U	0.81	U	U	U	U
Anthracene	120-12-7	100	500	U	U	U	0.35	U	UJ	U	U	0.42	U	4.4	U	U	U	U
Benz(a)anthracene	56-55-3	1	5.6	0.077 J	0.27 J	U	1	U	U	U	U	1.1 A	U	11 D AB	U	U	U	U
Benzo(a)pyrene	50-32-8	1	1	0.081 J	0.28 J	U	1.2 AB	U	U	U	U	0.87	U	12 D AB	U	U	U	U
Benzo(b)fluoranthene	205-99-2	1	5.6	0.12 J	0.52	U	1.7 A	U	U	U	U	0.95	U	13 D AB	U	U	U	U
Benzo(g,h,i)perylene	191-24-2	100	500	U	0.22 J	U	1	U	U	U	U	0.88	U	7.9 D	U	U	U	U
Benzo(k)fluoranthene	207-08-9	0.8	56	U	0.18 J	U	0.6	U	U	U	U	0.42	U	5 A	U	U	U	U
Bis(2-ethylhexyl)phthalate	117-81-7	NA	NA	U	U	U	0.095 J	U	0.098 J	U	0.12 J	0.16 J	U	U	U	U	U	U
Butylbenzylphthalate	85-68-7	NA	NA	U	U		U	U	U	U	U	0.1 J	U	U	U	U	U	U
Carbazole	86-74-8	NA	NA	U	U	U	0.33 J	U	U	U	U	0.11 J	U	1	U	U	U	U
Chrysene	218-01-9	1	56	0.097 J	0.37 J	U	1.3 A	U	U	U	U	0.98	U	12 D A	U	U	U	U
Dibenz(a,h)anthracene	53-70-3	0.33	0.56	U	U	U	0.077 J	U	U	U	U	0.15 J	U	2.2 AB	U	U	U	U
Dibenzofuran	132-64-9	7	350	U	U	U	U	U	U	U	U	0.1 J	U	0.85	U	U	U	U
Dimethylphthalate	131-11-3	NA	NA	U	0.29 NJ	U	U	U	U	U	U	U	U	U	U	U	U	U
Di-n-butylphthalate	84-74-2	NA	NA	1.3 DbJ	0.13 J	U	U	U	U	U	U	U	U	U	U	U	U	U
Fluoranthene	206-44-0	100	500	0.14 J	0.36 J	U	3.4	U	UJ	U	U	1.7 J	U	26 D	U	U	U	U
Fluorene	86-73-7	30	500	U	U	U	0.13 J	U	U	U	U	0.14 J	U	1.5	U	U	U	U
Hexachlorobenzene	118-74-1	0.33	6	17 D AB	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	5.6	U	0.23 J	U	1 A	U	U	U	U	0.61 A	U	7.7 D AB	U	U	U	U
Isophorone	78-59-1	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
N-Nitrosodiphenylamine	86-30-6	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Naphthalene	91-20-3	12	500	U	0.13 J	U	U	U	U	U	U	U	U	0.47	U	U	U	U
Phenanthrene	85-01-8	100	500	0.074 J	0.15 J	U	2.1	U	U	U	U	1.6	0.12 J	17 D	0.28 J	0.11 J	U	U
Phenol	108-95-2	0.33	500	U	2.7 A	U	U	U	U	U	U	0.083 NJ	U	U	U	U	U	U
Pyrene	129-00-0	100	500	0.14 J	0.33 J	U	2.6	U	U	U	U	1.8	U	26 D	U	U	U	U
Total TICs				32.65	25.08	5.86	7.14	6.47	41.65	12.65	8.89	6.96	40.44	72.5	72.4	65.91	4.799	14.74
Total SVOCs plus TICs				**51.679**	**54.34**	**5.86**	**24.392**	**6.47**	**41.748**	**12.65**	**9.01**	**19.283**	**40.56**	**223.27**	**72.68**	**66.02**	**4.799**	**14.74**

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	TB-110 (4') 6/25/2014	TB-112 (28') 6/23/2014	TB-113 (25') 6/25/2014	TB-114 (3') 6/17/2014	TB-115 (2-4') 6/24/2014	TB-117 (0-2') 7/2/2014	TB-119 (11-12') 6/24/2014	TB-120 (1-4') 6/24/2014	TB-121 (32') 6/18/2014	TB-122 (4-5') 6/17/2014	TB-124 (2-4') 6/24/2014	TB-126 (0-4') 7/2/2014	SUB-1 7/31/14	SUB-2 7/31/14	TP-1 (2') 8/4/14
1-Methylnaphthalene[1]	90-12-0	NA	NA	0.22 J	U	U	U	U	U	U	U	U	U	0.87	U	0.1 J	U	0.59
2-Methylnaphthalene	91-57-6	NA	NA	0.27 J	U	U	U	U	U	U	U	U	U	1.3	U	0.13 J	U	0.6
2,4-Dimethylphenol	105-67-9	NA	NA	U	UJ	U	U	U	U	U	U	UJ	UJ	U	U	U	U	U
2-Methylphenol	95-48-7	NA	NA	U	U	U	U	U	0.13 J	U	U	U	U	U	U	U	U	U
4-Methylphenol	106-44-5	NA	NA	U	U	U	U	U	0.21 J	U	U	U	U	U	U	U	U	U
Acenaphthene	83-32-9	20	500	0.37 J	U	U	U	U	U	U	U	U	U	1.4	U	U	0.079 J	1.2 J
Acenapthylene	208-96-8	100	500	0.38	U	U	U	U	U	U	U	U	U	U	U	U	U	0.1 NJ
Anthracene	120-12-7	100	500	1.2	UJ	U	0.15 J	U	U	U	U	U	U	3	U	U	U	0.28 J
Benz(a)anthracene	56-55-3	1	5.6	2.8 A	U	U	0.33 J	U	U	U	U	U	U	3.9 A	0.12 J	U	0.29 J	0.9
Benzo(a)pyrene	50-32-8	1	1	2.4 AB	U	U	0.26 J	U	U	U	U	U	U	2.3 AB	0.11 J	U	0.27 J	0.69
Benzo(b)fluoranthene	205-99-2	1	5.6	3.2 A	U	U	0.33 J	U	U	U	U	U	U	3.3 A	0.17 J	U	0.41	1
Benzo(g,h,i)perylene	191-24-2	100	500	1	U	U	0.13 J	U	U	U	U	U	U	1.2	0.09 J	U	0.19 J	0.59
Benzo(k)fluoranthene	207-08-9	0.8	56	1.4 A	U	U	0.14 J	U	U	U	U	U	U	1.4 A	U J	U	0.13 J	0.38 J
Bis(2-ethylhexyl)phthalate	117-81-7	NA	NA		U	0.11 J	U	0.16 J	U	0.11 J	0.11 J	U	U	U	0.081 J	U	0.28 J	U
Butylbenzylphthalate	85-68-7	NA	NA	U	U	U	U	U	U	U	U	U	U	U	0.18 J	U	0.17 J	U
Carbazole	86-74-8	NA	NA	0.55	U	U	U	U	U	U	U	U	U	1.6	U	U	U	0.12 J
Chrysene	218-01-9	1	56	2.8 A	U	U	0.32 J	U	U	U	U	U	U	3.6 A	0.14 J	U	0.31 J	1.1 A
Dibenz(a,h)anthracene	53-70-3	0.33	0.56	0.25 J	U	U	U	U	U	U	U	U	U	0.47 A	U	U	U	0.15 NJ
Dibenzofuran	132-64-9	7	350	0.5 J	U	U	U	U	U	U	U	U	U	2	U	U	U	0.23 J
Dimethylphthalate	131-11-3	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Di-n-butylphthalate	84-74-2	NA	NA	U	U	U	U	U	0.11 J	U	U	U	U	U	0.4	U	0.089 J	U
Fluoranthene	206-44-0	100	500	5.8	UJ	U	0.62	U	U	U	U	U	0.096 J	7.6 D	0.22 J	U	0.49	1.5
Fluorene	86-73-7	30	500	0.47	U	U	U	U	U	U	U	U	U	1.7	U	U	U	0.11 NJ
Hexachlorobenzene	118-74-1	0.33	NA		U	U	0.095 J	U	U	U	U	U	U	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	5.6	1.2 A	U	U	0.16 J	U	U	U	U	U	U	1.4 A	U	U	0.21 J	0.65 A
Isophorone	78-59-1	NA	NA	U	U	U	U	U	U	U	U	1.1 NJ	U	U	U	U	U	U
N-Nitrosodiphenylamine	86-30-6	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Naphthalene	91-20-3	12	500	0.43	U	U	U	U	U	U	U	U	U	1.7	U	0.1 J	U	0.41
Phenanthrene	85-01-8	100	500	5.2	0.099 J	0.31 J	0.59	U	U	U	U	U	U	11 D	0.12 J	0.085 J	0.36 J	1.5
Phenol	108-95-2	0.33	500	U	U	U	U	U	0.13 J	U	U	U	U	U	U	U	U	U
Pyrene	129-00-0	100	500	4.8	U	U	0.63	U	U	U	U	U	0.096 J	5.4 D	0.18 J	U	0.5	1.5
Total TICs				21.72	41.04	117.1	4.427	8.25	15.68	9.62	7.98	4.981	4.608	53.39	6.03	2.72	2.96	15.87
Total SVOCs plus TICs				**56.96**	**41.139**	**117.52**	**8.182**	**8.41**	**16.26**	**9.73**	**8.09**	**6.081**	**4.8**	**108.53**	**7.841**	**3.135**	**6.738**	**29.47**

Notes:
Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

[1] Analyte not validated.

b = Detected In Method Blank D = Diluted Sample NA = Not Available

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

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

NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value

A = Exceeds Unrestricted Use SCO
B (Highlighted Value) = Exceeds Restricted Commercial Use SCO

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TABLE 5c
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED PESTICIDE/HERBICIDE/PCBS IN SOIL/FILL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	MW-G (1-3') 6/26/2014		TB-105 (27') 6/16/2014		TB-107 (12.5') 6/25/2014		TB-108 (28') 6/18/2014		TB-110 (4') 6/25/2014		TB-112 (28') 6/23/2014		TB-115 (2-4') 6/24/2014		TB-121 (32') 6/18/2014		TB-122 (4-5') 6/17/2014		TB-124 (2-4') 6/24/2014		SUB-1 7/31/14		SUB-2 7/31/14	
4,4'-DDE	72-55-9	0.0033	62	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
4,4'-DDT	50-29-3	0.0033	47	0.047 NJ	**A**	UJ		0.0082 J-	**A**	U		U		UJ		U		U		U		U		NT		NT	
4,4'-DDD	72-54-8	0.0033	92	0.04 P	**A**	UJ		0.0073 NJ	**A**	U		U		UJ		U		U		U		U		NT		NT	
Aldrin	309-00-2	0.005	0.68	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
alpha-BHC	319-84-6	0.02	3.4	U		UJ		0.0024 J-		U		U		UJ		U		U		U		U		NT		NT	
beta-BHC	319-85-7	0.036	3	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
Chlordane (alpha)	5103-71-9	0.094	24	UJ		UJ		UJ		U		0.1 J	**A**	UJ		U		U		U		U		NT		NT	
Chlordane (gamma)	5103-74-2	NA	NA	UJ		UJ		U		U		UJ		UJ		U		U		U		U		NT		NT	
Endosulfan I	959-98-8	2.4	200	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
Endosulfan II	33213-65-9	2.4	200	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
Endosulfan sulfate	1031-07-8	2.4	200	U		UJ		0.12 J-		U		U		UJ		U		U		U		0.05		NT		NT	
Endrin	72-20-8	0.014	89	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
Endrin aldehyde	7421-93-4	NA	NA	U		UJ		0.0057 J-		U		U		UJ		U		U		U		U		NT		NT	
Endrin ketone	53494-70-5	NA	NA	U		UJ		0.019 J-		U		U		UJ		U		U		U		U		NT		NT	
Heptachlor epoxide	1024-57-3	NA	NA	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
Lindane	58-89-9	0.1	9.2	U		UJ		U		U		U		UJ		U		U		U		U		NT		NT	
Polychlorinated biphenyls	1336-36-3	0.1	1	U		UJ		UJ		U		U		UJ		U		U		U		U		U		U	

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NA = Not Available

P = Lower of Two Values Reported From Primary And Confirmation Analyses When > 25% Difference Detected

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.

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

J- = The analyte was positively identified; the numerical value is an estimated quantity that may be biased low.

NT = Not Tested

A = Exceeds Unrestricted Use SCO

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TABLE 5d
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF TAL METALS AND CYANIDE IN SOIL/FILL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	MW-F (1.5') 6/17/2014	MW-G (1-3') 6/26/2014	MW-G (20') 6/26/2014	MW-K (1-2') 6/16/2014	MW-N (14-16') 6/19/2014	TB-101 (27') 6/13/2014	TB-101 (40') 6/16/2014	TB-102 (11-12') 6/24/2014	TB-104 (0-3') 7/2/2014	TB-105 (27') 6/16/2014	TB-107 (12.5') 6/25/2014	TB-107 (27') 6/25/2014	TB-108 (28') 6/18/2014	TB-108 (52') 6/18/2014
Aluminum	7429-90-5	NA	NA	4480 *	2350	5550	4450 *	4750	9660 *	8820 *	7700	2490	6510 *	6400	4900	4600	3600
Antimony	7440-36-0	NA	NA	17.40 N	5.20	U	0.44 b,N	U	0.44 J	U N	U	U	U N	0.43 J	U	U	U
Arsenic	7440-38-2	13	16	6.7	129.0 AB	6.4	4.8	5.2	13.0	17.7 AB	30.0 AB	5.0	6.5	76.0 AB	6.1	4.9	7.7
Barium	7440-39-3	350	400	311.0	579.0 AB	71.1	34.8	34.4	41.9	105.0	83.0 b	29.5	50.2	120.0 b	42.0 b	36.0 b	44.0 b
Beryllium	7440-41-7	7.2	590	0.18 b	0.70	0.17 b	0.18 b	0.20	0.31	0.40	0.33	0.17 b	0.30	0.32	0.19	0.20 J	0.16 J
Cadmium	7440-43-9	2.5	9.3	1.60	15.30 AB	0.15 b	0.13 b	0.08 b	0.34	0.08 b	0.18 J	0.69	0.12 b	3.00 A	0.12 J	0.09 J	0.03 J
Calcium	7440-70-2	NA	NA	27000	1670	56400	53400	44000	50200	17100	870	34300	32400	30000	110000	52000	34000
Chromium	7440-47-3	30	1,500	6.9	149.0 A	6.5	11.2	249.0 A	9.5	10.1	11.0	3.1	8.4	15.0	5.7	4.9	4.1
Cobalt	7440-48-4	NA	NA	3.4	17.2	4.9	3.0	4.5	6.1	7.9	4.1	1.4 b	6.1	13.0	3.3	4.1	3.9
Copper	7440-50-8	50	270	35.1	588.0 AB	15.2	19.4	27.6	48.5	17.3	32.0	21.8	14.8	1200.0 AB	15.0	15.0	9.7
Iron	7439-89-6	NA	NA	13000 *	55600	12600	8220 *	10700	18200 *	20600 *	28000	18300	15800 *	76000	11000	11000	9700
Lead	7439-92-1	63	1000	184.0 A	3030 AB	12.4	47.9	4.7	7.7	12.2	17.0	13.5	10.4	180.0 A	3.9	6.4	8.8
Magnesium	7439-95-4	NA	NA	4000 *	731	9850	4120 *	4020	5000 *	6460 *	2000 b	425	2970 *	5400 b	3900 b	5300 b	2500 b
Manganese	7439-96-5	1600	10,000	998	164	527	217	441	627	768	600	109	666	540	970	1000	640
Mercury	7439-97-6	0.18	2.8	0.20 A	17.90 AB	0.0087 b	0.0650	0.0081 b	0.0036 b	0.0035 b	0.0140 J	0.0032 b	U	0.0530	0.0041 J	0.0039 J	0.0029
Nickel	7440-02-0	30	310	9.8 *	274.0 A	9.9	10.3 *	35.3 A	14.1 *	16.2 *	12.0	3.4	11.6 *	11.0	8.5	8.8	7.4
Potassium	7440-09-7	NA	NA	468	338	582	400	526	523	1030	600	1970	748	1300	480	530	370
Selenium	7782-49-2	3.9	1,500	U	296.00 A	U	U	U	U	U	0.66 J	U	U	U	0.45 J	0.83 J	U
Silver	7440-22-4	2	1,500	0.120 b	3.000 A	U	U	U	U	0.140 b	0.130 J	U	0.083 b	1.200 J	U	U	U
Sodium	7440-23-5	NA	NA	83.1	214.0	58.5	109.0	46.0	115.0	99.1	91.0 b	536.0	83.8	730.0 b	100.0 b	69.0 b	71.0 b
Thallium	7440-28-0	NA	NA	U	0.5 b	1.7	1.1	1.4	U	U	U	2.1	U	1.1	1.3	U	U
Vanadium	7440-62-2	NA	NA	8.3 *	11.8	7.3	12.2 *	8.2	12.1 *	10.6 *	17.0	7.7	8.6 *	14.0	7.4	7.5	5.7
Zinc	7440-66-6	109	10,000	85 N*	818 A	135 A	37 N*	58	188 J A	52 N*	75 b	23	41 N*	650 b A	120 b A	56 b	31 b
Total Cyanide	NA	27	27	NT	U	NT	NT	NT	NT	NT		NT	U	U	NT	U	NT

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	TB-109 (15') 6/25/2014	TB-110 (4') 6/25/2014	TB-112 (28') 6/23/2014	TB-113 (25') 6/25/2014	TB-114 (3') 6/17/2014	TB-115 (2-4') 6/24/2014	TB-117 (0-2') 7/2/2014	TB-119 (11-12') 6/24/2014	TB-120 (1-4') 6/24/2014	TB-121 (32') 6/18/2014	TB-122 (4-5') 6/17/2014	TB-124 (2-4') 6/24/2014	TB-126 (0-4') 7/2/2014	SUB-1 7/31/14	TP-1 (2') 8/4/14
Aluminum	7429-90-5	NA	NA	5100	3850	4400	4300	5700	5900	14900	5000	7600	3000	8200	9100	9580	1810	2200
Antimony	7440-36-0	NA	NA	U	2.30	UJ	U	23.00	2.90	U	U	1.00 J	U	U	U	U	U	1.40
Arsenic	7440-38-2	13	16	4.2	40.3 AB	8.8	5.3	120.0 AB	6.1	11.6	6.4	8.1	4.3	9.4	15.0 A	15.8 A	22.5 AB	35.5 AB
Barium	7440-39-3	350	400	24.0 b	122.0	48.0 b	32.0 b	160.0 b	41.0 b	96.2	44.0 b	39.0 b	40.0 b	71.0 B	100.0 b	113.0	87.9	107.0
Beryllium	7440-41-7	7.2	590	0.17 J	0.17 b	0.18 J	0.17 J	0.20 J	0.22 J	0.40	0.20 J	0.33	0.14 J	0.36	0.40	0.49	0.11	1.10
Cadmium	7440-43-9	2.5	9.3	0.07 J	11.80 AB	0.03 J	0.10 J	1.50	0.38	10.00 AB	0.71	0.34	0.10 J	0.26	0.29	1.40	0.15	3.40 A
Calcium	7440-70-2	NA	NA	24000	523	36000	27000	2700	3500	2160	14000	16000	160000	13000	590	2750	5900	6030
Chromium	7440-47-3	30	1,500	5.6	7.9	6.8	4.5	8.0	12.0	16.7	51.0 A	8.9	3.6	10.0	13.0	14.6	3.3	24.1
Cobalt	7440-48-4	NA	NA	5.5	14.1	4.1	5.6	6.9	4.9	10.7	4.3	6.0	2.6	12.0	5.8	9.2	2.5	11.2
Copper	7440-50-8	50	270	26.0	3460.0 AB	21.0	20.0	380.0 AB	58.0 A	378.0 AB	21.0	57.0 A	7.3	49.0	47.0	51.3 A	24.0	133.0 A
Iron	7439-89-6	NA	NA	12000	91700	10000	9900	66000	19000	25600	12000	16000	7900	18000	17000	25900	12100	44500
Lead	7439-92-1	63	1000	4.5	2890.0 AB	6.7	5.5	480.0 A	43.0	37.8	8.3	15.0	5.0	37.0	52.0	56.2	3.8	255.0 A
Magnesium	7439-95-4	NA	NA	3500 b	851	3600 b	7200 b	1600 b	1700 b	2580	7100 b	3300 b	6600 b	3400 B	1400 b	2380	210	617
Manganese	7439-96-5	1600	10,000	500	166	590	740	480	330	435	1300	670	440	800	690	839	46	352
Mercury	7439-97-6	0.18	2.8	0.0038 J	0.4300 A	0.0031	0.0047 J	0.0990	0.1200	0.0320 b	0.0059 J	0.0300 J	0.0029 J	0.1300	0.0710	0.0490	0.0230	0.2300 A
Nickel	7440-02-0	30	310	12.0	6.0	9.5	11.0	9.9	24.0	92.0 A	22.0	14.0	5.8	19.0	13.0	30.5 A	13.9	472.0 AB
Potassium	7440-09-7	NA	NA	420	1690	490	480	1200	470	712	420	600	480	710	520	830	286	490
Selenium	7782-49-2	3.9	1,500	U	U	U	U	0.87 J	U	1.80	U	U	1.30 J	U	0.71 J	1.10 b	U	1.80
Silver	7440-22-4	2	1,500	0.064 J	6.000 A	U	0.065 J	1.200 J	0.170 J	U	U	U	U	0.140 J	0.190 J	U	U	U
Sodium	7440-23-5	NA	NA	34.0 b	156.0	86.0 b	100.0 b	330.0 b	190.0 b	168.0	44.0 b	650.0 b	91.0 b	73.0 B	29.0 bJ	55.0	44.2	283.0
Thallium	7440-28-0	NA	NA	U	U	U	U	0.3 J	U	U	U	U	3.0	U	U	U	0.9	0.5
Vanadium	7440-62-2	NA	NA	7.8	14.4	6.7	5.7	12.0	12.0	25.0	7.2	12.0	3.8	13.0	16.0	15.1	5.6	9.9
Zinc	7440-66-6	109	10,000	61 b	11400 AB	78 b	58 b	530 b A	110 b A	151 A	230 b A	120 b A	24 b	110 B A	73 b	137 A	75	457 A
Total Cyanide	NA	27	27	NT	U	U	NT	NT	U	NT		NT	U	U	U	NT	NT	NT

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

b = Trace Concentration Below Reporting Limit And Equal To Or Above Detection Limit NT = Not Tested N = Matrix Spike Recovery Falls Outside Control Limit NA = Not Available U = Not Detected * = RPD Duplicate Analyses Outside Control Limit

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TABLE 6a
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS (VOCS) IN BASEMENT/VAULT SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	Sump Sediment 7/29/2014		Sump (4') 12/2/2014		Sump (7.2-8.8') 12/2/2014		Basement Pipes 12/2/2014		VLT-1 (soil) 12/2/2014		VLT-2 (soil) 12/2/2014	
1,1-Dichloroethene	75-35-4	0.33	500	0.34 J	A	U		U		U		U		U	
4-Methyl-2-pentanone	108-10-1	NA	NA	U		U		U		0.0410		U		U	
Acetone	67-64-1	0.05	500	U		0.0400		0.0058		0.0600	A	0.0024 J		0.004 J	
Benzene	71-43-2	0.06	44	U		0.00074 J		0.00068 J		U		U		U	
cis-1,2-Dichloroethene	156-59-2	0.25	500	190 D	A	0.0310		0.25 D		0.002 J		U		U	
Cyclohexane	110-82-7	NA	NA	U		U		U		U		U		U	
Ethylbenzene	100-41-4	1	390	0.4 J		0.0015 J		0.071		0.002 J		U		U	
Isopropylbenzene	98-82-8	NA	NA	U		0.0006 J		2.0 J		U		U		U	
Methylcyclohexane	108-87-2	NA	NA	U		0.0100		U		U		0.0021 J		U	
Methylene chloride	75-09-2	0.05	500	U		U		U		0.002 J		U		0.01	
Tetrachloroethene	127-18-4	1.3	150	U		U		0.081		0.001 J		U		U	
Toluene	108-88-3	0.7	500	2.7 J	A	0.0013 J		0.097 E		0.001 J		0.0004 J		U	
trans-1,2-Dichloroethene	156-60-5	0.19	500	U		U		0.0013 J		U		U		U	
Trichloroethene	79-01-6	0.47	200	0.25 J		0.0430		0.44 D		0.0280		0.0011 J		0.003 J	
Xylenes- Mixed	--	0.26	500	1.88 J	A	0.0065		0.32 E	A	0.007		U		U	
Total TICs				U		0.451		0.0845		0.227		U		U	
Total VOCs and TICs				195.6		0.58564		3.3513		0.372		0.006		0.016	

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	VLT-3 (soil) 12/2/2014		VLT-3 (SC) 12/2/2014		VLT-4 (soil) 12/2/2014		VLT-4 (SC) 12/2/2014		UST-1 (15-16') 11/25/2014		UST-1 (16-17') 11/25/2014		UST-2 (15-16') 11/25/2014	
1,1-Dichloroethene	75-35-4	0.33	500	U		U		U		U		U		U		U	
4-Methyl-2-pentanone	108-10-1	NA	NA	U		U		U		U		U		U		U	
Acetone	67-64-1	0.05	500	0.005		U		0.0042		0.0340		U		U		U	
Benzene	71-43-2	0.06	44	U		U		0		U		U		U		U	
cis-1,2-Dichloroethene	156-59-2	0.25	500	U		U		U		U		0.0013 J		U		0.0020 J	
Cyclohexane	110-82-7	NA	NA	U		U		U		U		U		U		U	
Ethylbenzene	100-41-4	1	390	U		U		U		0.0010 J		U		0.019 J		U	
Isopropylbenzene	98-82-8	NA	NA	U		U		U		U		U		U		U	
Methylcyclohexane	108-87-2	NA	NA	U		U		U		U		U		U		U	
Methylene chloride	75-09-2	0.05	500	U		U		0.0032		0.006		U		U		U	
Tetrachloroethene	127-18-4	1.3	150	U		U		U		U		U		U		U	
Toluene	108-88-3	0.7	500	U		U		U		0.001 J		U		0.25		U	
trans-1,2-Dichloroethene	156-60-5	0.19	500	U		U		U		U		U		U		U	
Trichloroethene	79-01-6	0.47	200	4E-04 J		U		0.0004 J		0.002 J		0.00089 J		U		0.002 J	
Xylenes- Mixed	--	0.26	500	U		U		U		0.005 J		U		0.16		U	
Total TICs				0.012		U		U		0.008		U		11.97		U	
Total VOCs and TICs				0.018		U		0.0078		0.057		0.0022		12.4		0.004	

Notes:
Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NA = Not Available

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

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

D = Concentration reported after a dilution

E = Estimated concentration

A = Exceeds Unrestricted Use SCO

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TABLE 6b
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) IN BASEMENT/VAULT SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	Sump (7.2-8.8') 12/2/2014	VLT-1 (soil) 12/2/2014	VLT-2 (soil) 12/2/2014	VLT-3 (soil) 12/2/2014	VLT-3 (SC) 12/2/2014	VLT-4 (soil) 12/2/2014	VLT-4 (SC) 12/2/2014	UST-1 (15-16') 11/25/2014	UST-2 (15-16') 11/25/2014
Acenaphthylene	208-96-8	100	500	U	U	U	U	U	0.12 J	U	U	U
Benzo(a)anthracene	56-55-3	1	5.6	U	U	U	U	U	0.23 J	U	U	U
Benzo(a)pyrene	50-32-8	1	1	U	U	U	U	U	0.39	U	U	U
Benzo(b)fluoranthene	205-99-2	1	5.6	U	U	U	U	U	0.5	U	U	U
Benzo(g,h,i)perylene	191-24-2	100	500	U	U	U	U	U	0.31 J	U	U	U
Benzo(k)fluoranthene	207-08-9	0.8	56	U	U	U	U	U	0.2 J	U	U	U
Bis(2-ethylhexyl)phthalate	117-81-7	NA	NA	U	0.078 J	U	0.096 J	U	0.11 J	2.9 J	0.072 J	U
Chrysene	218-01-9	1	56	U	U	U	U	U	0.29 J	U	U	U
Di-n-butylphthalate	84-74-2	NA	NA	0.61 b	0.55 b	0.32 bJ	0.48 b	43 bJ	0.61 b	17 b	0.48 b	0.37 b
Fluoranthene	206-44-0	100	500	U	U	U	U	U	0.24 J	U	U	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	5.6	U	U	U	U	U	0.27 J	U	U	U
Phenanthrene	85-01-8	100	500	U	U	U	U	U	0.085 J	U	U	U
Pyrene	129-00-0	100	500	U	U	U	U	U	0.39	U	U	U
Total TICs				5.66	4	2.94	10.06	62,280	29.45	4,216.2	2.01	2.53
Total SVOCs and TICs				6.3	4.6	3.3	10.6	62,323	33.2	4,236.1	2.6	2.9

Notes:
Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

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

b = Compound was also detected in the method blank

NA = Not Available

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

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TABLE 6c
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF PESTICIDE/HERBICIDE/PCBS IN BASEMENT/VAULT SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	Sump (7.2-8.8') 12/2/2014		VLT-1 (soil) 12/2/2014		VLT-2 (soil) 12/2/2014		VLT-3 (soil) 12/2/2014		VLT-3 (SC) 12/2/2014		VLT-4 (soil) 12/2/2014		VLT-4 (SC) 12/2/2014		UST-1 (15-16') 11/25/2014		UST-2 (15-16') 11/25/2014	
Aldrin	309-00-2	0.68	0.68	U		U		U		U		0.077 P		U		U		U		U	
alpha-BHC	319-84-6	0.02	3.4	0.0036		U		U		U		U		U		U		U		U	
Endrin aldehyde	7421-93-4	NA	NA	U		U		U		U		0.17		U		U		U		U	
Heptachlor	76-44-8	0.042	15	0.0041		U		U		U		U		U		U		U		U	
Heptachlor epoxide	1024-57-3	NA	NA	U		U		U		U		0.11 P		U		U		U		U	
Polychlorinated biphenyls	1336-36-3	0.1	1	U		U		U		U		5.7	**AB**	U		1.2	**AB**	U		U	

Notes:

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NA = Not Available

P = Lower of Two Values Reported From Primary And Confirmation Analyses When > 25% Difference Detected

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

A = Exceeds Restricted Commercial Use SCO

B (Highlighted Value) = Exceeds Restricted Commercial Use SCO

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TABLE 6d
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF TAL METALS AND CYANIDE IN BASEMENT/VAULT SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Commercial Use (SCO)	Sump (7.2-8.8') 12/2/2014		VLT-1 (soil) 12/2/2014		VLT-2 (soil) 12/2/2014		VLT-3 (soil) 12/2/2014		VLT-3 (SC) 12/2/2014		VLT-4 (soil) 12/2/2014		VLT-4 (SC) 12/2/2014		UST-1 (15-16') 11/25/2014		UST-2 (15-16') 11/25/2014	
Aluminum	7429-90-5	NA	NA	5870		4880		7170		5970		20.1		4000		382		3700		8410	
Antimony	7440-36-0	NA	NA	3.6 N		0.63 bN		1.7 N		0.85 N		0.66 bn		1.5 N		0.78 bN		6.2 *		0.39 b*	
Arsenic	7440-38-2	13	16	16.2 *	**AB**	4.8 *		7.9 *		5.2 *		U *		3.3 *		U *		8.8 *		7.8 *	
Barium	7440-39-3	350	400	30.4 *		51.3 *		53.4 *		24.9 *		0.98 b*		26.8 *		11.4 *		36.2		26.5	
Beryllium	7440-41-7	7.2	590	0.2 b		0.22		0.36		0.24		U		0.16 b		0.028 b		0.18 b		0.4	
Cadmium	7440-43-9	2.5	9.3	0.99 *		2.4 *		10.2 *	**AB**	0.6 *		0.021 b*		0.38 *		0.16 b*		2		1.6	
Calcium	7440-70-2	NA	NA	32300 *		782 *		1970 *		14500 *		278 *		39700 *		2490 *		79500		58700	
Chromium	7440-47-3	30	1,500	686 N	**A**	6.4 N		13.7 N		18.3 N		0.52 bN		26.6 N		200 N	**A**	1090 N	**A**	5.8 N	
Cobalt	7440-48-4	NA	NA	124 *		36.1 *		38.5 *		15.4 *		0.11 b*		20.5 *		3.8 *		7.2 *		5.9 *	
Copper	7440-50-8	50	270	64.7 N*	**A**	20.4 N*		77.1 N*	**A**	21.7 N*		1.5 N*		21.1 N*		121 N*	**A**	16.3 N*		222 N*	**A**
Iron	7439-89-6	NA	NA	18000 E		12700 E		18800 E		13400 E		86.6 E		9630 E		1960 E		9220 *E		12000 *E	
Lead	7439-92-1	63	1000	25.3 N*		8.7 N*		23.7 N*		17.9 N*		6.1 N*		145 N*	**A**	37.3 N*		27.2		6.3	
Magnesium	7439-95-4	NA	NA	6640		1760		2770		4330		16.5 b		4440		209		29100		4840	
Manganese	7439-96-5	1600	10,000	625 *		807 *		643 *		1170 *		1.6 b*		403 *		23.1 *		2410	**A**	1710	**A**
Mercury	7439-97-6	0.18	2.8	0.14		0.017 b		0.025 b		0.012 b		0.0057 b		0.023 b		0.0056 b		0.043 *		0.017 b*	
Nickel	7440-02-0	30	310	195 N*E	**A**	29.3 N*E		758 N*E	**AB**	79.4 N*E		0.73 bN*E		132 N*E	**A**	335 N*E	**AB**	27.3		14.5	
Potassium	7440-09-7	NA	NA	511		578		643		616		75		501		111		479 *		429 *	
Selenium	7782-49-2	3.9	1,500	1.1 b		1.1 b		0.68 b		U		1.9		U		1.2 b		2.6		2.3	
Silver	7440-22-4	2	1,500	U		U		U		U		0.066 b		U		0.13 b		0.11 b		U	
Sodium	7440-23-5	NA	NA	88.5 E		430 E		54.3 E		215 E		42.8 E		85.3 E		36.9 bE		111 *E		49.7 *E	
Thallium	7440-28-0	NA	NA	0.59 bN		0.61 bN		1.2 N		0.76 bN		0.28 bN		0.43 bN		0.44 bN		U		U	
Vanadium	7440-62-2	NA	NA	10		8.3		12.1		8		U		6.2		0.77 b		6.2		4.6	
Zinc	7440-66-6	109	10,000	450 N*E	**A**	596 N*E	**A**	2160 N*E	**A**	259 N*E		116 N*E	**A**	149 N*E	**A**	35 N*E		963 *E	**A**	496 *E	**A**
Total Cyanide	NA	27	27	U		U		U		U		U		U		U		U		U	

Notes:
Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)
SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006
b = Trace Concentration Below Reporting Limit And Equal To Or Above Detection Limit
N = Matrix Spike Recovery Falls Outside Control Limit
NA = Not Available
* = Relative Percent Difference for duplicate analyses is outside of the control limit
E = estimated concentration due to the presence of interferences
U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit
A = Exceeds Unrestricted Use SCO
B (Highlighted Value) = Exceeds Restricted Commercial Use SCO

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TABLE 7a
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS (VOCS) IN GROUNDWATER SAMPLES

Contaminant	X Groundwater Standard or Guidance Value	MW-B			MW-C		MW-D		MW-E		MW-F		MW-G		MW-H	
		7/9/2014	7/31/2014	9/30/2014	7/10/2014	9/29/2014	7/9/2014	9/29/2014	7/9/2014	9/29/2014	7/9/2014	9/30/2014	7/7/2014	9/30/2014	7/8/2014	9/29/2014
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Naphthalene*	10	4.5 J	U	U	U	U	2.9 J	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	2.7 J	U	U	U	U	U	U	U	U		U		U
n-Propylbenzene*	5	0.99 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U
tert-Butyl Alcohol*	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
tert-Butylbenzene*	5	2.8 J	2.7 J	U	U	U	U	U	U	U	U	U	3.9 J	U	3.9 J	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		8.29	2.7	2.7	0	U	2.9	U	U	U	U	U	3.9	U	3.9	U
Total TICs		175	140	75	U	U	26	U	23	U	23	7.1	108	212.1	91	83.1
Total VOCs and TICs		183.29	142.7	77.7	U	U	28.9	U	23	U	23	7.1	111.9	212.1	94.9	83.1

Contaminant	X Groundwater Standard or Guidance Value	MW-I		MW-J		MW-K		MW-L		MW-M		MW-N		Production Well
		7/8/2014	9/30/2014	7/10/2014	9/29/2014	7/10/2014	9/30/2014	7/7/2014	9/30/2014	7/9/2014	9/30/2014	7/7/2014	9/29/2014	9/30/2014
Chloroform	7	U	U	U	U	U	U	0.65 J	U	U	U	U	U	U
Naphthalene	10	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
n-Propylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
tert-Butyl Alcohol	NA	U	U	U	U	U	U	U	U	4.5 J	U	U	U	U
tert-Butylbenzene	5	2.5 J	U	U	U	U	U	U	U	3.6 J	U	U	U	U
Toluene	5	U	U	U	U	U	U	0.74 J	U	U	U	U	U	U
Total VOCs		2.5	U	U	U	U	U	1.39	U	8.1	U	U	U	U
Total TICs		U	11.6	U	U	U	U	27.7	U	130	22	87	5.1	U
Total VOCs and TICs		2.5	11.6	U	U	U	U	29.09	U	138.1	22	87	5.1	U

Notes

VOC = Volatile Organic Compound µg/L = micrograms per Liter or parts per billion (ppb). NA = Not Available * Analyte not validated.

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

J = Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than the method detection limit. The concentration given is an approximate value.

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

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TABLE 7b
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) IN GROUNDWATER SAMPLES

Contaminant	X Groundwater Standard or Guidance Value	MW-B		MW-C		MW-D		MW-E		MW-F		MW-G		MW-H	
		7/9/2014	9/30/2014	7/10/2014	9/29/2014	7/9/2014	9/29/2014	7/9/2014	9/29/2014	7/9/2014	9/30/2014	7/7/2014	9/30/2014	7/8/2014	9/29/2014
1-Methylnaphthalene*	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Di-n-butylphthalate	50	U	U	U	U	U	U	U	U	U	U	U	U u	U	U
Fluorene	50	1.3 J	U	U	U	U	U	U	U	U	U	U	U	1.1 J	U
Total SVOCs		1.3	0	U	U	U	U	U	0	U	0	U	0	1.1	0
Total TICs		154	236.4	39.8	4.8	19.1	8.5	22	U	11	19.5	35.1	136.8	171.6	111.8
Total SVOCs and TICs		155.3	236.4	39.8	4.8	19.1	8.5	22	0	11	19.5	35.1	136.8	172.7	111.8

Contaminant	X Groundwater Standard or Guidance Value	MW-I		MW-J		MW-K		MW-L		MW-M		MW-N		Production Well
		7/8/2014	9/30/2014	7/10/2014	9/29/2014	7/10/2014	9/30/2014	7/7/2014	9/30/2014	7/9/2014	9/30/2014	7/7/2014	9/29/2014	9/30/2014
1-Methylnaphthalene*	NA	U	U	U	U	U	U	U	U	2.1 J	U	U	U	U
Di-n-butylphthalate	50	U	U	U	U	U	U	1 J	U	U	U	U	U	U
Fluorene	50	U	U	U	U	U	U	U	U	U	U	U	U	U
Total SVOCs		U	0	U	U	U	0	1	0	2.1	0	U	0	0
Total TICs		18.2	16.6	U	11.3	52	72	4.9	4.2	26.6	49.6	79	22.9	U
Total SVOCs and TICs		18.2	16.6	U	11.3	52	72	5.9	4.2	28.7	49.6	79	22.9	0

Notes

NA = Not Available SVOC = Semi-Volatile Organic Compound TIC = Tentatively Identified Compound * Analyte not validated.

µg/L = micrograms per Liter or parts per billion (ppb).

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

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TABLE 7c
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF PESTICIDES AND PCBS IN GROUNDWATER SAMPLES

Contaminant	X Groundwater Standard or Guidance Value	**MW-B** 07/09/14	**MW-C** 07/10/14	**MW-D** 07/09/14	**MW-E** 07/09/14	**MW-F** 07/09/14	**MW-G** 07/07/14	**MW-H** 07/08/14	**MW-I** 07/08/14	**MW-J** 07/10/14	**MW-K** 07/10/14	**MW-L** 07/07/14	**MW-M** 07/09/14	**MW-N** 07/07/14
Pesticides	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
PCBs	0.09	U	U	U	U	U	U	U	U	U	U	U	U	U

Notes

NA = Not Available

µg/L = micrograms per Liter or parts per billion (ppb).

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

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TABLE 7d
211 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905038

SUMMARY OF DETECTED TAL METALS IN GROUNDWATER SAMPLES

Contaminant	X Groundwater Standard or Guidance Value	MW-B		MW-C		MW-D		MW-E		MW-F		MW-G		MW-H	
		7/9/2014	9/30/2014	7/10/2014	9/29/2014	7/9/2014	9/29/2014	7/9/2014	9/29/2014	7/9/2014	9/30/2014	7/7/2014	9/30/2014	7/8/2014	9/29/2014
Aluminum	NA	U	66.2 B	U	1220.0	U	U	U	U	U	347	U	1550.0	U	U
Arsenic	25	U	U	U	5.1 B	U	U	U	U	U	U	U	U	U	U
Barium	1,000	616	200	219	221	259	200 B	207	223	29.4 B	132 B	427	901	444.0	791.0
Calcium	NA	293,000	300,000	114,000	114,000	153,000	133,000	124,000	134,000	463,000	401,000	341,000	312,000	411,000	306,000
Chromium	50	0.86 B	U	U	1.8 B	U	U	0.9 B	3.5 B	U	0.72 B	0.77 B	3 B	2.0 B	1.1 B
Cobalt	NA	U	U	U	U	U	U	U	U	U	U	U	1.0 B	U	U
Copper	200	U	U	U	4.5 B	U	U	U	U	U	U	U	9 B	U	U
Iron	300	156 B	92.4 B	U	1510 X	663 X	376 X	110 B	84 B	582 X	2650 X	1790 X	3620 X	924 X	513 X
Lead	25	U	U	U	U	U	U	U	U	4.3 B	U	U	U	U	U
Magnesium	35,000	20,500	15,700	18,100	18,900	23,600	20,400	21,000	22,500	20,800	22,500	32,200	31,300	39,700 X	36,200 X
Manganese	300	1,480 X	2,800 X	U	122	752 X	619 X	U	U	770 X	1,480 X	1,060 X	914 X	443 X	426 X
Nickel	100	U	U	U	1.5 B	U	U	U	U	1.5 B	1.1 B	U	4.0 B	0.9 B	U
Potassium	NA	6,730 E	6,240	3,660	4,510	5,130 E	5,200	3,770 E	3,840	3,780	5,430	9,260 E	8,990	13,100 E	12,000
Selenium	10	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sodium	20,000	352,000 X	184,000 X	128,000 X	131,000 X	116,000 X	126,000 X	125,000 X	125,000 X	123,000 X	186,000 X	152,000 X	196,000 X	409,000 X	291,000 X
Thallium	0.5	7.6 B X	U	U	U	U	U	7.1 B X	U	15.50 B X	U	13.4 B X	U	9.3 B X	U
Vanadium	NA	1.6 B	U	U	2.0 B	U	U	U	U	U	U	1.2 B	3.4 B	1.3 B	1.3 B
Zinc	2,000	6.3 B	U	6.2 B	10.9 B	U	U	U	U	818	91.2	5.7 B	34.6 B	5.4 B	U

Contaminant	X Groundwater Standard or Guidance Value	MW-I		MW-J		MW-K		MW-L		MW-M		MW-N		Production Well
		7/8/2014	9/30/2014	7/10/2014	9/29/2014	7/10/2014	9/30/2014	7/7/2014	9/30/2014	7/9/2014	9/30/2014	7/7/2014	9/29/2014	9/30/2014
Aluminum	NA	U	U	977	U	93.6 B	U	196 B	U	115 B	1310	434	326	U
Arsenic	25	U	U	U	U	U	U	U	U	U	7.0 B	U	U	4.8 B
Barium	1,000	609	1910 X	183 B	219	616	928	168 B	202	1010 X	812	241	179 B	289
Calcium	NA	215,000	170,000	127,000	143,000	146,000	136,000	122,000	144,000	272,000	325,000	161,000	128,000	129,000
Chromium	50	U	5.2 B	2.1 B	U	0.70 B	1.1 B	0.85 B	0.71 B	0.77 B	1.9 B	309.00 X	148.00 X	0.84 B
Cobalt	NA	U	U	U	U	U	1.2 B	2.2 B	U	U	U	U	U	U
Copper	200	U	U	6.0 B	U	U	U	U	U	U	5.2 B	4.3 B	U	U
Iron	300	2600 X	4350 X	1870 X	33.9 B	290	621 X	434 X	351 X	5520 X	5150 X	2100 X	843 X	1030 X
Lead	25	U	U	4.3 B	U	U	U	U	U	U	U	U	U	U
Magnesium	35,000	20,800	16,900	20,800	23,100	21,100	20,100	21,300	23,400	22,600	26,300	25,700	19,900	22,500
Manganese	300	1,720 X	1,480 X	131	U	1,900 X	1,910 X	1,050 X	101	1,370 X	1,210 X	453 X	382 X	91
Nickel	100	U	7.2 B	2.6 B	U	2.4 B	3.7 B	2.7 B	U	U	1.9 B	2.2 B	1.6 B	1.3 B
Potassium	NA	5,060 J	4,670	4,190	3,950	3,600	3,650	5,920 E	4,150	12,800 E	15,700	5,520 E	6,120	3,900
Selenium	10	U	U	15.10 B X	U	U	U	U	U	U	U	U	U	U
Sodium	20,000	205,000 X	174,000 X	137,000 X	137,000 X	109,000 X	92,600 X	108,000 X	138,000 X	439,000 X	694,000 X	162,000 X	126,000 X	129,000 X
Thallium	0.5	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	NA	U	U	1.3 B	U	U	1.3 B	1.3 B	U	U	2.0 B	1.7 B	1.4 B	U
Zinc	2,000	6.5 B	U	20.1 B	6.2 B	7.3 B	6.2 B	8.4 B	U	5.1 B	10.9 B	14.2 B	7.3 B	369

Notes

NA = Not Available B = indicates a concentration below thereporting limit and equal to or above the detection limit E = an estimated concentration due to the presence of interferences

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

1910 X = Exceeds Groundwater Standard or Guidance Value µg/L = micrograms per Liter or parts per billion (ppb).

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

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TABLE 8
211 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO. C905038

UNRESTRICTED USE REMEDIAL COST

Capital/Initial Costs	**ESTIMATE**
Design	$20,000.00
Environmental Easements	$5,000.00
Site Management Plan	$5,000.00
Contractor Mobilization / Site Prep	$25,000.00
Demolition & Disposal - Structure & Foundation ($8/ft2)	$2,000,000.00
Shoring ($200/ft)	$200,000.00
Excavation ($10/yd3)	$950,000.00
Dewatering (assumed not needed)	$0.00
Excavation/Fieldwork Oversight ($65/hr)	$104,000.00
Soil Management/Disposal ($75/ton, 1.1 ton/yd3)	$7,838,000.00
Backfill ($30/ton)	$3,135,000.00
New Building ($75/ft2)	$18,750,000.00
Asphalt/Parking ($5/ft2)	$175,000.00
Tenant/Equipment Relocation	$500,000.00
Loss of Rental Income	$1,250,000.00
Confirmatory Sampling	$25,000.00
Report/Regulatory Coordination	$25,000.00
20% Contingency	$7,001,400.00
Total Capital/Initial Costs	**$42,008,400.00**
Annual Operations and Maintenance Costs (Year 1)	
Groundwater Monitoring	$25,000.00
Reporting	$5,000.00
20% Contingency	$600.00
Total Annual Costs	$30,000.00
Present Worth Cost Year 1 (F=0.9524, i=5%)	**$28,600.00**
Annual Operations and Maintenance Costs (Years 2-5)	
Groundwater Monitoring	$21,000.00
Reporting	$4,000.00
20% Contingency	$600.00
Total Annual Costs	$25,000.00
Present Worth Cost Years 2-5 (F=3.3771, i=5%)	**$84,400.00**
Annual Operations and Maintenance Costs (Years 6-30)	
Groundwater Monitoring	$7,000.00
Reporting	$2,500.00
20% Contingency	$600.00
Total Annual Costs	$9,500.00
Present Worth Cost Years 6-30 (F=11.043, i=5%)	**$104,900.00**
TOTAL PRESENT WORTH COST	**$42,226,300.00**

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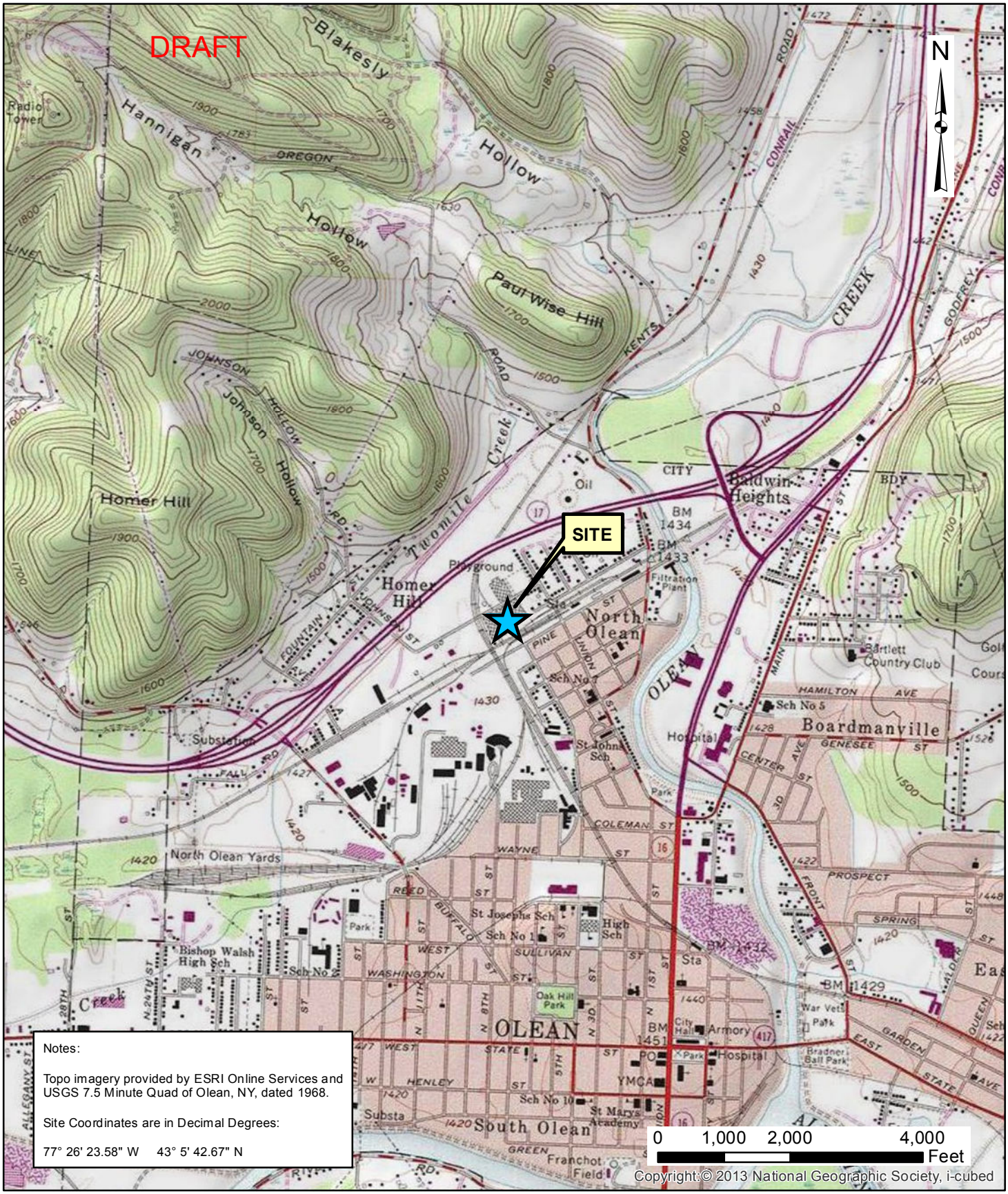
TABLE 9
211 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO. C905038

RESTRICTED COMMERCIAL USE REMEDIAL COST

	TRACK 2 ESTIMATE	TRACK 4 ESTIMATE
Capital/Initial Costs		
Design	$30,000.00	$20,000.00
Environmental Easements	$5,000.00	$5,000.00
Site Management Plan	$10,000.00	$15,000.00
Contractor Mobilization / Site Prep	$30,000.00	$5,000.00
Sawcut	$15,000.00	$0.00
Concrete Removal ($200/yd3)	$50,600.00	$0.00
Shoring ($200/ft)	$260,000.00	$0.00
Excavation ($150/yd3)	$675,000.00	$10,000.00
Dewatering (assumed not needed)	$0.00	$0.00
Excavation/Fieldwork Oversight ($65/hr)	$65,000.00	$13,000.00
Concrete Disposal ($50/ton, 0.6 yd3/ton)	$21,100.00	$0.00
Soil Management/Disposal ($75/ton, 1.1 ton/yd3)	$371,300.00	$3,500.00
Backfill ($30/ton)	$148,500.00	$1,400.00
Excavation Area Isolation (sealing off)	$50,000.00	$0.00
Site Restoration ($10/ft2)	$166,000.00	$10,000.00
SSDS ($2/ft2)	$24,000.00	$24,000.00
Asphalt ($5/ft2)	$0.00	$133,100.00
Tenant Relocation/Reimbursement (assumed not needed)	$0.00	$0.00
Confirmatory Sampling	$30,000.00	$5,000.00
Report/Regulatory Coordination	$20,000.00	$20,000.00
20% Contingency	$394,300.00	$53,000.00
Total Capital/Initial Costs	**$2,365,800.00**	**$318,000.00**
Annual Operations and Maintenance Costs (Year 1)		
Annual Cover/SSDS Review and Certification	$0.00	$3,000.00
Groundwater Monitoring	$23,000.00	$23,000.00
Reporting	$5,000.00	$5,000.00
20% Contingency	$600.00	$600.00
Total Annual Costs	$28,000.00	$31,000.00
Present Worth Cost Year 1 (F=0.9524, i=5%)	**$26,700.00**	**$29,500.00**
Annual Operations and Maintenance Costs (Years 2-5)		
Annual Cover/SSDS Review and Certification	$0.00	$3,000.00
Groundwater Monitoring	$7,000.00	$7,000.00
Reporting	$4,000.00	$4,000.00
20% Contingency	$600.00	$600.00
Total Annual Costs	$11,000.00	$14,000.00
Present Worth Cost Years 2-5 (F=3.3771, i=5%)	**$37,100.00**	**$47,300.00**
Annual Operations and Maintenance Costs (Years 6-30)		
Annual Cover/SSDS Review and Certification	$0.00	$3,000.00
Groundwater Monitoring	$2,000.00	$2,000.00
Reporting	$2,500.00	$2,500.00
20% Contingency	$600.00	$600.00
Total Annual Costs	$4,500.00	$7,500.00
Present Worth Cost Years 6-30 (F=11.043, i=5%)	**$49,700.00**	**$82,900.00**
TOTAL PRESENT WORTH COST	**$2,479,300.00**	**$477,700.00**

DRAFT

FIGURES



Notes:

Topo imagery provided by ESRI Online Services and USGS 7.5 Minute Quad of Olean, NY, dated 1968.

Site Coordinates are in Decimal Degrees:

77° 26' 23.58" W 43° 5' 42.67" N

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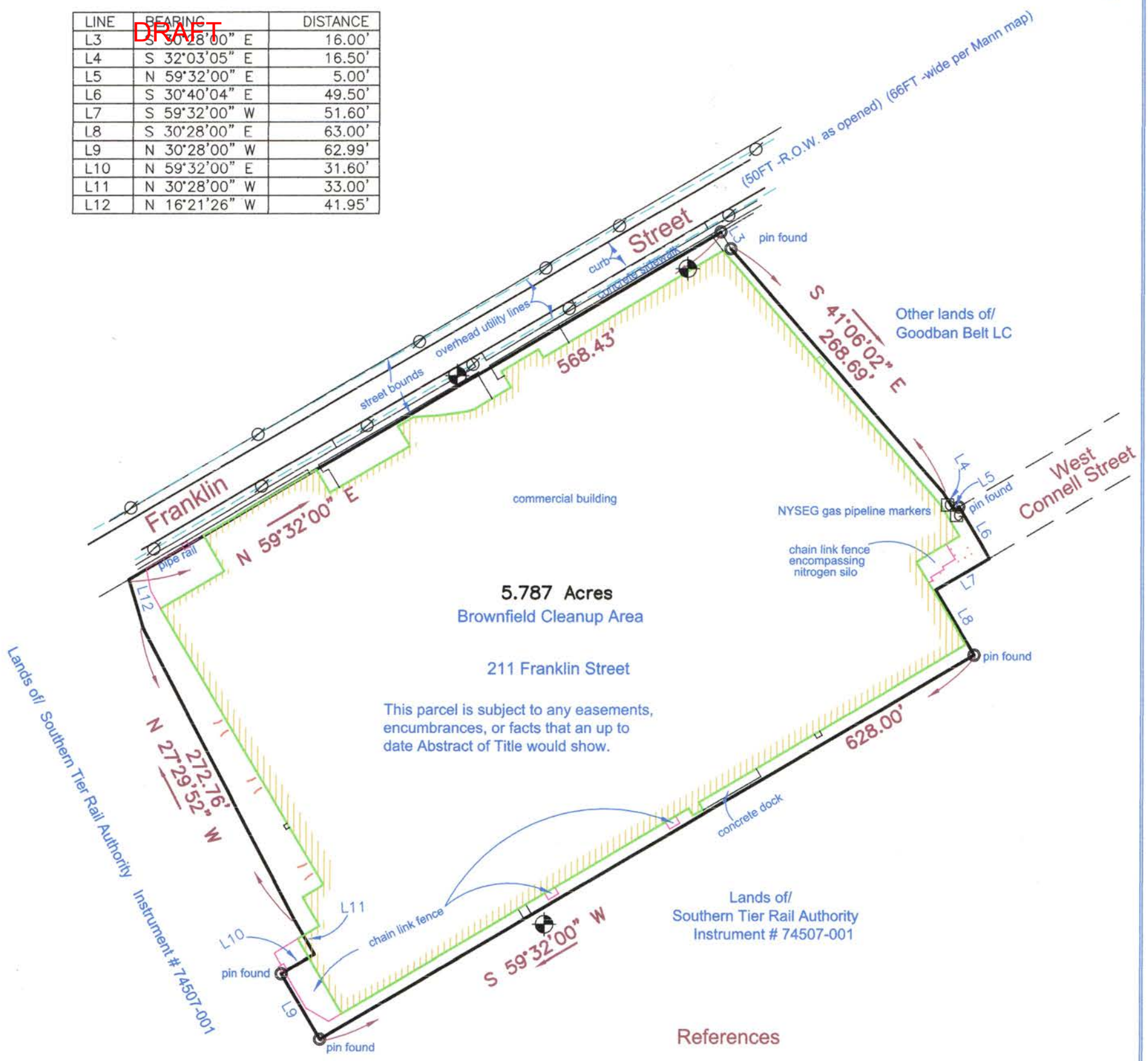
Last Date Saved: 13 Dec 2014

Date	Project Title	Project No.
12-19-2014	211 FRANKLIN STREET OLEAN, NEW YORK	4884S-13
Drawn By: CAH	BCP SITE NO. C905038 REMEDIAL INVESTIGATION	FIGURE 1
Scale: AS NOTED	Drawing Title: Project Locus Map	

DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

LINE	BEARING	DISTANCE
L3	S 30°28'00" E	16.00'
L4	S 32°03'05" E	16.50'
L5	N 59°32'00" E	5.00'
L6	S 30°40'04" E	49.50'
L7	S 59°32'00" W	51.60'
L8	S 30°28'00" E	63.00'
L9	N 30°28'00" W	62.99'
L10	N 59°32'00" E	31.60'
L11	N 30°28'00" W	33.00'
L12	N 16°21'26" W	41.95'

DRAFT



Environmental Easement description
211 Franklin Street

Beginning at the intersection of the south bounds of Franklin Street with the east bounds of lands of Southern Tier Rail Authority LLC, thence N 59-32-00 E along the south street bounds of Franklin Street, a distance of 568.43' to a point, thence through the lands of Goodban Belt, LLC:

1) S 41-06-02 E, a distance of 268.69' to a point
2) S 30-28-00 E, a distance of 16.00' to a point
3) S 32-03-05 E, a distance of 16.50' to a point on the north bounds of West Connell Street,

thence N 59-32-00 E along the north bounds of West Connell Street, a distance of 5.00' to a point, thence S 30-40-04 E crossing West Connell Street, a distance. of 49.50' to a point, thence S 59-32-00 W along the south bounds of West Connell Street, a distance of 51.60' to a point, thence along the bounds of lands now or formerly of Southern Tier Rail Authority:

1) S 30-28-00 E, a distance of 63.00' to a point
2) S 59-32-00 W, a distance of 628.00' to a point
3) N 30-28-00 W, a distance of 63.00' to a point
4) N 59-32-00 E, a distance of 31.60' to a point
5) N 30-28-00 W, a distance of 33.00' to a point
6) N 27-29-52 W, a distance of 272.76' to a point
7) N 16-21-26 W, a distance of 41.95' to the point of beginning

Contains 5.787 acres+/-

300 200 100 0
1IN=100FT

91.44 60.96 30.48 0
1IN=30.48METERS

References

1) Title Search/
Dated: December 20, 2010
File #5005973
Policy #7430732-8296035
Frontier Abstract & Research Services, Inc.

2) Deed/
Henkel Corporation to Goodban Belt LLC
Instrument # 145975-001
Dated: August 31, 2010
Recorded: September 1, 2010

3) Survey/
for Dexter Corporation
Dated: August 2, 1979
by M.C. Ackerman, LS 23028

Typical Symbols
-hydrant
-utility pole
-light pole
-monitor well
d. -deed distance
m. measured distance

This survey is certified to the following/

1) New York State Department of Environmental Conservation

Map and Survey for:
Goodban Belt LLC
of lands at
211 Franklin Street

Copies Invalid Unless Embossed

Alteration of This Document is Illegal Under Sec. 7209 Subdivision 2 of The New York State Education Law.

Part of Lots 4 & 6, Section 5 , Twp.# 2, Range # 4 of the Holland Land Co.'s Survey
Blocks 64 and 74 and part of Blocks 63, 65, 73, 75, 80, 81, and 82
Part of Franklin, Washington, Vine, and Spruce streets, and other lands
according to the "Mann Map of Olean Depot"

City of Olean
Cattaraugus County, New York
Date: November 25, 2013
Scale: 1IN = 100FT

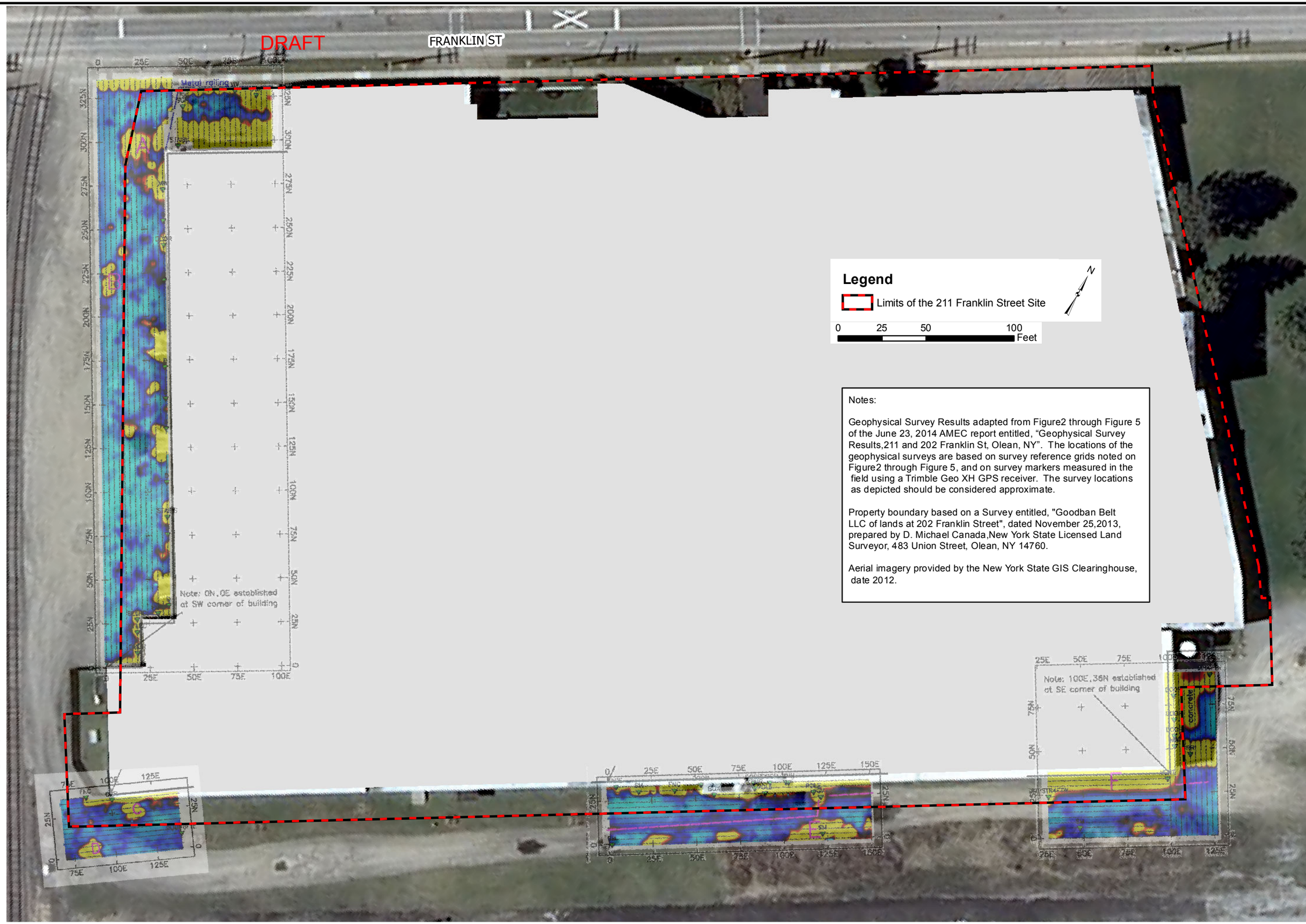
Prepared By:
D. Michael Canada
New York State
Licensed Land Surveyor
483 North Union Street
Olean, NY 14760
N.Y.S. Lic. No.49215
716-379-7918

Job Number: 7526

D. Michael Canada

FIGURE 2

Project: 4884S-13 BCP SITE NO. C905038 REMEDIAL INVESTIGATION



Notes:

Geophysical Survey Results adapted from Figure2 through Figure 5 of the June 23, 2014 AMEC report entitled, "Geophysical Survey Results,211 and 202 Franklin St, Olean, NY". The locations of the geophysical surveys are based on survey reference grids noted on Figure2 through Figure 5, and on survey markers measured in the field using a Trimble Geo XH GPS receiver. The survey locations as depicted should be considered approximate.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25,2013, prepared by D. Michael Canada,New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

DESIGNED BY	DATE
RLK	12-2014
DRAWN BY	DATE DRAWN
CAH	12-2014
SCALE	DATE ISSUED
AS NOTED	12-19-2014

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
211 FRANKLIN STREET
OLEAN, NEW YORK

BCP SITE NO. C905038 REMEDIAL INVESTIGATION

Drawing Title
Geophysical Survey Results

Project No.
4884S-13

FIGURE 3

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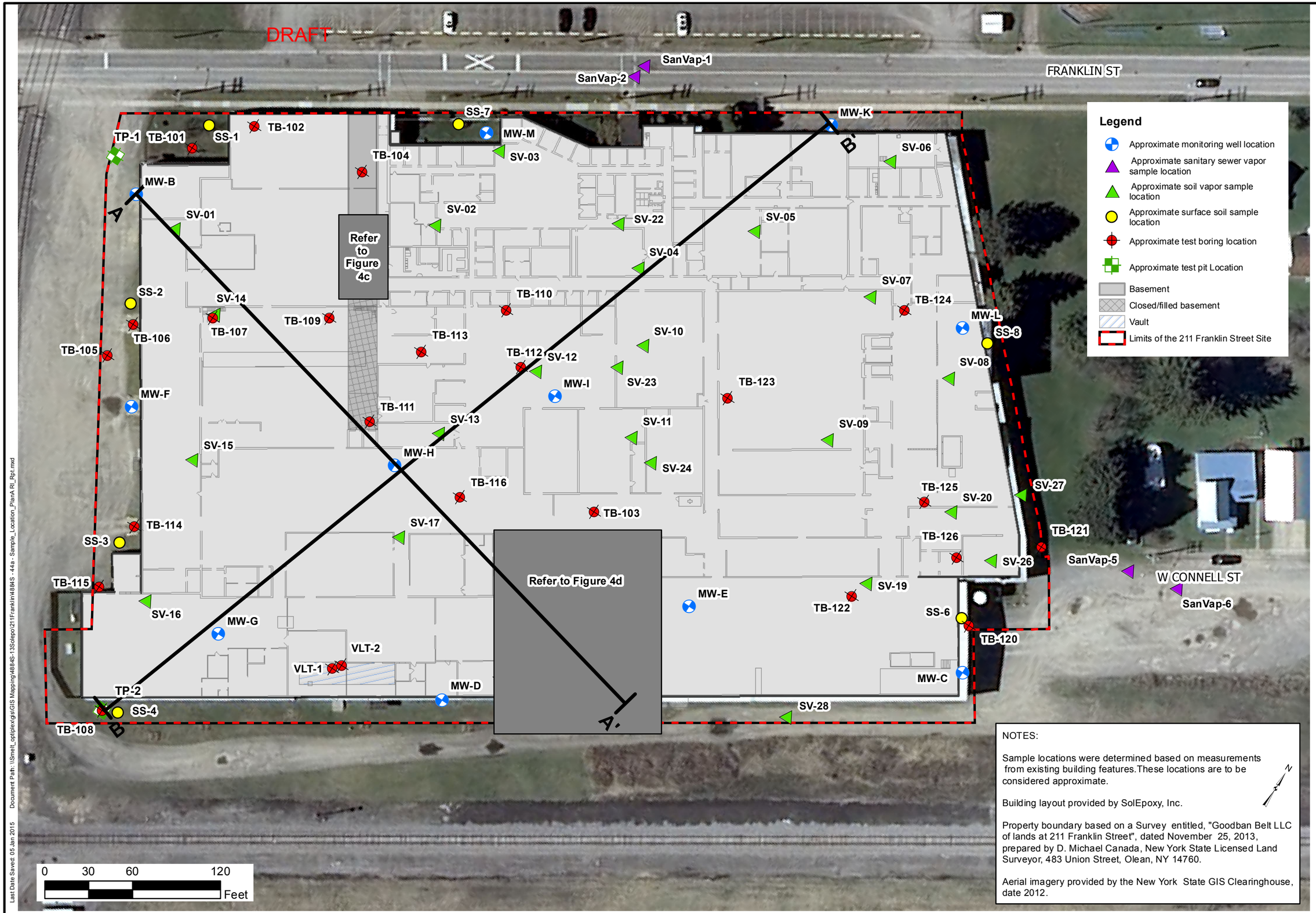

NOTES:

Sample locations were determined based on measurements from existing building features.These locations are to be considered approximate.

Building layout provided by SolEpoxy, Inc.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 211 Franklin Street", dated November 25, 2013, prepared by D. Michael Canada, New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

DESIGNED BY	DATE
RLK	12-2014
DRAWN BY	DATE DRAWN
CPS/CAH	12-2014
SCALE	DATE ISSUED
AS NOTED	12-19-2014

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
211 FRANKLIN STREET
OLEAN, NEW YORK

BCP SITE NO. C905038 REMEDIAL INVESTIGATION

Drawing Title
Site Plan with Exploration Locations

Project No.
4884S-13

FIGURE 4a

Last Date Saved: 05 Jan 2015
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