300, 304-308, 320 Andrews Street &25 Evans Street

City of Rochester

MONROE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: E828144

Prepared for:

City of Rochester

Division of Environmental Quality

30 Church Street, Room 300B

Rochester, New York 14614

Prepared by:

Day Environmental, Inc.

1563 Lyell Avenue

Rochester, New York 14606

(585) 454-0210

Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

AUGUST 2015

CERTIFICATION STATEMENT

I, Nathan Simon certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

______________________________ P.E.

__________August 2015_______DATE

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ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Andrews Street Site:	300, 304-308, 320 Andrews Street & 25 Evans Street, City of Rochester, NYSDEC Site Number: E828144
Institutional Controls:	1. The property may be used for restricted residential, restricted commercial, and restricted industrial uses; 2. Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns; 3. Engineering Controls (ECs) must be operated and maintained as specified in this SMP; 4. ECs on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP; 5. Groundwater, soil vapor and other environmental or public health monitoring must be performed as defined in this SMP; 6. Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP; 7. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement; 8. The property may not be used for a higher level of use, such as unrestricted or residential use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC; 9. Future activities on the property that will disturb remaining contaminated material and/or potassium permanganate rich media must be conducted in accordance with this SMP;

	10. The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use; 11. The potential for vapor intrusion must be evaluated for new buildings developed on the Site, and any potential impacts that are identified must be monitored or mitigated; 12. Vegetable gardens and farming on the Site are prohibited; and 13. The site owner will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC and, (2) nothing has occurred that impairs the ability of the controls to protect public health and the environment or that constitutes a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.	
Engineering Controls:	1. Cover system	
Inspections:		Frequency
1. Cover System		Annually
Monitoring:		
1. Groundwater Monitoring Wells MW-01, MW-02, MW-03A, MW-04, MW-05, MW-06, MW-07, MW-08, MW-11, MW-13, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-01R, MW-02R, MW-04R, MW-05R, MW-06R and MW-07R		Quarterly for the first year and semi-annually for the following two years.[(1)]

Andrews Street Site: 300, 304-308, 320 Andrews Street & 25 Evans Street, City of Rochester, NYSDEC Site Number: E828144

Maintenance:	
1. Cover System Maintenance	As needed
Reporting:	
1. Groundwater Monitoring Reports	Subsequent to sampling event
2. Periodic Review Report	Annually, or alternate period of time allowed by the NYSDEC

Notes:

(1) The sampling duration and frequency, the sampling technique for monitoring events, the number of wells sampled during monitoring events and the test parameters for samples collected during monitoring events may be modified with the approval of the NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at 300, 304-308, 320 Andrews Street and 25 Evans Street in the Center City District (CCD) of the City of Rochester, County of Monroe, New York (hereinafter referred to as the "Site") under the New York State (NYS) Environmental Restoration Program (ERP) administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with State Assistance Contract (SAC) #C303648, which was executed on February 15, 2008 and last amended on December 13, 2013.

1.1.1 General

The City of Rochester, Department of Environmental Services, Division of Environmental Quality (City) entered into a SAC, with the NYSDEC for the 1.524-acre property located in the City of Rochester, County of Monroe, New York. This SAC required the Remedial Party, the City, to investigate and remediate contaminated media at the Site. Figures showing the Site location and boundaries of the Site are provided as Figure 1 and Figure 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement included as Appendix A.

After completion of the remedial work described in the Interim Remedial Measures Work Plan (IRMWP), the Supplemental Interim Remedial Measure Work Plan (SIRMWP), and Addendum #1 to the SIRMWP and Addendum #2 to the SIRMWP, some contamination exceeding applicable regulatory criteria was left in the subsurface at this Site, which is hereafter referred to as 'remaining contamination." In addition, the implemented remedial measures at the Site included the injection of potassium permanganate at concentrations that are anticipated to reside within the subsurface (primarily within the saturated zone) for an extended period of time within select portions of the Site. The subsurface media that is impacted with potassium permanganate is referred to hereafter as “potassium permanganate rich media”. This Site Management Plan (SMP) was prepared to manage remaining contamination and potassium permanganate rich media at the Site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Day Environmental, Inc., on behalf of the City, in accordance with the requirements in NYSDEC Department of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation, dated May 2010 (DER-10), and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement for the Site.

1.1.2 Purpose

The Site contains residual contamination and potassium permanganate rich media left after completion of the Interim Remedial Measures (IRMs). ECs have been incorporated into the Site remedy to control exposure to remaining contamination and potassium permanganate rich media during the use of the Site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Monroe County Clerk, will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on Site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor’s successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination and potassium permanganate rich media at the Site after completion of the IRMs, Addendum #1 to the SIRMWP and Addendum #2 to the SIRMWP, including: (1) implementation and management of all IC/ECs; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports (PRRs); and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems.

This plan also includes a description of PRRs for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the SAC (#C303648; Site #E828144) for the Site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the

Site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The Site is located in the City of Rochester County of Monroe, New York and is identified as four parcels: Section 106.72 Block 01 lots 84.1, 85.1, 86 and 87.1 (i.e., 106.72-01-84.001; 106.72-01-85.001; 106.72-01-86; and 106.72-01-87.001) on the City of Rochester Tax Map. The Site is an approximately 1.524-acre area bounded by the New York State Department of Transportation (NYSDOT) Inner Loop highway right-of-way (ROW) to the north, Andrews Street ROW with commercial property beyond to the south, Franklin Square ROW with a City-owned park beyond to the east, and Bristol Street ROW with commercial property beyond to the west (see Figure 1 and Figure 2). The boundaries of the Site are more fully described in Appendix A – Environmental Easement that contains a description of the Metes and Bounds.

1.2.2 Site History

Prior to NYSDEC involvement with the Site, Phase I Environmental Site Assessments (Phase I ESAs) and a Phase II Environmental Site Assessment (Phase II ESA) were completed at the Site on behalf of the City of Rochester to determine the need for further environmental investigation at the Site. As a result of these initial studies, environmental investigation in accordance with a NYSDEC-approved work plan was conducted during the building demolition phase of work. Subsequently, as part of the Environmental Restoration Program (ERP) Project E828144, a Remedial Investigation/Alternative Analysis (RI/AA) and IRMs were completed at the Site in accordance with NYSDEC-approved work plans. The historical research associated with the above reports identify that the Site has been used for various commercial and industrial purposes since the early 1920s, including plumbing supply, electrical supply, bakery, printer, commercial bus depot and bus repair garage, gasoline station, chemical sales/distribution, dry cleaning equipment distributor, fuel oil contractor, and warehousing.

At the start of the ERP, the Site was formerly improved with four buildings with associated paved parking lots and city streets. The former buildings had a total floor area of approximately 38,349 square feet and consisted of single and two-story brick or concrete block buildings with partial basements and/or slab-on-grade construction, built between 1925 and 1965. A former narrow city street known as Evans Street separated the 320 Andrews Street parcel from the other three parcels that are contiguous with each other. Evans Street was closed to vehicle traffic, but it did contain former underground utilities (e.g., sewer, water line, gas line, etc.). Bristol Street, Franklin Square, Andrews Street, and the NYSDOT Inner Loop ROW also contain underground utilities.

Demolition of on-site structures was completed between the fall of 2010 and the spring of 2011. The former Evans Street ROW was officially abandoned by the City in March 2013, and the associated land was officially incorporated into the adjoining Site parcels by the City. As part of the abandonment, buried utilities in the former Evans Street ROW were removed and/or decommissioned. Other older buildings were also constructed and demolished in the past prior to the City's acquisition of the Site. Refer to Figure 2 for a site plan showing post-demolition Site conditions.

1.2.3 Geologic Conditions

Figure 3A is a plan view showing the locations of cross-sections prepared for the project. Geologic cross-sections A-A', B-B', C-C', D-D' and E-E' are designated as Figure 3B, Figure 3C, Figure 3D, Figure 3E and Figure 3F, respectively. These cross-sections illustrate the overburden and bedrock types and corresponding depths identified in test borings and wells that were advanced as part of the cumulative studies. In addition, the depth to groundwater in the overburden that was measured at respective overburden groundwater monitoring wells on October 24, 2014 was used to infer an overburden groundwater table on these cross-sections since this set of groundwater elevation data was collected subsequent to completion of the majority of IRM work at the Site.

Overburden

According to the Monroe County, New York Soil Survey, United States Department of Agriculture Soil Conservation Service, 1973, soils at the Site are listed as urban land (Ub). The General Soil Map included in this survey indicate that soil associations in the area of the Site are dominated by soils formed in glacial till, which tend to be deep, well to poorly drained, and medium to coarse textured. Based on a review of the New York State Geological Survey, "Surficial Geologic Map of New York - Fingerlakes Sheet", E.H Muller and D.H. Cadwell, 1986, soils in the area of the Site predominantly consist of lacustrine silt and clay that was deposited in pro-glacial lakes. A review of an “Overburden Thickness Map” for the Rochester East quadrangle dated 1980 by Dr. Richard A. Young indicates that the overburden thickness in the area of the Site ranges between 20 and 50 feet (ft.) thick.

With the exception of a cumulative total of approximately 767 square feet of concrete slabs that were left in-place at the ground surface, the Site is generally covered with a surficial layer of NYSDEC-approved imported #2 crusher run (CR2) stone (dolostone) that was measured to be two ft. thick when installed as part of the cover system for the Site. NYSDEC-approved imported crushed stone was also used to backfill basements during the 2010/2011 demolition work, and to backfill portions of IRM excavations where contaminated soils were removed and replacement fill was required in order to bring the specific excavations up to Site grade. The locations of basements and IRM excavations where deeper pockets of imported crushed stone are present are illustrated on Figure 3A through Figure 3F.

Across most of the Site, a layer of heterogeneous historic urban fill material is present beneath the imported CR2 cover system. The urban fill material generally consists of reworked soils, with lesser amounts of coal, ash, cinders, glass, brick, gravel, rock, concrete and asphalt. Urban fill deposits appear to extend to approximate depths ranging between 1.5 ft. to 8 ft. below ground surface (bgs).

Indigenous lacustrine soil deposits, encountered beneath the urban fill material, included brown silt to sand with little clay and a trace of gravel (i.e. dropstones). The lacustrine deposits are frequently varved and found in layers ranging in thickness from less than one inch to several feet. The lacustrine soil deposits are underlain by dense glacial till that generally consists of gray-brown fine sand and silt with some gravel and clay. This till appears to be a heterogeneous unstratified/unsorted ablation till, and is then underlain by stratified silt and sand layers that extend to the top of bedrock (refer to geologic cross-sections included as Figure 3B, Figure 3C, Figure 3D, Figure 3E and Figure 3F).

Bedrock

Based on a review of a geologic map from the document titled "Subsurface Structure and Stratigraphy of Rochester, New York" dated 1983 by Jolie Lynn Scherzer, as well as review of information in the document titled "New York State Geological Highway Map" dated 1990, bedrock underlying the overburden deposits in the area of the Site consists of Eramosa Dolomite (a/k/a Lockport Dolomite) belonging to the Lockport Group, Upper Silurian Period, Paleozoic Era. A review of a "Subsurface Bedrock Contour Map" for the Rochester East quadrangle dated 1980 by Dr. Richard A. Young indicates that the bedrock in the area of the Site generally slopes to the north/northwest.

The Eramosa dolomite bedrock at the Site is first encountered at depths ranging between approximately 31.5 and 34.0 ft. bgs (i.e., below the top of the CR2 cover system), which are the depths where auger refusals were encountered. The dolomite at the Site is generally hard, light to medium gray, siliceous dolomite, with some horizontal fractures, a lesser amount of angled fractures, and some minor layers of wavy striations/styolitic partings, calcareous vugs, or fossils. Rock Quality Designation (RQD) values ranged between 58% and 96.7% at nine test locations where bedrock was cored at the Site.

Hydrogeology

Figure 4A and Figure 4B illustrate groundwater flow conditions in the overburden and the bedrock at the Site on October 24, 2014, respectively. As shown, groundwater in the overburden and bedrock appeared to generally flow northward with some outward radial flow from the center of the Site. Refer to Table 1 for groundwater levels and associated elevations measured at the Site.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the Site. The results of the RI are described in detail in the following report:

- Remedial Investigation/Alternatives Analysis (RI/AA) Report, 300, 304-308, 320 Andrews Street and 25 Evans Street, City of Rochester, County of Monroe, New York, Environmental Restoration Project E828144.

Generally, the RI determined that contamination detected in the soil, urban fill and/or groundwater at the Site consists of chlorinated volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. Apparent sources of one or more type of contamination identified included: leakage from underground storage tank (UST) systems; discharges and leakage from a repair garage trench drain; interior and exterior housekeeping, past operations, possible chemical discharges associated with the dry cleaning equipment distributor; and the urban fill material.

The primary contaminant at the Site is Tetrachloroethene (i.e., Perchloroethene or PCE), which is a chlorinated VOC. PCE has been detected in urban fill, soil, groundwater and soil vapor at high concentrations in comparison to other VOCs. Of the VOCs exceeding applicable soil cleanup objectives (SCOs), PCE impact accounted for the largest area requiring aggressive interim remedial measures. The area of PCE impacted media prior to IRM activities was approximately 16,750 square feet, which is approximately 25% of the total Site area.

PCE, and lower concentrations of other VOCs, have been detected in soil vapor on-site; however, the off-site soil vapor concentrations in proximity to buildings on adjoining properties to the south and west did not require additional soil vapor intrusion (SVI) sampling in these off-site buildings.

Figure 5 provides a RI soil contamination summary. Figure 6A and Figure 6B provide a RI groundwater contamination summary [i.e., PCE and Target Analyte List (TAL) Metals] using data collected during a September 2013 (Round 4) sampling event for the overburden and bedrock, respectively. Table 2A provides a summary of the nature and extent of contamination in subsurface soil and groundwater at the Site prior to completing remedial work.

Below is a summary of Site conditions when the RI was performed between 2010 and 2014:

Soil

PCE Source Area

A PCE source area was identified on the 304 to 308 Andrews Street parcel, which is designated as the Primary chlorinated VOC Area shown on Figure 5 as IRM-01 (Primary chlorinated VOC Contaminated Area). The contaminants from this area appeared to have impacted the former sewer (pipe and bedding material) that was located in the adjoining right-of-way of former Evans Street as evidenced by 51,000 milligram per kilogram (mg/kg) or parts per million (ppm) of PCE being detected in a tar-like sample collected from the inside of the sewer piping in this area. Refer to Table 2A for a summary of the Pre-IRM Nature and Extent of Contamination, including the measured concentrations of PCE in Site soil and fill prior to initiation of IRM activities.

Preferential PCE Migration Pathway

A former combined sewer in the former Evans Street ROW was identified as a preferential migration pathway of contaminants from the PCE source area. This area is shown on Figure 5 as IRM-02 (Buried Utility Corridor Acting as a Potential Preferential Pathway for chlorinated VOCs).

UST Area

The two abandoned USTs, presumed to have stored gasoline and diesel oil, located on the eastern portion of the 25 Evans Street parcel were identified as a source area for petroleum contamination. In 1984, the tanks were pumped out and filled with K-Crete as a method of closing them in-place. Petroleum-type VOCs, and also some polynuclear aromatic hydrocarbon (PAH) SVOCs and metals were detected in this area (refer to concentration ranges on Table 2A). The UST area is shown on Figure 5 as IRM-03 (Filled In-Place Abandoned Underground Storage Tanks with Petroleum Impact). As part of the RI, a geophysical survey, using an EM-61 time-domain electromagnetic metal detector and a ground penetrating radar (GPR), was performed, and the two 5,000-gallon USTs were confirmed at an area of magnetic anomaly on the eastern portion of the 25 Evans Street parcel. Based on subsequent test pitting, other magnetic anomalies did not identify USTs.

PCB-Impacted Area

One small near surface area of soil containing 1.8 mg/kg or ppm of polychlorinated biphenyls (PCBs) was identified on the western portion of the 320 Andrews Street parcel located adjacent to the former Evans Street ROW. This area is shown on Figure 5 as IRM-04 (Anomalous Area of PCB in Soil). Refer to Table 2A for a summary of the Pre-IRM Nature and Extent of Contamination, including the measured concentrations of PCBs in Site soil and fill prior to initiation of IRM activities.

Trench Drain Area

An approximate 130 foot long by 1-foot wide trench drain associated with the former bus repair and refueling facility was located on the 25 Evans Street parcel. The majority of the trench drain structure was removed and disposed during the demolition phase work. Impacts were documented in underlying soil in proximity to the trench drain. Contaminants exceeding SCOs included various PAH SVOCs and Metals (refer to concentration ranges on Table 2A). This area is shown on Figure 5 as IRM-05 (Former Trench Drain Area with SVOC and Metals Impacts).

Piping Area

An area of buried piping was located on the 320 Andrews Street Parcel. A sample of the solid contents from inside this piping contained 0.58 mg/kg of PCE. Based on the EM-61 geophysical survey on this area of the Site, it was estimated that approximately 220 linear feet (LF) of piping existed in this area. This area was identified as an area of PCE impact since it was possible other portions of the contents of the piping, and soil immediately surrounding portions of the piping, could contain higher concentrations of PCE. This area is shown on Figure 5 as IRM-06 (Buried Piping with PCE Impacts in Pipe Sediments). Refer to Table 2A for a summary of the Pre-IRM Nature and Extent of Contamination, including the measured concentrations of PCE in Site soil and fill prior to initiation of IRM activities.

Historical Urban Fill Material

Heterogeneous historic urban fill material is present across most of the Site above indigenous soils. The fill material generally consists of reworked soils, with lesser amounts of coal, cinders, glass, ash, brick, gravel, rock, concrete and asphalt. Samples of the fill material, and also some samples of soil, contain concentrations of PAH SVOCs and/or Metals that exceed SCOs (refer to concentration ranges on Table 2A). The urban fill is generally located across the Site, except within the footprints of former basements. Areas of the Site where urban fill is present is generally shown by the hatching on Figure 5.

Miscellaneous Areas with VOCs

Low levels of PCE (in relation to that detected in the PCE source area described above) and other VOCs (acetone, benzene, trimethylbenzenes, trichloroethene, etc.)

were detected in soil/fill samples on portions of the 25 Evans Street parcel, the 320 Andrews Street parcel, and the Franklin Square ROW. Concentrations of PCE detected in these soil/fill samples ranged between 0.0532 mg/kg and 1.12 mg/kg, and detected levels of VOCs are below NYSDEC SCOs. These miscellaneous areas are not specifically highlighted on Figure 5.

Site-Related Groundwater

VOCs, primarily consisting of PCE, have been detected in groundwater at the Site generally on 304-308 and 320 Andrews Street and 25 Evans Street. The PCE source areas appear to have originated from the 304-308 Andrews Street parcel. The highest detected PCE concentrations detected in groundwater samples has been from overburden well MW-01 located north (hydraulically downgradient) of the source area [as high as 70,000 micrograms per liter (ug/l) or parts per billion (ppb)] and overburden well MW-02 located immediately east of the source area (as high as 18,000 ug/l or ppb). Well MW-01 is located in close proximity to the former buried sewer line in the former Evans Street ROW, and the high concentrations of PCE at this well located away from the PCE source area supports the conceptual Site model that the sewer system acted as a preferential migration pathway for the PCE. PCE has been detected at off-site overburden well MW-11 at concentrations ranging between 5.1 ug/l or ppb and 220 ug/l or ppb), and this well is located on an on-ramp of the NYSDOT Inner Loop, which is approximately 40 ft. north of well MW-01, and is also in proximity to the buried sewer system. PCE has also historically been detected in a few bedrock wells, but at much lower concentrations (e.g., ranging between 0.57 ug/l or ppb and 130 ug/l or ppb) when compared to overburden wells in proximity to the PCE source area. Figure 6A and Figure 6B provide an illustration of the concentration gradient of PCE detected in overburden groundwater and bedrock groundwater using data collected during the September 2013 sampling event, respectively. Refer to Table 2A for a summary of the Pre-IRM Nature and Extent of Contamination, including the measured concentrations of VOCs in Site groundwater prior to initiation of IRM activities.

Groundwater samples from each overburden and bedrock well contained one or more metals exceeding groundwater standards and guidance values. Past operations at the Site may have contributed to the presence of some of the metals (e.g., chromium) detected at elevated concentrations in the groundwater. However, metals exceeding SCOs in soil or fill samples do not correlate with metals exceeding groundwater standards and guidance values, which suggests the presence of certain elevated metal concentrations (e.g., antimony, iron, magnesium, sodium) detected in the groundwater is likely naturally occurring. Refer to Table 2A for a summary of the Pre-IRM Nature and Extent of Contamination, including the measured concentrations of Metals in Site groundwater prior to initiation of IRM activities.

Evidence of light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL) was not detected in soil or groundwater at test locations during the RI.

Site-Related Soil Vapor Intrusion

Five on-site soil vapor samples (designated as SV-1 through SV-5) and one outdoor air background sample (designated as 540-BG071813) were collected using Summa canisters. Figure 7 shows the locations of the soil vapor points and background air sample. The six samples were analyzed for TO-15 VOCs. As presented on Table 3A, the detected on-site soil vapor PCE concentrations ranged between not detected and 881 microgram per cubic meter (ug/m^3). Soil vapor sample locations where PCE was detected in proximity to potential receptors (i.e., buildings) consisted of SV-2 and SV-5.

Three off-site soil vapor samples (designated as SV-6 through SV-8) and one outdoor air background sample (designated as 658-BG102414) were collected using Summa Canisters. Figure 7 shows the locations of the soil vapor points and background air sample. As shown on Figure 7, the off-site soil vapor samples were positioned near closest off-site receptors. The measured concentrations of TO-15 VOCs are summarized on Table 3B. Specifically, PCE was detected in SV-6 and SV-8 near off-site buildings addressed as 176-180 North Clinton Avenue and 331-33 Andrews Street, but at concentrations of 2.71 ug/m^3 and 1.7 ug/m^3, respectively. PCE was not detected in soil vapor sample SV-7 collected on the City Parklands east of the Site or in the outdoor air background sample. Based on the results of the off-site soil vapor samples in conjunction with nearby groundwater sample results, additional soil vapor intrusion sampling was not warranted at that time.

1.4 SUMMARY OF REMEDIAL ACTIONS

The Site was remediated in accordance with the NYSDEC-approved Interim Remedial Measure Work Plan dated October 4, 2012, the SIRMWP dated June 2014, Addendum #1 to the SIRMWP dated December 10, 2014 and Addendum #2 to the SIRMWP dated May 15, 2015.

The following is a summary of the Remedial Actions performed at the Site:

1. Limited removal and off-site disposal of soil/fill/piping generally in source areas above the groundwater table to prevent further groundwater contamination. Refer to Section 1.4.1 for additional details on depth of the excavations and volumes removed, Section 1.4.6 for SCOs achieved and the remaining contamination and Figure 8 for the locations of the removal areas;

2. In-situ chemical oxidation (ISCO) of the saturated zone exceeding the Protection of Groundwater SCO for PCE and Technical and Operation Guidance Series (TOGs) 1.1.1 Groundwater Standard and Guidance Value for PCE to a maximum depth of 32 ft. bgs within the central and north central portion of the Site, refer to Figure 9;

3. Construction and maintenance of a cover system consisting of a combination of existing impermeable materials (i.e., concrete and asphalt) and installation of NYSDEC-approved CR2 stone to prevent human exposure to remaining contaminated soil/fill remaining at the Site;

4. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to any contamination remaining at the Site; and

5. Development and implementation of a SMP for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) IC/ECs, (2) monitoring, (3) operation and maintenance and (4) reporting.

Remedial activities were completed at the Site between October 2012 and February 2015.

1.4.1 Removal of Contaminated Materials from the Site

The future use of the Site includes restricted residential or less restrictive uses (e.g., commercial). As such, Restricted Residential Use SCOs and Protection of Groundwater SCOs were used for this project as outlined in Appendix 5 of the NYSDEC document entitled “6 NYCRR Part 375, Environmental Remediation Programs DER-10”, refer to Appendix B.

Areas of VOC-contaminated (primarily PCE-contaminated with lesser amounts of petroleum-related aromatic VOCs) soil and fill predominantly in the unsaturated zone were removed to depths up to 15.5 ft. bgs from source areas on the Site [i.e., area of the former dry cleaning equipment distributor and adjacent buildings (IRM-01), former Evans Street ROW (IRM-02), former UST area (IRM-03), former repair garage trench drain area (IRM-05) and the piping network area located below the former 320 Andrews Street building (IRM-06)], refer to Figure 8. The type and quantity of soil/fill material removed from IRM-01 through IRM-06 and the Supplemental IRM Soil removal area is presented below:

IRM-01: A total of 1,673.06 tons of non-hazardous PCE-impacted soil, and 138.83 tons of characteristic hazardous PCE-impacted soil, were removed from an approximate 3,500 square foot source area down to depths ranging between approximately 4.0 and 15.5 ft. bgs (e.g., generally in the unsaturated zone). The total 1,811.89 tons of PCE-impacted soils were disposed off-site at regulated landfills.

IRM-02: Approximately 115 LF of combined sanitary/storm main sewer trunk line was decommissioned by removal and/or filling in accordance with Monroe County protocols. The associated sewer laterals were capped or removed, and approximately 101 tons of PCE-impacted soil was removed down to depths ranging between approximately 10 and 12.5 ft. bgs (e.g., generally in the unsaturated zone). This work was completed over an approximate 400 square foot area of the former Evans Street ROW that was in proximity to the IRM-01 PCE contamination source area. The removed materials were disposed off-site as non-hazardous waste at a regulated landfill.

IRM-03: Two 5,000-gallon petroleum USTs, their K-Crete contents previously used to close the USTs in-place, and 48.82 tons of petroleum-impacted soil were removed down to depths of approximately 12 ft. bgs, and disposed off-site. The steel USTs were recycled, and the K-Crete and contaminated soil were disposed off-site as non-hazardous wastes at a regulated landfill.

IRM-04: A total of 15.64 tons of non-hazardous PCB-impacted soil was removed down to a depth of approximately 3 ft. bgs from an anomalous location on the Site and disposed off-site at a regulated landfill.

IRM-05: A total of 223.21 tons of non-hazardous VOC/SVOC/metal-impacted soil was removed down to depths of approximately 5.5 ft. bgs from a former trench floor drain area, and disposed off-site at a regulated landfill.

IRM-06: Approximately 205 LF of piping, and a limited amount of soil, were removed down to depths of approximately 3 ft. bgs from the east side of the Site. Some sediment inside the piping was previously found to contain relatively low concentrations of PCE below Protection of Groundwater SCOs. However, the piping, sediments, and limited surrounding soil were disposed off-site at a regulated landfill as a non-hazardous waste as a best management practice.

Supplemental IRM: Soil: Approximately 76.05 tons of non-hazardous PCE-impacted soil was removed over an approximate 550 square foot area located immediately south of IRM-01 down to depths of approximately 2 ft. bgs. The PCE-impacted soils were disposed off-site at regulated landfills.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the Site remedy.

1.4.3 Quality of Backfill Placed in Excavated Areas

In order to access underlying VOC-contaminated soil that was to be removed, approximately 585 cubic yards of overburden material that was not impacted with VOCs was excavated and staged on-site as work progressed. A total of 18 samples of this staged material were collected and tested for one or more of the following parameters: VOCs, SVOCs, TAL Metals and PCBs. Based on the test results, the NYSDEC approved approximately 500 cubic yards of the staged soil material to be re-sued as backfill within the IRM-01 excavation from approximately 4 to 9 ft. bgs, above the saturated zone and below 4 ft. of NYSDEC-approved CR2 cover material. The remaining staged material was found to be PCE-impacted above applicable SCOs; thus, it was disposed off-site as a regulated non-hazardous waste.

Select geotechnical fill materials (i.e., approximately 2,360 tons of NYSDEC-approved CR2) were imported from off-site for use as backfill to replace the contaminated soil that was removed and disposed off-site from the IRM-01 through IRM-06 excavations and the Supplemental IRM: Soil excavation area. The CR2 was from Dolomite Products Company, Inc.'s, Brockport and Penfield facility's in New York, which are identified as Sources No 4-5R, 4-4R/4-4RS on the NYSDOT Approved List of Fine and Coarse Aggregates. Documentation showing the CR2 met DER-10 specifications was provided to the NYSDEC prior to NYSDEC approved use at the Site.

Also, in accordance with the building demolition phase of work, the 300, 304-308 and 320 Andrews Street building basements were backfilled with NYSDEC-approved CR2 overtop approximately 18 inches of NYSDEC-approved #3 washed stone. Documentation showing the CR2 and #3 stone met DER-10 specifications was provided to the NYSDEC prior to NYSDEC approval and use at the Site.

1.4.4 Supplemental IRM: ISCO

Subsequent to completing the tasks described in Sections 1.4.1 and 1.4.3, ISCO remediation was conducted to address the contamination in the saturated soils and groundwater over a majority of the source and plume areas where PCE VOC impact had been detected above soil and/or groundwater Standards, Criteria and Guidance (SCGs) values. ISCO involves the introduction of a chemical oxidant into the subsurface for the purposes of oxidizing groundwater or soil contaminants into less harmful chemical species. The chemical oxidant selected for the project was approximately >98% crystalline potassium permanganate obtained from Hepure Technologies, Inc. The reaction between potassium permanganate and chlorinated VOCs results in complete mineralization of the chlorinated VOC to carbon dioxide, manganese dioxide, potassium/sodium, hydrogen and chloride in a relatively short period of time (e.g., days to months). In general, chlorinated hydrocarbons with higher chlorine substitution consume less oxidant (per the stoichiometric requirement) and produce less manganese dioxide solids. The degradation of chlorinated organic compounds via permanganate oxidation involves direct electron transfer. Typically the use of potassium permanganate as a groundwater remediation reagent does not produce heat, steam and vapors or associated health and safety concerns. [Note: potassium permanganate will react with water, at very slow rates, resulting in non-productive depletion of permanganate and further generation of manganese dioxide solids. This slow decomposition process eventually results in depletion of excess permanganate that may remain in the subsurface after treatment.]

In general, the potassium permanganate was injected into the subsurface as 30% slurry, which is anticipated to remain in the subsurface for an extended period allowing the transportation mechanisms (i.e., advection, dispersion and diffusion) to further penetrate the fine grained media resulting in oxidation and complete mineralization (i.e., destruction) of the chlorinated VOCs in the targeted source area and plume area. Specifically, as the groundwater passes through the treatment area, the existing potassium permanganate slurry will partially dissolve into the groundwater resulting in a 3-5% potassium permanganate solution (i.e., the approximate field saturation value for potassium permanganate in groundwater) within and down-gradient of the treatment area until the slurry has been completed dissolved (anticipated to take years). Between July 16, 2014 and June 18, 2015, ISCO using approximately 36,933 pounds of potassium permanganate was injected into the subsurface to mitigate chlorinated VOCs (primarily consisting of PCE) within the saturated and capillary fringe zones within, beneath and around the IRM-01 and IRM-02 soil removal areas. The potassium permanganate was introduced into the subsurface via the following methods:

- 30 hydraulic injection points (designated IP-01 through IP-26, IP-32, IP-40, IP-42 and IP-45);

- During backfilling of seven remediation pits (designated RP-01 through RP-07);
- During backfilling of three injection borings (designated IB-1 through IB-3) pure potassium permanganate was placed through the saturated zone;
- Injection of 5% potassium permanganate solution into ten injection wells (designated IW-1, IW-2A, IW-2B, IW-3A, IW-3B, IW-4A, IW-4B, IW-5, IW-6, IW-7), 4 backfill wells (designated BW-01 through BW-04) and one injection boring (designated IB-3);
- Installation of RemOx-SR potassium permanganate cylinders at injection wells IW-1, IW-4A, IW-4B, IW-5, IW-6, IW-7A, IW-8 and IW-9.
- During injection well IP-10, IP-11, and IP-12 construction pure potassium permanganate was added to the sand pack surrounding the injection well's screen.

Refer to Figure 9 for a site plan presenting the ISCO treatment measures.

1.4.5 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Record of Decision (ROD) are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.

- Remove the source of groundwater contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

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

1.4.6 Remaining Contamination

Source area removals were conducted within seven delineated IRM soil removal areas. At each removal area, a demarcation layer consisting of CR2 stone, and in select excavations underlain by a layer of geotextile fabric, was installed within the excavations. Specifically, a geotextile fabric was installed at the bottom of IRM-02 at an approximate depth of 14.5 ft. bgs, within IRM-03 at an approximate depth of 14 ft. bgs, within IRM-05 at an approximate depths ranging between 5.5 and 8 ft. bgs and within IRM-06 at an approximate depth of 5.5 ft. bgs. Crushed stone was installed in IRM-01 as a demarcation layer at an approximate depth of 17.5 ft. bgs. IRM-04 was generally within the footprint of IRM-01 and therefore did not receive a demarcation layer during backfilling. Refer to Figure 8 for the location of the completed IRM excavations.

Contamination remaining on-site above applicable SCO values is summarized on Table 2B (Post-IRM Nature and Extent of Contamination). Concentrations of individual constituents detected in specific soil/fill samples are presented on Table 4 (VOCs), Table 5 (SVOCs), Table 6 (Metals an Cyanide) and Table 7 (PCBs and Pesticides), which summarize the analytical sample results of soils remaining at the Site after completion of the remedial actions that exceed/do not exceed Unrestricted Use SCOs, Restricted Residential Use SCOs, Restricted Commercial Use SCOs and Protection of Groundwater SCOs. Figure 10 presents the soil/fill samples that represent post-IRM Site conditions and designates samples containing one or more constituents at concentrations exceeding their respective Unrestricted Use SCOs. Figure 10 also depicts soil/fill sample locations that were tested, but did not exceed Unrestricted Use SCOs. Figure 11 presents the soil/fill samples that represent post-IRM site conditions and designates samples containing constituent concentrations exceeding the lesser of their respective Restricted Residential Use SCOs or Protection of Groundwater SCOs. Figure 11 also depicts soil/fill sample locations that were tested, but did not exceed Restricted Residential Use SCOs. [Note: the ten samples that exceeded the VOC Unrestricted Use SCOs shown on Figure 10 are located in the ISCO treatment area, and it is anticipated that the soil VOC concentrations will continue to decrease.]

The VOC PCE is present in soil at concentrations exceeding SCO values for soil (i.e., NYSDEC Part 375 Restricted Residential Use SCOs and/or Protection of Groundwater SCOs) at depths ranging between approximately 11.5 and 24 feet below the bottom of the cover system (i.e., below the pre-cover ground surface). These samples consisted of indigenous soils. PCE concentrations detected in 10 of the 182 samples tested (i.e., approximately 5.5%) exceeded the SCOs for soil. The PCE is generally present on the north-central portion of the Site and appears attributable to the former dry cleaning equipment and supply company that was located in the former building on the 304-308 Andrews Street parcel.

PAH SVOCs are present in soil at concentrations exceeding SCO values for soil at depths ranging between approximately 0.0 and 5.0 feet below the bottom of the cover system (i.e., below the pre-cover ground surface). These samples generally consisted of urban fill material. Underlying soil samples deeper than 5.0 feet below the bottom of the cover system did not contain SVOCs above the SCOs for soil. PAH SVOC concentrations detected in 6 of the 76 samples tested (i.e., approximately 7.9%) exceeded the SCOs for soil. The PAH SVOCs are sporadically present across the Site and appear most attributable to contaminants in urban fill material.

The metals arsenic, barium, lead, manganese, mercury and selenium are present in soil at concentrations exceeding SCO values for soil at depths ranging between approximately 1.0 and 2.0 feet below the bottom of the cover system (i.e., below the pre-cover ground surface). These samples generally consisted of urban fill material. Underlying soil samples deeper than 2.0 feet below the bottom of the cover system did not contain metals the SCOs for soil. Metals concentrations detected in 3 of the 79 samples tested (i.e., approximately 3.8%) exceeded the SCOs for soil. The metals are also sporadically present across the Site and appear attributable to naturally occurring conditions and contaminants in the urban fill material.

Subsequent to source area removals and ISCO treatments, residual VOCs (primarily consisting of PCE) remain in the subsurface saturated zone on portions of the Site and on the NYSDOT property to the north. The test results for post-treatment groundwater samples collected on October 24, 2014 are summarized on Table 8 (VOCs), Table 9 (SVOCs), Table 10 (metals) and Table 11 (pesticides). [Note: the primary constituent of concern at the Site is PCE and IRMs within the saturated zone were focused towards remediation of VOCs. As such, SVOC, metal and pesticides groundwater results collected before the completion of the IRMs are assumed to be representative of Site conditions following completion of the IRMs.] Groundwater monitoring wells where the post-treatment samples were collected are shown on Figure 12. Figure 9 shows the approximate area of observed potassium permanganate rich media distribution, based on visual observations of pink/purple stained soils or groundwater within the saturated zone following ISCO treatment. Potassium permanganate rich media and VOCs may be present in this area.

Comparison of Figure 6A (pre-ISCO overburden groundwater conditions) and Figure 6B (pre-ISCO bedrock groundwater conditions) to Figure 13A (post-ISCO overburden groundwater conditions) and Figure 13B (post-ISCO bedrock groundwater condition) shows a reduction of PCE in overburden groundwater and bedrock groundwater, respectively. As an example, within the PCE overburden groundwater plume footprint an approximate 88% reduction of PCE concentrations exceeding 100 ug/l or ppb was documented. [Note, the 30% potassium permanganate solution used in the ISCO injections will continue to react with the subsurface contaminants for an extended period of time. It is anticipated that the chlorinated VOC concentrations in soil and groundwater at the Site will continue to decrease below applicable SCGs values.

ICs and ECs that apply to the entire Site will address residual contaminants and remaining potassium permanganate rich media. As such, further remediation of remaining contamination is not warranted at this time.

SVI concerns will be addressed through further groundwater monitoring and/or implementation of ECs, if deemed necessary.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since remaining contaminated soil, groundwater and soil vapor exists beneath the Site; EC/ICs are required to protect human health and the environment. This EC/IC Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the Site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan (EWP) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

An on-site cover system has been installed as an engineering control for this Site. This EC is further discussed below. Procedures for operating and maintaining the cover system are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring these systems are included in the Monitoring Plan (Section 3). The Monitoring Plan also addresses severe condition observations in the event that a severe condition, which may affect controls at the Site, occurs, refer to Section 5 of this SMP.

2.2.1.1 Cover System

Exposure to remaining contamination in soil/fill and groundwater at the Site is prevented by a cover system placed over the Site. This cover system is comprised of some limited areas of remaining impermeable barriers (e.g., portions of concrete pads and asphalt paved surfaces) and a minimum of 24 inches of clean NYSDEC-approved CR2 stone installed over the majority of the Site (refer to Figure 14). The EWP in Appendix C outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination or potassium permanganate rich media is disturbed. Procedures for the inspection and maintenance of this cover system are provided in the Monitoring Plan included in Section 3.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in Appendix D.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6 of NYSDEC DER-10.

2.2.2.1 Cover System

The cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

2.2.2.2 Monitored Attenuation

Groundwater monitoring activities to assess residual VOC attenuation will continue, as determined by the NYSDEC, until residual VOC groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.3 INSTITUTIONAL CONTROLS

A series of ICs is required by the ROD to: (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination and potassium permanganate rich media by controlling disturbances of the subsurface media; and, (3) limit the use and development of the Site to restricted residential, restricted commercial or restricted industrial uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. These ICs are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- ECs must be operated and maintained as specified in this SMP;
- ECs on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP;
- Groundwater, soil vapor and other environmental or public health monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP.

ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Site has a series of ICs in the form of site restrictions. Adherence to these ICs is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for restricted residential, restricted commercial or restricted industrial use provided that the long-term EC/ICs included in this SMP are employed;
- The property may not be used for a higher level of use, such as unrestricted or residential use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- Future activities on the property that will disturb remaining contaminated material and/or potassium permanganate rich media must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use;
- The potential for vapor intrusion must be evaluated for new buildings developed on the Site, and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the Site are prohibited; and
- The site owner will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The Site has been remediated for restricted residential use. Future intrusive work that will penetrate the cover system, or encounter or disturb the remaining contamination and/or potassium permanganate rich media, including any modifications or repairs to the existing cover system will be performed in compliance with the EWP that is attached as Appendix C to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a HASP and CAMP prepared for the Site. The HASP attached in Appendix D of this SMP is in current compliance with DER-10, 29 CFR 1910, 29 CFR 1926, and other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section C-1 of the EWP. Intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the ECs described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. At a minimum, this mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH “Guidance for Evaluating Vapor Intrusion in the State of New York”. Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies electronically in the NYSDEC-identified format, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner within 30 days of validation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next PRR.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the PRR. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The observations will be recorded using the site-wide observation form included in Appendix E. The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 6).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the SAC #C303648, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the EWP.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the EWP.
- Notice within 48-hours of any damage or defect to the foundation, structures or engineering control that reduces or has the potential to reduce the effectiveness of an EC and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

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

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

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to Day Environmental, Inc. (or other qualified environmental professional) and the City of Rochester. These emergency contact lists must be maintained in an easily accessible location at the Site.

Table 2.5.1-A: Emergency Contact Numbers

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

Table 2.5.1-B: Contact Numbers

Day Environmental, Inc. (QEP)	585-454-0210
Charlotte Theobald, P.E. NYSDEC Project Manager	585-226-5354
Joseph Biondolillo City of Rochester (Site Owner)	585-428-6649
Department of Environmental Services Switch Board City of Rochester	585-428-6855

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

A map and directions to the nearest health care facility are included in the HASP in Appendix D.

Site Location: 300, 304-308, 320 Andrews Street and 25 Evans Street, Rochester, New York 14604

Nearest Hospital Name: Highland Hospital

Hospital Location: 1000 South Avenue, Rochester, NY 14620

Hospital Telephone: 585-473-2200 (Main), 585-341-6880 (EMS)

2.5.3 Response Procedures

As appropriate, the fire department and other emergency response groups will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 2.5.1-A). The list will also be posted prominently at the Site and made readily available to all personnel at all times.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the Site, the soil cover system, and all affected site media identified below. Monitoring of other ECs is described in Section 4, Operation and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC SCG values, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Quarterly monitoring of the performance of the remedy and overall reduction in contamination on-site and off-site will be conducted for the first year, and semi-annual monitoring will be conducted for the next two years. The frequency thereafter will be determined in consultation with the NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 3.1.2-A, and outlined in detail in Sections 3.2 and 3.3 below.

Table 3.1.2-A: Monitoring/Inspection Schedule

Monitoring Program	**Frequency***	**Matrix**	**Analysis**
Monitored Attenuation	Quarterly for the first year; semi-annually thereafter for two years, with one event in conjunction with site wide periodic review	Groundwater	Target Compound List (TCL) VOCs and Tentatively Identified Compounds (TICs) (United State Environmental Protection Agency (USEPA) Method 8260)
Cover System	Annually, in conjunction with site wide periodic review	CR2 Stone/Asphalt Pavement/Concrete pads	None- System monitoring only

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 COVER SYSTEM MONITORING

Observation of the cover system will be conducted annually. The following observation components are required during each event:

- Check asphalt pavement and concrete slabs for sloughing, cracks or settlement. If compromised, repair as necessary;

- Check integrity of the CR2 stone cover. If eroded or compromised, repair as necessary.

The observations made will be recorded on the Site-Wide Observation Form included in Appendix E. The current cover system components are presented on Figure 14.

3.3 MEDIA MONITORING PROGRAM

3.3.1 Long-Term Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy and to ensure that the displacement of the contamination does not occur and represent a concern for potential exposure via soil vapor intrusion.

The network of monitoring wells has been installed to monitor both up-gradient and down-gradient groundwater conditions at the Site. The network of on-site and off-site wells has been designed based on the following criteria:

- Monitoring wells MW-01, MW-02, MW-03A, MW-17, MW-18, MW-19, MW-01R, MW-02R and MW-04R are source area and/or plume core wells and provide information on chlorinated VOC contaminant concentrations within the source and/or plume core as delineated prior to ISCO remediation activities in overburden groundwater (i.e., MW-01, MW-02, MW-03A, MW-17, MW-18, MW-19) and bedrock groundwater (i.e., MW-01R, MW-02R, MW-04R).

- Monitoring wells MW-04, MW-05, MW-06, MW-07, MW-11, MW-15, MW-16, MW-20, MW-05R, MW-06R and MW-07R are plume perimeter wells and provide information on contaminant concentrations at the perimeter of the chlorinated solvent plume as delineated prior to ISCO remediation activities in overburden groundwater (i.e., MW-04, MW-05, MW-06, MW-07, MW-11, MW-15, MW-16, MW-20) and bedrock groundwater (i.e., MW-05R, MW-06R,MW-07R).

- Monitoring wells MW-08, MW-09, MW-10, MW-12, MW-13, MW-14, MW-21, MW-09R, MW-10R and MW-14R are study area perimeter wells and provide information on contaminants that may be migrating onto the Site from adjoining properties and contaminants leaving the Site in the overburden groundwater (i.e., MW-08, MW-09, MW-10, MW-12, MW-13, MW-14, MW-21) and bedrock groundwater (i.e. monitoring wells MW-9R, MW-10R, MW-14R).

Refer to Figure 12 for a site plan showing the locations of each overburden and bedrock monitoring well associated with the Site. The encountered lithology types, monitoring well screened intervals and monitoring well installation depths are presented on the monitoring well boring and construction logs for monitoring wells MW-01, MW-02, MW-03A, MW-04 through MW-21, MW-01R, MW-02R, MW-04R through MW-07R, MW-09R, MW-10R and MW-14R included in Appendix F. Although groundwater elevations vary seasonally, the groundwater flow patterns presented on Figure 4A and 4B are typical for the overburden and bedrock, respectively.

As of January 2015, post-remedial groundwater monitoring has been conducted at the Site for a period of approximately 4 months and monitoring well MW-01 contains the greatest concentration of residual chlorinated VOC contaminants. It is anticipated that the groundwater monitoring will be conducted for an additional period of 3 years. It is assumed that groundwater monitoring will be conducted quarterly for the first year and semi-annually for the following two years.

The sampling duration and frequency, the sampling technique for subsequent monitoring events, the number of wells sampled during subsequent monitoring events and the test parameters for samples collected during subsequent monitoring events may be modified with the approval NYSDEC based on the test results of samples from previous monitoring events. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

Monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in the Quality Assurance Project Plan (QAPP) in Appendix G. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Groundwater Samples will be collected using the Passive Diffusion Bag (PDB) sampling method. In general, the PDB sampling method produces less waste, is more efficient, and results in groundwater samples with less bias than conventional sampling techniques for potassium permanganate treated sites. [Note: Potassium permanganate does not diffuse through the PDB membrane. As such, samples from the PDBs are not biased low since potassium permanganate is not present in the analytical laboratory sample, as it would be with more conventional sampling techniques (i.e., bailer, low-flow, etc.).] Refer to the QAPP in Appendix G for the sampling protocol.

Each of the groundwater samples collected as part of a routine sampling event will be submitted for testing by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified analytical laboratory. It is anticipated that during each monitoring event, groundwater samples collected from the wells would be tested for TCL VOCs and TICs using USEPA Method 8260 and Category B laboratory data packages will be requested unless otherwise agreed to by the NYSDEC. The test results will be comparted to available and applicable SCG values and submitted electronically in the NYSDEC-identified format.

3.3.1.2 Monitoring Well Repairs, Replacement And Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of

NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed (Appendix E). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that Site records are up to date.

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

Sampling and analyses will be performed in accordance with the QA/QC criteria outlined in the QAPP included as Appendix G. The analytical laboratory selected must be ELAP-certified for the parameters to be tested. Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method will be completed subsequent to the sampling event.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file by the site owner. Forms, and other relevant reporting formats used during the monitoring/inspection events, will be: (1) subject to approval by NYSDEC and, (2) submitted at the time of the PRR, as specified in the Reporting Plan of this SMP.

Groundwater monitoring results will be reported to the NYSDEC on a periodic basis in the PRR. Monitoring results will also be reported in Groundwater Monitoring Reports (GMR) containing cumulative results subsequent to each sampling event. The report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., groundwater, soil vapor, etc.);
- Copies of appropriate field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for points sampled (to be submitted electronically in the NYSDEC-identified format);
- Observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 3.6-A below.

Table 3.6-A: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater Monitoring Report	Quarterly for the first year; semi-annually thereafter for two years
Periodic Review Report	Annually

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The Site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

Information on non-mechanical ECs (i.e. soil cover system) is provided in Section 3 – Site Monitoring Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept on file by the site owner. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

5.0 PERIODIC ASSESSMENTS/EVALUATIONS

5.1 CLIMATE CHANGE VULNERABILITY ASSESSMENT

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given Site and associated remedial systems. Vulnerability assessments provide information so that the Site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the Site during periodic assessments, and briefly summarizes the vulnerability of the Site and/or engineering controls to severe storms/weather events and associated flooding.

- Flood Plain: The Site is not located within a flood plain, low-lying or low-groundwater recharge area.
- Site Drainage and Storm Water Management: The current vacant Site has adequate storm water management systems. If in the future the Site is developed, site drainage and storm water management issues will be re-evaluated and the SMP will be modified accordingly.
- Erosion: The grade of the current vacant site is such that erosion will not occur. If in the future the Site is developed, erosion issues will be re-evaluated and the SMP will be modified accordingly.
- High Wind: The current vacant Site is not susceptible to damage from the wind itself or falling objects, such as trees or utility structures during periods of high wind. If in the future the Site is developed, the high wind issues will be re-evaluated and the SMP will be modified accordingly.

- Electricity: Not applicable to current vacant Site. If in the future the Site is developed, electricity issues will be re-evaluated and the SMP will be modified accordingly.
- Spill/Contaminant Release: Not applicable to the current vacant Site. If in the future the Site is developed, spill/contaminant release issues will be re-evaluated and the SMP will be modified accordingly.

5.2 GREEN REMEDIATION EVALUATION

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the PRR.

- Waste Generation: Waste generation [TCB(1]is minimal due to the PDB sampling technique being used, and it does not appear that additional waste reduction efforts are necessary at this time.

- Water usage[TCB(2]: Potable water used on the Site (i.e., decontamination water) will be procured from the Monroe County Pure Waters (MCPW) or City of Rochester drinking water systems. The deionized water used in PDB sampling will be provided by the analytical laboratory. No other sources of water are anticipated at this time.

<u>5.2.1 Timing of Green Remediation Evaluations</u>

Any future major remedial system components installed/implemented at the site, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate (e.g. during significant maintenance events or in conjunction with storm recovery activities).

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

5.2.2 Remedial Systems

Any future remedial systems will be operated properly considering the current site conditions to conserve materials and resources to the greatest extent possible. Consideration will be given to operating rates and use of reagents and consumables. Spent materials will be sent for recycling, as appropriate.

5.2.3 Building Operations

The future construction of structures including buildings and sheds will be operated and maintained to provide for the most efficient operation of the remedy, while minimizing energy, waste generation and water consumption.

5.2.4 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks and/or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

5.2.5 Metrics and Reporting

If in the future the Site is developed with active remedial components and/or engineering controls, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be re-evaluated. If warranted the SMP will be modified accordingly to facilitate and document consistent implementation of green remediation during site management and to identify corresponding benefits.

5.3 REMEDIAL SYSTEM OPTIMIZATION

A RSO study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. A RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the ROD;

- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions changed due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data, and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focuses on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

6.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

6.1 SITE INSPECTIONS

6.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Site Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

6.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

Inspections and monitoring events will be recorded on the appropriate forms for their respective system/activity, including a general site-wide inspection that includes observation the non-mechanical cover system, (Appendix E Site Wide Inspection Form), and groundwater sampling log (Attachment 5-Passive Diffusion Bag Sampling Log of Appendix G). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the PRR.

6.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,

- The site remedy continues to be protective of public health and the environment and is performing as designed in the IRMWP, the SIRMWP, Addendum #1 to the SIRMWP, Addendum #2 to the SIRMWP and described in the IRM Construction Completion Report (CCR) and the SIRM CCR.

6.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare the following certification:

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the IC/ECs required by the remedial program was performed under my direction;
- The IC and/or EC employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any SMP for this control;
- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the Site is compliant with the environmental easement;
- The EC systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and

- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner’s Designated Site Representative] (and if the site consists of multiple properties): [I have been authorized and designated by all site owners to sign this certification] for the Site.

The signed certification will be included in the PRR described below.

6.3 PERIODIC REVIEW REPORT

A PRR will be submitted to the NYSDEC every year, beginning eighteen months after the COC or equivalent is issued. In the event that the Site is subdivided into separate parcels with different ownership, a single PRR will be prepared that addresses the Site described in Appendix A (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual Site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A Site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific ROD;
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
  - The overall performance and effectiveness of the remedy.

The PRR will be submitted, in hard-copy and electronic format, to the NYSDEC Regional Project Manager in which the Site is located, and in electronic format to the NYSDOH Bureau of Environmental Exposure Investigation Project Manager.

6.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

7.0 REFERENCES

Previous Reports

Remedial Investigation/Alternatives Analysis (RI/AA) Report, 300, 304-308, 320 Andrews Street and 25 Evans Street, City of Rochester, County of Monroe, New York, Environmental Restoration Project E828144; Day Environmental, Inc.

Regulatory Documents

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 and June 2004 addendum tables.

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

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

NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York; October 2006.

NYSDEC Commissioner Policy 43: Groundwater Monitoring Well Decommissioning Procedures; November 3, 2009.

Additional Reference Materials

Remedial Investigation/Remedial Alternatives Analysis Work Plan; 300, 304-308, 320 Andrews Street and 25 Evans Street, Rochester, New York 14604; NYSDEC Site #E828144; August 2011; Day Environmental, Inc. and Lu Engineers.

Remedial Investigation/Remedial Alternatives Analysis; Interim Remedial Measures Work Plan; 300, 304-308, 320 Andrews Street and 25 Evans Street, Rochester, New

York 14604; NYSDEC Site #E828144; USEPA ID #BF-97207900-0; October 4, 2012; Lu Engineers and Day Environmental, Inc.

Supplemental Remedial Investigation Work Plan; 300, 304-308, 320 Andrews Street and 25 Evans Street, Rochester, New York 14604; NYSDEC Site #E828144; May 2013; Day Environmental, Inc.

Letter with additional scope for Supplemental Remedial Investigation Work Plan; September 10, 2013; Day Environmental, Inc.

Addendum to the Supplemental Remedial Investigation Work Plan; November 18, 2013; Day Environmental, Inc.

Second Addendum to the Supplemental Remedial Investigation Work Plan; December 4, 2013; Day Environmental, Inc.

Supplemental Interim Remedial Measure Work Plan; 300, 304-308, 320 Andrews Street and 25 Evans Street, Rochester, New York 14604; NYSDEC Site #E828144; June 2014; Day Environmental, Inc.

Addendum #1 to the Supplemental Interim Remedial Measure Work Plan; December 10, 2014; Day Environmental, Inc.

Addendum #2 to the Supplemental Interim Remedial Measure Work Plan; May 11, 2015; Day Environmental, Inc.

New York State Geological Survey, Surficial Geologic Map of New York - Fingerlakes Sheet, E.H. Muller & D.H. Cadwell, 1986.

Overburden Thickness Map, Subsurface Bedrock Contour Map, and Generalized Groundwater Contour Map for the Rochester East quadrangle; 1980; Dr. Richard A. Young.

New York State Geological Highway Map, W.B Rogers et. al., 1990.

Subsurface Structure and Stratigraphy of Rochester, New York, J. L. Scherzer, 1983.

8.0 ACRONYMS

bgs	Below Ground Surface
CAMP	Community Air Monitoring Plan
CCD	Center City District
CCR	Construction Completion Report
COC	Certificate of Completion
CR2	#2 Crusher Run
DER	Department of Environmental Remediation
DER-10	Technical Guidance for Site Investigation and Remediation DER-10
DNAPL	Dense Non-Aqueous Phase Liquid
DUSR	Data Usability Summary Report
EC	Engineering Control
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
ft.	feet
GMR	Groundwater Monitoring Report
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
IC	Institutional Controls
IRMs	Interim Remedial Measures
IRMWP	Interim Remedial Measures Work Plan
ISCO	In-Situ Chemical Oxidation
LF	Linear Feet
LNAPL	Light Non-Aqueous Phase Liquid
MCPW	Monroe County Pure Waters
mg/kg	milligram per kilogram
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
PAH	Polynuclear Aromatic Hydrocarbon
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene/Perchloroethene
PDB	Passive Diffusion Bag
Phase I ESA	Phase I Environmental Site Assessment
Phase II ESA	Phase II Environmental Site Assessment
ppb	Parts per Billion
ppm	Parts per Million
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
RAO	Remedial Action Objective
RI	Remedial Investigation
RI/AA	Remedial Investigation/Alternative Analysis

ROD	Record of Decision
ROW	Right-of-Way
RQD	Rock Quality Designation
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SIRMWP	Supplemental Interim Remedial Measure Work Plan
SMP	Site Management Plan
SVI	Soil Vapor Intrusion
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TIC	Tentatively Identified Compound
TOGS	Technical and Operational Guidance Series
Ub	Urban Land
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
ug/L	Microgram per Liter
ug/m^3	Microgram per Cubic Meter

TABLES

Table 1

300, 304-308, 320 Andrews Street and 25 Evans Street
Rochester, NY

NYSDEC Site #E828144

Static Water Levels and Calculated Groundwater Elevations

Monitoring Well ID	Ground Elevation (ft) (1)	TOC Elevation (ft)	8/21/2013		10/24/2014*		2/26/2015**	
			SWL (ft TOC)	Groundwater Elevation	SWL (ft TOC)	Groundwater Elevation	SWL (ft TOC)	Groundwater Elevation
MW-01	527.79	527.44	12.11	515.33	12.09	515.35	13.6	513.84
MW-02	528.03	527.84	11.45	516.39	11.63	516.21	15.04	514.73
MW-03	528.95	528.61	NC	NA	NC	NA	NC	NA
MW-03A	528.41	530.89	10.75	517.68	11.00	517.43	12.37	516.06
MW-04	527.52	530.19	13.79	516.40	14.59	515.60	15.48	514.71
MW-05	527.83	530.75	13.55	517.20	14.19	516.56	15.29	515.46
MW-06	527.86	530.49	13.12	517.37	13.2	517.29	14.51	515.98
MW-07	528.38	530.95	13.52	517.43	13.88	517.07	15.13	515.82
MW-08	527.00	529.59	13.11	516.48	13.59	516.00	14.85	514.74
MW-09	526.58	529.17	11.87	517.30	12.24	516.93	13.55	515.62
MW-10	527.73	530.39	13.48	516.91	13.13	517.26	14.19	516.20
MW-11	520.70	520.48	6.03	514.45	6.11	514.37	7.43	513.05
MW-12	528.83	531.54	16.42	515.12	17.03	514.51	17.32	514.22
MW-13	529.21	531.68	13.48	518.20	14.11	517.57	14.81	516.87
MW-14	529.18	528.89	11.97	516.92	13.26	515.63	13.45	515.44
MW-15	527.62	530.29	14.3	515.99	14.80	515.49	15.96	514.33
MW-16	528.31	530.81	16.89	513.92	17.09	513.72	17.73	513.08
MW-17	527.72	530.16	12.82	517.34	13.09	517.07	14.85	515.31
MW-18	527.24	529.81	13.76	516.05	13.82	515.99	15.31	514.50
MW-19	527.82	530.31	15.13	515.18	14.57	515.74	16.41	513.90
MW-20	528.01	530.51	13.85	516.66	14.24	516.27	15.42	515.09
MW-21	525.32	524.79	12.49	512.30	12.77	512.02	12.63	512.16
MW-01R	527.71	527.37	14.57	512.80	14.90	512.47	15.48	511.89
MW-02R	527.77	527.41	12.87	514.54	13.51	513.90	16.4	513.51
MW-04R	527.77	529.29	22.91	506.38	22.58	506.71	23.21	506.08
MW-05R	528.33	531.19	17.34	513.85	18.29	512.90	17.8	513.39
MW-06R	528.17	529.63	14.21	515.42	14.86	514.77	15.45	514.18
MW-07R	528.64	530.14	15.04	515.10	14.79	515.35	15.03	515.11
MW-09R	527.14	528.67	17.7	510.97	19.03	509.64	19.1	509.57
MW-10R	527.98	528.71	12.69	516.02	12.92	515.79	13.48	515.23
MW-14R	529.19	528.75	16.09	512.66	15.58	513.17	16.6	512.15
BW-1	527.87	530.23	12.16	518.07	11.8	518.43	NC	NA
BW-2	527.72	529.92	12.59	517.33	11.78	518.14	Dry	NA
BW-3	528.04	530.29	12.95	517.34	12.08	518.21	NC	NA
BW-4	527.83	530.02	12.29	517.73	10.56	519.46	Dry	NA
Notes			Round 4 (Baseline)		2-Month Performance Monitoring*		6-Month Performance Monitoring**	

Monitoring Wells MW-1 through MW-21 and MW-03A are overburden groundwater monitoring wells.

Monitoring Wells containing an "R" at the end of the ID (i.e., MW-4R) are bedrock groundwater monitoring wells.

Wells BW-1 through BW-04 are backfill wells intended primarily for in-situ treatment.

Ft TOC = Feet below top of casing

NC = No Collected

NA = No Available

Well MW-03A was damaged during Supplemental MIP work and was repaired and re-set with a flush-mount curb box in July 2013.

MW-03A TOC re-surveyed August 8 or 9, 2013, and is 2.46 lower than original. MW-03A groundwater elevations collected after August 9, 2013 are adjusted accordingly.

(1) Represents ground elevation prior to installation of #2 Crusher Run (CR2) cover system material as a supplemental Interim Remedial Measure.

* Static Water Level (SWL)from MW-21 collected on 10/27/2014 since car was parked over well on 10/24/2014.

** 6-Month Performance Monitoring event had a 2.5' riser added to the top of casing of MW-02R and a 1.93' riser (broken) added to the top of casing of MW-02.

Table 2A
Pre-IRM Nature and Extent of Contamination

Andrews Street Site
300, 304-308 and 320 Andrews Street and 25 Evans Street
Rochester, New York
NYSDEC Project #E828144

SUBSURFACE SOIL SAMPLES

Volatile Organic Compounds (VOCs)	Constituents of Concern	Concentration Range Detected (mg/kg)	[a]SCG (mg/kg)	[b]Frequency of Exceeding SCG
	Acetone	ND to 0.18	0.05	2 of 154
	Benzene	ND to 0.089	0.06	1 of 154
	Tetrachloroethene (PCE)	ND to 3560	1.3	21 of 154
	Trichloroethene	ND to 1.3	0.47	1 of 154
Semi-Volatile Organic Compounds (SVOCs)	**Constituents of Concern**	**Concentration Range Detected (mg/kg)**	**[a]SCG (mg/kg)**	**[b]Frequency of Exceeding SCG**
	Benzo(a)anthracene	ND to 26	1	5 of 70
	Benzo(a)pyrene	ND to 20	1	6 of 70
	Benzo(b)fluoranthene	ND to 28	1	6 of 70
	Benzo(k)fluoranthene	ND to 8.3	1.7	3 of 70
	Chrysene	ND to 27	1	6 of 70
	Dibenzo(a,h,)anthracene	ND to 3.2	0.33	3 of 70
	Indeno(1,2,3-cd)pyrene	ND to 11	0.5	5 of 70
Polychlorinated Biphenyls (PCBs)	**Constituents of Concern**	**Concentration Range Detected (mg/kg)**	**[a]SCG (mg/kg)**	**[b]Frequency of Exceeding SCG**
	PCBs	ND to 1.8	1	1 of 75
Metals	**Constituents of Concern**	**Concentration Range Detected (mg/kg)**	**[a]SCG (mg/kg)**	**[b]Frequency of Exceeding SCG**
	Arsenic	ND to 56.6	16	4 of 66
	Barium	ND to 1020	400	2 of 66
	Cadmium	ND to 7.86	4.3	1 of 66
	Lead	0.678 to 1390	400	4 of 66
	Mercury	ND to 9	0.73	2 of 66
	Selenium	ND to 7.64	4	1 of 66

GROUNDWATER SAMPLES

Volatile Organic Compounds (VOCs)	Constituents of Concern	Concentration Range Detected (ug/l)	[a]SCG (ug/l)	[b]Frequency of Exceeding SCG
	Acetone	ND to 81	50	11 of 123
	Benzene	ND to 1.6	1	1 of 123
	Cis-1,2-Dichloroethene (DCE)	ND to 220	5	28 of 123
	Tetrachloroethene (PCE)	ND to 70000	5	61 of 123
	Trichloroethene (TCE)	ND to 260	5	42 of 123
	Trichlorofluoromethane	ND to 17	5	2 of 123
	Vinyl Chloride	ND to 2.7	2	2 of 123
Metals	**Constituents of Concern**	**Concentration Range Detected (ug/l)**	**[a]SCG (ug/l)**	**[b]Frequency of Exceeding SCG**
	Antimony	ND to 13.4	3	5 of 27
	Arsenic	ND to 32.7	25	2 of 27
	Chromium	ND to 118	50	1 of 27
	Iron	40.5 to 24200	300	15 of 27
	Magnesium	15800 to 148000	35000	23 of 27
	Manganese	13.9 to 417	300	2 of 27
	Selenium	ND to 40.1	10	2 of 27
	Sodium	66100 to 811000	20000	27 of 27

ND - Not Detected at Concentration Above Reported Analytical Laboratory Detection Limit.

[a]SCG = Standards, Criteria and Guidance Values: Lower of Part 375 Restricted Residential Use SCOs and Protection of Groundwater SCOs for soil; TOGS 1.1.1 groundwater standards and guidance values for groundwater.

[b]Includes multiple samples from some test locations.

Table 2B
Post-IRM Nature and Extent of Contamination

Andrews Street Site
300, 304-308 and 320 Andrews Street and 25 Evans Street
Rochester, New York
NYSDEC Project #E828144

SUBSURFACE SOIL SAMPLES				
Volatile Organic Compounds (VOCs)	**Constituents of Concern**	**Concentration Range Detected (mg/kg)**	**[a]SCG (mg/kg)**	**[b]Frequency of Exceeding SCG**
	Tetrachloroethene (PCE)	ND to 19	1.3	10 of 182
Semi-Volatile Organic Compounds (SVOCs)	**Constituents of Concern**	**Concentration Range Detected (mg/kg)**	**[a]SCG (mg/kg)**	**[b]Frequency of Exceeding SCG**
	Benzo(a)anthracene	ND to 26	1	4 of 76
	Benzo(a)pyrene	ND to 20	1	5 of 76
	Benzo(b)fluoranthene	ND to 28	1	4 of 76
	Benzo(k)fluoranthene	ND to 8.3	1.7	3 of 76
	Chrysene	ND to 27	1	5 of 76
	Dibenzo(a,h,)anthracene	ND to 3.2	0.33	3 of 76
	Indeno(1,2,3-cd)pyrene	ND to 11	0.5	4 of 76
Metals	**Constituents of Concern**	**Concentration Range Detected (mg/kg)**	**[a]SCG (mg/kg)**	**[b]Frequency of Exceeding SCG**
	Arsenic	ND to 17.5	16	1 of 79
	Barium	ND to 1020	400	2 of 79
	Lead	0.678 to 1390	400	3 of 79
	Manganese	66 to 5420	2000	2 of 79
	Mercury	ND to 9	0.73	2 of 79
	Selenium	ND to 7.64	4	1 of 79
GROUNDWATER SAMPLES				
Volatile Organic Compounds (VOCs)	**Constituents of Concern**	**Concentration Range Detected (ug/l)**	**[a]SCG (ug/l)**	**[b]Frequency of Exceeding SCG**
	Acetone	ND to 210	50	1 of 26
	Cis-1,2-Dichloroethene (DCE)	ND to 37	5	5 of 26
	Tetrachloroethene (PCE)	ND to 2100	5	11 of 26
	Trichloroethene (TCE)	ND to 136	5	8 of 26
Metals	**Constituents of Concern**	**Concentration Range Detected (ug/l)**	**[a]SCG (ug/l)**	**[b]Frequency of Exceeding SCG**
	Antimony	ND to 13.4	3	5 of 27
	Arsenic	ND to 32.7	25	2 of 27
	Chromium	ND to 118	50	1 of 27
	Iron	40.5 to 24200	300	15 of 27
	Magnesium	15800 to 148000	35000	23 of 27
	Manganese	13.9 to 417	300	2 of 27
	Selenium	ND to 40.1	10	2 of 27
	Sodium	66100 to 811000	20000	27 of 27

ND - Not Detected at Concentration Above Reported Analytical Laboratory Detection Limit

[a]SCG = Standards, Criteria and Guidance Values: Lower of Part 375 Restricted Residential Use SCOs and Protection of Groundwater SCOs for soil; TOGS 1.1.1 groundwater standards and guidance values for groundwater.

[b]Includes multiple samples from some test locations.

Note: Soil and groundwater sample locations exceeding SCGs for VOCs are generally within the area being treated by Supplemental IRM In-Situ Chemical Oxidation (ISCO). As a result, VOC concentrations should continue to decrease over time.

Table 3A

300, 304-308 and 320 Andrews Street and 25 Evans Street
Rochester, New York
NYSDEC Site #E828144

Summary of Detected VOCs in ug/m^3

On-Site Soil Vapor Survey Samples

Detected Constituent	NYSDOH Air Guidance Value (ug/m3)(1)	NYSDOH Outdoor (ug/m3)(2)	535-SV-1	536-SV-2	537-SV-3	538-SV-4	539-SV-5	540-BG071813 Outdoor Air
			7/18/2013	7/18/2013	7/18/2013	7/18/2013	7/18/2013	7/18/2013
1,1,1-Trichloroethane	NA	0.6	0.33 J	1.53 J	0.82 J	0.87 J	16.9	U
1,1,2-Trichlorotrifluoroethane	NA	2.5	1.23 J	1 J	1.15 J	0.92 J	2.68 J	0.84 J
1,2,4-Trimethylbenzene	NA	1.9	U	26.6	31.5	15.2	32	**25.6**
1,3,5-Trimethylbenzene	NA	0.7	U	10.3	12.3	8.85	12.8	**8.85**
1,4-Dichlorobenzene	NA	0.5	U	0.96 J	1.32 J	U	0.96 J	**1.02 J**
2-Butanone (MEK)	NA	5.3	4.13	58.4 D	101 D	97 D	72.8 D	**36.6**
4-Ethyltoluene	NA	NA	U	10.8	12.8	7.37	13.3	9.83
4-Methyl-2-Pentanone (MIBK)	NA	0.5	U	4.92	U	U	U	**2.38**
Acetone	NA	30	57.2 D*	2232 D	2850 D	1187 D	1496 D	**1449 D**
Benzene	NA	4.8	7.67	8.95	32.6	57.2 D	38.7	2.2
Carbon Disulfide	NA	NA	0.37 J	46.4	163 D	71 D	44.2 D	3.74
Carbon Tetrachloride	NA	1.2	0.44 J	0.31 J	0.38 J	0.44 J	0.38 J	0.57 J
Chloroethane	NA	0.4	U	0.45 J	0.5 J	0.66 J	0.42 J	U
Chloroform	NA	0.5	U	160 D	31.2	129 D	6.35	**0.63 J**
Chloromethane	NA	4.3	2.68	0.81 J	1.55	1.96	1.14	1.78
cis-1,2-Dichloroethene	NA	0.4	0.4 J	U	U	0.48 J	U	U
Cyclohexane	NA	0.9	1.65 J	24.8	155 D	102 D	97.1 D	**16.9**
Dichlorodifluoromethane	NA	10	6.43 J	2.42 J	3.96	1.73 J	9.4	4.35
Ethylbenzene	NA	1.0	U	5.21	10.4	14.8	8.25	**6.95**
n-Heptane	NA	4.5	U	42.6	261 D	359 D	144 D	**14.8**
Hexane	NA	2.2	3.28	40.5	332 D	352 D	226 D	**10.9**
m/p-Xylene	NA	1.0	U	15.2	37.4	46.9	30	**16.9**
Methylene Chloride	60	1.6	11.8	49.3	95.9 D	110 D	82 D	**69.8 D**
o-Xylene	NA	1.2	U	6.52	13	14.8	10.9	**7.38**
Styrene	NA	0.5	U	9.79	13.2	7.24	10.2	**10.6**
tert-Butyl alcohol	NA	NA	U	25.8	51.2 D	38.2	76.4 D	25.8
Tetrachloroethene	30	0.7	U	188 D	244 D	881 D	362 D	**92.2**
Tetrahydrofuran	NA	0.4	1.89	7.37	13.3	43.9	15.9	**10**
Toluene	NA	5.1	0.94 J	167 D	199 D	223 D	158 D	**297 D**
Trichloroethene	5	0.4	U	0.86 J	1.83 J	2.85	1.02 J	**1.56 J**
Trichlorofluoromethane	NA	5.1	1.91 J	9.55	4.72	5.39	58.4	2.25 J
Vinyl Chloride	NA	0.4	U	0.38 J	0.38 J	0.31 J	0.41 J	U

U = Not detected at concentration above analytical laboratory reporting limit. NA = Not Available. VOCs = Volatile Organic Compounds

(1) Air guidance value referenced in the NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006.

(2) Outdoor Air Upper Fence value referenced in Table C1 of the NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006. Outdoor air values that exceed are **bolded**.

25.6 The detected concentration exceeds the Outdoor Air Upper Fence value referenced in Table C1 of the NYSDOH ocument titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006.

Soil vapor samples tested using United States Environmental Protection Agency (USEPA) method TO-15.

No NYSDOH criteria is available for soil vapor samples The results of a DUSR have been incorporated * = Value outside QC limits

J = Estimated value D = Compound identified in an analysis at a secondary dilution factor

535-SV-1	Sample ID / Sample Location
7/18/2013	Sample Date

Table 3B

300, 304-308 and 320 Andrews Street and 25 Evans Street
Rochester, New York
NYSDEC Site #E828144

Summary of Detected VOCs in ug/m^3

Off-Site Soil Vapor Survey Samples

Acetone	NYSDOH Air Guidance Value (ug/m3)(1)	NYSDOH Outdoor (ug/m3)(2)	657-SV-6	656-SV-7	655-SV-8	658-BG012414 Outdoor Air
			1/24/2014	1/24/2014	1/24/2014	1/24/2014
1,1,1-Trichloroethane	NA	0.6	0.49 J	UJ	U	U
1,1,2-Trichlorotrifluoroethane	NA	2.5	0.84 J	UJ	U	1 J
1,2,4-Trimethylbenzene	NA	1.9	38.4	UJ	11.8	U
1,3,5-Trimethylbenzene	NA	0.7	16.7	UJ	6.39	U
2-Butanone (MEK)	NA	5.3	4.72	UJ	2.42	U
2,2,4-Trimethylpentane	NA	NA	U	UJ	U	0.28 J
4-Ethyltoluene	NA	NA	15.2	UJ	5.41	U
4-Methyl-2-Pentanone (MIBK)	NA	0.5	3.93	UJ	U	U
Acetone	NA	30	U	29.5 D	220 D	10.9
Benzene	NA	4.8	47.9	UJ	23	0.48 J
Carbon Disulfide	NA	NA	27.1	UJ	7.47	U
Carbon Tetrachloride	NA	1.2	0.44 J	UJ	U	0.63 J
Chloroform	NA	0.5	4.79	UJ	1.12 J	U
Chloromethane	NA	4.3	0.23 J	0.7 J	0.29 J	1.16
Cyclohexane	NA	0.9	11.7	UJ	51.3 D	U
Dichlorodifluoromethane	NA	10	3.02	2.92 J	3.26	3.26
Ethylbenzene	NA	1.0	18.2	UJ	9.12	U
n-Heptane	NA	4.5	34.4	UJ	97.5 D	U
Hexane	NA	2.2	37.7 D	UJ	133 D	U
m/p-Xylene	NA	1.0	69.5	UJ	46.0	U
o-Xylene	NA	1.2	30.4	UJ	17.8	U
Styrene	NA	0.5	0.6 J	UJ	U	U
Tetrachloroethene	30	0.7	2.71 J	UJ	1.7 J	U
Toluene	NA	5.1	35.8 D	UJ	56.2	0.79 J
Trichloroethene	5	0.4	0.32 J	UJ	U	U
Trichlorofluoromethane	NA	5.1	1.63 J	1.01 J	1.4 J	1.91 J

U = Not detected at concentration above analytical laboratory reporting limit. NA = Not Available. VOCs = Volatile Organic Compounds

(1) Air guidance value referenced in the NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York"

(2) Outdoor Air Upper Fence value referenced in Table C1 of the NYSDOH document titled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006.

No NYSDOH criteria is available for soil vapor samples The results of a DUSR have been incorporated

Soil vapor samples tested using United States Environmental Protection Agency (USEPA) method TO-15.

J = Estimated value D = Compound identified in an analysis at a secondary dilution factor
B = Analyte found in assiciated method blank

657-SV-6	Sample ID / Sample Location
1/24/2014	Sample Date

Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	017 S-2 (0-6") 11/16/10	018 S-4 (0-6") 11/16/10	019 S-5 (2'-3') 11/16/10	020 S-7 (0-6") 11/17/10	021 S-9 (1') 11/18/10	029 S-10 (6"-1') 12/6/10	033 S-11 (3') 1/18/11	034 S-13 (3') 1/18/11
Acetone	0.05	100	500	0.05	U	U	U	U	U	U	U	U
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	U	U
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U
Methylene chloride	0.05	100	500	0.05	U	U	U	0.0018 J	U	U	U	U
Tetrachloroethene	1.3	19	150	1.3	U	U	U	U	U	0.0027 J	U	U
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U	U
2-Hexanone	NA	NA	NA	NA	U	U	U	U	U	U	U	U
Toluene	0.7	100	500	0.7	U	U	U	U	U	U	U	U
Trichloroethene	0.47	21	200	0.47	U	U	U	U	U	U	U	U
Trichlorofluoromethane	NA	NA	NA	NA	U	0.0035 J	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U	U	U	U	U	U	U	U
Total VOCs					U	0.0035	U	0.0018	U	0.0027	U	U
Total TICs (1)					U	U	U	U	U	U	U	U
Total VOCs and TICs (1)					U	0.0035	U	U	U	0.0027	U	U

Contaminant	035 S-14 (3') 1/18/11	036 S-17 (3') 1/18/11	039 S-24 (2') 1/24/11	043 S-30 (6.5') 1/26/11	045 S-31 (0.5') 1/31/11	046 S-34 (2.5') 1/31/11	047 S-43 (4') 2/9/11	049 S-59 (4.5') 5/5/11	053 TP-01 (2') 9/26/11	054 TP-01 (5.5') 9/26/11	055 TP-02 (5') NB 9/26/11
Acetone	U	U	U	U	U	U	U	U	U J	U	U J
Cyclohexane	U	U	U	U	U	U	U	U	U	U	U
Chloroform	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U J
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	U
Isopropylbenzene	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	U	U	0.0055 J	0.0023 J	U	0.0021 J	U	U	U	U	U J
Tetrachloroethene	U	U	U	U	0.0069	0.026	U	U	U	U	U J
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	U	U	U	U
2-Hexanone	U	U	U	U	U	U	U	U	U	U	U
Toluene	U	U	U	U	U	0.0012 J	U	U	U	U	U
Trichloroethene	U	U	U	U	U	U	U	U	U	U	U J
Trichlorofluoromethane	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	U	U	U	U	U	0.0042 J	U	U	U	U	U J
Total VOCs	U	U	0.0055	0.0023	0.0069	0.0335	U	U	0	0	0
Total TICs (1)	U	0.493	0.296	U	U	0.0022	U	U	1519	U	U
Total VOCs and TICs (1)	U	0.493	0.3015	0.0023	0.0069	0.0357	U	0	1519	0	0

Notes

U = Not Detected

NA = Not Available

A = Exceeds Unrestricted Use SCO

B = Exceeds Restricted Residential Use SCO

C = Exceeds Restricted Commercial Use SCO

D = Exceeds Protection of Groundwater SCO

mg/kg = milligrams per kilogram or parts per million (ppm).

Soil cleanup objectives (SCO) are as referenced in 6 NYCRR Part 375-6, Remedial Program Cleanup Objectives, dated December 14, 2006, as supplemented by CP-51 dated October 21, 2010.

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.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

B = Detected in method blank, but not rejected by data validator

UJ = Not Detected at an estimated detection limit as qualified by the data validator

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

VOC = Volatile Organic Compound

TIC = Tentatively Identified Compound

Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	058 TP-05 (3.5') 9/26/11	062 TB-MIP-11 (5') 10/6/11	064 TB-MIP-05 (10') 10/6/11	065 TB-MIP-06 (14') 10/6/11	066 TB-MIP-07 (9.5') 10/6/11	067 TB-MIP-08 (10') 10/6/11	068 TB-MIP-09 (4.5') 10/6/11	069 TB-MIP-09 (13') 10/6/11	070 TB-MIP-04 (13') 10/6/11	071 TB-MIP-13 (9') 10/6/11	074 TB-MIP-15 (9') 10/6/11	075 TB-MIP-14 (13') 10/6/11	076 TB-MIP-14 (21') 10/6/11	077 TB-MIP-21 (6.5') 10/6/11	078 TB-MIP-21 (17.5') 10/6/11	079 TB-MIP-20 (15.5') 10/6/11	080 TB-MIP-20 (21') 10/6/11	082 TB-MIP-17 (13') 10/6/11	084 TB-MIP-02 (15') 10/6/11
Acetone	0.05	100	500	0.05	U J	U	U	U	U	U	U	U	U	U	U	U	U	U	0.013 J	0.012 J	U	U	U
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	0.05	100	500	0.05	U J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	1.3	19	150	1.3	0.0092 J	0.0055 J	0.021	0.061	0.012	0.0027 J	0.033	0.0045 J	U	U	U	0.1	0.0054	U	U	U	0.024	0.015	0.82
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Hexanone	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Toluene	0.7	100	500	0.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	0.47	21	200	0.47	U J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs					0.0092	0.0055	0.021	0.061	0.012	0.0027	0.033	0.0045	0	0	0	0.1	0.0054	0	0.013	0.012	0.024	0.015	0.82
Total TICs (1)					0.0067	U	U	U	U	U	U	U	U	U	0.0074	U	U	U	U	U	U	U	U
Total VOCs and TICs (1)					0.0159	0.0055	0.021	0.061	0.012	0.0027	0.033	0.0045	0	0	0.0074	0.1	0.0054	0	0.013	0.012	0.024	0.015	0.82

Notes

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Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	087 TB-MIP-07 (3') 10/6/11	089 MW-04 (4-6') 10/25/11	090 MW-04 (17-17.9') 10/25/11	091 MW-05 (14-16') 10/26/11	092 MW-06 (21-23') 10/27/11	093 MW-08 (26-28') 10/28/11	094 MW-10 (24-26') 10/31/11	095 MW-07 (8-10') 11/1/11	096 MW-09 (8-10') 10/31/11	097 MW-11 (14-16') 11/2/11	098 MW-11 (6-7.4') 11/2/11	100 MW-12 (30-30.8') 11/3/11	101 MW-13 (10-12') 11/3/11	102 MW-13 (24-25.9') 11/4/11	103 MW-14 (2-4') 11/4/11	104 MW-14 (6-8') 11/4/11	105 TB-01 (12-14') 11/7/11	106 TB-01 (18-20') 11/7/11
Acetone	0.05	100	500	0.05	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.0079 D
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Methylene chloride	0.05	100	500	0.05	0.004 J	U	0.0089	0.0091	0.0033 J	0.0045 J	U	0.0033 J	0.0028 J	0.0032 J	U	0.0024 J	U	U	U	U	U	U D
Tetrachloroethene	1.3	19	150	1.3	0.018	U	U	0.25 D	U	U	0.01	U	U	0.6 JD	U	U	U	U	U	U	0.23 D	**1.6** D AD
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
2-Hexanone	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Toluene	0.7	100	500	0.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Trichloroethene	0.47	21	200	0.47	U	U	U	U	U	U	U	U	U	0.0068	U	U	U	U	U	U	U	0.022 D
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U D
Xylene (mixed)	0.26	100	500	1.6	U	U	U	U	U	U	U	U J	U J	U J	U	U	U	U	U	U	U	U D
Total VOCs					0.022	0	0.0089	0.2591	0.0033	0.0045	0.01	0.0033	0.0028	0.61	0	0.0024	0	0	0	0	0.23	1.6299
Total TICs (1)					U	4.82	U	U	U	U	U	U	U	U	U	U	1.0912	U	U	U	U	U
Total VOCs and TICs (1)					0.022	4.82	0.0089	0.2591	0.0033	0.0045	0.01	0.0033	0.0028	0.61	0	0.0024	1.0912	0	0	0	0.23	1.6299

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Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	107 TB-01 (24-26') 11/7/11	108 TB-03 (10-12') 11/8/11	109 TB-03 (20-22') 11/8/11	110 TB-03 (22-24') 11/8/11	121 TB-02 (22-24') 11/9/11	122 TB-02 (28-28.7') 11/9/11	124 MW-01R (22-23.7') 11/10/11	125 MW-01R (30-30.6') 11/10/11	126 MW-02R (10-12') 11/14/11	127 MW-02R (20-22') 11/15/11	206 IRM06_Bottom(03) 10/25/12	207 IRM06_Bottom(03) 10/25/12	208 IRM06_Bottom(03) 10/25/12	209 IRM06_Bottom(03) 10/26/12	210 IRM06_Bottom(03) 10/26/12	211 IRM06_Bottom(03) 10/26/12	212 IRM06_Bottom(03) 10/26/12	213 IRM05_Bottom(5.5) 10/29/12
Acetone	0.05	100	500	0.05	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.011
Cyclohexane	NA	NA	NA	NA	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U D	0.005 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	1	41	390	1	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.014
Isopropylbenzene	NA	NA	NA	2.3	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.025
Methylcyclohexane	NA	NA	NA	NA	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.0027 J
Methylene chloride	0.05	100	500	0.05	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	1.3	19	150	1.3	U	1.2 D	**5.9** D **AD**	**3.6** D **AD**	**5** D **AD**	0.028	**7.1** D **AD**	0.021	U	0.019	U	U	U	U	U	U	U	U
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Hexanone	NA	NA	NA	NA	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.081
Toluene	0.7	100	500	0.7	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	0.47	21	200	0.47	U	U	R D	0.016	U	U	U	U	U	0.0034 J	U	U	U	U	U	U	U	U
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U	U	U D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.051
Total VOCs					0	1.2	5.9	3.621	5	0.028	7.1	0.021	0	0.0224	0	0	0	0	0	0	0	0.1847
Total TICs (1)					U	U	U	U	U	U	U	U	U	U	U	U	U	0.0062	0.0045	0.0047	U	9.88
Total VOCs and TICs (1)					0	1.2	5.9	3.621	5	0.028	7.1	0.021	0	0.0224	U	U	U	0.0062	0.0045	0.0047	U	10.0647

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Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	213 IRM05_Bottom(5.5)D 10/29/12 (duplicate)	214 IRM05_Bottom(04) 10/29/12	215 IRM05_Bottom(04) 10/29/12	216 IRM05_Bottom(04) 10/29/12	217 IRM05_Bottom(3.5) 10/29/12	218 IRM03_Wall(07) 11/2/12	219 IRM03_Bottom(12) 11/2/12	220 IRM03_Wall(05) 11/2/12	221 IRM03_Wall(08) 11/2/12	223 Pile A1 11/2/12	224 Pile A2 11/2/12	225 Pile A3 11/2/12	227 IRM03_Wall(08) 11/5/12	228 IRM03_Wall(08) 11/5/12	229 IRM03_Wall(08) 11/5/12	230 IRM03_Bottom(12) 11/5/12	240 IRM01_Wall(3.5) 11/14/12	241 IRM01_Wall(05) 11/14/12
Acetone	0.05	100	500	0.05	0.015	0.015	0.012	U	U	0.01	U	U	U	U	U	U	U	U	U	0.03 J	U	0.008 J
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	0.0077	U	U	U	U	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	1	41	390	1	0.014	U	U	U	U	U	0.0027 J	U	0.0036 J	U	U	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	0.029	U	U	U	U	U	0.0019 J	U	0.003 J	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	0.0019 J	U	0.003 J	U	U	U	U	U	0.0023 J	U	U	U
Methylene chloride	0.05	100	500	0.05	U	U	U	U	U	U	U	U	U	0.0145 J	U	U	U	U	U	U	U	U
Tetrachloroethene	1.3	19	150	1.3	U	U	U	U	U	U	U	U	U	U	U	U	0.0027 J	U	U	U	0.13	U
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Hexanone	NA	NA	NA	NA	0.088	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Toluene	0.7	100	500	0.7	0.0022 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	0.47	21	200	0.47	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.0064 J	U
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	0.07	U	U	U	U	0.012	0.0085	U	0.013	U	U	U	U	U	0.0019 J	U	U	U
Total VOCs					0.2182	0.015	0.012	0	0	0.022	0.0408	0	0.0196	0.0145	0	0	0.0027	0	0.0042	0.03	0.1364	0.008
Total TICs (1)					11.46	0.2237	0.587	0.484	0.0067	0.258	0.316	0.011	1.278	U	U	U	U	1.006	1.686	0.525	U	U
Total VOCs and TICs (1)					11.6782	0.2387	0.599	0.484	0.0067	0.28	0.3568	0.011	1.2976	0.0145	0	0	0.0027	1.006	1.6902	0.555	0.1364	0.008

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Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	242 IRM01_Bottom(06) 11/14/12	248 IRM01_Bottom(10) 11/16/12	254 IRM01_Wall(5.5) 11/16/12	255 IRM01_Bottom(12) 11/19/12	256 IRM01_Wall(11) 11/19/12	257 IRM01_Wall(06) 11/20/12	258 IRM01_Wall(8.5) 11/21/12
Acetone	0.05	100	500	0.05	0.0034 J	U	U	0.019 J	0.028	0.012 J	0.015 J
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	0.0014 J
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U
Methylene chloride	0.05	100	500	0.05	U	U	U	U	U	U	0.0019 J
Tetrachloroethene	1.3	19	150	1.3	0.0038 J	0.02	0.003 J	0.043	0.0089	0.016	0.013 B
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U
2-Hexanone	NA	NA	NA	NA	U	U	U	U	U	U	U
Toluene	0.7	100	500	0.7	U	U	U	U	U	U	U
Trichloroethene	0.47	21	200	0.47	U	U	U	U	U	U	0.0014 J
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U	U	U	U	U	U	U
Total VOCs					0.0072	0.02	0.003	0.062	0.0369	0.028	0.0327
Total TICs (1)					0.007	U	U	U	U	U	U
Total VOCs and TICs (1)					0.0142	0.02	0.003	0.062	0.0369	0.028	0.0327

Contaminant	259 IRM01_Bottom(15.5) 11/21/12	260 IRM01_Bottom(11.5) 11/21/12	261 IRM01_Wall(11.1) 11/21/12	262 IRM01_Wall(9.8) 11/21/12	263 IRM01_Wall(12.1) 11/21/12	264 IRM01_Wall(07) 11/26/12	266 IRM01_Bottom(11.5) 11/26/12	267 IRM01_Wall(07) 11/27/12	268 IRM01_Wall(08) 11/27/12	268 IRM01_Wall(08)D 11/27/12 Duplicate	269 IRM02_Wall(10) 11/27/12
Acetone	U	U	0.011 J	U	U	U	U	U	U	U	U
Cyclohexane	U	U	U	U	U	U	U	U	U	U	U
Chloroform	U	U	0.0016 J	0.0017 J	U	0.0026 J	0.0016 J	U	U	U	U
Cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	U
Isopropylbenzene	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	0.15 J	19 D AD	0.044	0.034	2.5 AD	0.1	0.029	0.018	0.015	0.01	0.0076
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	U	U	U	U
2-Hexanone	U	U	U	U	U	U	U	U	U	U	U
Toluene	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	0.0056 J	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	U	U	U	U	U	U	U	U	U	U	U
Total VOCs	0.1556	19	0.0566	0.0357	2.5	0.1026	0.0306	0.018	0.015	0.01	0.0076
Total TICs (1)	0.0068	U	0.0066	0.0085	U	0.011	0.008	U	U	U	U
Total VOCs and TICs (1)	0.1624	19	0.0632	0.0442	2.5	0.1136	0.0386	0.018	0.015	0.01	0.0076

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

VOC = Volatile Organic Compound

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Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	270 IRM02_Wall(09) 11/27/12	272 AQ1 11/28/12	273 AQ2 11/28/12	274 AQ3 11/28/12	275 AQ4 11/28/12	277 AQ6 11/28/12	278 AQ7 11/28/12	279 AQ8 11/28/12	280 AQ9 11/28/12	282 AQ9D 11/28/12 Duplicate	297 IRM02_Wall(12) 12/3/12	298 IRM02_Wall(12) 12/3/12	299 IRM02_Bottom(12.5) 12/3/12	504 RI-WALL (6) 11/14/12	505 RI-WALL (5.8) 11/14/12	514 RI-BOTTOM (10) 11/17/12	517 RI-BOTTOM (10) 11/26/12	520 MW-17 (15-16) 12/19/12
Acetone	0.05	100	500	0.05	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.0049 J	0.016 J	0.0081	U
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	0.05	100	500	0.05	U	U	U	0.0017 J	0.0017 J	0.002 J	U	U	U	U	U	U	U	U J	U J	U	U	U
Tetrachloroethene	1.3	19	150	1.3	0.015	0.024	0.012	0.74 D	0.43 D	0.37 JD	0.0017 J	0.43 JD	1 D	0.65 D	U	0.0036 J	0.0027 J	U	0.017	0.036	0.029 B	**11** D AD
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Hexanone	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Toluene	0.7	100	500	0.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.0014 J
Trichloroethene	0.47	21	200	0.47	U	U	U	0.0032 J	U	U	U	U	U	U	U	U	0.0026 J	U	U	U	U	0.0058
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	0.0042 J
Total VOCs					0.015	0.024	0.012	0.7449	0.4317	0.372	0.0017	0.43	1	0.65	0	0.0036	0.0053	0	0.0219	0.052	0.0371	11.0114
Total TICs (1)					U	U	0.0314	0.0053	U	U	0.0025	U	U	U	U	U	U	U	U	U	U	0.0025
Total VOCs and TICs (1)					0.015	0.024	0.0434	0.7502	0.4317	0.372	0.0042	0.43	1	0.65	0	0.0036	0.0053	0	0.0219	0.052	0.0371	11.0139

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Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	522 MW-17 (21-22) 12/19/12	532 TB-MIP-27 (19-22) 06/26/13	533 TB-MIP-27 (22-24) 06/26/13	542 MW-18 (19) 08/05/13	543 MW-18 (21) 08/05/13	544 MW-18 (25) 08/05/13	545 MW-18 (30) 08/05/13
Acetone	0.05	100	500	0.05	U	U	U J	U	U	U	U
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	U
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U
Methylene chloride	0.05	100	500	0.05	U	U	0.0037 J	0.0088 J	U	U	U
Tetrachloroethene	1.3	19	150	1.3	**6.9** D AD	0.0178	U	0.62 JD	0.0216	0.0038 J	0.0331
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	0.0071 J	0.0152 J	0.0094 J	0.007 J	0.0104 J
2-Hexanone	NA	NA	NA	NA	U	U	0.0073 J	U	U	U	U
Toluene	0.7	100	500	0.7	U	U	0.0021 J	U	U	U	U
Trichloroethene	0.47	21	200	0.47	U	U	U	0.0028 J	U	U	U
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U	U	U	U	U	U	U
Total VOCs					6.9	0.0178	0.0202	0.6468	0.031	0.0108	0.0435
Total TICs (1)					0.0125	0.0192	0.008	U	U	0.0068	0.0056
Total VOCs and TICs (1)					6.9125	0.037	0.0282	0.6468	0.031	0.0176	0.0491

Contaminant	546 MW-19 (20-22) 08/07/13	547 MW-19 (24-26) 08/07/13	548 MW-19 (28-28.4) 08/07/13	549 MW-20 (20) 08/08/13	550 MW-20 (22) 08/08/13	551 MW-20 (23) 08/08/13	552 MW-20 (26) 08/08/13	615 CS-38 (2) 10/09/13	616 CS-39 (2) 10/09/13	618 TB-04 (0-2) 12/03/13	619 TB-04 (2-4) 12/03/13
Acetone	U	U	U	U	U	U	U	U	U	U J	U J
Cyclohexane	U	U	U	U	U	U	U	U	U	U	U
Chloroform	U	U	U	U	U	U	U	U	U	U J	U J
Cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U	U J	U J
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	U
Isopropylbenzene	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	U	U	U	U	U	U	U	U	U	U J	U J
Methylene chloride	U	U	U	U	U	U	U	0.004 J	0.0036 J	0.0163 J	0.0146 J
Tetrachloroethene	**7.5** JD AD	0.0158	0.0542	0.0129	0.0706	0.0066	0.0095	1.1 D	0.12	0.45 E	0.9 D
4-Methyl-2-Pentanone	0.0197 J	0.0083 J	0.0111 J	0.0056 J	0.0061 J	0.0077 J	0.0053 J	U	U	U J	U J
2-Hexanone	U	0.0081 J	U	U	U	U	U	U	U	U J	U J
Toluene	U	U	U	U	U	U	U	U	U	U J	U J
Trichloroethene	0.0064	U	U	U	U	U	U	0.0157	0.0016 J	0.0253 J	0.0109 J
Trichlorofluoromethane	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	U	U	U	U	U	U	U	U	U	U J	U J
Total VOCs	7.5261	0.0322	0.0653	0.0185	0.0767	0.0143	0.0148	1.1197	0.1252	0.4916	0.9255
Total TICs (1)	U	U	0.0064	U	U	U	U	U	U	0.006 J	U
Total VOCs and TICs (1)	7.5261	0.0322	0.0717	0.0185	0.0767	0.0143	0.0148	1.1197	0.1252	0.4976	0.9255

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Table 4

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	620 TB-04 (4-6) 12/03/13	621 TB-04 (6.5-7.5) 12/03/13	623 TB-05 (2-3) 12/03/13	624 TB-05 (5-6) 12/03/13	625 TB-05 (7-8) 12/03/13	627 TB-06 (2-4) 12/03/13	628 TB-06 (4-6) 12/03/13	629 TB-06 (6-8) 12/03/13	631 TB-07 (2-4) 12/03/13	632 TB-07 (4-6) 12/03/13	633 TB-07 (6-7) 12/03/13	634 TB-07 (7-8) 12/03/13	636 TB-08 (0-2) 12/03/13	637 TB-08 (2-4) 12/03/13	638 TB-08 (5-6) 12/03/13	639 TB-08 (7-8) 12/03/13	640 TB-09 (0-2) 12/03/13	641 TB-09 (3-4) 12/03/13
Acetone	0.05	100	500	0.05	U	U	0.0086 J	0.0062 J	U	0.0055 J	0.0034 J	0.0038 J	0.0071 J	U	U	U	0.0104 J	0.0078 J	U	U	0.008 J	0.0055 J
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	U	U	0.0015 J	U	U	U	U	U	U	U	U J	U
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Methylene chloride	0.05	100	500	0.05	U J	U J	0.0086 J	0.0033 J	0.003 J	U J	0.0043 J	0.0036 J	U J	U J	U J	U J	U J	U J	U J	0.0015 J	0.0031 J	U J
Tetrachloroethene	1.3	19	150	1.3	0.0024 J	0.0191	0.94 D	0.0127	0.0183	0.025	0.0054 J	0.0022 J	0.13	0.0446	0.0144	0.0111	0.0453	0.0565	0.0167	0.0031 J	0.42 D	0.0247
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
2-Hexanone	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Toluene	0.7	100	500	0.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Trichloroethene	0.47	21	200	0.47	U	U	0.0097	U	U	U	U	U	0.0029 J	0.0019 J	U	U	U	0.002 J	U	U	0.006 J	U
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Total VOCs					0.0024	0.0191	0.9669	0.0222	0.0213	0.0305	0.0131	0.0096	0.1415	0.0465	0.0144	0.0111	0.0557	0.0663	0.0167	0.0046	0.4371	0.0302
Total TICs (1)					0.0095 J	U	U	U	U	0.0077 J	U	U	U	0.0028 J	U	U	U	U	U	U	0.0047 J	U
Total VOCs and TICs (1)					0.0119	0.0191	0.9669	0.0222	0.0213	0.0382	0.0131	0.0096	0.1415	0.0493	0.0144	0.0111	0.0557	0.0663	0.0167	0.0046	0.4418	0.0302

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300, 304-308 Andrews St and 25 Evans St
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NYSDEC Site #E828144

Summary of Detected VOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	642 TB-09 (4-6) 12/03/13	643 TB-09 (6-8) 12/03/13	644 TB-10 (0-2) 12/03/13	645 TB-10 (2-4) 12/03/13	646 TB-10 (4-6) 12/03/13	647 TB-10 (7-8) 12/03/13	649 TB-11 (0-2) 12/03/13	650 TB-11 (3-4) 12/03/13	651 TB-12 (0-2) 12/03/13
Acetone	0.05	100	500	0.05	U	U	U	U	U	U	0.0357	0.0337	0.0311
Cyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U
Chloroform	0.37	49	350	0.37	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	0.25	100	500	0.25	U	U	U	U	U	U	U	U	U
Ethylbenzene	1	41	390	1	U	U	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	2.3	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U
Methylene chloride	0.05	100	500	0.05	U J	U J	U	U	U	U	0.0037 J	U	0.0026 J
Tetrachloroethene	1.3	19	150	1.3	0.008	0.0176	0.05	0.0423	0.0023 J	0.0047 J	0.74 D	0.0131	0.0187
4-Methyl-2-Pentanone	NA	NA	NA	1	U	U	U	U	U	U	U	0.022 J	U J
2-Hexanone	NA	NA	NA	NA	U	U	U	U	U	U	U	0.0278 J	U J
Toluene	0.7	100	500	0.7	U	U	U	U	U	U	0.0018 J	U	0.0066
Trichloroethene	0.47	21	200	0.47	U	U	U	U	U	U	U	U	0.0016 J
Trichlorofluoromethane	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	500	1.6	U	U	U	U	U	U	U	U	0.0011 J
Total VOCs					0.008	0.0176	0.05	0.0423	0.0023	0.0047	0.7812	0.0966	0.0617
Total TICs (1)					U	U	U	U	U	U	U	U	0.0049 J
Total VOCs and TICs (1)					0.008	0.0176	0.05	0.0423	0.0023	0.0047	0.7812	0.0966	0.0666

Contaminant	652 TB-12 (2-4) 12/03/13	653 TB-14 (0-2) 12/03/13	654 TB-14 (2-4) 12/03/13	659 SIRM-BOTTOM(2) 06/26/14	660 SIRM-WALL(1) 06/26/14	662 SIRM-WALL(1) 06/26/14	663 SIRM-WALL(1) 06/26/14	664 SIRM-WALL(1.0) 07/16/14	665 SIRM-WALL(1.0) 07/16/14
Acetone	0.0338	0.031	0.0327	U	U	U	U	U	U
Cyclohexane	U	U	U	U	U	U	U	U	U
Chloroform	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U
Ethylbenzene	U	U	U	U	U	U	U	U	U
Isopropylbenzene	U	U	U	U	U	U	U	U	U
Methylcyclohexane	U	U	U	U	U	U	U	U	U
Methylene chloride	U	0.0015 J	U	U	U	U	U	U	U
Tetrachloroethene	0.0566	0.0137	0.0114	0.250 JD	0.210 JD	0.0563	0.0939 JD	0.0641	0.0469
4-Methyl-2-Pentanone	0.0215 J	0.0205 J	0.0213 J	U	U	U	U	U	U
2-Hexanone	0.0268 J	0.0255 J	0.0265 J	U	U	U	U	U	U
Toluene	0.0049 J	U	U	U	U	U	U	U	U
Trichloroethene	0.002 J	U	U	0.0079	0.0053 J	U	U	U	U
Trichlorofluoromethane	U	U	U	U	U	U	U	U	U
Xylene (mixed)	U	U	U	U	U	U	U	U	U
Total VOCs	0.1456	0.0922	0.0919	0.2579	0.2153	0.0563	0.0939	0.0641	0.0469
Total TICs (1)	U	U	U	U	U	U	U	U	U
Total VOCs and TICs (1)	0.1456	0.0922	0.0919	0.2579	0.2153	0.0563	0.0939	0.0641	0.0469

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053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 5

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected SVOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	017 S-2 (0-6") (11/16/10)	018 S-4 (0-6") (11/16/10)	019 S-5 (2'-3') (11/16/10)	020 S-7 (0-6") (11/17/10)	021 S-9 (1') (11/18/10)	029 S-10 (6"-1') (12/6/10)	033 S-11 (3') (1/18/11)	034 S-13 (3') (1/18/11)	035 S-14 (3') (1/18/11)	036 S-17 (3') (1/18/11)
Acenaphthene	20	100	500	98	U	U	U	0.21 J	U	U	U	U	U	0.24 J
Acenaphthylene	100	100	500	107	U	U	U	U	0.27 J	U	U	U	U	U
Anthracene	100	100	500	1000	0.13 J	U	U	0.35 J	0.22 J	0.12 J	U	U	U	0.31 J
2-Methylnaphthalene	NA	NA	NA	36.4	U	U	U	0.19 J	U	U	U	U	U	0.062 J
Benzo(a)anthracene	1	1	5.6	1	0.31 J	0.072 J	U	0.98	**1.5** J **ABD**	0.31 J	U	0.072 J	U	0.62
Benzo(a)pyrene	1	1	1	22	0.22 J	0.055 J	U	0.87	**1.8** J **ABC**	0.25 J	U	0.053 J	U	0.44
Benzo(b)fluoranthene	1	1	5.6	1.7	0.32 J	0.083 J	U	**1.2** **AB**	**2.3** J **ABD**	0.32 J	U	0.079 J	U	0.67
Benzo(g,h,i)perylene	100	100	500	1,000	0.13 J	U	U	0.55	1.3 J	0.15 J	U	U	U	0.23 J
Benzo(k)fluoranthene	0.8	3.9	56	1.7	0.11 J	U	U	0.39	**0.86** **A**	0.15 J	U	U	U	0.21 J
1,1-Biphenyl	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U
bis(2-Ethylhexyl)phthalate	NA	NA	NA	435	0.053 J	U	U	U	0.085 NJ	U	U	0.065 J	U	U
Carbazole	NA	NA	NA	NA	U	U	U	0.22 J	0.28 J	U	U	U	U	0.23 J
Chrysene	1	3.9	56	1	0.29 J	0.065 J	U	**1.1** **AD**	**1.8** J **AD**	0.29 J	U	0.067 J	U	0.58
Dimethylphthalate	NA	NA	NA	7.1	U	U	U	U	U	U	U	U	U	U
Di-n-butylphthalate	NA	NA	NA	8.1	U	U	U	U	U	U	U	U	U	U
Dibenzo(a,h)anthracene	0.33	0.33	0.56	1,000	U	U	U	0.11 J	0.29 J	U	U	U	U	0.066 J
Dibenzofuran	7	59	350	210	U	U	U	0.13 J	0.054 J	U	U	U	U	0.14 J
Fluoranthene	100	100	500	1,000	0.64	0.16 J	U	2.1	3.1 DJ	0.67	U	0.15 J	U	1.4
Fluorene	30	100	500	386	U	U	U	0.19 J	U	U	U	U	U	0.22 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	8.2	0.13 J	U	U	0.5	**1.2** **AB**	0.14 J	U	U	U	0.26 J
Naphthalene	12	100	500	12	U	U	U	0.44	U	U	U	U	U	0.1 J
Phenanthrene	100	100	500	1,000	0.49	0.14 J	U	1.7	1.4 J	0.45	U	0.099 J	U	1.2
Phenol	0.33	100	500	0.33	U	0.048 J	U	0.049 J	0.061 J	U	U	U	0.052 NJ	0.067 J
Pyrene	100	100	500	1000	0.52	0.12 J	U	1.7	2.9 J	0.58	U	0.12 J	U	1.2
Total SVOCs					3.343	0.743	0	12.979	19.42	3.43	0	0.705	0.052	8.245
Total TICs (1)					1.191	0.11	0.19	3.591	6.55	0.29	0.21	0.86	0.17	1.548
Total SVOCs and TICs (1)					4.534	0.853	0.19	16.57	25.97	3.72	0.21	1.565	0.222	187.393

Contaminant	039 S-24 (2') (1/24/11)	043 S-30 (6.5') (1/26/11)	045 S-31 (0.5') (1/31/11)	046 S-34 (2.5') (1/31/11)	047 S-43 (4') (2/9/11)	049 S-59 (4.5') (5/5/11)	053 TP-01 (2') 9/26/11	054 TP-01 (5.5') 9/26/11	055 TP-02 (5')NB 9/26/11
Acenaphthene	0.86 J	U	U	3	U	U	U	U	U
Acenaphthylene	0.89 J	U	0.055 J	1.2 J	U	U	U	U	U
Anthracene	3.6 J	U	U	9	U	U	U	U	U
2-Methylnaphthalene	U J	U J	U	1 J	U	U	0.49	U	U
Benzo(a)anthracene	**12** **ABCD**	U	0.11 J	**26** D **ABCD**	0.12 J	U	0.19 J	0.48	U
Benzo(a)pyrene	**10** **ABC**	U	0.15 J	**20** D **ABC**	0.1 J	U	0.21 J	0.45	**2** **ABC**
Benzo(b)fluoranthene	**13** **ABCD**	U	0.21 J	**28** D **ABCD**	0.16 J	U	0.25 J	0.61	U
Benzo(g,h,i)perylene	6.9	U	0.15 J	12	0.086 J	U	U	U	U
Benzo(k)fluoranthene	**4.2** J **ABD**	U	0.065 J	**8.3** **ABD**	0.057 J	U	U	0.23 J	U
1,1-Biphenyl	U	U	U	U	U	U	U	U	U
bis(2-Ethylhexyl)phthalate	U	U	0.12 J	U	U	U	U	U	U
Carbazole	1.8 J	U	U	4.4	U	U	U	U	U
Chrysene	**10** **ABD**	U	0.13 J	**27** D **ABD**	0.15 J	U	0.22 J	0.53	U
Dimethylphthalate	U	U	U	U	U J	0.79 B	U	U	U
Di-n-butylphthalate	U	U	U	U	U	U	U	U	U
Dibenzo(a,h)anthracene	**1.8** J **ABC**	U	U	**3.2** **ABC**	U	U	U	U	U
Dibenzofuran	0.93 J	U	U	1.9 J	U	U	U	U	U
Fluoranthene	28	U	0.17 J	53 D	0.27 J	U	0.4 J	1.3	U
Fluorene	1.3 J	U	0.13 J	3.6	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	**6.6** **ABC**	U	U	**11** **ABCD**	0.066 J	U	U	0.27 J	U
Naphthalene	U	U	U	1.4 J	U	U	U	U	U
Phenanthrene	19	U	0.096 J	49 D	0.14 J	U	0.22 J	0.76	U
Phenol	U	0.077 J	U	U	U	U	U	U	U
Pyrene	22	U	0.15 J	48 D	0.28 J	U	0.43	1	U
Total SVOCs	142.88	0.077	1.536	311	1.429	0.79	2.41	5.63	2
Total TICs (1)	34.72	U	2.11	123.1	0.25	0.12	85.6	2.798	0.3
Total SVOCs and TICs (1)	177.6	0.077	3.646	434.1	1.679	0.91	88.01	8.428	2.3

Notes

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mg/kg = milligrams per kilogram or parts per million (ppm).

Soil cleanup objectives (SCO) are as referenced in 6 NYCRR Part 375-6, Remedial Program Cleanup Objectives, dated December 14, 2006, as supplemented by CP-51 dated October 21, 2010.

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.

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags. TICs qualified with an "A" (suspected Aldol-condensation product) or a "B" (analyte found in blank as well as the sample) were not included in the total TICs presented on this table.

SVOC = Semi-Volatile Organic Compound

TIC = Tentatively Identified Compound

Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 5

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected SVOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	058 TP-05 (3.5') 9/26/11	062 TB-MIP-11 (5') 10/6/11	064 TB-MIP-05 (10') 10/6/11	065 TB-MIP-06 (14') 10/6/11	066 TB-MIP-07 (9.5') 10/6/11	067 TB-MIP-08 (10') 10/6/11	068 TB-MIP-09 (4.5') 10/6/11	069 TB-MIP-09 (13') 10/6/11	070 TB-MIP-04 (13') 10/6/11	071 TB-MIP-13 (9') 10/6/11	074 TB-MIP-15 (9') 10/6/11	075 TB-MIP-14 (13') 10/6/11	076 TB-MIP-14 (21') 10/6/11	077 TB-MIP-21 (6.5') 10/6/11	078 TB-MIP-21 (17.5') 10/6/11	079 TB-MIP-20 (15.5') 10/6/11	080 TB-MIP-20 (21') 10/6/11	082 TB-MIP-17 (13') 10/6/11	084 TB-MIP-02 (15') 10/6/11
Acenaphthene	20	100	500	98	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acenaphthylene	100	100	500	107	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Anthracene	100	100	500	1000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Methylnaphthalene	NA	NA	NA	36.4	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzo(a)anthracene	1	1	5.6	1	0.29 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzo(a)pyrene	1	1	1	22	0.31 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzo(b)fluoranthene	1	1	5.6	1.7	0.37 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzo(g,h,i)perylene	100	100	500	1,000	0.22 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzo(k)fluoranthene	0.8	3.9	56	1.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Biphenyl	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-Ethylhexyl)phthalate	NA	NA	NA	435	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.17 J	0.16 J
Carbazole	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chrysene	1	3.9	56	1	0.38 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Dimethylphthalate	NA	NA	NA	7.1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Di-n-butylphthalate	NA	NA	NA	8.1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Dibenzo(a,h)anthracene	0.33	0.33	0.56	1,000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Dibenzofuran	7	59	350	210	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Fluoranthene	100	100	500	1,000	0.83	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Fluorene	30	100	500	386	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	8.2	0.21 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Naphthalene	12	100	500	12	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Phenanthrene	100	100	500	1,000	0.71	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Phenol	0.33	100	500	0.33	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Pyrene	100	100	500	1000	0.82	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total SVOCs					4.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17	0.16
Total TICs (1)					3.908	0.08	0.12	0.23	0.12	0.1	0.091	0.098	0.12	U	0.12	0.11	0.46	0.13	0.19	0.11	0.175	2.556	0.49
Total SVOCs and TICs (1)					8.048	0.08	0.12	0.23	0.12	0.1	0.091	0.098	0.12	0	0.12	0.11	0.46	0.13	0.19	0.11	0.175	2.726	0.65

Notes

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mg/kg = milligrams per kilogram or parts per million (ppm).

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags. TICs qualified with an "A" (suspected Aldol-condensation product) or a "B" (analyte found in blank as well as the sample) were not included in the total TICs presented on this table.

SVOC = Semi-Volatile Organic Compound

TIC = Tentatively Identified Compound

Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 5

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected SVOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	087 TB-MIP-07 (3') 10/6/11	089 MW-04 (4-6') 10/25/11	090 MW-04 (17-17.9') 10/25/11	091 MW-05 (14-16') 10/26/11	092 MW-06 (21-23') 10/27/11	093 MW-08 (26-28') 10/28/11	094 MW-10 (24-26') 10/31/11	095 MW-07 (8-10') 11/1/11	096 MW-09 (8-10') 10/31/11	097 MW-11 (14-16') 11/2/11	098 MW-11 (6-7.4') 11/2/11	100 MW-12 (30-30.8') 11/3/11	101 MW-13 (10-12') 11/3/11	102 MW-13 (24-25.9') 11/4/11	104 MW-14 (6-8') 11/4/11	106 TB-01 (18-20') 11/7/11	109 TB-03 (20-22') 11/8/11	121 TB-02 (22-24') 11/9/11	124 MW-1R (22-23.7') 11/10/11
Acenaphthene	20	100	500	98	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acenaphthylene	100	100	500	107	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Anthracene	100	100	500	1000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Methylnaphthalene	NA	NA	NA	36.4	U	3.7 D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzo(a)anthracene	1	1	5.6	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.25	U	U	U	U
Benzo(a)pyrene	1	1	1	22	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.25 J	U	U	U	U
Benzo(b)fluoranthene	1	1	5.6	1.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.36 J	U	U	U	U
Benzo(g,h,i)perylene	100	100	500	1,000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.22 J	U	U	U	U
Benzo(k)fluoranthene	0.8	3.9	56	1.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Biphenyl	NA	NA	NA	NA	U	0.83	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-Ethylhexyl)phthalate	NA	NA	NA	435	0.33 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Carbazole	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chrysene	1	3.9	56	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.25 J	U	U	U	U
Dimethylphthalate	NA	NA	NA	7.1	U	U	U	U	U	U	U	U	U	U	0.28 J	0.18 J	0.16 J	0.23 J	0.16 J	U	U	U J	U J
Di-n-butylphthalate	NA	NA	NA	8.1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Dibenzo(a,h)anthracene	0.33	0.33	0.56	1,000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Dibenzofuran	7	59	350	210	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Fluoranthene	100	100	500	1,000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.46	U	U	U	U
Fluorene	30	100	500	386	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	8.2	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.17 J	U	U	U	U
Naphthalene	12	100	500	12	U	1.8 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Phenanthrene	100	100	500	1,000	U	0.33 J	U	U	U	U	U	U	U	U	U	U	U	U	0.23 J	U	U	U	U
Phenol	0.33	100	500	0.33	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Pyrene	100	100	500	1000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.39	U	U	U	U
Total SVOCs					0.33	6.66	0	0	0	0	0	0	0	0	0.28	0.18	0.16	0.23	2.74	0	0	0	0
Total TICs (1)					0.28	43	0.443	0.366	2.26	0.48	U	0.074	0.85	0.84	0.39	0.39	0.46	0.59	0.816	0.32	0.29	0.53	0.55
Total SVOCs and TICs (1)					0.61	49.66	0.443	0.366	2.26	0.48	0	0.074	0.85	0.84	0.67	0.57	0.62	0.82	3.556	0.32	0.29	0.53	0.55

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Summary of Detected SVOCs in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	127 MW-2R (20-22') 11/15/11	213 IRM05_Bottom(5.5) 10/29/12	213 IRM05_Bottom(5.5)D 10/29/12 (duplicate)	214 IRM05_Bottom(04) 10/29/12	215 IRM05_Bottom(04) 10/29/12	216 IRM05_Bottom(04) 10/29/12	217 IRM05_Bottom(3.5) 10/29/12	218 IRM03_Wall(07) 11/2/12	219 IRM03_Bottom(12) 11/2/12	220 IRM03_Wall(05) 11/2/12	221 RM03_Wall(08) 11/2/12	226 PileA4 11/2/2012	227 IRM03_Wall(08) 11/5/12	228 IRM03_Wall(08) 11/5/12	229 IRM03_Wall(08) 11/5/12	230 IRM03_Bottom(12) 11/5/12	247 TypeA05 11/15/2012	283 AQ1234 11/28/12	284 AQ1234D 11/28/12 Duplicate
Acenaphthene	20	100	500	98	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.64	U	U
Acenaphthylene	100	100	500	107	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.26 J	U	U
Anthracene	100	100	500	1000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	2.1	U	U
2-Methylnaphthalene	NA	NA	NA	36.4	U	3.6	5.8	U	U	U	U	U	0.16 J	U	U	U	U	U	U	U	U	U	U
Benzo(a)anthracene	1	1	5.6	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	7 D ABCD	0.4	0.25 J
Benzo(a)pyrene	1	1	1	22	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	6.7 D ABC	0.48	0.24 J
Benzo(b)fluoranthene	1	1	5.6	1.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	8.2 D ABCD	0.53	0.3 J
Benzo(g,h,i)perylene	100	100	500	1,000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	4	0.26 J	0.17 J
Benzo(k)fluoranthene	0.8	3.9	56	1.7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	3.7 AD	0.18 J	U
1,1-Biphenyl	NA	NA	NA	NA	U	1.8	2.6	U	U	U	U	U	U	U	U	U	U	U	0.24 J	U	U	U	U
bis(2-Ethylhexyl)phthalate	NA	NA	NA	435	U	U	U	U	U	U	U	U	U	U	U	U	0.27 J	0.17 J	0.27 J	0.16 J	0.25 J	U	U
Carbazole	NA	NA	NA	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.59	U	U
Chrysene	1	3.9	56	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	6.8 D ABD	0.41	0.25 J
Dimethylphthalate	NA	NA	NA	7.1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.57	0.42
Di-n-butylphthalate	NA	NA	NA	8.1	U	0.9	0.61	0.9	0.87	0.79	0.81	0.58	0.7	0.64	0.5	U	1.4	0.64	1.3	0.61	0.87	U	U
Dibenzo(a,h)anthracene	0.33	0.33	0.56	1,000	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	1.2 ABC	U	U
Dibenzofuran	7	59	350	210	U	0.76 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.28 J	U	U
Fluoranthene	100	100	500	1,000	U	0.088 J	0.1 J	U	U	U	U	0.085 J	U	U	U	0.199	0.083 J	U	U	U	11 D	0.49	0.45
Fluorene	30	100	500	386	U	0.47	U	U	U	U	U	U	U	U	U	U	U	U	0.18 J	U	0.59	U	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	8.2	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	3.5 AB	0.23 J	U J
Naphthalene	12	100	500	12	U	U	2.6 J	U	U	U	U	U	U	U	U	U	U	U	U	U	0.09 J	U	U
Phenanthrene	100	100	500	1,000	U	0.55	0.7	U	U	U	U	U	U	U	U	U	U	U	0.44	U	6.8 D	0.27 J	0.3
Phenol	0.33	100	500	0.33	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Pyrene	100	100	500	1000	U	0.1 J	0.13 J	U	U	U	U	0.1 J	U	U	U	U	0.1 J	U	U	U	12 D	0.42	0.4
Total SVOCs					0	8.268	12.54	0.9	0.87	0.79	0.81	0.765	0.86	0.64	0.5	0.199	1.853	0.81	2.43	0.77	76.57	4.24	2.78
Total TICs (1)					0.68	85.71	100.6	7.38	8.18	6.97	17.42	2.53	3.02	1.79	10.22	U	3.58	3.6	52.6	2.57	195.6	7.1917	5.0895
Total SVOCs and TICs (1)					0.68	93.978	113.14	8.28	9.05	7.76	18.23	3.295	3.88	2.43	10.72	0.199	5.433	4.41	55.03	3.34	272.17	11.4317	7.8695

Notes

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mg/kg = milligrams per kilogram or parts per million (ppm).

Soil cleanup objectives (SCO) are as referenced in 6 NYCRR Part 375-6, Remedial Program Cleanup Objectives, dated December 14, 2006, as supplemented by CP-51 dated October 21, 2010.

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags. TICs qualified with an "A" (suspected Aldol-condensation product) or a "B" (analyte found in blank as well as the sample) were not included in the total TICs presented on this table.

SVOC = Semi-Volatile Organic Compound

TIC = Tentatively Identified Compound

Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 6

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Metals and Cyanide in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	017 S-2 (0-6") (11/16/10)	018 S-4 (0-6") (11/16/10)	019 S-5 (2'-3') (11/16/10)	020 S-7 (0-6") (11/17/10)	021 S-9 (1') (11/18/10)	029 S-10 (6"-1') (12/6/10)	033 S-11 (3') (1/18/11)	034 S-13 (3') (1/18/11)	035 S-14 (3') (1/18/11)
Aluminum	NA	NA	NA	NA	1830	3340	1610	4040	4740	5780	1290	1210	1620
Antimony	NA	NA	NA	NA	U	U	U	0.907 J	U	U	U	U	U
Arsenic	13	16	16	16	3.68	1.75	0.923 J	13.8 A	6.85	2.63	1.03	1.15	0.875
Barium	350	400	400	820	21.3	57	18.6	93.4	244	105	17.7	13.9	18.4
Beryllium	7.2	72	590	47	0.098 J	0.186 J	0.111 J	0.376	0.439	0.55	0.091 J	0.083 J	0.087 J
Cadmium	2.5	4.3	9.3	7.5	U	0.122 J	U	0.722	0.562	U	0.068 J	0.072 J	0.077 J
Calcium	NA	NA	NA	NA	25500	53700	23500	48400	33000	15500	21000 J	20200 J	22100 J
Chromium	30	180	1,500	NA	3.28	4.85	3.59	7.94	12.3	9.74	2.22	2.18	2.84
Cobalt	NA	NA	NA	NA	1.99	2.74	1.84	4.47	4.23	3.87	1.39	1.46	1.71
Copper	50	270	270	1,720	5.42	6.25	3.12	39.7	23.1	13.4	3.75	4.05	4.56
Iron	NA	NA	NA	NA	5600	7210	5730	16100	11300	12900	4120 J	4020 J	5100 J
Lead	63	400	1,000	450	8.6	77.6 A	1.77	230 A	1390 ABCD	48.3	2.47	1.51	1.55
Magnesium	NA	NA	NA	NA	6120	9370	6650	9870	8100	4340	4970 J	4480 J	5400 J
Manganese	1600	2,000	10,000	2,000	199	299	186	326	385	543	144 J	167 J	199 J
Total Mercury	0.18	0.81	2.8	0.73	0.089 NJ	0.022 NJ	U NJ	0.092 NJ	0.54 NJ A	0.052 J	U J	U J	U J
Nickel	30	310	310	130	4.1	5.33	3.46	11.2	8.57	7.3	2.88	2.84	3.46
Potassium	NA	NA	NA	NA	376	627	274	686	840	770	228	191	222
Selenium	3.9	180	1,500	4	1.07 J	1.09	0.758 J	2.14	1.95	1.45	0.706	0.681 J	0.891
Silver	2	180	1,500	8.3	U	U	U	0.414	0.695	0.43 J	U	U	0.184 J
Sodium	NA	NA	NA	NA	394 *J	393 *J	402 *J	461 *J	528 *J	811 N*J	106 J	157 J	141 J
Thallium	NA	NA	NA	NA	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vanadium	NA	NA	NA	NA	6.62	9.02	7.5	13.9	13.8	15.2	4.48	4.4	5.75
Zinc	109	10,000	10,000	2,480	24.2	47.9	14.9	245 A	255 A	57.9	9.91 J	10.9 J	10.5 J
Total Cyanide	27	27	27	40	U	U	U	U	U	U	U	U	U

Contaminant	036 S-17 (3') (1/18/11)	039 S-24 (2') (1/24/11)	043 S-30 (6.5') (1/26/11)	045 S-31 (0.5') (1/31/11)	046 S-34 (2.5') (1/31/11)	047 S-43 (4') (2/9/11)	049 S-59 (4.5') (5/5/11)	053 TP-01 (2') 9/26/11	058 TP-05 (3.5') 9/26/11	062 TB-MIP-11 (5') 10/6/11	064 TB-MIP-05 (10') 10/6/11
Aluminum	2320	4580	4510	3140	2220	3800	5930	3740	2670 J	2070	2510
Antimony	0.636 J	1.12 J	U	1.55 J	U	U	U	U	U	U	U
Arsenic	1.4	17.5 ABCD	2.88	4.44	12.3	3.17	3.67	8.83	4.19	1.56	1.94
Barium	40.7	1020 ABCD	37.3	72.7 J	52 J	46.8 J	51.1	149 J	66.1 J	20.3	30.6
Beryllium	0.148 J	0.498	0.324	0.24 J	0.314 J	0.28 J	0.426	0.21 J	0.16 J	0.093 J	0.124 J
Cadmium	0.224 J	1.78	0.226 J	0.899	1.28	U	U	U	U	U	U
Calcium	23600 J	31500	4060	52200	80300	64300	3000	23300 J	29900 J	26900	34500
Chromium	4.63	21.6	7.96	5.34	6.15	5.19	10.7	7.7	3.6	3.53	4.32
Cobalt	2.72	5.08	3.84	3.36	2.04	3.1	4.33	4.32	2.81	2.04	2.48
Copper	10.4	109 A	7.74	24	191 A	14.6	5.09	42.2	14.8 J	2.86	3.79
Iron	7780 J	15400	11300	8510	6850	8460	15400	10900	6260	6090	7680
Lead	4.22	1030 ABCD	21.4	150 A	181 A	310 A	12.5	324 A	184 J A	2.13	2.6
Magnesium	5770 J	8470	2150	14300	12500	15700	2350	5630 J	6220 J	6150	7800
Manganese	307 J	349	208	481	160	302	269	411 J	237 J	207 J	235 J
Total Mercury	0.028 J	9 D ABCD	0.102	0.095	0.133	0.181 J A	0.028	0.859 D ABD	0.356 A	0.009 J	0.005 J
Nickel	6.07	13.6	8.24	6.33	7.01	7.03	9.31	7.12	5.67	3.92	5.35
Potassium	349	797	744	519	281	657	1170	722	487	434	575
Selenium	0.61 J	3.75	1.79	1.32	2.12	0.74 J	1.53	1.71	U	0.711 J	U
Silver	0.248 J	3.04 A	0.464	U	0.313 J	U	U	0.56 J	0.33 J	U	U
Sodium	207 J	397 J	225 J	250 J	230 J	828 J	142	382 J	371 J	192 J	233 J
Thallium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vanadium	6.63	13.5	11.7	8.12	9.32	9.9	16.7	11.3	7.59	7.19	8.85
Zinc	198 J A	681 J A	30.4 J	79.5	439 A	94.9	42.8	209 A	139 A	15.5	18.5
Total Cyanide	U J	0.849	U	0.623	U	U	U	NT	NT	NT	NT

Notes

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mg/kg = milligrams per kilogram or parts per million (ppm).

Soil cleanup objectives (SCO) are as referenced in 6 NYCRR Part 375-6, Remedial Program Cleanup Objectives, dated December 14, 2006, as supplemented by CP-51 dated October 21, 2010.

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R = Data rejected due to severe quality control issues.

Results of DUSRs through sample 697 applied to data on table

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

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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 potential false positive and/or elevated quantitative value.

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 6

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Metals and Cyanide in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	065 TB-MIP-06 (14') 10/6/11	066 TB-MIP-07 (9.5') 10/6/11	067 TB-MIP-08 (10') 10/6/11	068 TB-MIP-09 (4.5') 10/6/11	069 TB-MIP-09 (13') 10/6/11	070 TB-MIP-04 (13') 10/6/11	071 TB-MIP-13 (9') 10/6/11	074 TB-MIP-15 (9') 10/6/11
Aluminum	NA	NA	NA	NA	2940	2850	2020	2810	1700	1930	2450	2490
Antimony	NA	NA	NA	NA	U	U	U	U	U	U	U	U
Arsenic	13	16	16	16	1.39	1.86	1.27	4.06	1.3	1.26	1.85	1.75
Barium	350	400	400	820	34.4	32.7	43.4	32.2	18	19.8	29.2	16.7
Beryllium	7.2	72	590	47	0.114 J	0.121 J	0.071 J	0.203 J	U	0.087 J	0.112 J	0.131 J
Cadmium	2.5	4.3	9.3	7.5	U	U	U	U	U	U	U	U
Calcium	NA	NA	NA	NA	33100	37200	21300	40900	20300	22700	26600	27400
Chromium	30	180	1,500	NA	5.08	4.55	3.11	4.71	3.57	3.5	4.12	4.27
Cobalt	NA	NA	NA	NA	2.5	2.59	3.12	2.53	1.69	1.92	2.38	2.25
Copper	50	270	270	1,720	4.19	3.62	2.77	3.8	2.38	2.75	3.68	3.43
Iron	NA	NA	NA	NA	7420	7730	7140	8440	6160	5980	7180	7040
Lead	63	400	1,000	450	2.49	2.15	1.64	5.03	1.23	1.55	2.27	2.42
Magnesium	NA	NA	NA	NA	7590	7470	5770	7830	5510	6360	6980	7190
Manganese	1600	2,000	10,000	2,000	223 J	246 J	604 J	157 J	184 J	201 J	220 J	225 J
Total Mercury	0.18	0.81	2.8	0.73	0.003 J	0.003 J	U	0.016	U	0.003 J	U	0.004 J
Nickel	30	310	310	130	5.45	5.19	5.07	5.65	3.39	3.68	5.1	4.67
Potassium	NA	NA	NA	NA	677	593	333	838	296	366	551	436
Selenium	3.9	180	1,500	4	0.753 J	0.561 J	0.459 J	U	U	U	0.404 J	0.487 J
Silver	2	180	1,500	8.3	U	U	U	U	U	U	U	U
Sodium	NA	NA	NA	NA	227 J	228 J	251 J	223 J	215 J	202 J	231 J	300 J
Thallium	NA	NA	NA	NA	NT	NT	NT	NT	NT	NT	NT	NT
Vanadium	NA	NA	NA	NA	9.29	9.31	7.08	8.63	8.24	7.4	8.33	8.5
Zinc	109	10,000	10,000	2,480	20.1	18.8	17.1	19.2	12.8	15	18.8	17
Total Cyanide	27	27	27	40	NT	NT	NT	NT	NT	NT	NT	NT

Contaminant	075 TB-MIP-14 (13') 10/6/11	076 TB-MIP-14 (21') 10/6/11	077 TB-MIP-21 (6.5') 10/6/11	078 TB-MIP-21 (17.5') 10/6/11	079 TB-MIP-20 (15.5') 10/6/11	080 TB-MIP-20 (21') 10/6/11	082 TB-MIP-17 (13') 10/6/11	084 TB-MIP-02 (15') 10/6/11	087 TB-MIP-07 (3') 10/6/11	089 MW-04 (4-6') 10/25/11	090 MW-04 (17-17.9') 10/25/11	091 MW-05 (14-16') 10/26/11
Aluminum	3850	2180	3090	2220	2790	1680	1480	2870	4860	5960	1960	2570
Antimony	U	U	U	U	U	U	U	U	U	U	U	U
Arsenic	1.39	1.32	3	1.17	1.95	1.04 J	3.03	1.62	12.7	4.5	1.22	6.05
Barium	25.6	15.5	23.6	18.4	31.4	11.6	25.4	29.5	142	59.4 J	17.8 J	30.1
Beryllium	0.173 J	0.101 J	0.207 J	0.124 J	0.125 J	0.09 J	0.066 J	0.146 J	0.393	0.351 N	0.095 J	0.179 J
Cadmium	U	U	U	U	U	U	U	U	0.148 J	0.669	0.273 J	0.518
Calcium	39900	24700	49100	27600	27500	20000	38800	44400	29400	1790	22100	39600
Chromium	6.54	3.9	5.31	4.66	4.99	3.45	3.16	5.02	9.72	9.62	3.7	4.81
Cobalt	2.82	2.08	3.03	2.03	2.59	1.54 J	1.69	2.68	3.88	4.18	1.78	2.64
Copper	4.66	3	6	1.95 J	5.8	1.97 J	2.7	5.23	25.7	7.06	2	3.78
Iron	8380	6720	8460	6600	7340	5630	5780	7650	10900	13800	5180	9970
Lead	2.84	1.73	4.92	1.98	2.27	1.34	1.6	3.43	**268** A	6.77	1.2	2.94
Magnesium	11000	6490	8510	7360	6490	4910	5370	12500	6040	1720	6520	9300
Manganese	249 J	211 J	246 J	196 J	237 J	170 J	231	260	337	92.9	169	237
Total Mercury	0.003 J	U	0.004 J	U	U	U	0.007 J	0.006 J	**0.596** A	0.033	U	U
Nickel	6.16	4.34	6.82	4.39	5.15	3.44	3.62	6.02	8.48	9.83	3.67	4.77
Potassium	799	451	1040	478	622	322	204	721	796	1220	389	605
Selenium	U	U	0.707 J	U	0.456 J	0.582 J	0.427 J	0.643 J	1.54	1.55	0.447 J	1.24
Silver	U	U	U	U	U	U	U	U	U	U J	U J	U
Sodium	278 J	165 J	313 J	347 J	258 J	381 J	249	198	404	707	245	214
Thallium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vanadium	9.93	8.18	8.27	8.17	8.75	7.31	6.16	8.76	12.9	15.9 J	6.25 J	7.77
Zinc	26.2	15.5	25.3	15.9	19.1	13.3	13.9	21.5	**120** A	28.2 J	12.2 J	19
Total Cyanide	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

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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 potential false positive and/or elevated quantitative value.

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 6

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Metals and Cyanide in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	092 MW-06 (21-23') 10/27/11	093 MW-08 (26-28') 10/28/11	094 MW-10 (24-26') 10/31/11	095 MW-07 (8-10') 11/1/11	096 MW-09 (8-10') 10/31/11	097 MW-11 (14-16') 11/2/11	100 MW-12 (30-30.8') 11/3/11	102 MW-13 (24-25.9') 11/4/11	104 MW-14 (6-8') 11/4/11	106 TB-01 (18-20') 11/7/11	109 TB-03 (20-22') 11/8/11	121 TB-02 (22-24') 11/9/11	124 MW-01R (22-23.7') 11/10/11	127 MW-02R (20-22') 11/15/11	206 IRM06_Bottom(03) 10/25/12	207 IRM06_Bottom(03) 10/25/12	208 IRM06_Bottom(03) 10/25/12	209 IRM06_Bottom(03) 10/26/12	210 IRM06_Bottom(03) 10/26/12	211 IRM06_Bottom(03) 10/26/12
Aluminum	NA	NA	NA	NA	1100	3980	1860	2480	2910	1590	1880	1530	1880	1220	1660	896	1470	1750	2580	2690	3860	4150	3510	3710
Antimony	NA	NA	NA	NA	U	U	U	0.67 J	0.58 J	U	0.43 J	U	U	0.54 J	U	U	U	0.64 J	U	U	U	U	U	U
Arsenic	13	16	16	16	0.763 J	2.89	1.75	1.25	1.02	U	0.52 J	U	U	U	U	U	U	0.41 J	3.16 N	3.09 N	3.44 N	3.29 N	3.11 N	3.3 N
Barium	350	400	400	820	4.6 J	27.1	13.1	32.2	41.4	10.6	19.9	15.4	32.4	10.9	20.1	5.42	11.6	28	123	31.6	54.7	61.5	27.4	52
Beryllium	7.2	72	590	47	U	0.195 J	0.106 J	0.11 J	0.12 J	0.06 J	0.08 J	U	0.09 J	0.06 J	0.07 J	U	0.07 J	U	0.03 J	0.04 J	0.06 J	0.03 J	0.04 J	0.07 J
Cadmium	2.5	4.3	9.3	7.5	0.162 J	0.552	0.331 J	0.34	0.39	U	0.19 J	U	0.13 J	U	U	U	U	U	0.58	0.52	0.52	0.56	0.55	0.55
Calcium	NA	NA	NA	NA	16100	39300	33600	37800	35900	23000	29800	27500	40400	39000	34000	13200	25100	22000	72800	91100	38900	20000	73000	52300
Chromium	30	180	1,500	NA	3.26	7.66	4.4	5.37	4.12	3.23	3.06	2.44	2.49	1.66	2.64	1.76	3.27	2.75 *	3.39 N	1.3 N	4.64 N	6.12 N	3.36 N	4.68 N
Cobalt	NA	NA	NA	NA	1.24 J	4.3	2.11	3.07	3	1.88	2.4	2.17	1.83	1.57	1.83	1.13 J	1.76 J	1.71	2.73	3.51	4.15	4.47	4.62	4.06
Copper	50	270	270	1,720	1.78 J	6.3	4.04	7.64	9.7	5.06	3.18	2.72	3.02	2.99	5.43	3.62	6.28	4.71	23.9 N	11.5 N	10.2 N	7.37 N	12.3 N	10.5 N
Iron	NA	NA	NA	NA	3560	10800	6880	7710	7960	5820	5550	4660	4930	3620	4940	3600	6060	4640	9700	10400	13300	16600	12200	11400
Lead	63	400	1,000	450	0.678 J	2.39	1.33	2.4	2.77	1.3	1.55	1.06	5.34	1.21	2.51	1.46 J	1.86 J	1.97	662 N	73.6 N	199 N	85.6 N	27.4 N	**114** N **A**
Magnesium	NA	NA	NA	NA	3380	9770	10000	8590	8010	6580	7130	6790	10200	3980	9030	3340	7070	5040	35700	46600	13500	5000	36000	18000
Manganese	1600	2,000	10,000	2,000	126	350	305	298	296	214	238	219	193	157	211	127	232	182	252	284	306	313	374	317
Total Mercury	0.18	0.81	2.8	0.73	U	U	U	0.003 J	0.005 J	0.006 J	U	U	0.005 J	0.004 J	0.004 J	0.004 J	U	0.032	0.439	0.073	0.242	0.107	0.022	0.136
Nickel	30	310	310	130	2.94	8.7	4.48	6.69	5.56	3.19	4.64	3.4	3.37	2.44	3.11	1.95 J	3.61	4.09	6.68	8	10.4	11.6	11.7	11.5
Potassium	NA	NA	NA	NA	121	692	250	437	495	239	360	288	380	291	363	127	247	271	413	569	581	333	595	573
Selenium	3.9	180	1,500	4	U	1.02 J	0.884 J	U	U	U	U	U	U	U	U	U	0.6 J	U	U	U	0.26 J	U	U	0.22 J
Silver	2	180	1,500	8.3	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.14 J	0.18 J	0.26	0.41	0.12 J	0.22 J
Sodium	NA	NA	NA	NA	261	321	302	31.1 J	84.4 J	63.3 J	148	124	144	93.8 *	91.6	73.8 J	137	461	134	115	139	118	123	126
Thallium	NA	NA	NA	NA	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.33 J	0.33 J	0.49 J	0.56 J	0.52 J	0.23 J
Vanadium	NA	NA	NA	NA	4.35	12.6	8.31	7.93	8.85	7.89	6.69	5.1	4.55	3.43	5.27	4.85	8.16	5.53	7.13 N	6.32 N	7.66 N	8.39 N	7.33 N	8.28 N
Zinc	109	10,000	10,000	2,480	10.4	24.1	16.9	19	21.1	12.2	12.9	14.2	16.4	10.9 N	13.4	8.39	12.4	12.6	151	87.7	81.5	41.1	55.8	**124** **A**
Total Cyanide	27	27	27	40	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

U = Not Detected

NA = Not Available

NT = Not Tested

A = Exceeds Unrestricted Use SCO

B = Exceeds Restricted Residential Use SCO

C = Exceeds Commercial Use SCO

D =Exceeds Protection of Groundwater SCO

mg/kg = milligrams per kilogram or parts per million (ppm).

Soil cleanup objectives (SCO) are as referenced in 6 NYCRR Part 375-6, Remedial Program Cleanup Objectives, dated December 14, 2006, as supplemented by CP-51 dated October 21, 2010.

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.

R = Data rejected due to severe quality control issues.

Results of DUSRs through sample 697 applied to data on table.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

D = The reported values is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

* = For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

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 potential false positive and/or elevated quantitative value.

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 6

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Metals and Cyanide in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	212 IRM06_Bottom(03) 10/26/12	213 IRM05_Bottom(5.5) 10/29/12	213 IRM05_Bottom(5.5)D 10/29/12 Duplicate	214 IRM05_Bottom(04) 10/29/12	215 IRM05_Bottom(04) 10/29/12	216 IRM05_Bottom(04) 10/29/12	217 IRM05_Bottom(3.5) 10/29/12	218 IRM03_Wall(07) 11/2/12
Aluminum	NA	NA	NA	NA	3390	4960	6180	6580	3960	6640	5240	4490
Antimony	NA	NA	NA	NA	U	U	U	U	U	U	U	U
Arsenic	13	16	16	16	4.02 N	3.5	4.8	2.4	1.3	2.2	2.5	3.3
Barium	350	400	400	820	73.6	48.8	58.6	80.2	40.6	59.1	60	47.4
Beryllium	7.2	72	590	47	0.07 J	0.29	0.33	U	U	U	U	U
Cadmium	2.5	4.3	9.3	7.5	0.37	U	0.019 J	0.085 J	0.097 J	0.15 J	0.13 J	U
Calcium	NA	NA	NA	NA	30300	47700	40900	1860	1540	1780	13400	41600
Chromium	30	180	1,500	NA	4.2 N	6.7	9.4	11	6.9	9.9	8.4	6.4
Cobalt	NA	NA	NA	NA	3.42	4.4	4.4	4.2	3	3.6	4.6	2.9
Copper	50	270	270	1,720	11.7 N	12.9	12.7	5.3	2.7	3.3	7.6	11.1
Iron	NA	NA	NA	NA	10200	10800	12600	11700	7700	11400	11900	9340
Lead	63	400	1,000	450	**478** N **ABD**	9 J	11.8 J	6.2 J	5.5 J	5.6 J	4.8 J	39 J
Magnesium	NA	NA	NA	NA	9820	7400	6320	2290	1530	1980	5540	9740
Manganese	1600	2,000	10,000	2,000	244	464 J	302 J	80.5 *	66 *	139 *	573 *	365 *
Total Mercury	0.18	0.81	2.8	0.73	0.426	0.023 J	0.033 J	0.018 J	0.018 J	0.016 J	0.022 J	**0.21** **A**
Nickel	30	310	310	130	8.28	8.9	9.1	9.6	6.5	7.6	8	5.8
Potassium	NA	NA	NA	NA	549	1580	1830	1360	838	811	915	1110
Selenium	3.9	180	1,500	4	U	U	U	1.9	1.7	2.1	1.9	0.54 J
Silver	2	180	1,500	8.3	0.47	U	U	U	U	U	U	U
Sodium	NA	NA	NA	NA	555	128	131	817	224	556	351	297
Thallium	NA	NA	NA	NA	0.21 J	0.71 J	0.52 J	U	U	U	U	0.61 J
Vanadium	NA	NA	NA	NA	7.46 N	11.4	15	11.9	7.7	13.3	16.1	11.5
Zinc	109	10,000	10,000	2,480	55.3	20.7	23.3	29.5	20.7	30.6	22.4	33.3
Total Cyanide	27	27	27	40	NT	NT	NT	NT	NT	NT	NT	NT

Contaminant	219 IRM03_Bottom(12) 11/2/12	220 IRM03_Wall(05) 11/2/12	221 IRM03_Wall(08) 11/2/12	226 PileA4 11/2/2012	227 IRM03_Wall(08) 11/5/12	228 IRM03_Wall(08) 11/5/12	229 IRM03_Wall(08) 11/5/12	230 IRM03_Bottom(12) 11/5/12	247 TypeA05 11/15/2012	283 AQ1234 11/28/12	284 AQ1234D 11/28/12 (Duplicate)
Aluminum	4500	4170	4490	5860 B	6340	2760	4140	3070	6240	3950 J	4920
Antimony	U	U	U	U	0.68 J	0.45 J	U	0.47 J	U	U	U
Arsenic	2.7	2.9	2.5	4.11	5.5	1.6	3.4	5.0	5.4	2.99 J	11
Barium	36.1	28	33.5	56.4	62	19.6	44.8	41.6	**359** J **A**	45 J	**873** **ABCD**
Beryllium	U	U	U	U	U	U	U	U	0.39	0.16 *	U
Cadmium	0.077 J	U	0.015	U	0.27 J	U	0.18 J	U	0.86 J	0.33 J	**2.98** J **A**
Calcium	26100	33500	37100	59000 D	30000	32500	38100	80200	39600	24800 J	21200 J
Chromium	6.5	5.9	6.4	8.43	6.1	3.9	6.0	5.8	8.1	6.87 J	9.53 J
Cobalt	3.6	3.6	3.8	3.69	6.5	2.6 J	4.5	3.3	8.9 J	4.38 J	25.5 J
Copper	11.1	7.2	8.7	15.9	17.9	6.2	15.2	9.2	24	11.4 J	14.5 J
Iron	9280	8880	10100	10000 B	14100	6770	13900	11100	14800 J	12600 J	20800 J
Lead	33.8 J	3.5 J	3.7 J	**91.8** **A**	**81.6** **A**	2.1	**64.4** **A**	9.0	**142** **A**	**109** J **A**	57.5 J
Magnesium	6880	7160	9380	22200 D	5850	8100	12600	19100	13600 *	5760 J	7480 J
Manganese	255 *	328 *	395 *	348	806	375	435	353	**5420** J **ABD**	313 J	**3990** J **ABD**
Total Mercury	0.16	0.009 J	0.008 J	0.105	**0.21** **A**	0.003 J	U	U	**0.27** **A**	**0.198** J **A**	0.119 J
Nickel	6.8	7.6	7.3	8.92	9.3	4.9	8.3	6.4	9.7 J	9.91 J	**30.3** J **A**
Potassium	831	773	854	1370	783	455	740	1050	733	780 J	1390 J
Selenium	U	0.77 J	0.66 J	U	U	U	U	U	U	0.25 J	**7.64** J **AD**
Silver	U	U	U	U	0.22 J	U	0.13 J	U	1.2 J	0.26 J	1.77 J
Sodium	241	145	238	157	493	102	83.0	292	189	111	157
Thallium	U	U	0.27 J	U	U	0.28 J	0.39 J	1.3	U	U	15.3
Vanadium	11.3	11	13	11.1	10.9	7.4	10.1	7.3	15.5	11.1 J	16.3 J
Zinc	45.7	17.4	20.1	63.4	68.5	14.3	48.8	16.8	89.3	63 J	**166** J **A**
Total Cyanide	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

U = Not Detected

NA = Not Available

NT = Not Tested

A = Exceeds Unrestricted Use SCO

B = Exceeds Restricted Residential Use SCO

C = Exceeds Commercial Use SCO

D =Exceeds Protection of Groundwater SCO

mg/kg = milligrams per kilogram or parts per million (ppm).

Soil cleanup objectives (SCO) are as referenced in 6 NYCRR Part 375-6, Remedial Program Cleanup Objectives, dated December 14, 2006, as supplemented by CP-51 dated October 21, 2010.

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.

R = Data rejected due to severe quality control issues.

Results of DUSRs through sample 697 applied to data on table.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

D = The reported values is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

* = For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

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 potential false positive and/or elevated quantitative value.

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 7

300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected PCBs and Pesticides in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	017 S-2 (0-6") (11/16/10)	018 S-4 (0-6") (11/16/10)	019 S-5 (2'-3') (11/16/10)	020 S-7 (0-6") (11/17/10)	021 S-9 (1') (11/18/10)	029 S-10 (6"-1') (12/6/10)	033 S-11 (3') (1/18/11)	034 S-13 (3') (1/18/11)	035 S-14 (3') (1/18/11)	036 S-17 (3') (1/18/11)	039 S-24 (2') (1/24/11)	043 S-30 (6.5') (1/26/11)	045 S-31 (0.5') (1/31/11)	046 S-34 (2.5') (1/31/11)	047 S-43 (4') (2/9/11)	049 S-59 (4.5') (5/5/11)
PCBs (1)	0.1	1	1	3.2	U	U	U	U	U	U	0.0077 J	0.033	U	0.042 P	U	U	U	U	U	U
Pesticides					U	U	U	U	U	U	U	U	U	U	U	U	U	U R	U	U
4,4'-DDT	0.0033	7.9	47	136	U J	U J	U J	U J	U J	U	U	U	U	U	U	U	**0.0098** J A	U R	U	U

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	053 TP-01 (2') 9/26/11	058 TP-05 (3.5') 9/26/11	062 TB-MIP-11 (5') 10/6/11	064 TB-MIP-05 (10') 10/6/11	065 TB-MIP-06 (14') 10/6/11	066 TB-MIP-07 (9.5') 10/6/11	067 TB-MIP-08 (10') 10/6/11	068 TB-MIP-09 (4.5') 10/6/11	069 TB-MIP-09 (13') 10/6/11	070 TB-MIP-04 (13') 10/6/11	071 TB-MIP-13 (9') 10/6/11	074 TB-MIP-15 (9') 10/6/11	075 TB-MIP-14 (13') 10/6/11	076 TB-MIP-14 (21') 10/6/11	077 TB-MIP-21 (6.5') 10/6/11	078 TB-MIP-21 (17.5') 10/6/11	079 TB-MIP-20 (15.5') 10/6/11	080 TB-MIP-20 (21') 10/6/11
PCBs (1)	0.1	1	1	3.2	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Pesticides					NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	082 TB-MIP-17 (13') 10/6/11	084 TB-MIP-02 (15') 10/6/11	087 TB-MIP-07 (3') 10/6/11	089 MW-04 (4-6') 10/25/11	090 MW-04 (17-17.9') 10/25/11	091 MW-05 (14-16') 10/26/11	092 MW-06 (21-23') 10/27/11	093 MW-08 (26-28') 10/28/11	094 MW-10 (24-26') 10/31/11	095 MW-07 (8-10') 11/1/11	096 MW-09 (8-10') 10/31/11	097 MW-11 (14-16') 11/2/11	100 MW-12 (30-30.8') 11/3/11	102 MW-13 (24-25.9') 11/4/11	104 MW-14 (6-8') 11/4/11	106 TB-01 (18-20') 11/7/11	109 TB-03 (20-22') 11/8/11	111 SB-01 (0-2') 11/8/11
PCBs (1)	0.1	1	1	3.2	U	U	U	U	U	U	U	U J	U	U	U	U	U	U	U	U	0.08	U
Pesticides					NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Contaminant	A Unrestricted Use	B Restricted Residential Use	C Restricted Commercial Use	D Protection of Groundwater	112 SB-01 (2-4') 11/8/11	113 SB-02 (0-2') 11/8/11	114 SB-02 (2-4') 11/8/11	115 SB-03 (0-2') 11/9/11	116 SB-03 (2-4') 11/9/11	117 SB-04 (0-2') 11/9/11	118 SB-04 (2-4') 11/9/11	121 TB-02 (22-24') 11/9/11	124 MW-01R (22-23.7') 11/10/11	127 MW-02R (20-22') 11/15/11	226 PileA4 11/2/12	234 IRM04_Bottom(03) 11/8/12	235 IRM04_Wall(2.5) 11/8/12	236 IRM04_Wall(02) 11/8/12	237 IRM04_Wall(2.5) 11/8/12	238 IRM04_Wall(03) 11/8/12	247 TypeA05 11/15/2012	283 AQ1234 11/28/12	284 AQ1234D 11/28/12
PCBs (1)	0.1	1	1	3.2	U	0.01 J	U	0.03 J	0.058 J	0.1 J	0.092 J	U	U	**0.11** J A	U	U	U	**0.446** J A	U	0.075 J	U	0.02 J	0.03 J
Pesticides					NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

U = Not Detected

NA = Not Available

NT = Not Tested

A = Exceeds Unrestricted Use SCO

B = Exceeds Restricted Residential Use SCO

C = Exceeds Commercial Use SCO

D = Exceeds Protection of Groundwater SCO

PCBs = Polychlorinated Biphenyls

P = target analyte had a >25% difference for detected concentrations between the two GC columns. The lower of the two values is reported.

mg/kg = milligrams per kilograms or parts per million (ppm).

Soil cleanup objectives (SCO) are as referenced in 6 NYCRR Part 375-6, Remedial Program Cleanup Objectives, dated December 14, 2006, as supplemented by CP-51 dated October 21, 2010.

(1) Refer to the analytical laboratory report for individual Aroclors detected and associated flags.

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.

R =The data are unusable. The Analyte may or may not be present.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Results of DUSRs through sample 697 applied to data on table

053	Sample ID
TP-01 (2')	Sample Location with depth in feet in parentheses prior to installation of #2 Crusher Run (CR2) cover system material as a Supplemental Interim Remedial Measure.
9/26/11	Sample Date

Table 8

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

VOCs Groundwater Sample Results Representative of Post-IRM Conditions in ug/l or ppb

Contaminant	X Groundwater Standard or Guidance Value	668 MW-01 11/12/14 PDB 17.0 ft	669 MW-01 11/12/14 PDB 23.0 ft	670 MW-01 11/12/14 PDB 24.5 ft	671 MW-02 11/12/14 PDB 23.8 ft	672 MW-03A 11/12/14 PDB 17.0 ft	673 MW-04 11/12/14 PDB 23.0 ft	674 MW-05 11/12/14 PDB 17.0 ft	675 MW-06 11/12/14 PDB 17.0 ft	676 MW-07 11/12/14 PDB 22.5 ft	677 MW-08 11/12/14 PDB 18.0 ft	678 MW-11 11/12/14 PDB 15.0 ft	679 MW-13 11/12/14 PDB 15.0 ft	680 MW-15 11/12/14 PDB 17.0 ft
Acetone	50	U	U	U	9.5	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	0.28 J	0.26 J	1.1	1.5	4.5	0.85 J	0.64 J	0.43 J	U	U	U	0.92 J
Chloromethane	5	U J	U J	U J	U	U	U	U J	U J	U J	U	U	U J	U J
Cis-1,2-Dichloroethene	5	3.5	**34.9** X	**37** X	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene (PCE)	5	**280 D** X	**2100 D** X	**1800 D** X	0.46 J	**130** X	U	**11.2** X	3	0.71 J	0.65 J	**16.2** X	0.54 J	0.6 J
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	**13.4** X	**110** X	**110** X	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U J	U J	U J	U	U	U	U J	U J	U J	U	U	U J	0.6 J
Cyclohexane	NA	U	U	U	U J	U	U	U	U	U	U	U J	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Methycyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		296.9	2245.18	1947.26	11.06	131.5	4.5	12.05	3.64	1.14	0.65	16.2	0.54	2.12
Total TICs (1)		0.58	U	6	U	U	U	4.6	U	6.2	U	U	U	U
Total VOCs and TICs (1)		297.48	2245.18	1953.26	11.06	131.5	4.5	16.65	3.64	7.34	0.65	16.2	0.54	2.12

U = Not Detected LF - Low Flow = Performance Monitoring Sample After ISCO

NA = Not Available J = Estimated value E = Value Exceeds Calibration Range.

μg/L = Micrograms per Liter or Parts Per Billion (ppb).

PDB - Passive Diffusion Bag

TIC = Tentatively Identified Compound

VOC = Volatile Organic Compound

UJ = Not Detected at an estimated detection limit as qualified by the data validator

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

668	Sample ID
MW-01	Sample Location
11/12/2014	Sample Date
PDB 17.0 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure

Results of DUSR incorporated on analytical laboratory data

Table 8

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

VOCs Groundwater Sample Results Representative of Post-IRM Conditions in ug/l or ppb

Contaminant	X Groundwater Standard or Guidance Value	681 MW-16 11/12/14 PDB 22.5 ft	682 MW-17 11/12/14 PDB 15.5 ft	683 MW-18 11/12/14 PDB 21.5 ft	684 MW-19 11/12/14 PDB 28.0 ft	685 MW-20 11/12/14 PDB 22.0 ft	688 BW-02 11/12/14 PDB 10.5 ft	689 BW-04 11/12/14 PDB 10.5 ft	690 MW-01R 11/12/14 PDB 39.5 ft	691 MW-02R 11/12/14 PDB 39.0 ft	692 MW-04R 11/12/14 PDB 34.0 ft	693 MW-05R 11/12/14 PDB 33.5 ft	694 MW-06R 11/12/14 PDB 39.0 ft	695 MW-07R 11/12/14 PDB 41.0 ft
Acetone	50	U	**210** X	14.3	U	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	0.64 J	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	1	U	0.48 J	0.86 J	0.66 J	U	U	U	U	U	U
Chloromethane	5	U J	U J	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	0.84 J	U	U	U	U	**19.7** X	**9.7** X	2.4	3.2	**25.1** X	1.2	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	1.7	U	U	U
Tetrachloroethene (PCE)	5	**24.9** X	U	U	U	1.1	**120** X	**62.6** X	U	U	**80.6** X	U	U	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	0.34 J	U	0.3 J
Trichloroethene	5	**6.6** X	U	U	U	U	**41** X	**21.2** X	U	U	**68.4** X	3.1	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	1.6	1.2	U	U	U	U
Carbon Disulfide	NA	U J	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U J	U J	U J	U J	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Methycyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		32.34	210	15.94	0	1.58	181.56	94.16	4	4.4	175.8	4.64	0	0.3
Total TICs (1)		U	68.5	U	U	U	U	U	U	U	U	U	U	U
Total VOCs and TICs (1)		32.34	278.5	15.94	0	1.58	181.56	94.16	4	4.4	175.8	4.64	0	0.3

U = Not Detected LF - Low Flow = Performance Monitoring Sample After ISCO

NA = Not Available J = Estimated value E = Value Exceeds Calibration Range.

μg/L = Micrograms per Liter or Parts Per Billion (ppb).

PDB - Passive Diffusion Bag

TIC = Tentatively Identified Compound

VOC = Volatile Organic Compound

UJ = Not Detected at an estimated detection limit as qualified by the data validator

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

668	Sample ID
MW-01	Sample Location
11/12/2014	Sample Date
PDB 17.0 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure

Results of DUSR incorporated on analytical laboratory data

Table 9

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

SVOCs Groundwater Sample Results Representative of Post-IRM Conditions in ug/l or ppb

Contaminant	X Groundwater Standard or Guidance Value	134 MW-01 1/9/12 LF 20.5 ft	135 MW-02 1/9/12 LF 22.0 ft	136 MW-03 1/5/12 LF 22.0 ft	137 MW-04 1/6/12 LF 23.0 ft	138 MW-05 1/9/12 LF 23.3 ft	139 MW-06 1/6/12 LF 20.5 ft	140 MW-07 1/9/12 LF 22.5 ft	141 MW-08 1/4/12 LF 16.6 ft	142 MW-09 1/6/12 LF 20.0 ft	143 MW-10 1/5/12 LF 20.8 ft	144 MW-11 1/5/12 LF 13.0 ft	145 MW-12 1/4/12 LF 21.1 ft	146 MW-13 1/4/12 LF 19.8 ft	147 MW-14 1/3/12 LF 22.7 ft
Total SVOCs	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total TICs (1)	NA	U	U	U	3.2	6.7	U	U	5.2	U	9.2	U	U	4.7	2.5
Total SVOCs and TICs (1)	NA	0	0	0	3.2	6.7	0	0	5.2	0	9.2	0	0	4.7	2.5

Contaminant	X Groundwater Standard or Guidance Value	148 MW-01R 1/9/12 LF 39.5 ft	149 MW-02R 1/9/12 LF 39.0 ft	150 MW-04R 1/6/12 LF 34.0 ft	151 MW-05R 1/9/12 LF 33.5 ft	152 MW-06R 1/6/12 LF 39.0 ft	153 MW-07R 1/9/12 LF 41.0 ft	154 MW-09R 1/6/12 LF 35.0 ft	155 MW-10R 1/5/12 LF 35.0 ft	156 MW-14R 1/3/12 LF 41.0 ft
Total SVOCs	NA	0	0	0	0	0	0	0	0	0
Total TICs (1)	NA	U	3.2	U	46	2.7	20	63.4	6.2	2.5
Total SVOCs and TICs (1)	NA	0	3.2	0	46	2.7	20	63.4	6.2	2.5

U = Not Detected = Round 1 RI Groundwater Sample

NA = Not Available

LF - Low Flow

μg/L = Micrograms per Liter or Parts Per Billion (ppb).

TIC = Tentatively Identified Compound

SVOC = Semi-Volatile Organic Compound

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure

Results of DUSR incorporated on analytical laboratory data

Table 10

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Metals Groundwater Sample Results Representative of Post-IRM Conditions in ug/l or ppb

Contaminant	X Groundwater Standard or Guidance Value	134 MW-01 1/9/12 LF 20.5 ft	135 MW-02 1/9/12 LF 22.0 ft	136 MW-03 1/5/12 LF 22.0 ft	137 MW-04 1/6/12 LF 23.0 ft	138 MW-05 1/9/12 LF 23.3 ft	139 MW-06 1/6/12 LF 20.5 ft	140 MW-07 1/9/12 LF 22.5 ft	141 MW-08 1/4/12 LF 16.6 ft	142 MW-09 1/6/12 LF 20.0 ft	143 MW-10 1/5/12 LF 20.8 ft	144 MW-11 1/5/12 LF 13.0 ft	145 MW-12 1/4/12 LF 21.1 ft	146 MW-13 1/4/12 LF 19.8 ft	185 MW-13 6/27/12 LF 15.0 ft
Aluminum	NA	36.6 J	20.7 J	81.9	337	20 J	U	496	U	U	U	U	U	70.1	U J
Antimony	3	U	U	U	U	8.96 J X	U	U	U	U	U	U	U	U	13.4 J X
Arsenic	25	U	U	U	7.12 J	U	U	U	U	U	U	U	U	U	U
Barium	1,000	68.3	96.8	53.3	67.7	44.7 J	17.9 J	96.3	71.1	87.7	24.1 J	81.8	U	U	31.5 J
Beryllium	3	U	U	U	U	U	U	U	U	U	U	U	U	U	
Cadmium	5	U	U	U	U	U	U	U	U	U	U	U	U	U	
Calcium	NA	141000	86700	73800 J	153000 J	344000	192000 J	65800	131000	85600 J	223000 J	127000 J	69400	377000	402000
Chromium	50	R	U	U	41.3	R	1.14 J	U	4.58 J	1.57 J	U	1.15 J	14.2	118 X	U
Cobalt	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Copper	200	U J	U	U	U	U	U	U	U	U	U	3.37 J	U	U	U
Iron	300	R	R	170 J	6330 X	R	218 J	R	399 J X	63.6 J	83.5 J	84.4 J	200 J	539 X	40.5 J
Lead	25	4 J	4.29 J	U	U	U	U	5.04 J	U	U	U	U	U	U	14.5
Magnesium	35,000	42600 X	28800	28700	80900 X	74800 X	96100 X	15800	42300 X	19000	91900 X	43600 X	63800 X	71900 X	60900 X
Manganese	300	182 J	112 J	63.1	96.2	R	117	85 J	62.3	32.1	50.1	55.9	85.6	70.1	60.6
Total Mercury	0.7	U	U	U	U	U	U	U	U	U	U	U	U	U	
Nickel	100	R	U	U	28.1	R	U	U	U	U	7.27 J	U	U	48.4	U
Potassium	NA	23000	18600	8020	30500	31000	10800	6910	16700	6380	15100	15100	5330	49100	46900
Selenium	10	U	U	U	U	40.1 X	8.19 J	U	U	7.58 J	U	U	11.4 J X	U	U
Silver	50	U	U	U	U	U	U	U	U	U	U	U	U	U	
Sodium	20,000	299000 X	183000 X	190000 X	811000 X	268000 X	466000 X	147000 X	109000 X	126000 X	354000 X	257000 X	150000 X	616000 X	340000 X
Thallium	0.5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	NA	U	U	U J	U	U	U	U	U	U	U	U	U	U	
Zinc	2,000	11.3 J	14.6 J	27.5	12.1 J	13.8 J	11.5 J	U	U	15.0 J	13.4 J	8.31 J	U	7.07 J	28.4 J
Total Cyanide	200	5	U	U	U	3 J	4 J	U	U	13	6	U	U	U	NT

Contaminant	X Groundwater Standard or Guidance Value	147 MW-14 1/3/12 LF 22.7 ft	148 MW-01R 1/9/12 LF 39.5 ft	187 MW-01R 6/27/12 LF - 39.5 ft	149 MW-02R 1/9/12 LF 39.0 ft	150 MW-04R 1/6/12 LF 34.0 ft	192 MW-04R 6/27/12 LF 34.0 ft	193 MW-04R 6/27/12 LF DUP 34.0 ft	151 MW-05R 1/9/12 LF 33.5 ft	152 MW-06R 1/6/12 LF 39.0 ft	153 MW-07R 1/9/12 LF 41.0 ft	154 MW-09R 1/6/12 LF 35.0 ft	155 MW-10R 1/5/12 LF 35.0 ft	156 MW-14R 1/3/12 LF 41.0 ft
Aluminum	NA	34.2 J	36.2 J	34.8 J	38.7 J	U	U	U J	U	U	19.6 J	U	U	92.1
Antimony	3	U	U	11.7 J X	U	U	8.33 J X	8.39 J X	U	U	U	U	U	U
Arsenic	25	U	27.7 X	9.5 J	9.9 J	32.7 X	6.21 J	5.27 J	U	8.4 J	7.47 J	U	U	U
Barium	1,000	U	44.3 J	47 J	46.5 J	125	84.6	81.6	37.8 J	89.7	70	55.9	94.9	80.1
Beryllium	3	U	U		U	U			U	U	U	U	U	U
Cadmium	5	U	U		U	U			U	U	U	U	U	U
Calcium	NA	239000	193000	218000	202000	176000 J	135000	134000	125000	183000 J	60700	30700 J	153000 J	215000
Chromium	50	11.4	U	U	R	U	U	U	U	14.4	R	7.3	47	27.9
Cobalt	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Copper	200	U	U	U	U	U	U	5	U	U	U	U	2.19 J	U
Iron	300	97.3 J	21000 X	4800 J X	9670 J X	633 X	4500 J X	3990 J X	18600 X	7190 X	7140 J X	1750 X	24200 X	18100 X
Lead	25	U	6.88	16.5	3.18 J	U	7.92	10.1	U	U	2.95 J	U	U	U
Magnesium	35,000	66600 X	103000 X	95500 X	111000 X	140000 X	69200 X	71600 X	117000 X	148000 X	130000 X	53800 X	128000 X	136000 X
Manganese	300	45.9	160 J	68.8	119 J	13.9	117	108	404 X	77	91.2 J	23.6	417 X	185
Total Mercury	0.7	U	U		U	U			U	U	U	U	U	U
Nickel	100	U	U	U	R	U	U	U	U	12 J	U	U	16.5 J	13.4 J
Potassium	NA	17700	8570	10600	10400	9050	16700	16000	13800	9860	21100	28600	9340	10700
Selenium	10	U	U	U	U	U	1.87 J	U	U	U	U	U	U	U
Silver	50	U	U		U	U			U	U	U	U	U	U
Sodium	20,000	611000 X	487000 X	500000 X	406000 X	263000 X	266000 X	262000 X	196000 X	221000 X	183000 X	66100 X	76700 X	582000 X
Thallium	0.5	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	NA	U	U		U	U			U	U	U	U	U	U
Zinc	2,000	9.6 J	14.1 J	U J	14.1 J	11.1 J	62.1 J	38.3 J	U	12.1 J	U	9.86 J	12.7 J	9.34 J
Total Cyanide	200	U	U	NT	U	U	NT	NT	U	U	U	U	7	U

Notes

U = Not Detected LF - Low Flow NT = Not Tested X = Exceeds Groundwater Standard or Guidance Value. = Round 1 RI Groundwater Sample

NA = Not Available R = Data rejected due to severe quality control issues. μg/L = Micrograms per Liter or Parts Per Billion (ppb). = Round 2 RI Groundwater Sample

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational 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.

Results of DUSR incorporated on analytical laboratory data

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure

Table 11

300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

PCBs and Pesticides Groundwater Sample Results Representative of Post-IRM Conditions in ug/l or ppb

Contaminant	X Groundwater Standard or Guidance Value	134 MW-01 1/9/12 LF 20.5 ft	135 MW-02 1/9/12 LF 22.0 ft	136 MW-03 1/5/12 LF 22.0 ft	137 MW-04 1/6/12 LF 23.0 ft	138 MW-05 1/9/12 LF 23.3 ft	139 MW-06 1/6/12 LF 20.5 ft	140 MW-07 1/9/12 LF 22.5 ft	141 MW-08 1/4/12 LF 16.6 ft	142 MW-09 1/6/12 LF 20.0 ft	143 MW-10 1/5/12 LF 20.8 ft	144 MW-11 1/5/12 LF 13.0 ft	145 MW-12 1/4/12 LF 21.1 ft	146 MW-13 1/4/12 LF 19.8 ft	147 MW-14 1/3/12 LF 22.7 ft
Pesticides	NA	U	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	U

Contaminant	X Groundwater Standard or Guidance Value	148 MW-01R 1/9/12 LF 39.5 ft	149 MW-02R 1/9/12 LF 39.0 ft	150 MW-04R 1/6/12 LF 34.0 ft	151 MW-05R 1/9/12 LF 33.5 ft	152 MW-06R 1/6/12 LF 39.0 ft	153 MW-07R 1/9/12 LF 41.0 ft	154 MW-09R 1/6/12 LF 35.0 ft	155 MW-10R 1/5/12 LF 35.0 ft	156 MW-14R 1/3/12 LF 41.0 ft
Pesticides	NA	U	U	U	U	U	U	U	U	U
PCBs	0.09	U	U	U	U	U	U	U	U	U

U = Not Detected

LF - Low Flow

X = Exceeds Groundwater Standard or Guidance Value.

NA = Not Available

μg/L = Micrograms per Liter or Parts Per Billion (ppb).

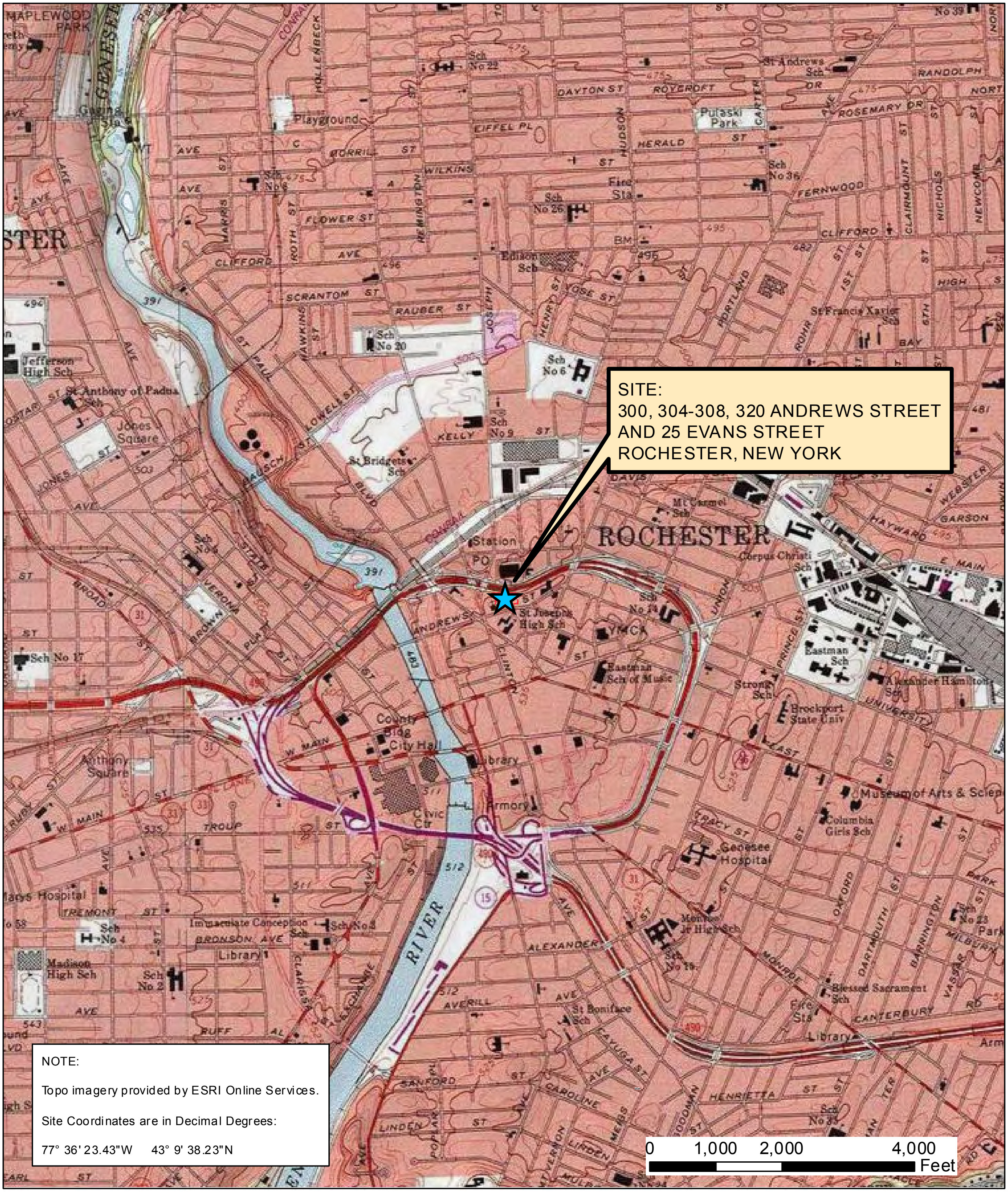
= Round 1 RI Groundwater Sample

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

Results of DUSR incorporated on analytical laboratory data

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure

FIGURES



Document Path: C:\Users\smell\DAYOFFICE\Dropbox\Andrews Street\Andrews_Street\GIS_Data\Andrews_Street\SiteManagementPlan\4355S-SMP-16- Locus Map.mxd

Date	Project Title	Project No.
02-10-2015	300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET ROCHESTER, NEW YORK (NYSDEC SITE NO.: E828144) ENVIRONMENTAL RESTORATION PROJECT	4355S-10
Drawn By: CPS	Drawing Title: Project Locus Map	FIGURE 1
Scale: AS NOTED		

DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10016-0701

DATE	02-2015
DESIGNED BY	JAD
DATE DRAWN	02-2015
DRAWN BY	CPS
DATE ISSUED	02-06-2015
SCALE	AS NOTED

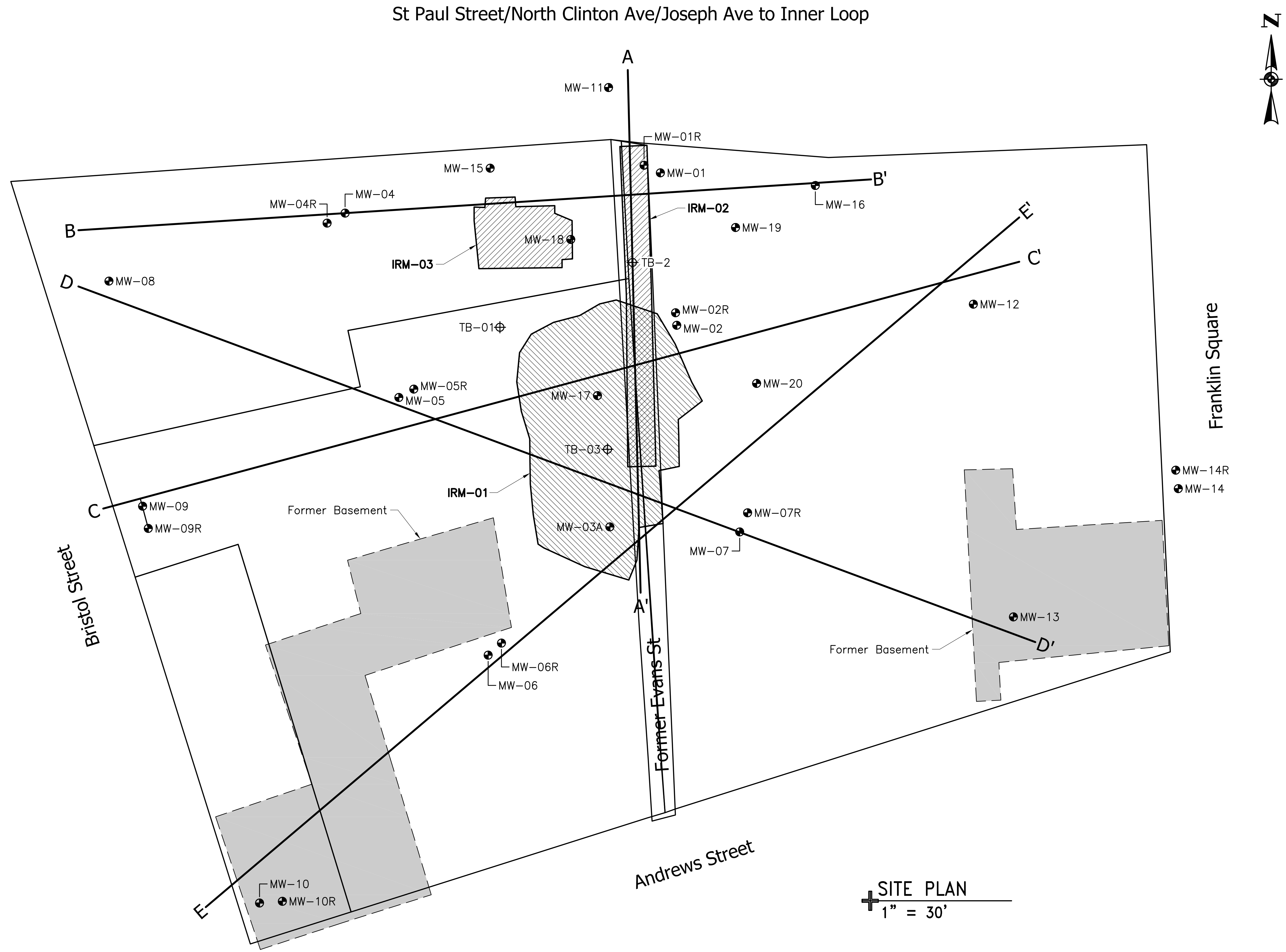
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Post-Demolition Site Conditions

Project No.
4355S-10

FIGURE 2



FIELD VERIFIED JAD
DATE 2-2015
DRAWN BY RJM
DATE DRAWN 2-11-2015
SCALE As Noted
DATE ISSUED 3-16-2015

day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE: E828144

DRAWING TITLE
Site Plan For Geologic Cross Sections

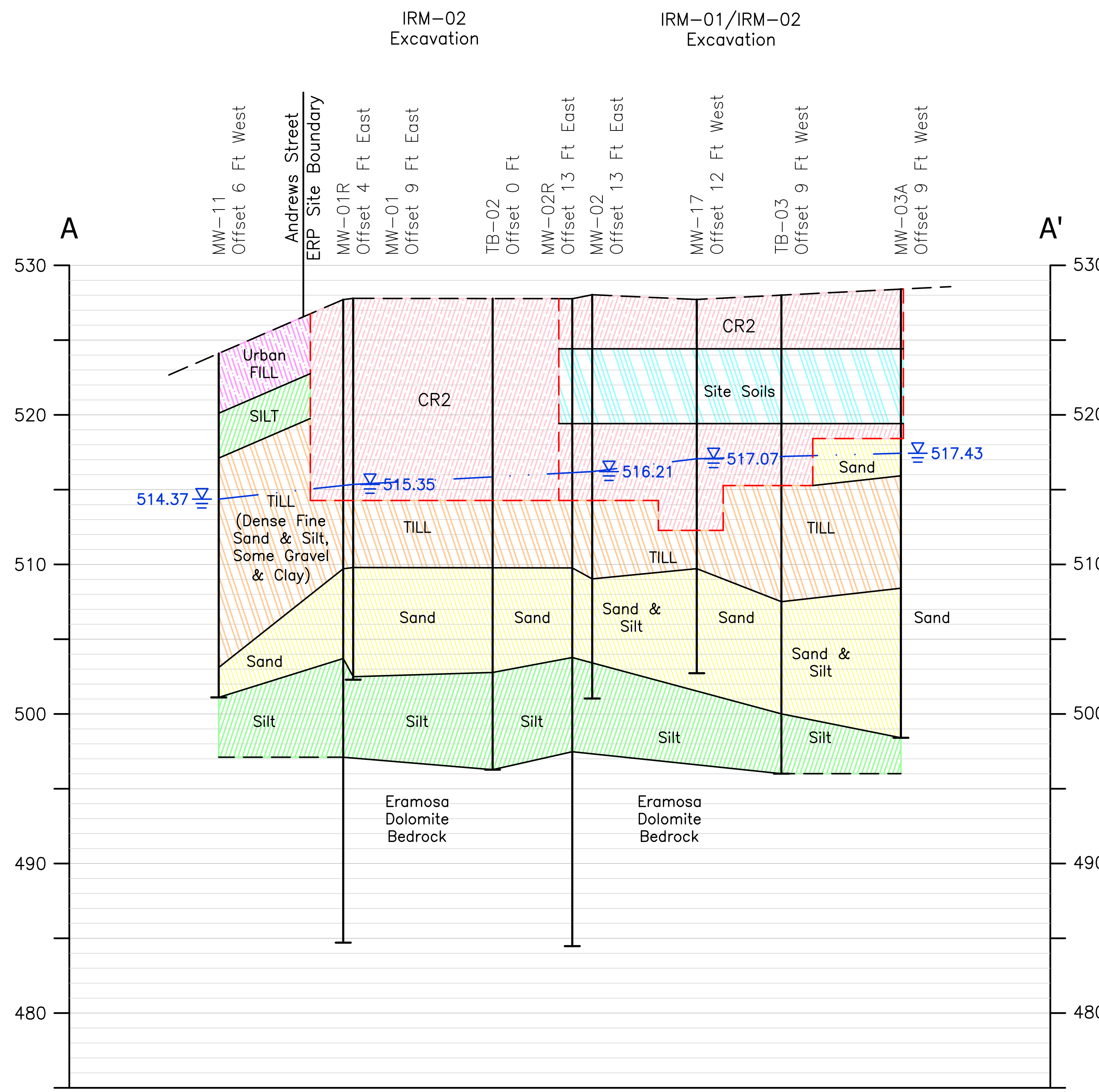
PROJECT NO.
4355S-10

FIGURE 3A

Ref1: Cross Section A-A.dwg
Ref2:
Ref3:

Xerox432AnsiB-2: 11 x 17
Layout Name: Layout1
Pen Setting File: 800psFullcolor.ctb

Time Plotted: Monday, March 16, 2015 7:39:02 AM
File Name: P:\Drawings\Rocity\Andrews St\Cross Section Base.dwg



GEOLOGIC CROSS SECTION A–A'

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

LEGEND

514.37 — · · — Static Water Level Elevation In Overburden Monitoring Well Measured On October 24, 2014

NYSDEC Approved Imported Crusher Run No. 2 (CR2)

Sand

Silt

Site Soils

Till

Urban Fill

NOTE:
Cross–Section represents site conditions prior to installation of a stone cover system over the site as an engineering control.

FIELD VERIFIED	JAD
DATE	2-2015
DRAWN BY	RJM
DATE DRAWN	2-11-2015
SCALE	As Noted
DATE ISSUED	3-16-2015

DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

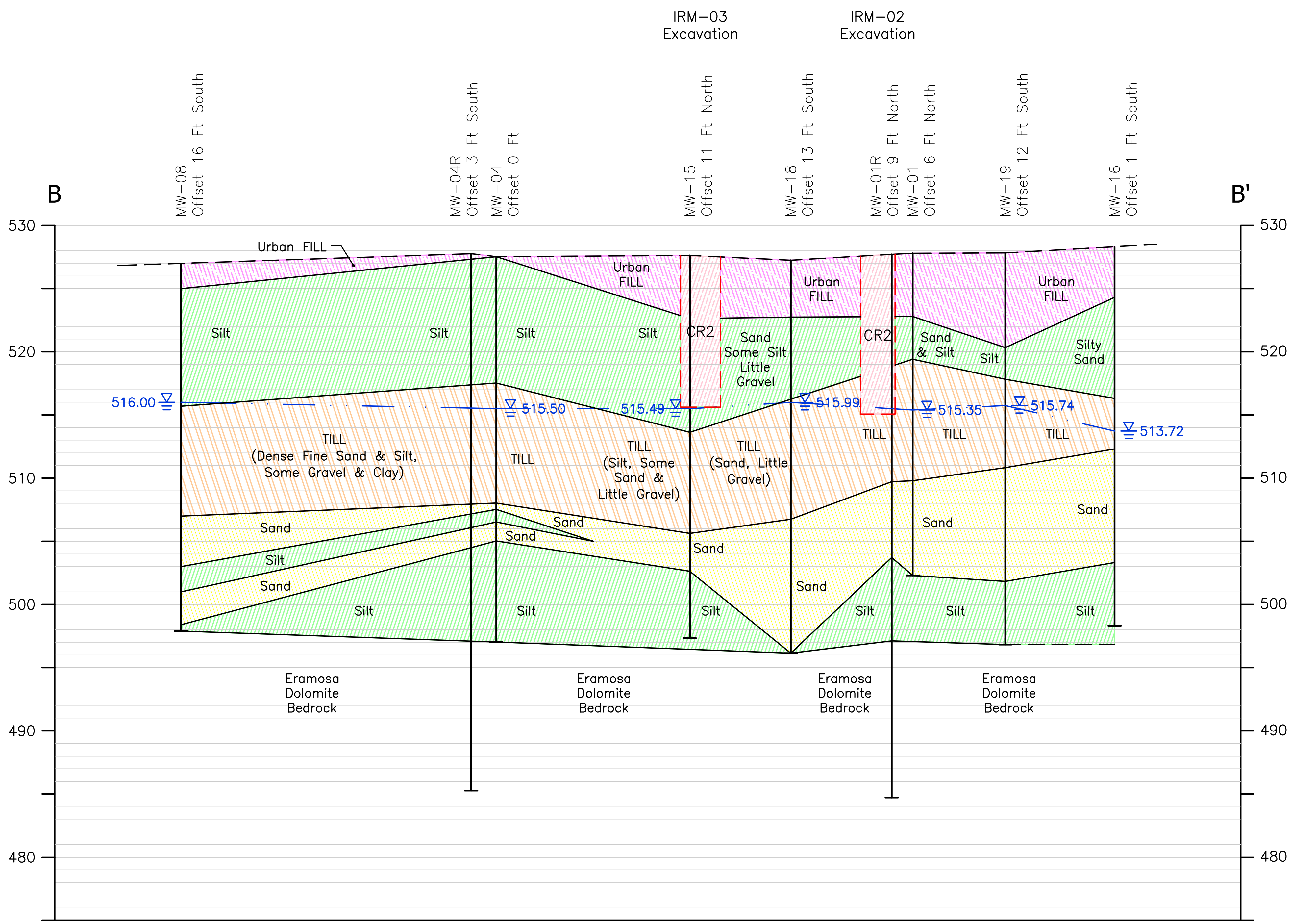
PROJECT TITLE
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE: E828144

DRAWING TITLE
Geologic Cross Section A-A'

PROJECT NO.
4355S-10

FIGURE 3B

Ref1: Cross Section A-A.dwg
Ref2:
Ref3:
Xerox432AnsiB-2; 11 x 17
Layout Name: A-A
Pen Setting File: Tropel Emergency Plan.ctb
Time Plotted: Monday, March 16, 2015 7:40:30 AM
File Name: P:\Drawings\Rocity\Andrews St\Cross Section A-A Scaled.dwg



GEOLOGIC CROSS SECTION B-B'

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

LEGEND

516.00 — Static Water Level Elevation In Overburden Monitoring Well Measured On October 24, 2014

Sand

Silt

Site Soils

Till

Urban Fill

NOTE:
Cross-Section represents site conditions prior to installation of a stone cover system over the site as an engineering control.

Ref1: Cross Section A-A.dwg
Ref2:
Ref3:

Xerox432AnsiB-2; 11 x 17
Layout Name: B-B
Pen Setting File: Tropel Emergency Plan.ctb

Time Plotted: Monday, March 16, 2015 7:42:25 AM
File Name: P:\Drawings\Rocity\Andrews St\Cross Section A-A Scaled.dwg

DATE	2-2015
DATE DRAWN	2-11-2015
DATE ISSUED	3-16-2015
FIELD VERIFIED	JAD
DRAWN BY	RJM
SCALE	As Noted

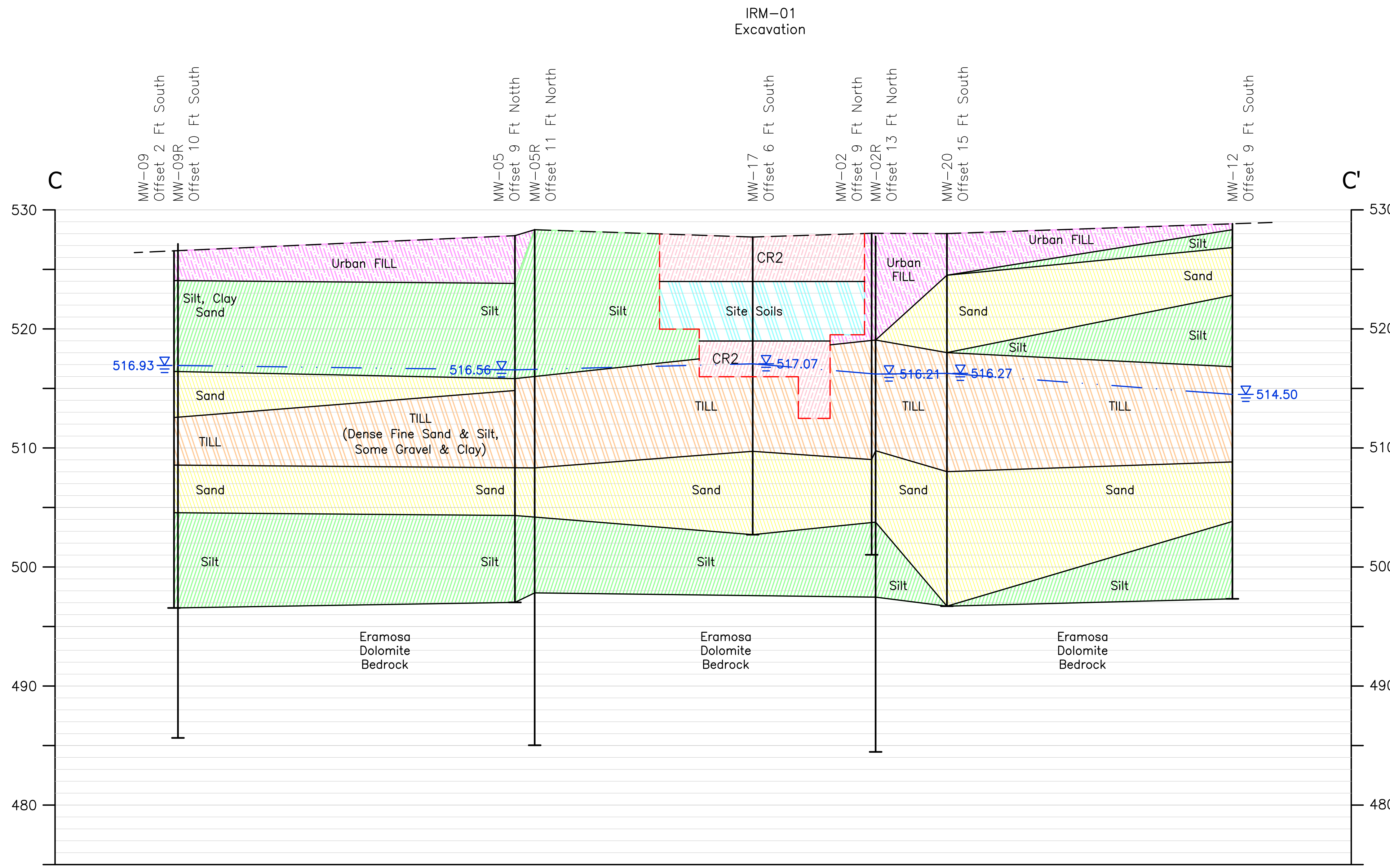
day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE: E828144

DRAWING TITLE
Geologic Cross Section B-B'

PROJECT NO.
4355S-10

FIGURE 3C



GEOLOGIC CROSS SECTION C-C'

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

LEGEND

516.93 — Static Water Level Elevation In Overburden Monitoring Well Measured On October 24, 2014

NYSDEC Approved Imported Crusher Run No. 2 (CR2)

Sand

Silt

Site Soils

Till

Urban Fill

NOTE:
Cross-Section represents site conditions prior to installation of a stone cover system over the site as an engineering control.

Ref1: Cross Section A-A.dwg
Ref2:
Ref3:

Xerox432AnsiB-2; 11 x 17
Layout Name: C-C
Pen Setting File: Tropel Emergency Plan.ctb

Time Plotted: Monday, March 16, 2015 7:43:31 AM
File Name: P:\Drawings\Rocity\Andrews St\Cross Section A-A Scaled.dwg

FIELD VERIFIED	JAD
DATE	2-2015
DRAWN BY	RJM
DATE DRAWN	2-11-2015
SCALE	As Noted
DATE ISSUED	3-16-2015

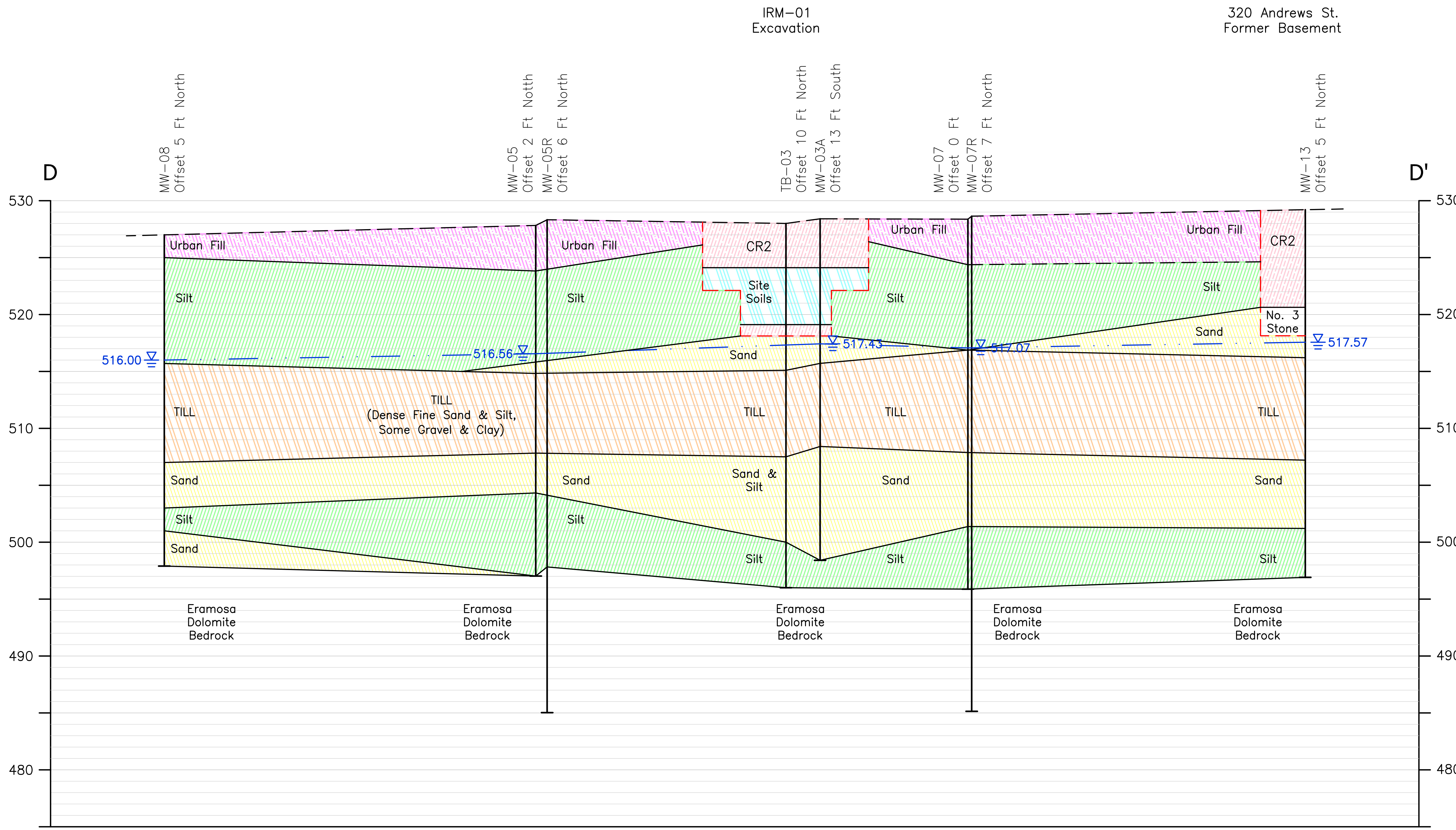
day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE: E828144

DRAWING TITLE
Geologic Cross Section C-C'

PROJECT NO.
4355S-10

FIGURE 3D



GEOLOGIC CROSS SECTION D-D'

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

LEGEND

516.00 Static Water Level Elevation In Overburden Monitoring Well Measured On October 24, 2014

NYSDEC Approved Imported Crusher Run No. 2 (CR2)

Sand

Silt

Site Soils

Till

Urban Fill

NOTE:
Cross-Section represents site conditions prior to installation of a stone cover system over the site as an engineering control.

Ref1: Cross Section A-A.dwg
Ref2:
Ref3:

Xerox432AnsiB-2; 11 x 17
Layout Name: D-D
Pen Setting File: Tropel Emergency Plan.ctb

Time Plotted: Monday, March 16, 2015 7:44:25 AM
File Name: P:\Drawings\Rocity\Andrews St\Cross Section A-A Scaled.dwg

DATE	2-2015
DATE DRAWN	2-11-2015
DATE ISSUED	3-16-2015
FIELD VERIFIED	JAD
DRAWN BY	RJM
SCALE	As Noted

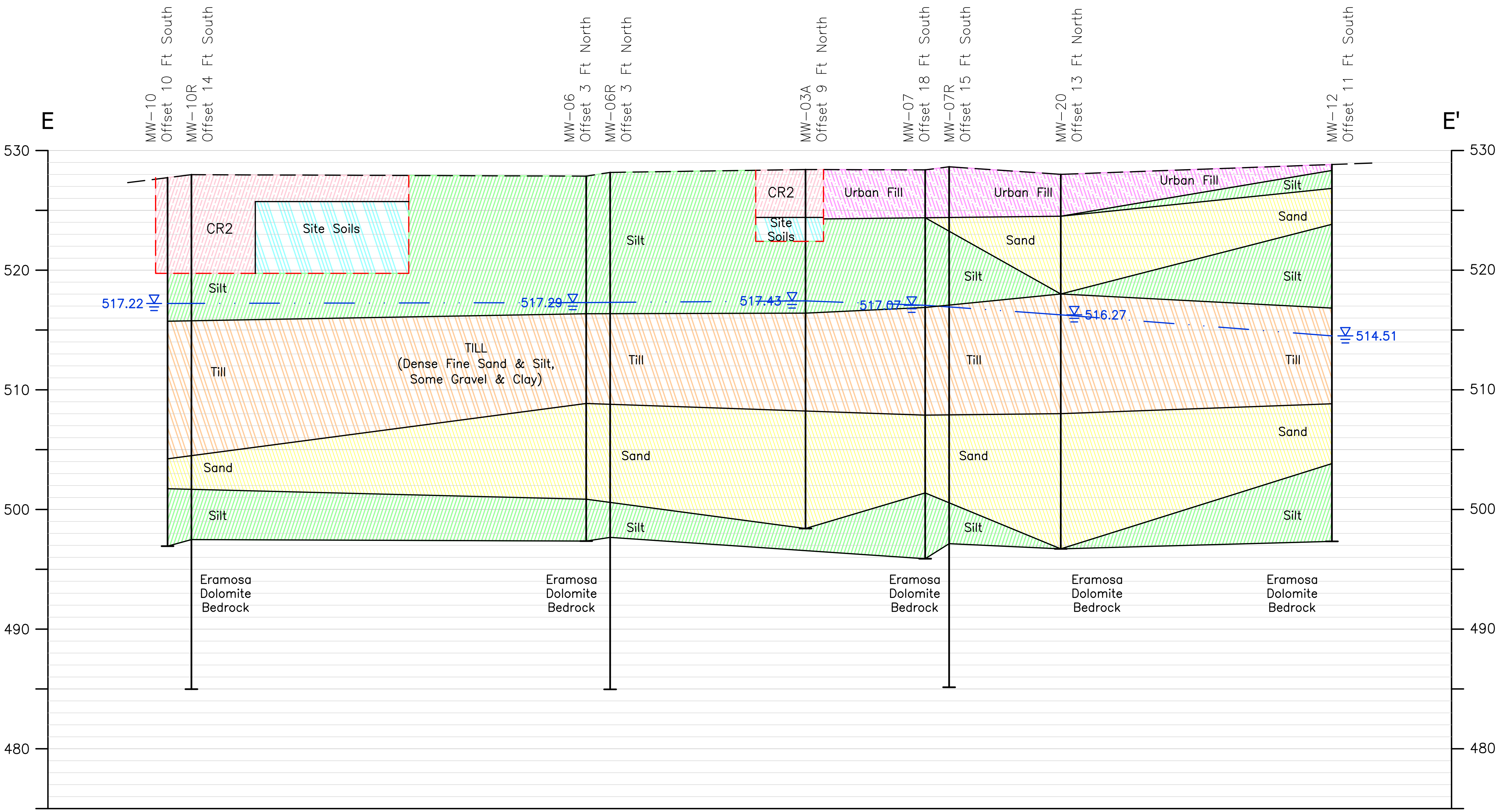
day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE: E828144

DRAWING TITLE
Geologic Cross Section D-D'

PROJECT NO.
4355S-10

FIGURE 3E



GEOLOGIC CROSS SECTION E-E'

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

LEGEND

517.22 — Static Water Level Elevation In Overburden Monitoring Well Measured On October 24, 2014

NYSDEC Approved Imported Crusher Run No. 2 (CR2)

Sand

Silt

Site Soils

Till

Urban Fill

NOTE:
Cross-Section represents site conditions prior to installation of a stone cover system over the site as an engineering control.

Ref1: Cross Section A-A.dwg
Ref2:
Ref3:

Xerox432AnsiB-2; 11 x 17
Layout Name: E-E
Pen Setting File: Tropel Emergency Plan.ctb

Time Plotted: Monday, March 16, 2015 7:45:17 AM
File Name: P:\Drawings\Rocity\Andrews St\Cross Section A-A Scaled.dwg

DATE	DATE DRAWN	DATE ISSUED
2-2015	2-11-2015	3-16-2015

FIELD VERIFIED	DRAWN BY	SCALE
JAD	RJM	As Noted

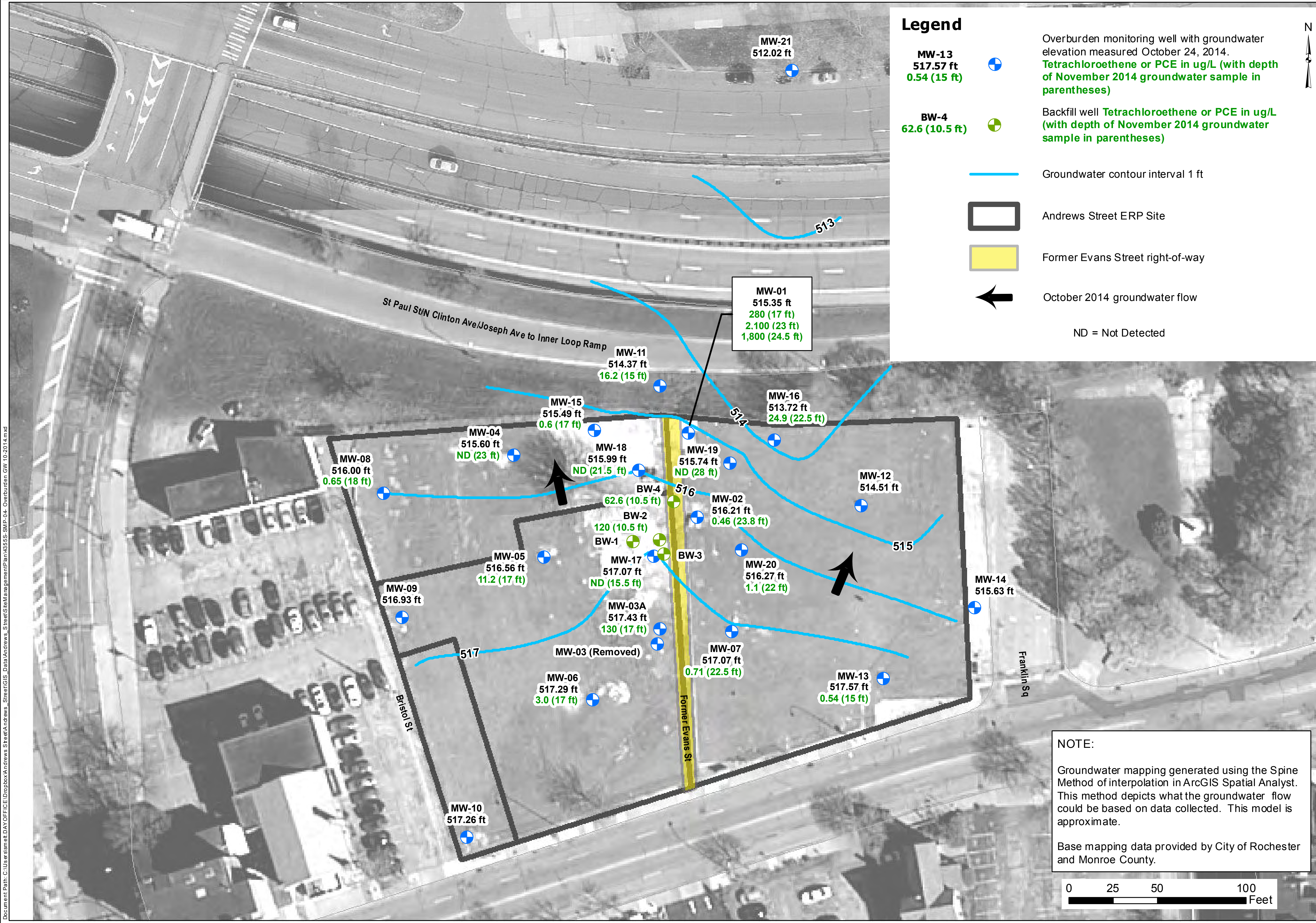
day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE: E828144

DRAWING TITLE
Geologic Cross Section E-E'

PROJECT NO.
4355S-10

FIGURE 3F



DESIGNED BY JAD | DATE 02-2015
DRAWN BY CPS | DATE DRAWN 02-2015
SCALE AS NOTED | DATE ISSUED 02-05-2015

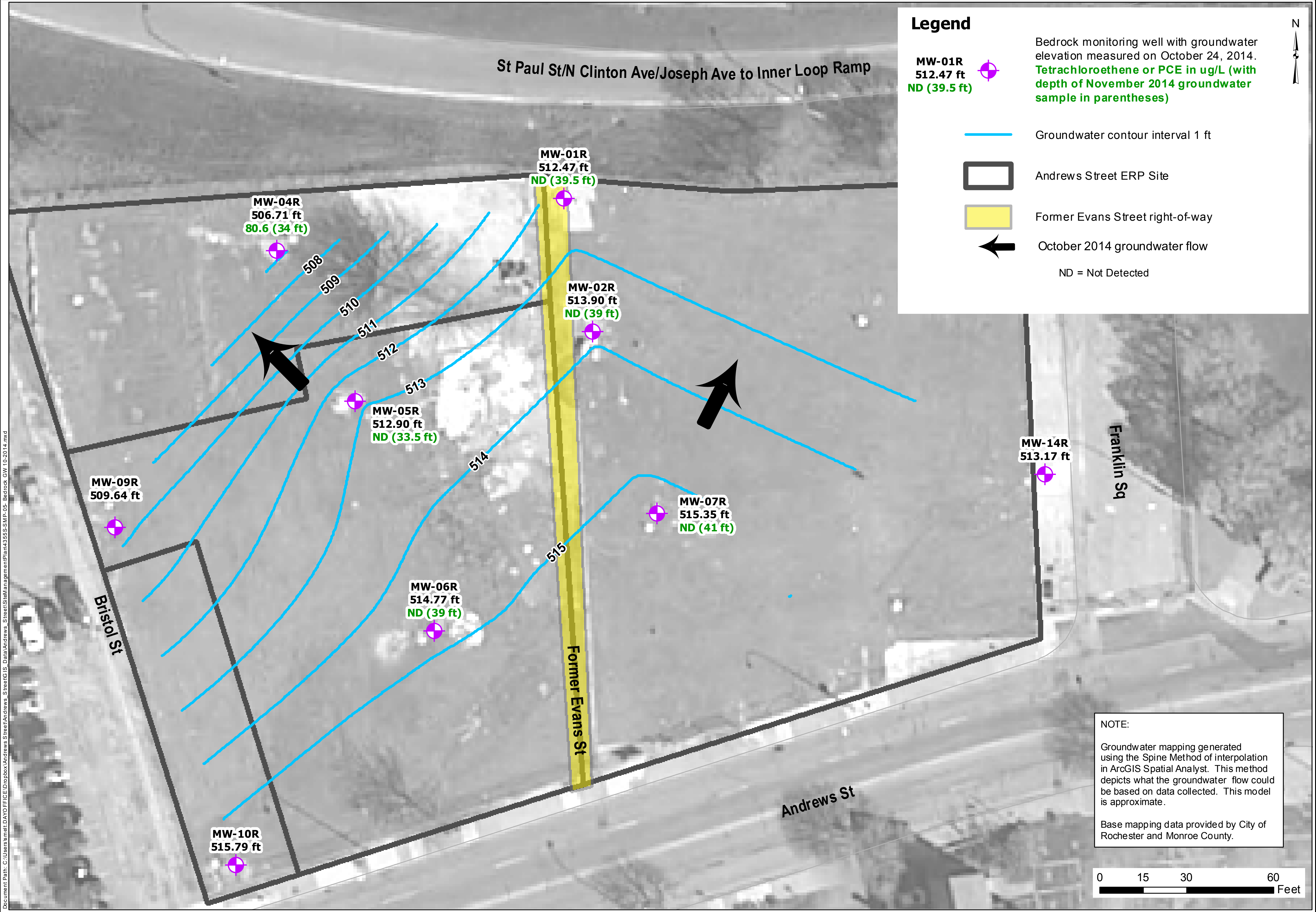
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Site Plan with Overburden Groundwater Potentiometric Map for October 24, 2014 and PCE Concentrations Detected in November 2014 Overburden Groundwater Samples

Project No.
4355S-10

FIGURE 4A



DATE 02-2015

DATE DRAWN 02-2015

DATE ISSUED 02-06-2015

DESIGNED BY JAD

DRAWN BY CPS

SCALE AS NOTED

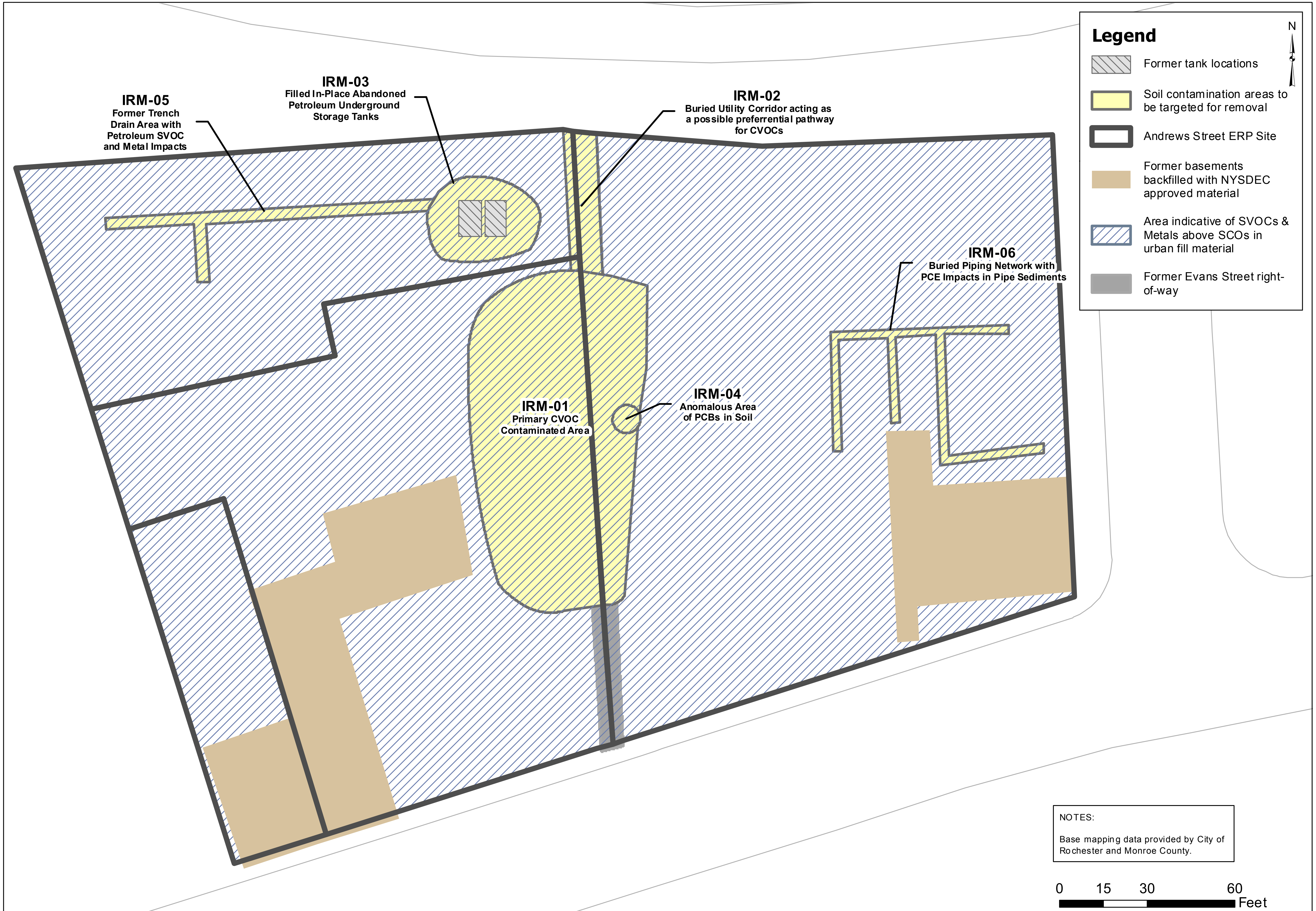
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Site Plan with Bedrock Groundwater Potentiometric Map for October 24, 2014 and
PCE Concentrations Detected in November 2014 Bedrock Groundwater Samples

Project No.
4355S-10

FIGURE 4B



Map document path: C:\Users\smelt.DAYOFFICE\Dropbox\Andrews Street\Andrews_Street\GIS_Data\Andrews_Street\SiteManagementPlan\4355S-SMP-06-Remedial Investigation Summary.mxd

Lastdate document was saved: 08 Jul 2015

DESIGNED BY	DATE
JAD	07-2015
DRAWN BY	DATE DRAWN
CPS	07-2015
SCALE	DATE ISSUED
AS NOTED	07-08-2015

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

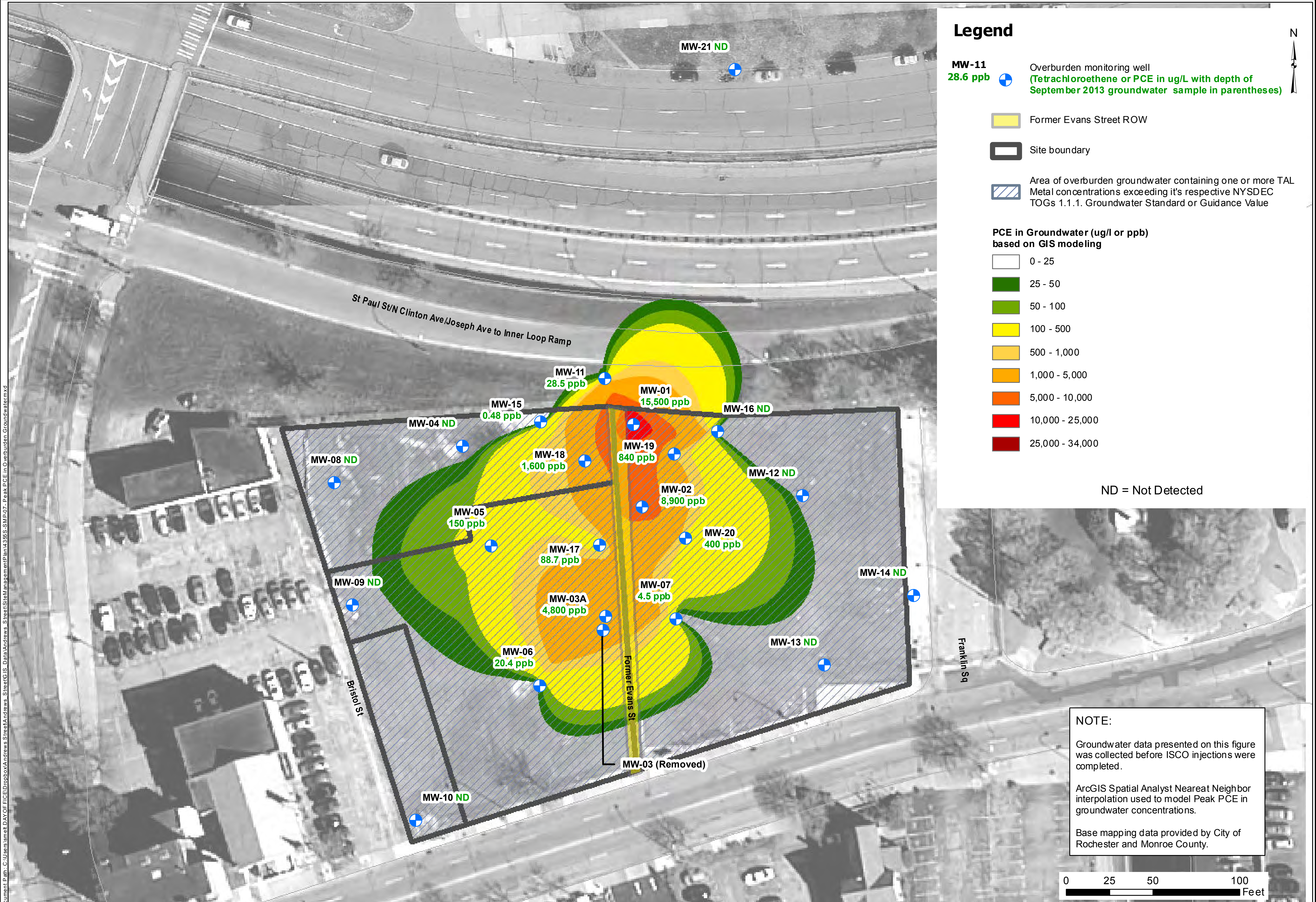
Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

Drawing Title
Remedial Investigation Soil Contamination Summary (Pre-IRM Conditions)

Project No.
4355S-10

FIGURE 5



Document Path: C:\Users\mat.DAYOFFICE\Dropbox\Andrews Street\GIS Data\Andrews Street\Andrews Street\Site Management Plan\4355S-SMP-07 - Peak PCE in Overburden Groundwater.mxd

DATE	DATE DRAWN	DATE ISSUED
02-2015	02-2015	03-03-2015

DESIGNED BY	DRAWN BY	SCALE
JAD	CPS	AS NOTED

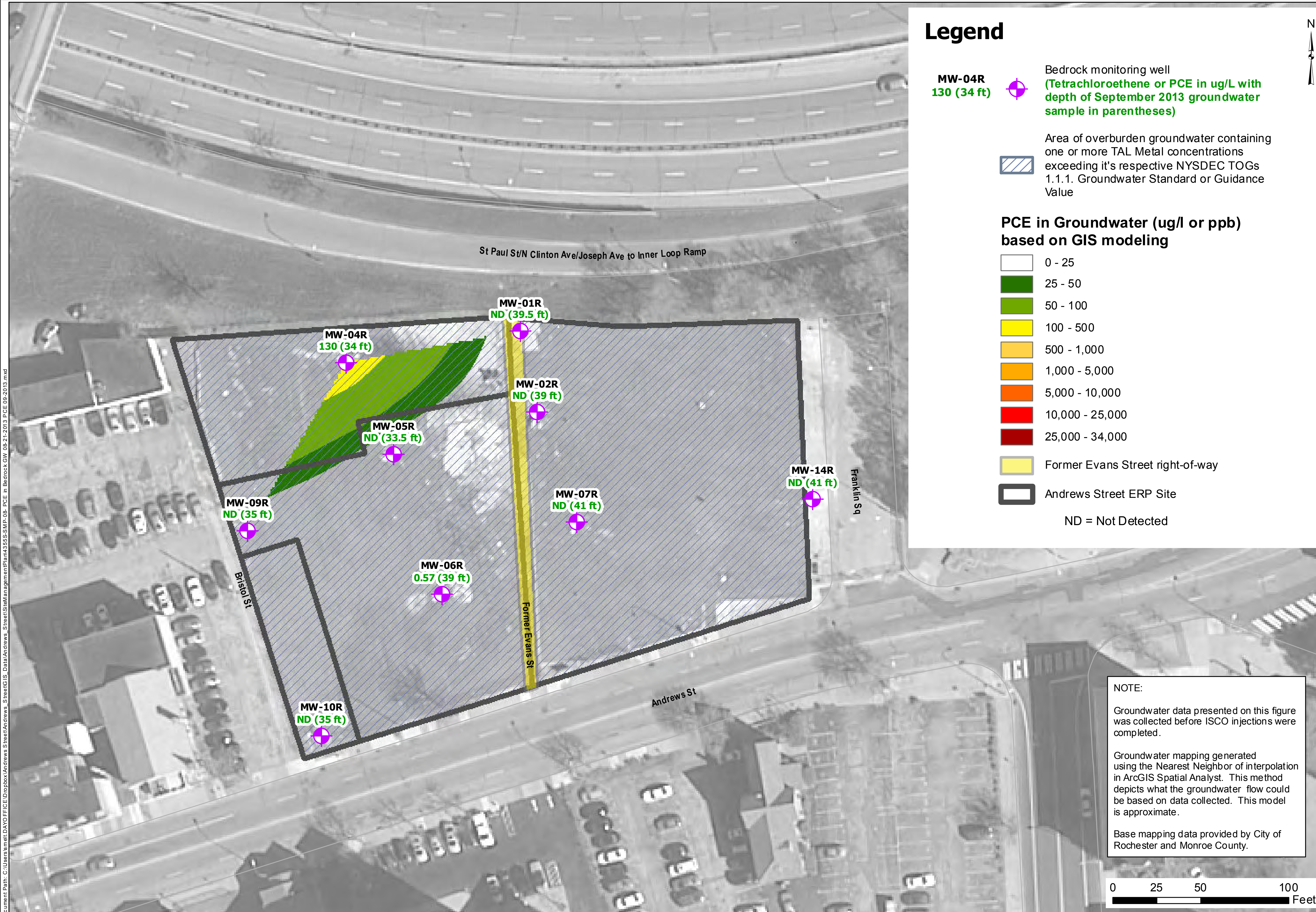
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Peak PCE Concentrations Detected in September 2013 Round 4 (Baseline) Overburden Groundwater Samples and Area of Overburden Groundwater Containing TAL Metal Impact

Project No.
4355S-10

FIGURE 6A



NOTE:

Groundwater data presented on this figure was collected before ISCO injections were completed.

Groundwater mapping generated using the Nearest Neighbor of interpolation in ArcGIS Spatial Analyst. This method depicts what the groundwater flow could be based on data collected. This model is approximate.

Base mapping data provided by City of Rochester and Monroe County.

DATE 02-2015	DATE DRAWN 02-2015	DATE ISSUED 03-03-2015
DESIGNED BY JAD	DRAWN BY CPS	SCALE AS NOTED

day

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

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

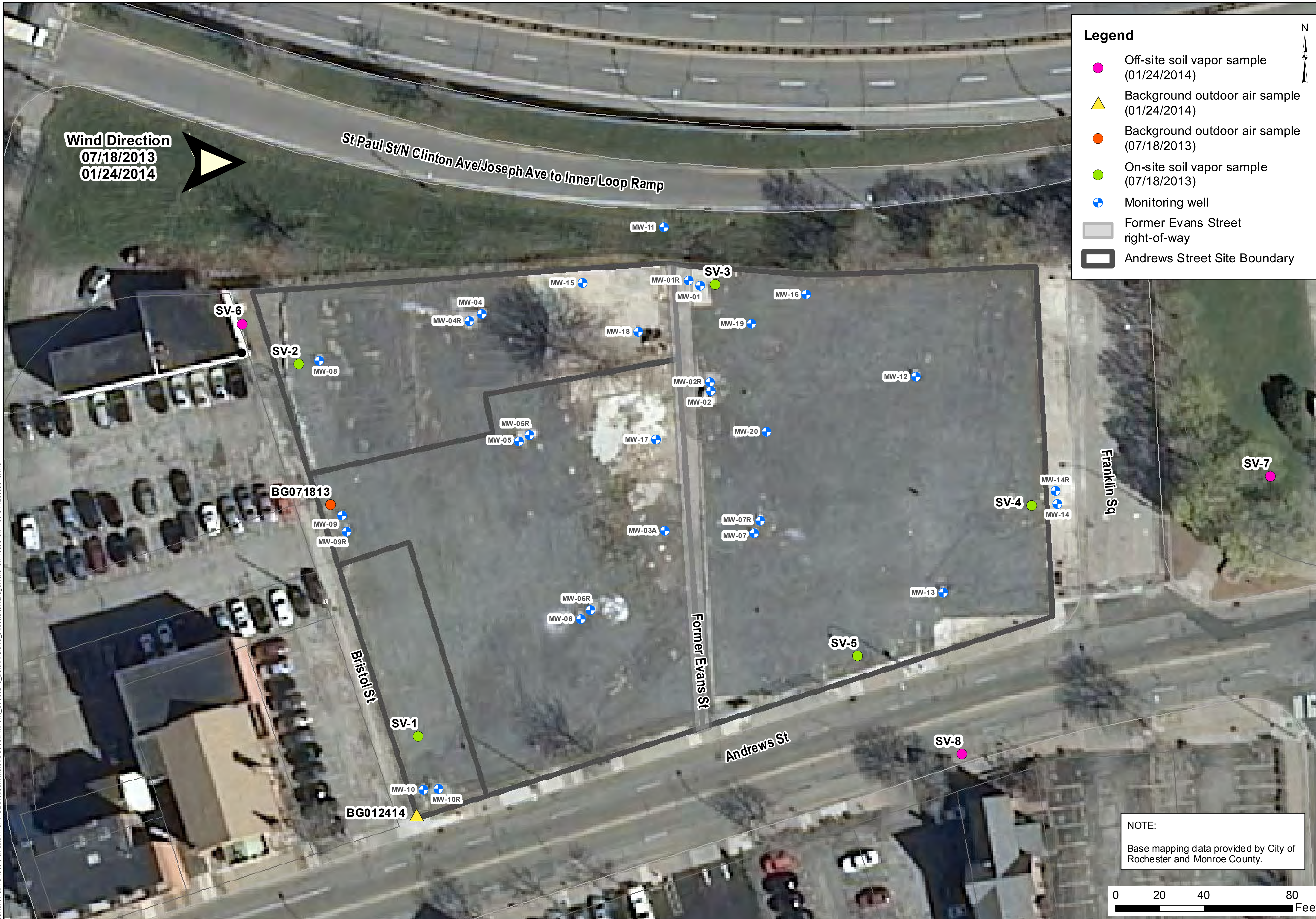
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
PCE Concentrations Detected in September 2013 Round 4 (Baseline) Bedrock Groundwater Samples and Area of Bedrock Groundwater Containing TAL Metal Impact

Project No.
4355S-10

FIGURE 6B

Document Path: C:\Users\smelt.DAYOFFICE\Dropbox\Andrews Street\Andrews_Street\GIS_Data\Andrews_Street\SiteManagementPlan\4355S-SMP-08- PCE in Bedrock GW 08-21-2013 PCE 09-2013.mxd



DESIGNED BY JAD

DRAWN BY CPS

DATE 07-2015

DATE DRAWN 07-2015

DATE ISSUED 07-08-2015

SCALE AS NOTED

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

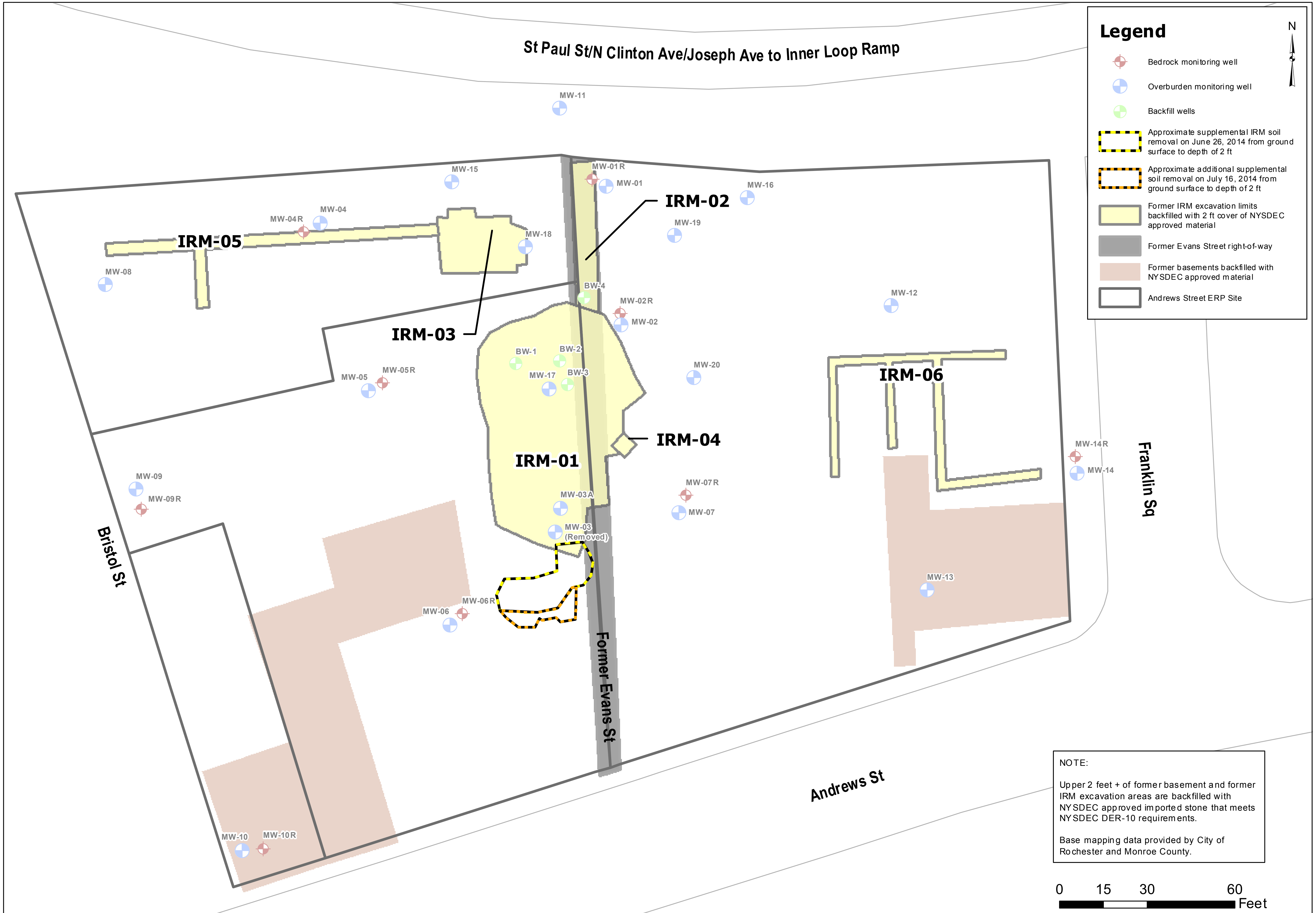
Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Soil Vapor Sample Location Plan

Project No.
4355S-10

FIGURE 7



DATE 02-2015
DATE DRAWN 02-2015
DATE ISSUED 02-10-2015
DESIGNED BY JAD
DRAWN BY CPS
SCALE AS NOTED

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

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

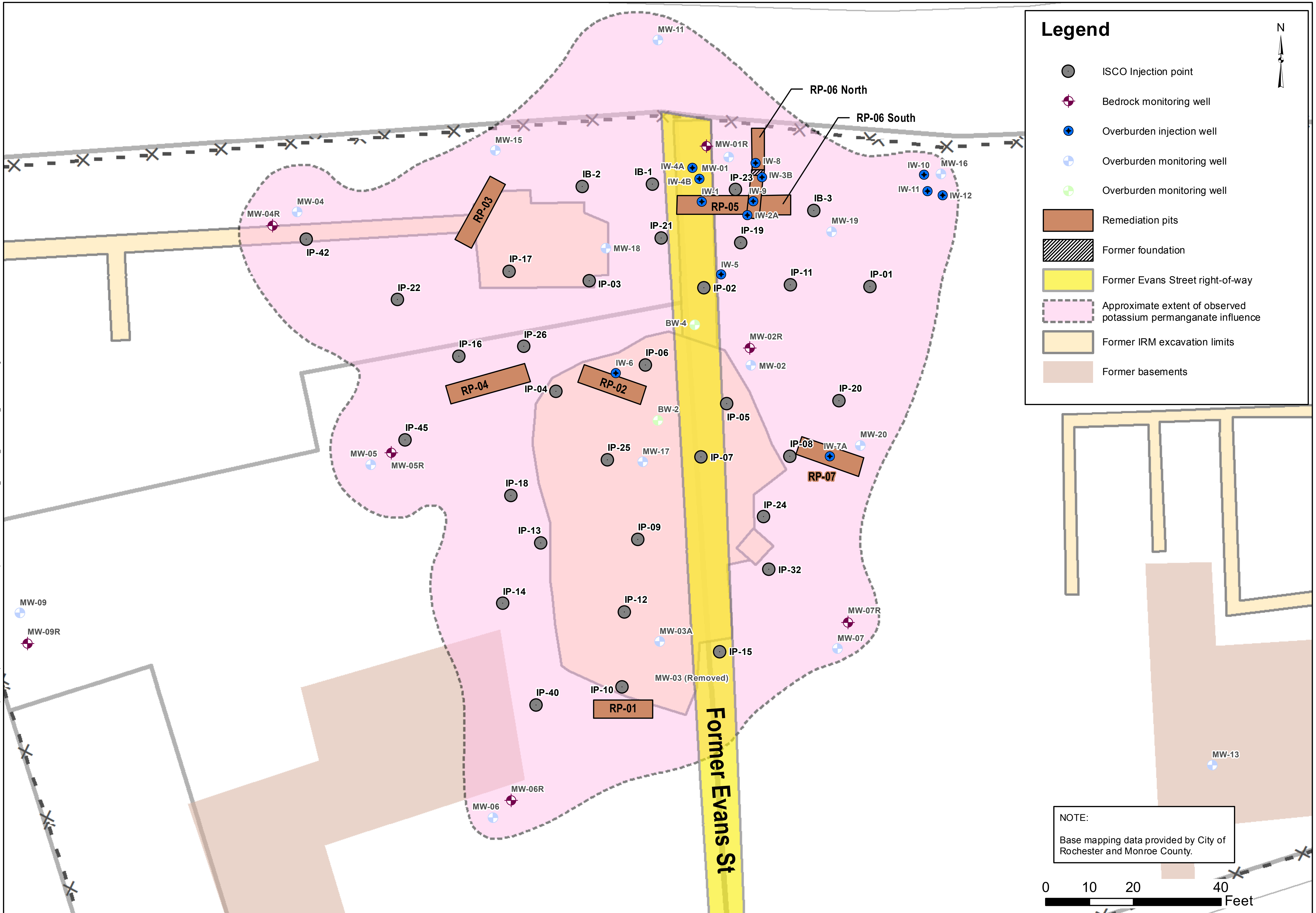
Drawing Title
Limits of Remedial Excavations

Project No.
4355S-10

FIGURE 8

Map document path: C:\Users\sismet\DAYOFFICE\Dropbox\Andrews Street\Andrews_Street\GIS_Data\Andrews_Street\SiteManagementPlan\4355S-SMP-10-Limits of Remedial Excavations.mxd

Lastdate document was saved: 10 Feb 2015



Last date document was saved: 08 Jul 2015

DESIGNED BY: JAD | DATE: 07-2015

DRAWN BY: CPS | DATE DRAWN: 07-2015

SCALE: AS NOTED | DATE ISSUED: 07-08-2015

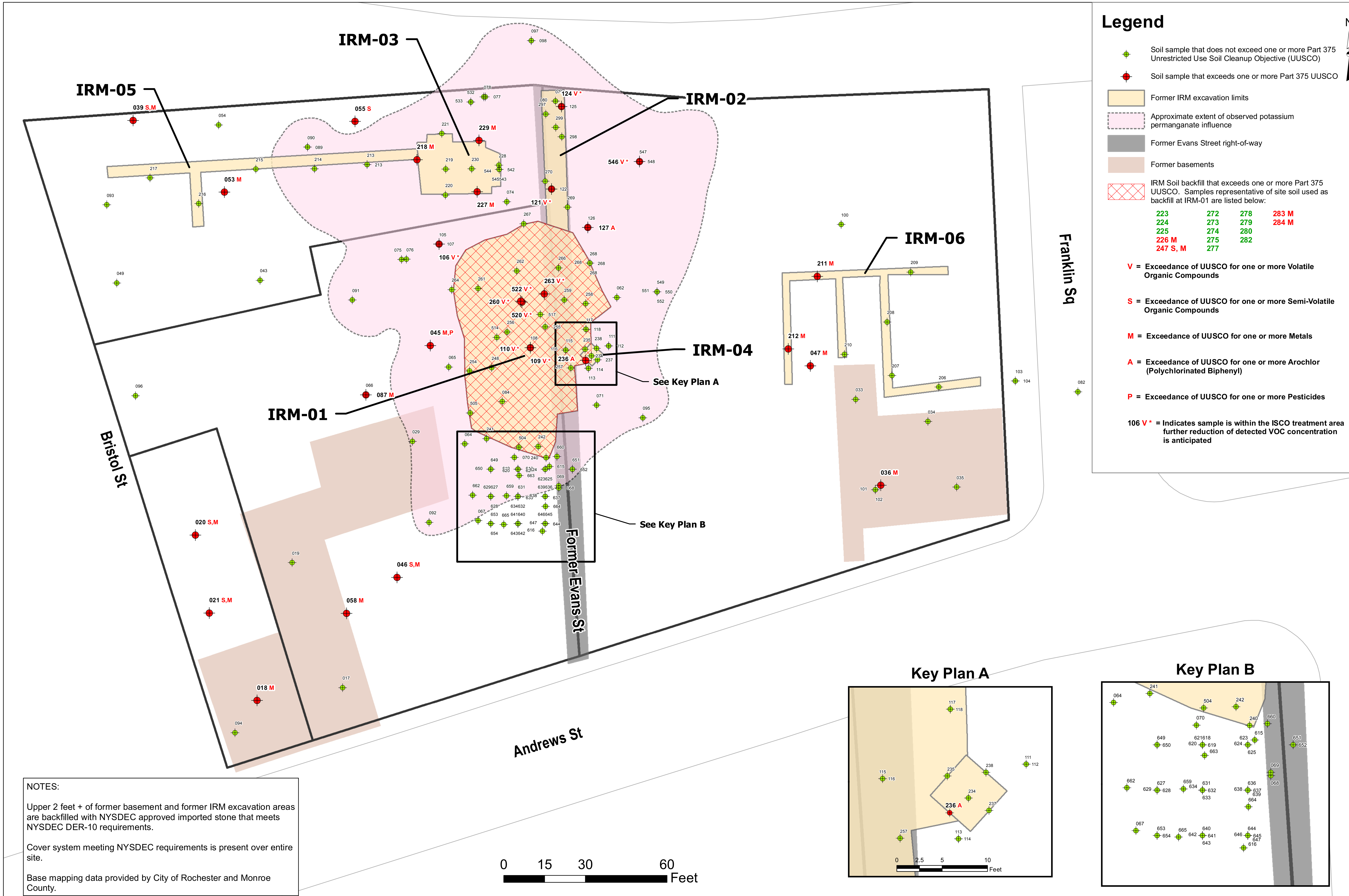
day DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title:
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

Drawing Title:
Site Plan with In-Situ Chemical Oxidation Treatment Measures

Project No.
4355S-10

FIGURE 9



NOTES:

Upper 2 feet + of former basement and former IRM excavation areas are backfilled with NYSDEC approved imported stone that meets NYSDEC DER-10 requirements.

Cover system meeting NYSDEC requirements is present over entire site.

Base mapping data provided by City of Rochester and Monroe County.

Map document path: C:\Users\smet.DAYOFFICE\Dropbox\Andrews Street\Andrews_Street\GIS_Data\Andrews_Street\SiteManagementPlan\4355S-SMP-01-UnrestrictedUseSCOs-LargeFormat.mxd

Last date document was saved: 11 Feb 2015

DATE	02-2015
DATE DRAWN	02-2015
DATE ISSUED	02-05-2015
DESIGNED BY	JAD
DRAWN BY	CPS
SCALE	AS NOTED

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

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

Drawing Title
Post-IRM Cumulative Test Location Plan Depicting Sample Locations Exceeding / Not Exceeding Part 375 Unrestricted Use SCOs

Project No.
4355S-10

FIGURE 10

NOTES:

Upper 2 feet + of former basement and former IRM excavation areas are backfilled with NYSDEC approved imported stone that meets NYSDEC DER-10 requirements.

Cover system meeting NYSDEC requirements is present over entire site.

Base mapping data provided by City of Rochester and Monroe County.

Map document path: C:\Users\smelt.DAYOFFICE\Dropbox\Andrews Street\Andrews_Street\GIS_Data\Andrews_Street\SiteManagementPlan\4355S-SMP-02-RestrictedResidentialUseSCOs-LargeFormat.mxd

Last date document was saved: 10 Aug 2015

DATE 02-2015
DATE DRAWN 02-2015
DATE ISSUED 02-11-2015
DESIGNED BY JAD
DRAWN BY CPS
SCALE AS NOTED

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

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

Drawing Title
Post-IRM Cumulative Test Location Plan Depicting Sample Locations Exceeding / Not Exceeding Part 375 Restricted Residential Use SCOs

Project No.
4355S-10

FIGURE 11

DATE 02-2015	DESIGNED BY NES
DATE DRAWN 02-2015	DRAWN BY CPS
DATE ISSUED 03-03-2015	SCALE AS NOTED

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

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Monitoring Well Location Plan

Project No.
4355S-10

FIGURE 12

DATE 02-2015
DATE DRAWN 02-2015
DATE ISSUED 03-03-2015
DESIGNED BY JAD
DRAWN BY CPS
SCALE AS NOTED

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

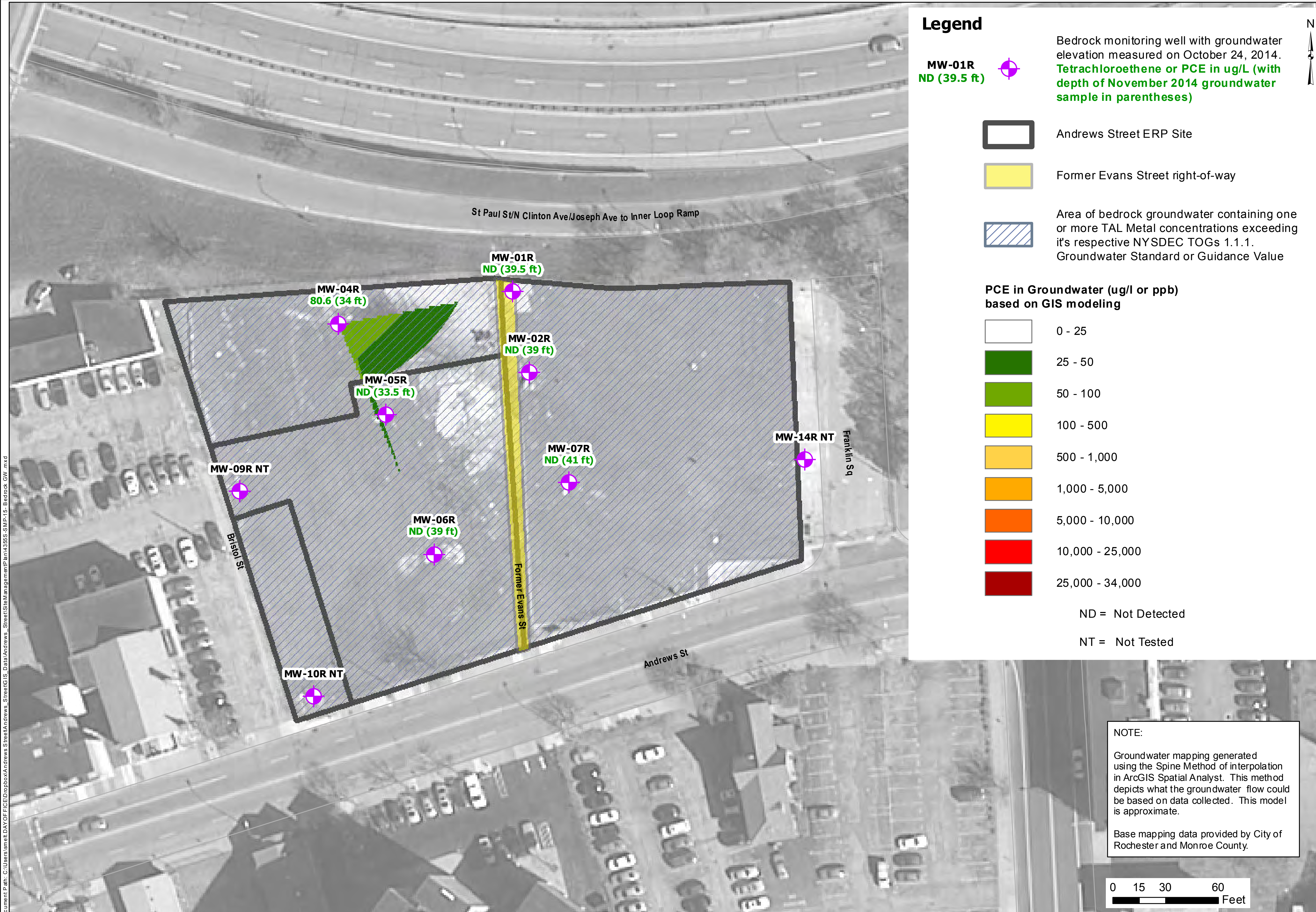
Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Peak PCE Concentrations Detected in November 2014 (Two-Month Performance Monitoring Event)
Overburden Groundwater Samples and Area of Overburden Groundwater Containing TAL Metal Impact

Project No.
4355S-10

FIGURE 13A



DATE 02-2015 | DATE DRAWN 02-2015 | DATE ISSUED 03-03-2015

DESIGNED BY JAD | DRAWN BY CPS | SCALE AS NOTED

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

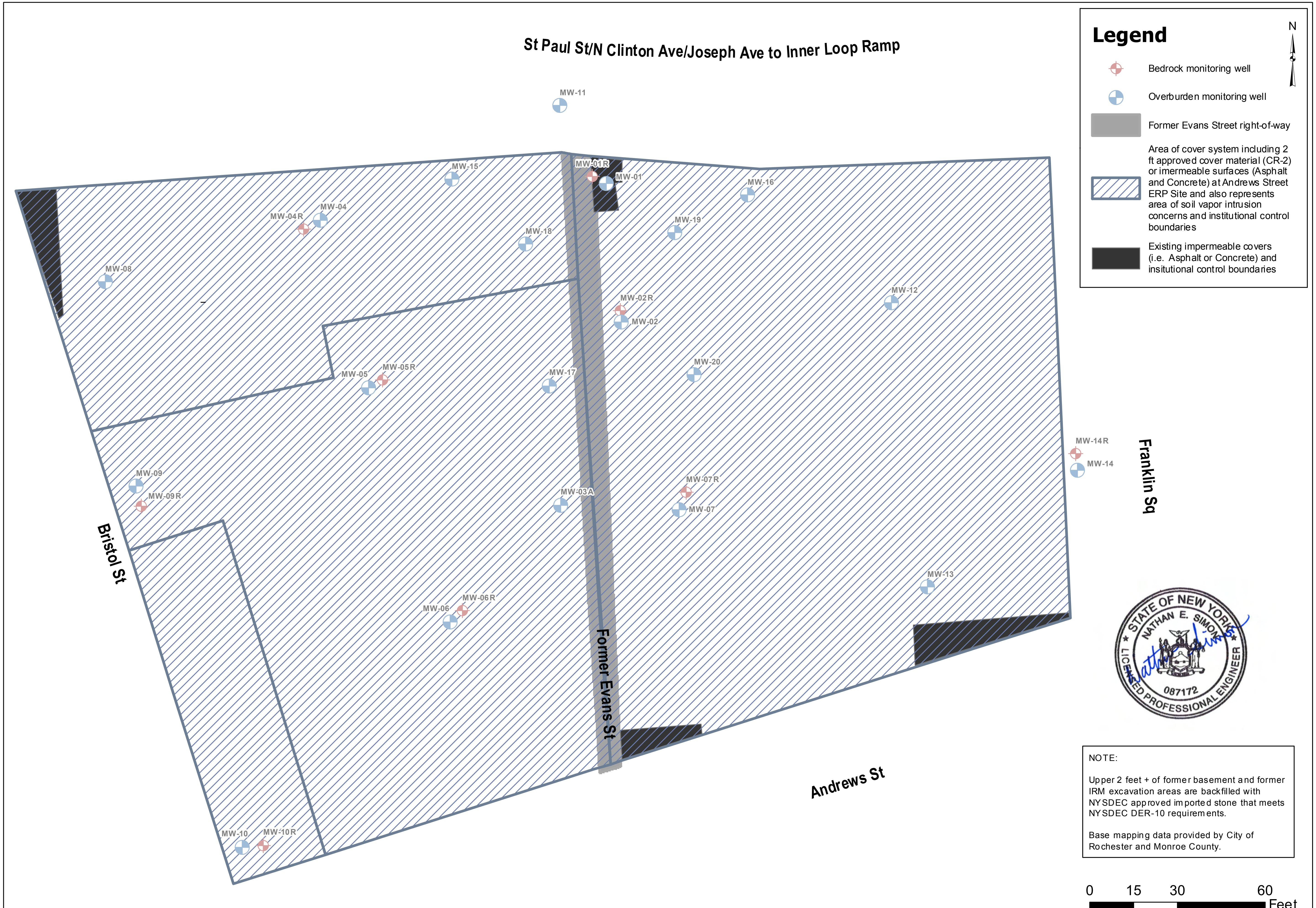
Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Peak PCE Concentrations Detected in November 2014 (Two-Month Performance Monitoring Event) Bedrock Groundwater Samples and Area of Bedrock Groundwater Containing TAL Metal Impact

Project No.
4355S-10

FIGURE 13B



NOTE:

Upper 2 feet + of former basement and former IRM excavation areas are backfilled with NYSDEC approved imported stone that meets NYSDEC DER-10 requirements.

Base mapping data provided by City of Rochester and Monroe County.

DESIGNED BY	DATE	DRAWN BY	DATE DRAWN	SCALE	DATE ISSUED
JAD	02-2015	CPS	02-2015	AS NOTED	03-06-2015

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

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

Drawing Title
Installed Cover System Site Plan, Area of Soil Vapor Intrusion Concern and Institutional Control Boundaries

Project No.
4355S-10

FIGURE 14

Last date document was saved: 29 Jun 2015

APPENDIX A

Environmental Easement with Meets and Bounds Description

MONROE COUNTY CLERK'S OFFICE

ROCHESTER, NY

THIS IS NOT A BILL. THIS IS YOUR RECEIPT

Receipt # 1241080

Index DEEDS

Book 11536 Page 210

No. Pages : 10

Instrument EASEMENT AGREEMENT

Date : 05/19/2015

Time : 02:04:28PM

Control # 201505190536

TT # TT0000014235

Ref 1 #

Employee : JoanM

Return To:
BOX 80
DEBRA L WILLIAMSON

ROCHESTER CITY OF

PEOPLE OF THE STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

COUNTY FEE TP584	$	5.00
COUNTY FEE NUMBER PAGES	$	45.00
RECORDING FEE	$	45.00
STATE FEE TRANSFER TAX	$	0.00
Total	$	95.00

State of New York

MONROE COUNTY CLERK'S OFFICE

WARNING - THIS SHEET CONSTITUTES THE CLERKS ENDORSEMENT, REQUIRED BY SECTION 317-a(5) & SECTION 319 OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH OR REMOVE.

CHERYL DINOLFO

MONROE COUNTY CLERK

PI182-201505190536-10

TRANSFER AMT

TRANSFER AMT	$1.00

Box 80
Debra L. Williamson

County: Monroe Site No: E828144 SAC#: C303648

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 13th day of May, 2015, between City of Rochester, having an office at 30 Church Street, Rochester, State of New York 14614 (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner" or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233.

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the following addresses: 300 Andrews Street, 304-308 Andrews Street, 320 Andrews Street and 25 Evans Street in the City of Rochester, County of Monroe and State of New York, known and designated on the tax map of the County Clerk of Monroe as tax map parcel numbers: Section 106.72 Block 1 Lot 86, Section 106.72 Block 1 Lot 85.001, Section 106.72 Block 1 Lot 84.001 and Section 106.72 Block 1 Lot 87.001, being the same properties conveyed to Grantor by Warranty Deeds dated July 24, 1997, January 15, 1991, November 9, 1990, and by Ordinance No. 2013-27 dated January 24, 2013 and recorded in the Monroe County Clerk's Office in Liber 8896, Page 158, Liber 8044, Page 377 and Liber 8028, page 344. The properties that are subject to the Environmental Easement (the "Controlled Property") comprises approximately 1.524 +/- acres, and are hereinafter more fully described in the Land Title Survey dated April 1, 2015 prepared by Fisher Associates, P.E., L.S., L.A., D.P.C., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

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WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of State Assistance Contract Number (SAC) # C303648, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement"):

1. Purposes. Grantor and Grantee acknowledge that the purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of the Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the Controlled Property that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") for the Controlled Property including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

(a) Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), (b) Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii), and (c) Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All engineering controls must be operated and maintained as specified in the SMP;

(3) All engineering controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the Controlled Property is prohibited without necessary water quality treatment as determined by the New York State Department of Health or the Monroe County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to site management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the Controlled Property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the Controlled Property must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the Grantor and Owner of the Controlled Property to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential as described in 6 NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the Controlled Property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3);

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Controlled Property, all rights as fee owner of the Controlled Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement; and

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement.

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Controlled Property, any lessees, and any person using the Controlled Property. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the liber and page or computerized system identification number.

Parties shall address correspondence to:

Site Number: E828144
Office of General Counsel
NYSDEC
625 Broadway
Albany, NY 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by certified mail and return receipt requested. The parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Controlled Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Controlled Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Controlled Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

CITY OF ROCHESTER

By: ____________________

Name: Mark Gregor

Title: City Manager OF ENVIRONMENTAL QUALITY

Date: 4-16-2015

Grantor's Acknowledgment

STATE OF NEW YORK)
) SS:
COUNTY OF MONROE)

VICKI BRAWN
Notary Public in the State of New York
MONROE COUNTY
Commission Expires August 18, 2018

On the 16th day of April, in the year 2015 before me, the undersigned, personally appeared Mark Gregor, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Vicki Brawn
Notary Public - State of New York

County: Monroe Site No: E 828144 SAC #: 303648

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: ______________________

Name: Robert W. Schick

Title: Director

Division of Environmental Remediation

Date: MAY 13th 2015

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 13 day of MAY, in the year 2015, before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

____

Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2018

3926198_2

County: Monroe Site No: E828144 SAC #: 303648

SCHEDULE "A" PROPERTY DESCRIPTION

ALL THAT PIECE OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE, STATE OF NEW YORK BEING PART OF TOWN LOTS 6 AND 7, RANGE 7, AND BEING DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHERLY RIGHT OF WAY OF ANDREWS STREET (60' WIDE) AT ITS INTERSECTION WITH THE WESTERLY RIGHT OF WAY OF FRANKLIN SQUARE (WIDTH VARIES); THENCE

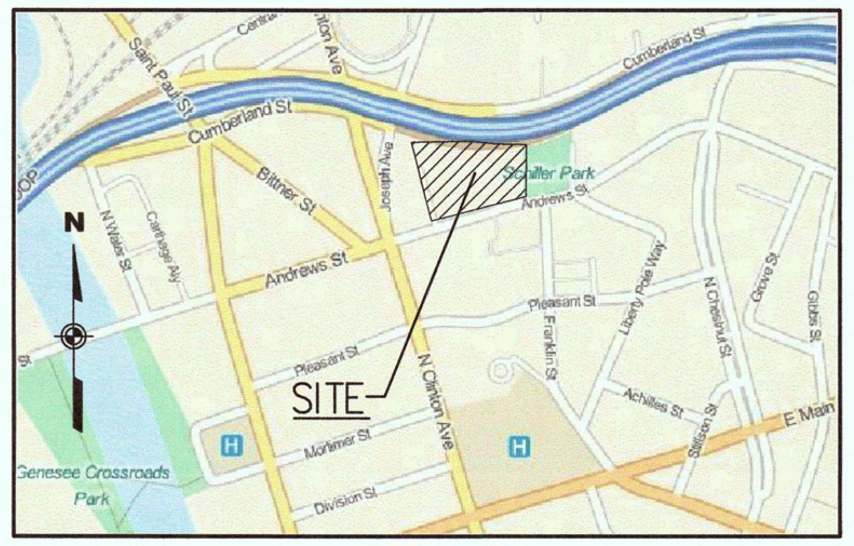
1) NORTHERLY ALONG THE WESTERLY RIGHT OF WAY OF FRANKLIN SQUARE (WIDTH VARIES) ON A BEARING OF NORTH 02° 40 '43" WEST A DISTANCE OF 158.43 FEET TO A POINT IN THE SOUTHERLY RIGHT OF WAY OF THE INTERSTATE 490 ROCHESTER CITY INNER LOOP EAST (WIDTH VARIES); THENCE

2) WESTERLY ALONG THE SOUTHERLY RIGHT OF WAY OF THE INTERSTATE 490 ROCHESTER CITY INNER LOOP EAST (WIDTH VARIES) THE FOLLOWING THREE (3) COURSES AND DISTANCES: (1) SOUTH 87° 07' 13" WEST A DISTANCE OF 100.00 FEET TO A POINT; THENCE (2) NORTH 84° 26' 29" WEST A DISTANCE OF 67.68 FEET TO A POINT; THENCE (3) SOUTH 86° 01' 34" WEST A DISTANCE OF 187.81 FEET TO A POINT IN THE EASTERLY RIGHT OF WAY OF BRISTOL STREET (10' WIDE); THENCE

3) SOUTHERLY ALONG THE EASTERLY RIGHT OF WAY OF BRISTOL STREET (10' WIDE) ON A BEARING OF SOUTH 17°26'48" EAST A DISTANCE OF 249.40 FEET TO A POINT IN THE NORTHERLY RIGHT OF WAY OF ANDREWS STREET (60' WIDE); THENCE

4) EASTERLY ALONG THE NORTHERLY RIGHT OF WAY OF ANDREWS STREET (60' WIDE) ON A BEARING OF NORTH 72°23'32" EAST A DISTANCE OF 301.33 FEET TO THE POINT OF BEGINNING, BEING 66,413± SQUARE FEET OR 1.524± ACRES.

ENCOMPASSING ALL OF TAX MAP NUMBER'S 106.72-1-84.1, 106.72-1-85.1, 106.72-1-86 AND 106.72-1-87.1.



SITE MAP
(NOT TO SCALE)

TAX NO. 106.72-1-84.1, LIBER 8028 PAGE 344, EXHIBIT A, PARCEL I

ALL THAT TRACT OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, COMMENCING AT THE INTERSECTION OF THE WESTERLY LINE OF FRANKLIN SQUARE AND THE NORTHERLY LINE OF ANDREWS STREET, BEING AT THE SOUTHEASTERLY CORNER OF A PARCEL OF LAND CONVEYED BY THE FOUR HUNDRED EAST MAIN CORPORATION TO CENTRAL GREYHOUND LINES, INC. OF NEW YORK; THENCE RUNNING NORTHERLY ALONG THE WESTERLY LINE OF FRANKLIN SQUARE AND ALONG THE EASTERLY LINE OF LANDS CONVEYED TO THE CENTRAL GREYHOUND LINES, INC. OF NEW YORK, 223.43 FEET MORE OR LESS, TO THE NORTHEASTERLY CORNER OF A PARCEL OF LAND CONVEYED TO CENTRAL GREYHOUND LINES, INC. OF NEW YORK BY JOSEPHINE F. SKINNER; THENCE WESTERLY ALONG THE NORTHERLY LINE OF THE LAST MENTIONED PARCEL ABOUT 155 FEET TO THE EAST LINE OF EVANS STREET; THENCE SOUTHERLY ALONG THE EAST LINE OF EVANS STREET AND ALONG THE WESTERLY LINE OF LANDS CONVEYED TO CENTRAL GREYHOUND LINES, INC. OF NEW YORK, 262.14 FEET, MORE OR LESS, TO THE SOUTHWESTERLY CORNER OF A PARCEL OF LAND CONVEYED TO CENTRAL GREYHOUND LINES, INC. OF NEW YORK, BY ARTHUR W. MORRISON, ET AL; THENCE EASTERLY ALONG THE NORTHERLY LINE OF ANDREWS STREET AND ALONG THE SOUTHERLY LINES OF LANDS CONVEYED BY MORRISON ET AL. AND BY THE FOUR HUNDRED EAST MAIN CORPORATION TO THE POINT AND PLACE OF BEGINNING.

EXCEPTING AND RESERVING THEREFROM, THAT PORTION OR PART OF THE ABOVE DESCRIBED PREMISES WHICH WAS APPROPRIATED AND TAKEN BY THE STATE OF NEW YORK ON DECEMBER 17, 1959; SAID PORTION OR PART BEING REFERRED TO AND DESCRIBED AS PARCEL NO. 167 ON MAP NO. 164R-1 FOR PROJECT "ROCHESTER CITY , INNER LOOP: FRONT STREET TO NORTH STREET", A COPY OF WHICH MAP WAS FILED IN THE MONROE COUNTY CLERK'S OFFICE BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS.

BEING AND INTENDED TO BE ALL OF THE SAME PROPERTY CONVEYED TO GLI REALTY COMPANY (WHICH MERGED INTO GREYHOUND LINES, INC.) BY DEED DATED MARCH 19, 1987, AND RECORDED JUNE 15, 1987 IN THE MONROE COUNTY CLERK'S OFFICE IN LIBER 7133 OF DEEDS AT PAGE 79.

TAX NO. 106.72-1-87.1, LIBER 8028 PAGE 344, EXHIBIT A, PARCEL II

ALL THAT TRACT OR PARCEL OF LAND, SITUATED IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, KNOWN AND DISTINGUISHED AS LOTS 6, 8 AND 9 IN G. W. PRATT'S SUBDIVISION OF LOTS 93, 94, 95 AND 136 OF THE FRANKLIN TRACT,

SAID LOT NO. 6 FRONTS 44 FEET ON THE WESTERLY SIDE OF EVANS STREET, IS 53 FEET, MORE OR LESS, IN WIDTH ON THE REAR LINE AND IS 93.5 FEET DEEP ON THE NORTH LINE AND 86 FEET DEEP ON THE SOUTH LINE, SAID LOT NO. 6 ADJOINS LOTS 8 AND 9 ON THE REAR LINE THEREOF.

SAID LOT NO. 8 FRONTS 43 FEET, MORE OR LESS ON THE EASTERLY SIDE OF BRISTOL STREET, IS 36 FEET, MORE OR LESS, IN WIDTH ON THE REAR LINE AND IS 90.1 FEET DEEP ON THE NORTHERLY LINE AND 85.2 FEET DEEP ON THE SOUTHERLY LINE.

SAID LOT NO. 9 FRONTS 43.4 FEET, MORE OR LESS, ON THE EASTERLY SIDE OF BRISTOL STREET, IS 34.5 FEET, MORE OR LESS, IN WIDTH ON THE REAR LINE AND IS 95 FEET DEEP ON THE NORTHERLY LINE AND 90.1 FEET DEEP ON THE SOUTHERLY LINE. THE SOUTHERLY LINE OF SAID LOT 9 BEING CONTIGUOUS WITH THE NORTHERLY LINE OF LOT NO. 8 ABOVE DESCRIBED.

BEING AND INTENDED TO BE ALL OF THE SAME PROPERTY CONVEYED TO GLI REALTY COMPANY (WHICH MERGED INTO GREYHOUND LINES, INC.) BY DEED DATED MARCH 19, 1987, AND RECORDED JUNE 15, 1987 IN THE MONROE COUNTY CLERK'S OFFICE IN LIBER 7133 OF DEEDS AT PAGE 87.

TAX NO. 106.72-1-85.1, LIBER 8044 PAGE 377

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, BEING LOT NO. 2 AS THE SAME IS LAID DOWN AND DESIGNATED UPON A MAP OF G. W. PRATT'S SUBDIVISION OF LOTS 93, 94, 95 AND 136 OF FRANKLIN TRACT MADE BY SILAS CORNELL AND FILED IN MONROE COUNTY CLERK'S OFFICE IN LIBER 53 OF DEEDS, PAGE 203. SAID LOT 2 BEING CONVEYED FRONTS 33 FEET ON THE NORTH SIDE OF ANDREWS STREET AND RUNS BACK OF THAT WIDTH, 120 FEET. REFERENCE BEING HAD TO SAID MAP.

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, KNOWN AND DISTINGUISHED AS LOT 3 ON A MAP OF G.W. PRATT'S SUBDIVISION OF LOTS 93, 94, 95 AND 136 OF THE FRANKLIN TRACT MADE BY SILAS CORNELL AND FILED IN MONROE COUNTY CLERK'S OFFICE IN LIBER 53 OF DEEDS, PAGE 203. SAID LOT 3 HEREBY CONVEYED BEING 32 FEET ON ANDREWS STREET 120 FEET ON THE WEST LINE, 47-1/2 FEET ON THE REAR LINE AND 121 FEET ON THE EAST LINE.

LOT SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, KNOWN AND DESCRIBED AS THE EAST PART OF LOT 93 IN THE FRANKLIN TRACT AND BOUNDED ON THE EAST BY AN ALLY, SOUTH BY AND RUNNING WESTWARD ALONG ANDREWS STREET 32 FEET; THENCE NORTHERLY 121 FEET; THENCE EASTERLY 47-1/2 FEET TO SAID ALLEY; THENCE SOUTHERLY ALONG SAID ALLEY 124 FEET TO THE PLACE OF BEGINNING.

LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, KNOWN AND DESIGNATED ON A MAP OF GEORGE N. PRATT'S SUBDIVISION OF LOTS 93, 94, 95 AND 136 OF THE FRANKLIN TRACT AS LOT 5 WHICH MAP IS RECORDED IN LIBER 53 OF DEEDS, PAGE 203. SAID LOT 5 FRONTS 44 FEET ON THE WEST SIDE OF EVANS STREET IN SAID CITY OF ROCHESTER.

ALSO ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, KNOWN AND DESIGNATED ON A MAP OF GEORGE N. PRATT'S SUBDIVISION OF LOTS 93, 94, 95 AND 136 OF THE FRANKLIN TRACT AS LOT 7 WHICH MAP IS RECORDED IN LIBER 53 OF DEEDS, PAGE 203. SAID LOT 7 FRONTS 43 FEET ON THE EAST SIDE OF BRISTOL STREET IN SAID CITY OF ROCHESTER.

THIS CONVEYANCE IS SUBJECT TO ALL COVENANTS, EASEMENTS AND RESTRICTIONS OF RECORD AFFECTING SAID PREMISES, IF ANY.

BEING THE SAME PREMISES CONVEYED TO THE GRANTOR BY DEED DATED OCTOBER 13, 1988 AND RECORDED ON OCTOBER 21, 1988 IN THE MONROE COUNTY CLERK'S OFFICE IN LIBER 7475 OF DEEDS AT PAGE 228.

TAX NO. 106.72-1-86, LIBER 8896 PAGE 158

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE AND STATE OF NEW YORK, COMMENCING AT THE SOUTHWEST CORNER OF LOT NINTY-FIVE (95) AS SURVEYED BY SILAS CORNELL, BOUNDED SOUTH ON ANDREWS STREET AND RUNNING EASTERLY ON SAID STREET THIRTY THREE (33) FEET; THENCE NORTHERLY ONE HUNDRED AND TWENTY (120) FEET; THENCE WESTERLY THIRTY THREE (33) FEET TO AN ALLEY; THENCE SOUTHERLY ALONG SAID ALLEY ONE HUNDRED TWENTY (120) FEET TO SAID ANDREWS STREET OR PLACE OF BEGINNING; SAID LOT BEING IN THE FRANKLIN TRACT, SO CALLED AND BEING A SUBDIVISION OF SAID LOT NINTY-FIVE.

BEING AND HEREBY INTENDING TO CONVEY PART OF THE SAME PREMISES CONVEYED TO GRANTORS BY DEED DATED NOVEMBER 28, 1989 AND RECORDED ON THE SAME DAY IN LIBER 7787 OF DEEDS AT PAGE 139 IN THE OFFICE OF THE MONROE COUNTY CLERK.

SUBJECT TO COVENANTS, EASEMENTS AND RESTRICTIONS OF RECORD AFFECTING SAID PREMISES, IF ANY.

SURVEYOR'S PARCEL DESCRIPTION/ENVIRONMENTAL EASEMENT DESCRIPTION

ENCOMPASSING ALL OF T.A. NO.'S 106.72-1-84.1, 106.72-1-85.1, 106.72-1-86 AND 106.72-1-87.1.

ALL THAT PIECE OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE, STATE OF NEW YORK BEING PART OF TOWN LOTS 6 AND 7, RANGE 7, AND BEING DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHERLY RIGHT OF WAY OF ANDREWS STREET (60' WIDE) AT ITS INTERSECTION WITH THE WESTERLY RIGHT OF WAY OF FRANKLIN SQUARE (WIDTH VARIES); THENCE

1) NORTHERLY ALONG THE WESTERLY RIGHT OF WAY OF FRANKLIN SQUARE (WIDTH VARIES) ON A BEARING OF NORTH 02°40'43" WEST A DISTANCE OF 158.43 FEET TO A POINT IN THE SOUTHERLY RIGHT OF WAY OF THE INTERSTATE 490 ROCHESTER CITY INNER LOOP EAST (WIDTH VARIES); THENCE

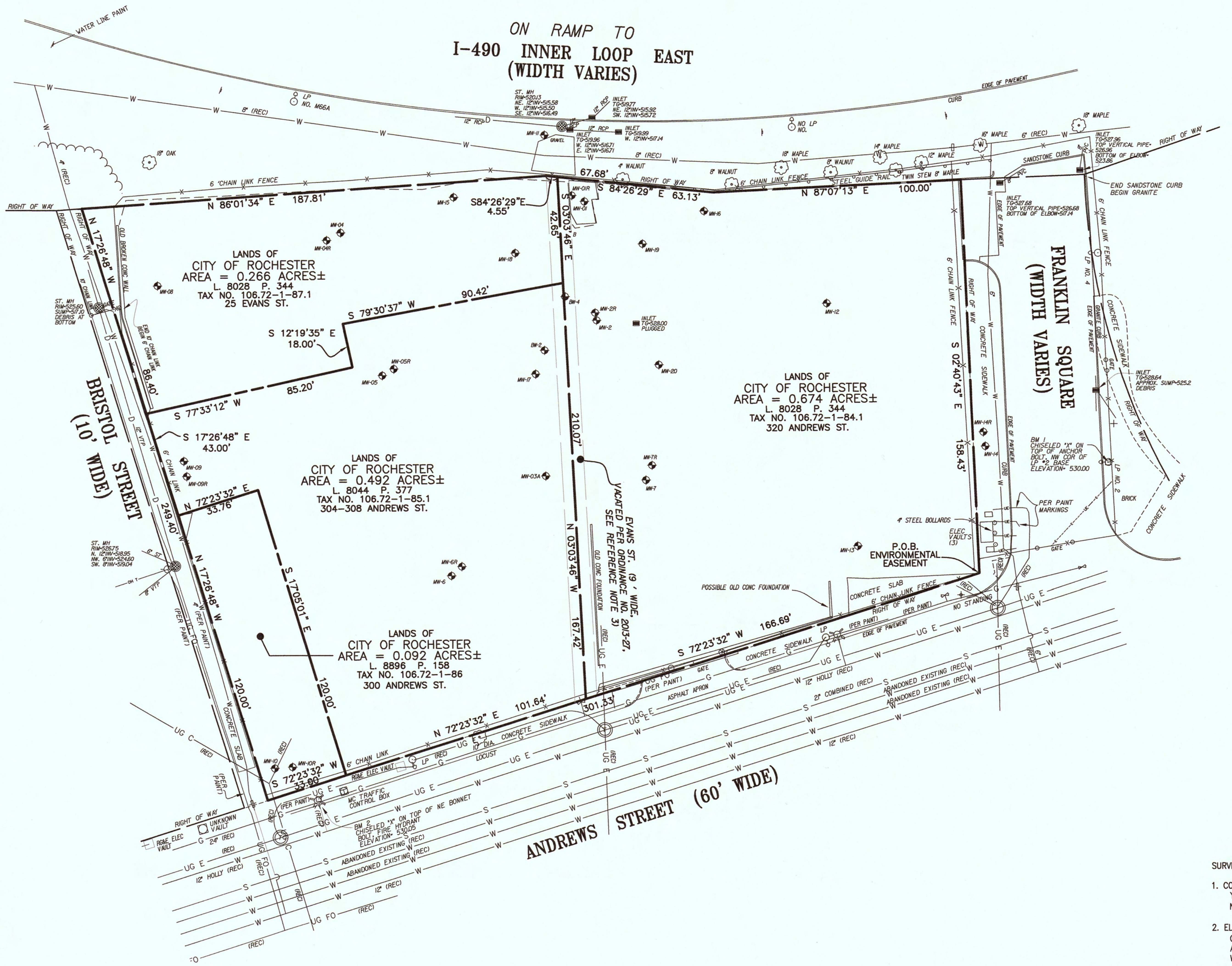
2) WESTERLY ALONG THE SOUTHERLY RIGHT OF WAY OF THE INTERSTATE 490 ROCHESTER CITY INNER LOOP EAST (WIDTH VARIES) THE FOLLOWING THREE (3) COURSES AND DISTANCES: (1) SOUTH 87°07'13" WEST A DISTANCE OF 100.00 FEET TO A POINT; THENCE (2) NORTH 84°26'29" WEST A DISTANCE OF 67.68 FEET TO A POINT; THENCE (3) SOUTH 86°01'34" WEST A DISTANCE OF 187.81 FEET TO A POINT IN THE EASTERLY RIGHT OF WAY OF BRISTOL STREET (10' WIDE); THENCE

3) SOUTHERLY ALONG THE EASTERLY RIGHT OF WAY OF BRISTOL STREET (10' WIDE) ON A BEARING OF SOUTH 17°26'48" EAST A DISTANCE OF 249.40 FEET TO A POINT IN THE NORTHERLY RIGHT OF WAY OF ANDREWS STREET (60' WIDE); THENCE

4) EASTERLY ALONG THE NORTHERLY RIGHT OF WAY OF ANDREWS STREET (60' WIDE) ON A BEARING OF NORTH 72°23'32" EAST A DISTANCE OF 301.33 FEET TO THE POINT OF BEGINNING, BEING 66,413± SQUARE FEET OR 1.524± ACRES.

SUBJECT TO ANY EASEMENTS OR ENCUMBRANCES OF RECORD.

FILE NAME: H:\Projects\132028-NYSDEC_Env_Restor_E828144\Sur\CAD\Andrews St DEC Environ Restoration.dwg
DATE/TIME: 4/1/2015 9:20:34 AM
USER: Mike Miller



N

SURVEY NOTE 1

30 0 30 60

SCALE: 1" = 30' or
1" = 9.144 Meters

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EASEMENT LINE
- BUILDING LINE
- FENCE LINE
- EDGE OF GRAVEL
- S — SANITARY SEWER LINE W/MANHOLE & C.O.
- D — STORM SEWER LINE W/MH & CATCH BASIN
- W — WATER LINE W/HYDRANT, VALVE & METER
- UG E — ELECTRIC LINE W/PULLBOX, METER & MANHOLE
- G — NATURAL GAS LINE W/METER & VALVE
- OH E, OH T, OH C — OVERHEAD ELECTRIC, TELEPHONE & CABLE LINE
- UG T — UNDERGROUND TELEPHONE LINE & MANHOLE
- OH T — OVERHEAD TELEPHONE LINE
- TREE/BRUSH LINE
- TS — SIGNAL POLE, PEDESTRIAN POLE & TRAFFIC PULL BOX
- TC — TRAFFIC CONTROL LINE
- UTILITY POLE, GUY, LIGHT POLE & TOP MOUNT LIGHT
- EXISTING MONITORING WELL
- CONIFEROUS TREE (SPECIES AND SIZE NOTED)
- DECIDUOUS TREE (SPECIES AND SIZE NOTED)
- BENCH MARK
- UNKNOWN UTILITY VAULT
- REFLECTOR POST

ABBREVIATIONS

CONC.	CONCRETE
COR.	CORNER
CORS	CONTINUOUSLY OPERATING REFERENCE STATION
ELEV	ELEVATION
L.P.	LAMP POST
MH	MANHOLE
NAD	NORTH AMERICAN DATUM
P.O.B.	POINT OF BEGINNING
RCP	REINFORCED CONCRETE PIPE
REC.	RECORD
VTP	VITRIFIED TILE PIPE

SURVEY NOTES:

1. COORDINATES, BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WESTERN ZONE, TRANSVERSE MERCATOR PROJECTION, NAD 83/96 USING GPS PROCEDURES AND THE NEW YORK STATE DOT CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO EXISTING WELL ELEVATIONS (TOP PVC INNER CASING) BY LU ENGINEERS TABLES PROVIDED TO FISHER ASSOCIATES. WELL NO. 14 WAS HELD AS THE PRIMARY BENCHMARK AND WELL NOS. 10 AND 13 WERE CHECKED. VERTICAL ERROR WAS LESS THAN 0.02 FEET.
3. UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM FIELD LOCATIONS, VISIBLE AT THE TIME OF SURVEY. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOULD BE STAKED BY THE RESPECTIVE UTILITY COMPANY PRIOR TO ANY CONSTRUCTION.

REFERENCES:

1. DEEDS LISTED HEREON.
2. ROCHESTER CITY SURVEY DISTRICT NO. 12 MAP 3 AND DISTRICT NO. 14 MAP 2.
3. THE CITY OF ROCHESTER CITY CLERKS OFFICE CERTIFIED ORDINANCE NO. 2013-27 ADOPTED ON JANUARY 24, 2013 AMENDING THE OFFICIAL MAP BY ABANDONMENT OF EVANS STREET.

ENGINEERING/INSTITUTIONAL CONTROLS

Land Use-Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii), and Industrial Use as described in 6 NYCRR Part 375-1.8(g)(2)(iv).

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the New York Environmental Conservation Law.

ENVIRONMENTAL EASEMENT AREA ACCESS

THE DEC OR THEIR AGENT MAY ACCESS THE ENVIRONMENTAL EASEMENT AREA AS SHOWN HEREON THROUGHOUT ANY EXISTING STREET ACCESS OR BUILDING INGRESS/EGRESS ACCESS POINT

THE ENGINEERING AND INSTITUTIONAL CONTROLS for the easement are set forth in more detail in the Site Management Plan ("SMP"). A copy of the SMP must be obtained by any party with an interest in the property. The SMP may be obtained from the New York State Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY, 12233 or at derweb@dec.ny.gov

WE: FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C., HEREBY CERTIFY TO:
THE PEOPLE OF THE STATE OF NEW YORK ACTING THROUGH THEIR COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION; CITY OF ROCHESTER; HARTER SECREST & EMERY LLP; THAT THIS MAP WAS PREPARED FROM NOTES OF AN INSTRUMENT SURVEY COMPLETED BY US DEC. 22, 2014 USING REFERENCES AND EVIDENCE SHOWN HEREON.

THIS MAP IS SUBJECT TO ANY EASEMENTS OR ENCUMBRANCES THAT AN ABSTRACT OF TITLE MAY SHOW.

BY: Scott V. Smith DATE: April 1, 2015
SCOTT V. SMITH N.Y.S.P.L.S. NO. 050561

REV	DESCRIPTION	DATE	BY
7			
6			
5			
4			
3			
2			
1	REV. AS PER COMMENTS FROM ATTORNEY	03/30/15	MM

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FISHER ASSOCIATES,
P.E., L.S., L.A., D.P.C.

New York State Education Law Section 7209 states that it is a violation of this law for any person, unless he/she is acting under the direction of a licensed professional engineer or land surveyor, to alter an item in any way.

If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his/her seal and the notation "altered by" followed by his/her signature and the date of such alteration, and a specific description of the alteration.

FA PROJECT NO. 132028
PROJECT MANAGER S. SMITH
DRAWN BY J. HEFNER
SCALE 1" = 30'
ISSUE DATE FEB. 2015

STATE OF NEW YORK · SCOTT V. SMITH · 050561 · LICENSED LAND SURVEYOR

FISHER ASSOCIATES
WWW.FISHERASSOC.COM
135 Calkins Road, Rochester, NY 14623
Phone: 585-334-1310

PROJECT
NYSDEC ENVIRONMENTAL RESTORATION PROJECT
SITE NO. E828144, 300, 304-308, 320 ANDREWS ST. & 25 EVANS ST.
CITY OF ROCHESTER
MONROE COUNTY, NY

TITLE OF DRAWING
ENVIRONMENTAL EASEMENT MAP

DRAWING NO.
FA-1

SHEET 1 OF 1

APPENDIX B

NYCRR Part 375, Division of Environmental Remediation, DER-10/Technical Guidance for Site Investigation and Remediation, Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil

Appendix 5
Allowable Constituent Levels for Imported Fill or Soil
Subdivision 5.4(e)

Source: This table is derived from soil cleanup objective (SCO) tables in 6 NYCRR 375. Table 375-6.8(a) is the source for unrestricted use and Table 375-6.8(b) is the source for restricted use.

Note: For constituents not included in this table, refer to the contaminant for supplemental soil cleanup objectives (SSCOs) in the Commissioner Policy on *Soil Cleanup Guidance*. If an SSCO is not provided for a constituent, contact the DER PM to determine a site-specific level.

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Metals					
Arsenic	13	16	16	16	13
Barium	350	350	400	400	433
Beryllium	7.2	14	47	47	10
Cadmium	2.5	2.5	4.3	7.5	4
Chromium, Hexavalent[1]	1 [3]	19	19	19	1 [3]
Chromium, Trivalent[1]	30	36	180	1500	41
Copper	50	270	270	270	50
Cyanide	27	27	27	27	NS
Lead	63	400	400	450	63
Manganese	1600	2000	2000	2000	1600
Mercury (total)	0.18	0.73	0.73	0.73	0.18
Nickel	30	130	130	130	30
Selenium	3.9	4	4	4	3.9
Silver	2	8.3	8.3	8.3	2
Zinc	109	2200	2480	2480	109
PCBs/Pesticides					
2,4,5-TP Acid (Silvex)	3.8	3.8	3.8	3.8	NS
4,4'-DDE	0.0033 [3]	1.8	8.9	17	0.0033 [3]
4,4'-DDT	0.0033 [3]	1.7	7.9	47	0.0033 [3]
4,4'-DDD	0.0033 [3]	2.6	13	14	0.0033 [3]
Aldrin	0.005	0.019	0.097	0.19	0.14
Alpha-BHC	0.02	0.02	0.02	0.02	0.04 [4]
Beta-BHC	0.036	0.072	0.09	0.09	0.6
Chlordane (alpha)	0.094	0.91	2.9	2.9	1.3
Delta-BHC	0.04	0.25	0.25	0.25	0.04 [4]
Dibenzofuran	7	14	59	210	NS
Dieldrin	0.005	0.039	0.1	0.1	0.006
Endosulfan I	2.4[2]	4.8	24	102	NS
Endosulfan II	2.4[2]	4.8	24	102	NS
Endosulfan sulfate	2.4[2]	4.8	24	200	NS
Endrin	0.014	0.06	0.06	0.06	0.014
Heptachlor	0.042	0.38	0.38	0.38	0.14
Lindane	0.1	0.1	0.1	0.1	6
Polychlorinated biphenyls	0.1	1	1	1	1

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Semi-volatile Organic Compounds					
Acenaphthene	20	98	98	98	20
Acenaphthylene	100	100	100	107	NS
Anthracene	100	100	100	500	NS
Benzo(a)anthracene	1	1	1	1	NS
Benzo(a)pyrene	1	1	1	1	2.6
Benzo(b)fluoranthene	1	1	1	1.7	NS
Benzo(g,h,i)perylene	100	100	100	500	NS
Benzo(k)fluoranthene	0.8	1	1.7	1.7	NS
Chrysene	1	1	1	1	NS
Dibenz(a,h)anthracene	0.33 [3]	0.33 [3]	0.33 [3]	0.56	NS
Fluoranthene	100	100	100	500	NS
Fluorene	30	100	100	386	30
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	5.6	NS
m-Cresol(s)	0.33 [3]	0.33 [3]	0.33 [3]	0.33 [3]	NS
Naphthalene	12	12	12	12	NS
o-Cresol(s)	0.33 [3]	0.33 [3]	0.33 [3]	0.33 [3]	NS
p-Cresol(s)	0.33	0.33	0.33	0.33	NS
Pentachlorophenol	0.8 [3]	0.8 [3]	0.8 [3]	0.8 [3]	0.8 [3]
Phenanthrene	100	100	100	500	NS
Phenol	0.33 [3]	0.33 [3]	0.33 [3]	0.33 [3]	30
Pyrene	100	100	100	500	NS
Volatile Organic Compounds					
1,1,1-Trichloroethane	0.68	0.68	0.68	0.68	NS
1,1-Dichloroethane	0.27	0.27	0.27	0.27	NS
1,1-Dichloroethene	0.33	0.33	0.33	0.33	NS
1,2-Dichlorobenzene	1.1	1.1	1.1	1.1	NS
1,2-Dichloroethane	0.02	0.02	0.02	0.02	10
1,2-Dichloroethene(cis)	0.25	0.25	0.25	0.25	NS
1,2-Dichloroethene(trans)	0.19	0.19	0.19	0.19	NS
1,3-Dichlorobenzene	2.4	2.4	2.4	2.4	NS
1,4-Dichlorobenzene	1.8	1.8	1.8	1.8	20
1,4-Dioxane	0.1 [3]	0.1 [3]	0.1 [3]	0.1 [3]	0.1
Acetone	0.05	0.05	0.05	0.05	2.2
Benzene	0.06	0.06	0.06	0.06	70
Butylbenzene	12	12	12	12	NS
Carbon tetrachloride	0.76	0.76	0.76	0.76	NS
Chlorobenzene	1.1	1.1	1.1	1.1	40
Chloroform	0.37	0.37	0.37	0.37	12
Ethylbenzene	1	1	1	1	NS
Hexachlorobenzene	0.33 [3]	0.33 [3]	1.2	3.2	NS
Methyl ethyl ketone	0.12	0.12	0.12	0.12	100
Methyl tert-butyl ether	0.93	0.93	0.93	0.93	NS
Methylene chloride	0.05	0.05	0.05	0.05	12

Volatile Organic Compounds (continued)					
Propylbenzene-n	3.9	3.9	3.9	3.9	NS
Sec-Butylbenzene	11	11	11	11	NS
Tert-Butylbenzene	5.9	5.9	5.9	5.9	NS
Tetrachloroethene	1.3	1.3	1.3	1.3	2
Toluene	0.7	0.7	0.7	0.7	36
Trichloroethene	0.47	0.47	0.47	0.47	2
Trimethylbenzene-1,2,4	3.6	3.6	3.6	3.6	NS
Trimethylbenzene-1,3,5	8.4	8.4	8.4	8.4	NS
Vinyl chloride	0.02	0.02	0.02	0.02	NS
Xylene (mixed)	0.26	1.6	1.6	1.6	0.26

All concentrations are in parts per million (ppm)
NS = Not Specified

Footnotes:
[1] The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.
[2] The SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.
[3] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.
[4] This SCO is derived from data on mixed isomers of BHC.

APPENDIX C

Excavation Work Plan

APPENDIX C – EXCAVATION WORK PLAN

C-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination or potassium permanganate rich media, the Site owner or their representative will notify the New York State Department of Environmental Conservation (NYSDEC). Currently, this notification will be made to:

Charlotte Theobald
Project Manager
NYSDEC Region 8 Office
6274 East Avon-Lima Road, Avon, NY 14414

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil and/or potassium permanganate rich media to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, potential presence of potassium permanganate rich media and plans for any pre-construction sampling,
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this Excavation Work Plan (EWP),
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,
- A copy of the contractor’s health and safety plan, in electronic format, if it differs from the Health and Safety Plan (HASP) provided in Appendix D of this document,
- Identification of disposal facilities for potential waste streams,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

C-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening (i.e., monitoring with a photoionization detector, if warranted) will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination) and/or potassium permanganate rich media. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the Certificate of Completion (COC). In the event PID measurements exceeding 5 parts per million (ppm) are measured, the excavated material will be segregated and staged, as described below.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil. In addition to soil screening for known or potentially contaminated material, the environmental professional will perform visual screening for purple and pink stained soils/groundwater indicative of potassium permanganate rich media. Potassium permanganate rich media must be handled and managed in accordance with the HASP and can be returned to the subsurface from the strata in which it was excavated. Potassium permanganate soils that are not returned from the strata in which it was excavated will require characterization prior to off-site transport and disposal in accordance with applicable regulations.

C-3 STOCKPILE METHODS

Depending upon the quantity of material excavated, impacted materials may be loaded directly into trucks for transport and off-site for disposal, placed within roll-off containers and/or placed in a soil stockpile. Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained by the owner of the Site and available for inspection by NYSDEC.

C-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee invasive work and the excavation and load-out of excavated material.

The owner of the property and its contractors are solely responsible for safe execution of invasive and other work performed under this EWP.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this Site Management Plan (SMP) is posed by utilities or easements on the Site.

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

If required based on the type and extent of invasive work proposed, a truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that outbound trucks are inspected and are free of debris before leaving the Site until the activities performed under this section are complete. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

C-5 MATERIALS TRANSPORT OFF-SITE

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

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used. [Note: To the extent possible, wet soil may be allowed to drain in an aboveground location on the Site prior to off-site transport of the material. To drain wet soils, two layers of 10-mil poly sheeting of sufficient size to contain soil to be staged in that area will be laid on the ground surface. Soils to be drained will be placed on this double layer of plastic sheeting. The staged soil will be covered with 6-mil poly sheeting and secured with sand bags until disposal occurs. When deemed necessary, staging areas will be bermed to mitigate the possibility of run-off and run-on. It is noted that during excavation, staging and disposal activities, the Contractor will be directed to provide the provisions necessary to implement dust and vapor suppression controls as described in the Health and Safety Plan (HASP). Samples of accumulated drainage water will be collected for analysis and will be handled, transported and disposed of in accordance with applicable local, State and Federal regulations.]

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

Truck transport routes, including maps and directions to Mill Seat and High Acres Landfills, the main landfills used in the area for non-hazardous waste, are included in Attachment 1 of this EWP. Alternative disposal locations will require the transporter to obtain a map and directions to/from the Site for approved truck transport routes prior to transporting contaminated materials off-site. Trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; [(g) community input [where necessary]]

Trucks will be prohibited from stopping and idling in the neighborhood outside the Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

C-6 MATERIALS DISPOSAL OFF-SITE

All soil, fill, and/or potassium permanganate rich media and/or solid waste deemed to be impacted that is excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6 NYCRR Part 360) and Federal regulations. If disposal of soil/fill and/or potassium permanganate rich media from this Site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this Site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report (PRR). This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6 NYCRR Part 360-1.2. Material that does not meet Track 1 Unrestricted Use soil cleanup objectives (SCOs) is prohibited from being taken to a New York State recycling facility (6 NYCRR Part 360-16 Registration Facility).

C-7 MATERIALS RE-USE ON-SITE

In the event that excavation activities at the Site encounter potentially contaminated materials, and/or potassium permanganate rich media the materials/media may be re-used on-site in accordance with guidelines set forth below in this EWP. Chemical criteria for on-site re-use of material have been approved by NYSDEC and are included in Appendix B. Table C-7-A presents the test parameters and number of soil samples to be analyzed based on volume that are required to determine re-use suitability of excavated on-site soils. The qualified environmental professional will ensure that procedures defined for materials re-use in this SMP are followed and that unacceptable material does not remain on-site. Since this Site utilizes a cover system as an engineering control, contaminated on-site material, (including historic fill and contaminated soil, that is acceptable for re-use on-site) and/or potassium permanganate rich media does not require analytical testing, will be placed below the demarcation layer or impervious surface, and will not be re-used within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

In order to qualify for on-site re-use as cover or off-site re-use, the material must:

- Be free of extraneous debris, potassium permanganate or solid waste,
- Consist of soil or other unregulated materials as set forth in 6 NYCRR Part 360.
- Be tested at the rate outlined in Table C-7-A

<table>
<tr><th colspan="4">Table C-7-A
Required number of Soil Samples to determine re-use suitability of excavated on-site soils</th></tr>
<tr><td>Contaminant</td><td>Volatile Organic Compounds (VOCs)</td><td colspan="2">Semi-Volatile Organic Compounds (SVOCs), Inorganics, Cyanide, Polychlorinated Biphenyl’s (PCBs) & Pesticides</td></tr>
<tr><td>Soil Quantity (yd^3)</td><td>Discrete Samples</td><td>Composite</td><td>Discrete Samples/Composite</td></tr>
<tr><td>0-50</td><td>1</td><td>1</td><td rowspan="8">3-5 discrete samples from different locations in the fill or soil to be re-used will comprise a composite sample for analysis</td></tr>
<tr><td>50-100</td><td>2</td><td>1</td></tr>
<tr><td>100-200</td><td>3</td><td>1</td></tr>
<tr><td>200-300</td><td>4</td><td>1</td></tr>
<tr><td>300-400</td><td>4</td><td>2</td></tr>
<tr><td>400-500</td><td>5</td><td>2</td></tr>
<tr><td>500-800</td><td>6</td><td>2</td></tr>
<tr><td>800-1000</td><td>7</td><td>2</td></tr>
<tr><td>>1000</td><td colspan="3">Add an additional 2 VOC and 1 composite for each additional 1,000 cubic yards, or consult with NYSDEC DER Project Manager</td></tr>
</table>

Based on the testing outcome, soil may be re-used on-site as cover or off-site in the following manner:

- Soil that meets the Unrestricted Use SCOs for all constituents set forth in 6 NYCRR Part 375, DER-10 Appendix 5 Allowable Constituent Levels for Imported Fill or Soil and does not contain potassium permanganate rich media may be re-used without restriction on-site (backfill, cover, etc.) or off-site. Part 375, DER-10 Appendix 5 is included in Appendix B.
- Soil that meets the Restricted Residential Use SCOs set forth in 6 NYCRR Part 375, DER-10 Appendix 5 for all constituents and does not contain potassium permanganate rich media may be re-used on-site without restriction (i.e., may be re-used on-site as cover material or backfill). Part 375, DER-10 Appendix 5 is included in Appendix B.
- Soil that exceeds Unrestricted Use SCOs set forth in 6 NYCRR Part 375, DER-10 Appendix 5 Allowable Constituent Levels for Imported Fill or Soil or contains potassium permanganate rich media may not be re-used off-site, unless first approved by the NYSDEC for re-use at a property with Institutional Control subject to a 6 NYCRR Part 360 Beneficial Use Determination. Part 375, DER-10 Appendix 5 is included in Appendix B.
- Soil that exceeds Restricted Residential Use SCOs set forth in 6 NYCRR Part 375, DER-10 Appendix 5 Allowable Constituent Levels for Imported Fill or Soil that is included in Appendix B or contains potassium permanganate rich media may be re-used on-site; however, it must be: 1) placed below the existing cover system; or 2) placed below a new cover system meeting NYSDEC requirements. The location where it is re-used must be documented.

In the event that building demolition material is proposed for re-use on-site, it will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be re-used on-site.

C-8 FLUIDS MANAGEMENT

Liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site unless approved by the NYSDEC, but will be managed off-site or appropriately treated and discharged on-site in accordance with applicable regulations.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a State Pollutant Discharge Elimination System (SPDES) permit.

C-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities, the cover system will be restored in a manner that complies with the ROD and SMP. The demarcation layer, consisting of CR2 Stone and/or orange snow fencing material or equivalent material will be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), as shown on Figure 14, this will constitute a modification of the cover element of the remedy and the upper surface of the 'Remaining Contamination. A figure showing the modified surface will be included in the subsequent PRR and in any updates to the SMP.

C-10 BACKFILL FROM OFF-SITE SOURCES

Materials proposed for import onto the Site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

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

Imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR Part 375, DER-10 Appendix 5 Allowable Constituent Levels for Imported Fill or Soil. Based on an evaluation of the land use and protection of ecological resources criteria, the resulting soil quality standards for imported backfill and cover soil at this Site are the Restricted Residential Use SCOs referenced in 6 NYCRR Part 375, DER-10 Appendix 5. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

C-11 STORMWATER POLLUTION PREVENTION

During activities that have the potential to encounter contaminated fill or soil, barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained by the Site owner and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

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

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

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

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

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

C-12 EXCAVATION CONTINGENCY PLAN

In the event that underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (Target Analyte List (TAL) metals; Target Compound List (TCL) VOCs and SVOCs, TCL pesticides and PCBs), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the PRRs prepared pursuant to Section 5 of the SMP.

C-13 COMMUNITY AIR MONITORING PLAN

The community air monitoring program (CAMP) is included in the HASP that has been developed for the Site (refer to Appendix D). The CAMP will be implemented during excavation at the Site beneath the cover system. The location of air monitoring based on generally prevailing wind conditions is shown in Figure 2 of Appendix D. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

C-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include limiting the extent of open excavations, the use of physical barriers or ventilation systems (i.e., in the event interior excavations are required), application of an odor suppressant (i.e., Biosolve or similar) or other methods deemed appropriate at the time of excavation. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of odor events and of any other complaints about the project. Implementation of odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

Necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

C-15 DUST CONTROL PLAN

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

- Dust suppression will be achieved through the use of a dedicated on-site water truck or other available water source of sufficient volume, for road wetting. The equipment will be capable of spraying water directly onto off-road areas including excavations and stockpiles.

- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.

- Gravel will be used on roadways to provide a clean and dust-free road surface.

- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

C-16 OTHER NUISANCES

The Site is currently improved with a cover system comprised primarily of a two foot thick layer of CR2 stone with some smaller areas of concrete slab and asphalt pavement. Under current Site conditions, Site clearing, Site grubbing and rodent control are not warranted. If Site conditions change, and if deemed warranted, a plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing

As necessary, a plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

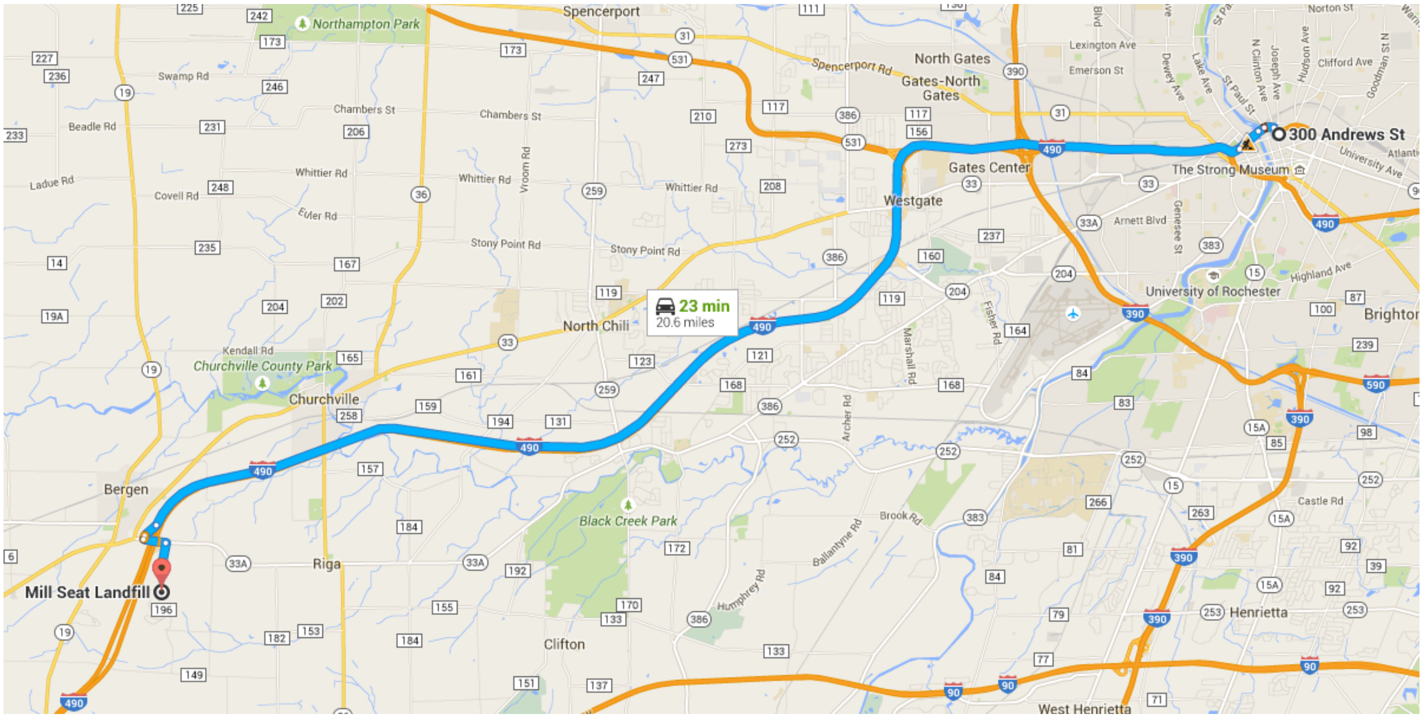
Attachment 1

Maps and Directions from the Site to Mill Seat and High Acres Landfills

Google

Drive 20.6 miles, 23 min

Directions from **300 Andrews St** to **Mill Seat Landfill**



300 Andrews St

Rochester, NY 14604

Get on **Inner Loop** from **N Clinton Ave** and **Cumberland St**

0.4 mi / 2 min

1. Head **west** on **Andrews St** toward **Bristol St**

   213 ft

2. Turn **right** onto **N Clinton Ave**

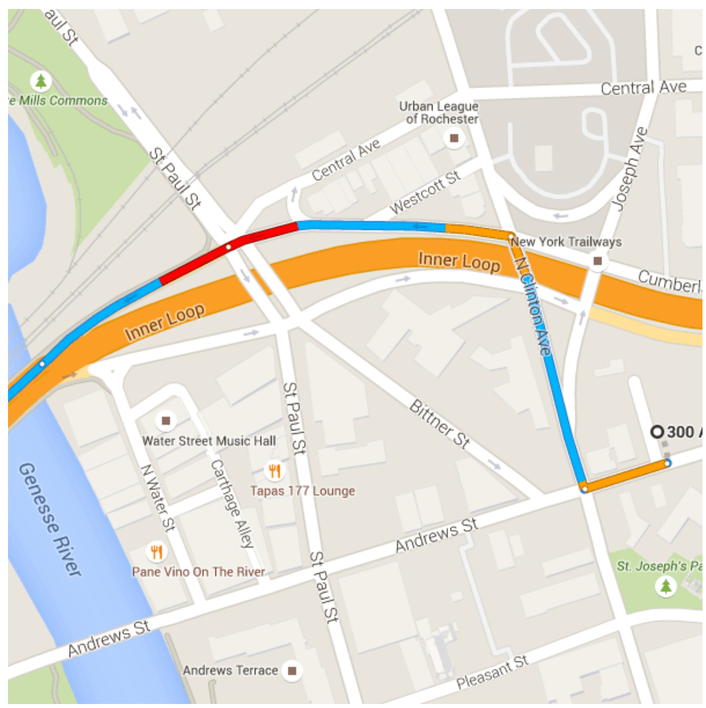
   0.1 mi

3. Turn **left** onto **Cumberland St**

   0.1 mi

4. Take the **Inner Loop W** ramp

   0.1 mi



Follow **I-490 W** to **NY-33A E** in Bergen. Take exit **2** from **I-490 W**

19.4 mi / 19 min

5. Merge onto **Inner Loop**

0.4 mi

6. Take the exit onto **I-490 W** toward **Buffalo**

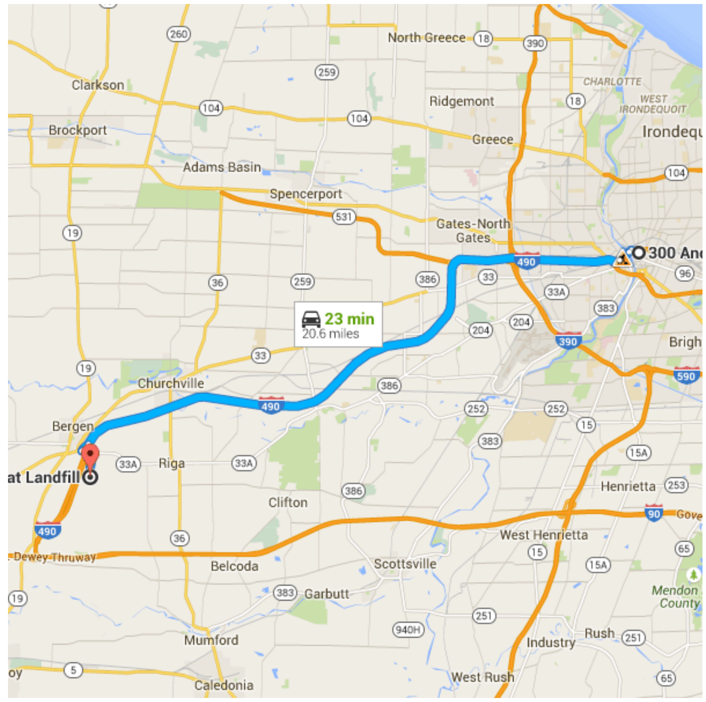
18.8 mi

7. Take exit **2** for **NY-33/New York 33 A** toward **Bergen/Batavia**

0.2 mi

8. Keep **left** at the fork, follow signs for **New York 33 a E**

279 ft



Drive to **Brew Rd** in Riga

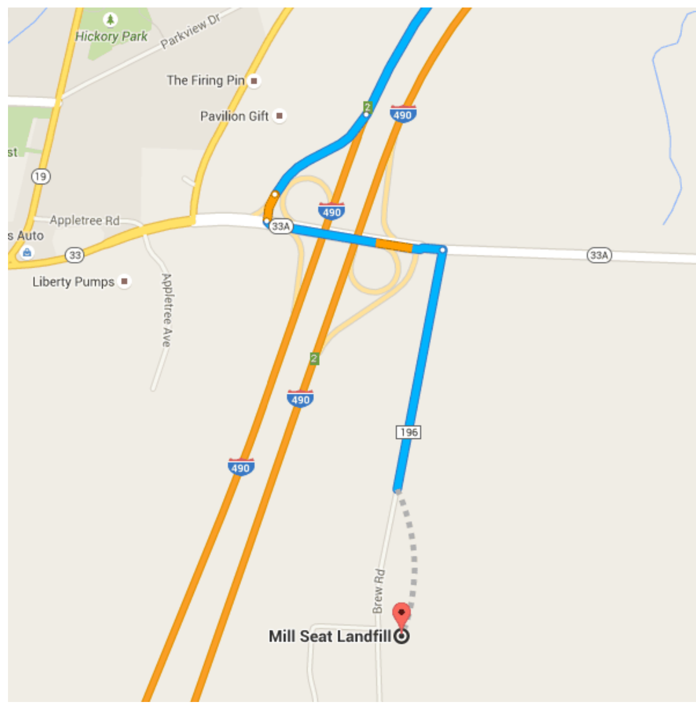
0.8 mi / 2 min

9. Turn **left** onto **NY-33A E**

0.3 mi

10. Turn **right** onto **Brew Rd**
Destination will be on the left

0.5 mi



Mill Seat Landfill

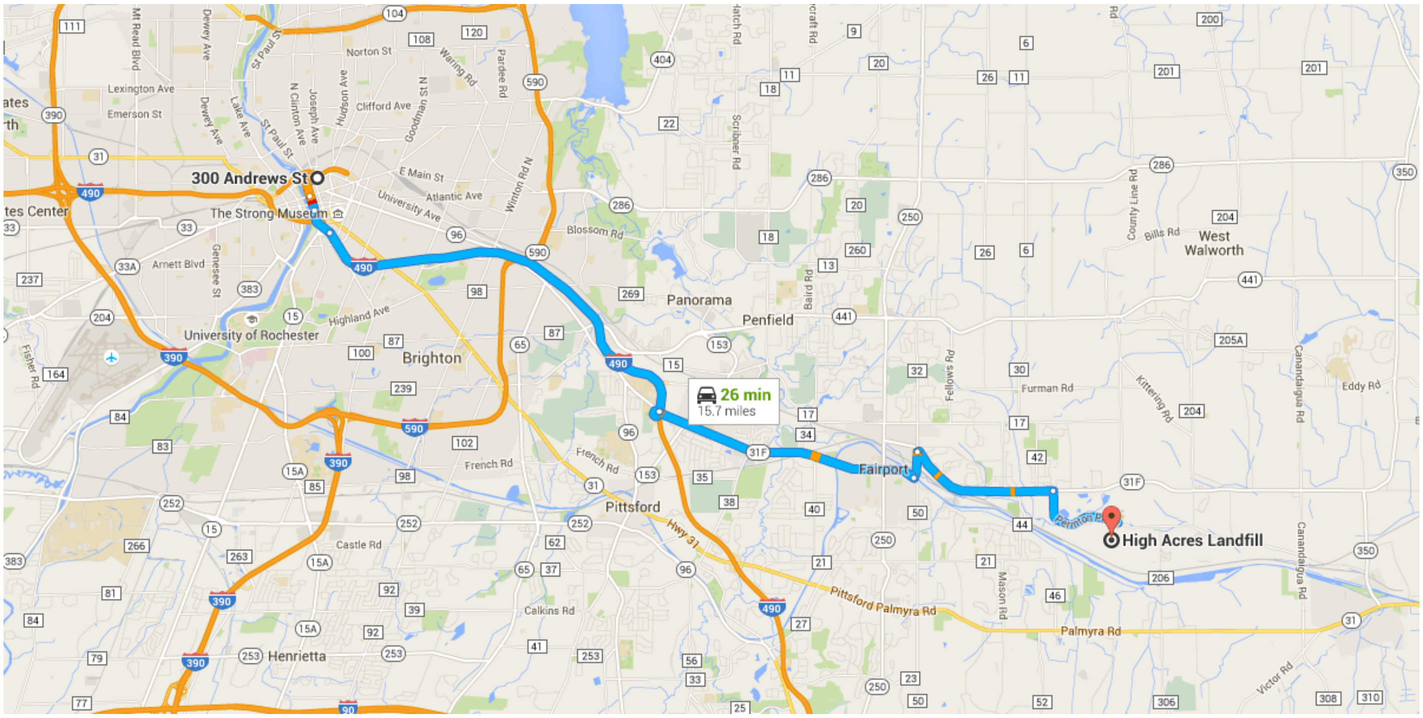
303 Brew Road, Bergen, NY 14416

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2015 Google

Drive 15.7 miles, 26 min

Directions from **300 Andrews St** to **High Acres Landfill**



300 Andrews St

Rochester, NY 14604

Take **St Paul St** and **South Ave** to **Rte 31 E/State 31 E**

0.6 mi / 3 min

1. Head **west** on **Andrews St** toward **Bristol St**

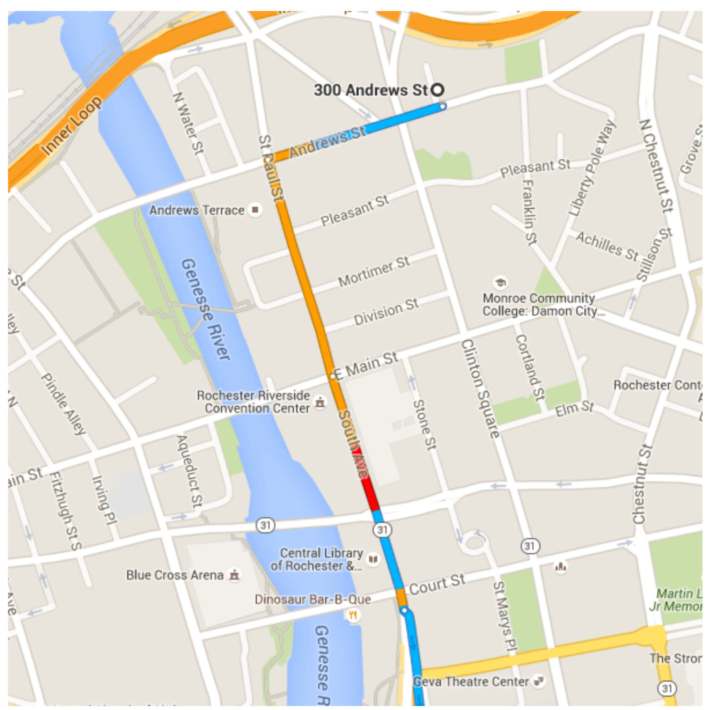
   0.2 mi

2. Turn **left** onto **St Paul St**

   0.2 mi

3. Continue onto **South Ave**

   0.2 mi



Take **I-490 E** to **NY-31F E** in Town of Pittsford. Take exit **25** from **I-490 E**

7.1 mi / 8 min

4. Slight **left** onto **Rte 31 E/State 31 E**

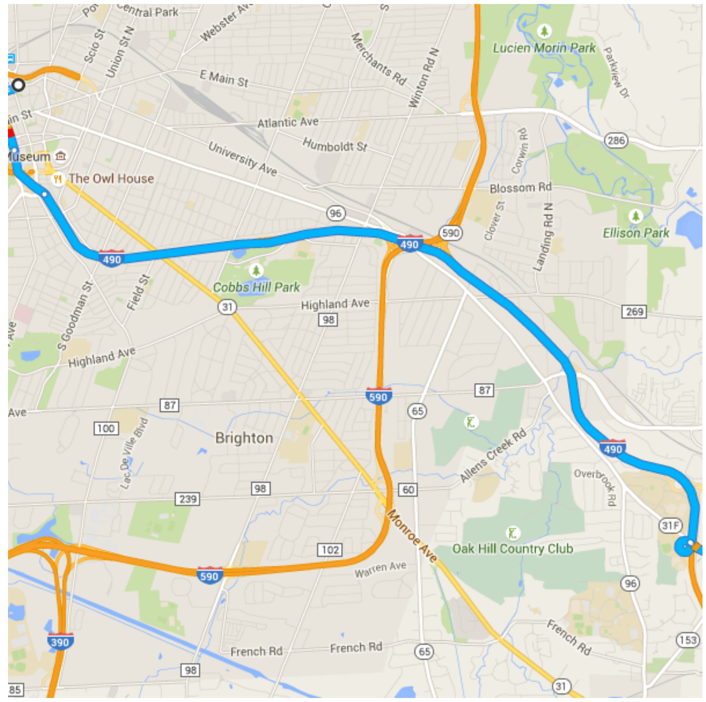
0.4 mi

5. Merge onto **I-490 E**

6.4 mi

6. Take exit **25** for **New York 31F E**

0.3 mi



Continue on **NY-31F E**. Drive to **Perinton Pkwy**

8.0 mi / 15 min

7. Merge onto **NY-31F E**

3.9 mi

8. Turn **left** onto **Turk Hill Rd**

0.4 mi

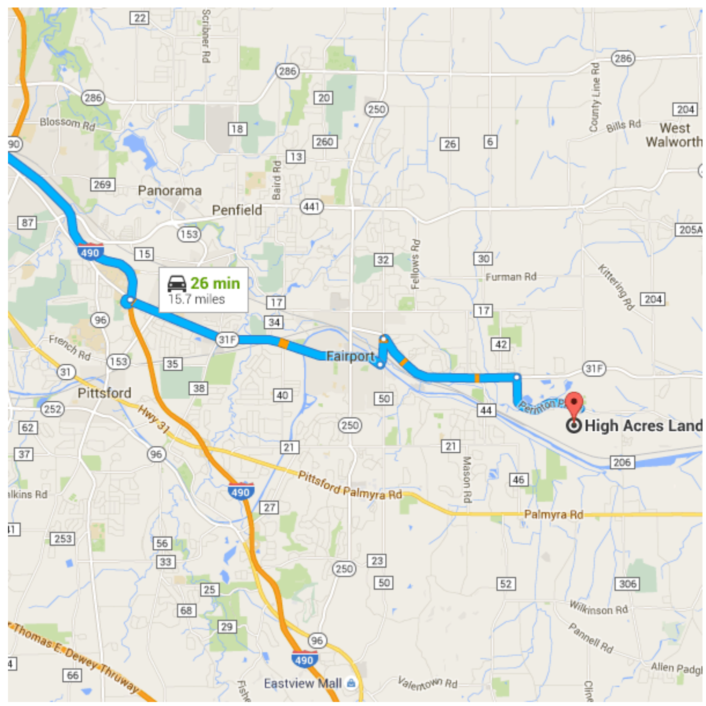
9. Sharp **right** onto **NY-31F E**

2.3 mi

10. Turn **right** onto **Perinton Pkwy**

Destination will be on the right

1.4 mi



High Acres Landfill

425 Perinton Parkway, Fairport, NY 14450

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2015 Google

Attachment 2

Request to Import/Reuse Fill or Soil Form

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e). Use of this form is not a substitute for reading the applicable Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that would pass a size 80 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

____________________________________ ________________

Signature Date

____

Print Name

____

Firm

APPENDIX D

Health and Safety Plan with Community Air Monitoring Plan

HEALTH AND SAFETY PLAN
FOR SITE MANAGEMENT PLAN

300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET
ROCHESTER, NEW YORK

NYSDEC SITE #E828144

Prepared for: City of Rochester
Division of Environmental Quality
30 Church Street, Room 300B
Rochester, New York, 14614-1278

Prepared by: Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

Project No.: 4355S-10

Date: July 2015

TABLE OF CONTENTS

ATTACHMENTS

1.0 INTRODUCTION

Day Environmental, Inc. (DAY) prepared this Health and Safety Plan (HASP) to outline the policies and procedures to protect workers and the public from potential environmental hazards during the work that has the potential to disturb residually impacted media. This project is being conducted under the New York State Department of Environmental Protection (NYSDEC) Environmental Restoration Program (ERP) for the City of Rochester (City). The subject Site is comprised of four parcels with a combined area of approximately 1.5 acres addressed as 300, 304-308, 320 Andrews Street and 25 Evans Street, City of Rochester, County of Monroe, New York (Site). Figure 1 included in Attachment 1 depicts the general location of the Site. Figure 2 included in Attachment 1 provides a site layout plan for the project.

Although the HASP focuses on the specific work activities most likely to be conducted at the Site, it must remain flexible due to the nature of this work. Conditions may change and unforeseen situations can arise that require deviations from the original HASP.

1.1 SITE HISTORY/OVERVIEW

The Site is bounded by the Inner Loop to the north, Andrews Street to the south, Franklin Square with a City-owned park beyond to the east, and Bristol Street with commercial property beyond to the west (see Figure 1). The Site also contains the former Evans Street right-of-way that was officially abandoned by the City in March 2013, and this former right-of-way was incorporated into the adjoining Site parcels.

Demolition of on-site structures was completed between the fall of 2010 and the spring of 2011. Prior to demolition, the Site was improved with four buildings with associated paved parking lots and city streets. The former buildings had a total floor area of approximately 38,349 square feet and consisted of single and two-story brick or concrete block buildings with partial basements and/or slab-on-grade construction, constructed between 1925 and 1965.

Previous environmental work included: Phase I Environmental Site Assessments; a Phase II Environmental Site Assessment; environmental investigation during building demolition work; a Remedial Investigation (RI); an initial phase of six interim remedial measures (IRMs); supplemental RI work and supplemental IRM work.

The initial phase of IRMs was completed to remove the majority of impacted soil from various source areas, including a large source area of Tetrachloroethene (i.e., Perchloroethene or PCE). The six IRM areas are shown on Figure 3, and are summarized as follows:

- IRM-01: Removal of approximately 1,812 tons of soil from a large source area contaminated with the chlorinated volatile organic compound (VOC) PCE.
- IRM-02: Removal of approximately 101 tons of soil contaminated with PCE that appears to have migrated away from IRM-01 along a former buried combined sewer system located in the former Evans Street right-of-way. The combined sewer was also decommissioned via trunk line removal and removal and/or capping of laterals.

IRM-03: Removal of two abandoned underground storage tanks (USTs) and approximately 49 tons of petroleum-contaminated soil.

IRM-04: Removal of approximately 20 tons of Polychlorinated Biphenyl (PCB)-contaminated soil.

IRM-05: Removal of approximately 223 tons of soil contaminated with VOCs, semi-volatile organic compounds (SVOCs) and metals from a former trench drain area.

IRM-06: Removal of approximately 210 linear feet of piping that contained sediments with some PCE contamination below NYSDEC soil criteria.

The supplemental IRMs were completed to remove an area of near-surface PCE-impacted soil south of IRM-01, to and remediate the PCE-impacted saturated zone in the central and north central portions of the Site. The supplemental IRM areas are shown on Figure 3 and Figure 4, and are summarized as follows:

Supplemental IRM Soil Removal: Removal of approximately 76 tons of soil contaminated with PCE from an approximate 0.0 feet (ft.) to 2.0 ft. depth interval at an area south of IRM-01 and west of the former Evans Street right-of-way.

Supplemental IRM ISCO: Injection of approximately 37,115 pounds of potassium permanganate into the subsurface at varying depth intervals ranging between 7 ft. and 32 ft. below ground surface (bgs) primarily in the overburden that had an average thickness of 11.73 ft. within the central and north central portions of the Site. This work was completed as an in-situ chemical oxidation (ISCO) remediation technique that was selected for the Site.

Subsequent to the IRMs, residual contaminants, including PCE and to a lesser degree other VOCs, some SVOCs and metals, remain in soil, fill, soil vapor and/or groundwater at the Site. These remaining contaminants are to be further remediated by residual potassium permanganate within the subsurface and/or addressed with institutional controls and engineering controls. Further information on locations and concentrations of contaminants are provided in the Site Management Plan (SMP).

1.2 PLANNED ACTIVITIES COVERED BY HASP

This HASP is intended to be used during on-site activities that have the potential to disturb subsurface media that contains residual contamination and/or residual potassium permanganate. Currently, identified activities include:

- Repairing the existing asphalt-paved, concrete covered, and soil cover system;
- Conducting intrusive work beneath the cover system (including work authorized with redevelopment of the Site); and
- Conducting long-term groundwater monitoring.

This HASP can be modified to cover other Site activities when appropriate. The owner of the Site, its contractors, and other site workers will be responsible for the development and/or implementation of health and safety provisions associated with normal construction activities or site activities.

2.0 KEY PERSONNEL AND MANAGEMENT

The Industrial Hygienist (IH), Project Manager (PM) and Site Safety Officer (SSO) are responsible for addressing health and safety requirements, and implementing the HASP.

2.1 INDUSTRIAL HYGIENIST

The IH has the overall responsibility for ensuring the HASP addresses health and safety concerns in the field that are associated with work that may come in contact with residual contamination and/or residual potassium permanganate. To the extent deemed warranted, the IH will visit the Site during certain activities to observe working conditions, and can make revisions to the HASP, personal protective equipment, monitoring, etc. for the protection of on-site personnel and the surrounding community when deemed necessary.

2.2 PROJECT MANAGER

The PM has the overall responsibility for the project and will coordinate with the IH and SSO to ensure that the goals of the project are attained in a manner consistent with the HASP requirements.

2.3 SITE SAFETY OFFICER

The SSO has responsibility for administering the HASP relative to Site activities, and will be in the field while activities are in progress. The SSO's operational responsibilities will be monitoring, including personal and environmental monitoring, ensuring personal protective equipment (PPE) maintenance and use, and identification of protection levels. The air monitoring data obtained by the SSO will be available in the field for review by the site owner, regulatory agencies, and other on-site personnel.

2.4 EMPLOYEE SAFETY RESPONSIBILITY

Each employee is responsible for personal safety as well as the safety of others in the area. Each employee will use the equipment provided in a safe and responsible manner as directed by the SSO.

2.5 KEY SAFETY PERSONNEL

The following individuals are anticipated to share responsibility for health and safety of DAY representatives at the Site.

DAY Industrial Hygienist	Nicholas J. Harding
DAY Project Manager	Jeffrey Danzinger
DAY Site Safety Officer	Samantha Shoemaker, Charles Hampton, or Nathan Simon

3.0 SAFETY RESPONSIBILITY

Contractors, consultants, state or local agencies including the site owner, or other parties, and their employees that enter the Site will be responsible for their own safety while on-site and must adopt this HASP to cover their own work, or prepare their own HASP that is as protective as this HASP and is reviewed by the NYSDEC and the New York State Department of Health (NYSDOH).

4.0 JOB HAZARD ANALYSIS

There are many hazards associated with environmental work on a Site, and this HASP discusses some of the anticipated hazards for this Site. The chemical, physical and environmental hazards listed below deal specifically with those hazards associated with the management of potentially contaminated media (e.g., soil, fill, groundwater) and residual potassium permanganate.

4.1 CHEMICAL HAZARDS

Chemical substances can enter the body by inhalation, skin absorption, ingestion, or injection (i.e., a puncture wound, etc.). A contaminant can cause damage at the point of contact or can act systemically, causing a toxic effect at a part of the body distant from the point of initial contact.

A list of selected constituents that have been detected at the Site and exceed soil or groundwater standards, criteria and guidance (SCG) values are presented below. This list also presents the Occupational Safety and Health Administration (OSHA) permissible exposure limits (PELs), National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs), and NIOSH immediately dangerous to life or health (IDLH) levels.

CONSTITUENT	OSHA PEL	NIOSH REL	IDLH
Tetrachloroethene (PCE)	100 ppm	Minimize workplace exposure concentrations	150 ppm
Trichloroethene (TCE)	100 ppm	25 ppm	1000 ppm
1,2-Dichloroethene	200 ppm	200 ppm	1000 ppm
Naphthalene	10 ppm	10 ppm	250 ppm
1,2,4-Trimethylbenezene	NA	25 ppm	NA
1,3,5-Trimethylbenezene	NA	25 ppm	NA
Benzene	1 ppm	0.1 ppm	500 ppm
Xylene	100 ppm	100 ppm	900 ppm
Benzo(a)anthracene[1]	0.2 mg/m^3	0.1 mg/m^3	80 mg/m^3
Benzo(a)pyrene[1]	0.2 mg/m^3	0.1 mg/m^3	80 mg/m^3
Benzo(b)fluoranthene[1]	0.2 mg/m^3	0.1 mg/m^3	80 mg/m^3
Chrysene[1]	0.2 mg/m^3	0.1 mg/m^3	80 mg/m^3
PCBs	0.5 mg/m^3	0.001 mg/m^3	5 mg/m^3
Arsenic	0.01 mg/m^3	0.002 mg/m^3	5 mg/m^3
Barium	0.5 mg/m^3	0.5 mg/m^3	50 mg/m^3
Cadmium	0.005 mg/m^3	NA	9 mg/m^3
Copper	1 mg/m^3	1 mg/m^3	100 mg/m^3
Lead	0.05 mg/m^3	0.05 mg/m^3	100 mg/m^3
Mercury	0.1 mg/m^3	0.05 mg/m^3	10 mg/m^3

CONSTITUENT	OSHA PEL	NIOSH REL	IDLH
Selenium	0.2 mg/m^3	0.2 mg/m^3	1 mg/m^3
Silver	0.01 mg/m^3	0.01 mg/m^3	10 mg/m^3
Zinc	5 mg/m^3	5 mg/m^3	500 mg/m^3

NA = Not Available [1] As coal Tar Pitch ppm = parts per million mg/m^3 = milligram per meter cubed

The potential routes of exposure for these constituents include inhalation, ingestion, skin absorption and/or skin/eye contact, which are dependent on the activity being conducted. The most likely routes of exposure for the activities that are to be performed during environmental activities at the Site include inhalation and skin/eye contact.

4.1.1 Potassium Permanganate

Potassium permanganate rich soil, fill or water that are purple or pink in color may be encountered during intrusive activities at the Site. Anyone handling Site media that contains residual potassium permanganate should read and understand each element and section of the vendor's current Material Safety Data Sheet (MSDS). A copy of Hepure's MSDS for potassium permanganate ($KMnO_4$) is included in Attachment 2.

Potassium permanganate was used for ISCO of the generally saturated overburden zone on the portion of the Site that was contaminated with chlorinated VOCs primarily consisting of PCE. The MSDS includes specific sections for first aid measures, fire-fighting measures, accidental release measures, handling and storage measures, exposure controls and personal protection. Physical and chemical properties, stability and reactivity, toxicological information, ecological information, disposal considerations, transportation information and regulatory information for potassium permanganate are also included on the MSDS. Additional information on generally pure potassium permanganate is summarized below.

Physical and Chemical Properties (See MSDS)

Potassium permanganate is a strong oxidizer that is an odorless, dark purple solid with a metallic luster. It is non-flammable, has a specific gravity of 2.7 at 68^{o}F, and has a bulk density ranging between 1.45 to 1.6 kilograms per liter (kg/l). At 68^{o}F and 154^{o}F, its solubility in water is 6% and 20%, respectively.

Stability and Reactivity (See MSDS)

Potassium permanganate is stable under normal temperatures and pressures, and will decompose with evolution of oxygen (O_2) at temperatures above 302^{o}F. Once decomposition starts, it can result in a violent and self-sustaining exothermic reaction. As such, potassium permanganate should be stored/used at temperatures below 302^{o}F.

Potassium permanganate is incompatible with acids, formaldehyde, antifreeze, hydraulic fluids, combustible organic materials, and oxidizable inorganic materials including metal powders. Extra care with high concentration permanganate solutions are required since contact with combustibles (cotton, paper, products, and other organic materials) may cause a spontaneous fire. Potassium permanganate must be stored away from gasoline, diesel fuel, ethylene glycol, hydraulic fluids, motor oil, or greases, since contact with these incompatible materials could initiate combustion and/or exothermic reaction. If potassium permanganate comes in contact with hydrochloric acid, chorine gas is released.

If solid potassium permanganate is heated to temperatures above approximately 300^{o}F, it can spontaneously decompose and release oxygen that can support an existing fire or potentially initiate combustion. To minimize any potential adverse reactions of potassium permanganate rich media, the following procedures and practices will be implemented:

- Maintain a current MSDS at all times.
- Require personnel who may come in contact with potassium permanganate rich media to review the current MSDS;
- Do not store potassium permanganate rich media near fuels or other potentially reactive materials;
- Do not store potassium permanganate rich media near a heat source.

The above precautionary measures apply to the solid form and liquid solutions of potassium permanganate.

<u>Routes of Exposure and Toxicity (See MSDS)</u>

Routes of exposure to potassium permanganate rich media include inhalation, skin and eye contact, and ingestion. Inhalation can cause respiratory disorders, coughing, and central nervous system damage from manganese poisoning. Contact of high concentrations of potassium permanganate rich media with skin or eyes can result in severe irritation and burns, brown staining of the skin, and temporary or permanent vision loss. Ingestion may result in: nausea, vomiting, sore throat and stomach pain when involving up to 1% concentrations; swelling of the throat and possible suffocation when involving 2% to 3% concentrations; and damage to kidneys when involving 4% or higher concentrations. Damage to the intestines and liver can also occur. Potassium permanganate is not classified as a carcinogen.

<u>Exposure Limits (See MSDS)</u>

The OSHA PEL, the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value-Time Weighted Average (TLV-TWA) concentration limit for a normal 8-hour workday and a 40-hour workweek to which workers may be repeatedly exposed, day after day, without adverse effect, and the OSHA IDLH for potassium permanganate are provided below.

CONSTITUENT	OSHA PEL	ACGIH TLV-TWA	IDLH
Potassium Permanganate	5 mg/m^3 (as Mn)	0.2 mg/m^3 as Mn	500 mg/m^3 (as Mn)

Mn = manganese

Neutralizing Potassium Permanganate (See MSDS)

Potassium permanganate rich media (i.e., soil, fill and groundwater) is anticipated to exist within select portions of the Site. Potassium permanganate rich media that is encountered during Site activities that cannot be re-used will be neutralized and diluted in order to ensure a safe working environment. In addition, excess potassium permanganate rich media located on equipment, rinse water from containers, or other activities where excess potassium permanganate rich media is generated will also require neutralization.

Neutralizing solution shall only be applied to diluted potassium permanganate in order to prevent any adverse reaction. Undiluted dry potassium permanganate will be transferred to a drum or other compatible container, diluted with water until the dry potassium permanganate crystals are dissolved, and then neutralized. Liquid potassium permanganate spills, or stains shall be contained or collected, and then neutralized.

Aqueous solutions of potassium permanganate can be neutralized using sodium thiosulfate ($Na_2S_2O_3$), refer to MSDS in Attachment 2, that result in the following reaction.

$$8\ KMnO_4 + 3\ Na_2S_2O_3 + H2O = 3\ K_2SO_4 + 3\ Na_2SO_4 + 8\ MnO_2 + 2\ KOH$$

As shown, the stoichiometric weight ratio is 0.375 parts $Na_2S_2O_3$: 1 part $KMnO_4$

Minor splashes and spills of potassium permanganate can be neutralized by spray applying a mixture of one part vinegar, one part water, and one part 3% hydrogen peroxide. The MSDS' for vinegar and hydrogen peroxide are included in Attachment 2.

Other neutralizers include bisulfite and ferrous salt solutions, which may require some dilute sulfuric acid to promote reduction. If sulfuric acid is used, it must later be neutralized with sodium bicarbonate.

4.2 PHYSICAL HAZARDS

There are physical hazards associated with this Site. Hazard identification, training, adherence to the standard operating procedures associated with implementing the planned scope of work, and proper housekeeping can prevent incidents caused by physical hazards. Potential physical hazards associated with this project and suggested preventative measures include:

- Slip/Trip/Fall Hazards - Some areas may have wet or frozen surfaces that will greatly increase the possibility of inadvertent slips. Caution must be exercised when using steps and stairs due to slippery surfaces. Good housekeeping practices are essential in minimizing the trip hazards.
- Small Quantity Flammable Liquids - Small quantities of flammable liquids will be stored in "safety" cans and properly labeled. Fuels and oils must be stored away from potassium permanganate storage areas.
- Electrical Hazards - Electrical devices and equipment shall be de-energized prior to working near them. All extension cords will be kept out of water, protected from crushing, and observed regularly to ensure structural integrity. Temporary electrical circuits will be protected with ground fault circuit interrupters. Only qualified electricians are authorized to work on electrical circuits. Heavy equipment (e.g., excavator, backhoe, drill rig) shall not be operated within 10 feet of high voltage lines, unless proper protection from the high voltage lines is provided by the appropriate utility company.

- Noise - Large equipment often creates excessive noise. The effects of noise can include:
  - Workers being startled, annoyed, or distracted.
  - Physical damage to the ear resulting in pain, or temporary and/or permanent hearing loss.
  - Communication interference that may increase potential hazards due to the inability to warn of danger and proper safety precautions to be taken.

  Engineering controls will be used to the extent possible. Proper hearing protection will be made available to on-site workers. For most work, exposure to noise exceeding an 8-hour TWA sound level of 85 decibels on the A-weighted scale (dBA) is not anticipated. However, whenever noise exposures equal or exceed an 8-hour TWA sound level of 85 dBA, the employers of the specific workers shall administer a continuing, effective hearing conservation program as described in the OSHA Regulation 29 Code of Federal Rules (CFR) Part 1910.95.

- Heavy Equipment - Each morning before start-up, heavy equipment will be checked to ensure safety equipment and devices are operational and ready for immediate use.

- Subsurface and Overhead Hazards - Before any intrusive activity, efforts will be made to determine whether underground utilities and potential overhead hazards will be encountered. Underground utility clearance must be obtained prior to subsurface work.

4.3 ENVIRONMENTAL HAZARDS

Environmental factors such as weather, wild animals, insects, snakes and irritant plants can pose a hazard when performing outdoor tasks. The SSO shall make reasonable efforts to alleviate these hazards should they arise.

4.3.1 Heat Stress

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. In particular:

- Heat rash
- Heat cramps
- Heat exhaustion
- Heat stroke

Site workers will be encouraged to increase consumption of water or electrolyte-containing beverages such as Gatorade® when the potential for heat stress exists. In addition, workers are encouraged to take rests whenever they feel any adverse effects that may be heat-related. The frequency of breaks may need to be increased upon worker recommendation to the SSO.

4.3.2 Exposure to Cold

With outdoor work in the winter months, the potential exists for hypothermia and frostbite. Protective clothing greatly reduces the possibility of hypothermia in workers. However, personnel will be instructed to wear warm clothing and to stop work to obtain more clothing if they become too cold. Employees will also be advised to change into dry clothes if their clothing becomes wet from perspiration or from exposure to precipitation.

5.0 SITE CONTROLS

In order to prevent migration of contamination or remediation products (i.e., potassium permanganate rich media) through tracking by personnel or equipment, work areas and personal protective equipment staging/decontamination areas will be specified prior to beginning operations. A chain link perimeter fence system with locked gates is present at the Site (refer to Figure 2). Distribution of keys to the locked gates will be the responsibility of the Site owner in order to control access to the Site.

5.1 SITE CONTROL ZONES

In the area where contaminated materials present the potential for worker exposure (work zone), personnel entering the area must wear the mandated level of protection for the area. A "transition zone" shall be established where personnel can begin personal and equipment decontamination procedures. This can reduce potential off-site migration of contaminated media and/or potassium permanganate rich media. Contaminated equipment or clothing will not be allowed outside the transition zone (e.g., on clean portions of the Site) unless properly containerized for disposal. Operational support facilities will be located outside the transition zone (i.e., in a "support zone"), and normal work clothing and support equipment are appropriate in this area. If possible, the support zone should be located upwind of the subsurface activities.

5.2 GENERAL

The following items will be requirements to protect the health and safety of workers during implementation of activities that disturb contaminated material.

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and ingestion of contamination shall not occur in the work zone and/or transition zone during disturbance of contaminated material or activities involving potassium permanganate or other hazardous chemicals.
- Personnel admitted in the work zone and transition zone shall be properly trained in health and safety techniques and equipment usage in accordance with applicable OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations referenced in 29 CFR 1910.120 and 29 CFR 1926.65.
- No personnel shall be admitted in the work zone without the appropriate PPE (refer to Section 6.0 – Protective Equipment).
- Proper decontamination procedures shall be followed before entering the support zone and leaving the Site.

6.0 PERSONAL PROTECTIVE EQUIPMENT

This section addresses the various levels of PPE, which are or may be required at this job site. Personnel entering the work zone and transition zone shall be trained in the use of the anticipated PPE to be utilized.

6.1 ANTICIPATED PROTECTION LEVELS

The following table summarizes the protection levels (refer to Section 6.2) anticipated for tasks to be implemented during this project.

TASK	PROTECTION LEVEL	COMMENTS/MODIFICATIONS
Site Preparation and Mobilization	D	
Handling of potassium permanganate rich media	B/C/Modified D	Based on air monitoring, and SSO discretion
Extrusive work (e.g., surveying, etc.)	D	
Intrusive work (e.g., soil excavation, etc.)	C/Modified D/D	
Support Zone	D	
Site breakdown and demobilization	D	

It is anticipated that most work conducted as part of this project will be performed in Level D or modified Level D PPE. In some instances involving potassium permanganate rich media the contractor may be required to respond in level C or level B PPE. Conditions requiring Level A PPE are not anticipated.

6.2 PROTECTION LEVEL DESCRIPTIONS

This section lists the minimum requirements for each protection level. Modifications to these requirements can be made upon approval of the SSO. If Level A, Level B or Level C PPE is required, Site personnel that enter the work zone and/or transition zone must be properly trained and certified in the use of those levels of PPE in accordance with applicable OSHA HAZWOPER regulations referenced in 29 CFR 1910.120 and 29 CFR 1926.65.

6.2.1 Level D

Level D consists of the following:

- Safety glasses
- Hard hat when working near heavy equipment

- Steel-toed or composite-toed work boots
- Protective gloves during sampling or handling of potentially contaminated and/or potassium permanganate rich media
- Work clothing as prescribed by weather

6.2.2 Modified Level D

Modified Level D consists of the following:

- Safety glasses with side shields
- Hard hat when working with heavy equipment
- Steel-toed or composite-toed work boots
- Nitrile, latex, neoprene, or polyvinyl chloride (PVC) overboots
- Protective gloves during sampling or handling of potentially contaminated and/or potassium permanganate rich media
- Face shield (when projectiles or splashes pose a hazard)
- Chemical resistant clothing, such as poly-coated Tyvek or Saranex coverall with attached hoods, booties and elastic wrist bands.

6.2.3 Level C

Level C consists of the following:

- Half face air-purifying respirator and face shield, or full-face air-purifying respirator, with combination organic vapor/high-efficiency particulate air (HEPA) filter cartridges
- Chemical resistant clothing, such as poly-coated Tyvek or Saranex coverall with attached hoods, booties and elastic wrist bands
- Hard hat when working with heavy equipment
- Steel-toed or composite-toed work boots
- Nitrile, neoprene, or PVC overboots
- Inner Nitrile or latex gloves,
- Outer Nitrile, neoprene, or PVC gloves

6.2.4 Level B

Level B protection consists of the items required for Level C protection with an air-supplied respirator used in lieu of an air-purifying respirator. Level B PPE is not anticipated to be required for this Site.. If Level B protection becomes warranted, activities in the affected area will be stopped until conditions are further evaluated, and any necessary modifications to the HASP have been approved by the IH, PM and SSO. Subsequently, the appropriate safety measures (including Level B PPE) must be implemented prior to commencing activities in the affected area.

6.2.5 Level A

Level A protection consists of the items required for Level B protection with the addition of a fully-encapsulating, vapor-proof suit capable of maintaining positive pressure. Level A PPE is also not anticipated to be required during this project. If Level A protection becomes warranted, activities in the affected area will be stopped until conditions are further evaluated, and any necessary modifications to the HASP have been approved by the IH, PM and SSO. Subsequently, the appropriate safety measures (including Level A PPE) must be implemented prior to commencing activities in the affected area.

6.3 RESPIRATORY PROTECTION

Any use of respiratory protection will be in accordance with the requirements of the OSHA 29 CFR 1910.134. Air purifying respirators shall not be worn if contaminant levels exceed designated use concentrations. The workers will wear respirators with approval for: organic vapors <1,000 ppm; and dusts, fumes and mists with a TWA < 0.05 mg/m^3.

No personnel who have facial hair, which interferes with respirator sealing surface, will be permitted to wear a respirator and will not be permitted to work in areas requiring respirator use.

Only workers who have been certified by a physician as being physically capable of respirator usage shall be issued a respirator. Personnel unable to pass a respiratory fit test or without medical clearance for respirator use will not be permitted to enter or work in areas that require respiratory protection.

7.0 DECONTAMINATION PROCEDURES

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination and potassium permanganate rich media when they leave the work site.

7.1 PERSONNEL DECONTAMINATION

Personnel involved with activities associated with disturbing contaminated media and/or and potassium permanganate rich media will follow the decontamination procedures described herein to ensure that material which workers may have contacted in the work zone and/or transition zone does not result in personal exposure and is not spread to clean areas of the Site. This sequence describes the general decontamination procedure. The specific stages can vary depending on the Site, the task, and the protection level, etc.

1. Leave work zone and go to transition zone
2. Neutralize any potassium permanganate contaminated PPE (refer to Section 4.1.1)
3. Remove soil/debris from boots and gloves
4. Remove boots
5. Remove gloves
6. Remove Tyvek suit and discard, if applicable
7. Remove and wash respirator, if applicable
8. Go to support zone

7.2 EQUIPMENT DECONTAMINATION

Impacted equipment from site contaminants or potassium permanganate shall be decontaminated in the transition zone before leaving the Site. Decontamination procedures can vary depending upon the contaminant involved, buy may include neutralization of potassium permanganate, sweeping, wiping, scraping, hosing or steam cleaning. Personnel performing this task will wear the proper PPE.

7.3 DISPOSAL

Disposable protective clothing will be disposed in accordance with applicable regulations. Liquids (e.g., decontamination water, etc.) or solids (e.g., soil) generated by intrusive activities will be disposed in accordance with applicable regulations.

8.0 AIR MONITORING

During intrusive activities that have the potential to disturb contaminated soil/fill or potassium permanganate rich soil/fill impacted media beneath the cover system, air monitoring will be conducted in order to determine airborne particulate and VOC levels. Air monitoring will be conducted in order to determine airborne VOC levels, but not particulates, during activities that have the potential to disturb contaminated groundwater. This ensures that respiratory protection is adequate to protect personnel against the chemicals that are encountered and that chemical contaminants are not migrating off-site. Additional air monitoring may be conducted at the discretion of the SSO. VOC and particulate readings will be recorded daily and will be available for NYSDEC and NYSDOH personnel to review.

The following chart describes the direct reading instrumentation that will be utilized and appropriate action levels.

Monitoring Device	Action level	Response/Level of PPE
PID Volatile Organic Compound Meter	< 25 ppm in breathing zone	Level D
	25-100 ppm in breathing zone	Cease work, implement vapor suppression techniques such as application of BioSolve. If levels are not reduced below 25 ppm in the breathing zone, then upgrade PPE to Level C.
	>100 ppm in breathing zone	Level A, Stop work, evaluate the use of engineering controls, etc. If levels are not reduced below 100 ppm in the breathing zone, then upgrade PPE to Level A or Level B.
RTAM Particulate Meter	< 100 ug/m^3 (i.e., < 0.1 mg/m^3) over an integrated period not to exceed 15 minutes.	Continue working
	> 100 ug/m^3 over an integrated period not to exceed 15 minutes.	Cease work, implement dust suppression, change in way work performed, etc. If levels are not reduced below 150 ug/m^3, then upgrade PPE to Level C.

PID = Photoionization detector RTAM = Real Time Aerosol Monitor ug/m^3 = microgram per meter cubed

8.1 PARTICULATE MONITORING

During activities where contaminated soil fill or potassium permanganate rich soil or fill may be disturbed, air monitoring will include real-time monitoring for particulates using a RTAM particulate meter at the perimeter of the work zone in accordance with the Final Division of Environmental Remediation-10 (DER-10) Technical Guidance for Site Investigation and Remediation dated May 2010. DER-10 uses an action level of 100 ug/m^3 (0.10 mg/m^3) over background conditions for an integrated period not to exceed 15 minutes. [Note: The ACGIH TLV-TWA for potassium permanganate (as Mn) is 0.2 mg/m^3. As such, the particulate action level of 100 ug/m^3 (or 0.1 mg/m^3) is protective of this ACGIH TLV-TWA.] Levels of particulates will periodically be measured in the air at active work areas within the work zone, and at the transition zone when levels are detected above background in the work zone. If the action level is exceeded, or if visible dust is observed leaving the work site, then work shall be discontinued until corrective actions are implemented. Corrective actions may include dust suppression, change in the way work is performed, and/or upgrade of personal protective equipment. Readings will be recoded and be available for review.

8.2 VOLATILE ORGANIC COMPOUND MONITORING

During activities in which impacted media (e.g., soil, fill, groundwater) beneath the cover system may be disturbed, a PID will be used to monitor total VOCs in the ambient air. The PID will prove useful as a direct reading instrument to aid in determining if current respiratory protection is adequate or needs to be upgraded. The SSO will take background measurements before operations begin in an area to determine the amount of VOCs naturally occurring in the air. Levels of VOCs will periodically be measured in the air at active work areas within the work zone, and at the transition zone when levels are detected above background at the perimeter of the work zone.

8.3 COMMUNITY AIR MONITORING PLAN

During all intrusive activities, this Community Air Monitoring Plan (CAMP) will be implemented. The CAMP includes real-time monitoring for VOCs and particulates (i.e., dust) at the downwind perimeter of each designated work area when activities with the potential to release VOCs or dust are being conducted at the Site. This CAMP is based on the NYSDOH Generic CAMP included as Appendix 1A of the NYSDEC document titled *"DER-10, Technical Guidance for Site Investigation and Remediation"* dated May 2010. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of project activities. An upwind background station will be established at the beginning of the day and monitored throughout the day to verify the location is upwind. In the event wind direction changes, a subsequent background location will be established and monitored, and the change in wind direction will be noted. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air. Reliance on the CAMP should not preclude simple, common sense measures to keep VOCs, dust, and odors at a minimum around, and downwind of, the work areas.

Continuous monitoring will be conducted during all ground intrusive activities involving remediation chemicals (e.g., potassium permanganate) or potentially contaminated soil, fill material or groundwater. Ground intrusive activities include, but are not limited to installation of buried utilities, soil excavation, repairs to the cover system, etc.

Periodic monitoring for VOCs will be conducted during non-intrusive activities involving potentially contaminated soil, fill material or groundwater where deemed appropriate (e.g., during groundwater sampling, management of derived wastes, etc.).

VOC and particulate 15-minute readings, and instantaneous readings (if collected), will be recorded daily and will be available for NYSDEC and NYSDOH personnel to review.

8.3.1 VOC Monitoring, Response Levels, and Actions

VOCs must be monitored at the downwind perimeter of the immediate work area (i.e., areas within the work zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or work zone exceeds 5 ppm above background for the 15-minute average, work activities must be temporarily halted and monitoring must be continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or work zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source or vapors identified, corrective actions taken to abate emissions (e.g., application of BioSolve), and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the work zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less (but in no case less than 20 feet), is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the Site, activities must be shutdown.

8.3.2 Particulate Monitoring, Response Levels, and Actions

Particulate concentrations must be monitored continuously at the upwind and downwind perimeters of the Site at temporary particulate monitoring stations. The particulate monitoring must be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during work activities.

- If the downwind PM-10 particulate level is 100 ug/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 ug/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within

150 ug/m^3 of the upwind level and in preventing visible dust migration.

The following chart summarizes the direct reading instrumentation and appropriate action levels that will be utilized during CAMP monitoring.

Monitoring Device	CAMP Action level	Response/Level of PPE
PID Volatile Organic Compound Meter	< 5 ppm at Site perimeter, over an integrated period not to exceed 15 minutes.	Continue work.
	5-25 ppm at Site perimeter over an integrated period not to exceed 15 minutes.	Stop work, identify vapor source, take corrective actions, and continue monitoring. Resume work if <5 ppm for 15-minute average at 200 feet downwind or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less (but in no case <20 feet).
	>25 ppm at Site perimeter.	Stop work, further evaluate the use of engineering controls, etc.
RTAM Particulate Meter	< 100 ug/m^3 over an integrated period not to exceed 15 minutes, and no observable dust leaving the work area.	Continue working.
	> 100 ug/m^3 over an integrated period not to exceed 15 minutes, or if observable dust leaving the work area.	Cease work, implement dust suppression, change in way work performed, etc. Resume work if levels brought below 150 ug/m^3 above background and no visible dust leaving the work area.

9.0 EMERGENCY CONTINGENCY PLAN

This section presents the Emergency Contingency Plan (ECP) describing the procedures to be performed in the event of an emergency (e.g., fire, spill, tank/drum release, etc.).

Supplemental emergency procedures that are specific to potassium permanganate and related neutralization chemicals are included on the potassium permanganate MSDS in Attachment 2.

To provide first-line assistance to field personnel in the case of illness or injury, the following items will be made immediately available on the Site:

- First-aid kit;
- Portable emergency eye wash; and
- Supply of clean water.

9.1 EMERGENCY TELEPHONE NUMBERS

The following telephone numbers are listed in case there is an emergency at the Site:

Fire/Police Department:	911
City Fire Safety:	(585) 428-7037
Poison Control Center:	(800) 222-1222
NYSDEC	
Charlotte Theobald	(585) 226-5354
Spills Hotline	1-800-457-7362
NYSDOH	
Melissa Doroski	(518) 402-7860
Monroe County Department of Health (MCDPH)	
John J. Frazer, P.E.	(585) 753-5476
Monroe County Office of Emergency Management (MCOEM)	
Frederick J. Rion, Jr.	(585) 753-3810
CITY OF ROCHESTER	
Joseph Biondolillo	(585) 428-6649; (585) 314-1617 (cell)
Dennis Peck	(585) 428-6884; (585) 469-6372 (cell)
DAY ENVIRONMENTAL, INC.	
Jeffrey Danzinger	(585) 454-0210 x114; (585) 967-2803 (cell)
Nicholas Harding	(585) 454-0210 x114
Nearest Hospital	Highland Hospital 1000 South Avenue, Rochester, NY 14620 (585) 473-2200 (Main), (585) 341-6880 [Emergency Medical Services (EMS)]

Directions to the Hospital:	Turn west on Andrews Street toward Bristol Street. Proceed approximately 0.2 miles on Andrews Street, then turn left onto St. Paul Street. Proceed approximately 0.2 miles on St. Paul Street, which then becomes South Avenue. Proceed approximately 1.5 miles on South Avenue, then turn left into Highland Hospital. Follow signs to EMS (Refer to Figure 1).

9.2 EVACUATION

During activities involving potential disturbance of contaminated soil, fill material, or groundwater, a log of each individual entering and leaving the Site will be kept for emergency accounting practices. Although unlikely, it is possible that a site emergency could require evacuating personnel from the Site. If required, the SSO will give the appropriate signal for site evacuation (i.e., hand signals, alarms, etc.).

All personnel shall exit the Site and shall congregate in an area designated by the SSO. The SSO shall ensure that all personnel are accounted for. If someone is missing, the SSO will alert emergency personnel. The appropriate government agencies will be notified as soon as possible regarding the evacuation, and any necessary measures that may be required to mitigate the reason for the evacuation.

9.3 MEDICAL EMERGENCY

In the event of a medical emergency involving illness or injury to one of the on-site personnel, EMS and the appropriate government agencies should be notified immediately. The area in which the injury or illness occurred shall not be entered until the cause of the illness or injury is known. The nature of injury or illness shall be assessed. If the victim appears to be critically injured, administer first aid and/or cardio-pulmonary resuscitation (CPR) as needed. If appropriate, instantaneous real-time air monitoring shall be done in accordance with air monitoring outlined in Section 8.0 of this HASP.

9.4 CONTAMINATION EMERGENCY

It is unlikely that a contamination emergency will occur; however, if such an emergency does occur, the specific work area shall be shut down and immediately secured. If an emergency rescue is needed, notify Police, Fire Department, MCOEM, and EMS units immediately. Advise them of the situation and request an expedient response. The appropriate government agencies shall be notified immediately. The area in which the contamination occurred shall not be entered until the arrival of trained personnel who are properly equipped with the appropriate PPE and monitoring instrumentation as outlined in Section 8.0 of this HASP.

9.5 FIRE EMERGENCY

In the event of a fire on-site, all non-essential site personnel shall be evacuated to a safe, secure area. The Fire Department will be notified immediately, and advised of the situation and the identification of any hazardous materials involved. The appropriate government agencies shall be notified as soon as possible.

The four classes of fire along with their constituents are as follows:

Class A:	Wood, cloth, paper, rubber, many plastics, and ordinary combustible materials.
Class B:	Flammable liquids, gases and greases.
Class C:	Energized electrical equipment.
Class D:	Combustible metals such as magnesium, titanium, sodium, potassium.

NOTE: Fires involving potassium permanganate should only be extinguished using water. DO NOT use dry chemicals, carbon dioxide (CO_2), Halon®, or foams.

Small fires on-site may be actively extinguished; however, extreme care shall be taken when performing this operation. Approaches to the fire shall be done from the upwind side if possible. Distance from on-site personnel to the fire shall be close enough to ensure proper application of the extinguishing material, but far enough away to ensure that the personnel are safe. The proper extinguisher shall be utilized for the Class(s) of fire present on the site. If possible, the fuel source shall be cut off or separated from the fire. Care must be taken when performing operations involving the shut-off of valves and manifolds, if present.

Examples of proper extinguishing agent as follows:

Class A:	Water Water with 1% AFFF Foam (Wet Water) Water with 6% AFFF or Fluorprotein Foam ABC Dry Chemical
Class B:	ABC Dry Chemical Purple K Carbon Dioxide Water with 6% AFFF Foam
Class C:	ABC Dry Chemical Carbon Dioxide
Class D:	Metal-X Dry Powder

No attempt shall be made against large fires. These shall be handled by the Fire Department or Hazardous Materials response team.

9.6 SPILL OR AIR RELEASE

In the event of a spill or air release of hazardous materials on-site, the specific area of the spill or release shall be shut down and immediately secured. The area in which the spill or release occurred shall not be entered until the cause can be determined and site safety can be evaluated. Non-essential site personnel shall be evacuated to a safe and secure area. The appropriate government agencies shall be notified as soon as possible. The spilled or released material shall be immediately identified and appropriate containment measures shall be implemented, if possible. Real-time air monitoring shall be implemented as outlined in Section 8.0 of this HASP. If the materials are unknown, Level B protection is mandatory. If warranted, samples of the materials shall be acquired to facilitate identification.

9.7 LOCATING CONTAINERIZED WASTE AND/OR UNDERGROUND STORAGE TANKS

In the event that unanticipated containerized waste (e.g., drums) and/or USTs are located during Site activities, the work will be stopped in the specific area until Site safety can be evaluated and addressed. Non-essential Site personnel shall not work in the immediate area until conditions including possible exposure hazards are addressed. The appropriate government agencies shall be notified as soon as possible. The SSO shall monitor the area as outlined in Section 8.0 of this HASP.

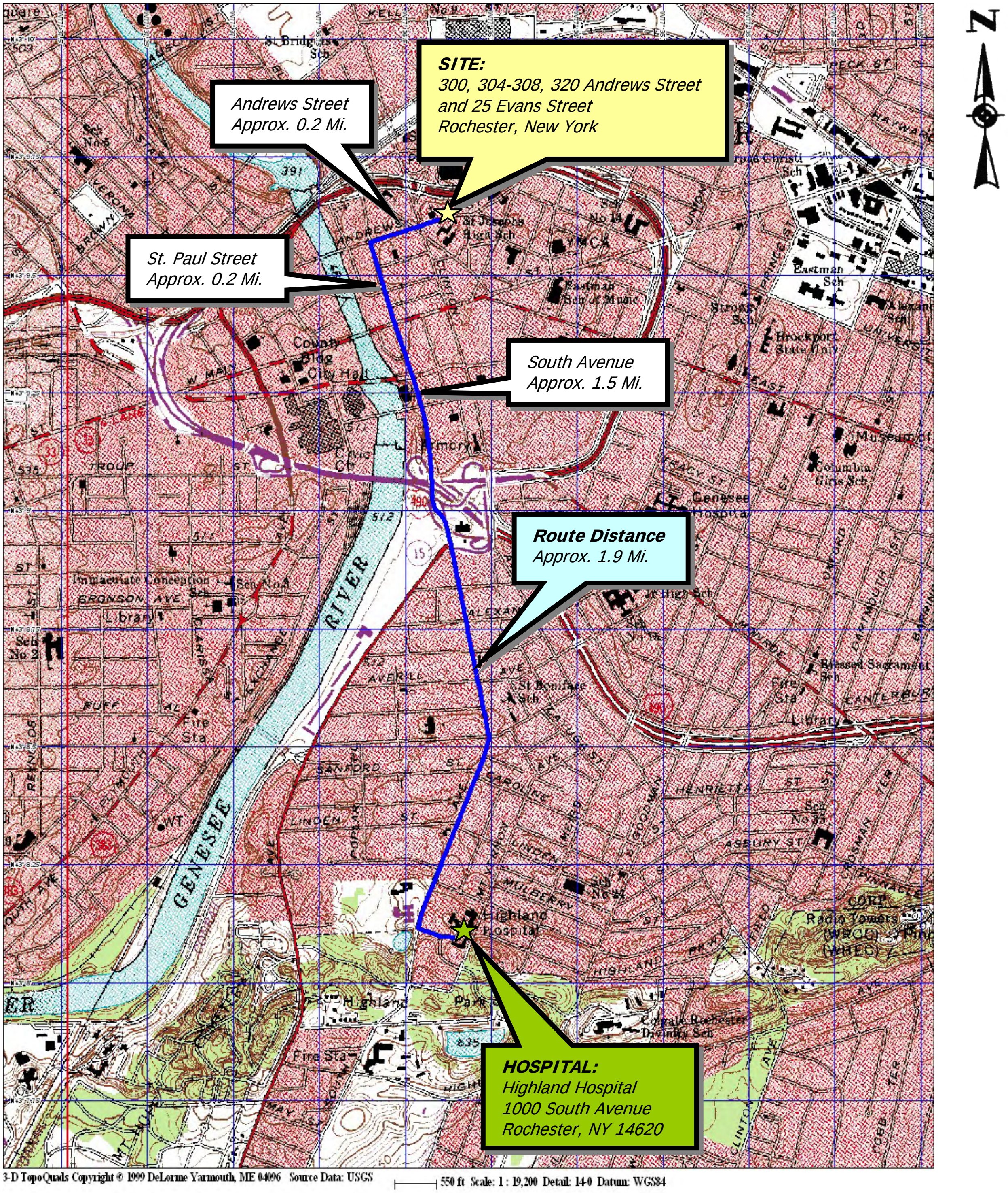
Prior to any handling, unanticipated containers and/or tanks will be visually assessed by the SSO to gain as much information as possible about their contents. As a precautionary measure, personnel shall assume that unlabeled containers and/or tanks contain hazardous materials until their contents are characterized. To the extent possible based upon the nature of the containers encountered, actions may be taken to stabilize the area and prevent migration (e.g., placement of berms, etc.). Subsequent to initial visual assessment and any required stabilization, properly trained personnel will sample, test, remove, and dispose of any containers and/or tanks, and their contents. After visual assessment and air monitoring, if the material remains unknown, Level B protection is mandatory.

10.0 ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
Bgs	Below Ground Surface
CAMP	Community Air Monitoring Program
CFR	Code of Federal Regulations
City	City of Rochester
CO_2	Carbon Dioxide
CPR	Cardio-Pulmonary Resuscitation
DAY	Day Environmental, Inc.
dBA	Decibels on the A-Weighted Scale
DER	Division of Environmental Remediation
ECP	Emergency Contingency Plan
EMS	Emergency Medical Service
ERP	Environmental Restoration Program
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High-Efficiency Particulate Air
IDLH	Immediately Dangerous to Life or Heath
IH	Industrial Hygienist
IRM	Interim Remedial Measure
ISCO	In-Situ Chemical Oxidation
Kg/l	Kilogram per Liter
$KMnO_4$	Potassium Permanganate
MCDPH	Monroe County Department of Public Health
MCOEM	Monroe County Office of Environmental Management
mg/m^3	Milligram Per Meter Cubed
MSDS	Material Safety Data Sheet
NA	Not Applicable
$NA_2S_2O_3$	Sodium Thiosulfate
NIOSH	National Institute for Occupational Safety and Health
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O_2	Oxygen
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PCE	Perchloroethene, or Tetrachloroethene
PEL	Permissible Exposure Limit
PID	Photoionization Detector
PM	Project Manager
PM-10	Particulate Matter Less Than 10 Micrometers In Diameter
PPE	Personal Protection Equipment
ppm	Parts Per Million
PVC	Polyvinyl Chloride
REL	Recommended Exposure Limit
RI	Remedial Investigation
RTAM	Real-Time Aerosol Monitor
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SSO	Site Safety Officer
SVOC	Semi-Volatile Organic Compound
TCE	Trichloroethene
TLV	Threshold Limit Value
TWA	Time-Weighted Average
ug/m^3	Microgram Per Meter Cubed
UST	Underground Storage Tank
VOC	Volatile Organic Compound

ATTACHMENT 1

Figures



Drawing Produced From: 3-D TopoQuads, DeLorme Map Co., referencing USGS quad map Rochester East (NY) 1995.

DATE 7-06-2015 DRAWN BY RJM SCALE As Noted	day DAY ENVIRONMENTAL, INC. ENVIRONMENTAL CONSULTANTS ROCHESTER, NEW YORK 14614-1008	PROJECT TITLE 300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET ROCHESTER, NEW YORK NYSDEC SITE #: E828144 HEALTH AND SAFETY PLAN DRAWING TITLE ROUTE FOR EMERGENCY SERVICES	PROJECT NO. 4355S-10 FIGURE 1

DATE	DATE DRAWN	DATE ISSUED
07-2015	07-2015	07-08-2015

DESIGNED BY	DRAWN BY	SCALE
JAD	CPS	AS NOTED

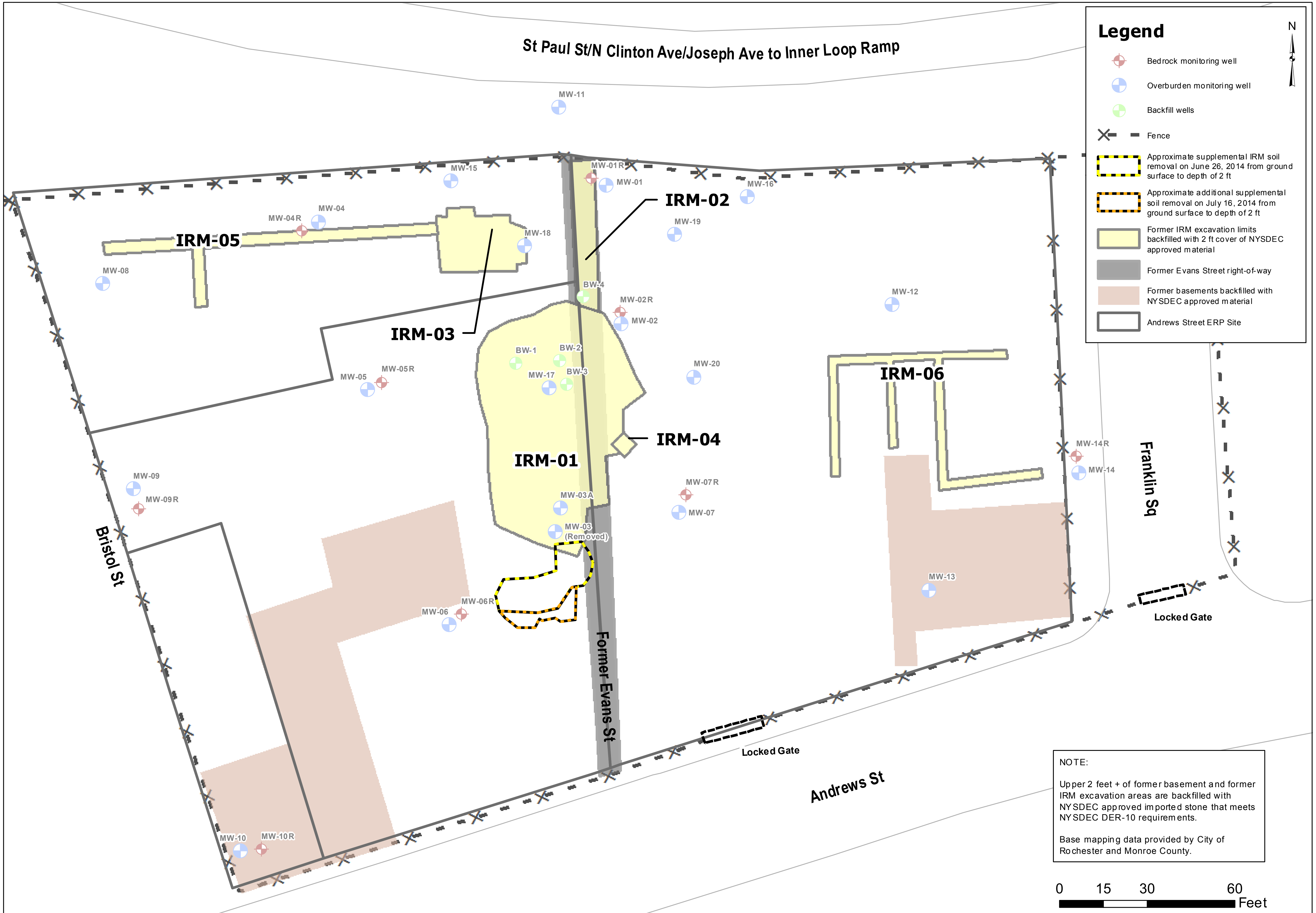
day DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Site Plan with CAMP Monitoring Locations

Project No.
4355S-10

FIGURE 2



DATE 07-2015

DATE DRAWN 07-2015

DATE ISSUED 07-06-2015

DESIGNED BY JAD

DRAWN BY CPS

SCALE AS NOTED

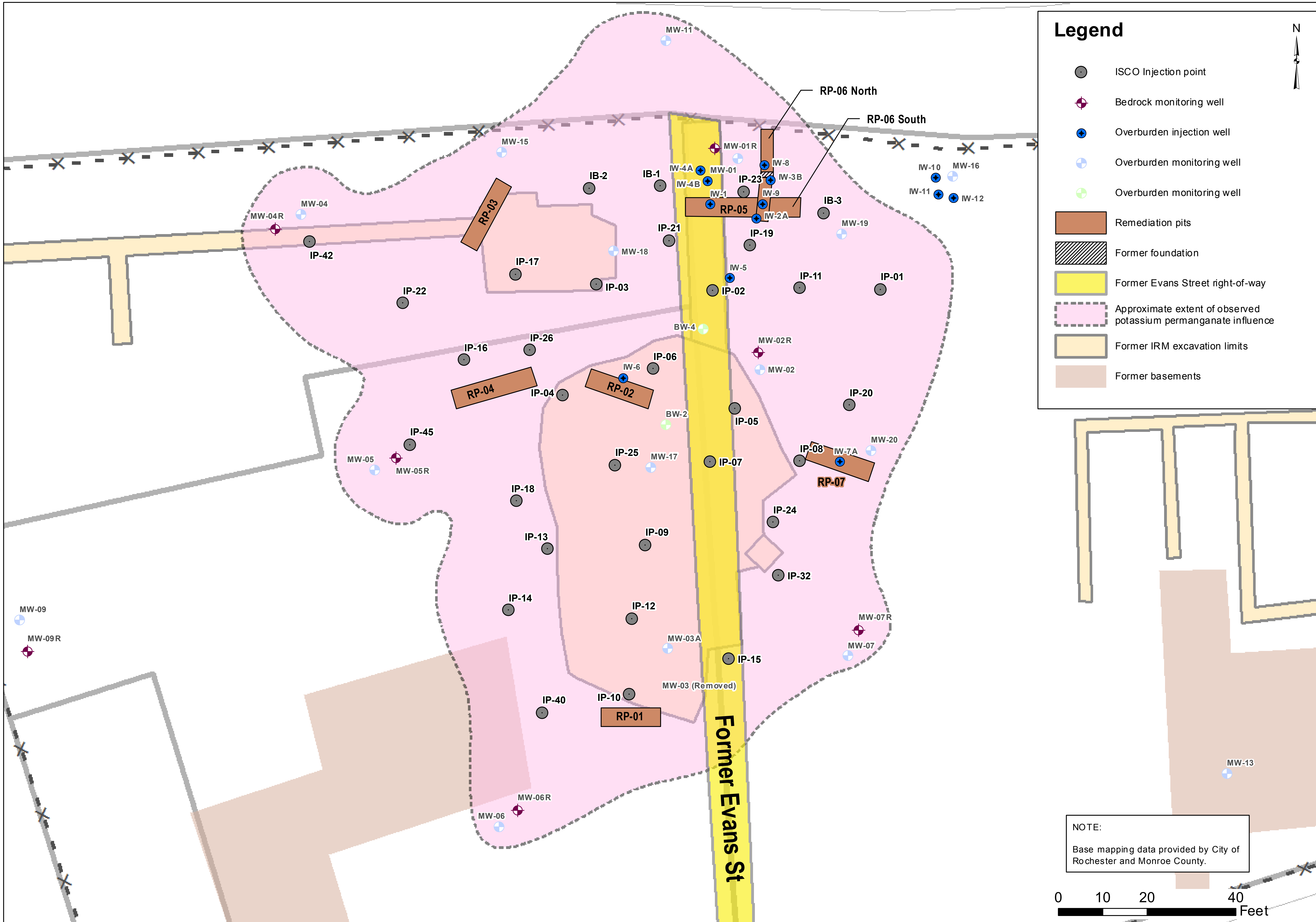
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK
ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

Drawing Title
Limits of Remedial Excavations

Project No.
4355S-10

FIGURE 3



DESIGNED BY: JAD	DATE: 07-2015
DRAWN BY: CPS	DATE DRAWN: 07-2015
SCALE: AS NOTED	DATE ISSUED: 07-06-2015

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

Project Title: 300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET ROCHESTER, NEW YORK

ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO: E828144

Drawing Title: Site Plan with In-Situ Chemical Oxidation Treatment Measures

Project No. 4355S-10

FIGURE 4

ATTACHMENT 2

Material Safety Data Sheets

MSDS: Potassium Permanganate

SECTION A - PRODUCT INFORMATION

TRADE NAME :	POTASSIUM PERMANGANATE, TECHNICAL GRADE	**REVISION DATE :** JUNE 7, 2006
CAS NUMBER :	7722-64-7	
SYNONYMS :	PERMANGANATE OF POTASH; CHAMELEON MINERAL; PERMANGANIC ACID, POTASSIUM SALT	
CHEMICAL FAMILY :	OXIDIZERS	
FORMULA :	$KMnO_4$	

SECTION B - HAZARDOUS COMPONENTS

COMPONENT	CAS NO.	%	PEL/TLV
POTASSIUM PERMANGANATE (AS INORGANIC MANGANESE COMPOUND CONTAINING 34-35% Mn)	7722-64-7	98% MIN.	5 mg/m^3 as Mn - OSHA CEILING LIMIT 0.2 mg/m^3 as Mn - ACGIH TWA O.2 mg/m^3 as Mn Fume - ACGIH TWA

SECTION C - PHYSICAL PROPERTIES

BOILING POINT (°C) :	N/A	**SPECIFIC GRAVITY :**	2.7
MELTING POINT (°C) :	DECOMPOSES AT < 240	**FREEZING POINT (°) :**	N/A
VAPOR PRESSURE (mm Hg) :	NOT KNOWN	**PERCENT VOLATILE (BY WT.) :**	N/A
VAPOR DENSITY (AIR=1) :	N/A	**EVAPORATION RATE :**	N/A
SOLUBILITY IN WATER :	SOLUBLE, 6.38 g/100cc @ 200°C	**pH (% IN WATER) :**	NOT KNOWN
ODOR THRESHOLD :	N/A		
APPEARANCE & ODOR :	DARK PURPLE CRYSTALS WITH METALLIC LUSTER; ODORLESS		

SECTION D - FIRE & EXPLOSION DATA

FLASH POINT (°) : N/A

FLAMMABLE LIMITS : **LEL** : (N/A) **UEL : (N/A)** **AUTO IGNITION TEMP (° F): (N/A)**

EXTINGUISHING MEDIA : **WATER** : **(X)** **FOAM** : **()** **CO_2: ()** **DRY CHEMICAL: ()**

SPECIAL FIRE FIGHTING PROCEDURES : PRODUCT IS NOT COMBUSTIBLE BUT IS A STRONG OXIDIZER. CONTACT WITH OXIDIZABLE SUBSTANCES, EITHER IN THE SOLID OR DRY STATE, CAN CAUSE EXPLOSIVE AND OR FLAMMABLE REACTIONS. EXTINGUISH FIRE WITH LARGE QUANTITIES OF WATER. DIKE TO CONTAIN RUNOFF. WATCH FOR RAPID BURNING AND BE PREPARED TO RETREAT TO A SAFE DISTANCE. POISONOUS GAS IS PRODUCED IN FIRE - WEAR A NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE DEMAND OR POSITIVE PRESSURE MODE AND FULL PROTECTIVE GEAR. CONTAINERS MAY EXPLODE IN FIRE. COOL FIRE EXPOSED CONTAINERS WITH FLOODING QUANTITIES OF WATER SPRAY.

UNUSUAL FIRE & EXPLOSION HAZARDS : STRONG OXIDIZERS MAY EXPLODE AND DECOMPOSE SPONTANEOUSLY IF EXPOSED TO INTENSE HEAT, CONCENTRATED ACIDS, HYDROGEN PEROXIDE, REDUCING AGENTS OR ORGANIC SUBSTANCES. VIOLENT REACTION MAY OCCUR WITH FINELY DIVIDED AND READILY OXIDIZABLE SUBSTANCE. INCREASES FLAMMABILITY OF COMBUSTIBLE MATERIALS.

SECTION E - REACTIVITY DATA

STABILITY : STABLE UNDER NORMAL CONDITIONS

INCOMPATIBILITY : POTASSIUM PERMANGANATE IS A STRONG OXIDIZER, SPONTANEOUSLY EXPLOSIVE OR FLAMMABLE ON CONTACT WITH MANY INCOMPATIBLES. AVOID CONTACT WITH ALCOHOLS, ARSENITES, IODIDES, ACIDS, CHARCOAL, COMBUSTIBLE ORGANIC MATERIALS, FERROUS AND MERCUROUS SALTS, HYPOPHOSPHITES, HYPOSULFITES, SULFITES, PEROXIDES, OXALATES, INORGANIC OXIDIZABLE MATERIALS, METAL POWDERS, WOOD, GLYCERINE, POLYPROPYLENE, AND HEAT. CONTACT WITH HYDROCHLORIC ACID WILL LIBERATE CHLORINE GAS. DO NOT MIX WITH FORMALDEHYDE.

HAZARDOUS DECOMPOSITION PRODUCTS : TOXIC, CORROSIVE FUMES OF K_2O AND/OR SMOKE MAY EVOLVE WHEN IN A FIRE

HAZARDOUS POLYMERIZATION : WILL NOT OCCUR

CONDITIONS TO AVOID : CONTACT WITH INCOMPATIBLE MATERIALS; EXCESSIVE HEAT (>150°C); PHYSICAL IMPACT OR FRICTION

N/A = NOT APPLICABLE

SECTION F - PERSONAL PROTECTIVE EQUIPMENT INFO

RESPIRATORY EQUIPMENT :	USE A NIOSH/MSHA DUST AND MIST RESPIRATOR OR AN AIR SUPPLIED RESPIRATOR WHERE THE POTENTIAL FOR OVEREXPOSURE EXISTS.
PROTECTIVE GLOVES :	RUBBER OR PLASTIC GLOVES
EYE PROTECTION :	CHEMICAL GOGGLES OR FACE SHIELD
VENTILATION :	USE MECHANICAL OR LOCAL EXHAUST TO MAINTAIN EXPOSURE BELOW THE PERMISSIBLE EXPOSURE LIMIT OR THRESHOLD LIMIT VALUE (SEE SECTION B).
OTHER PROTECTIVE EQUIPMENT :	PROTECTIVE WORK CLOTHING INCLUDING AN APRON; ACCESS TO EYE WASH FOUNTAIN AND SAFETY DRENCH SHOWER.

SECTION G - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE :	0.2 mg/m^3 as Mn (INORGANIC MANGANESE COMPOUND) and Mn FUME
PRIMARY ROUTES OF EXPOSURE :	EYES & SKIN CONTACT, INHALATION, INGESTION
ORAL LD_{50} :	1090 mg/kg (RAT); 780 mg/kg MALE RAT; 525 mg/kg FEMALE RAT; ORAL-HUMAN LDLo: 143 mg/kg
DERMAL IRRITATION-RABBIT :	NOT TESTED
EYE IRRITATION-RABBIT :	NOT TESTED
OSHA PEL :	5 mg/m^3 AS Mn CEILING LIMIT
ACGIH TLV :	0.2 mg/m^3 as Mn (INORGANIC MANGANESE COMPOUND) and Mn FUME
EFFECTS OF OVEREXPOSURE :	***SKIN CONTACT:*** CONTACT WITH DRY CRYSTALS OR CONCENTRATED SOLUTIONS WILL IRRITATE AND ACT AS A CORROSIVE, CAUSING BURNS TO SKIN AND BODY TISSUE ON CONTACT. CONTACT AREA WILL BE STAINED BROWN AND THE OUTER LAYER OF SKIN WILL POSSIBLY HARDEN. ***EYE CONTACT:*** CONTACT WITH EYES CAN CAUSE SEVERE BURNS RESULTING IN EYE DAMAGE. ***INHALATION:*** INHALATION OF DUST, MIST, OR SOLUTION SPRAY WILL IRRITATE NOSE, THROAT, AND RESPIRATORY TRACT CAUSING COUGHING, CHEST TIGHTNESS, AND POSSIBLE DAMAGE TO THE RESPIRATORY SYSTEM. HIGH INHALATION EXPOSURES CAN CAUSE A BUILDUP OF FLUID IN THE LUNGS (PULMONARY EDEMA) WHICH MAY RESULT IN DEATH. ***INGESTION:*** INGESTION CAN CAUSE SEVERE IRRITATION OR BURNS TO MOUTH, THROAT, ESOPHAGUS, AND STOMACH WITH DIFFICULTY IN BREATHING, NAUSEA, GASTROINTESTINAL EFFECTS, AND POSSIBLE KIDNEY DAMAGE. EXPERIMENTAL REPRODUCTIVE AND MUTATION DATA HAVE BEEN REPORTED IN LITERATURE. ***CHRONIC:*** REPEATED OR PROLONGED SKIN CONTACT MAY CAUSE DEFATTING AND DERMATITIS. LONG TERM INHALATION OF MANGANESE DUSTS (USUALLY IN FORM OF MANGANESE OXIDES) MAY LEAD TO A HIGH INCIDENCE OF UPPER RESPIRATORY INFECTIONS, LUNG IRRITATION, AND POSSIBLE CENTRAL NERVOUS SYSTEM DISORDERS WITH SYMPTOMS SIMULATING PARKINSON'S DISEASE.
KNOWN EFFECTS ON OTHER ILLNESSES :	CAN AGGRAVATE PRE-EXISTING SKIN, RESPIRATORY, AND NERVOUS SYSTEM CONDITIONS.
LISTED CARCINOGEN :	NONE **(X)** OSHA **()** NTP **()** IARC **()** OTHER **()**

SECTION H - EMERGENCY & FIRST AID DATA

SKIN :	CAN CAUSE IRRITATION OR BURNS. WASH AREA IMMEDIATELY WITH LARGE AMOUNTS OF WATER WHILE QUICKLY REMOVING CONTAMINATED CLOTHING. SEEK MEDICAL ATTENTION.
EYES :	CAN CAUSE SEVERE BURNS RESULTING IN PERMANENT DAMAGE. FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES, LIFTING UPPER AND LOWER LIDS. DO NOT USE A CHEMICAL ANTIDOTE. SEEK MEDICAL ATTENTION IMMEDIATELY.
INHALATION :	REMOVE THE PERSON FROM EXPOSURE. BEGIN RESCUE BREATHING IF BREATHING HAS STOPPED AND CPR IF HEART ACTION HAS STOPPED. SEEK MEDICAL ATTENTION IMMEDIATELY. MEDICAL OBSERVATION IS RECOMMENDED FOR 24 TO 48 HOURS AFTER BREATHING OVEREXPOSURE, AS PULMONARY EDEMA MAY BE DELAYED.
INGESTION :	CAN CAUSE BURNING OF THROAT, NAUSEA, VOMITING AND STOMACH PAIN. A TRACHEOTOMY MAY BE REQUIRED IF SWELLING IN THROAT BLOCKS AIR. IF CONSCIOUS AND NOT CONVULSING, GIVE LARGE QUANTITIES OF WATER. SEEK MEDICAL ATTENTION IMMEDIATELY.

SECTION I - SPILL & DISPOSAL INFORMATION

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

WEAR FULL PROTECTIVE EQUIPMENT (SEE SECTION B). RESTRICT ACCESS TO AREA OF SPILL / LEAK UNTIL CLEAN UP IS COMPLETE. REMOVE ALL COMBUSTIBLE MATERIALS FROM AREA. ABSORB SOLUTION SPILLS (LIQUIDS) IN VERMICULITE, DRY SAND, EARTH, OR A SIMILAR MATERIAL AND DEPOSIT IN SEALED CONTAINERS. SWEEP OR SHOVEL UP POWDERED/CRYSTALLINE MATERIAL. AVOID GENERATING DUST. TRANSFER TO CLEAN METAL DRUM FOR DISPOSAL AS RCRA HAZARDOUS WASTE. FLUSH SPILL AREA WITH ABUNDANT QUANTITIES OF WATER. KEEP RUNOFF FROM ENTERING SEWERS OR WATERWAYS TO PREVENT A POSSIBLE EXPLOSION HAZARD. CONTACT THE DEP AND EPA FOR SPECIFIC RECOMMENDATIONS ON DISPOSAL.

WASTE DISPOSAL INFORMATION:

DISPOSE OF AS HAZARDOUS WASTE IN ACCORDANCE WITH LOCAL, STATE (DEP) AND FEDERAL REGULATIONS (EPA).

RCRA HAZARDOUS WASTE : NO **()** YES **(X)** **RCRA # :** (D001, D003) CHARACTERISTIC OF IGNITABILITY, REACTIVITY

N/A = NOT APPLICABLE

CERCLA : NO **()** YES **(**X**)** **RQ (**100 LBS.)

FOLLOW ALL LOCAL, STATE AND FEDERAL INFORMATION AND REGULATIONS

SECTION J - OTHER REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.
SARA TITLE III, SECT. 313: **LISTED (X)** **NOT LISTED ()**
HMIS: HEALTH (3) FLAMMABILITY (0) REACTIVITY (3)

DOT REGULATED: YES: (X) **NO: ( )** **RQ: (**100 LBS.**)**
IF REGULATED, PROPER SHIPPING NAME: POTASSIUM PERMANGANATE **HAZARD CLASS: (**5.1**)**
IDENTIFICATION NO: (UN1490**)** **PACKING GROUP: (**II**)** **LABEL REQUIRED: (**OXIDIZER**)**
INLAND B/L: RQ, POTASSIUM PERMANGANATE; 5.1, UN1490, PACKING GROUP II, OXIDIZER
EMERGENCY RESPONSE GUIDE NO.: (140**)**

SECTION K - SPECIAL PRECAUTIONS

FOR INDUSTRIAL USE ONLY

HANDLING & STORAGE INFORMATION:
PROTECT CONTAINERS FROM PHYSICAL SHOCK AND DAMAGE. MUST BE STORED TO AVOID CONTACT WITH STRONG ACIDS (SUCH AS HYDROCHLORIC, SULFURIC AND NITRIC); ANY ORGANIC MATERIAL; OR ANY OTHER COMBUSTIBLE OR OXIDIZABLE SOLID, LIQUID OR GAS SINCE VIOLENT REACTIONS OCCUR. AVOID STORAGE ON WOODEN FLOORS. ISOLATE FROM ALL HEAT AND IGNITION SOURCES. STORE IN TIGHTLY CLOSED CONTAINERS IN A COOL WELL-VENTILATED AREA.

OTHER PRECAUTIONS :
DO NOT EAT, SMOKE OR DRINK WHERE POTASSIUM PERMANGANATE IS HANDLED, PROCESSED, OR STORED. WASH THOROUGHLY BEFORE EATING OR SMOKING. DO NOT DRY SWEEP FOR CLEAN UP. USE A VACUUM OR A WET METHOD TO REDUCE DUST DURING CLEANUP. TREAT EMPTY CONTAINERS OF THIS PRODUCT AS HAZARDOUS SINCE THEY MAY STILL CONTAIN PRODUCT RESIDUES.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL HYGIENE, HANDLE WITH DUE CARE AND AVOID ANY UNNECESSARY CONTACT WITH THIS PRODUCT.
THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS PRODUCT SPECIFICATION. THE INFORMATION IS BELIEVED TO BE TRUE AND ACCURATE. NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARD CONNECTED WITH USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. UNITED MINERAL & CHEMICAL CORPORATION AND ITS SUPPLIERS ASSUME NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.
UNITED MINERAL & CHEMICAL CORPORATION

Health	2
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Sodium thiosulfate pentahydrate MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium thiosulfate pentahydrate

Catalog Codes: SLS2341, SLS2962

CAS#: 10102-17-7

RTECS: WE6660000

TSCA: TSCA 8(b) inventory: No products were found.

CI#: Not available.

Synonym: Ametox, Antichlor; Sodium Hyposulfite, pentahydrate

Chemical Name: Thiosulfuric Acid, disodium salt, pentahydrate

Chemical Formula: Na2S2O3.5H20

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium thiosulfate pentahydrate	10102-17-7	100

Toxicological Data on Ingredients: Sodium thiosulfate pentahydrate LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (irritant, sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

Skin Contact:
Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: When heated to decomposition it emits toxic fumes of sulfur oxides, hydrogen sulfide, and sodium oxide

Special Remarks on Explosion Hazards: An explosion may occur if triturated with nitrates, chlorates, or permanganates.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Keep away from incompatibles such as oxidizing agents, acids, alkalis.

Storage: Hygroscopic. Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Odorless.

Taste: Saline.

Molecular Weight: 248.19 g/mole

Color: Colorless. White.

pH (1% soln/water): pH of a 5% solution: 6.0-8.4

Boiling Point: >100°C (212°F)

Melting Point: 48°C (118.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.7 - 1.75(Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:
Soluble in cold water, hot water. Solubility in water: 79 g/100 ml @ 4 deg. C (39 deg. F) 680 g/liter @ 20 deg. C

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, moisture

Incompatibility with various substances: Reactive with oxidizing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
It is a strong reducing and can react with oxidizers. Reacts with acids to release sulfur dioxide. Sodium Thiosulfate pentahydrate dissolves in its own water of hydation; it effloresces in warm dry air. Sodium Thiosulfate pentahydrate loses water at 100 deg. C. It is incompatible with iodine, acids, lead, mercury, and silver salts (e.g. silver nitrate), halogens. Hygroscopic; keep container tightly closed. Protect from moisture

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potenial Health Effects: Skin: It may cause mild skin irritation. Eyes: Can cause mechanical eye irritation. Inhalation: May cause upper respiratory tract and mucous membrane irritation. Ingestion: Sodium Thiosulfate is an agent with a low order of toxicity. Ingestion of large doses may cause gastrointestinal irritation disturbances with nausea, vomiting, addominal cramping, diarrhea, metabolic acidosis, and hypernatremia. May also affect respiration (cyanosis, respiratory stimulation), cardiovascular(hypotension), behavior (ataxia, convulsions) Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may allergic dermatitis, and irritation. The toxicological preperties of this substance have not been fully investigated.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: No products were found.

Other Regulations: Not available.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
This product is not classified according to the EU regulations. S24/25- Avoid contact with skin and eyes. S28- After contact with skin, wash immediately with plenty of water. S37- Wear suitable gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 12:38 PM

Last Updated: 06/09/2012 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Health 2
Fire 0
Reactivity 0
Personal Protection H

Material Safety Data Sheet
Hydrogen Peroxide - 3% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrogen Peroxide - 3%

Catalog Codes: SLH2497, SLH1180

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water; Hydrogen Peroxide

CI#: Not applicable.

Synonym: Hydrogen Peroxide 3% Solution; Hydrogen Peroxide Topical Solution

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	97
Hydrogen Peroxide	7722-84-1	3

Toxicological Data on Ingredients: Hydrogen Peroxide: ORAL (LD50): Acute: 2000 mg/kg [Mouse]. DERMAL (LD50): Acute: 4060 mg/kg [Rat]. 2000 mg/kg [pig]. VAPOR (LC50): Acute: 2000 mg/m 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation (lung sensitizer). Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH [Hydrogen Peroxide]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Hydrogen Peroxide]. Mutagenic for bacteria and/or yeast. [Hydrogen Peroxide]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, upper respiratory tract, skin, eyes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Non-explosive in presence of open flames and sparks, of shocks, of heat, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Most cellulose (wood, cotton) materials contain enough catalyst to cause spontaneous ignition with 90% Hydrogen Peroxide. Hydrogen Peroxide is a strong oxider. It is not flammable itself, but it can cause spontaneous combustion of flammable materials and continued support of the combustion because it liberates oxygen as it decomposes. Hydrogen peroxide mixed with magnesium and a trace of magnesium dioxide will ignite immediately.

Special Remarks on Explosion Hazards:
Soluble fuels (acetone, ethanol, glycerol) will detonate on a mixture with peroxide over 30% concentration, the violence increasing with concentration. Explosive with acetic acid, acetic anhydride, acetone, alcohols, carboxylic acids, nitrogen containing bases, As_2S_3, Cl_2 + KOH, FeS, $FeSO_4$ + 2 methylpryidine + H_2SO_4, nitric acid, potassium permanganate, P_2O_5, H_2Se, Alcohols + H_2SO_4, Alcohols + tin chloride, Antimoy trisulfide, chlorosulfonic acid, Aromatic hydrocarbons + trifluoroacetic acid, Azeliac acid + sulfuric acid (above 45 C), Benzenesulfonic anhydride, tert-butanol + sulfuric acid, Hydrazine, Sulfuric acid, Sodium iodate, Tetrahydrothiophene, Thiodiglycol, Mercurous oxide, mercuric oxide, Lead dioxide, Lead oxide, Manganese dioxide, Lead sulfide, Gallium + HCl, Ketenes + nitric acid, Iron (II) sulfate + 2-methylpyridine + sulfuric acid, Iron (II) sulfate + nitric acid, + sodium carboxymethylcellulose (when

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers. Do not store above 30°C (86°F). Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Bitter.

Molecular Weight: Not applicable.

Color: Colorless. Clear

pH (1% soln/water): Neutral.

Boiling Point: The lowest known value is 100°C (212°F) (Water). Weighted average: 101.56°C (214.8°F)

Melting Point: May start to solidify at -0.43°C (31.2°F) based on data for: Hydrogen Peroxide.

Critical Temperature: Not available.

Specific Gravity: Weighted average: 1.01 (Water = 1)

Vapor Pressure: The highest known value is 2.3 kPa (@ 20°C) (Water). Weighted average: 2.24 kPa (@ 20°C)

Vapor Density: The highest known value is 1.2 (Air = 1) (Hydrogen Peroxide). Weighted average: 0.64 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble in cold water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Light, excess heat, combustible materials, incompatible materials (Hydrogen Peroxide)

Incompatibility with various substances: Slightly reactive to reactive with reducing agents, combustible materials, organic materials, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Light Sensitive. Incompatible with reducing materials, ethers (dioxane, furfuran), oxidizing materials, Metals(eg. potassium, sodium lithium, iron, copper, brass, bronze, chromium, zinc, lead, silver), metal oxides (eg. cobalt oxide, iron oxide, lead oxide, lead hydroxide, manganese oxide), metal salts (eg. calcium permanganate), manganese, asbestos, vanadium, platinium, tungsten, molybdeum, triethylamine, palladium, sodium pyrophosphate, carboxylic acids, cyclopentadiene, formic acid, rust, ketones, cyanides, sodium carbonate alcohols, sodium borate, aniline, mercurous chloride, rust sodium pyrophosphate, hexavalent chromium compounds, tetrahydrofuran, sodium fluoride organic matter, potassium permanganate, urea, chlorosulfonic acid, manganese dioxide, hydrogen selenide, charcoal, coal, sodium borate, alkalies, cyclopentadiene, glycerine. Caused to decompose catalytically by metals (in order of decreasing effectiveness): Osmium, Palladium, Platinum, Iridium, Gold, Silver, Manganese, Cobalt, Copper, Lead (Hydrogen Peroxide) A solution of 3% Hydrogen peroxide is also incompatible with: Albumin, Alkali citrates, Balsam Peru, Phenol, Tinctures, and Lime water

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact.

Toxicity to Animals:
Acute oral toxicity (LD50): 66667 mg/kg (Mouse) (Calculated value for the mixture). Acute dermal toxicity (LD50): 66667 mg/kg (pig) (Calculated value for the mixture).

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH [Hydrogen Peroxide]. Classified 3 (Not classifiable for human.) by IARC [Hydrogen Peroxide]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Hydrogen Peroxide]. Mutagenic for bacteria and/or yeast. [Hydrogen Peroxide]. Contains material which may cause damage to the following organs: blood, upper respiratory tract, skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans:
Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation (lung sensitizer). Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May may affect genetic material. May cause cancer (be tumorigenic) based on animal data. IARC states that there is either no adequate human data or inadequate evidence for carcinogenicity in humans. (Hydrogen Peroxide)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. May cause reddening of the skin and temporary discoloration/ whitening of the skin. Absorption into skin may affect behavior, brain, respiration (pulmonary edema) Eyes: Causes eye irritation. Symptoms may include burning sensation, redness, inflammaton, pain and possible corneal edema, and corneal cloudiness. Vapors may cause eye irritation. Inhalation: Not expected to be a health hazard under normal conditions. May cause respiratory tract and mucous membrane irritation with coughing, laryngitis, bronchitis, pulmonary edema. May affect respiration (dyspnea). May also cause headache, nausea, and vomiting. Ingestion: Ingestion of large doses may cause digestive tract/gastrointestinal tract irritation (irritation or possible blistering of the tongue, buccal muosa/mouth, throat, and stomach) with nausea, vomiting, hypermotility, and diarrhea. May cause difficulty in swallowing, stomach distension. May affect blood (change in leukocyte count, pigmented or nucleated red blood cells). May affect behavior/central nervous system. May affect cardiovascular system and cause vascular collapse and damage. Chronic Potential Health Effects: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated ingestion may affect metabolism (weight loss). Prolonged or repeated inhalation may affect respiration, blood. Continue use of hydrogen peroxide solution as a mouth wash, even at half-strength, may cause hypertrophied filiform papillae of the tongue ("hairy tongue"). But these disappear after it is discontinued

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York acutely hazardous substances: Hydrogen Peroxide Rhode Island RTK hazardous substances: Hydrogen Peroxide Pennsylvania RTK: Hydrogen Peroxide Florida: Hydrogen Peroxide Minnesota: Hydrogen Peroxide Massachusetts RTK: Hydrogen Peroxide New Jersey: Hydrogen Peroxide TSCA 8(b) inventory: Hydrogen Peroxide

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS C: Oxidizing material.

DSCL (EEC):
This product is not classified according to the EU regulations. Not applicable.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:46 PM

Last Updated: 06/09/2012 12:00 PM

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H J HEINZ -- DISTILLED WHITE VINEGAR
MATERIAL SAFETY DATA SHEET
NSN: 895000N048492
Manufacturer's CAGE: 73137
Part No. Indicator: A
Part Number/Trade Name: DISTILLED WHITE VINEGAR

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General Information

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Company's Name: H.J. HEINZ CO.
Company's Street: 1062 PROGRESS ST.
Company's City: PITTSBURGH
Company's State: PA
Company's Country: US
Company's Zip Code: 15212-5990
Company's Emerg Ph #: 412-237-5118
Company's Info Ph #: 412-237-5119
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 13NOV92
Safety Data Review Date: 11FEB94
MSDS Serial Number: BVCGS
Hazard Characteristic Code: NK

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Ingredients/Identity Information

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Proprietary: NO
Ingredient: DILUTE ACETIC ACID (CH*3 COOH)
Ingredient Sequence Number: 01
NIOSH (RTECS) Number: 1010888AA
CAS Number: 8028-52-2
OSHA PEL: N/K (FP N)
ACGIH TLV: N/K (FP N)

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Physical/Chemical Characteristics

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Appearance And Odor: CLEAR LIQUID, ODOR OF VINEGAR
Boiling Point: 244F,118C
Vapor Pressure (MM Hg/70 F): 11 MM
Vapor Density (Air=1): 2.1
Specific Gravity: 1.01
Evaporation Rate And Ref: NOT KNOWN
Solubility In Water: COMPLETE
pH: SUPDAT

Fire and Explosion Hazard Data

Extinguishing Media: MEDIA SUITABLE FOR SURROUNDING FIRE (FP N).
Special Fire Fighting Proc: USE NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N).
Unusual Fire And Expl Hazrds: NONE SPECIFIED BY MANUFACTURER.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.
Materials To Avoid: NONE SPECIFIED BY MANUFACTURER.
Hazardous Decomp Products: NONE SPECIFIED BY MANUFACTURER.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT.

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: PROLONGED INHALATION OF VAPORS CAN CAUSE IRRITATION TO RESPIRATORY TRACT. EYES:WILL CAUSE EYE IRRITATION - SMARTING AND REDDENING OF THE EYE.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT.
Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: INHAL:REMOVE TO FRESH AIR. SUPPORT BREATHING (GIVE O*2/ARTF RESP) (FP N). SKIN:FLUSH W/COPIOUS AMOUNTS OF WATER. CALL MD (FP N). EYE:FLUSH IMMEDIATELY AND THOROUGHLY WITH WATER FOR AT LEAST 15-20 MINUTES (TIMED BY A CLOCK). CALL A PHYSICIAN. INGEST:LARGE AMOUNTS, WATER SHOULD BE CONSUMED TO DILUTE. DO NOT INDUCE VOMITING. DO NOT GIVE EMETICS OR BAKING SODA. CALL A PHYSICIAN.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: IF VINEGAR IS SPILLED, WATER MAY BE USED TO DILUTE.
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: DISPOSAL MUST BE I/A/W FEDERAL, STATE & LOCAL REGULATIONS (FP N).

Precautions-Handling/Storing: NONE SPECIFIED BY MANUFACTURER.
Other Precautions: NONE SPECIFIED BY MANUFACTURER.
===
Control Measures
===
Respiratory Protection: NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE FOR EXPOSURE OF CONCERN (FP N).
Ventilation: NONE SPECIFIED BY MANUFACTURER.
Protective Gloves: NONE SPECIFIED BY MANUFACTURER.
Eye Protection: NONE SPECIFIED BY MANUFACTURER.
Other Protective Equipment: NONE SPECIFIED BY MANUFACTURER.
Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.
Suppl. Safety & Health Data: PH:2.2 @ 100 GRAIN.
===
Transportation Data
===

===
Disposal Data
===

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Label Data
===
Label Required: YES
Technical Review Date: 11FEB94
Label Date: 11FEB94
Label Status: G
Common Name: DISTILLED WHITE VINEGAR
Chronic Hazard: NO
Signal Word: CAUTION!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-None: X
Reactivity Hazard-None: X
Special Hazard Precautions: ACUTE:INHAL/EYES:IRRITATION. CHRONIC:NONE SPECIFIED BY MANUFACTURER.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: H.J. HEINZ CO.
Label Street: 1062 PROGRESS ST.
Label City: PITTSBURGH
Label State: PA
Label Zip Code: 15212-5990
Label Country: US
Label Emergency Number: 412-237-5118
===

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delete information in this archive please sent updates to dan@siri.org.

APPENDIX E

Site-Wide Inspection Form

Site-Wide Inspection Form
300, 304-308 and 320 Andrews Street and 25 Evans Street
Rochester, New York
NYSDEC ERP Project #E828144

Date of Inspection Site Visit: ____

Personnel Performing Inspection Site Visit: ________________________________

Affiliation of Personnel: ____

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1. Check integrity of impermeable portions (e.g., concrete) of cover system, including whether any sloughing, cracks, settlement, damage, etc.

Discuss observations and any corrective actions: ____________________________

____

____

____

2. Check integrity of earthen portions (e.g., crusher run #2 stone) cover system, including whether any erosion, settlement, damage, etc.

Discuss observations and any corrective actions ____________________________

____

____

____

3. Check integrity of monitoring wells, including whether any damage, etc.

Discuss observations and any corrective actions ____________________________

____

____

____

4. Provide any other notes or observations of interest

____

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____

APPENDIX F

Monitoring Well Boring and Construction Logs

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING # MW-1
Page 1 of 2

LOG OF BORING

Project: Andrews Street | Location: Rochester | Permit #: NA
Date Drilled: 7/10/06 | Drilling Co.: Nothnagle Drilling | Job #:
Total Depth: 25.5 Ft. | Method Used: CME-55 Hollow Stem Augers w/ Macro Core
Inspector: P. von Schondorf | Organic Vapor Inst: MicroTIP | Water elv: N/A

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2						Approx. 4" concrete and 6" stone		
5	1	N/A	1-5'	3'	0	Fill, Black-gray silt some clay and sand brick, glass, moist, slight plastic, stiff.	Fill	Poor
9	2	N/A	5-9'	4'	0	Fill to 5.25 ft.; Brown silt and fine sand to Gray fine sand @ 8.9 ft. dry, dense.	ML SP	Poor Good
12	3	N/A	9-12'	3'	0	Gray-brown, Sand, silt, gravel till, dense, dry.	SM	Good
16	4	N/A	12-16'	2.5'	0	Gray-brown, Sand and silt, occasion gravel, till, dry and moist seams,	SM	Good
18	5	N/A	16-18'	2'	0	Same as above, dense.	SM	Good
22	6	N/A	18-22'	4'	35	Brown, Fine-Med. Sand, occassional gravel, little silt, dense, wet @19' VOCs @19'.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING # MW-1
LOG OF BORING

Project Andrews Street   Location Rochester   Permit #: NA

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Strata Change	Permeability
24								
25	7	N/A	22-25.3'	3	3	Brown, fine Sand trace silt, wet. 23' Sand some silt, wet, dense. Refusal Bedrock with Auger.	SP SM	Good
26						Total Depth 25.3 ft.		
28								
30								
32								
34								
36								
38								
40								
42								
44								
46								

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

LOG OF BORING

BORING # MW-2
Page 1 of 2

Project	Andrews Street	Location	Rochester
Date Drilled	7/11/06	Drilling Co.:	Nothnagle Drilling
Total Depth	27 Ft.	Method Used:	CME-55 Hollow Stem Augers w/ Macro Core
Inspector	P. von Schondorf	Organic Vapor Inst:	MicroTIP

Permit #: NA
Job #:
Water elv: N/A

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2						Approx. 2" asphalt and 10" stone		
5	1	N/A	1-5'	4"	0	Fill, Black-gray silt some clay little sand gravel, poss. staining or organic, soft.	Fill	Poor
9	2	N/A	5-9'	4'	0	Fill, silt some clay little sand, dry, grading to silt and fine sand.	Fill SP	Poor Good
12	3	N/A	9-12'	4'	0	Gray-brown, varved Sand some silt, grading to sand trace silt, rock frag @ 10'.	SM/SP	Good
15	4	N/A	12-15'	3'	0	Gray-brown Sand trace silt, gravel rock frag., dry to damp, dense.	SP	Good
19	5	N/A	15-19'	2.5'	0	Red, brown, gray, Sand and gravel, little silt, dry, dense.	SP	Good
23	6	N/A	19-23'	3'	0	Gray, brown, Sand and silt @ 22.8' Sand, wet.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING # MW-2
Page 2 of 2
Permit #: NA

LOG OF BORING

Project Andrews Street Location Rochester

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Strata Change	Permeability
25	7	N/A	23-25.5'	2	0	Brown, Sand alternating layers with very fine sand and silt. Wet. Spoon refusal, drill to 27ft. Possible rock.	SM	Good
28								
30								
32								
34								
36								
38								
40								
42								
44								
46								

day

DAY ENVIRONMENTAL, INC.

ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-03A

Project #: 4355s-10

Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York

DAY Representative: D. Peck

Drilling Contractor: QISI

Sampling Method: Split Spoon

Ground Elevation: 528.41 | Datum: City of Rochester

Date Started: 12/18/2012 | Date Ended: 12/18/2012

Borehole Depth: 30.0' | Borehole Diameter: 8"

Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings

Water Level (Date): 10.71 (1-15-2013)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1–12								No Samples 0 - 12' Auger through excavation backfill consisting of Gray Silt and Crushed Stone (FILL)	
12–14	35 50/3	S-1	12-14	40	NA	NA	0.0	Tan, Silty SAND, trace Gravel, damp	
14–16	12 28 40 43	S-2	14-16	80	68	NA	0.0	...damp/wet	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-03A

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

420 LEXINGTON AVENUE, SUITE 300
NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck
Drilling Contractor: QISI
Sampling Method: Split Spoon

Test Boring MW-03A

Ground Elevation: 528.41 Datum: City of Rochester
Date Started: 12/18/2012 Date Ended: 12/18/2012
Borehole Depth: 30.0' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 10.71 (1-15-2013)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17	50/4	S-3	16-16.4	30	NA	NA	0.0		
18									
19	28 45 50/4	S-4	18-19.4	50	NA	NA	0.0	Reddish-gray Sandy SILT, little Gravel, damp	
20									
21 22	14 23 48 50	S-5	20-22	70	71	NA	0.0	Gray, fine SAND, wet	
23 24	40 25 43 27	S-6	22-24	80	68	NA	0.0		
25 26	28 26 16 45	S-7	24-26	80	42	NA	0.0	...M-C SAND (6" seam)	
27 28	17 38 27 50/3	S-8	26-27.8	90	65	NA	0.0	...fine SAND, wet	
29	17 50/4	S-9	28-28.9	40	NA	NA	0.0	...Silty SAND	
30									
31								Bottom of Hole @ 30.0'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-03A

day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-04

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: J. Danzinger
Drilling Contractor: SJB
Sampling Method: Split Spoon

Ground Elevation: 527.52 Datum: City of Rochester
Date Started: 10/25/2011 Date Ended: 10/25/2011
Borehole Depth: 30.5' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.16 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	3						0.0	Crushed Stone	
1	8	S-1	0-2	40	16	6.3	0.0	Brown, SILT, some Sand, moist	
	8						0.6		
2	5						0.5		Petroleum odor
	4						21	Dark Gray, Brown Clayey SILT, moist, petroleum odor	
3	2	S-2	2-4	60	4	106	40.9		
	2						58.3		Petroleum odor
4	2						81.4		
	4						42	Dark Gray, Brown, Red, mottled SILT, little Clay, moist	
5	4	S-3	4-6	70	13	135	37		Petroleum odor
	9						53	…wet	
6	18						134		
	19						12.1	...Gray, Brown, SILT, trace rounded Gravel, little to trace Clay, moist	
7	19	S-4	6-8	90	36	43.4	72.4		
	17						40.3		
8	17						44.2		
	11						3.2	...Light Brown, SILT, trace fine Gravel and Clay, little Sand, moist	
9	12	S-5	8-10	80	32	1.1	1.3		
	20						1.1		
10	26						1.1		
	14						3.6	Brown, SILT, dense TILL, trace Gravel, fine Sand and Clay, moist	
11	35	S-6	10-12	90	75	1.1	1.5		
	40						0.2		
12	48						0.1		
	50	S-7	12-12.9	100	NA	0.5	1.3	Brown, SILT, little Sand, trace Clay, Eramosa Formation Dolomite, damp	Gravel piece caught in end of spoon
13	50/3						0.1		Split spoon refusal @ 12.9', auger to 13.0'
	36						0.1	...Red/Brown, SILT, some fine Sand, little Clay and Gravel, moist	
14	45	S-8	13-14.3	100	NA	0.3	0.0		
	50/4								
15									Split spoon refusal @ 14.3', auger to 15.0'
	25						0.0	Gray, Brown, fine Sandy SILT, trace Clay and Gravel, moist	
16	31	S-9	15-17	100	NA	0.4	0.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-04

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657
www.dayenvironmental.com

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Test Boring MW-04

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: J. Danzinger
Drilling Contractor: SJB
Sampling Method: Split Spoon

Ground Elevation: 527.52 | Datum: City of Rochester
Date Started: 10/25/2011 | Date Ended: 10/25/2011
Borehole Depth: 30.3' | Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.16 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	27	S-9	15-17	100	NA	0.4	0.0	Gray, Silty fine SAND, trace Gravel, wet	
17	38						0.0		
	40	S-10	17-17.9	80	58	0.1	0.0		**Split spoon refusal @ 17.9', auger to 18.0'**
18	50/4						0.0		
	13	S-11	18-20	85	54	0.0	0.4	Gray, fine Sandy SILT, trace Gravel, wet	
19	24						0.0		
	30						0.0		
20	46						0.0	Gray, fine SAND, little Silt, wet	
	11	S-12	20-22	85	33	0.0	0.0	Gray Brown, SILT, moist	
21	18						0.0		
	15						0.0	Gray, Brown, fine SAND, some Silt, wet	
22	26						0.0		
	15	S-13	22-24	90	73	0.0	0.0		
23	27						0.0	Gray, Brown, SILT, little fine dense Sand, wet	
	46						0.0		
24	48						0.0		
	22	S-14	24-25.1	100	NA	0.1	0.0	...trace fine Sand, Clay and Gravel, dense, moist	
25	48						0.0		
26									Split spoon refusal @ 25.1', auger to 27.0'
27									Split spoon refusal @ 27.1', auger to 29.0'
	50/1	S-15	26-27.1	2	NA	NA	0.0		
28									
29	50/2	S-16	28-29	2	NA	NA	0.0		Split spoon refusal @ 29.2', auger to 30.0'
30	50/1	S-17	29-30.	0	NA	NA	0.0		Split spoon refusal @ 30.1', auger to 30.5'
31								Auger Refusal @ 30.5'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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FAX (212) 986-8657

Test Boring MW-05

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: J. Danzinger
Drilling Contractor: SJB
Sampling Method: Direct Push

Ground Elevation: 527.83
Datum: City of Rochester
Date Started: 10/25/2011
Date Ended: 10/26/2011
Borehole Depth: 30.8'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.25 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	7						0.0	Crushed Stone	
1	6	S-1	0-2	65	8	0.2	0.0	Black, Cinders, Sand, Coal, little White Ash, (FILL) moist	
	2						0.0	...Black, Organic SILT	
2	2								
	3						0.0	...Tan, Silt with trace to little Brick, Cinders, Gravel and Ash (FILL)	
3	3	S-2	2-4	35	10	0.0	0.0		
	7						0.0		
4	6						0.0		
	3						0.0	Red, Gray, Tan, Brown, mottled Clayey SILT, little to trace Sand and Gravel, moist	
5	3	S-3	4-6	80	6	0.0	0.0		
	3						0.0		
6	3						0.0		
	4						0.0	Gray, Brown, Red, fine to medium Sandy SILT, trace Gravel and Clay, moist	Some black staining
7	7	S-4	6-8	90	15	0.1	0.0		
	8						0.0		
8	8						0.0		
	8						0.0	...Tan, Brown, fine Sandy SILT, moist	
9	10	S-5	8-10	80	20	0.1	0.0		
	10						0.0		
10	11						0.1		
	14						0.0	...moist to wet	
11	17	S-6	10-12	95	40	0.0	0.0		
	23						0.0		
12	24						0.0		
	25						0.0	Tan, fine SAND, some Silt, wet	
13	36	S-7	12-14	100	81	0.0	0.0		
	45						0.0	Tan, Brown, Silt (TILL), little to some fine Sand, trace Gravel and Clay, dense, moist	
14	50						0.0		
	37						0.0	...Gray, Red, Brown, Silt (TILL), little to some Sand and Gravel, trace Clay, dense, moist	
15	47	S-8	14-16	90	90	0.5	0.4		
	43						0.1		
16	45						0.0		

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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-05

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ENVIRONMENTAL CONSULTANTS

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AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-05

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: J. Danzinger
Drilling Contractor: SJB
Sampling Method: Direct Push

Ground Elevation: 527.83
Datum: City of Rochester
Date Started: 10/25/2011
Date Ended: 10/26/2011
Borehole Depth: 30.8'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.25 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	44	S-9	16-17.2	100	NA	0.4	0.2	Tan, Gray, Brown, Silt (TILL), some Sand, little Gravel and Clay, dense	**Split spoon refusal @ 17.2', auger to 17.0'**
	50						0.1		
17	50/2						00.3	...some Rock Fragments, moist	
	41	S-10	17-19	95	89	0.1	0.8		
18	48						0.3		
	46						0.4		
19	49						0.2	….Tan, Brown, Sandy Silt (TILL), little Gravel, trace Clay, very moist	
	25	S-11	19-21	95	56	0.4	0.3		
20	31						0.1	Gray, Brown, coarse SAND, little Silt and Gravel, wet	
	32						0.2		
21	32						0.0	…Gray, Brown, moist	
	15	S-12	21-23	65	33	0.0	0.0		
22	18						0.0	Gray, Brown, very fine SAND, wet	
	35						0.0		
23	42						0.0		
	18	S-13	23-25	100	43	0.0	0.0	Gray, Brown, SILT, little Sand, very moist to wet	
24	25						0.0		
	37						0.0		
25	45						0.0		
	21	S-14	25-26.7	100	NA	0.3	0.0		
26	32						0.0		**Split spoon refusal @ 26.7', auger to 27.0'**
27	45	S-15	27-27.6	100	NA	0.5	0.2	...trace Gravel, little very fine Sand, very moist	
	50/2						0.1		**Split spoon refusal @ 27.6', auger to 28.0'**
28	48	S-16	28-28.6	100	NA	0.0	0.0		
	50/1	S-17	28.5-29.0	100	NA	0.1	0.0		**Split spoon refusal @ 28.6', auger to 29.0'**
29	50	S-18	29-29.7	100	NA	0.1	0.0	Gray, Brown, very fine Sandy SILT, dense,.some fractured Eramosa Formation	
	50/1						0.0	Dolomite, moist to wet	**split spoon refusal @ 29.4', auger to 30.0'**
30	40	S-19	30-30.8	100	NA	0.0	0.0	...trace Gravel, very moist to wet	
	50/2						0.0		
31								Auger Refusal @ 30.8'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-05

Test Boring MW-06

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: J. Danzinger
Drilling Contractor: SJB
Sampling Method: Split Spoon

Ground Elevation: 527.86 Datum: City of Rochester
Date Started: 10/26/2011 Date Ended: 10/27/2011
Borehole Depth: 30.5' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.21 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	3						0.0	Crushed Stone	
1	3	S-1	0-2	65	6	0.0	0.0	Tan, Brown, Clayey SILT, little Gravel and Sand, moist	
	3						0.0		
2	2						0.0		
	3						0.0	...Orange, Brown, Clayey SILT, some Gravel, moist	
3	3	S-2	2-4	15	8	0.0	0.0		
	5						0.0		
4	5						0.0		
	13						0.0	Orange, Brown, Red, Gray, SILT, trace Eramosa Formation Dolomite, Gravel	
5	25	S-3	4-6	75	47	0.0	0.0	and little Sand, moist	
	22						0.0		
6	28						0.0		
	28						0.0	Orange, Tan, Brown, fine Sandy SILT, little Gravel, moist	
7	23	S-4	6-8	90	44	0.0	0.0		
	21						0.0		
8	19						0.0		
	9						0.0	...Tan, Brown, fine Sandy SILT, trace rounded Gravel, moist	
9	12	S-5	8-10	80	30	0.1	0.0		
	18						0.0		
10	18						0.0		
	21						0.3	...Tan, Brown, Sandy SILT, wet	
11	15	S-6	10-11.9	60	47	0.1	0.0	…tan-gray	
	32						0.2		
12	50/4						0.1		
	40	S-7	12-12.9	50	NA	0.0	0.0	Reddish-Gray, SILT, trace rounded Gravel, moist	
13	50/4						0.0		
	39	S-8	13-13.8	40	NA	0.0	0.1		
14	50/3						0.0		
	47	S-9	14-14.7	40	NA	0.0	0.0	…little rounded Gravel, very dense, moist	
15	50/2						0.0		
	50/3	S-10	15-15.3	10	NA	0.0	0.0		
16	50/3	S-11	16-16.3	2	NA	NA	0.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
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Test Boring MW-06

day

DAY ENVIRONMENTAL, INC.

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AN AFFILIATE OF DAY ENGINEERING, P.C.

Project #:	Rocity.4355s-10		**Test Boring MW-06**
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 527.86	Datum: City of Rochester
DAY Representative:	J. Danzinger	Date Started: 10/26/2011	Date Ended: 10/27/2011
Drilling Contractor:	SJB	Borehole Depth: 30.3'	Borehole Diameter: 8"
Sampling Method:	Split Spoon	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 12.21 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17	19						0.2	Reddish-Gray, SILT, trace rounded Gravel, moist	
	45	S-12	17-18.8	80	94	0.0	0.1		**Split spoon refusal @ 18.8', auger to 19.0'**
18	49						0.1		
	50/3						0.1		
19	22						0.0	Reddish-Gray, Silty SAND, moist	
	28	S-13	19-21	80	56	0.2	0.0		
20	28						0.0		
	23						0.0	Gray, fine SAND, wet	
21	15						0.0		
	19	S-14	21-23	100	55	0.0	0.0		
22	36						0.0		
	42						0.0		
23	W/H						0.0		
	9	S-15	23-25	90	30	0.1	0.0		
24	21						0.0		
	32						0.0		
25	4						0.0		
	29	S-16	25-26.8	80	76	0.1	0.2	Gray, Silty fine SAND, wet	
26	47						0.1		**Split spoon refusal @ 26.8', auger to 27.0'**
	50/3						0.1		
27	18	S-17	27-27.9	60	NA	0.0	0.0	Gray, SILT, trace rounded Gravel, wet	**split spoon refusal @ 27.9', auger to 28.0'**
	50/4						0.0		
28	47	S-18	28-28.7	60	NA	0.0	0.2	…trace CLAY, moist	**Split spoon refusal @ 28.7', auger to 30.0'**
	50/2								
29									
30	49 50/1	S-19	30-30.6	40	NA	0.0	0.0		
31								Auger Refusal @ 30.5'	
32									

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Test Boring MW-06

Test Boring MW-07

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB
Sampling Method: Spilt Spoon

Ground Elevation: 528.38 Datum: City of Rochester
Date Started: 11/1/2011 Date Ended: 11/1/2011
Borehole Depth: 32.5' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.53 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	5						0.0	Crushed Stone	
1	6	S-1	0-2	10	16	0.0	0.0	Silt and Gravel, trace Bricks, Rock fragmens (FILL) moist	
	10						0.0		
2	7						0.0		
	7						0.0	…some Brick, moist	
3	5	S-2	2-4	40	9	0.0	0.0		
	4						0.0		
4	7						0.0		
	12						0.0	Tan, SILT, little rounded Gravel, moist	
5	13	S-3	4-6	80	29	0.0	0.0		
	16						0.0		
6	16						0.0		
	20						0.0		
7	18	S-4	6-8	90	39	0.0	0.0		
	21						0.0		
8	20						0.0		
	15						0.0	Tan, Sandy SILT, moist	
9	13	S-5	8-10	80	26	0.0	0.0		
	13						0.0	…wet	
10	13						0.0		
	12						0.0		
11	18	S-6	10-12	70	45	0.0	0.0		
	27						0.0		
12	34						0.0	Gray, SILT, very dense, moist	
	37						0.0	...rounded Gravel, moist/wet	
13	50	S-7	12-13.2	60	NA	0.0	0.0		
	50/2						0.0		
14	43						0.0	...Reddish Gray, little rounded Gravel, trace Clay, moist	
	50/4	S-8	14-14.9	10	NA	0.0	0.0		**Split spoon refusal @ 13.2' auger to 14.0'**
15									**Split spoon refusal @ 14.9', auger to 16.0'**
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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5) Headspace PID readings may be influenced by moisture

Test Boring MW-07

day

DAY ENVIRONMENTAL, INC.

ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-07

Project #:	Rocity.4355s-10	Ground Elevation: 528.38	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York	Date Started: 11/1/2011	Date Ended: 11/1/2011
DAY Representative:	D. Peck (City of Rochester)	Borehole Depth: 32.5'	Borehole Diameter: 8"
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon	Water Level (Date): 12.53 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17	20						0.0	Reddish-Gray, SILT, little rounded Gravel, moist	
	49	S-9	16-17.4	60	NA	0.0	0.0		**Split spoon refusal @ 17.4', auger to 18.0'**
	50/4								
18	38						0.0	Gray, Silty CLAY and Gravel, wet seam	
19	50	S-10	18-19.2	70	NA	0.0	0.0	Gray SILT, little rounded Gravel, moist	
	50/2								**Split spoon refusal @ 19.2, auger to 20.0'**
20	32						0.0	…little to some Rock fragments	
	38	S-11	20-21.8	80	80	0.0	0.0	Gray, Silty SAND, little rounded Gravel, moist/wet	
21	42						0.0		
	50/3						0.0		**Split spoon refusal @ 21.8', auger to 22.0'**
							0.0		
22	24						0.0	Gray, fine SAND, trace rounded Gravel, wet	
	37	S-12	22-23.4	60	NA	0.0	0.0		
23	50/4						0.0		**Split spoon refusal @ 23.4', auger to 24.0'**
24	23						0.0	...trace Silt	
25	33	S-13	24-26	90	63	0.0	0.0		
	30						0.0		
	35						0.0		
26	37						0.0		
27	50	S-14	26-27.1	70	NA	0.0	0.0		
	50/1						0.0	Gray, SILT, little Clay, wet	**Split spoon refusal @ 27.1', auger to 28.0'**
							0.0		
28	39						0.0		
29	49	S-15	28-29.1	50	NA	0.0			
	50/1								**Split spoon refusal @ 29.1', auter to 30.0'**
30	38	S-16	30-30.8	40	NA	0.0	0.0	Gray, SILT, little rounded Gravel, wet	
31	50/3								**Split spoon refusal @ 30.8', auger to 32.0'**
32	50/0	S-17	32-32.5	0	NA	NA	NA	Auger Refusal @ 32.5'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-07

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FAX (585) 454-0825

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FAX (212) 986-8657

Test Boring MW-08

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB
Sampling Method: Split Spoon

Ground Elevation: 527.00
Datum: City of Rochester
Date Started: 10/27/2011
Date Ended: 10/27/2011
Borehole Depth: 29.1'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 11.95 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	5						0.0	Crushed Stone	
1	5	S-1	0-2	70	9	0.0	0.0	Brown, Silt and Gravel (FILL), moist	
	4						0.4		
2	4						0.2		
	3						0.0	Brown, SILT, little fine Sand, moist	
3	4	S-2	2-4	60	9	0.0	0.0		
	5						0.0		
4	3						0.0		
	2						0.0	Red-Brown, SILT, little Clay, moist	
5	2	S-3	4-6	50	14	0.0	0.0		
	12						0.0	…Rock fragments (red sandstone)	
6	43						0.0		
	32						0.0	...little Sand and Rock fragments	
7	22	S-4	6-8	50	40	0.0	0.0		
	18						0.0		
8	29						0.0		
	13						0.0	...Tan/Gray, trace Gravel	
9	8	S-5	8-10	90	32	0.0	0.0		
	24						0.0		
10	42						0.0		
	28						0.0		
11	47	S-6	10-11.3	50	NA	0.0	0.0		
	50/3						0.0		
12							0.0		**Split spoon refusal @ 11.3', auger to 12.0'**
	49						0.0	…Tan	
13	50/3	S-7	12-12.8	60	NA	0.1	0.0		**Split spoon refusal @ 12.8', auger to 14.0'**
14	43						0.0	...Reddish-Gray, SILT, little fine Gravel	
	49	S-8	14-15.2	90	NA	0.1	0.0		
15	50/2								**Split spoon refusal @ 15.2', auger to 16.0'**
16	36	S-9	16-17.3	50	NA	0.0	0.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-08

Project #:	Rocity.4355s-10		
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 527.00	Datum: City of Rochester
DAY Representative:	D. Peck (City of Rochester)	Date Started: 10/27/2011	Date Ended: 10/27/2011
Drilling Contractor:	SJB	Borehole Depth: 29.1	Borehole Diameter: 8"
Sampling Method:	Split Spoon	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 11.95 (1/3/12)	

Test Boring MW-08

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
								Reddish-Gray, SILT, little fine Gravel, moist	
17	48	S-9	16-17.3	50	NA	0.0	0.1		
	50/3								Split spoon refusal @ 17.3', auger to 18.0'
18	21						0.0	Gray, SILT and fine Sand, wet	
19	29	S-10	18-20	90	65	0.0	0.0		
	36						0.0		
	47						0.0		
20	4						0.0	Gray, very fine SAND, trace Silt and Clay, wet	
21	18	S-11	20-22	100	46	0.0	0.0		
	28						0.0		
	39						0.0		
22	32						0.0		
23	46	S-12	22-23.3	100	NA	0.0	0.0		
	50/3								Split spoon refusal @ 23.3', auger to 24.0'
24	25						0.0	...Gray, Clayey SILT, wet	
25	48	S-13	24-25.2	100	NA	0.0	0.0		
	50/2								Split spoon refusal @ 25.2', auger to 26.0'
26	34						0.0	Gray, very fine SAND, trace Silt and Clay, wet	
27	26	S-14	26-28	90	49	0.0	0.0		
	23						0.0		
	50						0.0		
28	50/4	S-15	28-28.4	5	NA	0.0	0.0		Split spoon refusal @ 28.1', auger to 29.0'
							0.0		
29								Auger Refusal @ 29.1'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-08

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Test Boring MW-09

Project #:	Rocity.4355s-10	Ground Elevation: 526.56	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 10/31/2011	Date Ended: 11/1/2011
DAY Representative:	D. Peck (City of Rochester)	Borehole Depth: 30.0'	Borehole Diameter: 8"
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon	Water Level (Date): 10.78 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	6						0.0	Crushed Stone	
1	3	S-1	0-2	40	5	0.0	0.0	Brown/Black, Silt, trace Brick, moist (FILL)	
	2						0.0		
2	3						0.0		
	3						0.0		
3	3	S-2	2-4	100	9	0.0	0.0	Tan, fine SAND with some Silt, trace fine Gravel, loose, moist	
	6						0.0	Tan, Silty CLAY, trace fine Gravel, dense, moist	
4	7						0.0	…some Red/Brown Silt, fine Sand	
	5						0.0		
5	7	S-3	4-6	80	19	0.1	0.0	Tan, SILT, trace Clay and Sand, moist	
	12						0.0		
6	17						0.0		
	23						0.0	…rounded Gravel, limestone rock fragments, moist	
7	15	S-4	6-8	60	30	0.1	0.0		
	15						0.0		
8	16						0.0		
	10						0.0	Tan, Sandy SILT, moist/wet	
9	12	S-5	8-10	80	33	0.0	0.0		
	21						0.0		
10	24						0.0		
	15						0.0	Tan, fine to medium SAND, some Silt, little Gravel, moist	
11	13	S-6	10-12	80	29	0.1	0.0		
	16						0.0		
12	17						0.0		
	16						0.0	…medium to coarse SAND, little Gravel and Clay, wet	
13	17	S-7	12-14	50	37	0.1	0.0		
	20						0.0		
14	18						0.0		
	13						0.0	Yellowish-Brown, Sandy SILT and Clay, little Gravel, dense	
15	35	S-8	14-16	NA	83	0.0	0.0		
	48						0.0		
16	49						0.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-09

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
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NEW YORK, NEW YORK 10016-0710
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Test Boring MW-09

Project #:	Rocity.4355s-10				
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St				
	Rochester, New York	Ground Elevation:	526.56	Datum:	City of Rochester
DAY Representative:	D. Peck (City of Rochester)	Date Started:	10/31/2011	Date Ended:	11/1/2011
Drilling Contractor:	SJB	Borehole Depth:	30.0'	Borehole Diameter:	8"
Sampling Method:	Split Spoon	Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings		
		Water Level (Date):	10.78 (1/3/12)		

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	50						0.1	Tan, SILT, trace Gravel, moist	**Split spoon refusal @ 16.8', auger to 18.0'**
	50/3	S-9	16-16.8	20	NA	0.1	0.1		
17									
18	10						0.0	Tan/Gray, medium SAND, wet	
	12	S-10	18-20	90	39	0.0	0.0		
19	27						0.0		
	45						0.0		
20	9						0.0	…fine SAND, little Silt, wet	
	25	S-11	20-22	90	71	0.0	0.0		
21	46						0.0		
	49						0.0		
22	30						0.0	Tan/Gray, Sandy SILT, wet	**Split spoon refusal @ 22.9', auger to 24.0'**
	50/4	S-12	22-22.9	70	NA	0.0	0.0		
23									
24	25						0.0	Tan/Gray, SILT, trace Clay, wet	
	32	S-13	24-25.4	80	NA	0.0	0.0		
25	50/4						0.0		**Split spoon refusal @ 25.4', auger to 26.0'**
26	50/4						0.0		**Split spoon refusal @ 26.4', auger to 28.0'**
		S-14	26-26.4	40	NA	0.0	0.0		
27									
28	50						0.0		
	50/3	S-15	28-29.5	30	NA	0.0	0.0		
29									**Split spoon refusal @ 29.5', auger to 30.0'**
30								Auger Refusal @ 30.0'	
31									
32									

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-09

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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NEW YORK, NEW YORK 10016-0710
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Test Boring MW-10

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York
DAY Representative:	D. Peck (City of Rochester)
Drilling Contractor:	SJB
Sampling Method:	Split Spoon
Ground Elevation:	527.73
Datum:	City of Rochester
Date Started:	10/31/2011
Date Ended:	10/31/2011
Borehole Depth:	30.8'
Borehole Diameter:	8"
Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date):	12.53 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1–8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected Boring Advanced through CR-2 Backfilled Basement	
8–10	19 25 26 26	S-1	8-10	90	51	0.2	0.0 0.0 0.3 0.1	Tan, SILT, trace Sand, moist	
10–12	13 15 16 20	S-2	10-12	70	31	0.0	0.0 0.0 0.0 0.3	Tan, Sandy SILT, moist/wet	
12–14	37 48 50/2	S-3	12-13.2	60	NA	0.0	0.0 0.0 0.0	Gray, SILT, little rounded Gravel, trace Clay, moist	
14–15	49 50/3	S-4	14-14.8	40	NA	0.0	0.0 0.0	Tan with Reddish-Brown Streaks, SILT, trace Clay, some fine Gravel, moist …Crushed Stone	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-10

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Project #:	Rocity.4355s-10		**Test Boring MW-10**
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 527.73 / Datum: City of Rochester	Page 2 of 2
DAY Representative:	D. Peck (City of Rochester)	Date Started: 10/31/2011 / Date Ended: 10/31/2011	
Drilling Contractor:	SJB	Borehole Depth: 30.8' / Borehole Diameter: 8"	
Sampling Method:	Split Spoon	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 12.53 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	47							...Rock fragments	
17	50/2		16-16.7	<1	NA	NA	0.0		**Split spoon refusal @ 16.7', auger to 18.0'**
18	50						0.0	Reddish-Gray, trace Gravel, very dense, moist	**Split spoon refusal @ 18.8', auger to 20.0'**
19	50/3	S-5	18-18.8	50	NA	0.1	0.0		
20	49						0.0	…trace fine Sand	**Split spoon refusal @ 20.7', auger 22.0'**
21	50/2	S-6	20-20.7	50	NA	0.0	0.0		
22	31						0.0		
23	32	S-7	22-24	100	64	0.0	0.0		
	32						0.0		
24	45						0.0	Gray, fine SAND, wet	
	10						0.0		
25	22	S-8	24-26	90	52	0.0	0.0		
	30						0.0		
26	41						0.0		
	48						0.0	Gray, Sandy SILT, wet	
27	49	S-9	26-27.3	90	NA	0.0	0.0		
	50/3								**Split spoon refusal @ 27.3', auger to 28.0'**
28	46						0.0	Gray, SILT, little Clay, moist	**Split spoon refusal @ 28.9', auger to 30.0'**
29	50/4	S-10	28-28.9	40	NA	0.0	0.0		
30	50/3	S-11	30-30.3	NA	NA	NA	NA		**Split spoon refusal @ 30.3', auger to 30.8'**
31								Auger Refusal @ 30.8'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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Test Boring MW-10

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
www.dayenvironmental.com
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-11

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York
DAY Representative:	D. Peck (City of Rochester)
Drilling Contractor:	SJB
Sampling Method:	Spilt Spoon

Ground Elevation:	524.11	Datum:	City of Rochester
Date Started:	11/2/2011	Date Ended:	11/2/2011
Borehole Depth:	23.0'	Borehole Diameter:	8"

Completion Method: ☐ Well Installed ☐ Backfilled with Grout ■ Backfilled with Cuttings

Water Level (Date): 4.99 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	1							Grass & Topsoil	
1	1	S-1	0-2	10	4	0.0	0.0	Brown, Silt, little Organics, Rock fragments, moist (FILL)	
	3								
2	3								
	3							... little Clay and Gravel	
3	3	S-2	2-4	10	5	0.2	0.0		
	2								
4	2								
	12						0.0	Tan, SILT, trace Gravel, moist	
5	14	S-3	4-6	60	33	0.9	0.0		
	19						0.0		
6	18						0.0		
	35						0.0	...wet	
7	48	S-4	6-7.4	90	NA	0.8	0.0	...little Sand	
	50/4						0.0		**Split spoon refusal @ 7.4', auger to 8.0'**
8									
	29						0.0		
9	27	S-5	8-10	100	52	0.5	0.0		
	25						0.0		
10	37						0.0		
	27						0.0		
11	48	S-6	10-12	90	89	0.4	0.0	...2" Rock fragments	
	41						0.0		
12	37						0.0		
	40						0.0	...Gray, little rounded Gravel, wet	
13	46	S-7	12-13.8	100	95	2.6	0.0		
	49						0.0		**Split spoon refusal @ 13.8', auger to 14.0'**
14	50/3						0.0		
	9						2.2		
15	22	S-8	14-16	90	48	7.1	3.8		
	26						1.8		
16	33						2.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-11

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Test Boring MW-11

Project #:	Rocity.4355s-10	Ground Elevation: 524.11	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 11/2/2011	Date Ended: 11/2/2011
DAY Representative:	D. Peck (City of Rochester)	Borehole Depth: 23.0'	Borehole Diameter: 8"
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon	Water Level (Date): 4.99 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	20						0.0	...Gray	
17	27	S-9	16-17.7	90	69	2.8	0.0		
	42						0.0		**Split spoon refusal @ 17.7', auger to 18.0'**
	50/2						0.0		
18	49						0.1		**Split spoon refusal @ 18.7', auger to 20.0'**
	50/2	S-10	18-18.7	20	NA	0.2	0.0		
19									
20	47						0.0		
	49	S-11	20-21.3	30	NA	0.3	0.1	Gray, SAND wet	
21	50/3						0.0	Gray, SILT, little Gravel, wet	**Split spoon refusal @ 21.3', auger to 22.0'**
22	30	S-12	22-22.9	40	NA	0.0	0.0		
	50/4						0.0		**Split spoon refusal @ 22.9', auger to 23.0'**
23								Auger Refusal @ 23.0'	
24									
25									
26									
27									
28									
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
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1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB
Sampling Method: Split Spoon

Test Boring MW-12

Ground Elevation: 528.83 Datum: City of Rochester
Date Started: 11/3/2011 Date Ended: 11/3/2011
Borehole Depth: 31.5' Borehole Diameter: 8"
Completion Method: ☐ Well Installed ☐ Backfilled with Grout ■ Backfilled with Cuttings
Water Level (Date): 15.08 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	5							Crushed Stone	
1	4	S-1	0-2	5	10	0.0	0.0	Brown, SILT, trace Clay, some fine Gravel, loose, moist	
	6								
2	5								
	7						0.0	Tan, fine SAND, trace Silt and Stone fragments, soft, moist	
3	19	S-2	2-4	30	31	0.0	0.0		
	12								
4	7								
	4						0.0		
5	3	S-3	4-6	60	10	0.0	0.0		
	7						0.0		
6	10						0.0		
	14						0.0	Tan, SILT, trace Clay and Gravel, moist	
7	11	S-4	6-8	100	26	0.0	0.0		
	15						0.0		
8	15						0.0		
	11						0.0	...some fine Sand, trace Gravel, moist	
9	4	S-5	8-10	80	21	0.0	0.0		
	17						0.0		
10	17						0.0		
	7						0.0		
11	21	S-6	10-12	100	40	0.0	0.0		
	19						0.0	…Rock fragments	
12	20						0.0	…wet seam	
	34						0.0		
13	45	S-7	12-14	100	94	0.0	0.0	...Reddish-Gray, little rounded Gravel	
	49						0.0		
14	50						0.0		
	45								
15	48								
	50/4	S-8	14-15.4	0	NA	No Recovery			**Split spoon refusal @ 15.4', auger to 16.0'**
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-12

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Project #:	Rocity.4355s-10		**Test Boring MW-12**
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 528.83	Datum: City of Rochester
DAY Representative:	D. Peck (City of Rochester)	Date Started: 11/3/2011	Date Ended: 11/3/2011
Drilling Contractor:	SJB	Borehole Depth: 31.5'	Borehole Diameter: 8"
Sampling Method:	Spilt Spoon	Completion Method: ☐ Well Installed ☐ Backfilled with Grout ■ Backfilled with Cuttings	
		Water Level (Date): 15.08 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	44						0.0	…Rock fragments	
17	47	S-9	16-17.8	80	97	0.0	0.0	...Gray	
	50						0.0		**Split spoon refusal @ 17.8', auger to 18.0'**
18	50/3						0.0		
	39						0.0	…trace Sand	
19	26	S-10	18-20	100	73	0.0	0.0		
	47						0.0		
20	45						0.0		
	13						0.0	Gray, fine to medium SAND, little Gravel, wet	
21	22	S-11	20-22	100	61	0.0	0.0		
	39						0.0		
22	42						0.0		
	47						0.0		
23	49	S-12	22-23.3	100	NA	0.0	0.0		
	50/3						0.0		**Split spoon refusal @ 23.3', auger to 24.0'**
24									
	45						0.0		
25	31	S-13	24-25.3	50	NA	0.0	0.0	…Gravel seam	
	50/3							Gray, SILT, moist/wet	**Split spoon refusal @ 25.3', auger to 26.0'**
26									
	41						0.0		
27	49	S-14	26-27.3	70	NA	0.0	0.0		
	50/3						0.0		**Split spoon refusal @ 27.3', auger to 28.0'**
28									
	23						0.0		
29	48	S-15	28-29.4	50	NA	0.6	0.0		
	50/4						0.0		**Split spoon refusal @ 29.4', auger to 30.0'**
30									
	25						0.0		**Split spoon refusal @ 30.8', auger to 31.5'**
31	50/3	S-16	30-30.8	50	NA	0.7	0.0		
32								Auger Refusal @ 31.5'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-12

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

Test Boring MW-13

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB
Sampling Method: Split Spoon

Ground Elevation: 529.21
Datum: City of Rochester
Date Started: 11/3/2011
Date Ended: 11/3/2011
Borehole Depth: 32.3'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.55 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
0-10	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected Boring Advanced Through Former Basement Backfilled with CR-2	
10-12	7 8 12 18	S-1	10-12	40	20	12.2	4.6 22.3	Brown, Silty SAND and GRAVEL, wet	
12-14	30 33 50/4	S-2	12-13.4	50	NA	1.1	0.9 0.0 0.0	Brown, Sandy GRAVEL, wet Brown, fine SAND, wet	**Split spoon refusal @ 13.4', auger to 14.0'**
14-16	33 50/4	S-3	14-14.9	50	NA	0.4	0.0 0.0	Tan, Sandy SILT, trace rounded Gravel, wet	**Split spoon refusal @ 14.9', auger to 16.0'**

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-13

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
www.dayenvironmental.com
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-13

Project #:	Rocity.4355s-10	Ground Elevation: 529.21	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York	Date Started: 11/3/2011	Date Ended: 11/3/2011
DAY Representative:	D. Peck (City of Rochester)	Borehole Depth: 32.3'	Borehole Diameter: 8"
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon	Water Level (Date): 12.55 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	19						0.0	Brown, medium to coarse SAND, wet	
	36	S-4	16-18	90	83	0.3	0.0	Reddish-Brown, SILT, trace rounded Gravel and Clay, very dense, moist	
17									
	47						0.0		
	50						0.0		
18									
	42						0.0	...Gray	
	30	S-5	18-19.4	70	NA	0.3	0.0		
19									
	50/4						0.0		**Split spoon refusal @ 19.4', auger to 20.0'**
20									
	50						0.0	Grayish-Brown, very dense, fine SAND, some Silt, trace fine Gravel, moist	**Split spoon refusal @ 20.6', auger to 22.0'**
	51/1	S-6	20-20.6	100	NA	0.4	0.0		
21									
22									
	24						0.0	...wet	
	34	S-7	22-24	90	76	0.0	0.0		
23									
	42						0.0		
	50						0.0		
24									
	22						0.0		
	35	S-8	24-25.9	100	83	0.3	0.0		
25									
	48						0.0		**Split spoon refusal @ 25.9', auger to 26.0'**
	50/4						0.0		
26									
	23						0.0		
	44	S-9	26-27.3	70	NA	0.0	0.0		
27									
	50/3						0.0		**Split spoon refusal @ 27.3', auger to 28.0'**
								...Rock fragments	
28									
	39						0.0	Grayish-Brown, very stiff, SILT, with little Clay, trace fine Gravel, wet	**Split spoon refusal @ 28.8', auger to 30.0'**
	50/3	S-10	28-28.8	100	NA	0.0	0.0		
29									
30									
	30						0.0		**Split spoon refusal @ 31.3', auger to 32.3'**
	41	S-11	30-31.3	100	NA	0.0	0.0		
31									
	50/3						0.0		
							0.0		
32									
								Auger Refusal @ 32.3'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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Test Boring MW-13

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-14

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: W. Batiste
Drilling Contractor: SJB
Sampling Method: Split Spoon

Ground Elevation: 529.18 Datum: City of Rochester
Date Started: 11/4/2011 Date Ended: 11/4/2011
Borehole Depth: 32.7' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 10.85 (1/3/12)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	--						0.0	Concrete Sidewalk and Sub-base	
1	2	S-1	0-2	75	8	0.0	0.0	Brown, Silt, little Gravel and Clay, moist (FILL)	
	6						0.0		
2	6						0.0		
	5						0.0		
3	5	S-2	2-4	70	9	0.0	0.0		
	4						0.0		
4	5						0.0		
	3						0.0		
5	4	S-3	4-6	70	14	0.0	0.0	Tan, SILT, little Sand, trace Gravel, moist	
	10						0.0		
6	11						0.0		
	11						0.0		
7	12	S-4	6-8	90	41	0.0	0.0		
	29						0.0	…Rock fragments	
8	14						0.0		
	15							Tan, Silty fine SAND, trace Gravel, moist/wet	No recovery, rock in tip of spoon
9	18	S-5	8-10	0	43	No Recovery			
	25								
10	25								
	18						0.0		
11	23	S-6	10-12	90	47	0.0	0.0		
	24						0.0		
12	21						0.0		
	27						0.0	Tan, medium to coarse SAND and GRAVEL, wet	
13	49	S-7	12-13.4	70	NA	0.0	0.0	Tan, fine SAND grading to Silt, wet	
	50/4						0.0		
14							0.0		
	49						0.0	Gray, SILT, trace Gravel and Sand, very dense, damp	**Split spoon refusal @ 13.4', auger to 14.0'**
15	50	S-8	14-15.2	40	NA	0.0	0.0		
	50/2						0.0		**Split spoon refusal @ 15.2', auger to 16.0'**
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-14

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657
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Test Boring MW-14

Project #:	Rocity.4355s-10	Ground Elevation: 529.18	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 11/4/2011	Date Ended: 11/4/2011
DAY Representative:	W. Batiste	Borehole Depth: 32.7'	Borehole Diameter: 8"
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon	Water Level (Date): 10.85 (1/3/12)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	19						0.1	Reddish-Gray, SILT, trace Gravel, moist	
	50	S-9	16-17.3	50	NA	0.1	0.0		
17	50/4						0.0		**Split spoon refusal @ 17.3', auger to 18.0'**
18	50/4						0.1	Reddish-Gray SILT, little Sand and Gravel, moist	**Split spoon refusal @ 18.4', auger to 20.0'**
19		S-10	18-18.4	30	NA	0.3			
20	47						0.0	Reddish Gray, SAND, trace Gravel, wet	
	46	S-11	20-21.3	50	NA	0.0	0.1		
21	50/3						0.1		**Split spoon refusal @ 21.3', auger to 22.0'**
22	29						0.0		
	43	S-12	22-24	100	92	0.0	0.0		
23	49						0.0		
	50						0.0		
24	30						0.0		
	47	S-13	24-25.9	100	90	0.0	0.0		
25	43						0.0		**Split spoon refusal @ 25.9', auger to 26.0'**
	50/4						0.0		
26	33						0.0		
	49	S-14	26-28	100	94	0.0	0.0	…medium SAND	
27	45						0.0		
	46						0.0		
28	13						0.0		**Split spoon refusal @ 28.9', auger to 30.0'**
29	50/4	S-15	28-28.9	30	NA	0.0	0.0	Gray, SILT, little Clay, moist	
30	35						0.0		**Split spoon refusal @ 30.7', auger to 32.0'**
31	50/2	S-16	30-30.7	40	NA	0.0	0.0		
32	50/3	S-17	32-32.5	0	NA	No Recovery		Auger Refusal @ 32.7'	**Split spoon refusal @ 32.5', auger to 32.7'**

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
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Test Boring MW-14

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-15

Project #:	4355s-10	Ground Elevation: 527.62	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York	Date Started: 12/17/2012	Date Ended: 12/17/2012
DAY Representative:	D. Peck	Borehole Depth: 30.3'	Borehole Diameter: 8"
Drilling Contractor:	QISI	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon	Water Level (Date): 10.74 (1-15-2013)	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1	3, 3, 2, 2	S-1	0-2	30	5	NA	0.0	Brown/Gray Silt, little Gravel, trace Brick (FILL)	
2-3	9, 5, 3, 3	S-2	2-4	60	8	NA	0.0	Gray Silt and crushed Stone to Brown Silt and Clay (FILL)	
4-5	6, 4, 6, 10	S-3	4-6	60	10	NA	0.0	Brown, fine Sandy SILT, little fine Gravel, damp	
6-7	17, 15, 17, 25	S-4	6-8	70	32	NA	0.0		
8-9	17, 15, 18, 21	S-5	8-10	60	33	NA	0.0		
10-11	15, 26, 28, 21	S-6	10-12	70	54	NA	0.0		
12-13	48, 50/3	S-7	12-12.8	50	NA	NA	0.0		
14-16	48, 21, 26, 32	S-8	14-16	NA	47	NA	0.0	Reddish-gray SILT, trace rounded Gravel	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-15

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

420 LEXINGTON AVENUE, SUITE 300
NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-15

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: D. Peck
Drilling Contractor: QISI
Sampling Method: Split Spoon

Ground Elevation: 527.62 | Datum: City of Rochester
Date Started: 12/17/2012 | Date Ended: 12/17/2012
Borehole Depth: 30.3' | Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 10.74 (1-15-2013)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17	50, 36, 50/4	S-9	16-17.4	50	NA	NA	0.0	Reddish-gray, Silty SAND, trace rounded Gravel ...moist/wet @ 17.0'	
18–19	19, 22, 31, 50/4	S-10	18-19.9	NA	53	NA	0.0		
20–21	49, 42, 50/1	S-11	20-21.1	NA	NA	NA	0.0		
22–23	14, 21, 26, 34	S-12	22-24	NA	47	NA	0.0	Gray, fine SAND, wet ...sandy SILT	
24–25	14, 36, 50/4	S-13	24-25.4	NA	NA	NA	0.0	Gray SILT, trace rounded Gravel	
26–27	48, 50/2	S-14	26-26.7	NA	NA	NA	0.0	...moist/dry	
28–29	50, 50/2	S-15	28-28.7	NA	NA	NA	0.0		
30	50/3	S-16	30-30.3	NA	NA	NA	0.0		
31–32								Bottom of Hole @ 30.3'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-15

Test Boring MW-16

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: D. Peck
Drilling Contractor: QISI
Sampling Method: Split Spoon

Ground Elevation: 528.31 Datum: City of Rochester
Date Started: 12/17/2012 Date Ended: 12/18/2012
Borehole Depth: 30.0' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 14.18 (1-15-2013)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1	7, 17, 15, 14	S-1	0-2	40	32	NA	0.0	Crushed Stone, Brown Silt and Gravel, some Bricks, damp (FILL)	
2									
3	15, 14, 14, 15	S-2	2-4	80	28	NA	0.0		
4									
5	18, 9, 10, 11	S-3	4-6	70	19	NA	0.0	Brown Silty SAND, trace Gravel, damp	
6									
7	10, 11, 15, 19	S-4	6-8	80	26	NA	0.0		
8									
9	14, 12, 16, 19	S-5	8-10	60	28	NA	0.0		
10									
11	8, 10, 21, 22	S-6	10-12	80	31	NA	0.0		
12									
13	35, 33, 27, 21	S-7	12-14	100	60	NA	0.0		
14									
15	19, 33, 47, 50	S-8	14-16	100	80	NA	0.0		
16									

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-16

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Test Boring MW-16

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck
Drilling Contractor: QISI
Sampling Method: Split Spoon

Ground Elevation: 528.31
Datum: City of Rochester
Date Started: 12/17/2012
Date Ended: 12/18/2012
Borehole Depth: 30.0'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 14.18 (1-15-2013)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	50							Tan fine SAND	
	35	S-9	16-18	100	67	NA	0.0	...wet	
17	32								
	31								
18	48								
	30	S-10	18-20	70	63	NA	0.0		
19	33								
	39								
20	7								
	15	S-11	20-22	70	36	NA	0.0		
21	21								
	25								
22	15								
	35	S-12	22-23.4	60	NA	NA	0.0		
23	50/4								
24	6								
	32	S-13	24-25.2	30	NA	NA	0.0	...Sandy SILT, wet	
25	50/2								
26	42								
	50/2	S-14	26-26.7	50	NA	NA	0.0	...SILT	
27									
28	43								
	50/3	S-15	28-28.8	NA	NA	NA	NA		
29									
30								Bottom of Hole @ 30.0'	
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-16

day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-17

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck
Drilling Contractor: QISI
Sampling Method: Split Spoon

Ground Elevation: 527.72
Datum: City of Rochester
Date Started: 12/19/2012
Date Ended: 12/19/2012
Borehole Depth: 25.0'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 8.31 (1-13-2013)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1–10								No Samples 0 - 12' Auger through excavation backfill consisting of Gray Silt and crushed Stone (FILL)	
10–12	28 19 18 39	S-1	10-12	70	37	NA	0.0		
12–14	38 37 58 50/4	S-2	12-13.9	80	95	NA	0.0	Tan, Sandy SILT, trace Gravel, damp	
14–16	27 46 50/3	S-3	14-15.3	80	NA	NA	0.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-17

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
www.dayenvironmental.com
420 LEXINGTON AVENUE, SUITE 300
NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: D. Peck
Drilling Contractor: QISI
Sampling Method: Split Spoon

Test Boring MW-17

Ground Elevation: 527.72
Datum: City of Rochester
Date Started: 12/19/2012
Date Ended: 12/19/2012
Borehole Depth: 25.0'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 8.31 (1-15-2013)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17	36 37 25 12	S-4	16-18	90	62	NA	320	Reddish-Gray SILT, little rounded Gravel, moist	Chemical odor
18-19	34 42 36 25	S-5	18-20	80	78	NA	26	Tan, Silty SAND, wet	
20-21	18 41 42 47	S-6	20-22	80	83	NA	6.8	...fine SAND	
22-23	37 50/4	S-7	22-22.9	80	NA	NA	0.0		
24-25	14 28	S-8	24-25	70	NA	NA	0.0	...Sandy SILT	
25-32								Bottom of Hole @ 25.0'	

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-17

Test Boring MW-18

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: C. Hampton
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Ground Elevation: 527.24 Datum: City of Rochester
Date Started: 8/5/2013 Date Ended: 8/5/2013
Borehole Depth: 31.1' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 13.76' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	30						0.0	Gray, crushed Stone, some Sand, damp (FILL)	
	20	S-1	0-2	80	35	1.7			
1	15						2.1		
	9							Red/Brown, Sandy Silt, little Gravel, moist (FILL)	
2	8						0.0		
	12	S-2	2-4	70	22	0.0			
3	10						0.0	...some Clay	
	18								
4	20						0.0		
	17	S-3	4-6	75	34	0.0		Brown, Silty fine SAND, trace fine Gravel, moist	
5	17						0.0		
	17								
6	17						0.0		
	22	S-4	6-8	100	49	0.0		...little fine to coarse Gravel	
7	27						0.0		
	25								
8	17						0.0		
	19	S-5	8-10	100	41	0.0			
9	22						0.0		
	27								
10	30						0.0	...wet	
	100/5	S-6	10-11	20	NA	NA			**Splitspoon refusal @ 11.0'; augered to 12.0'**
11							NA		
12	29						0.0		
	21	S-7	12-14	100	46	0.0		...some fine to coarse Gravel	
13	25						0.0		
	95								
14	100/5	S-8	14-14.5	10	NA	0.0	0.0		
15							NA		
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-18

day

DAY ENVIRONMENTAL, INC.

ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-18

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: C. Hampton
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Ground Elevation: 527.24
Datum: City of Rochester
Date Started: 8/5/2013
Date Ended: 8/5/2013
Borehole Depth: 31.1'
Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 13.76' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	30						0.0		
17	43	S-9	16-18	100	96	0.0			
	53						0.0		
18	50							Gray/Brown, medium to coarse SAND, wet	
	26						0.0	Gray/Brown, Silty fine to medium SAND, little fine to coarse Gravel, wet	
19	38	S-10	18-20	100	76	0.0			
	38						0.0		
20	66								
	25						0.0		
21	29	S-11	20-22	100	51	4.5		Brown, fine to medium SAND, wet	
	22						5.0		
22	65								
	22						2.1		
23	32	S-12	22-24	100	83	0.1		Gray/Brown, fine SAND, little Silt, trace Gravel, wet	
	51						0.0		
24	68								
	20	S-13	24-25.5	75	NA	0.0	0.0	...little coarse Sand	
25	40								
	100/4						0.0		**Split spoon refusal 25.5, auger to 26.0'**
26	100/5	S-14	26-26.5	20	NA	0.0	0.0		**Split spoon refusal @ 26.5', auger to 28.0'**
27							NA		
28	100/1	S-15	28-28.1	10	NA	NA	NA		**Split spoon refusal @ 28.1', auger to 30.0'**
29							NA		
30	81	S-16	30-30.8	40	NA	0.0	0.0	Gray, Silty fine to medium SAND with fine to coarse Gravel, wet	**Split spoon refusal @ 30.8', auger to 31.1'**
31	100/4								
								Auger Refusal @ 31.1'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-18

day

DAY ENVIRONMENTAL, INC.

ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-19

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Ground Elevation: 527.82 | Datum: City of Rochester
Date Started: 8/5/2013 | Date Ended: 8/5/2013
Borehole Depth: 31.0' | Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 15.13' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	27							Crushed Stone	
	20	S-1	0-2	80	37	0.0	0.0	Brown, Silt and Gravel, Rock fragments, little Brick, dry (FILL)	
1	17								
	16								
2	30						0.0	...moist	
	20	S-2	2-4	80	41	0.0			
3	21						0.0		
	10								
4	3						0.0	Brown/Gray, Silt and Clay, trace Roots, moist (FILL)	
	3	S-3	4-6	NA	5	0.0			
5	2						0.0		
	2								
6	2						0.0	...some weathered Concrete, trace Brick	
	4	S-4	6-8	50	28	0.0			
7	24						0.0		
	16							Tan SILT, moist	
8	59						0.0	...little rounded Gravel	
	25	S-5	8-10	90	54	0.0			
9	29						0.0		
	32								
10	40						0.0	Tan, Sandy SILT, little Gravel, wet	
	31	S-6	10-12	95	67	0.0			
11	36						0.0		
	46								
12	32						0.0		
	24	S-7	12-14	80	65	0.0			
13	41						0.0		
	38								
14	34						0.0		
	44	S-8	14-16	95	86	0.0			
15	42						0.0		
	52								
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-19

day

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AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-19

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Ground Elevation: 527.82 Datum: City of Rochester
Date Started: 8/5/2013 Date Ended: 8/5/2013
Borehole Depth: 31.0' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 15.13' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	35						0.0	Gray Silty SAND	
	56	S-9	16-18	95	126	0.0			
17	70						0.0	Gray, SAND, wet	
	78								
18	6						0.0		
	29	S-10	18-20	100	74	12.5	1.6		
19	45						6.8	Gray, fine to medium SAND, wet	
	76						0.5		
20	47						4.9		
	62	S-11	20-22	90	115	44.9	35.2	Gray, coarse SAND, wet, slight sweet odor	
21	53						4.7		
	55						13.8	Gray, fine SAND, wet	
22	5						2.6		
	6	S-12	22-24	100	38	0.0	0.0		
23	32						0.0	Gray, very fine SAND, wet	
	42						0.0		
24	15						0.0		
	36	S-13	24-26	100	97	0.0	0.0		
25	61						0.0		
	100/3						0.0		
26	100/5	S-14	26-26.5	20	NA	0.0	0.0	Gray SILT, moist	
27									
28	100/4	S-15	28-28.4	20	NA	0.0	0.0	...little rounded Gravel	
29									
30	81						0.0		
	100/3	S-16	30-30.8	NA	NA	0.0	0.0		
31								Auger refusal @ 31.0'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
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4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-19

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

420 LEXINGTON AVENUE, SUITE 300
NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

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AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-20

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: C. Hampton
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Ground Elevation: 528.01 Datum: City of Rochester
Date Started: 8/5/2013 Date Ended: 8/5/2013
Borehole Depth: 31.3' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 13.85' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	29						1.2	Gray, Crushed ROCK, damp	
1	16	S-1	0-2	80	24	0.0			
	8						0.0	Gray/Black, clayey Silt with fine Sand, damp (FILL)	
2	8								
	7						0.0		
3	12	S-2	2-4	60	22	0.0			
	10						0.0		
4	9							Red/Brown, Clayey fine SAND, trace Gravel, damp	
	6						0.4		
5	7	S-3	4-6	100	13	0.0			
	6						0.0	...little Clay	
6	12								
	13						0.0		
7	13	S-4	6-8	100	25	0.0		...some fine to medium Gravel	
	12						0.0		
8	14								
	13						0.0	Brown, fine SAND, little Gravel, damp	
9	16	S-5	8-10	100	32	0.0			
	16						0.0	...wet	
10	23								
	33						0.0		
11	35	S-6	10-12	100	69	0.0			
	34						0.0	...little Silt	
12	32								
	33						0.0		
13	38	S-7	12-13.8	90	103	0.0		...some fine to medium Gravel	
	65						0.0		**Split spoon refusal @ 13.8', auger to 14.0'**
14	100/5								
	100/5	S-8	14-14.4	20	NA	0.0	0.0		**Split spoon refusal @ 14.4', auger to 16.0'**
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-20

day

DAY ENVIRONMENTAL, INC.

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AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-20

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: C. Hampton
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Ground Elevation: 528.01 | Datum: City of Rochester
Date Started: 8/5/2013 | Date Ended: 8/5/2013
Borehole Depth: 31.3' | Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 13.85' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	56						0.0	Red/Brown, Silty fine to medium SAND, some Gravel, wet	
17	71	S-9	16-17.8	90	154	0.0			
	83						0.0		
	100/5								
18	73						0.0		
	100/4	S-10	18-18.7	40	NA	0.0			
19							NA		
20	38						0.0	Brown, medium to coarse SAND, trace Silt, wet	
21	38	S-11	20-22	100	77	0.0			
	39						0.0	...little Gravel	
	83								
22	5						3.3		
23	32	S-12	22-24	100	73	0.9			
	41						0.0	Brown, fine to medium SAND, trace Gravel	
	55								
24	3						0.0		
25	17	S-13	24-26	100	44	0.0			
	27						0.0	Brown, fine SAND	
	40								
26	100/5	S-14	26-26.4	20	NA	0.0	0.0	Gray, Clayey fine SAND and SILT, wet	
27							NA		**Split spoon refusal @ 26.4', auger to 28.0'**
28	100/6	S-15	28-28.5	25	NA	0.0	0.0	Gray, Silty fine SAND, little fine Gravel, little Clay, wet	**Split spoon refusal @ 28.5', auger to 30.0'**
29							NA		
30	100/5	S-16	30-30.4	20	NA	0.0	0.0		**Split spoon refusal @ 30.4', auger to 31.3'**
31									
32								Auger Refusal @ 31.3'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-20

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

420 LEXINGTON AVENUE, SUITE 300
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(212) 986-8645
FAX (212) 986-8657

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ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: C. Hampton
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Test Boring MW-21

Ground Elevation: 525.32 Datum: City of Rochester
Date Started: 8/5/2013 Date Ended: 8/5/2013
Borehole Depth: 30.8' Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.49' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
								Asphalt 0.25', Concrete 0.25' - 1.0' (Road)	
1	21	S-1	1-2	60	NA	0.0	0.0	Tan, Silt and Gravel, dry (FILL)	
	22								
2	17						0.0	Tan, Sandy Silt, trace Gravel, moist (FILL)	
	13	S-2	2-4	90	26	NA			
3	13						0.0		
	15								
4	17						0.0		
	18	S-3	4-6	100	38	NA			
5	20						0.0		
	24								
6	50/2	S-4	6-6.2	5	NA	NA	0.0	...Rock fragment	Split spoon refusal @ 6.2', auger to 8.0'
7									
8	32						0.0	Tan, Sandy SILT, trace rounded Gravel, moist	
	40	S-5	8-10	100	82	0.0			
9	42						0.0		
	43								
10	29						0.0	Tan, fine SAND, little Silt, wet	
	32	S-6	10-12	80	73	0.0			
11	41						0.0		
	47							Tan SILT, little Sand, moist	
12	32						0.0		
	25	S-7	12-14	90	56	0.0		Tan, fine Sand, wet	
13	31						0.0		
	47								
14	25						0.0		
	31	S-8	14-16	100	73	0.0			
15	42						0.0		
	51								
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-21

Test Boring MW-21

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York
DAY Representative: C. Hampton
Drilling Contractor: Earth Dimensions
Sampling Method: Split Spoon 2"

Ground Elevation: 525.32 | Datum: City of Rochester
Date Started: 8/5/2013 | Date Ended: 8/5/2013
Borehole Depth: 30.8' | Borehole Diameter: 8"
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.49' (8-21-13)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	21						0.0	Tan, SILT, wet	
17	27	S-9	16-18	90	72	0.0			
	45						0.0		
18	89							Gray, SILT, little rounded Gravel, dense, moist	
	62								
19	100/5	S-10	18-18.9	50	NA	0.0	0.0		Split spoon refusal @ 18.9', auger to 20.0'
20	66								Split spoon refusal @ 20.9', auger to 22.0'
21	100/4	S-11	20-20.9	50	NA	0.0	0.0		
22	52								
23	32	S-12	22-23.9	90	75	0.0	0.0	Gray, fine to medium SAND, wet	Split spoon refusal @ 23.9', auger to 24.0'
	43								
24	100/5							Gray SILT, wet	
	39						0.0	Gray, SILT, little rounded Gravel, limestone Rock Fragment, moist	Split spoon refusal @ 24.9', auger to 26.0'
25	100/5	S-13	24-24.9	50	NA	0.0			
							0.0		
26	100/5	S-14	26-26.5	50	NA	0.0	0.0		Split spoon refusal @ 26.5', auger to 28.0'
27									
28	62								
29	100/5	S-14	28-29	50	NA	0.0	0.0	...little fine Sand	Split spoon refusal @ 29.0', auger to 30.0'
30	100/4	S-16	30-30.4	30	NA	0.0	0.0		
31								Auger Refusal @ 30.8'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-21

Test Boring MW-01R

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB
Sampling Method: Split Spoon/HQ

Ground Elevation: 527.71 | Datum: City of Rochester
Date Started: 11/10/2011 | Date Ended: 11/17/2011
Borehole Depth: 43.0' | Borehole Diameter: 10.5 / 5.9 / 3.9
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.03 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1–8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
8	10	S-1	8-10	60	22	0.0	0.0	Reddish Gray SILT, little Gravel, moist	
9	10						0.0		
	12						0.0		
	12						0.0		
10	12	S-2	10-12	90	36	0.0	0.0		
11	16						0.0		
	20						0.0		
	24						0.0		
12	37	S-3	12-14	100	82	0.1	0.0		
13	44						0.0	…little Sand, moist	
	38						0.0		
	30						0.0		
14	17	S-4	14-16	90	32	NA	0.0	Gray, SILT and fine Sand, little Gravel, moist/wet	
15	17						0.0		
	15						0.0		
16	9						0.0	…2" Rock fragments	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-01R

Test Boring MW-01R

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York
DAY Representative:	D. Peck (City of Rochester)
Drilling Contractor:	SJB
Sampling Method:	Split Spoon/HQ
Ground Elevation:	527.71
Datum:	City of Rochester
Date Started:	11/10/2011
Date Ended:	11/17/2011
Borehole Depth:	43.0'
Borehole Diameter:	10.5 / 5.9 / 3.9
Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date):	12.03 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	12						0.0	Gray SILT and SAND, trace Gravel, moist/wet	
17	12	S-5	16-18	70	38	0.0	0.0		
	26						0.0		
	27						0.0		
18	12						0.0	Gray fine SAND, little Silt and Gravel, moist/wet	
19	37	S-6	18-19.3	10	NA	0.3	0.0		
	50/3								Split spoon refusal @ 19.3 ft, auger to 20 ft.
20	13						3.7	...Gray fine SAND, wet	
21	21	S-7	20-22	60	46	112	4.5		
	25						6.8		
	31						11.8		
22	28						7.7		
23	34	S-8	22-23.7	10	76	75.2	17.2		
	42						64.5		
	50/2						24.2		Split spoon refusal @ 23.7 ft, auger to 24 ft.
24	27						5.7	Gray SILT, moist	
25	45	S-9	24-25.4	50	NA	15.7	1.4		
	50/4						0.8		Split spoon refusal @ 25.4 ft., auger to 26 ft.
26	25						1.8		Split spoon refusal @ 26.8 ft., auger to 28 ft.
27	50/3	S-10	26-26.8	50	NA	5.0	0.3		
							0.1		
28	30						0.2		
29	50/2	S-11	28-28.7	40	NA	0.6	0.6		Split spoon refusal @ 28.7 ft., auger to 30 ft.
30	37						0.4		
	50/1	S-12	30-30.6	40	NA	0.0	0.1		
31	NA	NA	NA	NA	NA	NA	NA	Auger Refusal @ 30.6' Rock Socket to 32.1'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-01R

Project #:	Rocity.4355s-10		**Test Boring MW-01R**
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 527.71	Datum: City of Rochester
DAY Representative:	D. Peck (City of Rochester)	Date Started: 11/10/2011	Date Ended: 11/17/2011
Drilling Contractor:	SJB	Borehole Depth: 43.0'	Borehole Diameter: 10.5 / 5.9 / 3.9
Sampling Method:	Split Spoon/HQ	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 12.03 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Fractures	Sample Description	Notes
32							0.0		Gray, hard Eramosaa Formation DOLOMITE, fine Gravel, some 30° +/- angular	
33							0.0			
							0.0		fractures ~32.3', 33.1', 33.6', 34.5'	
34	NA	C-1	32.1-35.9	100	93.4	NA	0.0			
							0.0			
35							0.0			
							0.0			
							0.0			
36							0.0		...general horizontal fractures more in lower half	
37							0.0			
							0.0			
38	NA	C-2	35.9-40.9	98	76	NA	0.0			
							0.0			
39							0.0			
							0.0			
							0.0			
40							0.0			
41							0.0			
	NA	C-2	40.9-43.0	100	80.9	NA	0.0			
42							0.0		...3 horizontal fractures	
							0.0			
							0.0			
43									Bottom of Hole @ 43.0'	
44										
45										
46										
47										
48										

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-01R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
www.dayenvironmental.com
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB
Sampling Method: Split Spoon/HQ

Test Boring MW-02R

Ground Elevation: 527.77 Datum: City of Rochester
Date Started: 11/14/2011 Date Ended: 11/17/2011
Borehole Depth: 43.3' Borehole Diameter: 10.5 / 5.9 / 3.9
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 11.26 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1–8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
8	12						0.0	Tan, SILT and fine SAND, trace Gravel, moist	
9	19	S-1	8-10	60	39	0.1	0.0		
	20						0.0		
	22						0.0		
10	12						0.0	Gray SILT, little Sand, trace Gravel, moist	
11	31	S-2	10-12	60	66	0.0	0.0		
	35						0.0		
	26						0.0		
12	33						0.0		
13	41	S-3	12-13.4	20	NA	1.0	0.0		
	50/4						0.0		
							0.0		
14	22						0.0	…little Gravel	
15	31	S-4	14-16	100	64	0.0	0.0		
	33						0.0		
	46						0.0		
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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Test Boring MW-02R

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB
Sampling Method: Split Spoon/HQ

Ground Elevation: 527.77 Datum: City of Rochester
Date Started: 11/14/2011 Date Ended: 11/14/2011
Borehole Depth: 43.3' Borehole Diameter: 10.5 / 5.9 / 3.9
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 11.26 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	50						0.0		
17	50/4	S-5	16-16.9	100	NA	0.2	0.0		
							0.0		
							0.0		
18	19						0.0	Grayish Brown, SAND, some Silt, little fine coarse Gravel, wet	
19	31	S-6	18-19.6	100	77	0.9	0.0		
	46						0.0		
	50/1						0.0		
20	33						0.0	…fine Sand	
21	30	S-7	20-22	60	61	15.6	0.1		
	31						0.2		
	46						0.8		
22	41						0.6		
23	50/2	S-8	22-22.7	90	NA	16.2	2.3		**Split spoon refusal @ 22.7ft, auger to 24 ft.**
24	15						0.1	…grading Silt	
25	22	S-9	24-26	90	55	0.2	0.0		
	33						0.0		
	42						0.0		
26	45						0.1		**Split spoon refusal @ 26.6 ft., auger to 28 ft.**
27	50/1	S-10	26-26.6	90	NA	0.1	0.0		
28	36						0.0	…moist	
29	50/1	S-11	28-28.6	100	NA	0.0	0.0		**Split spoon refusal @ 28.6 ft., auger to 30 ft.**
30	50/4	S-12	30-30.4	60	NA	0.3	0.0		
31	NA	NA	NA	NA	NA	NA	NA	Auger Refusal @ 30.3' Rock Socket to 32.3'	
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-02R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-02R

Project #:	Rocity.4355s-10	Ground Elevation: 527.77	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 11/14/2011	Date Ended: 11/17/2011
DAY Representative:	D. Peck (City of Rochester	Borehole Depth: 43.3'	Borehole Diameter: 10.5 / 5.9 / 3.9
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon/HQ	Water Level (Date): 11.26 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
32							0.0		
33							0.0	Dark Gray, Eramosa Formation DOLOMITE, some fine Gravel, hard, more fractures on top of run, some hairline fractures in mid-section	
34	NA	C-1	32.3-36.3	95	77.5	NA	0.0		
35							0.0		
36							0.0	…Dark Gray	
37							0.0		
38	NA	C-2	36.3-41.3	100	60	NA	0.0	…Hairline fractures	
39							0.0		
40							0.0	…Horizontal fractures	
41	NA	C-3	41.3-43.3	100	95	NA	0.0		
42							0.0		
43								Bottom of Hole @ 43.3'	
44									
45									
46									
47									
48									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-02R

Test Boring MW-04R

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: W. Batiste
Drilling Contractor: SJB
Sampling Method: Split Spoon/HQ

Ground Elevation: 527.77 | Datum: City of Rochester
Date Started: 11/23/2011 | Date Ended: 12/5/2011
Borehole Depth: 42.5' | Borehole Diameter: 10.5 / 5.9 / 3.9
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 22.91 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1									
2									
3									
4									
5									
6									
7									
8	NA	NA	NA	NA	NA	NA	NA	Continuous Augering Samples Not Collected	
9									
10									
11									
12									
13									
14									
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-04R

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Test Boring MW-04R

Project #:	Rocity.4355s-10	Ground Elevation: 527.77	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 11/23/2011	Date Ended: 12/5/2011
DAY Representative:	W. Batiste	Borehole Depth: 42.5'	Borehole Diameter: 10.5 / 5.9 / 3.9
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon/HQ	Water Level (Date):	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17									
18									
19									
20									
21									
22								Continuous Augering	
23	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
24									
25									
26									
27									
28									
29									
30								**Auger Refusal @ 30'**	
31	NA	NA	NA	NA	NA	NA	NA		
32								Rock Socket to 32.0'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-04R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-04R

Project #:	Rocity.4355s-10	Ground Elevation: 527.77	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 11/23/2011	Date Ended: 12/5/2011
DAY Representative:	W. Batiste	Borehole Depth: 42.5'	Borehole Diameter: 10.5 / 5.9 / 3.9
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon/HQ	Water Level (Date): 22.91 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	32						0.0	Dark Gray Eramosa Formation DOLOMITE, some horizontal and angled fractures, little weathering	
33							0.0		
34	NA	C-1	32-36	96.25	60	NA	0.0		
35							0.0		
36							0.0	...some horizontal fractures	
37							0.0		
38	NA	C-2	36-41	100	91	NA	0.0		
39							0.0	...Highly fractured	
40							0.0		
41							0.0	...2 small close horizontal fractures	
42	NA	C-3	41-42.5	97	73.3	NA	0.0		
43								Bottom of hole @ 42.5'	
44									
45									
46									
47									
48									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-04R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-05R

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York
DAY Representative:	W. Batiste
Drilling Contractor:	SJB
Sampling Method:	Split Spoon/HQ
Ground Elevation:	528.33
Datum:	City of Rochester
Date Started:	11/22/2011
Date Ended:	12/5/2011
Borehole Depth:	43.3'
Borehole Diameter:	10.5 / 5.9 / 3.9
Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date):	17.04 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1–16	NA	NA	NA	NA	NA	NA	NA	Continuous Augering Samples Not Collected	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-05R

Test Boring MW-05R

Project #:	Rocity.4355s-10		
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 528.33	Datum: City of Rochester
DAY Representative:	W. Batiste	Date Started: 11/22/2011	Date Ended: 12/5/2011
Drilling Contractor:	SJB	Borehole Depth: 43.3'	Borehole Diameter: 10.5 / 5.9 / 3.9
Sampling Method:	Split Spoon/HQ	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 17.04 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17									
18									
19									
20									
21									
22									
23	NA	NA	NA	NA	NA	NA	NA	Continuous Augering Samples Not Collected	
24									
25									
26									
27									
28									
29									
30									
31	NA	NA	NA	NA	NA	NA	NA	Auger Refusal @ 30.5'	
32								Rock Socket to 32.0'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-05R

day

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Test Boring MW-05R

Project #:	Rocity.4355s-10	Ground Elevation: 528.33	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 11/22/2011	Date Ended: 12/5/2011
DAY Representative:	W. Batiste	Borehole Depth: 43.3'	Borehole Diameter: 10.5 / 5.9 / 3.9
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon/HQ	Water Level (Date): 17.04 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
32									
33							0.0	Gray Eramosa Formation DOLOMITE	
34	NA	C-1	32.5-36.3	100	69	NA	0.0	...Numerous horizontal and angular fractures, little weathering	
35							0.0		
36							0.0		
37							0.0		
38	NA	C-2	36.3-41.3	98	89	NA	0.0	...Mostly horizontal fractures in C-2 ...wavy striations	
39							0.0	...vertical seam of Vugs	
40							0.0	...wavy striations	
41							0.0		
42	NA	C-3	41.3-43.3	100	87.5	NA	0.0 0.0 0.0	...2 horizontal fractures, little weathering	
43								Bottom of Hole @ 43.3'	
44									
45									
46									
47									
48									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-05R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-06R

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: W. Batiste
Drilling Contractor: SJB
Sampling Method: Split Spoon/HQ

Ground Elevation: 528.17 Datum: City of Rochester
Date Started: 11/18/2011 Date Ended: 12/2/2011
Borehole Depth: 43.2' Borehole Diameter: 10.5 / 5.9 / 3.9
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.94 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1									
2									
3									
4									
5									
6									
7								Continous Augering	
8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
9									
10									
11									
12									
13									
14									
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-06R

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Test Boring MW-06R

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: W. Batiste
Drilling Contractor: SJB
Sampling Method: Split Spoon/HQ

Ground Elevation: 528.17
Datum: City of Rochester
Date Started: 11/18/2011
Date Ended: 12/2/2011
Borehole Depth: 43.2'
Borehole Diameter: 10.5 / 5.9 / 3.9
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 12.94 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17–30	NA	NA	NA	NA	NA	NA	NA	Continuous Augering Samples Not Collected	
31–32	NA	NA	NA	NA	NA	NA	NA	Auger Refusal @ 30.5' Rock Socket to 32.5'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-06R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
www.dayenvironmental.com
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Test Boring MW-06R

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St
	Rochester, New York
DAY Representative:	W. Batiste
Drilling Contractor:	SJB
Sampling Method:	Split Spoon/HQ

Ground Elevation:	528.17	Datum:	City of Rochester
Date Started:	11/18/2011	Date Ended:	12/2/2011
Borehole Depth:	43.2'	Borehole Diameter:	10.5 / 5.9 / 3.9
Completion Method:	■ Well Installed	☐ Backfilled with Grout	☐ Backfilled with Cuttings
Water Level (Date):	12.94 / 1-3-12		

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description
32								
33							0.0	Gray Eramosa Formation DOLOMITE …high fractured, 25-36° wavy striations
34	NA	C-1	32.5-36.2	100	93.2	NA	0.0	
35							0.0	
36							0.0	
37							0.0	
38	NA	C-2	36.2-41.2	94	94	NA	0.0	
39							0.0	…some vertical fractures
40							0.0	
41							0.0	
42	NA	C-3	41.2-43.2	100	60	NA	0.0	…3 fractures (2 horizontal, 1 15° angle)
43								Bottom of Hole @ 43.2'
44								
45								
46								
47								
48								

Notes

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York
DAY Representative:	W. Batiste
Drilling Contractor:	SJB
Sampling Method:	Split Spoon/HQ
Ground Elevation:	528.64
Datum:	City of Rochester
Date Started:	11/29/2011
Date Ended:	12/2/2011
Borehole Depth:	43.5'
Borehole Diameter:	10.5 / 5.9 / 3.9
Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date):	14.52 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1									
2									
3									
4									
5									
6									
7								Continuous Augering	
8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
9									
10									
11									
12									
13									
14									
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Project #:	Rocity.4355s-10		
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 528.64	Datum: City of Rochester
DAY Representative:	W. Batiste	Date Started: 11/29/2011	Date Ended: 12/2/2011
Drilling Contractor:	SJB	Borehole Depth: 43.5'	Borehole Diameter: 10.5 / 5.9 / 3.9
Sampling Method:	Split Spoon/HQ	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 14.52 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17									
18									
19									
20									
21									
22								Continuous Augering	
23	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
24									
25									
26									
27									
28									
29									
30									
31									
32								Auger Refusal @ 31.5'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825
www.dayenvironmental.com
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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Project #: Rocity.4355s-10

Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, New York

DAY Representative: W. Batiste

Drilling Contractor: SJB

Sampling Method: Split Spoon/HQ

Ground Elevation: 528.64 | Datum: City of Rochester

Date Started: 11/29/2011 | Date Ended: 12/2/2011

Borehole Depth: 43.5' | Borehole Diameter: 10.5 / 5.9 / 3.9

Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings

Water Level (Date): 14.52 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description
33	NA	NA	NA	NA	NA	NA	NA	Rock Socket to 33.5'
34	NA	C-1	33.5-36.5	75	96.7	NA	0.0	Dark Gray Eramosa Formation DOLOMITE
35							0.0	…horizontal fractures
36							0.0	
37	NA	C-2	36.5-41.5	100	58	NA	0.0	
38							0.0	…horizontal fractures
39							0.0	
40							0.0	
41							0.0	
42	NA	C-3	41.5-43.5	100	95	NA	0.0	
43							0.0	
							0.0	
							0.0	
44								Bottom of Hole @ 43.5'
45								
46								
47								
48								

Notes

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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Test Boring MW-09R

Project #:	Rocity.4355s-10		
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 527.14	Datum: City of Rochester
DAY Representative:	W. Batiste	Date Started: 11/16/2011	Date Ended: 12/5/2011
Drilling Contractor:	SJB	Borehole Depth: 41.5'	Borehole Diameter: 10.5 / 5.9 / 3.9
Sampling Method:	Split Spoon/HQ	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 20.17 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1									
2									
3									
4									
5									
6									
7								Continuous Augering	
8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
9									
10									
11									
12									
13									
14									
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-09R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

Project #: Rocity.4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St
Rochester, New York
DAY Representative: W. Batiste
Drilling Contractor: SJB
Sampling Method: Split Spoon/HQ

Test Boring MW-09R

Ground Elevation: 527.14 Datum: City of Rochester
Date Started: 11/16/2011 Date Ended: 12/5/2011
Borehole Depth: 41.5' Borehole Diameter: 10.5 / 5.9 / 3.9
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 20.17 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17									
18									
19									
20									
21									
22								Continuous Augering	
23	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
24									
25									
26									
27									
28									
29									
30								Auger Refusal @ 29.5'	
31	NA	NA	NA	NA	NA	NA	NA	Rock Socket to 31.5'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

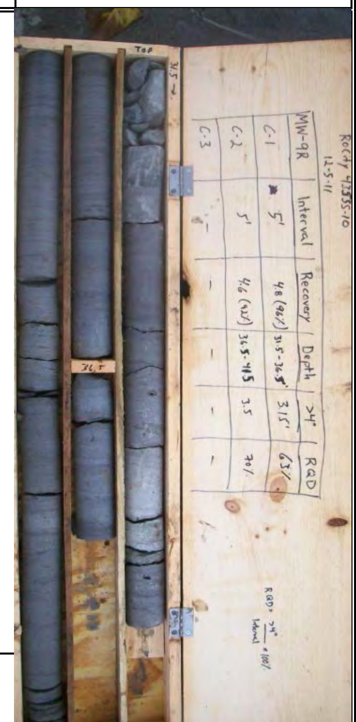
Test Boring MW-09R

Project #:	Rocity.4355s-10		
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 527.14	Datum: City of Rochester
DAY Representative:	W. Batiste	Date Started: 11/16/2011	Date Ended: 12/5/2011
Drilling Contractor:	SJB	Borehole Depth: 41.5'	Borehole Diameter: 10.5 / 5.9 / 3.9
Sampling Method:	Split Spoon/HQ	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 20.17 / 1-3-12	

Test Boring MW-09R

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description
							0.0	4-5 " broken/crushed rock
32								Gray Eramosa Formation DOLOMITE
							0.0	
33	NA	C-1	31.5-36.5	96	63	NA	0.0	
34							0.0	…numerous horizontal fractures, little weathering
35							0.0	
36							0.0	
37							0.0	
38	NA	C-2	36.5-41.5	92	70	NA	0.0	…numerous horizontal fractures
39							0.0	
40							0.0	
41								Bottom of Hole @ 41.5'
42								
43								
44								
45								
46								
47								

Notes



Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-09R

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Test Boring MW-10R

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St
	Rochester, New York
DAY Representative:	W. Batiste
Drilling Contractor:	SJB
Sampling Method:	Split Spoon/HQ

Ground Elevation:	527.98	Datum:	City of Rochester
Date Started:	11/18/2011	Date Ended:	12/2/2011
Borehole Depth:	43.0'	Borehole Diameter:	10.5 / 5.9 / 3.9

Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings

Water Level (Date): 11.76 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1									
2									
3									
4									
5									
6									
7								Continuous Augering	
8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
9									
10									
11									
12									
13									
14									
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-10R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

Test Boring MW-10R

Project #:	Rocity.4355s-10	Ground Elevation: 527.98	Datum: City of Rochester
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York	Date Started: 11/18/2011	Date Ended: 12/2/2011
DAY Representative:	W. Batiste	Borehole Depth: 43.0'	Borehole Diameter: 10.5 / 5.9 / 3.9
Drilling Contractor:	SJB	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Split Spoon/HQ	Water Level (Date): 11.76 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17–30	NA	NA	NA	NA	NA	NA	NA	Continuous Augering Samples Not Collected	
30–32	NA	NA	NA	NA	NA	NA	NA	Auger Refusal @ 30.5' Rock Socket to 32.5'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-10R

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Test Boring MW-10R

Project #:	Rocity.4355s-10				
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St				
	Rochester, New York	Ground Elevation:	527.98	Datum:	City of Rochester
DAY Representative:	W. Batiste	Date Started:	11/18/2011	Date Ended:	12/2/2011
Drilling Contractor:	SJB	Borehole Depth:	43.0'	Borehole Diameter:	10.5 / 5.9 / 3.9
Sampling Method:	Split Spoon/HQ	Completion Method:	■ Well Installed	☐ Backfilled with Grout	☐ Backfilled with Cuttings
		Water Level (Date):	11.76 / 1-3-12		

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
33							0.0	Dark Gray Eramosa Formation DOLOMITE	
34	NA	C-1	32.5-36.0	100	69	NA	0.0	…some horizontal fractures 10° slope	
35							0.0		
36							0.0	…some shells	
37							0.0	…horizontal fractures	
38	NA	C-2	36.0-41.0	100	88	NA	0.0		
39							0.0	…horizontal fractures, some shell like layers	
40							0.0		
41							0.0	…horizontal fractures	
42	NA	C-3	41.0-43.0	95	75	NA	0.0		
43								Bottom of Hole @ 43.0	
44									
45									
46									
47									
48									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-10R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
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FAX (212) 986-8657

Test Boring MW-14R

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York
DAY Representative:	W. Batiste
Drilling Contractor:	SJB
Sampling Method:	Split Spoon/HQ

Ground Elevation:	529.19	Datum:	City of Rochester
Date Started:	11/30/2011	Date Ended:	12/6/2011
Borehole Depth:	44.7'	Borehole Diameter:	10.5 / 5.9 / 3.9

Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings

Water Level (Date): 12.37 / 1-3-12

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
1									
2									
3									
4									
5									
6									
7								Continuous Augering	
8	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
9									
10									
11									
12									
13									
14									
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-14R

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Test Boring TB-14R

Project #:	Rocity.4355s-10		
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St		
	Rochester, New York	Ground Elevation: 529.19	Datum: City of Rochester
DAY Representative:	W. Batiste	Date Started: 11/30/2011	Date Ended: 12/6/2011
Drilling Contractor:	SJB	Borehole Depth: 44.7'	Borehole Diameter: 10.5 / 5.9 / 3.9
Sampling Method:	Split Spoon/HQ	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
		Water Level (Date): 12.37 / 1-3-12	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17									
18									
19									
20									
21									
22								Continuous Augering	
23	NA	NA	NA	NA	NA	NA	NA	Samples Not Collected	
24									
25									
26									
27									
28									
29									
30									
31									
32								Auger Refusal @ 32.0'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

Project #:	Rocity.4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St Rochester, New York
DAY Representative:	W. Batiste
Drilling Contractor:	SJB
Sampling Method:	Split Spoon/HQ

Test Boring MW-14R

Ground Elevation:	529.19	Datum:	City of Rochester
Date Started:	11/30/2011	Date Ended:	12/6/2011
Borehole Depth:	44.7'	Borehole Diameter:	10.5 / 5.9 / 3.9
Completion Method:	■ Well Installed	☐ Backfilled with Grout	☐ Backfilled with Cuttings
Water Level (Date):	12.37 / 1-3-12		

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
33	NA	NA	NA	NA	NA	NA	NA	rock Socket to 34.0'	
34							0.0	Gray Eramosa Formation DOLOMITE	
35	NA	C-1	34.0-36.7	100	89	NA	0.0	…some horizontal to angled fractures, little weathering	
36							0.0		
37							0.1		
38							0.0	…mainly horizontal fractures	
39	NA	C-2	36.7-42.0	100	59	NA	0.1		
40							0.0		
41							0.0		
42							0.0		
43	NA	C-3	42.0-44.7	100	72	NA	0.1	…some weathered horizontal and very low angled fractures	
44							0.0	…some vugs	
45								Bottom of Hole @ 44.7'	
46									
47									
48									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-14R

LEADER PROFESSIONAL SERVICES

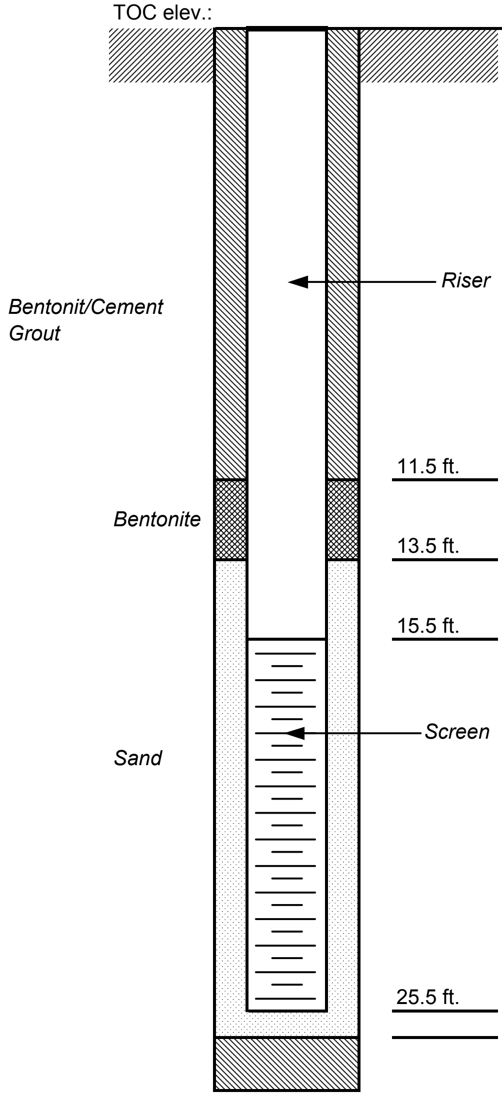
Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Andrews St. | Location: Rochester | Well No.: MW-1
Permit No.: NA

TOC elev.: -

TOC elev.:



DRILLING SUMMARY

Drilling Company:	Nothnagle	Drillers:	N. Short
Drill Rig/Model:	CME 55		
Borehole Diameters:	4.25 in.	Drilling Fluid:	None
Bits/Depths:			
Total Depth:	25.2	Depth To Water:	13.2
Supervisor Geologist:	P.von Schondorf		

WELL DESIGN

Casing Material:	PVC	Diameter:	2 in.
Screen Size:	PVC	Diameter:	2 in.
Slot Size:	0.01	Setting:	15.5 - 25.5 ft.
Backfill		Setting:	
Filter Material:	Sand	Setting:	13.5 - 25.5 ft.
Seals Material:	Bentonite	Setting:	11.5 - 13.5 ft.
Sand Cap		Setting:	
Grout:	Bentonite/Cement	Setting:	0.5 - 11.5 ft.
Surface Casing Material:	Roadbox	Setting:	

TIME LOG

	Started	Completed
Drilling:	10-Jul-06	10-Jul-06
Installation:	10-Jul-06	10-Jul-06
Development:	11-Jul-06	12-Jul-06

WELL DEVELOPMENT

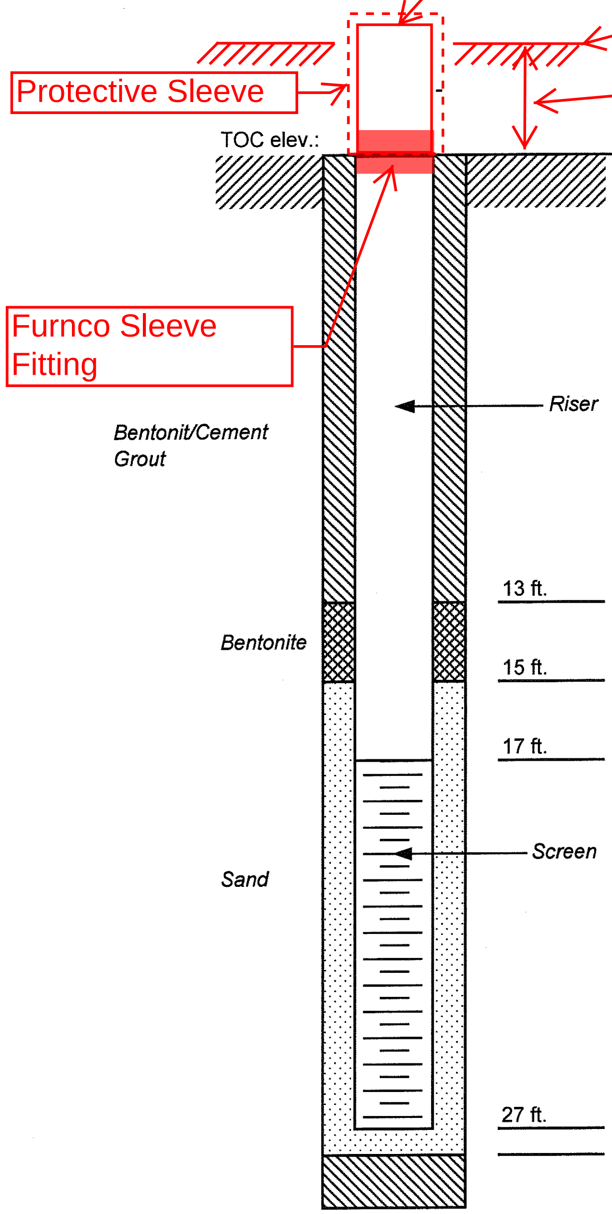
Method:	Bailing		
Static Depth to Water:	13.2 ft.		
Pumping Depth To Water:			
Pumping Rate:		Spec. Capacity:	
Volume Pumped:	16-gallons		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Andrews St.   Location: Rochester   Well No.: MW-2
Permit No.: NA



DRILLING SUMMARY

Drilling Company: Nothnagle   Drillers: N. Short
Drill Rig/Model: CME 55
Borehole Diameters: 4.25 in.   Drilling Fluid: None
Bits/Depths:
Total Depth: 26.2   Depth To Water: 12.45
Supervisor Geologist: P.von Schondorf

WELL DESIGN

Casing Material:	PVC	Diameter:	2 in.
Screen Size:	PVC	Diameter:	2 in.
Slot Size:	0.01	Setting:	17 to 27 ft.
Backfill		Setting:	
Filter Material:	Sand	Setting:	15 to 27 ft.
Seals Material:	Bentonite	Setting:	13 to 15 ft.
Sand Cap		Setting:	
Grout:	Bentonite/Cement	Setting:	0.5 to 13 ft.
Surface Casing Material:	Roadbox	Setting:	

TIME LOG

	Started	Completed
Drilling:	21-Sep-05	21-Sep-05
Installation:	21-Sep-05	21-Sep-05
Development:		

WELL DEVELOPMENT

Method: Bailing
Static Depth to Water: 11.49 ft.
Pumping Depth To Water:
Pumping Rate: Spec. Capacity:
Volume Pumped: 20-gallons

Modifications, presented as red text/ink on this diagram, were completed by Day Environmental, Inc., on November 5, 2014.

o:\forms\MW-2 8/2/2006

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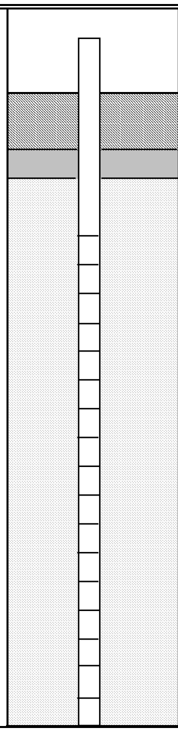
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-03A

Project #:	4355s-10				
Project Address:	Andrews Street				
	Rochester, NY	Ground Elevation:	528.41	Datum:	City of Rochester
DAY Representative:	D. Peck (City)	Date Started:	12/18/2012	Date Ended:	12/18/2012
Drilling Contractor:	QISI				
		Water Level (Date):	10.71 from top of riser (1-15-2013)		

Refer to Test Boring Log MW-3A for Soil Description



2.48 Height to Top of Riser Pipe (ft)

1.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

5.0 Depth to Top of Bentonite Seal (ft)
8.0 Depth to Bottom of Bentonite Seal (ft)

10.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

30.0 Depth to Bottom of Well Screen (ft)

30.0 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-03A

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

420 LEXINGTON AVENUE, SUITE 300
NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

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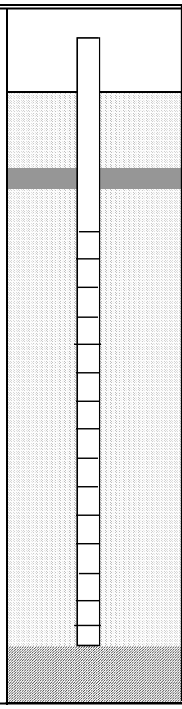
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-04

Project #:	4355s-10				
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY	Ground Elevation:	527.21	Datum:	City of Rochester
DAY Representative:	J. Danzinger	Date Started:	10/25/11	Date Ended:	10/25/11
Drilling Contractor:	SJB	Water Level (Date):	12.16 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-4 for Soil Description



2.67 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout

10.5 Depth to Top of Bentonite Seal (ft)

13.0 Depth to Bottom of Bentonite Seal (ft)

15.5 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC

Screen slot size 10-Slot

30.5 Depth to Bottom of Well Screen (ft)

30.5 Depth to Bottom of Borehole/Top of Bedrock (ft)

30.5 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.

2) NA = Not Available or Not Applicable

MONITORING WELL MW-04

NES/Andrews/MW-4

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10165-1617
(212) 986-8645
FAX (212) 986-8657

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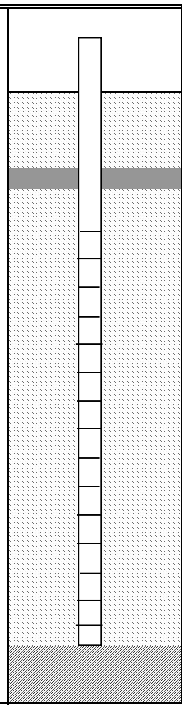
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-05

Project #:	4355s-10				
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY	Ground Elevation:	527.83	Datum:	City of Rochester
DAY Representative:	J. Danzinger	Date Started:	10/26/12	Date Ended:	10/26/12
Drilling Contractor:	SJB				
		Water Level (Date):	12.25 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-5 for Soil Description



2.91 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout

10.5 Depth to Top of Bentonite Seal (ft)

13.0 Depth to Bottom of Bentonite Seal (ft)

15.8 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC

Screen slot size 10-Slot

30.8 Depth to Bottom of Well Screen (ft)

30.8 Depth to Bottom of Borehole/Top of Bedrock (ft)

30.8 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.

2) NA = Not Available or Not Applicable

MONITORING WELL MW-05

NES/Andrews/MW-5

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10165-1617
(212) 986-8645
FAX (212) 986-8657

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MONITORING WELL CONSTRUCTION DIAGRAM

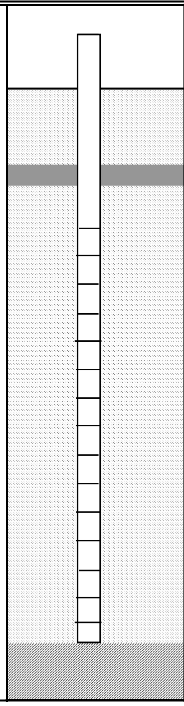
MONITORING WELL MW-06

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: W. Batiste
Drilling Contractor: SJB

Ground Elevation: 527.86 Datum: City of Rochester
Date Started: 10/27/12 Date Ended: 10/27/12

Water Level (Date): 12.21 from top of riser (1-3-2012)

Refer to Test Boring Log MW-6 for Soil Description



2.64 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout
6.5 Depth to Top of Bentonite Seal (ft)
8.5 Depth to Bottom of Bentonite Seal (ft)

10.5 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

30.5 Depth to Bottom of Well Screen (ft)

30.5 Depth to Bottom of Borehole/Top of Bedrock (ft)

30.5 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-06

NES/Andrews/MW-6

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10165-1617
(212) 986-8645
FAX (212) 986-8657

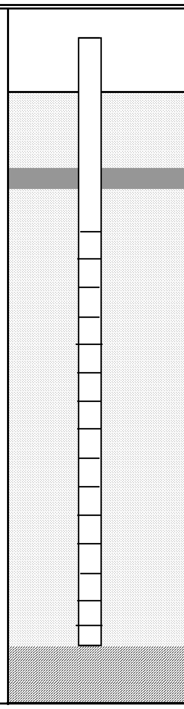
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-07

Project #:	4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative:	D. Peck (City)
Drilling Contractor:	SJB

Ground Elevation:	528.38	Datum:	City of Rochester
Date Started:	11/1/11	Date Ended:	11/1/11
Water Level (Date):	12.53 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-7 for Soil Description



2.57 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout
1.0 Depth to Top of Bentonite Seal (ft)
9.0 Depth to Bottom of Bentonite Seal (ft)

12.5 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

32.5 Depth to Bottom of Well Screen (ft)

32.5 Depth to Bottom of Borehole/Top of Bedrock (ft)

32.5 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-07

NES/Andrews/MW-7

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10165-1617
(212) 986-8645
FAX (212) 986-8657

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MONITORING WELL CONSTRUCTION DIAGRAM

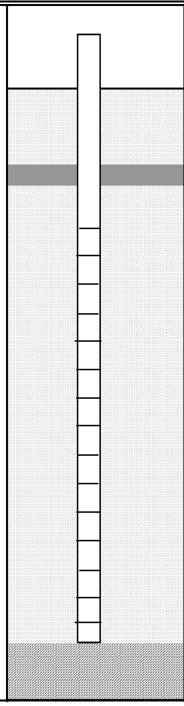
MONITORING WELL MW-08

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: D. Peck (City)
Drilling Contractor: SJB

Ground Elevation: 527.00 Datum: City of Rochester
Date Started: 10/27/11 Date Ended: 10/28/11

Water Level (Date): 11.95 from top of riser (1-3-2012)

Refer to Test Boring Log MW-8 for Soil Description



2.56 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout
0.5 Depth to Top of Bentonite Seal (ft)
2.5 Depth to Bottom of Bentonite Seal (ft)

4.1 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

29.1 Depth to Bottom of Well Screen (ft)

29.1 Depth to Bottom of Borehole/Top of Bedrock (ft)

29.1 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-08

NES/Andrews/MW-8

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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NEW YORK, NEW YORK 10165-1617
(212) 986-8645
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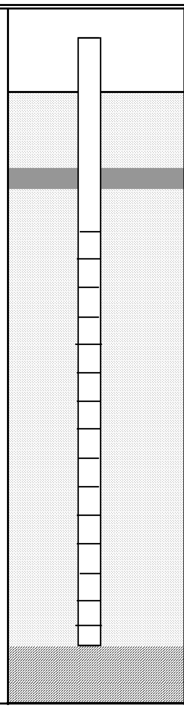
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-09

Project #:	4355s-10			
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY			
DAY Representative:	D. Peck (City)	Ground Elevation: 526.56	Datum:	City of Rochester
Drilling Contractor:	SJB	Date Started: 10/31/11	Date Ended:	10/31/11
		Water Level (Date): 10.78 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-9 for Soil Description



2.61 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout
4.5 Depth to Top of Bentonite Seal (ft)
7.0 Depth to Bottom of Bentonite Seal (ft)

10.0 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

30.0 Depth to Bottom of Well Screen (ft)

30.0 Depth to Bottom of Borehole/Top of Bedrock (ft)

30.0 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-09

NES/Andrews/MW-9

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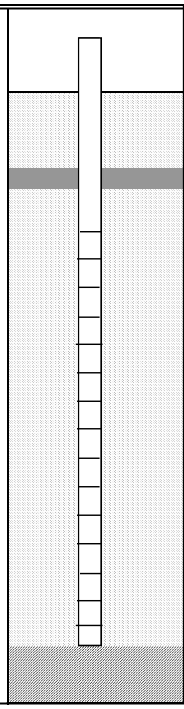
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-10

Project #:	4355s-10
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative:	W. Batiste
Drilling Contractor:	SJB

Ground Elevation:	527.73	Datum:	City of Rochester
Date Started:	10/31/11	Date Ended:	10/31/11
Water Level (Date):	12.53 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-10 for Soil Description



2.657 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout
4.8 Depth to Top of Bentonite Seal (ft)
7.0 Depth to Bottom of Bentonite Seal (ft)

10.8 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

30.8 Depth to Bottom of Well Screen (ft)

30.8 Depth to Bottom of Borehole/Top of Bedrock (ft)

30.8 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-10

NES/Andrews/MW-10

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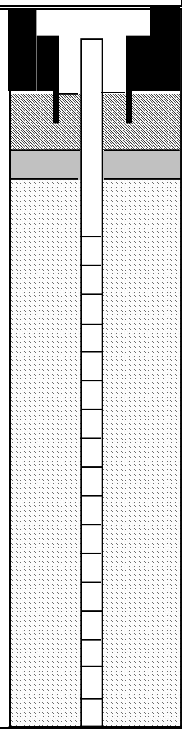
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-11

Project #:	4355s-10		
Project Address:	Andrews Street		
	Rochester, NY		
Ground Elevation:	524.11	Datum:	City of Rochester
Date Started:	11/2/11	Date Ended:	11/2/11
DAY Representative:	D. Peck (City)		
Drilling Contractor:	SJB		
Water Level (Date):	4.99 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-11 for Soil Description



Flush Mount Curb Box
0.26 Depth to Top of Riser Pipe (ft)
1.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type Cement/Bentonite Grout

0.5 Depth to Top of Bentonite Seal (ft)
2.5 Depth to Bottom of Bentonite Seal (ft)

3.0 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

23.0 Depth to Bottom of Well Screen (ft)

23.0 Depth of Borehole (ft)

23.0 Depth to Bedrock

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-11

NES0864 (4355s-10)

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

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NEW YORK, NEW YORK 10016-0710
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FAX (212) 986-8657

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MONITORING WELL CONSTRUCTION DIAGRAM

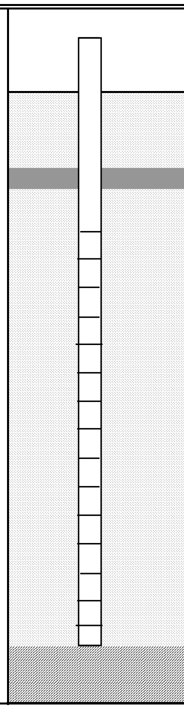
MONITORING WELL MW-12

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: D. Peck (City)
Drilling Contractor: SJB

Ground Elevation: 528.83 Datum: City of Rochester
Date Started: 11/3/11 Date Ended: 11/3/11

Water Level (Date): 15.08 from top of riser (1-3-2012)

Refer to Test Boring Log MW-12 for Soil Description



2.70 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout
6.5 Depth to Top of Bentonite Seal (ft)
9.0 Depth to Bottom of Bentonite Seal (ft)

11.5 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

31.5 Depth to Bottom of Well Screen (ft)

31.5 Depth to Bottom of Borehole/Top of Bedrock (ft)

31.5 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-12

NES/Andrews/MW-12

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MONITORING WELL CONSTRUCTION DIAGRAM

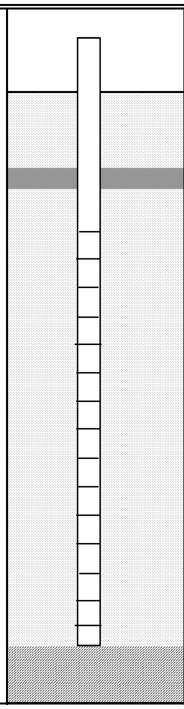
MONITORING WELL MW-13

Project #: 4355s-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: W. Batiste
Drilling Contractor: SJB

Ground Elevation: 529.21 Datum: City of Rochester
Date Started: 11/4/11 Date Ended: 11/4/11

Water Level (Date): 12.55 from top of riser (1-3-2012)

Refer to Test Boring Log MW-13 for Soil Description



2.47 Height of Riser Stickup (ft)

Ground Surface

Backfill Type Cement/Bentonite Grout
0.0 Depth to Top of Bentonite Seal (ft)
5.0 Depth to Bottom of Bentonite Seal (ft)

7.3 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

32.3 Depth to Bottom of Well Screen (ft)

32.3 Depth to Bottom of Borehole/Top of Bedrock (ft)

32.3 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-13

NES/Andrews/MW-12

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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NEW YORK, NEW YORK 10165-1617
(212) 986-8645
FAX (212) 986-8657

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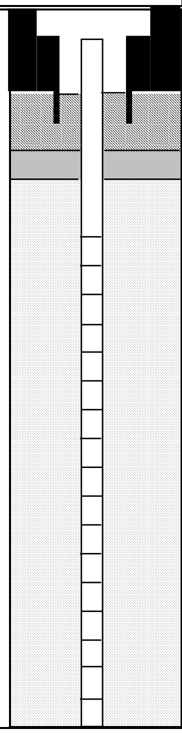
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-14

Project #:	4355s-10
Project Address:	Andrews Street
	Rochester, NY
DAY Representative:	W. Batiste
Drilling Contractor:	SJB

Ground Elevation:	529.18	Datum:	City of Rochester
Date Started:	11/4/11	Date Ended:	11/4/11
Water Level (Date):	10.85 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-14 for Soil Description



Flush Mount Curb Box
0.30 Depth to Top of Riser Pipe (ft)
1.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type Cement/Bentonite Grout

4.5 Depth to Top of Bentonite Seal (ft)
7.5 Depth to Bottom of Bentonite Seal (ft)

12.7 Depth to Top of Well Screen (ft)

8 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

32.7 Depth to Bottom of Well Screen (ft)

32.7 Depth of Borehole (ft)

32.7 Depth to Bedrock (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-14

S:\Fieldforms\Monitoring Well Installation Log (revised October 2006)

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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NEW YORK, NEW YORK 10016-0710
(212) 986-8645
FAX (212) 986-8657

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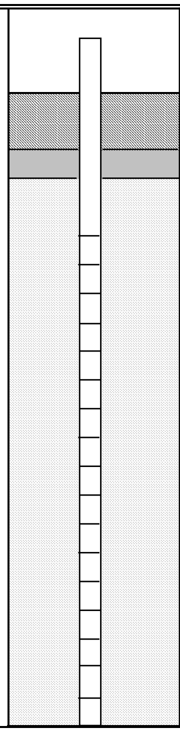
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-15

Project #:	4355s-10				
Project Address:	Andrews Street				
	Rochester, NY	Ground Elevation:	527.62	Datum:	City of Rochester
DAY Representative:	D. Peck (City)	Date Started:	12/17/2012	Date Ended:	12/17/2012
Drilling Contractor:	QISI				
		Water Level (Date):	10.74 fro top of riser (1-15-2013)		

Refer to Test Boring Log MW-15 for Soil Description



2.67 Height to Top of Riser Pipe (ft)

1.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

5.0 Depth to Top of Bentonite Seal (ft)
8.0 Depth to Bottom of Bentonite Seal (ft)

10.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

30.0 Depth to Bottom of Well Screen (ft)

30.3 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-15

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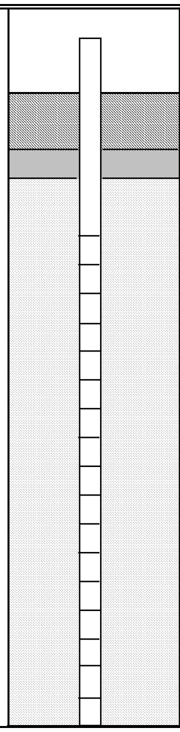
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-16

Project #:	4355s-10				
Project Address:	Andrews Street				
	Rochester, NY	Ground Elevation:	528.31	Datum:	City of Rochester
DAY Representative:	D. Peck (City)	Date Started:	12/17/2012	Date Ended:	12/18/2012
Drilling Contractor:	QISI				
		Water Level (Date):	14.18 from top of riser (1-15-2013)		

Refer to Test Boring Log MW-16 for Soil Description



2.5 Height to Top of Riser Pipe (ft)

1.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

5.0 Depth to Top of Bentonite Seal (ft)
8.0 Depth to Bottom of Bentonite Seal (ft)

10.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

30.0 Depth to Bottom of Well Screen (ft)

30.0 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-16

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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NEW YORK, NEW YORK 10170
(212) 986-8645
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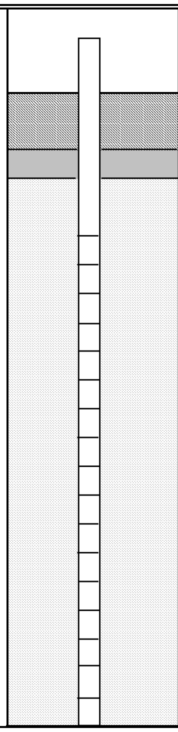
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-17

Project #:	4355s-10				
Project Address:	Andrews Street				
	Rochester, NY	Ground Elevation:	527.72	Datum:	City of Rochester
DAY Representative:	D. Peck (City)	Date Started:	12/19/2012	Date Ended:	12/19/2012
Drilling Contractor:	QISI				
		Water Level (Date):	8.31 from top of riser (1-15-2013)		

Refer to Test Boring Log MW-17 for Soil Description



1.75 Height to Top of Riser Pipe (ft)

1.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

5.0 Depth to Top of Bentonite Seal (ft)
8.0 Depth to Bottom of Bentonite Seal (ft)

10.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Stainless Steel
Screen slot size 10-Slot

25.0 Depth to Bottom of Well Screen (ft)

25.0 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-17

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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NEW YORK, NEW YORK 10170
(212) 986-8645
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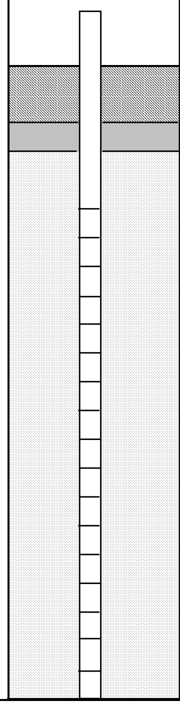
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-18

Project #:	4355s-10				
Project Address:	Andrews Street				
	Rochester, NY	Ground Elevation:	527.24	Datum:	City of Rochester
DAY Representative:	W. Batiste	Date Started:	8/5/2013	Date Ended:	8/6/2013
Drilling Contractor:	Earth Dimensions				
		Water Level (Date):	13.76' (8-21-13)		

Refer to Test Boring Log MW-18 for Soil Description



2.57 Height to Top of Riser Pipe (ft)

0.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

1.0 Depth to Top of Bentonite Seal (ft)
4.0 Depth to Bottom of Bentonite Seal (ft)

6.1 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

31.1 Depth to Bottom of Well Screen (ft)

31.1 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-18

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

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NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

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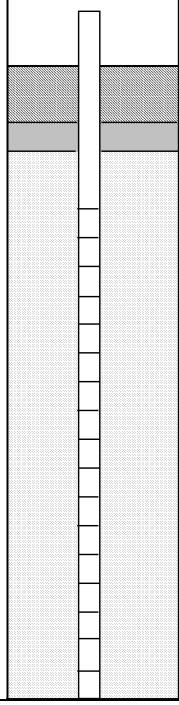
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-19

Project #:	4355s-10		
Project Address:	Andrews Street		
	Rochester, NY		
Ground Elevation:	527.82	Datum:	City of Rochester
Date Started:	8/7/2013	Date Ended:	8/8/2013
DAY Representative:	D. Peck		
Drilling Contractor:	Earth Dimensions		
Water Level (Date):	15.13' (8-21-13)		

Refer to Test Boring Log MW-19 for Soil Description



2.49 Height to Top of Riser Pipe (ft)

0.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

1.0 Depth to Top of Bentonite Seal (ft)
4.0 Depth to Bottom of Bentonite Seal (ft)

6.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

31.0 Depth to Bottom of Well Screen (ft)

31.0 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-19

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ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

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NEW YORK, NEW YORK 10170
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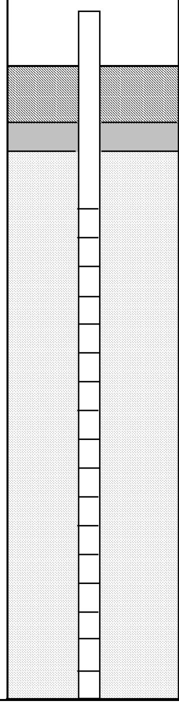
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-20

Project #:	4355s-10				
Project Address:	Andrews Street				
	Rochester, NY	Ground Elevation:	528.01	Datum:	City of Rochester
DAY Representative:	C. Hampton	Date Started:	8/7/2013	Date Ended:	8/7/2013
Drilling Contractor:	Earth Dimensions				
		Water Level (Date):	13.85 (8-21-13)		

Refer to Test Boring Log MW-20 for Soil Description



2.50 Height to Top of Riser Pipe (ft)

0.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

1.3 Depth to Top of Bentonite Seal (ft)
4.3 Depth to Bottom of Bentonite Seal (ft)

6.3 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

31.3 Depth to Bottom of Well Screen (ft)

31.3 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-20

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(585) 454-0210
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NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

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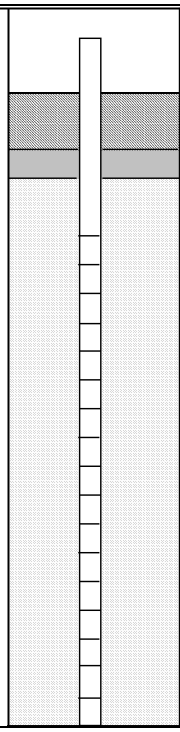
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-21

Project #:	4355s-10				
Project Address:	Andrews Street				
	Rochester, NY	Ground Elevation:	525.32	Datum:	City of Rochester
DAY Representative:	D. Peck	Date Started:	8/8/2013	Date Ended:	8/8/2013
Drilling Contractor:	Earth Dimensions				
		Water Level (Date):	12.49' (8-21-13)		

Refer to Test Boring Log MW-21 for Soil Description



0.53 Depth to Top of Riser Pipe (ft) Flush Mount

0.8 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type cement/bentonite grout

5.0 Depth to Top of Bentonite Seal (ft)
8.0 Depth to Bottom of Bentonite Seal (ft)

10.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Type O Quartz Sand

2.0 Inside Diameter of Well (in)

Type of Pipe 2" Schedule 40 PVC
Screen slot size 10-Slot

30.0 Depth to Bottom of Well Screen (ft)

30.8 Depth of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-21

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(585) 454-0210
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NEW YORK, NEW YORK 10170
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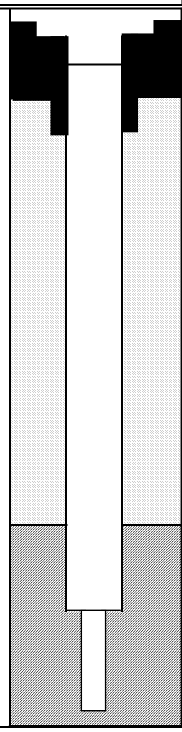
MONITORING WELL CONSTRUCTION DIAGRAM

Project #: Rocity.4355S-10				**MONITORING WELL MW-01R**
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY	Ground Elevation:	527.71	Datum:	City of Rochester
DAY Representative: D. Peck (City of Rochester)	Date Started:	11/14/11	Date Ended:	11/14/11
Drilling Contractor: SJB	Water Level (Date):	11.26 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-1R for Soil Description



Flush Mounted Roadbox

0.34 Depth to Top of Steel Riser Casing (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

30.1 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

32.1 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

43.0 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-01R

NES\Andrews St\MW-1R

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MONITORING WELL CONSTRUCTION DIAGRAM

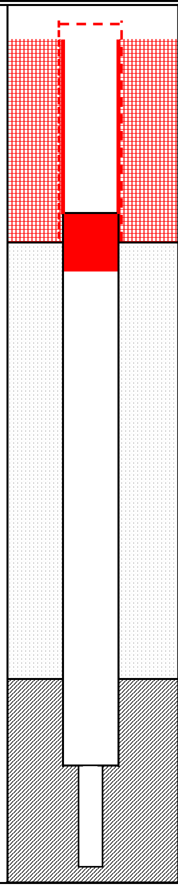
Project #: Rocity.4355S-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: D. Peck (City of Rochester)
Drilling Contractor: SJB

MONITORING WELL MW-02R

Ground Elevation: 527.77 Datum: City of Rochester
Date Started: 11/14/11 Date Ended: 11/14/11

Water Level (Date): 11.26 from top of riser (1-3-2012)

Refer to Test Boring Log MW-2R for Soil Description



Flush Mounted Protective Sleeve
Current Ground Surface

4.0 Diameter of PVC Riser Extension (in)
Backfill Type NYSDEC-Approved CR-2 Cover System Material

2.0 Depth to Bottom of NYSDEC-Approved Cover Material

2.5 Approximate Depth to Furnco Sleeve Fitting (ft.)

Furnco Sleeve Fitting

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

Backfill Type Cement/Bentonite Grout

30.3 Depth to top of Bedrock(ft.)

5.9 Diameter of Rock Socket (in)

32.3 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft.)

3.9 Diameter of Rock Core (in)

43.3 Depth to Bottom of Open Core (ft.)

Modifications, presented as red text/ink on this diagram, were completed by Day Environmental, Inc., on November 5, 2014.

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-02R

NES\Andrews St\MW-2R

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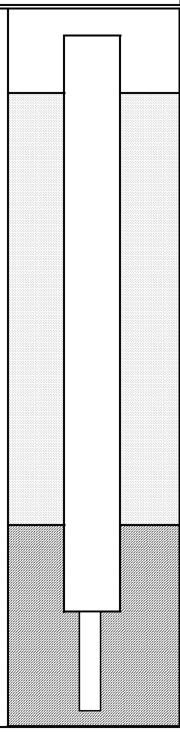
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-04R

Project #: Rocity.4355S-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: W. Batiste
Drilling Contractor: SJB

Ground Elevation: 527.77 Datum: City of Rochester
Date Started: 11/23/11 Date Ended: 12/5/2011
Water Level (Date): 22.91 from top of riser (1-3-2012)

Refer to Test Boring Log MW-4R for Soil Description



1.53 Height of Steel Riser Casing Stickup (ft)

Ground Surface

0.0 Depth to Top of Cement/Bentonite Seal (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

30.0 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

32.0 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

42.5 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-04R

NES\Andrews St\MW-2R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

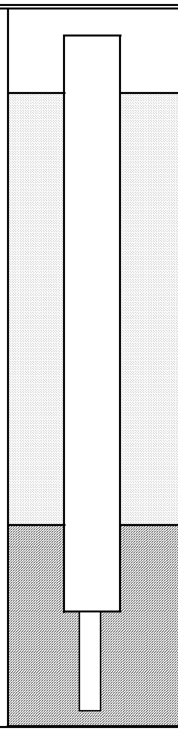
274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10165-1617
(212) 986-8645
FAX (212) 986-8657

MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-05R

Project #:	Rocity.4355S-10		
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY		
Ground Elevation:	528.33	Datum:	City of Rochester
Date Started:	11/22/11	Date Ended:	12/5/2011
DAY Representative:	W. Batiste		
Drilling Contractor:	SJB	Water Level (Date):	17.04 from top of riser(1-3-2012)

Refer to Test Boring Log MW-5R for Soil Description



2.87 Height of Steel Riser Casing Stickup (ft)

Ground Surface

0.0 Depth to Top of Cement/Bentonite Seal (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

30.5 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

32.5 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

43.3 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-05R

NES\Andrews St\MW-2R

day

DAY ENVIRONMENTAL, INC.

ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-06R

Project #: Rocity.4355S-10

Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY

DAY Representative: W. Batiste

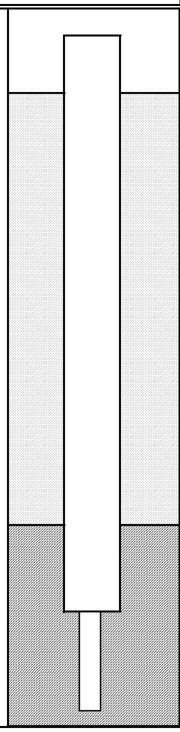
Drilling Contractor: SJB

Ground Elevation: 528.17   Datum: City of Rochester

Date Started: 11/18/11   Date Ended: 12/2/2011

Water Level (Date): 12.94 from top of riser (1-3-2012)

Refer to Test Boring Log MW-6R for Soil Description



1.46 Height of Steel Riser Casing Stickup (ft)

Ground Surface

0.0 Depth to Top of Cement/Bentonite Seal (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

30.5 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

32.5 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

43.2 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-06R

NES\Andrews St\MW-2R

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
FAX (585) 454-0825

www.dayenvironmental.com

274 MADISON AVENUE, ROOM 1104
NEW YORK, NEW YORK 10165-1617
(212) 986-8645
FAX (212) 986-8657

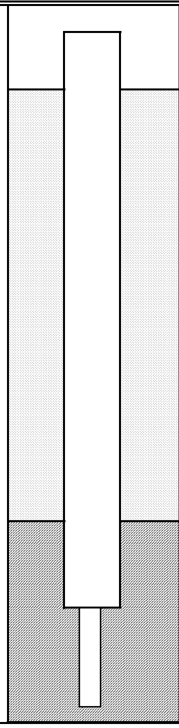
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-07R

Project #: Rocity.4355S-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: W. Batiste
Drilling Contractor: SJB

Ground Elevation: 528.64 Datum: City of Rochester
Date Started: 11/29/11 Date Ended: 12/2/2011
Water Level (Date): 14.52 from top of riser (1-3-2012)

Refer to Test Boring Log MW-7R for Soil Description



1.49 Height of Steel Riser Casing Stickup (ft)

Ground Surface

0.0 Depth to Top of Cement/Bentonite Seal (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

31.5 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

33.5 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

43.5 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-07R

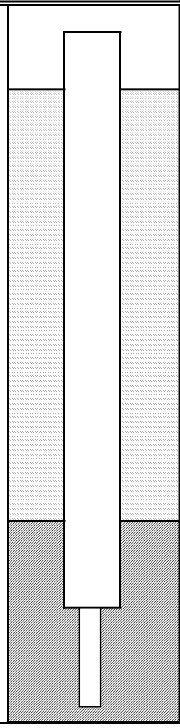
NES\Andrews St\MW-7R

MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-09R

Project #:	Rocity.4355S-10			
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY	Ground Elevation: 527.14	Datum:	City of Rochester
DAY Representative:	W. Batiste	Date Started: 11/16/11	Date Ended:	12/5/2011
Drilling Contractor:	SJB	Water Level (Date): 20.17 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-9R for Soil Description



1.53 Height of Steel Riser Casing Stickup (ft)

Ground Surface

0.0 Depth to Top of Cement/Bentonite Seal (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

29.5 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

31.5 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

41.5 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-09R

NES\Andrews St\MW-9R

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ENVIRONMENTAL CONSULTANTS
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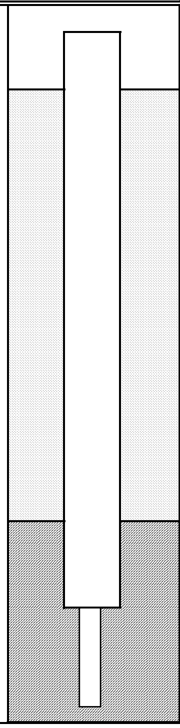
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-10R

Project #:	Rocity.4355S-10				
Project Address:	300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY	Ground Elevation:	527.98	Datum:	City of Rochester
DAY Representative:	W. Batiste	Date Started:	11/18/11	Date Ended:	12/2/2011
Drilling Contractor:	SJB	Water Level (Date):	11.76 from top of riser (1-3-2012)		

Refer to Test Boring Log MW-10R for Soil Description



0.73 Height of Steel Riser Casing Stickup (ft)

Ground Surface

0.0 Depth to Top of Cement/Bentonite Seal (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

30.5 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

32.5 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

43.0 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-10R

NES\Andrews St\MW-10R

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ENVIRONMENTAL CONSULTANTS
AN AFFILIATE OF DAY ENGINEERING, P.C.

MONITORING WELL CONSTRUCTION DIAGRAM

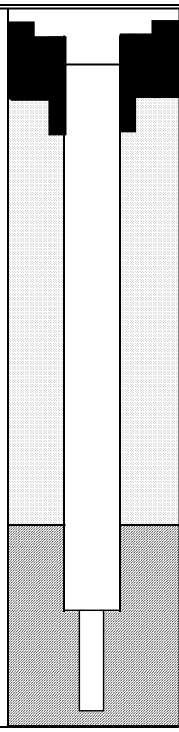
MONITORING WELL MW-14R

Project #: Rocity.4355S-10
Project Address: 300, 304-308, 320 Andrews St, 25 Evans St, Rochester, NY
DAY Representative: W. Batiste
Drilling Contractor: SJB

Ground Elevation: 527.77 Datum: City of Rochester
Date Started: 11/30/11 Date Ended: 12/6/11

Water Level (Date): 12.37 from top of riser (1-3-2012)

Refer to Test Boring Log MW-14R for Soil Description



← Flush Mounted Roadbox

0.44 Depth to Top of Steel Riser Casing (ft)

Backfill Type Cement/Bentonite Grout

10.5 Diameter of Borehole to Top of Bedrock (in)

4.0 Diameter of Steel Casing (in)

32.0 Depth to top of Bedrock(ft)

5.9 Diameter of Rock Socket (in)

34.0 Depth to Bottom of Rock Socket/Bottom of Steel Casing/Top of Open Core (ft)

3.9 Diameter of Rock Core (in)

44.7 Depth to Bottom of Open Core (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-14R

NES\Andrews St\MW-14R

APPENDIX G

Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET
ROCHESTER, NEW YORK 14604

NYSDEC SITE #E828144

Prepared For:	City of Rochester Division of Environmental Quality 30 Church Street, Room 300B Rochester, New York, 14614-1278
Prepared By:	Day Environmental, Inc. 1563 Lyell Avenue Rochester, New York 14606
Project No.:	4355S-10
Date:	July 2015

TABLE OF CONTENTS

1.0 INTRODUCTION

This project-specific Quality Assurance Project Plan (QAPP) was prepared in accordance with Section 2.4 of the New York State Department of Environmental Conservation (NYSDEC) Technical Guidance for Site Investigation and Remediation DER-10 dated May 2010 for 300, 304-308, 320 Andrews Street and 25 Evans Street, Rochester, New York (Site). This QAPP provides quality assurance/quality control (QA/QC) protocols and guidance that are to be followed when implementing the Site Management Plan (SMP) to ensure that data of a known and acceptable precision and accuracy are generated. The QAPP also provides a summary of the project, identifies personnel responsibilities, and provides quality assurance procedures to be used during sampling of environmental media and the analytical laboratory testing of samples. The components of the QAPP are provided herein.

1.1 Project Summary

The QAPP applies to certain aspects of the SMP pertaining to the collection and analytical laboratory testing of field samples and QA/QC samples, and the evaluation of the quality of the data that is generated. Specifically, the SMP includes a groundwater monitoring program. New disposable Passive Diffusion Bag (PDB) samplers will be used to collected groundwater samples from select groundwater monitoring wells. The samples are to be tested for United States Environmental Protection Agency (USEPA) Target Compound List (TCL) volatile organic compounds (VOCs) and tentatively identified compounds (TICs) using USEPA Method 8260.

2.0 PROJECT RESPONSIBILITY

Project organization and tentative personnel to implement the work are outlined in this section of the QAPP.

2.1 City Project Manager

This NYSDEC Environmental Restoration Program (ERP) project was completed on behalf of the City of Rochester (City). As long as the City is involved with this project, the City will have a Project Manager assigned to this Site. Mr. Joseph J. Biondolillo is currently identified as City Project Manager. Mr. Biondolillo will review project documents, assist in key decisions as they relate to various components of the project, etc., as deemed necessary by the City.

2.2 Project Manager

A Day Environmental, Inc. (DAY) representative, or other NYSDEC-approved entity, will serve as Project Manager to provide overall responsibility for implementing the project and ensuring that the project meets the objectives and quality standards as presented in this QAPP. Mr. Jeffrey A. Danzinger is currently identified as DAY's Project Manager for this project, and will serve as DAY's primary point of contact and control for the project. A copy of Mr. Danzinger's resume is included in Attachment 1.

2.3 Quality Assurance Officer

A DAY representative, or other NYSDEC-approved entity, will serve as the Quality Assurance Officer that will be responsible for QA/QC on this project. The Quality Assurance Officer's responsibilities on this project are not as a project manager or task manager involved with project productivity or profitability as job performance criteria. Mr. Bart Kline, P.E. is currently identified as DAY's Quality Assurance Officer for this project. The Quality Assurance Officer may conduct audits of the operations at the Site to ensure that work is being performed in accordance with the QAPP. A copy of Mr. Kline's resume is included in Attachment 1.

2.4 Technical Staff

DAY, the City, or other NYSDEC-approved entity, will provide experienced professionals (e.g., professional engineers, engineers-in-training, scientists, technicians, etc.) that possess the qualifications necessary to effectively and efficiently complete the project tasks. The technical staff will be used to gather and analyze data, prepare various project documentation, etc.

2.5 Analytical Laboratories

A New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) approved analytical laboratory will perform the groundwater analysis. The following two laboratories are currently listed for use on this project:

- Chemtech Consulting Group, Inc. (Chemtech) of Mountainside, New Jersey will be the primary laboratory. Chemtech is a NYSDOH ELAP-certified analytical laboratory (ELAP ID11376) for the anticipated parameters to be tested. A copy of the Chemtech Quality Assurance Manual is provided as Attachment 2.

Divya Mehta is the Chief Operating Officer and Technical Director for Chemtech. The Technical Director is responsible for operation, technical performance and data quality of the laboratory and works in conjunction with the Laboratory Manager and Quality Assurance (QA) unit regarding QA and chain-of-custody requirements.

Mohammed Ahmed of Chemtech will act as the Laboratory Manager. The Laboratory Manager will work in conjunction with the laboratory QA unit regarding QA elements of specific sample analyses tasks.

- Paradigm Environmental Services, Inc. (Paradigm) of Rochester, New York is anticipated to be used as an alternative laboratory and/or on an as needed basis. Paradigm is a NYSDOH ELAP certified laboratory (ELAP ID 10958) for the anticipated parameters to be tested. A copy of the Paradigm Environmental laboratory Quality Manual is provided as Attachment 3.

  Steve Devito is the Technical Director for Paradigm. The Technical Director is responsible for operation, technical performance and data quality of the laboratory and works in conjunction with the Laboratory Manager and QA unit regarding QA and chain-of-custody requirements.

  Matt Miller is the Laboratory Manager for Paradigm. The Laboratory Manager will work in conjunction with the laboratory QA unit regarding QA elements of specific sample analyses tasks.

2.6 Data Validator

When deemed necessary by the NYSDEC, a NYSDEC-approved entity will complete Data Usability Summary Reports (DUSRs) on the analytical laboratory data in accordance with provisions set forth in Appendix 2B of NYSDEC DER-10. Dr. Maxine Wright Walters of Environmental Data Validation, Inc. (EDV) is currently identified as the entity to provide data validation services. EDV's qualification package, include Ms. Wright's resume, is included in Attachment 4.

3.0 QA OBJECTIVES FOR DATA MEASUREMENT

The overall QA objectives for the groundwater monitoring program is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis and reporting, and to provide reliable analytical results. Specific procedures are described in other sections of this QAPP. The purpose of this section is to address the Data Quality Objectives (DQOs) with respect to accuracy, precision, completeness, representativeness, and comparability.

3.1 Data Quality Objectives

DQOs are based on the concept that different data uses require different levels of data quality. The goal of this project is to generate data that achieves Level III DQOs. Level III includes comprehensive QA/QC protocols and documentation that are typical for USEPA analytical services. The analyses are performed in an off-site NYSDOH ELAP-certified analytical laboratory following standard USEPA protocols. Deliverables for the project will conform to NYSDEC Analytical Services Protocol (ASP) Category B.

4.0 FIELD SAMPLING AND ANALYSIS PLAN

The Field Sampling and Analysis Plan presents detailed methods and procedures for the collection of groundwater samples for analytical laboratory testing.

4.1 Sampling Approach and Analytical Program

The groundwater monitoring program includes: 1) the collection of static water levels from overburden and bedrock groundwater monitoring wells; 2) the collection of groundwater samples from select wells using PDB samplers; and 3) the laboratory analysis of groundwater samples for TCL VOCs and TICs using USEPA Method 8260. The groundwater monitoring program includes quarterly monitoring events for the first year followed by annual monitoring events for the next two years.

Monitoring well sampling activities will be recorded in a field book, and also a PDB sampling log included in Attachment 5. Other observations (e.g., well integrity, etc.) will be noted on the PDB sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

In general, the PDB sampling method produces less waste, is more efficient, and results in groundwater samples with less bias than conventional sampling techniques for potassium permanganate treated sites. [Note: Potassium permanganate does not diffuse through the PDB membrane. As such, samples from the PDBs are not biased low since potassium permanganate is not present in the analytical laboratory sample, as it would be with more conventional sampling techniques (i.e., bailer, low-flow, etc.).]

The PDB samplers will be positioned at target depths identified on Table A by attachment to a weighted cord secured to the wellhead. These sample depths presented on Table A are the same targeted depths used during previous sampling events. With prior approval from the NYSDEC, targeted depths, number of samples, sample locations, etc. can be modified.

<u>Fieldwork Protocol</u>

The currently anticipated fieldwork protocol for each monitoring event is provided below. The procedures are in general accordance with the United States Geological Survey document titled “User’s Guide for Polyethylene-Based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells” dated 2001. Changes to this protocol must be pre-approved by the NYSDEC.

1. Measure and record static water levels at each existing groundwater monitoring well using a static water level meter or oil/water interface meter. Currently, existing monitoring wells include MW-01, MW-02, MW-03A, MW-04 through MW-21, MW-01R, MW-02R, MW-04R through MW-07R, MW-09R, MW-10R and MW-14R (refer to SMP figures for locations of these wells). The meter used to take the measurements will be operated and maintained in accordance with the manufacturer’s recommendations.

2. Conduct the following actions at monitoring wells MW-01, MW-02, MW-03A, MW-04 through MW-08, MW-11, MW-13, MW-15 through MW-20, MW-01R, MW-02R, and MW-04R through MW-07R, which are to be sampled using PDBs:

    a. Measure the well depths, and compare the measured depths to the reported depths to bottom of the well screens/open holes recorded on the well construction logs included in the SMP.

    b. Attach a sufficient stainless steel weight to the end of the dedicated cord to counterbalance the buoyancy of the PDB sampler(s) and cord.

    c. Calculate the distance from the wellhead to the point where the PDB sampler is to be placed. The midpoint of the PDB sampler will be placed at the target sample depth.

    d. Fill the PDB sampler with laboratory grade deionized water that is provided by the laboratory, and install the cap on the PDB sampler.

    e. Attach the PDB sampler to the weighted cord.

    f. Lower the PDB sampler and weighted cord down the well to the target sampling depth.

    g. Secure the assembly to the wellhead in this position.

    h. Allow the assembly to remain undisturbed as the PDB sampler equilibrates with the aquifer (i.e., a minimum of 14 days).

3. After the minimum 14-day equilibration period, the following procedure will be used to recover each PDB sampler from monitoring wells MW-01, MW-02, MW-03A, MW-04 through MW-08, MW-11, MW-13, MW-15 through MW-20, MW-01R, MW-02R, and MW-04R through MW-07R:

    a. Remove the PDB sampler from the well by using the attached cord. Care will be taken not to expose the PDB sampler to heat or agitation.

    b. Examine the surface of the PDB sampler for evidence of algae, iron or other coatings, for tears in the membrane or other damage; and whether the PDB sampler cap is intact. Note the observations on the PDB sampling log. [Note: If there are tears in the membrane or the PDB sampler cap is not intact, the sample should be rejected and/or flagged as a potentially biased sample.]

    c. Detach and remove the PDB sampler from the weighted cord. Remove the excess liquid from the exterior of the bag to minimize the potential for cross contamination.

    d. Remove PDB sampler cap, or puncture with PDB sampler draw straw, and transfer the water from the PDB sampler to the analytical laboratory supplied sample containers.

4. Any unused water from the PDB samplers, and water used to decontaminate cutting devices will either be: 1) treated with activated carbon, if necessary, and tested for parameters required to characterize the waste for proper disposal under a Monroe County Pure Waters (MCPW) Sewer Use permit; 2) containerized in a New York State Department of Transportation (NYSDOT)-approved 55-gallon drum(s) and

disposed off-site in accordance with applicable regulations; or 3) placed down one or more nearby injection wells as long as water within the injection well contains visible potassium permanganate (i.e., pink or purple in color).

5. Dates, field observations, static water level measurements, visual color observations, and other pertinent information obtained during the sampling effort will be noted in the field logbook, and the PDB Sampling Log.

Analysis Plan

Groundwater samples and QA/QC samples will be analyzed by a NYSDOH ELAP-certified analytical laboratory for TCL VOCs and TICs using USEPA Method 8260 (refer to Table A).

The analytical laboratory test results will be reported in NYSDEC ASP Category B deliverable reports. NYSDEC ASP Category B deliverables will be requested unless otherwise agreed with the NYSDEC. The analytical laboratory will make every effort to analyze the samples using the lowest practical quantitation limits (PQLs) possible for the groundwater and QA/QC samples (refer to Attachment 6 for Chemtech List of TCL VOCs and PQLs). The test results will be compared to available and applicable standards, criteria and guidance (SCG) values and submitted electronically in the NYSDEC-identified format. In addition, analytical laboratory results will be provided to the NYSDEC using the NYSDEC's Equis Format.

4.2 Equipment Decontamination Procedures

In order to reduce the potential for cross-contamination of samples collected during this project, the following procedures will be implemented to ensure that the data collected (primarily the analytical laboratory data) is acceptable.

It is anticipated that most of the materials used to assist in obtaining samples will be disposable one-time use materials (e.g., sampling containers, PDBs, bailers, rope, latex gloves, etc.). However, when equipment must be re-used (e.g., static water level indicator, etc.), it will be decontaminated by at least one of the following methods:

- Steam clean the equipment within a dedicated decontamination area; or
- Rough wash in tap water; wash in mixture of tap water and Alconox-type soap; double rinse with deionized or distilled water; and air dry and/or dry with clean paper towel.

4.3 Monitoring-Derived Waste

Monitoring-derived wastes such as decontamination water, unused PDB water, and personal protective equipment and disposable supplies will be characterized and disposed off-site in accordance with applicable Local, State and federal regulations.

5.0 SAMPLE HANDLING AND CUSTODY REQUIREMENTS

During sampling activities, personnel will wear disposable latex or nitrile gloves. Between collection of samples, personnel performing the sampling will discard used latex gloves and put on new gloves to preclude cross-contamination between samples. As few personnel as possible will handle samples or be in charge of their custody prior to shipment to the analytical laboratory.

Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Samples will be preserved as specified by the analytical laboratory for the type of parameters and matrices being tested. The required amount of preservatives will be added by the analytical laboratory to the sample containers prior to delivery to the Site, and the sample containers will be tagged to identify the preservative. The sample preservation requirements are provided in Attachment 7.

Sufficient volume (i.e., as specified by the analytical laboratory and on Chemtech Table included in Attachment 7) will be collected to ensure that the laboratory has adequate sample volume to perform the specified analysis. Samples with zero headspace will be collected when VOC analysis is going to be performed. Samples will be kept on ice in a cooler for shipment to the analytical laboratory.

The sample holding times will be in accordance with the NYSDEC ASP. The sample holding times are provided in Attachment 7.

<u>Chain-Of-Custody</u>

Samples that are collected for subsequent testing will be handled using chain-of-custody control. Chain-of-custody documentation will accompany samples from their inception to their analysis, and copies of chain-of-custody documentation will be included with the laboratory's report. The chain-of-custody will include the date and time the sample was collected, the sample identity and sampling location, the requested analysis, and any request for accelerated turnaround time.

<u>Sample Labels</u>

Sample labels for field samples and QA/QC samples with adhesive backing will be placed on sample containers in order to identify the sample. Sample information will be clearly written on the sample labels using waterproof ink. Sufficient sample information will be provided on the label to allow for cross-reference with the field sampling records and/or sample logbook.

The following information will be provided on each sample label:

- Name of entity;
- Initials of sampler;
- Date and time of collection;

Sample identification;
Intended analyses; and
Preservation required.

Custody Seals

Custody seals are preprinted adhesive-backed seals that are designed to break if disturbed. Seals will be signed and dated before being placed on the shipping cooler. Seals will be placed on one or more location on each shipping cooler as necessary to ensure security. Shipping tape will be placed over each seal on a cooler to ensure it is not accidentally broken during shipment. Sample receipt personnel at the laboratory will check and document whether each seal on a shipping cooler is intact when received.

Sample Identification

Each sample will be numbered starting at the next number that follows the last number used during the Supplemental Interim Remedial Measure (IRM) work. The number will then continue in succession (i.e., if the last number used in the Supplemental IRM phase is 753, then the first number to be used during the long term groundwater monitoring will be 754, and then continue on with 755, 756, 757, etc.). The sample test location and sample depth (applicable to field samples) will also be provided after the sample number using the following test location designations:

MW-XX(xx')	Groundwater sample with monitoring well number (depth of sample in parentheses)
TByyyyyy	Trip Blank sample with month/day/year
FByyyyyy	Field Blank sample with month/day/year

As an example, assuming the first project sample is a groundwater sample collected from monitoring well MW-01 at a depth of 17 feet, the sample will be designated as 754/MW-01(17').

Transportation of Samples

Samples will be handled, packaged and shipped in accordance with applicable regulations, and in a manner that does not diminish their quality or integrity. Samples will be delivered to the laboratory no later than 48 hours from the day of collection.

6.0 ANALYTICAL QUALITY ASSURANCE/QUALITY CONTROL

The analytical laboratory will provide internal QA/QC checks that are required by NYSDEC ASP and/or USEPA contract laboratory protocol (CLP), such as analyses performed, spike blanks, internal standards, surrogate samples, calibration standards, and reference standards. Laboratory reports will be reviewed as outlined in Chemtech's Quality Assurance Manual and Paradigm's Environmental Laboratory Quality Manual that are included in Attachment 2 and Attachment 3, respectively. Laboratory results will be compared to data quality indicators in accordance with the laboratory's Quality Assurance Manual or Environmental Laboratory Quality Manual and the NYSDEC ASP. Data quality indicators include: precision, accuracy, representation, completeness, and comparability.

Field and QA/QC Samples

Table A provides a summary of the analytical field and QA/QC samples to be collected during each monitoring event. The table includes information on anticipated sample depths, constituent parameters, analytical methods, sample matrix, and QA/QC samples. In order to provide control over the collection, analysis, review, and interpretation of analytical laboratory data, the following QA/QC samples will be included during each groundwater monitoring sampling event,.

- One trip blank will be included per set of 20 groundwater field samples, or per shipment if less than 20 groundwater field samples. The trip blanks will be analyzed for TCL VOCs and TICs.

- One matrix spike/matrix spike duplicate (MS/MSD) for each set of 20 groundwater samples, or per shipment if less than 20 groundwater samples. MS/MSD samples will be tested for TCL VOCs and TICs.

- One field blank will be collected from a new PDB sampler for each set of 20 samples, or per shipment if less than 20 samples. The field blanks will be tested for TCL VOCs and TICs.

Data Usability Summary Report

EDV, or other NYSDEC-approved entity, will complete a DUSR on the Category B deliverables analytical laboratory data associated with each groundwater monitoring event, unless otherwise agreed to by the NYSDEC. The DUSR will be conducted in accordance with the provisions set forth in Appendix 2B of DER-10.

7.0 RECORD KEEPING AND DATA MANAGEMENT

Project activities will be documented in a bound field book on a daily basis. Information that will be recorded in the field book will include:

- Dates and time work is performed;
- Details on work being performed;
- Details on field equipment being used;
- Field meter measurements collected during monitoring activities;
- Sampling locations and depths measured in tenths of feet;
- Personnel and equipment on-site;
- Weather conditions; and
- Other pertinent information as warranted.

In addition, the PDB Sampling Log included in Attachment 5 will be completed for each monitoring event.

Category B deliverables for each monitoring event will be stored electronically by DAY, or other NYSDEC-approved entity. Analytical, QA/QC data, and DUSRs will be incorporated into a groundwater monitoring report (GMR) for each groundwater monitoring event. Electronic PDF of each GMR, as well as corresponding Equis files, will be submitted to the NYSDEC as they are generated.

8.0 ACRONYMS

ASP	Analytical Services Protocol
Chemtech	Chemtech Consulting Group, Inc.
City	City of Rochester
CLP	Contract Laboratory Protocol
DAY	Day Environmental, Inc.
DQO	Data Quality Objective
DUSR	Data Usability Summary Report
EDV	Environmental Data Validation, Inc.
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
GMR	Groundwater Monitoring Report
IRM	Interim Remedial Measure
MCPW	Monroe County Pure Waters
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
Paradigm	Paradigm Environmental Services, Inc.
PDB	Passive Diffusion Bag
PQL	Practical Quantitation Limit
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
TCL	Target Compound List
TIC	Tentatively Identified Compound
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

TABLE A

Analysis Plan for Field and QA/QC Samples

Table A

300, 304-308, 320 Andrews Street and 25 Evans Street
Rochester, New York
NYSDEC Site #E828144

Analysis Plan for Field and QA/QC Samples

Well ID	Well Information		Groundwater Monitoring Event Scope					Depth (ft bgs) from TOC to center of PDB sampler (subsequent to cover system installation) To be used for PDB deployment			Groundwater Sample ID	Notes	Well ID
	Depth of Well (ft bgs)	Screened Interval or Open Rock Interval (ft bgs)	Collect Static Water Level	Collect Groundwater Sample Using PDB	Testing Parameters	USEPA Test Method	Target Depth of PDB Sample Centerpoint (ft bgs)						
MW-01	25.3	15.5-25.5	Yes	Yes	TCL VOCs and TICs	8260	**17.0, 23.0** & **24.5**	16.65	22.65	24.15	XXX-MW-01(17); XXX-MW-01(23), XXX-MW-01(24.5)		MW-01
MW-02	27.0	17.0-27.0	Yes	Yes	TCL VOCs and TICs	8260	**23.8**	25.14			XXX-MW-02(23.8)		MW-02
MW-03A	30.0	10.0-30.0	Yes	Yes	TCL VOCs and TICs	8260	**17.0**	16.56			XXX-MW-03A(17)		MW-03A
MW-04	30.5	15.5-30.5	Yes	Yes	TCL VOCs and TICs	8260	**23.0**	25.67			XXX-MW-04(23)		MW-04
MW-05	30.8	15.8-30.8	Yes	Yes	TCL VOCs and TICs	8260	**17.0**	19.92			XXX-MW-05(17)		MW-05
MW-06	30.5	10.5-30.5	Yes	Yes	TCL VOCs and TICs	8260	**17.0**	19.63			XXX-MW-06(17)		MW-06
MW-07	32.5	12.5-32.5	Yes	Yes	TCL VOCs and TICs	8260	**22.5**	25.07			XXX-MW-07(22.5)		MW-07
MW-08	29.1	4.1-29.1	Yes	Yes	TCL VOCs and TICs	8260	**18.0**	20.59			XXX-MW-08(18)	Do MS/MSD (Triple Volume)	MW-08
MW-09	30.0	10.0-30.0	Yes	No									MW-09
MW-10	30.8	10.8-30.8	Yes	No									MW-10
MW-11	23.0	3.0-23.0	Yes	Yes	TCL VOCs and TICs	8260	**15.0**	14.78			XXX-MW-11(15)		MW-11
MW-12	31.5	11.5-31.5	Yes	No									MW-12
MW-13	32.3	7.3-32.3	Yes	Yes	TCL VOCs and TICs	8260	**15.0**	17.47			XXX-MW-13(15)		MW-13
MW-14	31.5	12.7-32.7	Yes	No									MW-14
MW-15	30.0	10-30	Yes	Yes	TCL VOCs and TICs	8260	**17.0**	19.67			XXX-MW-15(17)		MW-15
MW-16	30.0	10-30	Yes	Yes	TCL VOCs and TICs	8260	**22.5**	25			XXX-MW-16(22.5)		MW-16
MW-17	25.0	10-25	Yes	Yes	TCL VOCs and TICs	8260	**15.5**	17.94			XXX-MW-17(15.5)		MW-17
MW-18	31.1	6.1-31.1	Yes	Yes	TCL VOCs and TICs	8260	**21.5**	23.88			XXX-MW-18(21.5)		MW-18
MW-19	31.0	6.0-31.0	Yes	Yes	TCL VOCs and TICs	8260	**28.0**	30.35			XXX-MW-19(28)		MW-19
MW-20	31.0	6.0-31.0	Yes	Yes	TCL VOCs and TICs	8260	**22.0**	24.52			XXX-MW-20(22)		MW-20
MW-21	30.0	10-30	Yes	No									MW-21
MW-01R	43.0	32.1-43.0	Yes	Yes	TCL VOCs and TICs	8260	**39.5**	39.16			XXX-MW-01R(39.5)		MW-01R
MW-02R	43.3	32.3-43.3	Yes	Yes	TCL VOCs and TICs	8260	**39.0**	41.14			XXX-MW-02R(39)		MW-02R
MW-04R	42.5	32.0-42.5	Yes	Yes	TCL VOCs and TICs	8260	**34.0**	35.52			XXX-MW-04R(34)		MW-04R
MW-05R	43.3	32.5-43.3	Yes	Yes	TCL VOCs and TICs	8260	**33.5**	36.36			XXX-MW-05R(33.5)		MW-05R
MW-06R	43.2	32.5-43.2	Yes	Yes	TCL VOCs and TICs	8260	**39.0**	40.46			XXX-MW-06R(39)	Do MS/MSD (Triple Volume)	MW-06R
MW-07R	43.5	33.5-43.5	Yes	Yes	TCL VOCs and TICs	8260	**41.0**	42.5			XXX-MW-07R(41)		MW-07R
MW-09R	41.5	34.5-41.5	Yes	No									MW-09R
MW-10R	43.0	32.5-43.0	Yes	No									MW-10R
MW-14R	44.7	34.0-44.7	Yes	No									MW-14R

Yellow	Wells to be PDB sampled and tested as part of groundwater monitoring event
Orange	Depth from TOC adjusted to account for 2.5 foot riser added to well
Green	Depth from TOC adjusted to account for 1.53 foot riser added to well
Lavender	QA/QC sample to be collected and tested as part of groundwater monitoring event

QA/QC Samples	XXX-FByyyyyyA	Field Blank (PDB with DI)
	XXX-FByyyyyyB	Field Blank (PDB with DI)
	XXX-TByyyyyyA	Trip Blank
	XXX-TByyyyyyB	Trip Blank

XXX Three digit sample number (Refer to Section 5.0 of QAPP for guidance on sample identification)
yyyyyy Month-day-year of sample collection (Refer to Section 5.0 of QAPP for guidance on sample identification)
ft bgs Feet below the ground surface
TCL Target Compound List
MS/MSD Matrix Spike/Matrix Spike Duplicate
QA/QC Quality Assurance/Quality Control
Except as noted, depths on table are for conditions prior to installation of the cover system.

VOC Volatile Organic Compound
TIC Tentatively Identified Compound
USEPA United States Environmental Protection Agency
PDB Passive Diffusion Bag
QAPP Quality Assurance Project Plan
TOC Top of Casing
DI Deionized Water

Attachment 1

Resumes of Key Personnel

JEFFREY A. DANZINGER

EXPERIENCE

Day Environmental, Inc.: October 1991 to present
Years with Other Firms: 5 years

AREAS OF SPECIALIZATION

- Environmental Site Assessment
- Environmental Restoration/Remediation
- Environmental Computer Modeling
- Risk Assessment/Geology/Hydrogeology
- Environmental Compliance

EDUCATION

University of Colorado at Boulder; B.A. Geology; 1986
Various continuing education courses/seminars in environmental studies and remediation

REGISTRATION/AFFILIATIONS

- OSHA Hazardous Waste Site Worker and Supervisor Training, and Confined Space Training
- Member of the National Groundwater Association (NGWA)

RESPONSIBILITIES AND PROJECT EXPERIENCE

Mr. Danzinger has over 25 years of professional experience working on environmental projects as a consultant. Mr. Danzinger is responsible for development and completion of Phase II studies, hydrogeologic studies, environmental restoration, remediation and Brownfield projects and environmental compliance project for independent clients and government agencies. He also serves as the company Assistant Health and Safety Officer. Mr. Danzinger has performed over 240 Phase I Environmental Site Assessments, over 200 Phase II Environmental Site Assessments and over 25 environmental restoration projects. Examples are provided below:

Andrews Street Site, Rochester, New York: DAY was retained by the City of Rochester to perform Demolition-Phase environmental services and Remedial Investigation/Remedial Alternatives Analysis (RI/RAA) services at the Andrews Street Site. Mr. Danzinger managed extensive and specialized investigative studies, including: sampling and monitoring of soil, groundwater and building materials; and preparation of various work plans, safety plans, quality assurance project plans, and associated project reports. Studies completed included: a utility assessment including videotaping; a geophysical survey; test pits; borings; membrane interface probe (MIP) PID and halogen specific detector (XSD) and hydraulic profiling tool (HPT) data collection; installation and monitoring of overburden and bedrock groundwater monitoring wells. As part of DAY's services, Mr. Danzinger also managed the completion of Interim Remedial Measures (IRMs), implementation of subcontractor procurement procedures, and interface with representatives of the Client and regulatory agencies. Mr. Danzinger played a critical role in the development of specialized innovative GIS interpolation modeling of soil and MIP XSD data that were successful in defining the extent of PCE IRMs, including source area soil removal and subsequent in-situ chemical oxidation using potassium permanganate.

Slag and Fill Management Project, Greece and Rochester, New York: Project Manager to address fill material containing regulated solid waste (slag) that was generated during a City of Rochester redevelopment project and was inadvertently placed on a vacant residential subdivision parcel in the Town of Greece. Mr. Danzinger's responsibilities included: preparing for and attending meetings with municipalities, regulators, and the general public; development of work plans; coordination and management of field activities; and development of closure reports.

Former Air Force Plant No. 51, Greece, New York: This Site was used for the manufacture of ocean-going ships and cranes during and immediately following World War II, and for the manufacture of B-52 aircraft parts and Talos ground handling equipment during the 1950's. Mr. Danzinger acts as Project Manager for the investigation of this Site under the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP). Fifteen areas of concern (AOCs) have been incorporated into seven operable units (OUs) and investigation/remediation is on-going. Tasks Mr. Danzinger has managed include: development of environmental work plans and site-specific health and safety plans; inventory, characterization and disposal of abandoned wastes; sampling and dismantling of abandoned wet-type electrical equipment; investigation of, and development of a remedial work plan for a former wastewater treatment lagoon/pond area; investigation of the existing stormwater system and former septic system areas; investigation and remediation of the former underground storage tank area; and monitoring and recovery of dense non-aqueous phase liquid (DNAPL) as an interim remedial measure.

Former Photech Imaging Systems, 1000 Driving Park Avenue, Rochester, New York: Mr. Danzinger was responsible for managing the completion of a SI/RA report (NYSDEC Environmental Restoration Program Site ID B-00016-8) at this Brownfield Site that consists of 12 vacant buildings of varying degrees of disrepair that are situated on an approximate 12.5-acre parcel. The buildings formerly housed various manufacturing, laboratory, office and warehouse operations. Various underground and aboveground storage tank systems and a wastewater silver recovery system were operated at the Site. Other features at the Site included a burn pit area, and a retention pond basin.

Former Ford Garage, 2624 Main Street, Gorham, New York: On behalf of the Town of Gorham, New York, Mr. Danzinger is managing environmental services at this Brownfield Site under the New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Program (Site ID#B-00153-8). These services include a Phase I ESA report, a Site Investigation/Remedial Alternatives (SI/RA) report, development of a Remedial Work Plan (RWP), Health and Safety Plan (HASP), and Citizen Participation Plan (CPP). The Site was formerly operated as an automobile sales and service facility, and also as a gasoline station. Remediation consists of a source area soil removal, in-situ bioremediation, institutional controls and engineering controls. Mr. Danzinger managed the preparation of a Final Engineering Report (FER), a Site Management Plan (SMP), and Alta survey, and an Environmental easement of the project, which resulted in the Town of Gorham receiving a certificate of Completion from the NYSDEC. Long-term monitoring of engineering controls and groundwater quality are on-going.

Former Vogt Manufacturing Facility, 100 Fernwood Ave., Rochester, New York: Under the NYSDEC Brownfield Cleanup Program (BCP Site #C828119), Mr. Danzinger managed remedial investigation and implementation of interim remedial measures at this Brownfield Site. This industrial-zoned Site consists of eleven contiguous parcels totaling approximately 8.14 acres that was originally occupied by Vogt Manufacturing Corporation, which manufactured auto trimmings (e.g., textile trimmings spinning and weaving). The main building was later converted for multi-tenant light industrial/commercial use, including plastic products manufacturer, tool and die makers, machine shops, painters, printers, graphics companies, and sheet metal contractors. Mr. Danzinger was responsible for the development of a Remedial Investigation/Remedial Alternatives Analysis (RI/RAA) report, a Remedial Work Plan (RWP), a Final Engineering Report, and a Site Management Plan (SMP). Mr. Danzinger also assisted in the preparation of an Alta Survey and Environmental easement for the Sites. As a result of the work completed, the Client received a certificate of Completion (COC) from the NYSDEC. .

High-Rise Apartment Complex, 185 Mt. Hope Ave., Rochester, New York: Under the NYSDEC Brownfield Cleanup Program (BCP Site #C828124), Mr. Danzinger managed remedial investigation and implementation of remedial measures at this Brownfield Site. This Site consists of an apartment building with an associated paved parking lot located on approximately 1.106 acres of land. The apartment building houses 202 residential units, totals approximately 143,000 square feet, and consists of a multi-level eight to twelve-story brick and concrete-block, slab-on-grade building constructed in 1975. Prior to the residential development in 1975, former uses at the Site included: rail yards, former Erie Canal feeder, and possibly a portion of a gasoline station. The remedy included: a source area soil removal; in-situ remediation, and preparation of a Final Engineering Report (FER), Site Management Plan, and Environmental Easement. DAY's client subsequently received a certificate of Completion (COC) from the NYSDEC.

Low-Rise Apartment Complex, 225-405 Mt. Hope Ave., Rochester, New York: Under the NYSDEC Brownfield Cleanup Program (BCP Site #C828125), Mr. Danzinger managed the remedial investigation and remediation at this Brownfield Site. This Site consists of approximately 6.016 acres of land improved with five four-story apartment buildings. The brick and concrete-block, slab-on-grade apartment buildings were constructed in 1975, and these buildings house 200 units totaling approximately 205,000 square feet. Prior to residential development in 1975, past uses/activities at the Site included commercial, warehouse, feeder canal, rail yards, a work shop, auto repair, car sales, a wagon shop, a junk-yard and iron cutting facility, a brick storage yard, a tannery, and a coal yard. The remedy included abatement of PCB transformers, source area soil removals, in-situ remediation, preparation of a site management plan and environmental easement, and removal of impacted topsoil across the site. As a result of the work completed, the Client received a Certificate of Completion (COC) from the NYSDEC.

Assessment of Transformer Maintenance Shop at Utility Company, Rochester, New York: A utility company's facility contained a transformer maintenance shop that had been operated since the 1950s. Mr. Danzinger managed the development and implementation of a characterization sampling plan; evaluated the characterization data and identified areas requiring remediation; and developed a report documenting the investigation and proposed remedial actions. This project was conducted in accordance with 40 CFR §§ 761. The USEPA documents titled "Verification of PCB Spill Cleanup by Sampling and Analysis" dated August 1985, "Field Manual for Grid sampling of PCB Spill Sites to Verify Cleanup" dated May 1986, "Wipe Sampling and Double Wash/Rinse Cleanup" dated April 18, 1991, and. Region 1 "Draft" document titled "Standard Operating Procedure For Sampling Concrete in the Field" dated December 1, 1997 were utilized in the sampling protocol.

Former Manufactured Gas Plant (MGP), Canandaigua, New York: Mr. Danzinger was involved with the development and implementation of a work plan and health and safety plan to evaluate this Site. Mr. Danzinger managed the associated site studies consisting of test borings/monitoring well installation, soil gas studies, sampling and testing of impacted media (e.g. soil/fill, groundwater, surface waters/sediments) to characterize site conditions and delineate contaminant plumes. Based upon the assessment of site conditions, Mr. Danzinger assisted in the development of a report that summarized the findings of the environmental studies, identified various remedial options consisting of a combination of waste removal/isolation and in-situ treatment, and presented conceptual remedial design schemes with estimated implementation costs.

Former Hallman's Auto Dealership, Rochester, New York: Site was formerly used as an automobile dealership and service center for over 50 years. Redevelopment plans for this Brownfield site included demolition of the service garage, construction of new residential apartments and townhouses, and conversion of a portion of the existing building (including former automobile showroom) into retail/restaurant commercial space. Mr. Danzinger completed an ASTM RBCA risk assessment using site-specific data generated during a Phase II environmental study and the proposed residential and commercial uses of portions of the site. As a result of performing the risk assessment, risk-based corrective measures that were completed in conjunction with redevelopment at this Site included: removal of over 20 underground storage tanks, removal and off-site disposal of petroleum-contaminated soils and fill material containing ash with elevated levels of heavy metals; design and installation of a free product recovery system; design and installation of passive venting systems with a vapor barrier; and design and installation of a soil vapor extraction system. Mr. Danzinger was responsible for developing and implementing an environmental project work plan, a health and safety plan, and an environmental management plan for this redevelopment project. In addition, DAY provided on-site environmental air monitoring services and site documentation services during construction activities that had the potential to disturb contaminated media. After the project was completed, Mr. Danzinger was involved with the development of a closure report for this Site.

Former Railroad Car Shops Site, East Rochester, New York: Mr. Danzinger was responsible for managing subsurface studies and an ASTM RBCA risk assessment on a portion of this former railroad car shop site. The Site was confirmed to be impacted with fill containing elevated heavy metals and weathered petroleum product. Mr. Danzinger was involved with the development and implementation of a health and safety plan and environmental management plan that included the design and monitoring of a passive vapor barrier vent system that was installed beneath a new industrial building that was constructed on this Site. In addition, DAY provided on-site environmental air monitoring services and site documentation services during construction activities that had the potential to disturb contaminated media. This project was successful in identifying pre-existing environmental conditions prior to transfer of ownership while obtaining regulatory agency approvals for the new owner to redevelop the vacant parcel with a new industrial facility.

Residential Care Facility, Rochester, New York: DAY's Client developed this approximate 3-acre property into a residential care facility on property that formerly contained several vehicle repair shops/gasoline stations, the City of Rochester Streets Department maintenance facility and the City of Rochester automobile pound. In addition, a portion of the Erie Canal, later converted to a trolley system, traversed the property. Subsequently, the canal/trolley line was backfilled with various construction-type debris and other assorted material (including petroleum-contaminated material). Mr. Danzinger was involved with development of a health and safety plan and an environmental management plan (EMP), which included the removal of localized areas of petroleum-contaminated soil for treatment via an on-site 4,500 cubic yard biopile, the installation of an active venting system installed beneath the building footprint, and long-term monitoring. DAY also provided on-site environmental air monitoring services and site documentation services during construction activities that had the potential to disturb contaminated media.

Former Petroleum Bulk Storage Facility, Mt. Morris, New York: Mr. Danzinger managed an environmental site investigation at this former petroleum bulk storage facility under the New York State Environmental Restoration Bond Act Program. Mr. Danzinger was involved in the preparation and implementation of detailed work plans, implementation of fieldwork, and preparation of a Site Investigation/Remedial Alternatives Report (SI/RAR).

Multiple-Parcel Brownfield Site, Rochester, New York: Responsible for the completion of a Phase I ESA for the City of Rochester at a five-parcel Brownfield site. The Site is located within the Western Gateway Zone of the New York State Economic Development Zone (EDZ) Program, and the City of Rochester was evaluating the restoration of these parcels for incorporation into an adjoining industrial park. Site improvements encompassed over 610,000 square feet of floor space in multiple level industrial buildings of varying structural condition. Former uses of the Site included: appliance manufacturing, tool and die shops, printing/lithographing operations, shoe manufacturing, circuit board manufacturing, box manufacturing; cabinet manufacturing; possible foundry operations, chromium plating operations, basket manufacturing, automobile services, welding operations, and warehousing/distribution operations. Mr. Danzinger was also responsible for the management of Phase II Studies on a portion of this Site.

14-60 Charlotte Street, Rochester, New York: This Brownfield Site consists seven parcels of underutilized commercial land totaling approximately 1.3 acres. Mr. Danzinger was responsible for managing a Phase I ESA, Phase II studies, and remediation services at the Site. Contamination addressed at this Site was attributable to an on-site UST, on-site former automobile repair operations, on-site fill materials, and off-site dry-cleaning and automobile repair operations. Project deliverables included: a Phase I ESA report, Phase II reports, a Corrective Action Plan (CAP); a Health and Safety Plan (HASP) that included a Community Air Monitoring Plan (CAMP); an Environmental Management Plan (EMP); an exposure assessment with site-specific PSSI calculations; a closure report, and conceptual sub-slab depressurization system (engineering control) designs for use during redevelopment of the Site.

80-100 Charlotte Street, Rochester, New York: DAY initially completed Phase I ESA, Phase II ESA and cost estimating services for this Site using City of Rochester funding mechanisms. Through a competitive request for proposal process, the City of Rochester subsequently awarded DAY the Brownfield Cleanup Project for this Site that was funded with a USEPA Brownfield Initiative Grant. DAY's services under the USEPA Brownfields Initiative Grant included: the development of an Analysis of Brownfields Cleanup Alternatives (ABCA) report; review of a Citizens Participation Plan (CPP) that was developed by the City of Rochester; the development of a corrective action plan (CAP) and a health and safety plan HASP); coordination, management, documentation and implementation of a source area soil removal enhanced by the placement of bioremediation stimulant product in a portion of the excavation; utilization of global positioning system (GPS) and geographical information system (GIS) on the project, installation and monitoring of groundwater wells on a long-term basis; and associated reporting of the work completed at the Site. No further action is required by the NYSDEC for this Site.

BARTON F. KLINE, P.E.

EXPERIENCE

Day Engineering, P.C.: April 1992 to present
Years with Other Firms: 4 years

AREAS OF SPECIALIZATION

- Process and Facilities Design
- Design/Build Services
- Data Management Systems

EDUCATION

University of Rochester, B.S. Chemical Engineering, 1987
University of California at Berkeley, Graduate Coursework, Chemical Engineering

REGISTRATIONS/AFFILIATIONS

- Registered Professional Engineer in States of New York, New Jersey, South Carolina
- 40 Hour OSHA Hazardous Waste Site Worker Training
- Member, Water Environment Federation
- Member, National Fire Protection Association

RESPONSIBILITIES AND PROJECT EXPERIENCE

Mr. Kline has 25 years of professional experience. At Day Engineering, he is primarily responsible for engineering, design, and project coordination for the installation of environmental facilities and support systems. Areas of expertise include water and wastewater conveyance and treatment, industrial ventilation, air pollution control, petroleum and chemical bulk storage and dispensing facilities, solid waste management, soil and groundwater remedial treatment, and process automation. Representative projects are described below.

Process and Facilities Design

Metro-North Railroad Transportation Facilities, New York, New York. Project Manager / Senior Engineer for design and/or installation of multiple facility systems since 1992, including:

- wastewater transfer and aeration facilities (Brewster, NY) – discharge agreement was negotiated with Town to eliminate significant trucking costs, and over one mile of new sewer, pump station, screening and aeration facilities were installed.
- stormwater pump and treatment system to recover spilled oil from locomotive fueling pad runoff (Harmon, NY) – system eliminates disposal costs, and oil is recovered for burning in facility heaters, reducing heating costs. Also performed inflow and infiltration study and testing upon 35-acre yard drainage system at this site.
- membrane filtration industrial wastewater treatment system (White Plains, NY)
- fixed-film biological industrial wastewater treatment system (Harmon, NY)
- physical-chemical wastewater treatment system for chelated metals removal (New Haven, CT)
- 200,000-gallon diesel fuel storage tank and remote filling station (Harmon, NY)
- lube and waste oil handling, transport and storage facilities (Harmon, NY)

Corning-Tropel Corporation, Fairport, New York. Project Manager responsible for: (i) design and implementation of multiple ventilation, process exhaust, and particulate and organic vapor removal systems associated with manufacturing operations; (ii) design and implementation of closed-loop heated and chilled process water pump and supply systems to meet strict requirements of multi-million dollar precision optics manufacturing equipment; (iii) design and automation of HVAC control systems (multi-zone PLC temp. control maintains temp.

within tenths of a degree for temperature-sensitive precision optics manufacturing operations); and (iv) design and implementation of an evaporative waste treatment system to reduce waste disposal costs.

Rochester Gas & Electric Corp., Rochester, New York. Senior engineer responsible for: (i) engineering and design of containment and stormwater overflow structures at seven local electrical substations; (ii) water treatment and conveyance systems to support hydroelectric facility work (five pump stations involved @ 350 GPM each); and (iii) computer modeling and development of certified Spill Prevention Control and Countermeasures Plan covering 162 electric substations and hydroelectric facilities throughout western New York.

FBC Technologies, Inc. Project Manager for ongoing provision of engineering support services to a local wastewater treatment systems manufacturer with multi-million dollar annual sales. Responsible for review and sizing of equipment for industrial and municipal fine bubble diffusion aeration system and fixed-film biological treatment system proposals, and for assistance in continual improvement of equipment product line.

Teledyne CAE Aeronautical Defense Plating Facility, Toledo, Ohio. Project Manager for military facility projects totaling approximately $700,000 involving: (i) waste source evaluation, segregation, and waste minimization activities; (ii) renovation, upgrade and automation of wastewater treatment system; and (iii) air pollution control equipment renovation and upgrade. These systems eliminated intermittent discharge violations the facility was experiencing, and reduced wastewater treatment operating costs.

Monroe County Department of Environmental Services, Rochester, New York. Project Manager / Senior Engineer for municipal facilities evaluations and designs, including multiple sanitary sewer, pump station, and controls renovation projects.

Design/Build Services

Corning Glass Wastewater Treatment Plant Automation, Corning, New York. Project Manager for $200,000 design-build project involving installation of new pump station, process modifications, instrumentation and controls for automation and remote monitoring of a wastewater treatment plant. This system improved treatment efficiencies and reduced manual labor requirements by 70%.

American Packaging Corp. Chemical Bulk Storage Facilities, Rochester, New York. Senior Engineer for $200,000 design-build project involving installation of new underground storage tanks, new chemical pump and dispensing assemblies, and monitoring systems for hazardous organic solvents. Also currently providing design services for installation of an indoor chemical bulk storage area for large quantities of drummed flammable materials.

Saint-Gobain Technical Fabrics Thermal Oxidation System, Albion, New York. Project Manager / Senior Engineer for $900,000 design-build project involving installation of a 50,000 CFM ventilation system and regenerative thermal oxidizer to remove VOC emissions from manufacturing operations.

Heat Treating Facility Chemical Containment, Rochester, New York. Project Manager for design-build project installing an outdoor containment system for a large anhydrous ammonia tank. Also negotiated variance request with NYSDEC to reduce containment requirements/costs.

Brownfield Groundwater Treatment System, Rochester, New York. Project Manager for design-build project installing a remedial treatment system for pump and treatment of chromium and VOCs in groundwater. This system was the first full-scale installation of a novel treatment process developed by professors at Cornell University.

Attachment 2

Chemtech Quality Assurance Manual

QUALITY ASSURANCE MANUAL

CHEMTECH

284 Sheffield Street
Mountainside, NJ 07092
Tel: (908) 789-8900

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Approved By:

Divya Mehta
Technical Director

Date 7/7/14

Himanshu Prajapati
QA/QC Director

Date 07/07/14

"The technical information contained herein is to be considered confidential and proprietary and is not to be disclosed, copied, or otherwise made available to other parties without the express written consent of Chemtech."

INTRODUCTION

The Chemtech Quality Program, outlined in this document, has been prepared to meet the requirements of ISO/IEC DIS 17025 and National Environmental Laboratory Accreditation Program (NELAP). The program establishes all Quality Assurance (QA) policies and Quality Control (QC) procedures to follow in order to ensure and document the quality of the analytical data produced by the Laboratory. The Quality Program is reviewed periodically and revisions are implemented as required.

Chemtech Standard Operating Procedures (SOPs) provide explicit instructions on the implementation of each element of the plan and assure that compliance with the requirements of the plan is achieved. All employees are required to adhere to the requirements of the SOP's in performing their specific job functions. SOP's are reviewed periodically and revisions are implemented as required when change occurs.

The goal of the Quality Program is to consistently produce accurate, defensible analytical data through the implementation of sound and useful Quality Assurance/Quality Control management practices. The plan will ensure that Chemtech, its employees and client expectations are achieved.

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1. QUALITY POLICY

1.1 CHEMTECH MISSION

Chemtech will be recognized as a dynamic, professional organization, which provides high quality analytical services to the environmental market.

It will consistently meet client expectations while providing a challenging work environment for its employees and acceptable profit margins for its shareholders.

1.2 POLICY STATEMENT

Chemtech is committed to the production of analytical data meeting specific defined quality standards and to continue improvements in all areas of our operation. As a result of having a focus on environmental analyses, an emphasis is placed on timelines of work, meeting data quality objectives, and the legal defensibility of the data. Each operation maintains a local perspective in its scope of services and client relations and maintains a national perspective in terms of quality. Chemtech has policies and procedures to avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgment or operational integrity. Under the guidance of this quality assurance manual, a level of quality, which is acceptable on a national and international scale, is upheld in all Chemtech laboratory operations. Chemtech management is committed to be compliant with NELAC TNI Standard (EL-V1-2011) and NELAP policies. Chemtech will comply with the requirements in Department of Defense Quality Systems Manual for Environmental laboratories, Version 4.2 for all DOD work.

Our corporate goal for all segments of Chemtech operations is to have uniform products and service quality standards, while encouraging local variation to meet state regulations and customer specifics needs. The process of achieving this goal entails continuous evaluation and action. Chemtech management requires documentation of existing practices and improvement action plans at every stage in the analytical measurement process. Documentation is fundamental to the demonstration and management of quality practices in environmental analytical laboratories.

Chemtech management is committed to continually improve the quality system. The importance of meeting customer requirements, operating in accordance with statutory and regulatory requirements, and operating in accordance with Chemtech's documented ethics policy is communicated to all personnel and stressed at all levels of work.

A spirit of innovation is an essential element to the success of Chemtech in solving the complicated analytical problems encountered with environmental samples. This spirit, combined with the discipline and detail oriented attention required to provide the level of service expected by our customers, is what makes Chemtech stands out among others in this field. This same spirit is what drives continuous quality improvement and is the keystone to the Chemtech quality program.

1.3 ANNUAL REVIEWS AND PLANNING

As part of our 2011 TNI Standard Certification requirement, the QA/QC Director produces an annual report to the Management to discuss deficiencies, corrective actions and planning for the upcoming year. All corrective actions in the laboratory are documented and updated in the Corrective Action Report Database. These Corrective Action Reports are also graphed. The QA/QC Director submits this report to the Management at the beginning of the year and the management performs annual review and planning based on this report. The issues discussed in the report are New Certifications, New Instrumentation, Performance Evaluation, Assessment, Quality Assurance Programs and Goals for the next year.

2. ORGANIZATION AND MANAGEMENT

2.1 ORGANIZATIONAL ENTITY

Chemtech, located in Mountainside, New Jersey, is a privately held independent analytical laboratory established in 1967. Chemtech is incorporated in the State of New York and registered to do business in the State of New Jersey. Our Directors, many of who are also major shareholders are acutely aware of the dynamics of our industry, the changing technology, and need for capital investment. Capital for investment in technology and expansion is mainly derived from operating profits and our shareholders. We have been successful in acquiring the necessary equipment, software and automation necessary to be a leader in the analytical community.

2.2 MANAGEMENT RESPONSIBILITIES

Objective: The laboratory has an established chain of command as detailed in the Organizational Chart. The responsibilities of the management staff are linked to the President of Chemtech who establishes the strategy and direction for all company activities.

President: Primarily responsible for all operations and business activities. Develops and implements strategies, initiatives and direction for the company. Delegates authority to Laboratory Directors, all Managers, and Quality Assurance/Quality Control Director to conduct day-to-day operations and execute quality assurance duties.

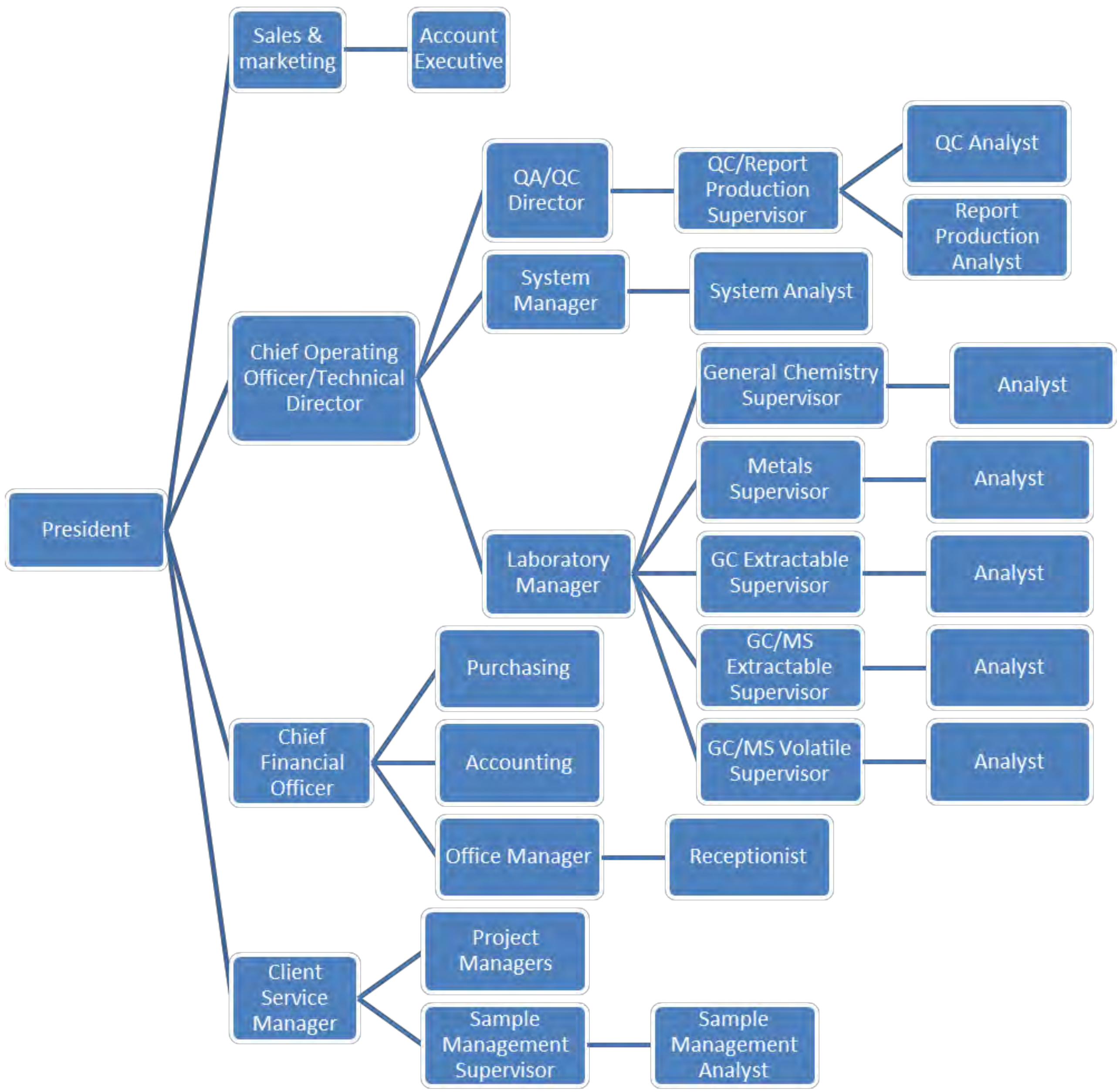
Chief Operating Officer/Technical Director: Facilitates uniformity and focus in all aspects of the company's technical affairs; including, Quality Assurance, Information Systems, and Organic and Inorganic technical direction. Strives to align the strategies, initiative and direction of technical affairs with the strategic direction of the company. Reports to the President.

Quality Assurance/Quality Control (QA/QC) Director: Implements, supervises, and facilitates responsibility for all QA activities established by the Quality Program. Reports to the Chief Operating Officer/Technical Director.

Laboratory Manager: Plans, directs, and controls the day-to-day company's operational performance expectations. Reports to the Chief Operating Officer/Technical Director.

Department Manager: Supervise, plans, directs, and controls the day-to-day responsibility of a specific laboratory department. Report to Laboratory Manager.

Department Supervisors: Supervise day-to-day responsibility of a specific laboratory department. Report to Department Manager.


President
Sales & marketing
Account Executive
Chief Operating Officer/Technical Director
QA/QC Director
QC/Report Production Supervisor
QC Analyst
Report Production Analyst
System Manager
System Analyst
Laboratory Manager
General Chemistry Supervisor
Analyst
Metals Supervisor
Analyst
GC Extractable Supervisor
Analyst
GC/MS Extractable Supervisor
Analyst
GC/MS Volatile Supervisor
Analyst
Chief Financial Officer
Purchasing
Accounting
Office Manager
Receptionist
Client Service Manager
Project Managers
Sample Management Supervisor
Sample Management Analyst

3. RELATIONSHIP BETWEEN MANAGEMENT, TECHNICAL OPERATIONS, SUPPORT SERVICES, AND QUALITY SYSTEM

Objective: The members of the management team have defined responsibility for the Quality Program. The development and implementation of the Quality Program is the responsibility of Quality Assurance/Quality Control Director. The implementation and operation of the Program is the responsibility of the operations management.

President: Responsible for all quality activities including the overall responsibility of implementing the Program. Authorizes the QA/QC Director to design, implement, and coordinate the Program.

Chief Operating Officer/Technical Director: Responsible for executing and coordinating the Program in all laboratory departments. Responsible to certify and document that personnel have the appropriate education and/or technical background to perform the tests for which the laboratory is accredited to perform. Responsible for the development and implementation of corrective actions, including the authority to delegate Quality Program implementation responsibilities. Is the primary alternate in the absence of the QA/QC Director or Laboratory Manager.

Quality Assurance/Quality Control Director: Responsible for the establishment, execution, support, training, monitoring of the Quality Program & document control. Identifies all product, process, or operational defects through statistical monitoring and audits including implementation of corrective action. Audits corrective actions for compliance with the Program. Is the primary alternate in the absence of the Technical Director for QA/QC related issues.

Laboratory Manager: Responsible for coordinating and monitoring the requirements of the Quality Program in the laboratory. Assures that subordinates follow the requirements of the Quality Program. Implement corrective actions as necessary to address quality deficiencies. Is the primary alternate in the absence of Technical Director for technical issues, and the primary alternate in the absence of Department Managers or Department Supervisors.

Department Managers: Responsible for implementing the requirements of the Quality Program in their departments. To assure all subordinates and analysts follow the requirements of the Quality Program. Implement corrective actions as necessary to address quality deficiencies.

Department Supervisors: Responsible for implementing the requirements of the Quality Program within their department. To assure all analysts follow the requirements of Quality Program. Implement corrective actions as necessary to address quality deficiencies.

Analysts: Responsible for applying the requirements of the Quality Program to the analyses they perform. To evaluate QC data and initiate corrective action for quality control deficiencies within their control. Implement corrective actions as directed by superiors.

Support Services: Sample Management, MIS, Client Services and the Account Executives are responsible for applying the applicable requirements of the Quality Program to their specific tasks.

4. JOB DESCRIPTION OF KEY PERSONNEL

Objective: Job descriptions of key positions are defined to communicate a clear understanding of the duties and responsibilities including reporting relationships.

President: Responsible for all business activities including the strategic direction, mission and expectations of the company. Builds a strong, cohesive management team that is constantly focused on improving the operating, technical and financial performance of the company.

Chief Operating Officer/Technical Director: Coordinates the operational activities and the technical direction of the laboratory. Responsible to certify and document that personnel have the appropriate education and/or technical background to perform the tests for which the laboratory is accredited to perform. Develops the strategy to evaluate new methods, technology and objectives. Provides assistance and leadership to management teams to implement new innovated technologies. Reports to the President.

Quality Assurance/Quality Control Director: Establishes and audits the company quality program. Provides technical assistance to ensure that the procedure and data quality is technically sound, legally defensible and consistently meets the objectives of the QA Manual. Reports to the Technical Director.

System Manager: Provides the operational support for all information systems. Develops and implements MIS software to meet the strategic and technical goal of the company. Reports to the Technical Director.

Client Service Manager: Responsible for the planning, directing and control of the Sample Management Department and the Project Management staff. Supervises the sample log in operation and coordinates the project management activities. Communicates client expectations to the laboratory regarding analytical and reporting requirements. Reports to the President.

Laboratory Manager: Provides the technical, operational and administrative leadership through planning, allocation and management of personnel and equipment resources. Maintains a clearly qualified model of laboratory capacity. Uses this model as a basis for controlling the flow of work into and through the laboratory. Reports to the Technical Director.

Department Manager: Directs, plans and controls the operations of the department. Supervises daily production to ensure compliance with the requirements of the Quality Program and client expectations. Reports to the Laboratory Manager.

Department Supervisor: Provides supervision and directions for the group. Implements the daily analysis schedule. Ensures that the group and the analytical data are in compliance with the Quality Program. Reports to the Department Manager.

5. APPROVED SIGNATORIES

Objective: For traceability of data and related documents procedures are required which detail the authorization of signature approvals of data and information within Chemtech. A log of signatures and initials of all the analytical staff is maintained in the QA/QC office for cross-reference check.

5.1 SIGNATURE AUTHORITY

President: Authorizes contracts and binding agreements.

Chief Operating Officer/Technical Director: Approves the QA policy and SOP's and approves final reports in the absence of QC supervisor and QA/QC Director.

Quality Assurance/Quality Control Director: Approves SOP's, and the QA Plan. Approves final reports in the absence of QC supervisor.

5.2 SIGNATURE REQUIREMENT: All laboratory activities, commencing with sample receipt through the release of data, are approved by appropriate personnel by initialing or signing and dating the documents. A document signed or initialed by an employee, is within their limits of authority. All raw data are initialed and dated by the analyst conducting the analysis. All signatures and initials can be cross-referenced to the signatures and initial log.

5.3 SIGNATURE AND INITIAL LOG: The QA/QC office keeps a record of all signatures and initials of all technical personnel. New technical employee's signatures and initials are added to their training file. Ex-employee signatures are kept on file.

6. PERSONNEL TRAINING

Objective: To ensure that all analysts are properly trained, acquire an adequate amount of experience prior to performing independent analyses and maintain technical competence. These factors are an essential part of the laboratory QA Program. Chemtech uses personnel who are employed by, or are under contract to Chemtech. Where contracted and additional technical key support personnel are used, Chemtech ensures that such personnel are supervised and competent and that they work in accordance with Chemtech's quality system.

6.1 **EMPLOYEE ORIENTATION AND TRAINING:** All new employees go through a training period which includes introducing new personnel to Chemtech company policies, QA/QC practices, safety and health, and ethics training in addition to training related to their job functions. The training period extends approximately 1 to 6 months, depending upon the level of experience of the individual.

6.2 **PERSONNEL QUALIFICATIONS AND TRAINING:** All technical employees at Chemtech fulfill the educational, work experience, and training requirements for their positions as outlined in their job description. As workload permits, Chemtech encourages cross training of personnel as appropriate.

All employees must undergo laboratory health and safety training and ethics training and must read laboratory QA Manual. A signed and dated statement from each technical employee that they have read, understood, and is using the latest version of the laboratory QA manual and SOP's is maintained in their training file.

A signed and dated statement from each employee that they have read, acknowledged and understood their personal ethical and legal responsibilities is kept in their training record.

The analysts are also required to take any QA/QC training (Introduction to Quality Assurance and specialized QC courses) provided by the QA/QC Director.

6.3 **TECHNICAL SKILLS:** Analysts are initially qualified by education with a minimum of a BS degree in Chemistry, Physical and/or Biological sciences, wherever required. Every new analyst is trained, regardless of education and outside experience, in the individual analytical procedures by a senior analyst. All Chemtech analyst capabilities are determined initially with Initial Demonstration of Capability studies.

When new equipment is purchased, appropriate Chemtech personnel are trained locally by the manufacturer, vendor or at the manufacturer's training course.

Any significant change to an analytical system requires that the analyst perform an initial demonstration of precision and accuracy, and recalibration of the instrument. For example, replacing a column in a gas chromatograph, cleaning the mass spectrometer ion source, etc.

6.4 **TRAINING RECORDS:** Training records for technical employees are kept in the QA office. The Technical Director certifies and document's that all technical employees have the appropriate education and/or technical background to perform the tests for which the laboratory is accredited to perform. It is the responsibility of each employee to assure that records of completed training are provided to the QA/QC Director to update his/her personnel file.

In addition to the ethics and QA manual statements, the employee record file contains: read receipts of SOP's, a Demonstration of Capability for each accredited method that he/she performs; documentation of any training courses, seminars, and/or workshops; and documentation of continued proficiency to perform each test.

Continued analyst proficiency can be achieved by one of the following: acceptable performance of blind samples for each accredited method that he/she performs; through the analysis of Laboratory Control Samples - at least four consecutive Laboratory Control Samples with acceptable levels of precision and accuracy.

6.5 **Training requirements for key positions:** Training requirements are assigned depending on the position and department the employee is in.

QA/QC Director: The QAQC Director must have ample knowledge of the laboratory procedures, have at least 5 years of laboratory experience preferably in Organics and have at least 2 years of data review procedures training.

Department Manager- A department manager must have at least 3 years of experience in the area of Supervision. Must have proper training in methodology and the skill to organize, schedule and train personnel for a successful operation of their department.

Department Supervisor: A department supervisor must have at least 2 years of experience in the area they are to supervise. Be able to write SOPs

7. ETHICS POLICY

Chemtech provides comprehensive analytical testing services for the qualitative and quantitative assessment of environmental contaminants. Our services are used to meet various regulatory permitting and reporting requirements, determine compliance for both State and Federal environmental regulations to assess potential present and future environmental liability or health risks.

Our policy is to conduct our business with honesty and integrity; to produce accurate and usable data, and provide our employees with guidelines leading to an understanding of the ethical and quality standard required by Chemtech.

7.1 CODE OF ETHICS: Chemtech is managed in accordance with the following principals:
To produce analytical test results that are accurate and meet the requirements of our Quality program.

To operate our laboratory in a manner that protects the environment, as well as the health and safety of all our employees.

To provide employees with guidelines leading to an understanding of the ethical and quality standards required by Chemtech.

To report analytical data without any considerations or self-interests.

To provide analytical services in a confidential, truthful, and candid manner.

To abide by all Federal, State, and Local regulations that affects our business.

To have processes to ensure that its management and personnel are free from any undue internal and external commercial, financial and other pressures and influences that may adversely affect the quality of their work.

7.2 EMPLOYEE ETHICS TRAINING: Each employee receives ethics training once hired and must sign an Employee Ethics Statement. During the ethics training, an employee is made aware of the ethical and legal responsibilities including potential punishments and penalties for improper, unethical or illegal actions. The Employee Ethics Training program is updated annually (or more frequently if required). Ethics Training is given to all employees annually. QA manager is sending Ethics Power Point Presentation along with Ethics Policy SOP P-252 to all employees. All employees are asked to go through Ethics Power Point

Presentation as well as Ethics Policy SOP P-252. All employees are asked to generate a read receipt for Ethics Power Point Presentation as well as Ethics Policy SOP P-252 after the completion of Ethics training.

8. FACILITIES AND RESOURCES FOR NEW ANALYTICAL PROJECTS AND IMPLEMENTING CLIENT REQUIREMENTS

Objective: To ensure that appropriate facilities and resources are available to meet the demand for new analytical projects and process to implement client requirements.

8.1 REVIEW OF NEW ANALYTICAL PROJECTS: A Project Chronicle (PC) is prepared by the Account Executive prior to a quotation preparation and/or an award, and presented to the Technical Director and his staff for review and comments. The PC outlines all the client requirements and includes copies (if available) of the clients Quality Assurance Project Plan (QAPP), Statement of Work (SOW) and contractual provisions. The PC and associated information are scanned and stored on the network for future reference.

A "Kick Off Meeting" chaired by the Technical Director is scheduled to discuss the PC and its associated information. Project Management, the QA/QC Director, Laboratory Manager, including appropriate Department Managers/Supervisors, Sample Management and MIS staff are present to familiarize themselves with the requirements, and are asked to participate in the planning and implementation of the project.

8.2 RESOURCE AVAILABILITY: Chemtech maintains a 30,000 square foot laboratory designed for maximum efficiency and safety. There is a redundancy of equipment to ensure ample equipment resources. The laboratory is adequately staffed by a highly skilled group of chemists with diversified experience in environmental analysis; and managed by a knowledgeable team of professionals who are committed to quality and client satisfaction.
The laboratory management maintains a clearly defined model of laboratory capacity based upon historical data. This model is the basis for controlling resources, management of personnel and equipment, including the flow of work into and through the laboratory.

8.3 NEW WORK COORDINATION: Project Management coordinates the project logistics with the client and Sample Management in addition to overseeing the analytical progress through the laboratory. Sample Management initiates the Log-In process, which includes requirements, detailed in the PC and Quotation.
Prior to release of data to the client, the Department Managers, Supervisors, and the QC/Report Production staff review the data for completeness, accuracy, and conformance with applicable regulatory and clients requirements.

9. CLIENT CONFIDENTIALITY

Objective: To design and implement policies and procedures to protect the confidentiality and proprietary rights of our clients.

9.1 CLIENT CONFIDENTIALITY:

Information related to a Client and or a Project are entered and stored in Chemtech's LIMS SQL Server. Employees with the appropriate level of authority enter the information. Security levels within Chemtech's system define an individual's access to information levels. Information on the Server is backed up at defined intervals, and the backup information is stored offsite. Refer to P229-Computer Backup and Security SOP and P232-Data Storage SOP.

Analytical data is prepared in a report format, as required by the client. The report is copied and scanned electronically. A paginated copy of the report or the original copy is distributed as directed by the client while the scanned copy and related information is kept on site in the Document Storage Area on our LIMS Server. The employee's security authorization levels limit access to the Document Storage Area or the LIMS Server. The files are archived for a period of five years.

Electronic data stored in Chemtech's database is protected by a variety of systems including, Virtual Private Networks (VPS), firewalls, log in user names and passwords. A Gateway system is also employed to restrict access to specific users based upon their authorization level.

Reports or client information requested by a third party must be accompanied by written authorization from our Client. Client information is released when directed by a subpoena from a court with valid jurisdiction. The Client is promptly notified of the subpoena requesting their information.

Keeping the National Security Concern in consideration any information regarding CHEMTECH's Client's or Client's Report will not be released to a third party or any government agency unless there is a written authorization provided by our client or government agency.

10. CLIENT COMPLAINTS AND RESOLUTIONS

Objective: To establish a system to address and resolve client complaints regarding any laboratory activity. The process for dealing with complaints must include a procedure, documentation, corrective action, and monitoring of the implemented corrective action. Chemtech will co-operate with the client or their representatives to clarify the client's request and to monitor the laboratory's performance in relation to the work performed, provided that Chemtech ensures confidentiality to other clients.

10.1 **PROCEDURE:** When a client calls or e-mails an inquiry regarding a project or a report to the Project Manager (PM), the PM receiving the call (or e-mail) summarizes the client issue or requests the client to mail/fax any questions. Once a formal request is received, the PM communicates to the QA/QC Director, who prepares a Corrective Action (CA) report form, which includes the client name, laboratory project numbers(s), and summary of issues. The CA report form is assigned a three digit tracking number, by the QA/QC Director. The CA report form is submitted to the Technical Director, who assigns the CA report form to the affected department supervisor to review, comment and correct the issue within 24 hours. All technical and data reporting inquiries are submitted to the QA/QC Director for review. Once the response comes back from the laboratory, the QC Supervisor and QA/QC Director reviews it, and if satisfactory, the CA report form is filed in the QA/QC office. The client is sent the corrected information.

10.2 **DOCUMENTATION:** Client's complaints are documented using CA report form, which originates from the QA/QC Director's office. The original communication (phone log, e-mail, or fax) is kept in the PM office while closed CA report form is filed in the QC office. The CA report contains the date and name of the person receiving the complaint, a description of the complaint, source of the complaint, the resolution, and any written material accompanying the complaint. The CA database is updated by QA/QC office to which only QA/QC Director has access. A database is maintained where client inquiries are logged-in including date, client name, project number, department in question, and a summary of the inquiry and CA taken.

10.3 **CORRECTIVE ACTION:** The CA report is entered in a database to monitor systematic defects. The appropriate department supervisor must deal with the complaint by responding to the inquiry. The response must address the issue(s) and provide an explanation and resolution. The response may involve reprocessing of data and issuing a revised data report. The QA/QC Director reviews the CA for a persistent defect in case the respective SOP needs modifications. Refer to P210-Corrective Action Report SOP.

10.4 **QA/QC AUDITING:** The CA is entered in a database to monitor systematic defects. The QA/QC Director investigates complaints and promptly audits all areas of activity to assure that the CA implemented has resolved the defect. If the defect persists, the QA/QC Director, and Department Manager and Supervisor develop and implement an effective process. When the defect is resolved, monitoring is incorporated as a part of the annual system audit. For detailed information on client inquiries refer to the SOP for handling client inquiries.

10.5 **CLIENT FEEDBACK SURVEY:** CHEMTECH is sending Log in Summary, Fax Data, Hard copy data, Electronic Data Deliverables & invoices to client via email. In that email, CHEMTECH has included a link using which client survey can be generated. CHEMTECH is also taking survey on website at **www.chemtech.net**

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11. SAMPLE MANAGEMENT PROCESS

Objective: To establish a system to process client requests for analytical services and samples upon arrival at the laboratory. Refer to P204-Chain of Custody SOP and P250-Log in SOP for detailed information for sample receipt, containers and all other related information.

11.1 CONTAINER ORDER REQUEST: Project Managers prepare a Container Order Request from the information detailed on the Project Chronicle (PC) and provide a copy to Sample Management in order to initiate a sampling event.

11.2 SAMPLE CONTAINER PREPARATION AND SHIPMENT: All bottle orders prepared from the Container Order Requests are prepared with bottles that are certified pre-cleaned by the manufacturer according to US EPA specifications. Reagent grade preservatives are added to the bottles at the laboratory. All preservative solutions are checked to assure that they are free of contamination. Chemtech utilizes laboratory reagent water for trip and field blanks.

Bottle orders are prepared by sample management department. The bottles are then relinquished from Sample Management to the appropriate courier. When the bottles arrive at the client destination, the courier will then relinquish custody of the bottles to the client or the client designee.

Samples arrive at the laboratory via Chemtech couriers, common carrier, or client delivery. All shipments and deliveries of samples are received through the shipping & receiving door located in the rear of the facility. All deliveries enter in the same location and go directly to the sample room. The SOP's for Chain of Custody (CoC) P204 Chain of Custody SOP and Sample Acceptance and Receipt P250-Log-in Procedure SOP are followed.

Sample Management personnel sign for all shipments received and notify the Sample Custodian immediately. The samples are then relinquished to the Sample Custodian.

A sample or sample container is considered to be in custody if: it is in the persons' actual possession; it is in the person's view after being in their physical possession; it was in their possession and then locked in a refrigerator or sealed in a cooler; it is in a designated secure area.

11.3 SAMPLE ACCEPTANCE

Upon receipt of sample coolers at the laboratory, coolers are examined for damaged or broken custody seals. Records of the condition of the custody seals and coolers are recorded on the Project Track Ticket Detail. If seals and coolers are intact, the sample acceptance procedure is continued. If they are not intact, the appropriate Laboratory Project Manager (PM) is notified. The PM will seek guidance from the client whether to proceed with the analysis of the samples or discard or send back the samples. The PM will communicate information given by the Client to Sample Management via Project Track Ticket Detail.

11.4 SAMPLE RECEIPT

Once the samples have been accepted, the sample receipt process begins. Sample Management will issue the Project ID, which will be documented on the CoC and on the respective cooler. Sample Management will then give a yellow copy of the CoC to the Project Manager. The Project Manager will generate Login-Guidance based on the CoC review. The Sample Custodian will line up the samples according to the CoC and begin comparing the information documented on the CoC to the samples received. Any deviation noted from the CoC or non-conformance is recorded on the Project Track Ticket Detail and communicated to the appropriate Laboratory Project Manager.

11.5 SAMPLE CUSTODIAN RESPONSIBILITIES

The Sample Custodian must take a cooler temperature soon after sample receipt and record it on the Laboratory Chronicle and the Field CoC. This will verify that the samples were transported and received at the required temperature.

The Sample Custodian must ensure that samples are received in good condition and ensure that samples listed on the CoC are all present. The Sample Custodian must compare the sample identification on the CoC to the labels on the bottles, and make sure that the information on the CoC exactly matches the bottle labels. Verification that enough volume has been received for the sample tests requested and absence of headspace for volatile analysis must be noted.

The Sample Custodian must ensure that all samples are properly preserved. Appropriate preservation of samples is determined by checking the pH of the samples. Sample Management Staff are issued a reference table that lists the tests methods utilized and their appropriate preservation techniques. The pH of the samples is checked, and any discrepancies are recorded on the Laboratory Chronicle and communicated to the client.

The Sample Custodian must sign the CoC and other documentation received with the samples. Documentation of custody is initiated when the field sampler is collecting the samples. Custody documentation includes all information that provides a clear record of the sample identification, time of collection, and collection chronology. This record is kept on Chemtech or Client CoC Forms.

The Sample Custodian must place the samples in storage or relinquish to the appropriate laboratory analyst after labeling the samples with the unique laboratory number, as will be automatically assigned by the software when samples are logged in the LIMS. Refer to P250-Log-in Procedure SOP.

11.6 SAMPLE MANAGEMENT STAFF RESPONSIBILITIES

Sample Management staff must review the Field CoC submitted by the Sample Custodian once login is created based on Login Guidance from the PM. Sample Management staff must compare the Login Guidance to the Field CoC and ensure that all information on the Login Guidance follows the CoC. If not, contact the appropriate PM for further guidance. The PM should resolve all discrepancies between the Login Guidance and the CoC prior to signing off the project. Once the discrepancies are resolved the PM will issue a Record of Communication to document the client's instructions.

Upon receipt of the yellow copy of the CoC, the Project Manager will create a Login Guidance. Sample Management will proceed to login the samples based on the Login Guidance. Create a folder with the original Field CoC, the sample and delivery tickets, any third party delivery documentation, and the login report.

If samples are received for short hold-time analysis (hold times less than 72 hours) after 5:30pm, then samples are relinquished to the laboratory without login. Samples relinquished by the sample management personnel and received by the analytical department analyst are documented on a copy of the CoC.

11.7 SUBCONTRACTED ANALYSIS

Projects sometimes contain analyses that Chemtech does not perform. In order to give a high level of service to our clients, Chemtech will subcontract these analyses to other laboratories. All subcontracted laboratories must meet vigorous standards set forth by QA/QC Department as well as standards established for the environmental laboratory industry. A documented procedure is followed to qualify laboratories for subcontracting and a list in maintained in our QA/QC

Department. Procedures have also been established to assure that CoC is maintained and the subcontract laboratory achieves all client objectives.

Note: For DoD work: Subcontracting laboratories must have an established and documented laboratory quality system that complies with DoD QSM requirements, must be approved by the specific DoD component, must be able to generate acceptable results from PT sample analysis, must receive project-specific approval from DoD client before any samples are analyzed, and must identify those samples requiring special reports (e.g. MCL exceedance).

A subcontracted laboratory must provide our QA/QC Department the following information in order to be used as a subcontractor: a valid state certification for the required tests, Quality Assurance Plan, PT Studies for the required tests, and copies of the SOP's for the required tests.

The subcontracting procedure is a documented procedure that is initiated by an Account Executive. The Account Executive is responsible for ensuring that the subcontracted laboratory meets all client specifications. When a client issues a Scope of Work, the Account Executive thoroughly reviews the document. If subcontracting is required, the Account Executive will consult the established subcontracting list that is issued by the QA/QC Department. If a particular analysis is not conducted by one of these approved laboratories, the Account Executive must then request that QA/QC Director locates and approves a laboratory for the requested analysis.

Once a subcontract laboratory is found, the Account Executive must contact the laboratory to communicate the client's requirements and request a quotation from the laboratory. The Account Executive then creates a Project Chronicle that documents the client requirements, the subcontract laboratory to be used, and attaches a quote to this document. The Project Chronicle is an electronic document available to all appropriate personnel. This procedure is followed prior to the receipt of samples from the client.

When the client calls to order the bottles for the project, the PM initiates a Container Order Request from the information documented on the Project Chronicle. The Container Order Request includes the information for the subcontract laboratory as well as any special bottle instructions for the subcontracted tests, and is given to Sample Management. Sample Management then creates the bottle order and sends it to the client.

Upon receipt of the samples, the Sample Custodian will give a copy of the CoC to the Client Service Manager. The Client Service Manager will then create a subcontract chain of custody and procure a Purchase Order from Accounting. This documentation is given to Sample Management to send to the subcontract laboratory along with the samples. A copy of this documentation is retained and placed in the login folder and double-checked by the appropriate Project Manager.

All subcontracted samples are logged into the LIMS System to allow for sample tracking and data reporting. A PM will track the samples to ensure that client deadlines and specifications are met. Once the data packages arrive from the subcontract laboratory, the PM will check the report for completeness. If the data package is deficient, the PM will immediately notify the subcontract laboratory to remediate the deficiencies. The report is then passed to the QA/QC Department. All data that is subcontracted is clearly designated.

11.8 SAMPLE STORAGE

Chemtech maintains a 40-foot walk-in refrigerator that contains a multitude of shelves. Sample Management staff maintains the storage chart manually that indicates the locations in the refrigerator that are either used or empty. While assigning sample storage location, sample custodian looks for available shelves by checking the sample storage chart, and then crosses off that shelf location on the chart to indicate that the shelf is now occupied. All samples, with the exception of volatiles, are kept in this refrigerator. The refrigerator temperature is monitored constantly and recorded once a day. The refrigerator temperature is also monitored using a data logger over the weekend. All shelves in the walk-in refrigerator are identified with a code. The Sample Custodian assigns samples to a refrigerator shelve and gives the shelve location to Sample Management to login with the sample information. This documented procedure allows the samples to be found very easily.

The volatile refrigerators are located in the Volatile Department and kept secure. All Volatile refrigerators are also monitored for temperature. The temperature is recorded every day on a log page. Samples for Volatile Organic analysis are stored separately from other samples. Samples suspected of containing high levels of Volatile Organic Compounds are further isolated from other Volatile Organic samples.

Back-up refrigerators are available should any mechanical problem present itself. All samples are securely moved to the backup refrigerators if necessary.

Only the Sample Custodians are permitted access to sample storage. Analysts create a sample request electronically and send the request to the Sample Custodians. Once received, the Sample Custodians fill out the appropriate paperwork and issue the samples to the Analysts.

Periodically throughout the day, the Sample Custodians will pick up samples from the laboratory and sign them back into storage. Analysts will submit a signed work list to the Sample Custodian along with the samples when they finished with the samples. All samples must be back in refrigeration at the end of a shift and the chain of custody is required to be kept at all times.

12. ANALYTICAL CAPABILITIES

Analytical Fraction	Soil/Solid Matrix Methods	Aqueous Matrix Methods
Volatile Organics by GC/MS	SW 5030B/5030C/8260B SW 5035/8260B SOM01.2	SW 5030B/5030C/SW 8260B SW5035/SW 8260B OLC02.1 OLC03.1 EPA 524.2 EPA 624 SOM01.2
Volatile Organics by GC	SW 8015B/8015D	SW 8015B/8015D
Semi volatiles by GC/MS	SW 3510C/SW 8270C SW 3520C/SW 8270C SW 3540C/SW 8270C/8270D SW 3545/SW 8270C SW 3580A/SW 8270C/8270D SW 3550C/8270D SOM01.2 CWA by 8270-Modified White Phosphorus by Chemtech SOP	EPA 625 SW 3510C/SW 8270C/8270D SW 3520C/SW 8270C/8270D SW 3540C/SW 8270C SW 3545/SW 8270C SW 3580A/SW 8270C/8270D OLC02.1 OLC03.1 SOM01.2 CWA by 8270-Modified White Phosphorus by Chemtech SOP
Chemical Warfare Agent Degredation Products	Chemtech SOP	Chemtech SOP
White Phosphorus	Chemtech SOP	Chemtech SOP
Semi volatiles by GC	SW 8015B/8015D	SW 8015B/8015D
Explosives by HPLC	SW 8330A/8330B	SW 8330A/8330B
Pesticides &/ or PCBs	SW 3510C/SW 8081A&/or 8082 SW 3520C/SW 8081A&/or 8082 SW 3540C/SW 8081A/8081B&/or 8082/8082A SW 3545/SW 8081A&/or 8082 SW 3580A/SW 8081A/8081B&/or 8082/8082A SW 3550C/8081B &/or 8082A SOM01.2	SW 3510C/SW 8081A/8081B&/or 8082/8082A SW 3520C/SW 8081A/8081B&/or 8082/8082A SW 3540C/SW 8081A&/or 8082 SW 3545/SW 8081A&/or 8082 SW 3580A/SW 8081A/8081B&/or 8082/8082A EPA 608 SOM01.2
Chlorinated Herbicides	SW 8151A	SW 8151A
Volatile Organics by GC/MS	Air Matrix Method: TO-15	

Analytical Fraction	Soil/Solid Matrix Methods	Aqueous Matrix Methods
Metals	SW 6010B/6010C SW 6020/6020A SW 7471A/7471B SW 3050B ILM05.4 ISM01.2	EPA 200.7 EPA 245.1 SW 6010B/6010C SW 6020/6020A SW 7470A SW 3005A SW 3010A ILM05.4 ISM01.2
Wet Chemistry		
Acidity	------	ASTM D1067-92
Alkalinity	------	SM 2320 B
Alkalinity, Bicarbonate	------	SM 2320 B
Ammonia	------	SM 4500-NH3 H SM 4500 NH3 B, D
Anions: Bromate Bromide Chloride Fluoride Nitrate Nitrite Orthophosphate Sulfate	SW 9056/9056A	EPA 300.0
Biochemical Oxygen Demand (BOD5)	------	SM 5210B
Bromide	------	EPA 300.0
Carbon Dioxide	------	SM4500 CO2 C
Carbonaceous BOD (cBOD)	------	SM 5210B
Cation-Exchange Capacity	SW 9080 SW 9081	------
Chemical Oxygen Demand (COD)	------	SM 5220D
Chloride	SW 9056/9056A	EPA 300.0 SM 4500-Cl C
Color	------	SM 2120B
Conductivity	SW 9050A	EPA 120.1 SM 2510 B
Corrosivity	SW 9045C/9045D	SW 9040B/9040C/9040D
Corrosivity Toward Steel	SW 1110	SW 1110
Cyanide	SW 9010C SW 9012B SW 9014	SM 4500-CN C&E SW 9010C SW 9012B SW 9014

Analytical Fraction	Soil/Solid Matrix Methods	Aqueous Matrix Methods
Cyanide-Amenable	SW 9010C	SM 4500-CN C,G
Dissolved Oxygen	-----	SM 4500-O G SM 4500-O C
Extractions	SW 3610/3610B SW 3620C SW 3630/3630C SW 3640A SW 3660/3660B SW 3665	SW 3610/3610B SW 3620C SW 3630/3630C SW 3640A SW3660/3660B SW 3665
Ferrous Iron	------	SM 3500 B SM 3500FE-D
Flashpoint	SW 1030	SW 1010A
Foaming Agents	-----	SM 5540 C
Fluoride	SW 9056/9056A	EPA 300.0
Hardness, Calcium	------	EPA 200.7
Hardness, Total	------	EPA 200.7 SM 2340C
Hexavalent Chromium	SW 3060A/SW 7196A	SM 3500-Cr D
Ignitability	SW 1030	SW 1010A
Methylene Blue Active Substances (MBAS) Surfactants	------	SM 5540 C
Nitrate	SW 9056/9056A	EPA 300.0 EPA 353.2
Nitrate/Nitrite	------	EPA 300.0 EPA 353.2
Nitrite	SW 9056/9056A	EPA 300.0 SM 4500 NO2 B
Nitrocellulose	Chemtech SOP	Chemtech SOP
Odor	------	SM 2150 B
Oil & Grease	SW 9071B	EPA 1664A
Orthophosphate	SW 9056/9056A	EPA 300.0 SM 4500-P,E
Paint Filter Test	------	SW 9095
pH	SW 9040B SW 9045C/9045D	SM 18 4500-H B SW 9040B/9040C SW 9041A

Analytical Fraction	Soil/Solid Matrix Methods	Aqueous Matrix Methods
Phenolics	SW 9065	EPA 420.1
Phosphorus, Ortho	SW 9056/9056A	EPA 300.0 EPA 365.3 SM 4500 P-E
Phosphorus, Total	EPA 365.3	------
Residual Chlorine	-----	SM 4500-Cl G
Settleable Solids	------	SM 2540 F
Silica	SW 6010B	EPA 200.7 SM 4500-SiO2 C
SPLP Extraction	SW 1312	SW 1312
Sulfate	SW9038 SW9056/9056A	EPA 300.0 SM 4500SO4 E
Sulfide	SW 9030B SW 9031 SW 9034	SW 9030B SW 9031 SW 9034 SM 4500 S F
Sulfide, Acid Soluble & Insoluble	SW 9030B	SW 9030B SW 9031
TCLP Leaching Procedure	SW 1311	SW 1311
Temperature	SW 2550B	SM 2550B
Total Dissolved Solids (TDS)	------	SM 2540 C
Total Kjeldahl Nitrogen (TKN)	------	SM 4500-N Org B or C SM 4500-N Org C, D
Total Organic Carbon (TOC)	SW 9060 Lloyd Kahn	SW 9060 SM 5310 B
Total Solids (TS)	------	SM 2540 B
Total Suspended Solids (TSS)	------	SM 2540 D
Total Volatile Solids (TVS)	------	EPA 160.4
Turbidity	------	EPA 180.1 SM 2130 B
Volatile Suspended Solids (VSS)	------	EPA 160.4

13. MAJOR EQUIPMENT

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
GC/MS SEMI VOA Lab							
GC	BNA-A	Hewlett Packard 5890 Series II	3223A43380	June 1992	July 2001	BNA Lab	used
MSD	BNA-A	Hewlett Packard 5971 Series	2919A00378	June 1992	July 2001	BNA Lab	Used
Auto Sampler	BNA-A	Hewlett Packard 18596B	2718A04705	June 1992	July 2001	BNA Lab	Used
Injector Tower	BNA-A	Hewlett Packard 7673 A	3048A24622	June 1992	July 2001	BNA Lab	Used
Controller	BNA-A	Hewlett Packard 7673 A 18594B	3330A32763	June 1992	July 2001	BNA Lab	Used
Computer	BNA-A	Minta	CN548014089	June 1992	July 2001	BNA Lab	Used
GC	BNA-B	Hewlett Packard 5890	2750A18411	July 1994	July 2001	BNA Lab	Used
MSD	BNA-B	Hewlett Packard 5971 Series	3188A03673	July 1994	July 2001	BNA Lab	Used
Auto Sampler	BNA-B	Hewlett Packard 18596B	3021A21493	July 1994	July 2001	BNA Lab	Used
Injector Tower	BNA-B	Hewlett Packard 7673 A	2704A04914	July 1994	July 2001	BNA Lab	Used
Controller	BNA-B	Hewlett Packard 7673 A 18594B	320A28097	July 1994	July 2001	BNA Lab	Used
Computer	BNA-B	Minta	93001897	July 1994	July 2001	BNA Lab	Used
GC	BNA-E	Hewlett Packard 6890 Series	4500030441	Dec 2002	Jan 2003	BNA Lab	New
MSD	BNA-E	Hewlett Packard 5973	4591422501	Dec 2002	Jan 2003	BNA Lab	New
Auto Sampler	BNA-E	Agilent 7683 Series	4514413296	Dec 2002	Jan 2003	BNA Lab	New
Injector Tower	BNA-E	Agilent 7683 Series	CN13922355	Dec 2002	Jan 2003	BNA Lab	New
Computer	BNA-E	Hewlett Packard Vectra VL 420 DT	4522100267	Dec 2002	Jan 2003	BNA Lab	New
GC	BNA-F	Hewlett Packard 6890 Series	CN10525020	Oct. 2006	Oct. 2006	BNA Lab	New
MSD	BNA-F	Hewlett Packard 5975	4552430204	Oct. 2006	Oct. 2006	BNA Lab	New
Auto Sampler	BNA-F	Agilent 7683 Series	CN52033154	Oct. 2006	Oct. 2006	BNA Lab	New
Injector Tower	BNA-F	Agilent 7683 Series	CN52025140	Oct. 2006	Oct. 2006	BNA Lab	New
Computer	BNA-F	Hewlett Packard Vectra VL 420 DT	------	Oct. 2006	Oct. 2006	BNA Lab	New
GC	BNA-G	Hewlett Packard 6890 Series	US00029768	July 2011	July 2011	BNA Lab	New
MSD	BNA-G	Hewlett Packard 5973	US92522714	July 2011	July 2011	BNA Lab	New
Auto Sampler	BNA-G	18596C	3506A38037	July 2011	July 2011	BNA Lab	New
Injector Tower	BNA-G	HP 6890 Series	3600A45484	July 2011	July 2011	BNA Lab	New
Controller	BNA_G	G1512 A	US72001994	July 2011	July 2011		
Computer	BNA-G	Dell Windows XP	GVC4B71	July 2011	July 2011	BNA Lab	New
Refrigerator	BNA-Ref-1	Roper	ED2933135	May 1999	July 2001	BNA Lab	Used
Refrigerator	BNA-Ref--2	White Westinghouse	------	June 2006	June 2006	BNA Lab	New
Refrigerator	BNA-Ref-3	Frigidaire	WA81100949	1999	Mar. 2008	BNA Lab	Used

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
GC SEMI VOA Lab							
HPLC	HPLC-B	Hewlett Packard Series 1100 DAD	JP73007001/ US72101011/ US72101340	May 1999	July 2001	Pest Lab	Used
Auto sampler	HPLC-B	Hewlett Packard 1313 AS	US72102636	May 1999	July 2001	Pest Lab	Used
Computer	HPLC-B	HP Vectra XA	US73465640	May 1999	July 2001	Pest Lab	Used
HPLC	HPLC-L	Hewlett Packard Series 1100 DAD	US64402121 US72101011 JP73007001	Oct. 2006	Oct. 2006	Pest Lab	Used
Auto sampler	HPLC-L	Hewlett Packard 1313 AS	Us80603781	Oct. 2006	Oct. 2006	Pest Lab	Used
Computer	HPLC-L	HP Vectra XA	------	Oct. 2006	Oct. 2006	Pest Lab	Used
HPLC	HPLC-N	Hewlett Packard Series 1100 DAD	------	------	2013	Pest Lab	Used
Degasser	HPLC-N	G1322A	JP73010099	------	2013	Pest Lab	Used
QuatPump	HPLC-N	G1310A	US72101878	------	2013	Pest Lab	Used
Auto Sampler	HPLC-N	G1313A ALS	DE33224630	------	2013	Pest Lab	Used
Column Compartment	HPLC-N	G1316A	DE11610394	------	2013	Pest Lab	Used
Detector	HPLC-N	G1314A Variable Wavelength UV Detector	JP43825742	------	2013	Pest Lab	Used
ECD	ECD-B	Hewlett Packard 5890 Series II	3115A34809	June 1992	July 2001	Pest Lab	Used
Auto Sampler	ECD-B	Hewlett Packard	3137A26240	June 1992	July 2001	Pest Lab	Used
Inject Tower	ECD-B	Hewlett Packard	3013A22005	June 1992	July 2001	Pest Lab	Used
Controller	ECD-B	Hewlett Packard	3018A21613	June 1992	July 2001	Pest Lab	Used
Computer	ECD-B	Expert Group	CN548014091	June 1992	July 2001	Pest Lab	Used
ECD	ECD-C	Hewlett Packard 5890 Series II	3235A44756	May 1999	July 2001	Pest Lab	Used
Auto Sampler	ECD-C	Hewlett Packard	2718A07968	May 1999	July 2001	Pest Lab	Used
Inject Tower	ECD-C	Hewlett Packard	3231A31724	May 1999	July 2001	Pest Lab	Used
Controller	ECD-C	Hewlett Packard	3113A26547	May 1999	July 2001	Pest Lab	Used
Computer	ECD-C	Expert Group	CN548014091	May 1999	July 2001	Pest Lab	Used
ECD	ECD-D	Agilent Technologies 6890N	CN10521041	June 2005	June 2005	Pest Lab	New
Auto Sampler	ECD-D	Agilent 7683	CN52033127	June 2005	June 2005	Pest Lab	New
Inject Tower	ECD-D	Agilent 7683B	CN51825037	June 2005	June 2005	Pest Lab	New
Computer	ECD-D	Dell	CN-0G1494-70821-359-25-KF	June 2005	June 2005	Pest Lab	New
ECD	ECD-E	Hewlett Packard 5890 Series II	2541A06937	May 1999	July 2001	Pest Lab	Used
Auto Sampler	ECD-E	HP 7673A	3120A26762	May 1999	July 2001	Pest Lab	Used
Inject Tower	ECD-E	HP 7673	2718A08998	May 1999	July 2001	Pest Lab	Used
Controller	ECD-E	HP 7673A	2906A13936	May 1999	July 2001	Pest Lab	Used
FID	FID-E	Agilent Tech 6890N	CN10410002	June 2005	June 2005	Pest Lab	New
Auto Sampler	FID-E	Agilent 7683	CN41128296	June 2005	June 2005	Pest Lab	New
Inject Tower	FID-E	Agilent Tech	CN41235695	June 2005	June 2005	Pest Lab	New
Computer	FID-E	Dell	J2YZZ31	June 2005	June 2005	Pest Lab	New

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
GC SEMI VOA Lab							
GC	ECD_L	HP 6890N	US10217093	------	2004	GC Lab	------
ECD	ECD_L	ECD1	U44268	------	2004	GC Lab	------
ECD	ECD_L	ECD2	U44267	------	2004	GC Lab	------
Injector	ECD_L	HP 7683	CN32631493	------	2004	GC Lab	------
Auto Sampler	ECD_L	-------------------	CN53536388	------	2004	GC Lab	------
GC	ECD_O	HP 6890N	US10417011	------	2004	GC Lab	------
ECD	ECD_O	ECD1	U6937	------	2004	GC Lab	------
ECD	ECD_O	ECD2	U6936	------	2004	GC Lab	------
Injector	ECD_O	HP 7683	CN41536014	------	2004	GC Lab	------
Auto Sampler	ECD_O	-------------------	CN41528555	------	2004	GC Lab	------
GC	ECD_P	HP 6890N	US10329046	------	2004	GC Lab	------
ECD	ECD_P	ECD1	U5759	------	2004	GC Lab	------
ECD	ECD_P	ECD2	U5760	------	2004	GC Lab	------
Injector	ECD_P	HP 7683	CN21224536	------	2004	GC Lab	------
Auto Sampler	ECD_P	-------------------	CN32224158	------	2004	GC Lab	------
FID	FID-1&2	Hewlett Packard	3033A32320	Oct. 2007	Oct. 2007	Pest Lab	Used
Auto Sampler	FID-1&2	ALS2016 Tekmar	92231005	June 2008	July 2008	Pest Lab	Used
Computer	FID-1&2	Ultra	--------------	Oct. 2007	Oct. 2007	Pest Lab	Used
Controller	FID-1&2	LCS 2000 Tekmar	93257007	June 2008	June 2008	Pest Lab	Used
FID	FID-3&4	Agilent Tech 6890N	CN10805006	Oct. 2007	Oct. 2007	Pest Lab	New
Auto Sampler	FID-3&4	Agilent Tech	CN80347096	Oct. 2007	Oct. 2007	Pest Lab	New

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
GC SEMI VOA Lab							
Tower 1	FID-3	Agilent Tech	CN80346457	Oct. 2007	Oct. 2007	Pest Lab	New
Tower 2	FID-4	Agilent Tech	CN80346490	Oct. 2007	Oct. 2007	Pest Lab	New
Computer	FID-3&4	Dell	CN-0G3022-42940-3AT-029T	Oct. 2007	Oct. 2007	Pest Lab	New
Refrigerator	GC ext-Ref 2	Kelvinator	LA21203733	May 1999	July 2001	Pest Lab	Used
Refrigerator	GC ext-Ref 3	GE	ST734619	Feb. 2009	Feb. 2009	Pest Lab	New
Refrigerator	GC ext-Ref 1	Revco	T10G340582TG	May 1999	Mar. 2008	Pest Lab	Used
Refrigerator	GC ext-Ref 5	Frigidaire	WA92101209	June 2009	June 2009	Pest Lab	New
Instrument	**Lab ID**	**Manufacturer Description**	**Serial Number**	**Year Purchased**	**Date placed in service at this location**	**Current Location**	**Condition Received (used, new, recondition)**
GC/GC MS VOA Lab							
MSD	MSVOA-D	Hewlett Packard 5972	3341A00913	August 2013	August 2013	VOA Lab	Refurbished
GC	MSVOA-D	Hewlett Packard 5890 Series II	3033A31948	May 1999	July 2001	VOA Lab	Used
Auto Sampler	MSVOA-D	ENCON Evolution EST	CENTS 309071013	August 2013	August 2013	VOA Lab	New
Concentrator	MSVOA-D	ENCON Evolution EST	CENTS 309071013	August 2013	August 2013	VOA Lab	New
Computer	MSVOA-D	DELL Dimension 3000	1318635-0008	August 2013	August 2013	VOA Lab	Used
MSD	MSVOA-F	Hewlett Packard 5971 Series	3118A02237	May 1999	July 2001	VOA Lab	Used
GC	MSVOA-F	Hewlett Packard 5890 Series II	3108A34429	May 1999	July 2001	VOA Lab	Used
Concentrator	MSVOA-F	OI 4660 Eclipse	338466642P	July 2001	July 2001	VOA Lab	Recondition
Auto Sampler	MSVOA-F	OI4552	14293	July 2001	July 2001	VOA Lab	Recondition
Computer	MSVOA-F	Dell Dimension 2350	93007037	May 1999	July 2001	VOA Lab	Used

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
GC/GC MS VOA Lab							
MSD	MSVOA-G	Hewlett Packard 5971A	3435A01877	May 1999	July 2001	VOA Lab	Used
GC	MSVOA-G	Hewlett Packard 5890 Series II	3020A11012	May 1999	July 2001	VOA Lab	Used
Concentrator	MSVOA-G	OI Eclipse 4660	338466643P	2003	March 2003	VOA Lab	Used
Auto Sampler	MSVOA-G	OI Analytical 4552	13854	May 1999	July 2001	VOA Lab	Used
Computer	MSVOA-G	Dell	DLCY9	May 1999	July 2001	VOA Lab	Used
MSD	MSVOA-H	Hewlett Packard 5971 Series	3188A03008	May 1999	July 2001	VOA Lab	Used
GC	MSVOA-H	Hewlett Packard 5890	2750A17849	May 1999	July 2001	VOA Lab	Used
Concentrator	MSVOA-H	OI Eclipse 4660	A401466023P	2004	Feb 2004	VOA Lab	Used
Auto Sampler	MSVOA-H	EST Archon	12971	May 1999	July 2001	VOA Lab	Used
Computer	MSVOA-H	MINTA ACER 32X	83007353	May 1999	July 2001	VOA Lab	Used
MSD	MSVOA-I	Hewlett Packard 5972 Series	3188A03673	June 1992	July 2001	VOA Lab	Used
GC	MSVOA-I	Hewlett Packard 5890 Series II	3235A45496	June 1992	July 2001	VOA Lab	Used
Concentrator	MSVOA-I	OI 4660 Eclipse	338466643P	2003	March 2003	VOA Lab	New
Auto Sampler	MSVOA-I	OI Archon 5100A	12225	2003	March 2003	VOA Lab	Used
Computer	MSVOA-I	Dell	A4054664199	June 1992	July 2001	VOA Lab	Used
MSD	MSVOA-K	Hewlett Packard 5971A Series	3188A03008	December 2002	Jan 2003	VOA Lab	New
GC	MSVOA-K	Hewlett Packard 5890 Series II	3235A45495	December 2002	Jan 2003	VOA Lab	New
P&T 2	MSVOA-K	OI Analytical 4560	N249460496	December 2002	Jan 2003	VOA Lab	New
Auto Sampler	MSVOA-K	OI Analytical 4552	13843	December 2002	Jan 2003	VOA Lab	New
Computer	MSVOA-K	EXPERT Group	______	December 2002	Jan 2003	VOA Lab	New

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
GC/GC MS VOA Lab							
MSD	MSVOA-L	Agilent 5975	US52430266	2004	March 2004	VOA Lab	New
GC	MSVOA-L	Agilent 6890N	CN10524059	2004	March 2004	VOA Lab	New
Concentrator	MSVOA-L	Entech 7100A	1224	2004	March 2004	VOA Lab	New
Auto Sampler	MSVOA-L	Entech 7016CA	----------------	2004	March 2004	VOA Lab	New
Computer	MSVOA-L	Dell XP	-----------------	2004	March 2004	VOA Lab	New
MSD	MSVOA-M	Agilent 5971	3118A02663	2004	March 2004	VOA Lab	New
GC	MSVOA-M	Agilent 5890	2429A02327	2004	March 2004	VOA Lab	New
Concentrator	MSVOA-M	Entech 7100A	1129	2004	March 2004	VOA Lab	New
Auto Sampler	MSVOA-M	Entech 7500/7016CA	----------------	2004	March 2004	VOA Lab	New
Computer	MSVOA-M	Dell XP	-----------------	2004	March 2004	VOA Lab	New
GC	MSVOA_R	HP 6890N	CN10414059	------	2004	VOA Lab	------
MS	MSVOA_R	HP 5973	US40620571	------	2004	VOA Lab	------
Auto Sampler	MSVOA_R	OI4552	13576	------	2004	VOA Lab	------
Concentrator	MSVOA_R	Tekmar 3100 P&T	95195004	------	2004	VOA Lab	------
GC	MSVOA_T	HP 6890N	US10244019	------	2004	VOA Lab	------
MS	MSVOA_T	HP 5973	US21864274	------	2004	VOA Lab	------
Auto Sampler	MSVOA_T	OI 4552	13694	------	2004	VOA Lab	------
Concentrator	MSVOA_T	OI 4660	A405466417P	------	2004	VOA Lab	------
GC	MSVOA_N	HP 7890	CN12061053	May 2012	May 2012	VOA Lab	------
MS	MSVOA_N	HP 5975C	US11483919	May 2012	May 2012	VOA Lab	------
Auto Sampler	MSVOA_N	Tekmar	US12017004	May 2012	May 2012	VOA Lab	------
Computer	MSVOA_N	HP Compaq	------	May 2012	May 2012	VOA Lab	------

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
GC/GC MS VOA Lab							
GC	FID_13	HP 5890	3235A44734	------	2004	VOA Lab	------
FID	FID_13	FID	--------------	------	2004	VOA Lab	------
Auto Sampler	FID_13	Varian Archon	--------------	------	2004	VOA Lab	------
Concentrator	FID_13	Tekmar 3000 P&T	95192004	------	2004	VOA Lab	------
Refrigerator	VOA-Ref-1	Frigidaire	WB50332890	June 2005	June 2005	VOA Lab	New
Refrigerator	VOA-Ref-2	Frigidaire	WB50332901	June 2005	June 2005	VOA Lab	New
Refrigerator	VOA-Ref-3	Sanyo	911246533	May 1999	July 2001	VOA Lab	Used
Refrigerator	VOA-Ref-4	Glenco	JJ-371503	May 1999	July 2001	VOA Lab	Used
Refrigerator	VOA-Ref-5	Beverage Air KR48-IAS	7054308	May 1999	July 2001	VOA Lab	Used
Refrigerator	VOA-Ref-6	True Refrigerator T-72	682166	May 1999	July 2001	VOA Lab	Used
Oven	VOA-Oven 1	Fisher Scientific 230F	2876	May 1999	July 2001	VOA Lab	Used
Scale	VOA SC-1	Mettler PE 300	E28222	May 1999	July 2001	VOA Lab	Used
Instrument	**Lab ID**	**Manufacturer Description**	**Serial Number**	**Year Purchased**	**Date placed in service at this location**	**Current Location**	**Condition Received (used, new, recondition)**
Metals Lab							
ICAP	P-4	Thermo Scientific ICAP series 6000	20070701	Mar. 2007	Mar. 2007	Metals Lab	New
Autosampler	P-4	Thermo Scientific CETAC ASX-520	020766A520	Mar. 2007	Mar. 2007	Metals Lab	New
Circulator	P-4	Thermo Scientific Neslab Merlin M33	110134043	Mar. 2007	Mar. 2007	Metals Lab	New
Computer	P-4	Dell	---------------	Mar. 2007	Mar. 2007	Metals Lab	New
ICAP	P-5	Thermo Scientific ICAP series 6000	20081906	June 2008	June 2008	Metals Lab	New
Autosampler	P-5	Thermo Scientific CETAC ASX-520	120761A500	June 2008	June 2008	Metals Lab	New
Circulator	P-5	Thermo Scientific Neslab Thermoflex 900	110279034	June 2008	June 2008	Metals Lab	New
Computer	P-5	Dell	---------------	June 2008	June 2008	Metals Lab	New
ICP MS	P-6	Thermo Elemental	X0315	Dec 2003	Feb 2004	Metals Lab	New
Auto Sampler	P-6	ASX-510 Autosampler	120308ASX	Dec 2003	Feb 2004	Metals Lab	New
Circulator	P-6	Thermo Neslab (Water Circulator)	109223014	Dec 2003	Feb 2004	Metals Lab	New
Computer	P-6	IBM	KLAT783	Nov 2013	Nov 2013	Metals Lab	New

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
Metals Lab							
ICP-MS	P9	Thermo Elemental X-Series	X0206	---------------	2004	Metals Lab	---------------
Mercury Analyzer	CV-1	Leeman Labs HYDRA II AA Automated Mercury Analyzer	64244	June 2011	Dec 2011	Metals Lab	New
Computer	CV-1	Dell	---------------	June 2011	Dec 2011	Metals Lab	New
Mercury Analyzer	CV-2	Leeman Labs Hydra AA Automated Mercury Analyzer	62598	June 2002	June 2002	Metals Lab	New
Computer	CV-2	Dell	CJ85K11	June 2002	June 2002	Metals Lab	New
Auto Block II	Met	Environmental Express	1783	Feb. 2007	Feb. 2007	Metals Digestion Lab	New
Oven	M Oven-1	Lab-Line Model 3512	0700-0078	May 1999	July 2001	Metals Digestion Lab	Used
Scale	M SC-1	Adventurer Pro	8027100143	June 2006	June 2006	Metals Digestion Lab	New
Scale	M SC-2	Adam Highland HCB 1002	AE75803678	September 2013	September 2013	Metals Digestion Lab	New
Scale	M SC-3	Adam Highland HCB 1002	AE75803679	September 2013	September 2013	Metals Digestion Lab	New
Microwave Digestor	M D-1	Mars	MD8656	June 2006	June 2006	Metals Digestion Lab	New
TCLP Rotator	MDT#1	Associated Design – 4 space	0469YQGS0089	------	2004	Metals Digsetion Lab	------
TCLP Rotator	MDT#2	Associated Design –12 space	685TT2446	------	2004	Metals Digsetion Lab	------

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
General Chemistry Lab							
Ion Chromatograph	IC-1	Metrohm 761 Compact Ion Chromatograph	17610020/09119	June 2002	June 2002	General Chemistry Lab	New
Sample Processor	IC-1	Metrohm 766	62041430	June 2002	June 2002	General Chemistry Lab	New
Computer	IC-1	Micron	13186350008	June 2002	June 2002	General Chemistry Lab	New
Ion Chromatograph	IC-2	Metrohm 838Compact Ion Chromatograph	-----	June 2005	June 2005	General Chemistry Lab	New
Sample Processor	IC-2	IC838 Advanced Sample Processor	1830002400412 9	June 2005	June 2005	General Chemistry Lab	New
Interface	IC-2	Interface 830	1830002004179	June 2005	June 2005	General Chemistry Lab	New
Detector	IC-2	Detector 819	1819001003166	June 2005	June 2005	General Chemistry Lab	New
Ion Chromatograph	IC_5	Dionex DX-500	----------------	------	2004	IC Lab	------
Chromatography Enclosure	IC_5	LC20	98070157	------	2004	IC Lab	------
Detector	IC_5	CD20 Conductivity	98070855	------	2004	IC Lab	------
Pump	IC_5	GP50 Gradient	98070962	------	2004	IC Lab	------
Auto Sampler	IC_5	AS40	05060058	------	2004	IC Lab	------
Ion Chromatograph	IC_6	Dionex DX-600	----------------	------	2004	IC Lab	------
Chromatography Enclosure	IC_6	LC20	02080142	------	2004	IC Lab	------
Detector	IC_6	CD25 Conductivity	3020237	------	2004	IC Lab	------
Pump	IC_6	GS50 Gradient	02060282	------	2004	IC Lab	------
Auto Sampler	IC_6	AS40	04020590	------	2004	IC Lab	------
Eluent Generator	IC_6	EG50	05120361	------	2004	IC Lab	------

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
General Chemistry Lab							
Pump	IC-2	Metrohm Pump 818	1818011004182	June 2005	June 2005	General Chemistry Lab	New
Separation Center	IC-2	Metrohm 820	1820023004135	June 2005	June 2005	General Chemistry Lab	New
Liquid Handling Unit	IC-2	Metrohm 833	183001004142	June 2005	June 2005	General Chemistry Lab	New
Incubator	Incubator-3	Forma-Scientific Model 3918 Incubator	60147-89	May 1999	July 2001	General Chemistry Lab	Used
Scale	WC SC-1	Mettler PJ 400	J39330	May 1999	July 2001	General Chemistry Lab	Used
Scale	WC SC-2	Mettler AE200	J39333	May 1999	July 2001	General Chemistry Lab	Used
Scale	TE214S	Sartorius TE2145	22250964	------	2006	General Chemistry Lab	------
Analytical Balance	MDB#8	Mettler AE100	H15909	------	2004	General Chemistry Lab	------
Analytical Balance	MDB#9	Mettler AE200	J39330	------	2004	General Chemistry Lab	------
COD Digestion Block	COD Block # 2	COD Reactor HACH	4069	May 1999	July 2001	General Chemistry Lab	Used
COD Digestion Block	COD Block # 1	HACH Hot Plate 16500-10	880711134	May 1999	July 2001	General Chemistry Lab	Used
COD Digestion Block	COD Block # 3	COD Reactor HACH	971100016836	------	2004	General Chemistry Lab	------
Stirrer	WC S-1	PMC	------	June 2006	June 2006	General Chemistry Lab	New
Stirrer	WC S-2	Torrey Pine Scientific	101	May 1999	July 2001	General Chemistry Lab	Used
Stirrer	WC S-3	Torrey Pine Scientific	-----	June 2000	June 2000	General Chemistry Lab	New
Tumbler	T-1	Env. Express	------	June 1997	July 2001	General Chemistry Lab	New
Tumbler	T-2	Env. Express	------	June 1997	July 2001	General Chemistry Lab	New

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
General Chemistry Lab							
Zero Headspace Extractor	ZHE-1	ZHE	3745-ZHE	June 1997	July 2001	General Chemistry Lab	New
Zero Headspace Extractor	ZHE-2	ZHE	3740-12-BRE	May 1999	July 2001	General Chemistry Lab	Used
pH Meter	WC pH meter-1	Thermo Orion 350	014070	July 2004	July 2004	General Chemistry Lab	New
pH Probe	WC pH Probe-1	Thermo Orion 9106 BNWP	OU1-1337	August 2010	August 2010	General Chemistry Lab	New
Konelab	Konelab	Konelab	P4719011	Dec 2002	Jan 2003	General Chemistry Lab	new
Computer	Konelab	Dell	2000-256036	Dec 2002	Jan 2003	General Chemistry Lab	new
Refrigerator	WC-Ref-1	Frigidaire	LA23205322	May 1999	July 2001	General Chemistry Lab	used
Refrigerator	WC-Ref-2	Gold Star	20619795	May 1999	July 2001	General Chemistry Lab	used
Cabiner Dessicator	1WCD	Boekel	----------------	------	2004	General Chemistry Lab	------
Cabiner Dessicator	2WCD	Boekel	---------------	------	2004	General Chemistry Lab	------
Oven	WC-Oven 1	VWR 1305U	1203788	Dec 1997	July 2001	General Chemistry Lab	Used
Oven	WC- Oven 3	VWR 1305U	01202393	May 1999	July 2001	General Chemistry Lab	Used
Spectrophotome ter	COD-1	Hach DR/2010 Spectrophotometer	971100006417	May 1999	July 2001	General Chemistry Lab	used
Turbidimeter	WC-Turbidimet er-1	HACH 2100N	09090C025745	------	2004	General Chemistry Lab	------
Conductance Meter	Conductanc e Meter	YSI Model 35 Conductance Meter	K8002530	May 1999	July 2001	General Chemistry Lab	used
Muffle Furnace	Muffle Furnace	Paragon Q11	418333	May 1999	July 2001	General Chemistry Lab	used
Midi Cyanide	MC-1	Andrews Glass (Cyanide Distillation)	ABX0409	May 1999	July 2001	General Chemistry Lab	used

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
General Chemistry Lab							
Midi Cyanide	MC-2	Andrews Glass (Cyanide Distillation)	-------	2002	2002	General Chemistry Lab	New
TOC Analyzer	TOC	Tekmar Appolo 9000	US03227003	Aug 2003	Aug 2003	General Chemistry Lab	new
TOC Boat Sampler	TOC	Boat Sampler 183	US03227003	Aug 2003	Aug 2003	General Chemistry Lab	new
Auto-Titrator	Titrator	Titroline Alpha	441912	March 2004	March 2004	General Chemistry Lab	new
Auto-Titrator Sampler	Titrator	TW Alpha 16 Sample Changer	00472248	March 2004	March 2004	General Chemistry Lab	new
Digestor	Digestor	Westco Easy Digest 40/20	1102	March 2003	March 2003	General Chemistry Lab	new
Ignitability instrument	IGN-1	Koehler closed cup (Penske substitute)	R61091858	March 2004	April 2004	General Chemistry Lab	new
Dissolved Oxygen meter	DO Meter	YSI 5000 Dissolved Oxygen Meter	98C0951AB	May 1999	July 2001	General Chemistry Lab	Used
Dissolved Oxygen meter	MDWC#H	YSI Model 5000	5905/5010	------	2004	General Chemistry Lab	------
Dissolved Oxygen meter	MDWC#H -1	DO Probe, YSI Model 07A	5750, 07D100216	------	2004	General Chemistry Lab	------
Grain Size Seive Shaker	MDGEO-1	RO-TAP RX-29	21049	------	2004	General Chemistry Lab	------
Autoclave	MDA1	All American Pressure Steam Sterilizer 25X	0011555	------	2004	General Chemistry Lab	------
Puck-Mill Grinder	MDMI#1	Labtechnics LM1-P	9202634	------	2008	Sample Management	------
Hot Plate	EX HP-1	Corning PC-35	-------------	May 1999	July 2001	General Chemistry Lab	Used
Instrument	**Lab ID**	**Manufacturer Description**	**Serial Number**	**Year Purchased**	**Date placed in service at this location**	**Current Location**	**Condition Received (used, new, recondition)**
Sample Management							
Refrigerator	SM Ref-2	White Westinghouse (Ice Packs)	BA93101799	May 1999	July 2001	Sample Management	used

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
Sample Management							
Walk in Refrigerator	SM-Walk in-1	Bally (10' X 38')	---------------	May 1999	July 2001	Sample Management	used
Temperature Gun	Temperature Gun	Mannix Model # IRT4	----------------	2005	2005	Sample Management	New
Instrument	**Lab ID**	**Manufacturer Description**	**Serial Number**	**Year Purchased**	**Date placed in service at this location**	**Current Location**	**Condition Received (used, new, recondition)**
Extractions Lab							
N-EVAP	N-EVAP	Organomation Nitrogen Evaporation System	------------	May 1999	July 2001	Extractions Lab	used
Water Bath	EX-WB-1	Boekel	------------	May 1999	July 2001	Extractions Lab	used
Water Bath	EX-WB-2	Boekel	------------	May 1999	July 2001	Extractions Lab	used
Water Bath	EX-WB-3	Boekel	------------	May 1999	July 2001	Extractions Lab	used
Water Bath	EX-WB-4	Boekel	------------	May 1999	July 2001	Extractions Lab	used
Water Bath	EXT Water Bath#2	Boekel	------------	July 2012	July 2012	Extractions Lab	------
Water Bath	EXT Water Bath#3	Boekel	------------	July 2012	July 2012	Extractions Lab	------
GPC	GPC-1	Accuprep JZ Scientific	03B-1060-3.0	2003	March 2003	Extractions Lab	used
S-Evaporator	Evaporator-1	Organomation Analytical Evaporator	10688	May 1999	July 2001	Extractions lab	used
Oven	EX Oven-2	Fisher 117G	----------------	May 1999	July 2001	Extractions Lab	Used
ASE	ASE-1	Dionex Accelerated Extraction	03010456	March 2003	October 2003	Extractions Lab	new
ASE	ASE-2	Dionex Accelerated Extraction	03060034	March 2003	October 2003	Extractions Lab	new
ASE	ASE-3	Dionex Accelerated Extraction	03060032	March 2003	October 2003	Extractions Lab	new
Ultrasonic Bath	Sonicator Bath	Bransonic Ultrasonic Cleaner 8510	RPA020497187 E	March 2004	March 2004	Extractions Lab	new
Turbovap II	Turbovap	Zymark	TV9751N7885	**1997**	**July 2001**	Extractions Lab	**New**
Refrigerator	EX Ref-1	Gibson	LA23601205	May 1999	July 2001	Extractions Lab	used
Refrigerator	EX Ref-2	Welbilt	-----------	May 1999	July 2001	Extractions Lab	Used

Instrument	Lab ID	Manufacturer Description	Serial Number	Year Purchased	Date placed in service at this location	Current Location	Condition Received (used, new, recondition)
Extraction Lab							
Touch Vortexer	Vortex	Glas-Col	263248	May 1999	July 2001	Extractions Lab	Used
Centrifuge	Centrifuge	Damon/IEC Division	AE0921	**1984**	**July 2001**	Extractions Lab	**New**
Scale	EX-SC-1	Mettler PM 4600	975690	May 1999	July 2001	Extractions Lab	used
Scale	EX SC-2	Ohaus GA110	1348	2000	July 2001	Extractions Lab	Used
Scale	EX SC-3	Sartorius A 200S	36100008	2000	July 2001	Extractions Lab	Used
Soxtherm	SOX-1	Soxtherm	4032298	Feb 2004	March 2004	Extractions Lab	New
Soxtherm	SOX-2	Soxtherm	4040032	Feb 2004	March 2004	Extractions Lab	New
Soxtherm	SOX-3	Soxtherm	4031744	Feb 2004	March 2004	Extractions Lab	New
Soxtherm	SOX-4	Soxtherm	4031743	Feb 2004	March 2004	Extractions Lab	New
SPE DEX Extractor	SPE-1	Horizon 4790 series	04-0509	2004	2004	Extractions Lab	New
SPE DEX Extractor	SPE-2	Horizon 4790 series	04-0510	2004	2004	Extractions Lab	New
SPE DEX Extractor	SPE-3	Horizon 4790 series	04-0507	2004	2004	Extractions Lab	New
SPE DEX Extractor	SPE-4	Horizon 4790 series	04-0508	2004	2004	Extractions Lab	New
ROT-X-TRACT-LC	LL-Extractor	Organomation Liquid-Liquid extractor	--------------	Nov 2005	Nov 2005	Extractions Lab	New
SPE DEX Controller	SPE Controller	Horizon	04-0433	**2004**	**2004**	Extractions Lab	**New**

14. DOCUMENT CONTROL

Objective: To establish a system in order to have all information related to the production of analytical data controlled, protected, and stored to ensure its integrity and traceability. The system must ensure that only most recent version of required documentation is used by the appropriate personnel in the laboratory. Insure that invalid or obsolete documents are promptly removed from all points of issue or use, or otherwise assured against unintended use. All internal regulatory documents including the QA manual, SOP's, software, and equipment user's manuals are subject to document control. Obsolete documents retained for either legal or knowledge preservation purposes will be marked with the date that the document became obsolete.

Quality Assurance Manual: The QA Manual outlines how Chemtech plans, implements, and assesses the effectiveness of QA/QC control actions in the functioning of its analytical services.

Standard Operating Procedures (SOP's): An SOP is a written document, which details the method of an operation, analysis or action whose techniques and procedures are thoroughly prescribed, and which is accepted as the method for performing certain routine or repetitive task. SOP's are an integral part of consistent quality laboratory work.

14.1 DOCUMENT OVERSIGHT: The QA/QC Director is responsible for the document control system and maintains a current list of controlled documents, their location, and revision number. The QA/QC Director and Technical Director approve all newly released operating procedures and any revision to controlled documents. QC Supervisor is keeping track of all laboratory log books, temperature logs, hood logs and refrigerator logs.

14.2 DISTRIBUTION OF CONTROLLED DOCUMENTS: Controlled documents are signed by QA/QC Director and Technical Director. Copies of documents not signed or assigned a control number are considered uncontrolled documents. All departments supervisor can access the electronic copy of the updated document control of the QA Manual, SOP's, and any other related documents from the server. With the document, the supervisor receives a distribution document log that is signed and returned to the QA Office to be filed in a binder. This distribution log has the name of the document the printed name of the person receiving it, the signature and date of distribution.

Electronic copy of current applicable SOP (analytical, administrative, and or procedural) and QA Manual are saved on server. The original document of each outdated SOP or QA manual is retained in the QA/QC office as well as on the server.

14.3 **DOCUMENT REVISIONS:** All laboratory documents under document control are reviewed at least annually and revised as appropriate. Document revisions may be requested due to a change in procedure; an added procedure; internal review of the laboratory procedures, personnel, facility, equipment, policy and/or procedures; implementation of new contracts/regulations.

For work performed under the USEPA SOW for Organic analysis Multi-Media, Multi-Concentration SOM01.X and SOW for Inorganic Superfund Methods Multi-Media Multi-Concentration Methods ISM01.X, the QAP must be revised when the following circumstances occur:

- USEPA modifies the technical requirements of the SOW or contract.
- USEPA notifies Chemtech of deficiencies in the QAP.
- USEPA notifies Chemtech of deficiencies resulting from USEPA's review of the laboratory performance.
- Chemtech's organization, personnel, facility, equipment, policy or procedures change.
- Chemtech identifies deficiencies resulting from the internal review of the organization, personnel, facility, equipment, policy or procedure changes.

The QAP will be revised within 14 days of when the circumstances listed above result in a discrepancy. The changes are highlighted and a copy is sent to USEPA Regional CLP PO and QATS.

A request to change a document is initiated on a "Corrective Action Report". The Technical Director and QA/QC Director review the requested change. The QA/QC Director is responsible for updating the appropriate document once a change has been approved.

Whenever corrections are required to a controlled document pending the re-issue of the document, a corrective action report will be generated. The corrected data will be entered manually by hand on the hard copy of the document, with initial and date, and the reason for the change. The changes will be approved by all persons originally approving the document. The corrected copy will be replaced in electronic copy, as applicable. A revised document will be re-issued as soon as practicable. Altered or new text in the SOP or QAM will be highlighted.

Any changes in electronically stored data are identified by storing the file as a revised version, keeping the original file intact and tracing the changes to the data to the user login ID.

These changes will be communicated to the affected personnel by replacing all copies with the revised version. Read receipts and/or training documents will be signed by the affected personnel, documenting that the affected changes are read and understood, and followed as soon as the changes are approved. The read receipts/training documents are maintained in the employee training file.

14.4 STANDARD OPERATING PROCEDURES (SOP's): Three (3) types of SOP's are used at Chemtech.

14.4.1 **Analytical SOP**: Provides stepwise instructions to an analyst on how to perform a particular analysis.

14.4.2 **Administrative SOP**: Details the process of documentation of all administrative activities.

14.4.3 **Procedural SOP**: Provides instructions and information for support activities in the laboratory.

Each SOP developed is assigned a unique document control number. SOP's are reviewed annually and updated if necessary. SOP's can be edited more frequently if systematic errors dictate a need for process change or the originating regulatory agency promulgates a new revision of the method. All SOPs are reviewed annually by associated Lab chemist & Lab supervisor. CHEMTECH's SOP Management program will highlight SOPs when their annual review date comes near. At that point of time QA manager ask Lab supervisor to review SOP with lab chemist. If there is any change require than lab chemist notify lab supervisor. Lab supervisor notifies QA manager about the change. Then QA manager update that SOP in SOP management program with a new revision number, effective date & a comment with the reason for updating SOP. Once SOP is revised by QA manager in SOP management Program, it has to be approved by lab chemist followed by lab supervisor, QA/QC Director and Technical Director. Then a read receipt for that SOP will be generated for all associated lab personnel. In case when no changes required for a SOP at the time of annual review then only date reviewed will be updated in SOP management Program. The revision number & effective date will not change for that SOP.

SOP's are maintained in electronic format on CHEMTECH LIMS network server. A list of available SOPs is enclosed as Section 27.

14.5 LOGBOOK CONTROL: Laboratory logbooks maintained at Chemtech are preprinted, numbered and include a title which identifies the purpose of the logbook. Each logbook indicates the instrument name, manufacturer, model number and a Chemtech identification number. All quality control activities are recorded in the logbooks. Refer to P243-Manual Integration Policy and Electronic Logbook SOP, P254-Purchases and Supplies SOP and P255-Maintenance SOP.

All logbook entries must be completed and reviewed. For any corrections made to the logbook entries, Refer to P226-Corrections SOP.

Active logbooks are maintained in the laboratory and retired logbooks are maintained in the QA/QC office or archived on the server. Refer to P232-Data Storage SOP. Laboratory staff may keep two recent sequentially dated logbooks of the same type in order to simplify review of recently conducted analysis.

14.6 ANALYTICAL DOCUMENT MAINTENANCE AND STORAGE: Analytical data logbooks and clients reports are retained for five years unless specified otherwise. After five years, the analytical data and reports are systematically destroyed. The data is retained for ten years for clients from Massachusetts.

Projects completed in the current year are maintained in the Report Production area. All other analytical data, reports, and logbooks are kept in the Document Storage Area. The electronically scanned data are archived on LIMS Server. Levels of authorization limit access to Document Storage Area and the LIMS Server. Refer to P229-Computer Backup and Security SOP, P231-Data Archive SOP and P232-Data Storage SOP.

CHEMTECH has generated an access log for long term data storage. As this log indicates each box which will be stored at long term data storage place will have description on Box along with number on it. When this box will be placed at long tern data storage place the access log will be updated with Box number, Box Description, Storage location, Stored by signature and date. At any time someone wants to access that box will have to update access log with Box number, Box Description, Storage location, Accessed by signature and date.

In the event of an ownership change all appropriate regulatory agencies will be notified. As a condition of the ownership change the buyer will be requested to maintain all records and reports prior to the time of legal transfer.

In the event of a bankruptcy all appropriate regulatory agencies and clients will be notified. They will be given the opportunity to retrieve their records and reports within 30 days of notification. The records and reports will be destroyed after the 30 days notification period has expired.

14.7 **PERSONNEL RECORDS:** The QA/QC office maintains personnel folders for all analytical staff members. These folders document that analysts have received instructions for their job related activities including read receipts for SOP's and the QA Manual. Personnel records also include health and safety training received and a signed ethics agreement, in addition to technical training records, demonstration of capability, and precision and accuracy for the tests.

14.8 **INTERNAL AUDITS:** The QA/QC Director conducts annual internal audits of the laboratory activities to verify that the laboratory operations continue to comply with the requirements of the quality system, the latest version of the NELAC standard, DOD QSM, and all applicable state and federal program requirements. The internal audit program addresses all elements of the quality system, including the environmental testing activities. Internal Audits are planned activity.

When audit findings cast a doubt on the effectiveness of the operations or on the correctness or validity of the laboratory's environmental test results, corrective actions are taken. Clients are notified in writing if investigations show that the laboratory results may have been affected.
The project manager notifies the clients promptly, in writing, within 48 hours, of any event such as identification of defective measuring or test equipment that casts doubt on the validity of results given in any test report or amendment to a report.

The area of activity audited, the audit findings and corrective actions that arise from them are recorded. The management ensures that these actions are discharged within the agreed time frame, per P210-Corrective-Preventive Action SOP.
Follow-up audit activities verify and record the implementation and effectiveness of the corrective action taken.

A review is conducted with respect to any evidence of inappropriate actions or vulnerabilities related to data integrity. Discovery of potential issues is handled in a confidential manner until such time as a follow up of evaluation, full investigation, or other appropriate actions have been completed and issues clarified. All investigations that result in finding of inappropriate activity are documented and include any disciplinary actions involved, corrective actions taken, and all appropriate notifications of client. All documentation of these investigation and actions taken are maintained for at least five years.

14.9 **MANAGEMENT REVIEWS:** The executive management conducts a review of the laboratory's quality system and environmental testing activities annually to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements. The review takes account of:

- The suitability of policies and procedures
- Reports from managerial and supervisory personnel
- The outcome of recent internal audits
- Corrective and preventive actions
- Assessments by external bodies
- The results of inter-laboratory comparisons or proficiency tests
- Changes in the volume and type of work
- Client feedback
- Complaints and other relevant factors, such as quality control activities, resources and staff training.

Findings from the management reviews and the actions that arise from them are recorded. The management ensures that those actions are carried out within an appropriate and agreed timescale, per P210-Corrective-Preventive Action SOP. The records of review findings and actions are maintained.

15. TRACEABILITY OF MEASUREMENTS

Objective: To establish procedures for achieving traceability of measurements between a measured value and a national reference standard.

15.1 METRIC MEASUREMENTS – THERMOMETER AND BALANCE CALIBRATION: Verification and/or validation of balances and thermometers are performed with National Institute of Standards and Technology (NIST) traceable standards. All new thermometers used in the laboratory are calibrated prior to their use and all thermometers are calibrated annually. A tag attached to the calibrated thermometer documents the date it was calibrated and any correction factor if necessary. The calibration readings are recorded in a logbook. Test equipment used in the laboratory requiring temperature control is assigned a separate calibrated thermometer. The temperature is recorded daily in a temperature log for all required equipment. Refer to SOP ID P208 - Thermometer Calibration SOP.

Class S Calibration weights are used to calibrate all the balances used in the laboratory. Calibration checks are performed on a daily basis and recorded in a logbook. Refer to P209-Scale Calibration SOP. An annual balance calibration is conducted by a certified agency or organization. Calibration certificates include the location of the equipment, model, serial number, manufacturer and sensitivity information. This information is maintained in the QA/QC office.

15.2 CHEMICAL STANDARDS: All reference and working standards used for calibration must be NIST traceable and have a traceability certificate. Vendors provide a traceability certificate for all chemical standards, which include a lot number and expiration date. Working standards are prepared from the vendor traceable standards and are documented in the "Standard Preparation Logbook (Electronic)" and include the vendor lot number, dates of preparation, and preparer's initials and date. Refer to individual method SOPs for Standard Preparation information. Reagents are checked for contamination by analyzing the Method Blank. . Refer to P220-Traceability SOP. Analytical standards are verified and documented. Refer to P202-Reagent Check SOP. The certificates of traceability are affixed to the logbook (Electronic) to keep a permanent record. The vials, in which working standards are kept, are labeled with the lot number, preparation date, and expiration date. All reagents that do not have an expiration date from the manufacturer will be labeled as expiring 10 years from the date the reagent container was opened. All expired standards must be stored separately from the working standards.

16. CALIBRATION AND VERIFICATION OF TEST PROCEDURES

Objective: To ensure that instrumentation is performing to predetermined operational standard prior to the analysis of any samples and that the data are of known quality and appropriate for a given regulatory agency requirements must be established by the laboratory.

16.1 ORGANIC TEST PROCEDURES

Tuning Criteria for GC/MS Instruments: Each GC/MS system must pass the performance criteria for 4-Bromofluorobenzene (BFB) or Decafluorotriphenylphosphine (DFTPP) before any samples, standards or blanks can be analyzed. The tuning standard must meet the criteria specified in each analytical SOP. The chromatogram should not contain any baseline drift and the peaks should be symmetrical. Each GC/MS system must be tuned every 12 hours for SW846 methods, OLM04.2 and SOM01.1 analyses and 24 hours for 600 series methods.

Initial Calibration: Second source standards are obtained from a different manufacturer than the original standards, unless one is not available and are used to verify the initial calibration. An initial calibration is run on all instruments. Initial calibration is rerun when continuing calibration criteria cannot be met. The criterion for an initial calibration curve consists of a minimum of five points for SW846 Methods, OLM04.2 and SOM01.1 analyses and a minimum of three points for 600 series methods. The lowest standard analyzed must be equal to or less than the reporting limit, however, the five points are specified in the analytical SOP for CLP work. The response factor (RF) must be calculated for all compounds. The Relative Standard Deviation (RSD) is used to determine linearity. See individual SOPs for limits, criteria and allowances. The system performance check compounds (SPCC) are checked for SW 846 methods for a minimum average response factor. These compounds must meet the minimum response factors specified in each analytical SOP. If the minimum average response factor for any SPCC does not meet the criteria then corrective action is required and the GC/MS system recalibrated. The initial calibration verification must be successfully completed prior to running any samples.

If more stringent standards or requirements are included in a mandated test method or by regulation, Chemtech will demonstrate that such requirements are met. If it is not apparent which standard is more stringent, then the requirements of the regulation or mandated test method are to be followed.

Continuing Calibration Verification (CCV): The initial calibration curve for each compound of interest is checked and verified once every 12 hours for SW846 methods, OLMO4.2 and SOM01.1 analyses, and once every 24 hours for 600 series methods. This is accomplished by analyzing a midpoint calibration standard and verifying all continuing calibration criteria for a given method are met. Sample, blank, and QC standards cannot be analyzed unless a CCV meets method criteria. For further details refer to the individual SOP's.

Formulas:

$$RF = \frac{\text{Area of compound x Concentration of ISTD}}{\text{Area of ISTD x Concentration of compound}}$$

$$\% RSD = \frac{SD}{RF} \times 100$$

where **SD** is the standard deviation for all compounds and **RF** is the average response factor

When the %RSD exceeds criteria for any analyte, a linear regression of the instrument response versus the concentration of the standards is performed for 600 series and SW846 methods. The regression will produce the slope and intercept terms for a linear equation in the form

$$y = ax + b,$$

where:

y = instrument response (peak area or height)
a = slope of the line(also called the coefficient of x)
x = concentration of the calibration standard
b = intercept

- The use of linear regression may not be used as a rationale for reporting results below the calibration range demonstrated by the analysis of the standards.
- The regression calculation will generate a correlation coefficient(r).

In order to be used for quantitative purposes, the correlation coefficient must be greater or equal to 0.99

16.2 INORGANIC TEST PROCEDURES

Balance Calibration: All balances are calibrated each day with 3 class "S" weights covering the expected range of analysis and recorded in the balance calibration logbook. Refer to P209-Scale Calibration SOP. The non-reference weights are calibrated annually using reference weights and the results are recorded. The accuracy of the reference weights is certified every five years. An outside contractor certifies each balance for accuracy once a year. A calibration sticker is placed on the balance and all associated information is maintained in the QA/QC department.

Titrant Standardization: All titrants used in the laboratory are standardized when opened to verify the titrant's normality in duplicate. These values are recorded in the appropriate analytical logbook. Each titrant must be within 90-110% of the known value. If not, the titrant is restandardized.

Instrument Calibration: An initial calibration is run on all instruments. Refer to individual method SOPs for method-specific calibration requirements.

Mercury analyzer must be calibrated using blank and 5 standards in graduated amounts that define the linear range of analysis. The correlation coefficient for the curve must be > 0.995.

Spectrophotometric analyses are calibrated by using a blank and minimum 5 standards. The correlation coefficient must be > 0.995, or as defined in the analytical SOP

If any calibration curve has a correlation coefficient < 0.995, corrective action is taken and a new calibration curve is analyzed. Samples, blanks, and standards are not analyzed until the curve passes the criteria. For all calibrations the lowest standard analyzed must be equal to or less than the reporting limit.

Formula: $y = ax \pm b$,

where:

y = instrument response (peak area or height)

a = slope of the line(also called the coefficient of x)

x = concentration of the calibration standard

b = intercept

Initial Calibration Verification (ICV): Second source standards are obtained from a different manufacturer than the original standards, whenever possible, or a different lot number from the same manufacturer is obtained, unless one is not available, and are used to verify the initial calibration. The ICV must be performed immediately after calibration of each analysis, as applicable. This is accomplished by analyzing a midpoint calibration standard. The ICV must have a percent recovery as specified in the individual method SOP. If the criterion is not met, corrective action must be taken. If the source of the problem can be determined after corrective action has been taken, a new calibration MUST be generated. Samples, blank, and QC standards cannot be analyzed unless the ICV meets method criteria. The initial calibration shall be verified and documented for every analyte at each wavelength used for analysis.

Continuing Calibration Verification (CCV): CCV analysis is performed at a frequency specified in each method SOP. The CCV must be analyzed at the beginning of the run and after the last analytical sample, or as applicable per method SOP. The CCV concentration is at or near the midpoint of the calibration curve and is analyzed at every wavelength used for the analysis of each analyte. The CCV results must fall within the control limits specified in each analytical SOP.

Thermometer Calibration: Every liquid–in-glass thermometer used in the laboratory is certified annually, electronic and other non-liquid-in-glass thermometers are verified quarterly, against a NIST certified thermometer, which is traceable to the manufacturer. The certified reference thermometer has calibration verified annually. All data is recorded in a controlled logbook.

pH meter Calibration: Each pH meter is calibrated daily at pH of 4 and 7 and then checked with a pH 10 buffer solution. The calibration is recorded in the pH logbook along with the date and time of calibration. The calibration is checked every 3 hours during use and any adjustments are made. The pH meter slope is recorded monthly after calibration. Corrective action is taken if the slope falls outside the 95 to 105% range.

Spectrophotometer Wavelength Check: A wavelength check of each spectrophotometer is performed annually against Platinum/Cobalt standards and recorded in the maintenance logbook. If the wavelength does not meet the manufacturer's specified conditions, service is performed on the instruments.

Autoclave test strip: A temperature sensitive tape is used to verify the content of each autoclave run is processed.

Linear range Verification & Calibration for ICP - Metals: Linear range verification is performed for all ICP instruments. A series of calibration standards are analyzed over a broad range of concentration and data from these analyses are used to determine the valid analytical range for the instrument. ICP instrument calibration is routinely performed using a single standard at a concentration within the linear range and a blank.

17. CALIBRATION, VERIFICATION, AND MAINTENANCE OF EQUIPMENT

Objective: To establish a system to ensure accurate calibration and maintenance of all laboratory equipment. All instrument maintenance activities must be recorded in the instrument logbooks. Instrument should be labeled as a dedicated piece of equipment when an instrument is used for a unique activity.

17.1 **INSTRUMENT CALIBRATION:** Instruments are calibrated according to the requirements set forth by the manufacturer or as dictated by the respective SOP's for the test method for which the instruments are used. The frequency and type of maintenance and calibration activity performed must be documented in the instrument logbook. If an instrument is out of working order, out of calibration or in need of repair, a tag is affixed to the instrument directing the analysts to use another instrument.

Support instruments are calibrated and verified using NIST traceable reference standards over the range of use. Balances, ovens, incubators, water baths, freezers, and refrigerators are checked daily if in use and readings are recorded in their respective logbooks.

Refer to analytical method SOPs for method-specific calibration requirements. Also Refer to P244-Calibration policy SOP.

17.2 **INSTRUMENT MAINTENANCE:** Some instruments are purchased with a service contract. If a service contract is purchased, it is recorded in the logbook along with a contact phone number. Refer to P227-Services and Daily Maintenance SOP and P255-Maintenance SOP. Calibration is necessary after instrument repair and prior to using any new instrument. Instrument servicing includes routine cleaning and the repair and/or replacement of any faulty parts. For further information refer to the instrument manual or the SOP for the test method the equipment is used.

17.3 **CALIBRATION/MAINTENANCE LOG:** Each instrument has an associated maintenance and calibration logbook (Electronic). The interval maintenance/ calibrations are guided by the manufacturer's instructions or as often as needed based on individual instrument performance. It may be modified by user's experience and frequency of use. The instrument is identified on the first page of the logbook. The logbook must document the calibration and maintenance of the instrument.

18. VERIFICATION PRACTICES

Objective: To establish a process for the verification practices in effect to assure adherence to the Quality Assurance Plan. A system for proficiency testing, use of reference materials, and internal QC schemes must be in place in order to ensure compliance.

18.1 PROFICIENCY TESTING (PT) PROGRAMS:

External PT Samples: Chemtech participates in NYSDOH Potable, Non Potable and Solid/Hazardous Categories and USEPA CLP. The results are used to evaluate the ability of the laboratory to produce accurate data. PT reports and raw data are retained in the laboratory for a minimum of five years. These records include results and supporting documentation of analyses of test samples and all related Quality Control analysis. The laboratory participates in the PT from other providers as well, e.g., client specific PT samples and Environmental Resources Association (ERA).

All PT samples are handled (i.e. managed, analyzed and reported) in the same manner as real environmental samples utilizing the same staff, methods as used for routine analysis of that analyte, procedures, equipment, facilities, and frequency of analysis. When analyzing a PT sample, the same calibration, laboratory quality control and acceptance criteria, sequence of analytical steps, number of replicates and other procedures are used as when analyzing routine samples.

Chemtech does not send any PT sample, or a portion of a PT sample, to another laboratory for any analysis for which it seeks accreditation, or is accredited. Chemtech does not knowingly receive any PT sample or a portion of a PT sample from another laboratory for any analysis for which the sending laboratory seeks accreditation, or is accredited. Chemtech management or staff does not communicate with any individual at another laboratory (including intra-company communication) concerning the PT sample. Chemtech management or staff does not attempt to obtain the assigned value of any PT sample from their PT provider.

Internal PT Samples: The QA/QC Director is responsible for administering an in-house blind check sample program, at QA/QC Director's discretion. Quality control samples are obtained from the EPA and from a private supplier. The known samples are blindly introduced into the system as a typical sample and analyzed as such. The results are reported to the QA/QC Director and evaluated.

This process allows for close monitoring of the accuracy of laboratory analyses on blind samples. If a problem is discovered, the QA/QC Director brings it to the attention of the Company President and Laboratory and Department Manager. With the assistance of the Technical Director, the cause of the problem is determined and appropriate corrective action is taken. Another blind sample is sent through the laboratory to confirm the problem has been resolved.

18.2 **USE OF REFERENCE MATERIAL AND SUPPLIES:** The laboratory purchases external reference samples from known vendors. All reference samples are certified and the laboratory maintains the manufacturer’s Certificate of Analysis on file. Pre-certified and pre-cleaned supplies are purchased for DoD Work. Each lot of supplies is analyzed to ensure that no target analytes are present at concentrations above ½ Reporting Limit for DoD Work.

18.3 **INTERNAL QUALITY CONTROL PROCEDURES:** The data acquired from QC procedures are used to judge the analytical quality of the data, to determine the need for a corrective action, and to interpret results after the implementation of corrective actions. Each test method SOP details the QC procedures to be followed.

Method Blank: A method blank is an aliquot of reagent water for aqueous samples and an aliquot of a solid matrix, whenever possible, carried through the entire sample preparation and analytical procedure. A method blank must not contain any target analyte(s) at concentrations that exceed method requirements. If it does, the source of contamination must be removed or minimized before proceeding with sample analysis.

Note: For DoD Work: A method blank must not contain any analyte at ≥1/2 Reporting Limit and for common laboratory contaminants, no analyte must be present at ≥ Reporting Limit. If method blank contamination does not meet criteria, reprocess the associated samples in a subsequent preparation batch, except when sample analysis results in non-detect. If no sample volume remains for reprocessing, then results will be reported with appropriate data qualifiers.

Laboratory Control Samples (LCS): A LCS is an aliquot of reagent water for aqueous samples and aliquot of a solid matrix, whenever possible, spiked with the target analyte list analyzed with each batch of samples to demonstrate the method accuracy within acceptance QC limits. The results are used to determine batch acceptance. Each method SOP includes detailed QC procedures and QC limits.

Sample Duplicates: Sample duplicates are performed to measure analytical precision. One duplicate sample must be analyzed from each group of samples of similar matrix type for each batch of 20 samples. If a duplicate result falls outside QC limits the original sample and the duplicate sample data are regarded as unreliable and may necessitate corrective action.

Matrix Spikes: Matrix spikes are analyzed at a frequency of one per twenty samples to measure analytical precision and accuracy of the specified matrix. If precision and accuracy are out of QC limits, corrective action is required.

Surrogate Spikes: Surrogates are organic compounds that are similar in behavior to the target analytes but are not found in nature. They are added to all blanks, samples, and standards except the tuning standards at a concentration specified in relevant SOP's. All surrogates must meet the recovery limits specified in each SOP. If any surrogate does not meet the limits, the sample must be reanalyzed.

Internal Standard: An internal standard (IS) is a known amount of standard added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical method. Retention time (RT) for an IS is also compared to reference standards to assure that target analytes can be located by their individual relative RT. If the criteria for IS response or RT criteria are not achieved corrective action is required, e.g., recalibration and reanalysis.

Sample Analysis: The analyst is responsible for performing all QC requirements before and after analyzing the sample to make sure that required QC criteria are met. If the sample QC criteria are not met, the analyst must take corrective action to rectify any problems. If the analyst is not able to remediate the issue, then must notify the supervisor who will take necessary corrective action.

Storage Blank, GPC Blank and Blank Spike analysis: Storage and GPC Blank and GPC Blank Spikes are logged weekly every Monday, and monitored by the QA/QC Director. Storage Blanks are analyzed to ensure that cross-contamination has not affected the sample results. GPC Blank and Blank Spike samples are monitored to ensure efficiency of the GPC cleanup process. GPC Blank and Blank Spike may not be performed weekly, if no samples are processed through GPC. However, the GPC Blank and Blank spike must be performed whenever GPC cleanup is performed.

Data Package Review: Data review is performed at different levels to assure that all QC criteria are met. The analyst conducting the analysis performs first data review. The data is then submitted for supervisory review. The final review of the data is conducted in the QC department before the data are released to the client. The QA/QC Director conducts a spot check review of the completed data packages. For further details refer to "Procedures for Audits and Data Review" section of this QA Manual and P201-Data Review SOP.

Monitoring Quality Control Limits: Quality Control data generated from duplicate analysis and matrix spikes/matrix spike duplicates are monitored and plotted on Quality Control Charts. Refer to P211-Control Charts SOP. Chemtech utilizes the Quality Control charts to identify data trends and assure that all tests are within control.

Chemtech records the theoretical or true value, then calculates and plots the mean value. In general, our warning limits are ±2 Standard Deviations from the true value. Corrective action is taken when ±3 Standard Deviations from the mean value are encountered. The Percent Recovery for all quality control samples must be within the limits stated in the method.

In addition to control chart limits, the laboratory uses limits of 75-125% and RPD limits of ±20% for inorganic analysis. For organic analysis %R limits and RPD limits as stated in applicable methods are used.

In control charts application, any points beyond the control limits indicate an out of control situation. When data points are out of statistical control, Chemtech investigates the source of the statistical perturbation. When an out-of-control situation occurs, analyses must be stopped immediately until the problem has been identified and resolved. The control charts are also utilized to identify trends, which can be checked and resolved before the system goes out-of-control.

Annual Quality Audits: An annual quality review of the system is important to ensure that laboratory management can continue to be confident that all measures are being taken to produce the highest quality of data and services. Annual audits, along with day-to-day data review, provide effective means for ensuring that QC activities are being implemented and that each analyst performs in a manner consistent with the quality system. The QA/QC Director conducts the audits, which are scheduled and announced in advance. For further details refer to the "Data Review and Internal Quality Audits" section of this manual.

18.4 EXTERNAL QUALITY CONTROL PROCEDURES: Chemtech participates in hardcopy and electronic data audits as required, in addition to on-site evaluations performed by various agencies and clients.

19. LABORATORY MANAGEMENT POLICY FOR PERMITTED DEPARTURES FROM DOCUMENTED POLICIES AND PROCEDURES

Objective: To establish a process for an event which requires departure from the documented policies and procedures.

19.1 PROCEDURE: The Technical Director, Laboratory Manager, and QA/QC Director have the responsibility for ensuring that all personnel adhere to the laboratory's policies. A departure from documented policies is allowed if fully documented and approved by the appropriate level of authority. Documentation of the departure includes the reason for the departure, the effected SOP(s), intended results of the departure and the actual results. The client will be informed of any deviation from the contract.

If the departure affects data, the client is notified before conducting the analysis for approval. This departure is also noted in the case narrative of the final report.

If the Client requests a method modification that represents a significant departure from a reference method, the client must acknowledge in writing the authorization of the modification. The acknowledgment can be in the form of a contract modification or signing the quotation acceptance page.

The quotation details the analytical requirements including the test methods for the project, the acceptance page to be signed by the client, states that "the quotation accurately describes the analytical requirements".

20. CORRECTIVE ACTIONS FOR TESTING DISCREPANCIES

Objective: To establish a system for actions taken in response to non-conformance reports issued during performance, data review, or a client complaint. The goal of the corrective action program is to correct and monitor out-of-control events, which effect the integrity of analytical results. All conditions that adversely impact data quality must be identified and corrected.

20.1 OUT-OF-CONTROL EVENTS: Out-of-control situations are identified through analytical data validation procedures. An out-of-control event is a situation, which results in the development of unacceptable results. Once a problem has been identified, the QA/QC Director must contact the department supervisor using the Corrective Action (CA) report form. The supervisor must initiate investigation into cause, and must ensure that corrective action is implemented and is effective. The CA must be documented on the (CA) report form and filed in QA/QC office. Refer to Corrective Action SOP for details of the corrective action report forms.

There are many situations that present an out-of-control situation. Contamination, percent recoveries and duplicate variations that are not within control limits, and failing calibrations are examples of situations considered out-of-control. Whenever a situation of this nature is encountered, Chemtech diligently develops the appropriate corrective action.

20.2 CORRECTIVE ACTION PROCESS: A corrective action is a response to an out-of-control event, which brings back a system to produce acceptable results. Corrective actions taken to control an event can be: stop analytical work immediately; identify the symptom of the out-of-control event; identify the cause of the out-of-control event; implement a corrective action; confirm that a return to control has been achieved by analyzing reference samples; document entire process by completing a CA Report Form; complete and return the CA Report Form to the QA/QC office.

20.3 DEPARTURES FROM DOCUMENTED POLICIES AND PROCEDURES: Method SOP's provide QC acceptance criteria and specific protocols for corrective actions. When testing discrepancies are detected such as out-of-control QC, the analyst must follow the corrective action protocol as described in the applicable method SOP.

Technical Director and QA/QC Director first approve any corrective action taken that is not mentioned in the SOP. This action is recorded in the CA Report Form and is documented in the electronic database of corrective actions. If necessary, the method SOP is than revised to incorporate the corrective action to make it a part of SOP for future uses.

20.4 **CORRECTIVE ACTION MONITORING:** Laboratory Manager, Department Managers and QA/QC Director routinely monitor corrective actions implemented in the laboratory for effectiveness and to ensure that the deficiency has been completely removed from the system. If the deficiency still exists after a given period of time, the corrective action is reevaluated and modified.

21. REPORTING ANALYTICAL RESULTS

Objective: To ensure that the reported results are accurate, clear, objective, and unambiguous. The contents of the final report must include all necessary information and must be clear and understandable for the end-user.

21.1 REQUIRED DOCUMENTATION: All documentation used to approve and defend reported data must be collected and should be available and referenced so it can be found at any time it may be needed. Chemtech reports meet all applicable regulatory and client requirements. Electronic reports can be customized to meet the client specific requirements.

Documentation for Sample Identification: Includes at minimum sample identification, chain-of-custody, Field QC, if any and any other related documents.

Documentation of the Analytical Performance: Analytical method used and method detection limit (MDL), reporting limit (RL), limit of detection (LOD), or limit of quantitation (LOQ), as required; Instrumentation (manufacturer, model, performance checks); Calibration data (initial and continuing); Detailed analytical work (raw data, run logs, standard and reagent preparation, calculations)

QA/QC Documentation and Data: Analysis of blanks; Source of QC check standards; Preparation of spike stock solution.

Checks and Validation of Analytical Data: QC review Checklists; Corrective actions (when applicable); Date and signature of approval of the reportable data of each parameter tested; Date and signature for approval of the final report.

21.2 SIGNIFICANT FIGURES IN ANALYTICAL REPORTS: Numerical data are often obtained with more digits than are justified by their accuracy and precision, therefore must be reported by the accuracy of the analytical method.

The number of significant figures refers to the number of digits reported for the value of a measured or calculated quantity indicating the accuracy and precision of the value. Nonzero integers always count as significant figures. Leading zeros are zeros that precede all the zero digits and do not count as significant figures. The zeros simply indicate the position of the decimal point.

Captive zeros are zeros between nonzero digits, and always count as significant figures. Trailing zeros are zeros at the right end of the number and are significant only if the number contains a decimal point. At Chemtech the results are reported to two significant figures.

When rounding a number carry at least one digit beyond the last significant digit throughout all calculations. Round the final result by changing all digits beyond the last significant digit to zeros; drop these zeros if they are to the right of the decimal point. Refer to P225-Rounding Rules SOP.

21.3 **UNITS USED TO EXPRESS ANALYTICAL RESULTS:** Units used to express analytical results depend on the analytical method used, the concentration of the analytes, and the matrices of the sample analyzed.

The most common unit used to express results is milligrams per liter (mg/L), which is equal to parts per million (ppm) or milligrams per kilogram (mg/Kg). Other units used are microgram per liter (µg/L), which is equal to parts per billion (ppb) or micrograms per kilogram (µg/Kg).

21.4 **REPORT CONTENTS:** The final report includes the following information:

Client Information: name and address of the client

Project Information: Client project name and location (if specified by the client)

Chemtech Reference Information: Chemtech project number

Evidence Receipt: Description and identification of samples, chain-of-custody

Case narrative (if applicable): Description and/or identification of analysis performed with a description of deviations from the SOP if required

Summary and Results: Analytical results supported by raw data, chromatograms, initial calibration and continuous calibration, etc.

Report is sequentially numbered and all raw data and chromatograms are initialed and dated by the analyst. The final report is signed and dated by the QC supervisor. Refer to P201-Data Review SOP.

21.5 DATA COLLECTION , REDUCTION, REPORTING AND VALIDATION PROCEDURE

Data collection:
All data is collected from the instrumentation electronically. This data is then transferred electronically to a data processing computer were the data is revised and verified for method adherence and compliance.

For some analysis the data cannot be transferred electronically. The data is then entered manually to the reporting software and verified by a peer review.

Data reduction:
Analyst then processes the data and saves all instrument data collected in a designated folder in Mars (data storage server). The data is then brought electronically into the data reporting system where the data is reviewed against the method requirements and QC limits.

Data reporting:
Once the data is approved, the forms are printed. The data package is arranged with the necessary forms, depending on the method and client specifications. Once the data package is complete, the package is then brought to the Reporting Department for review and validation.

Data validation:
The first review is done in the lab by the analyst performing the analysis with the help of the reporting software (EISC), which contains all the method requirements.

Supervisor for the department performs a secondary review.

The last review is done at the reporting department were data reviewers go through the data package in detail and verify compliance with the method and client requirements.

22. DATA REVIEW AND INTERNAL QUALITY AUDITS

Objective: To design a process to assess compliance of laboratory activities with the operational requirements of the QA manual and to evaluate the performance of all analytical departments. The validation of data must be accomplished by a data review procedure.

22.1 DATA REVIEW: At Chemtech there are several stages for the data review/validation process. The analyst performing the analysis conducts the first data review. The supervisor reviews the data after the analyst review. The QC/Report Production performs the final review.

Analyst Review: The analyst is responsible for ensuring that all work performed meets the specifications and criteria outlined in the Statement of Work. They are to double-check all aspects of their analyses, including instrumental conditions, QA/ QC limits, calculations, and compound identification. When manual integration's are performed, the raw data records shall include a complete audit trail for those manipulations. Raw data output showing the results of the manual integration's, a notation of the rationale for the manual integration, including the date and initials/signature of the person performing the manual operation must be included in the raw data file.

Supervisor Review: Supervisor performs a technical data review to ensure that proper analytical sequence was employed, all QA/QC criteria were met, compounds were properly identified and flagged if required, correct standard, dilutions, and calculations were made.

Quality Control/Report Production Review: The completed data is reviewed by the QC/Report Production. Sample information from the sample receiving documentation is compared to in-house laboratory information to ensure consistency. The data are checked for general completeness, compliance, and QA/QC requirements, and random calculations are performed. If a quality control measure is found to be out of control, and the results are to be reported, all samples associated with the failed quality control measure will be reported with the appropriate data qualifier(s).

If a defect is identified in the data package, that can be corrected before the data are released to the client, the data package is returned to the laboratory for corrections. Immediate action is taken by the affected department to rectify the problem and corrected data package is returned to QC/Report Production office for review and final release of the data.

Spot Check Review by QA/QC Director: The QA/QC Director performs spot-check reviews about 10% of the data before they are released to the client. He/she focuses on all elements of data deliverables including sample identification, sample custody documentation, analytical quality control, and client specifications and requirements.

22.2 **INTERNAL QUALITY SYSTEM AUDITS:** Annual internal audits are conducted under the direction of the QA/QC Director. These audits are used to detect and correct any specific problems. The audit involves a thorough laboratory inspection to evaluate the following areas: adherence to all laboratory procedures as specified in applicable New Jersey, Pennsylvania, New York and other state or federal program regulations; verification of methodology; adherence to all method QC requirements; frequency of duplicates, spikes, blanks, and QC sample analyses; maintenance of documentation in adherence with good laboratory practices; and verification that laboratory equipment, supplies, and reagents are properly maintained. The internal audits cover all laboratory and support systems and include the analyst qualifications and training documents.

A comprehensive audit checklist is used for the department to be audited based on the method SOP and includes the cycle of a sample analysis beginning from sample receiving till the disposal of the sample and the release of data to the client. Checklists are revised annually to incorporate corrective actions initiated during the previous year to be followed up and to ensure that the corrective actions are taken and followed in the affected areas. Refer to Internal Audit Report for a copy of the latest checklists. Deficiencies are noted on the checklist and CA reports are issued to the area being audited.

Findings of the audit are documented and copies of the findings are given to the Company President, the Technical Director, the Laboratory Manager, and the Department Supervisor. A copy of the findings is also provided to the analyst. Any problems and their prospective resolutions are discussed among the QA/QC Director, Technical Director, and Department Supervisor. After an agreed upon time period, it is the responsibility of the QA/QC Director to ensure that the required corrective action has been implemented. All audit documents are kept on file by the QA/QC Director in the QA office.

23. ELECTRONIC DATA

Objective: To establish a system to control, verify, validate and document computer software used by LIMS.

23.1 Software: To ensure that the software that is used to collect, analyze, process and/or maintain LIMS Raw Data, SOP's are established, approved and managed for:

Testing and quality assurance methods to ensure that all LIMS software accurately performs its intended functions, including acceptance criteria, tests to be used, personnel responsible for conducting the tests, documentation of test results, and test review and approval.

Change control methods that include instructions for requesting, testing, approving, documenting and implementing changes. When indicated, change control methods shall also include reporting and evaluating problems, as well as implementing corrective actions.

23.2 Documentation: Documentation is established and maintained to demonstrate the validity of all software used in the LIMS and includes:

A description of the software and functional requirements; a listing of all algorithms and formulas; and as they occur, testing and quality assurance, installation and operation/enhancement, and retirement.

23.3 Security: SOP's are established to implement appropriate security procedures to assure the integrity of LIMS data are adequate.

23.4 Electronic Audit: The organics laboratory uses two different software packages to collect the data and two different software packages to produce the report. Both the volatiles and semi-volatiles departments use the combination of Hewlett Packard (HP) Chemstation/Enviroforms and EISC to collect and produce reports. GC volatiles only use TurboChrom software to process and quantitate the data. TurboChrom generates 3 separate files. The raw files contain no quantitation, only the output from the instrument. The .TXT files contain a process file, and the rpt. file contains a detailed report table. The raw file cannot be tampered with or changed. This file is protected by the software to preserve the original output. The PST/PCB data is collected on a different version of Chemstation and the EISC software is used to produce the reports. HP and EISC have set up security for the data itself and there is no way to effect any changes to the raw data. The quantitation is similarly secured by the software in that any data produced has information on it that can be used to determine its origin.

24. GLOSSARY

1. Acceptance Criteria: specified limits placed on characteristics of an item, process, or service defined in requirement documents.

2. Analytical Detection Limit: the smallest amount of an analyte that can be distinguished in a sample by a given measurement procedure throughout a given confidence interval.

3. Analyst: the designated individual who performs the "hands-on" analytical methods and associated techniques and who is the one responsible for applying required laboratory practices and other pertinent quality controls to meet the required level of quality.

4. Audit: a systematic evaluation to determine the conformance to quantitative and qualitative specifications of some operational function or activity.

5. Calibration: to determine, by measurement or comparison with a standard, the correct value of each scale reading on a meter, instrument, or other device. The levels of the applied calibration standard should bracket the range of planned or expected sample measurements.

6. Chain of custody: an unbroken trail of accountability that ensures the physical security of samples and includes the signatures of all who handle the samples.

7. Confidential Business Information: Information that an organization designates as having the potential of providing a competitor with inappropriate insight into its management, operation or products.

8. Confirmation: verification of the identity of a component through the use of an approach with a different scientific principle from the original method. These may include, but are not limited to: second column confirmation; alternate wavelength, derivatization, mass spectral interpretation, alternative detectors or additional cleanup procedures.

9. Corrective Action: the action taken to eliminate the causes of an existing nonconformity, defect or other undesirable situation in order to prevent recurrence.

10. Data Audit: a qualitative and quantitative evaluation of the documentation and procedures associated with environmental measurements to verify that the resulting data are of acceptable quality.

11. Demonstration of Capability: a procedure to establish the ability of the analyst to generate acceptable accuracy.

12. Document Control: the act of ensuring that documents and revisions are proposed, reviewed for accuracy, approved for release by authorized personnel, distributed properly and controlled to ensure use of the correct version at the location where the prescribed activity is performed.

13. Holding Times: the maximum times that samples may be held prior to analysis and still be considered valid or not compromised.

14. Laboratory: a defined facility performing environmental analyses in a controlled and scientific manner.

15. Laboratory Control Sample (lab fortified blank, blank spike, QC check sample): a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes from a source independent of the calibration standards or a material containing known and verified amounts of analytes. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

16. Manager: the individual designated as being responsible for the overall operation, all personnel, and the physical plant of the environmental laboratory.

17. Method Detection Limit : the minimum concentration of a substance an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

18. NELAC standards: the plan of procedures for consistently evaluating and documenting the ability of laboratories performing environmental measurements to meet nationally defined standards established by the National Environmental Laboratory Accreditation Conference or TNI (The NELAC Institute).

19. Nonconformance: An indication or judgement that a product or service has not met the requirements of the relevant specifications, contract or regulation; also the state of failing to meet the requirements.

20. Precision: the degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves; a data quality indicator.

21. Preservation: refrigeration and/or reagents added at the time of sample collection to maintain the chemical and/or biological integrity of the sample.

22. Proficiency testing: a means of evaluating a laboratory's performance under controlled conditions relative to a given set of criteria through analysis of unknown samples provided by an external source.

23. Quality Assurance: an integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that a product or service meets defined standards of quality with a stated level of confidence.

24. Quality Assurance Plan: a formal document describing the detailed quality control procedures by which the quality requirements defined for the data and decisions pertaining to a specific project are to be achieved.

25. Quality Control Sample: an uncontaminated sample matrix spiked with known amounts of analytes from a source independent from the calibration standards. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

26. Quality System: a structured and documented management system describing the policies objectives, principles, organizational authority, responsibilities, accountability and implementation plan of an organization for ensuring quality in its work processes products and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA and QC.

27. Raw data: any original factual information from a measurement activity or study recorded in a laboratory notebook, worksheets, records memoranda, notes, or exact copies thereof that are necessary for the reconstruction and evaluation of the report of the activity or study.

28. Record Retention: The systematic collection, indexing and storing of documented information under secure conditions.

29. Reference Method: a method of known and documented accuracy and precision issued by an organization recognized as competent to do so.

30. Reporting Limit: A specific concentration at or above the lower quantitation limit that is reported to the client with confidence. It is often defined on a project-specific basis. If set by the client below the lower quantitation limit, method modification is required or the client will be required to accept the lowest technically valid value that can be provided by the laboratory.

31. Standard Operating Procedures: a written document which details the method of an operation, analysis or action whose techniques and procedures are thoroughly prescribed and which is accepted as the method for performing certain routine or repetitive tasks.

32. Technical Director: individuals who has overall responsibility for the technical operation of the environmental testing laboratory.

33. Traceability: the property of a result of a measurement whereby it can be related to appropriate standards, generally international or national standards, through an unbroken chain of comparisons

25. REFERENCES

1. ISO/IEC DIS 17025: 2005. General requirements for the competence of calibration and testing laboratories.

2. NELAC TNI Standard (EL-V1-2011

3. DOD Quality Systems Manual for Environmental Laboratories Version 4.2

26. CERTIFICATION LIST AND RESUMES OF KEY PERSONNEL

26.1 Certification List – Mountainside NJ

STATE	STATUS	LABORATORY ID	Certification Categories
NJ-NELAP	Certified	20012	DW, WW, SHW, Air
NY-ELAP	Certified	11376	DW, WW, SHW, Air
CONNETICUT	Certified	PH-0649	DW, WW, SHW
FLORIDA	Certified	E87935	DW, WW, SHW
LOUISIANA	Certified	05035	WW, SHW, Air
MAINE	Certified	2012025	DW,WW,SHW
MARYLAND	Certified	296	DW
MASSACHUSETTS	Certified	M-NJ503	WW
NEW HAMPSHIRE	Certified	255413	DW,WW,SHW
NORTH CAROLINA	Certified	630	WW,SHW
PENNSYLVANIA	Certified	68-548	DW
RHODE ISLAND	Certified	LAO00259	DW,WW,SHW, Air
TEXAS	Certified	T10470448-10-1	WW
VIRGINIA	Certified	460220	WW, SHW, Air
USDA	Certified	P330-11-00012	Soil Permit
USEPA	CLP	CHEM	metals, cyanide
DoD ELAP (L-A-B)	Certified	L2219	WW, SHW, Air

26.2 **Key Employee Resume** (additional resumes available upon request)

NAME: ***Divyajit Mehta*** **POSITION: Laboratory Director/Chief Operating Officer**

RESPONSIBILITIES: Responsible for all technical efforts of the Laboratory to meet all terms and conditions of EPA contract as well as all of CHEMTECH's clients. Experienced in the analysis of inorganic soil and water samples according to the requirements of the EPA Superfund, Contract Laboratory Program. Hands on experience in the use of the modern analytical instrumentation and wet chemical techniques. Currently responsible for the overall technical performance of the laboratory. Review the technical and QA/QC requirements during the analysis. Oversees the laboratory operations and compliance with all regulations.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Gujarat University INDIA	1979	1982	*CHEMICAL* ENGINEERING		*BS, 1982*
NJIT	1984		*CHEMICAL ENGINEERING*		MS INCOMPLETE

Professional Experience

Name & Address of Employer: *CHEMTECH* *MOUNTAINSIDE, NJ 1/99-Present*	Responsibilities included: Oversee overall technical laboratory performance and compliance with regulations and contracts. Responsible for Corporate Health and Safety program.
Title of Position: CHIEF OF OPERATIONS/LABORATORY DIRECTOR	
Name & Address of Employer: CHEMTECH *ENGLEWOOD, NJ 1/89-1/99*	Responsibilities included: Responsible for the technical efforts of the inorganic department and compliance with EPA contract
Title of Position: *INORGANIC MANAGER*	

Professional Skills

Hands on experience in a variety of instruments such as GC/MS, ICP, GC and various Wet chemistry techniques.
Various training such NELAC training, instrument training and other seminars related with the Analytical procedures and instrumentation.

Computer Skills

Computer literate- MS Office- MS Word, MS Excel, MS Power Point
Use and design of Environmental Data Reduction Software
Enviroquant & Enviroforms, LIMS- Sample Master, EISC data reduction Software.

Other Achievements or Awards

Divyajit has completed various training in the Environmental field. Examples of these are: Inorganic Data validation training, Region II Organic data validation, Sample Master LIMS advance course, ICP training course and others. OSHA 40-hour Training Certified

Title of Position & Dates: *Project Management Director, 1/2008 – 2/2009*	

NAME: Himanshu N. Prajapati **POSITION:** QA/QC Director

Dates: 02/2013 – Present

RESPONSIBILITIES: Enforcement of all QA/QC requirements as per EPA, CLP protocols and all state regulations, Internal Audit of the lab, write and annually update Standard Operating Procedures, Assure that lab QA/QC practices are kept by conducting Internal Audit Annually, Verify all QC Client Contract compliance and Screening, Provide clients with technical support upon request, Development and maintenance of corrective action reports, regulatory and client document review, monitor external assessments, monitor compliance of lab systems with quality system guidelines established by federal and state agencies.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
L.D. College of Engineering Ahmedabad, Gujarat, India	1993	1997	***Chemical Engineering***	***NA***	***B.E. Chemical Engineering***
Stevens Institute of Technology NJ, USA	1999	-	***MS Chemical Engineering***	NA	

Professional Experience

Name & Address of Employer: ***CHEMTECH 284 Sheffield Street Mountainside, NJ 07092***	**Responsibilities Included:** Responsible for review of CLP packages, maintenance and troubleshooting of instruments, training other lab personnel in Semi-Volatile analysis and instrumentation. Prepare and analyze proficiency samples. Schedule work flow for other analysts.
Title of Position: *GC/MS Extractables Supervisor*; ***10/02-02/13***	
Name & Address of Employer: ***CHEMTECH 284 Sheffield Street Mountainside, NJ 07092***	**Responsibilities Included:** Assist supervisor with all aspects of data deliverable production, review data based on SW-846, CLP and 40 CFR methodology, depending on project requirement. Verify all QC requirements, contract compliance, screening and method requirements
Title of Position: ***QC Analyst; 9/04-12/04***	
Name & Address of Employer: ***CHEMTECH 284 Sheffield Street Mountainside, NJ 07092***	**Responsibilities Included:** Perform BNA analysis as per EPA 600 series, SW 846 and CLP protocols. Assist supervisor with SOPs updates. Update LIMS system. Troubleshoot instrument.

Title of Position: GC/MS Analyst; 04/00-10/02	

ΥFor additional information please see attachment.

Professional Skills

Proficient with the analysis of samples for inorganic & organic parameters.

Computer Skills

MS Office- Word and Excel Data Processing software

Other Achievements or Awards

NAME: **Qi Mo** **POSITION:** GC/MS Extractables Leader Operator

Dates: Feb 2013 – Present

RESPONSIBILITIES: Analyze samples using SW846, EPA CLP and 600 series methods. Prepare and analyze proficiency samples. Responsible for maintenance and troubleshooting of instruments.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Brooklyn College		2005	***Arts***		***Master of Arts***

Professional Experience

Name & Address of Employer:	Responsibilities Included:
CHEMTECH 284 Sheffield Street Mountainside, NJ 07092	Assist supervisor with all aspects of data deliverable production, review data based on SW-846, CLP and 40 CFR methodology, depending on project requirement. Verify all QC requirements, contract compliance, screening and method requirements. Update LIMS system. Troubleshoot instrument.
Title of Position: ***GC/MS Analyst; 9/04-Present***	

YFor additional information please see attachment.

Computer Skills

MS Office- Word and Excel
Data Processing software

NAME: Rajesh Parikh **POSITION:** Extraction Supervisor

DATES: March 2011-Present

RESPONSIBILITIES: Supervision of Extractions department, schedule and coordinate workflow for the extractions analysts. Extract samples for BNA, Pesticides, PCBs, Herbicides and TPH based on EPA 600 series, SW 846 and CLP methodologies. Updating LIM system. Review and updating of Extractions SOPs. Troubleshoot instrument. Prep and Analysis of Oil and Grease based on method SW 1664.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
University of Baroda India	1967	1971	*Chemistry*		*BS 1970*

Professional Experience

Name & Address of Employer: ***CHEMTECH*** 284 Sheffield St, Mountainside, NJ 07092 **Title of Position:** ***Extraction Analyst, June 2003-March 2011***	**Responsibilities included:** Extract samples for BNA, Pesticides, PCBs, Herbicides and TPH based on EPA 600 series, SW 846 and CLP methodologies. Assist supervisor with SOPs updates. Update LIMS system. Troubleshoot instrument. Prep and Analysis of Oil and Grease based on method SW 1664.
Name & Address of Employer: ***Godak Mills*** India **Title of Position:** ***Chemist Jan 1977-Nov 2002***	**Responsibilities included:** Testing and analysis of raw materials and Dyes. Analysis of In-process and finished products.
Name & Address of Employer: Calico Mills India **Title of Position:** Chemist Jan 1972-Dec 1976	**Responsibilities included:** Testing and analysis of raw materials and Dyes. Analysis of In-process and finished products.

YFor additional information please see attachment.

Professional Skills

Computer Skills

Microsoft Office 2000-Excel, Windows

NAME: Jaswal Sarabjit **POSITION: Metals Analysis Supervisor**

Dates: 12/89 to Present

RESPONSIBILITIES: Supervision of Metals departments. Flow of work; analyses of samples within holding times, scheduling of work with the analysts, verify the test results performed by analysts. Technical data review of analyses (ICP data run – Methods 6010, 200.7, CLP, Hg data run – Methods 7470, 7471, 245.1, CLP. Report preparation and handle centralize computer system for analytical reports.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Punjab University, India	*1976*	*1981*	***Chemistry***	**------**	***BS; 1981***

Professional Experience

Name & Address of Employer: CHEMTECH 205 Campus Plaza 1, Edison, NJ 08837 **Title of Position & Dates:** ***Laboratory Chemist;*** ***7/88 to 12/89***	**Responsibilities included:** Analyses of General Chemistry and Metals parameters including cyanide, nitrate-nitrite, TKN, TDS, TSS, BOD, COD, TOC, hardness, etc. of wastewater, drinking water, soil, and sludges. Reporting of data as required.
Name & Address of Employer: JCT Mills (Nylon Plant). **Title of Position & Dates:** ***Laboratory Chemist;*** ***1/83 to 11/85***	**Responsibilities included:** Analysis of General Chemistry methods.

Professional Skills

- Experience in EPA methods, NYSDOH, NJDEP, and CLP requirements.
- Hands on experience for running ICP/Hg analyzer, TOC, Lachate, UV spectrophotometer, etc.
- Troubleshooting of above-mentioned instruments.

Computer Skills

MS Office – MS Word, MS Excel, MS PowerPoint

NAME: Ugochukwu Amadioha **POSITION: GC Extractables Supervisor**

DATES : MAY 06 – PRESENT

RESPONSIBILITIES: Supervision of Pesticide/PCB department, co-ordination of workflow in the department, analysis of samples within the specified holding times, scheduling the work with the analysts, and training of the new employees.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
COLLEGE OF NEW JERSEY		*2003*	***Biology***	**------**	***BS 2003***

Professional Experience

Name & Address of Employer: CHEMTECH Mountainside, NJ 07092 **Title of Position:** ***GC and GC/MS analyst;*** ***10/04-05/06***	**Responsibilities included:** VOC water, soil and gases analysis by method EPA 600 and SW846. Operate Archon autosampler, GC FID. Prepare standards. Follow GLP. Daily calibration of lab scales, refrigerators, autoclaves.
Name & Address of Employer: Roche Molecular systems Branchburg, NJ **Title of Position:** ***PCR Control Scientist;*** ***06/05-02/06***	**Responsibilities included:** Support manufacturing of Qualitative standards and Internal Controls for Polymerase Chain Reaction kits. Operate PCR instruments and Real Time PCR. Review controlled testing and manufacturing documents.
Name & Address of Employer: Medco Health Solution, LLC Parsippany, NJ **Title of Position:** *Customer Services Representative;* *10/03-08/04*	**Responsibilities included:** Educate members about prescription drug benefits managed by Medco Health and on plan attributes as it relates to copay, deductible, Out of Pocket expenses and CAP.

Professional Skills

Lab Techniques in Cell and Molecular Biology and Genetics: PAGE and Agrose Gel Electrophoresis. Protein purification, DNA isolation, Column Affinity Chromatography, PCR and Restrictive Fragment Analysis, Pour Plating, Colony Isolation, and Aseptic techniques.

NAME: **Jonghun Jung** **POSITION:** **GC Semivolatile Analyst**

DATES: **June 2004- Present**

RESPONSIBILITIES: Perform analysis on samples for Pesticide/PCB analyses. Updating LIM system. Review and updating of GC Semi Volatile SOPs. Review and finalize data before Supervisor review

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
University of Seoul Seoul, South Korea	*1993*	*1996*	***Physics***	------	***BS 1996***
New York University, New York NY	*1997*	*1999*	*English language and liberal arts*	------	*Certificate 1999*
New York University, New York, NY	*1999*	*2002*	*Environmental Health Science*	------	*MS 2002*
College of Staten Island (CUNY)	*2002*	*Present*	*Environmental Science*	------	*Expected MS 2005*

Professional Experience

Name & Address of Employer: Chemtech 284 Sheffield Street	**Responsibilities included:** Updating LIM system. Review and updating of Metals data per ILM05.3. Review and finalize data before Supervisor review. Generate reports and assist QC on the final data report.
Title of Position: ***Metals data processing*** ***Feb, 2004- June 2004***	
Name & Address of Employer: College of Staten Island Staten Island, New York	**Responsibilities included:** Laboratory technician in the Engineering sciences and Physics department.
Title of Position: ***Lab Tech*** ***2002-2003***	

Name & Address of Employer: NY University Graduate School of Arts and Science New York, NY	**Responsibilities included:** Teaching assistant in environmental hygiene measurement course. Worked at WTC-ground zero for air sampling and monitoring. Analyzed samples using GC instrument.
Title of Position: *Teaching assistant* *1999-2002*	

Professional Skills

Indoor Air Quality Inspection, Environmental pollutants measurements, Gas Chromatography, microbalance, fluorescence spectroscopy and AA spectrophotometry.

NAME: Mildred V. Reyes **POSITION: QC Supervisor**

DATES: Feb.2006-Present

RESPONSIBILITIES: Supervision of data deliverable production, data review based on SW-846, CLP and 40 CFR methodologies. Verify QC requirements, contract compliance and screening requirements.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
UNIVERSITY OF PUERTO RICO	*1982*	*1987*	***Biology***	**------**	***BS 1987***

Professional Experience

Name & Address of Employer: CHEMTECH Mountainside, NJ 07092 **Title of Position:** *QA/QC Director* *2002-2006*	**Responsibilities included:** Enforcement of QA/QC requirements, Internal Audit of the lab, Write and update SOP, Verify QC Client Contract Compliance and Screening, Provide clients with technical support.
Name & Address of Employer: CHEMTECH Mountainside, NJ 07092 **Title of Position:** ***QA/QC Supervisor*** ***1999-2002***	**Responsibilities included:** Supervision of all aspects of data deliverable production, data review of GC/MS Volatile and Semi volatile, Pesticides, PCBs, Herbicides, Metals and Wet Chemistry based on SW 846, EPA, CLP and 40 CFR methodologies. Verify all QC requirements, contract compliance, screening and requirements.
Name & Address of Employer: Analab/ICM Division 205 Campus Plaza 1, Edison, NJ 08837 **Title of Position:** ***GC, Supervisor*** ***1995-1999***	**Responsibilities included**: Supervision of four GC analysts; coordination of work flow and schedule; technical review of all data generated for GC Volatile, Pest, PCB Herbicides analysis; instrument trouble shooting and other technical problems.

Name & Address of Employer: Cycle Chem, INC Elizabeth, NJ **Title of Position:** *Production Chemist* *1993-1995*	**Responsibilities included:** Perform daily lab analysis on disposal material based on SW 846 and 40 CFR requirements. Analysis included PCB analysis, Metals and Wet Chemistry; inventory of all incoming samples
Name & Address of Employer: Safety Kleen, Linden, NJ **Title of Position:** ***Laboratory Technician*** ***1990-1993***	**Responsibilities included:** Senior Technician overseen laboratory operations during night shift. Perform daily lab analysis, which included Volatile Organic analysis, PCB analysis, and Wet Chemistry**.**

Other Achievements or Awards

Environmental Laboratories Seminar
Internal Assessment Training

Professional Skills

GC Volatile, Pesticides, PCBs, Herbicides analysis by GC using EPA, SW 846 and 40 CFR methodology.
ASP and CLP deliverable.

Computer Skills

MS Office- MS Excel, MS Word, MS Power Point
Use of Environmental data reduction software

NAME: Snehal Mehta **POSITION:** ***Sample Management Supervisor***

Dates: Jan.01 - Present

RESPONSIBILITIES: Login samples. Prepare bottle orders and receiving samples, sample custodian.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Gujrat University	1993	1996	***Chemistry***	-----	***BS, 1996***

Professional Experience

Name & Address of Employer: Kroma Dyestuffs Ltd., India	**Responsibilities included:** Analyze soil, water and sludge analysis. Supervision of analysts. Data and technical review.
Title of Position & Dates: ***Analytical Chemist*** ***1994-1997***	

Computer Skills

MS Office – MS Word, MS Excel, MS PowerPoint

NAME: **Semsettin (Sam) Yesiljurt** **POSITION:** **GC/MS Analyst (Volatile)**

Dates: 7/2001 – Present

RESPONSIBILITIES: Analyze and QA/QC water and soil samples using SW 846 8000 series and EPA 600 series methods. Preparing data packages to be reported to the client. Keeping track of projects pertaining to the department. Troubleshooting of instruments and other technical problems according to methodology.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Gazi University *Ankara, Turkey*	*1976*	*1980*	*Chemical Engineering*	------	*BS, 1980*

Professional Experience

Name & Address of Employer: CHEMTECH Consulting 205 Campus Plaza, Raritan Ctr. Edison NJ **Title of Position & Dates:** ***GC Analyst*** ***7/99 – 7/01***	**Responsibilities included:** Analyze and QA/QC water and soil samples using SW 846 8000 series and EPA 600 series methods for Pest, PCB, Herb. Preparing data packages to be reported to the client. Troubleshooting of instruments and other technical problems according to methodology.
Name & Address of Employer: All Test Environmental Lab **Title of Position & Dates:** ***GC/MS analyst,*** ***2/99 – 7/99***	**Responsibilities included:** Analyze and QA/QC water and soil samples using SW 846 8000 series and EPA 600 series methods.
Name & Address of Employer: Technion **Title of Position & Dates** *GC/MS Analyst 8/96-2/99*	**Responsibilities included:** Analyze and QA/QC water and soil samples using SW 846 8000 series and EPA 600 series methods.
Name & Address of Employer: Technion **Title of Position:** ***GC Analyst 4/93-8/96***	**Responsibilities included:** Analyze and QA/QC water and soil samples using SW 846 8000 series and EPA 600 series methods.

Professional Skills

- Troubleshooting of GC/MS, Tekmar autosampler
- Data package production using Enviroforms and EISC software
- Acquisition and analysis of samples using Enviroquant and RTE software
- ASP Deliverables, CLP Deliverables

Computer Skills

MS Office – MS Word, MS Excel, MS PowerPoint
Use of Environmental Data Reduction Software – Enviroquant & Enviroform, EISC, LIMS

NAME: Mohammad Ahmed **POSITION: Laboratory Manager**

Dates: Nov. 2005 - Present

RESPONSIBILITIES: Responsible for all technical efforts of the Laboratory to meet all terms and conditions of CHEMTECH clients. Hands-on experience in the use of modern analytical instrumentation and wet chemical techniques. Currently responsible for the overall technical performance of the laboratory. Review technical and QA/QC requirements during the analysis. Oversee the laboratory operations and compliance with all regulations.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
University of Punjab	1996	2001	***Science***	-----	***BS, 2001***

Professional Experience

Name & Address of Employer / Title of Position & Dates	Responsibilities
Name & Address of Employer: CHEMTECH Mountainside, NJ **Title of Position & Dates:** ***Laboratory Manager Nov. 2005-Present***	**Responsibilities included:** Oversee all technical laboratory performance and compliance with regulations and contracts.
Name & Address of Employer: Naturex **Title of Position & Dates:** ***Senior Chemist Oct.2005-Nov.2006***	**Responsibilities included:** Responsible for SOP prep. and review, method development, perform analysis using different instruments, calibrate and maintain instruments.
Name & Address of Employer: Garden State Laboratories **Title of Position & Dates:** ***Team Leader May 2001-Oct.2005***	**Responsibilities included:** Supervise organic department, oversee sampling projects, produce monthly reports, supervise PT analysis.
Name & Address of Employer: Accutest laboratories **Title of Position & Dates:** ***Senior Chemist Sept..2002-Oct.2003***	**Responsibilities included:** Responsible for laboratory audits, review data, create SOPs, perform organic and inorganic analysis.

Professional Skills

- Hands on experience in a variety of instruments such as GC/MS, ICP, GC, and various Wet chemistry methods.

Computer Skills

- ***MS Office – MS Word, MS Excel***
- Use of Environmental Data Reduction Software – Enviroquant, EISC, LIMS

NAME: **Jacob Tsvik** **POSITION: Systems Manager**

DATES: October 2004- Present

RESPONSIBILITIES: Quality Control of all computer systems, including hardware, software, documentation and procedures. Generates and updates the automated deliverables in accordance to client specifications. Installation, training, maintenance and operation of programs as they pertain to providing open architecture systems that promote adaptability, efficiency, reliability and system integration. Develop, design and implement CHEMTECH's LIMS system. Develop US Army. US Navy and US Air Force and commercial client EDDs based on each individual requirement.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
COPE Institute, NY	1995	2002	-----	-----	***2002***
University of Technology, Ukraine	1978	1983	-----	-----	BS, Engineering

Professional Experience

Name & Address of Employer: Bris Avrohom, Hillside, NJ **Title of Position & Dates:** Field Network Technician, 06/2002 – 03/2004	**Responsibilities included:** Support users for Network Client Installation and support, Install and setup Windows 95/98 and Windows NT, 2000, XP workstations and create user accounts, home directories, assign permissions to shares. Install 3com cards, hubs, test connectivity. Provide Level 1, 2 support. Perform system backup. Resolve service interruptions.
Name & Address of Employer: BLS Technology Inc., Brooklyn, NY **Title of Position & Dates:** Consultant, 08/1996 – 03/2002	**Responsibilities included:** Physical inventory, Asset tag placement, Maintain and troubleshoot entire network, Administer domain accounts, Software installation and troubleshooting, Install and support Client 32, Deal with TCP/IP address, Upgrade and repair desktop computers.
Name & Address of Employer: J & R Computer World, NY **Title of Position & Dates:** Computer Technician, 01/1995 – 07/1996	**Responsibilities included:** Upgrade and repair desktop and laptop computers, Install and configure external and internal devices, Heavy phone troubleshooting and support, on-site troubleshooting and user orientation.

Professional Skills

Windows NT, 2000, XP, Linux system, Microsoft Office, PC and PC components, laptops, cables and adapters, NIC, Routers, Hubs, Switches, Cables and connectors, UPS, Printers, Scanners, Modems, ISDN, DSL, Video equipment.

Computer Skills

Microsoft Office Word, Power Point Excel

NAME: ***Amit Patel*** **POSITION**: ***General Chemistry Supervisor***
Dates: Feb. 2005

RESPONSIBILITIES: Analyze and QA/QC water and soil samples using SW 846 8000 series, EPA CLP and EPA 600 series methods. Preparing data packages to be reported to the client. Keeping track of projects pertaining to the department. Troubleshooting of instruments and other technical problems according to methodology.

Educational Background

College/University	**Dates Attended**		**Major**	**Minor**	**Degree & Date**
	From	**To**			
Gujarat University	1996	2000	***Chemical Engineering***	-----	***Gujarat University***

Professional Experience

Name & Address of Employer: Chemtech	**Responsibilities included:** Worked as assistant engineer in cement plant using 100% lignite as fuel.
Title of Position & Dates: ***Assistant Engineer, 11/02 – 10/04***	
Name & Address of Employer: Sanghi Industries Ltd.	
Title of Position & Dates: Assistant Engineer, 11/02 – 10/04	

Professional Skills

- Project on Thionile Chloride
- Seminar on Composting – a solid waste management system

Computer Skills

- ***MS Office 2000, C, C++, Basic, Java 2.0, HTML Languages***
- ***Windows, Linux, MD DOS***
- SQL Server 7.0

NAME: ***Kurt Hummler*** **POSITION:** ***Project Manager***

Dates: Feb. 1997 - Present

RESPONSIBILITIES: Responsible for setting up client projects and maintaining direct client contact throughout the project to ensure that all client requirements are fulfilled.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
University of North Carolina			***Political Science***	-----	***BA***

Professional Experience

Name & Address of Employer: CHEMTECH 284 Sheffield Street Mountainside, NJ **Title of Position & Dates:** Project Manager, Feb. 1997-Present	**Responsibilities included:** Responsible for communicating with client and laboratory all information pertaining to the project.
Name & Address of Employer: Lab Resources Inc. **Title of Position & Dates:** Project/Marketing Manager, 08/97 – 01/98	**Responsibilities included:** Responsible for marketing and managing the project.
Name & Address of Employer: Core Labs, Inc. **Title of Position & Dates:** Project Manager, 02/92 – 05/97	**Responsibilities included:** Worked as project manager.

Computer Skills

MS Office – MS Word, MS Excel, MS PowerPoint

NAME: Emanuel Hedvat **POSITION: President**

RESPONSIBILITIES: Primarily responsible for all operations and business activities. Develop and implement strategies and initiatives. Responsible for growth and direction of Chemtech. Responsible for the profitability of the company, the quality of analyses performed and the high level of service provided to clients. Delegate authority to Laboratory Directors, all Managers, and Quality Assurance/Quality Control Director to conduct day-to-day operations and execute quality assurance duties.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Fairleigh Dickenson University			Chemistry	---	BS
Fairleigh Dickenson University			Chemistry	---	*MS, 1983*

Professional Experience

Name & Address of Employer:	Responsibilities included:
Chemtech **Title of Position & Dates:** ***President***	Oversee overall laboratory performance and compliance. Maintain quality service. Discuss analytical requirements with Disposal facilities and Regulatory Agencies. Develop Sampling and Analysis Plans. Create Site Maps. Generate Electronic Diskette Deliverables for interpretation of analytical results as per Disposal Facility requirements. Perform sampling per regulatory agency requirements.

Professional Skills

Mr Hedvat has over 25 years of experience in the environmental testing industry including on-site laboratories. With extensive experience in corporate management. He has conducted numerous field chromatography studies at various US Navy bases. Developed and implemented numerous analytical techniques in support of remedial investigations studies. His knowledge on environmental testing stems from having served as Laboratory Director, Field Services Director and Project Management Director.

Computer Skills

Microsoft office 2003; excel, word, power point

Other Achievements or Awards

Active Registration and Awards:
American Chemical Society
American Society for Testing & Materials
Water Pollution Control Federation
Society of American Military Engineers

27. Laboratory SOP List

(a list of current SOP revisions and reviewed dates available upon request)

Document Title	Document Control Number
Quality Assurance Manual	A2040129
Chemical Hygiene Plan	A2040232
Conflict of Interest Plan	A2070189
Affirmative Action Program Executive	A2070190
AAP Section 503 and 4212-01	A2070191
Procedural SOPs	
P201-Data Review	A2040102
P202-Reagent Check	A2040103
P203-Laboratory Limits and Demonstration of Capability	A2040104
P204-Chain-of-Custody Procedure	A2040139
P205-Chemical Waste Disposal	A2040106
P207-ASTM Type II Water	A2040108
P208-Thermometer Calibration	A2040109
P209-Scale Calibration	A2040110
P210-Corrective-Preventative Action	A2040111
P211-Control Charts	A2040112
P212-Water Purity	A2040113
P213-Calibration of Auto Pipettes	A2040114
P214-Subcontracting	A2040115
P215-Hood Calibration	A2040116
P216-Calibration and Temperature Setting	A2040117
P217-Glassware Cleaning	A2040118
P218-Chemical Storage	A2040119
P219-Disposal of Chemicals	A2040120
P220-Traceability	A2040121

Document Title	Document Control Number
P222-Standard Operating Procedure Preparation	A2040123
P223-Material Safety Data and Records	A2040126
P224-Bottle Preparation	A2070104
P225-Rules for Rounding	A2040124
P226-Corrections	A2040127
P227-Service and Daily Maintenance	A2040127
P228-Storage and Disposal of PCB Materials	A2040139
P229-Computer Backup and Storage	A2070074
P230-Sample Aliquot	A2070075
P231-Data Archive	A2070076
P232-Data Storage	A2040105
P234-Field Sampling	A2070091
P235-Worklist	A2070098
P236-Fax Procedure	A2070099
P237-Training	A2070105
P238-Field Chlorine Test	A2070130
P241-Air Canister Cleanup	A2070133
P243-Manual Integration Policy and Electronic Logbook	A2070146
P244-Calibration Policy	A2070147
P250-Log-in Procedure	A2040128
P251-Quotation Project Chronicle	A2070151
P252-Ethics Policy	A2070178
P253-Uncertainty Policy	A2070179
P254-Purchasing and Supplies	A2070194
P255-Maintenance	A2070195
P256-Storage Blank	A2070196
P257-Foreign Soils	A2070201

Document Title	Document Control Number
GC VOC SOPs	
M8015B/C-GRO	A2040028
MRSK-175	A2070198
GCMS VOC SOPs	
M524.2-DWVOA	A2040035
M64/SM6210B-MSVOA	A2040037
M8260B/C-SWGCMSVOA	A2040038
MTO15-Air VOC	A2070131
MSOM01.2-GCMS VOA	A2070183
MSOM01.2-GCMS VOA Trace and SIM	A2070184
Extractions SOPs	
M3510C,3580A-Extraction SVOC	A2040001
M3510C,3580A-Extraction DRO	A2040002
M3510C,3580A-Extraction PCB	A2040004
M3510C,3580A-Extraction Pesticide	A2040005
M3610-Alumina Cleanup	A2070036
M3620C-Florisil Cleanup	A2070037
M3630-Silica Gel Cleanup	A2070038
M3640A-GPC Cleanup	A2070039
M3660B-Sulfur Cleanup	A2070040
M3665A-Sulfuric Acid Cleanup	A2070041
M3545A-Pressurized Fluid Extraction	A2070091A
M3520C-Pest/PCB Liquid-Liquid Extraction	A2070100
M3541-ASE Extraction	A2070095
MSOM01.2-Sample Preparation	A2070185
M3535A-HPLC Explosives Preparation	A2070137
M8330/A-Explosives Salting Preparation	A2070138

Document Title	Document Control Number
O.17-CWA Breakdown Product Extraction from Solids	A2070207
O.18-CWA Breakdown Product Extraction from Water	A2070208
O.19-White Phosphorus Extraction from Soil	A2070257
O.20-White Phosphorus Extraction from Water	A2070258
P.1-Biological Tissue Homogenization	A2070282
P.5-Percent Lipid Determination	A2070283
GCMS SVOC SOPs	
M625-BNA	A2040030
M8270C/D-BNA	A2040031
MSOM01.2-SVOC	A2070186
M8330A-Nitroaromatics	A2040007
L.2-Explosives Residues by 8330A/8330B	A2070203
M.4-CWA Breakdown Products by GCMS	A2070211
M.5-White Phosphorus Analysis by GCMS	A2070265
GC SVOC SOPs	
M608-WW Pesticide PCB	A2040017
M8015B/C-DRO	A2040018
M8081A/B-Pesticide	A2040020
M8082/A=PCB	A2040021
M8151A-Herbicide	A2040022

Document Title	Document Control Number
M8015B-Fingerprint	A2070141
MOLC03.2-Pesticide PCB	A2040023
MSOM01.2-PCB	A2070188
MSOM01.2-Pesticide	A2070187
MNJDEP-EPH	A2070199

MOQA-QAM-025-TPH	A2070182
Metals SOPs	
M3005A-Digestion	A2040143
M3010A-Digestion	A2040011
M3050B-Digestion	A2070023
M7470A-Mercury	A2040095
M7471A/B-Mercury	A2040096
M200.7-Trace Elements	A2070019
M200.7/2340B-Hardness	A2040097
M6010B/C-Trace Elements	A2040091
M6010-SM2340B-Hardness	A2070192
M200.8-Trace Elements	A2070103
M6020/A-Metals ICPMS	A2070102
MILM05.4HGS-Mercury in Soil	A2070158
MILM05.4HGW-Mercury in Water	A2070155
MILM05.4-Metals ICPMS	A2070156
MILM05.4-Trace Metals	A2070153
MISM01.2-Trace Metals	A2070198
MISM01.2-Metals ICPMS	A2070199
MISM01.2-Mercury in Soil	A2070200
MISM01.2-Mercury in Water	A2070201
MISM01.3-Mercury in Soil	A2070285
MISM01.3-Mercury in Water	A2070286

Document Title	**Document Control Number**
MISM01.3-Trace Metals	A2070288
MISM01.3-Metals ICPMS	A2070287
MPM10-Digestion	A2070189
P.3-Biological Tissue Digestion	A2070281
General Chemistry SOPs	
M1010A-Flash Point	A2040041
M1110-Corrosivity	A2040043
M1311-TCLP	A2040044
MSM2540B/160.4&SM2540G-Total Solids and Total Volatile Solids	A2040046
M180.1-Turbidity	A2040048
M300.0-Inorganic Anions	A2040050
M3060A/7196A-Hexavalent Chromium	A2040051
MSM3500-Cr B-Hexavalent Chromium	A2040058
M365.3/SM4500-P E,B5	A2040061
MSM5210B-BOD&CBOD	A2040063
MSM4500-Cl G-Residual Chlorine	A2040065
MSM4500-SO4 E-Sulfate	A2040067
M9010C-Total, Ammenable & Reactive Cyanide	A2040077
M9040C-pH	A2040081
M9045C-pH	A2040082
M9060/A-TOC	A2040083
MAVS	A2040087
MLloyd Kahn TOC	A2040088
M120.1-Conductivity	A2070007
MSM2150B-Odor	A2070021
MSM2320B-Alkalinity	A0010001
MSM2120B-Color	A2070020
M5220C/D-COD	A2070010

Document Title	Document Control Number
MSM4500-H B-pH	A2070045
M5540C-MBAS	A2070048
M9041A-pH	A2070049
M9056/A-Inorganic Anions	A2070050
M9065-Phenolics	A2070051
M9071B-Oil&Grease	A2070053
M9080-Cation Exchange	A2070054
M9081-Cation Exchange	A2070055
M9095A/B-Free Liquids	A2070056
M-Percent Solids	A2070004
M1312-SPLP	A2070068
M1664A-Oil&Grease	A2040047
MSM4500-NH3 B,G/H-Ammonia	A2040057
M9012A/B-Total, Ammenable & Reactive Cyanide	A2070088
M9030B-Sulfide	A2070070
M9050A-Conductivity	A2070090
M1030-Ignitability	A2070064A
M9034/SM4500-S F-Sulfide	A2070069
M420.1-Phenolics	A2070106
M1498-REDOX Potential	A2070089
M9038-Sulfate	A2070134
MILM05.4CN-Cyanide	A2070154
M-Percent Solids (ILM05.4)	A2070157
MASTM D1037-92-Acidity	A2070161
MSM2130B-Turbidity	A2070159
MSM2510B-Conductivity	A2070164
MSM2540C-Total Dissolved Solids	A2070173
MSM2540D-Total Suspended Solids	A2070172

Document Title	Document Control Number
MSM2540F-Settleable Solids	A2070174
MSM2550B-Temperature	A2070160
MSM4500-Cl C, E-Chloride	A2070162
MSM4500-CN C,E-Cyanide	A2070168
MSM4500-CN C,G-Amenable Cyanide	A2070169
MSM4500-O C-Dissolved Oxygen	A2070165
MSM4500-O G-Dissolved Oxygen	A2070166
MSM4500-SO3 B-Sulfite	A2070175
MSM4500-NO2 B-Nitrite	A2070163
MSM4500-NOrg B or C-TKN	A2070176
M9013-Cyanide Distillation	A2070171
M9031-Sulfide	A2070177
MHACH8146-Ferrous Iron	A2070193
MHACH8110-Formaldehyde	A2070190
MSM5310C-TOC	A2070167
M9014-Reactive Cyanide	A2070069A
MSM4500-CO2 C-Carbon Dioxide	A2070199
MSM2520B-Salinity	A2070254
MSM1500-KMnO4-Potassium Permanganate	A2070255
MLOI-Loss on Ignition	A2070280
MISM01.2-Cyanide	A2070202
MISM01.3-Cyanide	A2070289
J.21-Nitrocellulose	A2070213

28. NELAC Certificate and Parameter List

Current certificates and certified scopes available upon request

Attachment 3

Paradigm Environmental Laboratory Quality Manual

PARADIGM ENVIRONMENTAL SERVICES
179 Lake Avenue, Rochester, New York 14608 (585) 647-2530

Standard Operating Procedure

Title: ENVIRONMENTAL LABORATORY QUALITY MANUAL

Effective Date: Sept. 17, 2014

Revision: 2.14

Author: Rebecca Roztocil (QA Officer)

Signed: ____________________

Approved By: Bruce Hoogesteger (Technical Director)

Signed: ____________________

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Annual Review:

Signed:____________________ Date:__________ Title:______________

Signed:____________________ Date:__________ Title:______________

Signed:____________________ Date:__________ Title:______________

Signed:____________________ Date:__________ Title:______________

Signed:____________________ Date:__________ Title:______________

Revision Record

Rev. No.	Date	Responsible Person	Change
2.00	2/14/05	R.Roztocil	Complete format change.
2.01	4/21/05	R.Roztocil	14. Defined resumption of work order.
2.02	5/25/06	R.Roztocil	Added revision history. 3.1Added document structure 8.Changed MDL terminology to LOD and LOQ. 13. Added intro/header to QC 14. Clearer definition of non-conforming work. 19c. Managerial review list. 21. Added project file audits. 22. List of reporting requirements and measurement uncertainty. App.B – Org chart revision. App.C – Made current. App.D – Pres. Chart rev.
2.03	4/13/07	R.Roztocil	15. Expanded/clarified corrective action proc. 17.Expanded/clarified preventive action. 19b.Specified time frame for audit resolution. 22. Added estimation of analytical uncertainty.
2.04	6/18/07	R.Roztocil	22.Added sub lab ID, Revision ID, and written Client notification of non-Conforming instruments. 23. Inserted section for Records. 24. Changed confidentiality Section to 24 and added Requirement for documented Approval to release to third Parties. 25. Changed references to Section 25.
2.05	6/4/08	R.Roztocil	Added annual review to title page. Shuffled order of appendices.

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Rev. No.	Date	Responsible Person	Change
2.06	2/19/10	R.Roztocil	Updated Org. Chart (App.B) and Pres. Tables (App.C)
2.07	5/26/10	R.Roztocil	Changed record retention for potable water analyses, added provision of transfer of records pending transfer of ownership.
2.08	3/4/11	R.Roztocil	Clarification of controlled copy Indicator, Appendix F, clarification Of PT schedule.
2.09	4/13/11	R.Roztocil	Improved appendix F, revised org. chart, TD/QAO duty chart, preventive action.
2.10	3/22/12	R.Roztocil	Updates to section 13, 20, 21, org chart, appendix F.
2.11	4/19/12	R.Roztocil	Added lab codes to Appendix F.
2.12	1/14/13	R.Roztocil	Updated Org. Chart (App. B), Updated section 5, Document Ctrl, Added emails and fax to section 24 App. D – new COC/supplement Updated Instrument Inventory
2.13	1/29/14	R.Roztocil	Updated Org. Chart (App.B) and (App.F), Changed title of Sample Receipt Manager to Sample Custodian, Clarified expression of LOQ with LIMS reports and also sample log-in with LIMS, updated Data review relative to LIMS, and clarified what should be considered the official report in the electronic age.
2.14	5/27/14	R.Roztocil	Clarified certain verbiage.

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Distribution List

Location	Personnel
Technical Director's Office	Technical Director
QA Office	QA Officer
Environmental Laboratory	Technical Staff

Table of Contents

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1. Quality Policy

This laboratory Quality Manual is written with the objective of setting forth Paradigm's basic philosophy for assuring that data supplied to our clients is technically and legally valid and properly documented for use in environmental decision making. This document describes the basic structure, which underlies all laboratory activities, and allows the laboratory to fulfill Paradigm's corporate commitments to Quality.

The Paradigm laboratory Quality Manual is built upon a small number of very important principles. These are: use of appropriate materials and properly calibrated equipment, successful participation in the NYS ELAP proficiency testing and assessment programs, adherence to standardized methods, a clear sample tracking system, a comprehensive quality control program which includes routine internal audits with management review, and a documentation and monitoring system for internal and external assessment of performance. These principles, applied to the details of day to day lab activities assure each client that their data meets the highest standards.

The quality policy is communicated to all employees during the training of new hires. It is reviewed on a yearly basis with all employees and the review is documented in writing.

This manual also incorporates a number of quality, process and documentation standards as set forth in the NELAC [National Environmental Laboratory Accreditation Conference] guidelines, and in the New York State ELAP (Environmental Laboratory Accreditation Program) Manual.

Paradigm Environmental does not involve itself in any activities that would have a negative impact on its competence, impartiality, judgment or operational integrity. Further, Paradigm Environmental ensures that its personnel are free from undue commercial, financial or other pressures which could influence technical or ethical judgment and/or quality of work.

2. Accredited Test Methods

Please refer to Appendix F for a copy of Paradigm Environmental Services list of approved methods.

3. Quality System

The quality system defined in the quality manual applies to all personnel who perform activities affecting quality. All employees are responsible for the quality system. The individual SOPs define specific employee responsibilities.

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The quality manual is maintained current and up-to-date by the Quality Manager (QAO) to reflect changes to the system. The laboratory defines its policy for each applicable standard element in the quality manual.

The criteria used to assess the quality of each analysis conducted by employees of Paradigm Environmental Services, Inc. are clearly defined in the analysis-specific in-house SOP. All staff are required to read the analytical SOP and provide documentation of training prior to being allowed to conduct analyses by themselves. Analytical work is reviewed for acceptable quality control prior to being reported, and all reports are reviewed by the Technical Director prior to being signed and issued to the client.

Any support services contracted by Paradigm Environmental will be reviewed for any potential impact to the quality system. This includes, but is not limited to, janitorial and housekeeping cleaning supplies, any equipment and instrument maintenance and support performed, courier services and any off-site storage services. Refer to the organizational chart in the appendices for the relationship of these services to the management.

3.1 Document Structure

Level 1 – Quality Manual
Level 2 – Quality Procedures
Level 3 – Work Instructions and Test Procedures
Level 4 – Quality Records

4. Job Descriptions of Staff

Technical Director *- Degree and experience required*
The Technical Director has overall responsibility for the procedure in use in the lab, and the conduct of all lab personnel. Working through the lab supervisory staff, the director ensures that proper methods are in use, and that they are being performed in a compliant fashion. In the event of prolonged absence, the duties of the Technical Director will be filled as described in the chart below:

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Duty	Assigned to:
Final report review and sign-off	Individuals identified in Data Review SOP with authority.
Final SOP review and sign-off	QAO or departmental supervisors
Review and approval of new work	Departmental supervisors
PT review	QAO and/or departmental supervisors
Corrective Action Review / approval	Existing system is sufficient (analyst, supervisor, QAO)

Lab Manager - *Degree and experience required*
In addition to departmental duties of a Lab Supervisor (see description below) the Lab Manager is responsible for the coordination of lab-wide activities. This may include staff and equipment resource assessment, establishment of lab working hours and hiring/general training. The Lab Manager may act as an alternate to the Technical Director for report review and sign-off. The Lab Manager works with the Technical Director to evaluate feasibility of adding new test procedures to lab operations.

Lab Supervisor - *Degree and experience required*
The primary area of responsibility for this position is the overall operation of his or her designated area. Responsibilities include tracking and scheduling of sample workload with coordinating of personnel and equipment to achieve turnaround objectives. The Supervisor is the technical expert in their designated area, and must have a thorough understanding of all applicable methodologies. The Supervisor documents and tracks QC data and other compliance measures to assure that the client and regulatory data quality objectives are being met. The Supervisor interacts with the clients on sample status and technical questions. Works with the Technical Director to establish QC documents systems and to make sure instrumentation and support personnel are being used as effectively as possible.

Lab Analyst - *Degree and/or experience required*
The primary area of responsibility for this position is sample preparation and analysis of solid, water, or air samples for environmental pollutants. This person works under the general direction of the Lab Supervisor, but operates with autonomy, exercising independent judgment and decision making on a day to day basis. Must know and understand the full details of the analytical methods performed and have demonstrated proficiency in those methods. Must understand and comply with all

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requirements for frequency and acceptance limits of method QC. The Analyst is responsible for following lab documentation procedures, troubleshooting of equipment and methods, and generations of reports. May interact with clients on sample status and interpretation of results.

Lab Technician - *Entry Level – High school education required, experience preferred*
The primary responsibility for this position is following specific technical procedures for the preparation of asbestos or environmental samples in a consistent fashion, compliant with the written methods. Duties may include glassware and other material or reagent preparation, sample preparation and routine analysis.

Sample Custodian - *Degree and/or experience required*
Responsible for receiving client samples at the lab. Notes condition of samples, preservation, and holding times. Reviews COC for suitability of analytical requests. Creates ID numbers and labels all containers. The Sample Custodian is the first point of contact for clients upon receipt. The Client Services Group will try to resolve all analytical request issues at the time of receipt by communicating with the customer.

Quality Assurance Officer– *Degree and experience required*
Responsible for maintaining the integrity of the data reported to clients through oversight and review of all quality related functions of the laboratory. Verifies that all people responsible for performing all lab functions, including log-in, prep, and analysis are doing so in conformance with the referenced methods, and with all internal standard operating procedures. Works with lab supervisors and technicians to correct any problem area identified through routine QC samples or systems audits. Communicates with the state and accrediting authorities concerning accreditation, audits, and proficiency evaluations. In the event of prolonged absence, the duties of the Quality Assurance Officer will be filled as described in the chart below:

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Duty	***Assigned to:***
PT Entry	Technical Director
Audits (annual, project file)	Technical Director
Annual Training	Departmental supervisors
Integrity Training	Data Integrity Advisor
Hood Flows	Assigned to quarterly rotation
Management of certs/ application renewals	Technical Director
SOP's QM	Departmental supervisors Technical Director

5. Document Control

All SOPs shall have a rev #, an effective date, a "prepared by", and an "approved by" component. When a document is initially circulated, it will not have an effective date on the cover page. The effective date will be added after all personnel qualified to perform the analysis have reviewed the new document (with changes highlighted) and have indicated they have reviewed the new document and agree to abide by its policies. At such times as the method's SOP is updated and accepted into practice, the existing version will be collected from all locations, and replaced with a copy of the new version. Documentation of the date of collection and replacement should be clear, and will form an ongoing record in the QA file. All successive revisions of method SOP's are kept in archives for future reference, with the date replaced clearly written on the cover along with the revision number of the document it was superceded by. Employee training files include documentation of which SOP revision number the employee has been trained in. Archived documents such as SOPs and training files will be archived for no less than five years from the date of replacement.

Controlled documents are identified by the red-ink notation in the upper outer corner of every page indicating the document number. Any document without this notation in red ink is not a controlled copy. The notation indicates the copy number, and total number of controlled copies available.

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All SOPs and internal controlled documents are reviewed once per year. If a document is revised during the year the revision record in the document shall demonstrate review. If a document has not been revised during the year, the review record shall be the signature of the person responsible for the document and the date of the review.

The documentation in each employee's training file clearly indicates which revision of a document the employee has trained under. If a document is revised during a year, each employee has documentation in their training file to verify the fact that the employee has read, understands, and agrees to follow the rules and policies set forth in the new revision of the document.

All data, including prep logs, calibration records and QC records are retained for a minimum of five years. Potable water records are required to be retained for ten years, except lead and copper results which need to be retained for twelve years. The purpose of this is to allow historical reconstruction of the final result.

6. Traceability of Measurements

All acids, solvents, standards, reagents, thermometers and equipment purchased must be issued with certificates of analysis from the vendor such that their calibration is traceable to NIST or other certifying organization. Reference standards, such as Class S weights and NIST thermometers, are used for calibration only and are calibrated by an outside organization that can provide documents with traceability to NIST. All volumetric glassware purchased is Class A.

7. Review of all New Requests, Tenders and Contracts

Client Service personnel and the Technical Director review all new, non-routine work for the necessary physical, personnel and information resources prior to undertaking new work. They also verify the lab personnel have the necessary knowledge and experience. If the review uncovers any deficiencies, potential conflicts, inappropriate accreditation status or other inabilities to perform the new work, the client is notified prior to starting the work.

In cases where the laboratory capacity is at its limit, the Laboratory Supervisors communicate to the Client Service personnel a general inability to accept new work due to capacity. In any situation where a client's results may be delayed, the client is notified immediately and the necessary steps are taken to ensure the satisfaction of the client. Typically, the work would be subcontracted to an appropriate, NYSDOH accredited lab for any request that could not be accommodated for technical or capacity limitations.

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8. Calibration/Verification of Test Procedures

Quantitation of analyte concentration is determined relative to a standard calibration curve. The concentration and number of points on a curve are usually specified in the individual methods. The lowest point of the calibration curve serves as the lower quantitation limit for the test. Samples reading above the highest calibration standard (or linear range for ICP-AES) are diluted within the calibration range or qualified appropriately, as being estimated above the calibration range. The validity of all calibration curves is verified using a second source standard traceable to a national standard, when available. Re-calibrations are performed if calibration checks fall outside of method acceptance windows. Calibration checks which show a greater degree of sensitivity are allowed if the analyte is not present in the sample. Sufficient raw data are retained to reconstruct the calibration used to calculate the sample result.

All results of samples must be within the calibration range (bracketed by standards). Any results reported outside the calibration range must be reported with a qualifier. No data may be reported if it is associated with an unacceptable calibration unless appropriately qualified.

LODs and Reporting Limits (LOQ) – Paradigm analytical reports will express the reporting limit (LOQ) as a value preceded by a "<". These values are the reporting limits or "limits of quantitation (LOQ)" at which the analyte can be detected with confidence and quantitated with accuracy. The LOQ are also chosen to be responsive to any known regulatory action limits. LOQ are different from statistically determined detection limits (LODs), which are the theoretical lower limit of detection in "ideal" samples. LOD studies are performed annually. LOQ are set at or above the statistical LOD and the lowest calibration standard is always at the LOQ.

9. Sample Handling

A. Sample Acceptance Policy

The Chain-of-Custody should be reviewed for analytical requests specified and for sample ID information. Any ambiguity should be resolved ASAP (i.e. direct VS TCLP / dissolved VS total metals, etc.). Correlation of samples to C-O-C, uniqueness of sample ID and containers also need to be checked and reviewed with the customer if needed. In the event of inappropriate preservation, holding time exceedence or container type, the significance should be reviewed with the client. In some cases the sample may no longer be suitable for analysis. Communication with the client is required. Analysis should proceed only with the approval of the client and with an understanding of the necessary qualifications. Many clients work with the lab on a continual basis. Where the client has demonstrated an acceptance of qualified sample conditions and reports, the analysis may

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proceed without case by case communication. Jobs are reviewed to ensure that equipment, personnel, reagents etc., are all available and sufficient to meet technical and client requirements. The Chain of Custody also has, clearly printed on its reverse, clearly detailed terms and conditions for sample acceptability. If available equipment, personnel, reagents etc., is not sufficient, the client will be contacted to discuss possible extended turnaround, or the impacted samples will be subcontracted to meet the requirements.

B. Sample Receipt Protocol

The U.S. EPA and the New York Department of Health have both developed extensive requirements for appropriate sample bottles, necessary preservation and maximum holding times. Paradigm always works with these guidelines to ensure the data is compliant and fully usable for regulatory purposes. A table of analytes (methods), with associated container types, preservation, and holding times is included as Appendix C to this QA Plan.

Samples are checked for appropriate preservation, container and holding time upon receipt. When 4°C preservation is mandated by the method, the sample must be between 0-6°C, or be "on ice" if coming directly from a local sampling location. Deviations will be noted on the Chain of Custody.

A sample(s) may be rejected if the lab is unable to meet the requested turn-around or technical requirements, or if there is a defect with the sample (lack of quantity, improper preservation or container type etc.). Additionally, where discrepancies exist between the COC and the sample itself analysis will be delayed until clarification may be obtained from the client.

C. Procedures for Handling Submitted Samples

All samples received at Paradigm laboratories should be accompanied by a Chain-of-Custody (C-O-C). The C-O-C serves several important purposes. Legally, it documents the transfer of the sample from the client to Paradigm. Second, it shows the tests which are requested and indicates a sampling date from which holding times may be determined. Finally, the C-O-C serves as a cross-reference from the samples' Field ID to the assigned Laboratory ID. Information from the client C-O-C is transferred to the LIMS for additional in house use. A unique laboratory ID number is assigned to each client sample at this point. Preservation (or lack of) is noted on the COC supplement and also in the LIMS. All client,

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sample, and analysis request information is logged into the LIMS, which allows analysts to generate worklists for samples needing analysis.

Samples are generally stored at 4°C from the time of receipt to the time of disposal. A few exceptions exist, such as wipes, waste oils, and lead paint chips which do not require preservation. Samples and extracts or digests are discarded after 30 days from receipt, or the expiration of their holding time, whichever is sooner. Paradigm reserves the right to return unused sample to the client for disposal if the material is significantly in excess of analytical requirements.

The sample receipt manager or their designee compiles a 'waste tracking list' by comparing lab results with New York State's Department of Environmental Conservation regulatory guidelines for disposal of hazardous waste. The list provides every sample's laboratory ID number and a classification. The classifications are PCB (poly-chlorinated biphenyls), mercury, flammable, solid hazardous, solid non-hazardous, volatile, and dump. (A waste tracking list is provided in the appendix) Each sample is disposed of according to its classification. See the Waste Management standard operating procedure for a more detailed description of how these samples are disposed.

Organic extractions, metal digests, TCLP (toxicity characteristics leaching procedures extracts) and other analyzed wastes are disposed of according to their individual standard operating procedures.

10. Laboratory Environment

Laboratory space is maintained to be free from contamination using good housekeeping practices. Smoking is prohibited within the building. Specific work areas are defined and access is controlled. Work areas include: entries into the laboratory, sample log-in and storage, laboratory analysis areas, chemical and waste storage area, and data handling areas.

Where multiple uses of a laboratory area are incompatible or present a potential conflict, the affected laboratory areas are dedicated to a single purpose. Specifically, the use of methylene chloride for solvent extractions is incompatible with the analysis of methylene chloride by EPA methods 601, 8010, 624, and 8260. As defined in the method SOP's, analysts who perform either of those procedures are restricted from entry into the conflicting areas during performance of those tasks.

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11. Procedures for Calibration, Verification and Maintenance of Equipment

All equipment in use at Paradigm Environmental is serviced by trained personnel, often supplied by the equipment vendor. Each piece of equipment is assigned it own maintenance log book, or maintenance may also be documented in the instrument run log. Detailed records are kept on all maintenance activities for each piece of equipment as to the date and nature of the maintenance and the person providing the service, as well as the problem requiring maintenance. Any defective piece of equipment is taken out of service until it can be shown to be working properly.

Support equipment calibrations are verified annually using NIST traceable references. This includes balances, thermometers, refrigerators and incubators. Mechanical volumetric pipettors are checked for accuracy quarterly and recorded.

12. Verification Practices

Proficiency Samples and Audits - One means by which laboratory performance can be assessed is through independent check samples. Paradigm participates in New York's Department of Health Environmental Laboratory Approval Program, which includes semi-annual proficiency checks covering Potable and Non-Potable Water, Solid and Hazardous Waste, and Air and Emissions. ELAP accreditation is contingent on continuing good performance for those proficiency checks. Paradigm receives an on-site audit biennially from a team of ELAP assessors who verify adherence to "good laboratory practices" and provide a deficiency report for areas that need improving. Generally good lab practices, along with satisfactory responses to any deficiency statements are a requirement for continuing ELAP certification.
Paradigm certificates of approval are available to clients at any time upon request. The New York programs incorporate all the criteria necessary to certify compliance with NELAP standards.

Standards and Reference Standards - All analytical stock standards are purchased from reputable national suppliers or NIST, who QC their purity or concentration and provide corresponding certification. As a crosscheck against possible formulation errors, all standards are verified at Paradigm against standards from an independent manufacturer. Intermediate stocks and working standards are prepared by volumetric dilution from stock material. Each stock and working standard is assigned a unique laboratory ID number that is recorded in a standards preparation book. The standard in use is documented in daily instrumental run log.

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13. Internal Quality Control Measures

The data acquired from quality control (QC) procedures, specifically blanks and LCSs, are used to estimate the quality and usability of analytical data, to determine the need for corrective action, and to interpret results after corrective actions are implemented. Each method SOP clearly defines the method QC requirements and appropriate corrective action. QC limits are generated on a quarterly basis from historical QC data using the mean plus or minus three standard deviations. Where mandated by the test method or appropriate to the analysis, QC limits may be assigned as stated in the analytical method. Analytical data generated with QC samples (blanks and LCSs) that fall within prescribed acceptance limits indicate the test method was in control. Data generated with QC samples (blanks and LCSs) that fall outside QC limits indicate the test method was out of control. These data are considered suspect and the corresponding samples are reanalyzed or reported with qualifiers if reanalysis is not possible. Spikes and duplicates run on real-world samples, also called matrix QC, are not used to assess method performance and are not used to generate historical QC limits. These QC samples only provide information relative to that particular sample and are highly influenced by the degree of homogeneity of the sample.

Blanks - Blanks are the QC element, which show that the analytical system is free from contamination. A method blank is lab pure water or a known matrix (i.e. a clean filter or wipe) taken through the entire preparation and analysis process. The method blank shows whether reagents, glassware and ambient conditions have introduced contamination (defined as presence of the analyte above the reporting limit) into the system. A contaminated blank requires re-analysis of the batch, or qualification of the associated data. Other types of blanks, such as instrumental blanks or trip blanks are also used in some circumstances to isolate a particular portion of the sampling and analysis process. The primary purpose of blanks is to identify potential "false positives" in field samples. Blanks are run with every preparatory or analytical batch.

Laboratory Control Samples - A Laboratory Control Sample (LCS) is laboratory pure water or a known blank matrix (clean filter or wipe or blank soil vessel) into which a select group of analytes are spiked at a known concentration. The LCS is then carried through all subsequent preparation and analysis steps. The recoveries are compared to established limits and checked for acceptability. Acceptable recovery indicates that the method is in control, and unacceptable recovery indicates that the method is out of control. Unacceptable LCSs lead to rejection of the batch and re-analysis, or qualification of the affected data. The LCS is a recovery check in the absence of a sample specific matrix effect. LCSs are assigned once per 20 samples or prep batch.

Surrogates and Matrix Spikes - Surrogates are compounds that are similar but not identical to the method analytes of interest. They are generally restricted to use in organic methods. Matrix spikes can be performed for any method. In both cases, a

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known quantity of a compound is spiked into a sample at the initiation of sample preparation, and the percent which is recovered upon completion of the analysis is determined. The recovery data, when compared to historical statistics and LCS recoveries, gives an indication of sample specific matrix effects which may be occurring in the sample. Data for which significant matrix effects are indicated are qualified on the final report. Surrogates are run in every field and QC sample. Matrix Spikes are run once per 20 samples or once per week when sufficient excess sample is available, whichever is more frequent.

Interlaboratory Round Robin Testing – Twice a year Paradigm Environmental Services, Inc. participates in PT testing of NYSDOH PT samples. The ELAP program has accepted participation in PT studies as fulfilling the requirements of Inter-Laboratory Testing.

Matrix Spike Duplicates or Sample Replicates - Method precision is assessed via spiked or unspiked replicates. The agreement between the two replicate results is used to assess variability in both the performance of the method and in the sample matrix. Percent differences outside the method limits result in re-analysis or qualification of the data. Replicates are run once per 20 samples or once per batch when sufficient excess sample is available, whichever is more frequent.

14. Control of Non-Conforming Environmental Testing

Each method SOP contains a section dedicated to corrective action measures to be implemented when the method QC is not in control. If it is not possible to achieve flawless QC, results may be reported with appropriate data qualifiers. Non-Conforming work also extends to all aspects of the quality assurance system where deviations from established control measures will cast doubt on analytical data. All employees have the authority to halt analyses that do not meet the QC requirements set forth in the method SOP. The analyst who stops the work shall immediately notify the lab supervisor, QA Officer or Technical Director. All employees also have the authority to issue a resumption of work order when it can be proven all aspects of QC are being met.

Corrective Action Reports are written when non-conforming work is significant, or the report is sent to the client prior to the discovery of the non-conforming work. If necessary, the client is notified and the defective reports are recalled.

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15. Corrective Action Procedures

Failure of any part of the QC system leads automatically to a corrective action. A contaminated blank requires isolation and removal of the source of contamination. A failed reference standard requires preparation of new calibration and/or reference standards. A failed LCS requires the method to be reviewed in its entirety and the offending step(s) corrected, etc. These actions are described in detail in each SOP. Corrective actions follow a stepwise process: investigate the failure; identify the probable cause or source of the problem; implement a correction; verify the problem is corrected, and; document the steps. Corrective actions are documented in run logs, prep logs or standard logs, as appropriate. Where a QC failure cannot be corrected due to loss of sample or other factor, all associated data is documented and qualified appropriately in the final report to clients.

Where opportunities for corrective actions are identified during quarterly project file audits, the Quality Assurance Officer (QAO) documents the person responsible for generating the corrective action and the time frame during which the corrective action will be completed. In cases where the corrective action will affect data that has already been sent to the possession of the client, the client will be notified within 48 hours. Where possible, the corrective actions regarding that data will also be issued within those 48 hours. If the time frame is not possible the client will be made aware.

Corrective actions are also undertaken for proficiency testing samples that are scored as unsatisfactory. The original data, including all preparatory procedures and calculations, is scrutinized as to the possible undetected error. The original sample may be reanalyzed and additional quality control standards may be purchased to promote the investigation. All efforts into the investigation relating to the cause of the unsatisfactory score is documented and kept on file.

16. Exceptionally Permitted Departures from Policies and Procedures or from Standard Specifications

Departures from standard policies and procedures are not permitted under normal circumstances. The QA/QC and internal audit functions are all designed to assure that in –place specifications and procedures are adhered to, and if not, that there is a feedback mechanism in place to alert supervising and management personnel to any deviations.

Where such allowances are *known* to occur (i.e. – if a calibration check deviates high but the sample analyte is non-detect) the results can be used without further qualification. For any situation not addressed in the method SOPs, supervising review is critical. As described in other sections of this manual, deviations from procedures or control limits will generate an investigation and corrective action

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report, describing what was found, what the potential consequences are, and what actions are needed to prevent a recurrence.

Where there are specific reasons why a policy or method or procedure may not be appropriate, the deviation must be approached in a systematic way. First, the reason for proposing a nonstandard approach must be described. Second, the limitations and consequences of the proposed approach must be anticipated and defined. Finally, the potential impact of the change on client results must be addressed, and appropriate means of qualifying reported data determined.

A proposed deviation from policy, and all associated steps, must be reviewed and approved by the lab supervisor, management, and quality control staff. The deviations must be defined as to specific samples, time period, or extent of application. Typical scenarios may involve a complex site-specific matrix for which no ideal method exists, or a client with a reduced quality objective where data is for screening or preliminary purpose only.

17. Preventive Action

Preventive action is the pro-active process used to identify opportunities for improvement. Preventive action does not stem from a reaction to a complaint or problem, otherwise it would be classified as a corrective action. All employees have the authority to recommend preventive action. Recommendations may be made to either the QA Officer, Lab Supervisor, or Technical Director. Before any preventive action is initiated, the responsible party must design a preventive action plan. This plan must detail the implementation of the preventive action, and monitor and document the process. Preventive actions and improvements to established systems will be discussed and documented at weekly lab meetings. Improvement of lab practices is an ongoing activity, and opportunities to increase method performance and reliability should be capitalized on wherever possible.

18. Complaints

A client may have questions or concerns regarding the reported results they receive. If they have quality concerns, the file should be pulled and audited relative to compliance with method QC. Results of the audit finding should be clearly communicated to the client and documented in the file. In the event a lab error is identified, a system audit must be performed, and a corrective action plan implemented. A record is maintained of all complaints and the actions taken by the laboratory.

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18.5 Compliments

A client may actually think the laboratory did a good job. This should be documented and a non-corrective action plan implemented.

19. Internal Audit and Data Review

A. Data Review

Final results are manually or automatically transferred into the LIMS for formatting and printing of the final report. Initial data review and validation takes place at the supervisor level. Calculations or other manually entered information are checked for errors, and QC measures are checked for acceptability. The finished report is generated when all parts of the job are complete, and it is sent to the Laboratory Technical Director (or approved designee) for approval and signing. Any deviations from standard method compliance windows with a potential impact on final data usability is to be noted in the final report to the client. The Technical Director provides full sign-off for the report, which is then sent to the client. This process is described in full in the Data Review SOP.

Each calendar quarter, the QA Officer audits five project files pulled at random from the prior quarter. This review is to verify that all data integrity requirements are being met and to assess compliance with all other elements of SOPs and Quality Systems.

B. Internal Quality System Audits

Annual audits are required to be performed using the most recent revision of the ELAP assessor checklists. These checklists cover every aspect of the New York State/NELAC laboratory certification manual. Any deficiencies are compiled, and the resolution of each deficiency is assigned to a particular individual. A time frame for the resolution of the deficiency is established and records are kept pertaining to the resolution, the data completed, and all follow-up observations.

Quarterly, the QA Officer selects five random finished projects and performs an in-depth audit which traces all aspects of the project back to its initial log-in. Any findings or deficiencies uncovered during one of these audits are presented to the entire laboratory group during a weekly quality control meeting. An individual is assigned to be responsible for the resolution of the deficiency and a time frame is established for the completion of the work. Where the findings relate to general laboratory practice, the time frame may vary. Completion is generally expected within two weeks, although this may fluctuate due to the severity of the finding. Any finding that affects the data reported to a client requires

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immediate resolution. The client must be notified of the defect and resolution within forty-eight hours. Detailed records are kept of all findings and follow-up investigations relating to quarterly project file audits.

C. Managerial Review

A comprehensive review of the laboratory performance and quality systems must be performed annually for company management. This review will be performed in the quarter prior to the close of the company fiscal year (generally April to June) to allow for new equipment budgeting. The review will encompass the following items:

a. The suitability of policies and procedures;
b. Reports from managerial and supervisory personnel;
c. The outcome of recent internal audits;
d. Corrective and preventive actions;
e. Assessment by external bodies;
f. The results of proficiency tests;
g. Any changes in the volume and type of work undertaken;
h. Feedback from clients;
i. Complaints;
j. Other relevant factors such as quality control activities, resources and staff training.

20. Training and Review of Personnel Qualifications

Initial – Each applicant's resume is reviewed by management with respect to requirements for education and experience.

General - Review of Environmental Quality Systems Manual upon hire and written statement agreeing to abide by company technical and ethical policies. In addition, all employees regardless of duties are provided an employee manual upon hire explaining overall rights and responsibilities. This manual details the actions to be taken in the event of employee misconduct. All employees are also required to undergo training in data integrity. Each employee must have a signed statement (Appendix A) stating their agreement to abide by the ethical and legal responsibilities addressed in the training class and understanding of the penalties incurred for breaching data integrity.

Technical - All technicians / analysts participating in sample preparation and analysis must demonstrate competency in their portion of the procedure. They must have proper documentation of their Demonstration of Capability (DOC) for each accredited method the analyst conducts. This will ordinarily be done by a performance of a LCS or Spike sample, and a replicate study showing suitable recovery according to the method.

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A training file will be maintained for each individual containing the raw data supporting a demonstration of proficiency for each test which they perform. Documentation of proficiency is only complete with review by the Technical Director and the QA Officer. This documentation is performed prior to an analyst conducting a test for the first time, and yearly after that on an on-going basis.

21. Data Integrity

Upon hire, each employee will be trained in data integrity. Annual training is also required for all employees. A record of the training and a signed attestation by the trainee shall be placed into their training file.

All employees are educated with respect for the need for honesty and full disclosure of all issues relating to data integrity, and how this relates to the mission of the company. Employees must understand all data integrity procedures, the quality system, and the possible serious consequences to violation of integrity including termination of employment.

Initially and annually each employee must document their data integrity training by attending the data integrity training session. At the training session each employee will be given an administrative SOP compliance form specific to the Data Integrity SOP to sign. By signing this form the employee will be attesting to abide by the Paradigm Environmental Code of Ethics and the integrity statements found in both the Data Integrity SOP and the Quality Manual SOP. Additionally, each employee will receive a copy of the Data Integrity Training presentation to keep for reference. Specific examples of breaches are discussed and an emphasis is placed on written narration by the analyst in cases where analytical data may be useful, but is not completely compliant with all QC measures. Details are available in the Data Integrity SOP.

Each calendar quarter, the QA Officer audits five project files pulled at random from the prior quarter. This review is to verify that all data integrity requirements are being met and to assess compliance with all other elements of SOPs and Quality Systems.

22. Reporting Analytical Results

Clients are always provided with a paper hardcopy or electronic PDF file of the final report. Clients may also request their data by fax, e-mail, or verbally in addition to the above options. The primary report is always the hardcopy report which is generated and saved with the project file. In the case of legal dispute, the original hardcopy is considered the true report.

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The results of each test carried out by the laboratory are reported accurately, clearly, and objectively. The following information is included on every report of laboratory analysis for the benefit of the client:

a. Title;
b. Name, phone number and address of the laboratory, with a name of a person for contact in case of questions;
c. Unique identification of the report and each page;
d. Name and address of client, and project name if applicable;
e. Description and unambiguous identification of the tested sample including the client identification code;
f. Identification of results derived from any sample that did not meet sample acceptance requirements;
g. Date of receipt of sample, date and time of sample collection, date(s) of analysis and time of sample preparation if holding time is less than 72 hours;
h. Identification of test method used;
i. If the laboratory collected the sample, a reference to sampling procedure;
j. Clear qualification of any data not meeting QC requirements;
k. Results, with all supporting data;
l. When requested, a statement of the estimated uncertainty of the result;
m. Signature and title of the person accepting responsibility for the content of the report;
n. Clear identification of data supplied by subcontracted laboratories, and
o. Clear identification of numerical results with values outside quantitation limits.

The procedure for estimating the uncertainty of analytical measurements makes use of the extensive database of method performance data which is updated on a regular basis. This data set includes statistics regarding method precision and accuracy, which are used in setting in-house acceptance limits. Both of these method performance elements have a bearing on determinations of uncertainty, and they are the foundation of our procedure. We work with the 99% confidence interval in our assessment of uncertainty. The Window of Uncertainty at the 99% confidence interval is defined by upper and lower boundaries around a specific value, calculated as follows:

$$\text{Upper Boundary} = (\text{Reported Value})\text{x} \left[\frac{\text{\% Recovery @ upper acceptance limit}}{\text{Average \% Recovery}}\right]$$

$$\text{Lower Boundary} = (\text{Reported Value})\text{x} \left[\frac{\text{\% Recovery @ lower acceptance limit}}{\text{Average \% Recovery}}\right]$$

All reports clearly identify subcontracted laboratories by the ELAP laboratory ID number.

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Where errors are identified in previously released data, the reports will be revised and reissued to the client. The revised report will be distinguishable from the original by inclusion of the "Date Re-issued", located in the upper right of the header.

Clients will be notified in writing if any equipment used to derive results in any report is found to be working outside acceptable limits.

23. Records

Analytical records include all raw data, strip charts, printouts, calculations, forms, and logbooks. Quality records include reports from internal audits and management reviews as well as records of corrective and preventive actions. All records are retained for at least five years, with the exception of potable water records which must be kept for a minimum of ten years, twelve for potable water lead and copper.

In the event the company goes out of business all clients will be notified and offered the opportunity to collect all records if they so desire, before a specific date. The notification will also clearly state that at the conclusion of the stated time period, all data will be destroyed. In the event of a transfer of ownership all records will pass to the new owner.

24. Confidentiality and Proprietary Rights

Information provided to or generated by Paradigm is considered confidential between Paradigm and its client. Data and reports are only released to the client specified on the Chain of Custody unless Paradigm receives explicit instructions from the client to release information to other parties. The request may be made verbally or in writing. If the request is made verbally, clear documentation must be entered into the project file regarding the person presenting the request (client) and to whom the client is authorizing release of data. These instructions must be documented within the file.

Data/reports may be transmitted through electronic means (fax, email etc.). All fax cover pages and emails contain the following statement: "This (facsimile transmission/email) may contain confidential or legally privileged information which is intended only for the use of the individual or entity named on this transmittal sheet. If you have received this (facsimile transmission/email) in error please notify us immediately by telephone, (585) 647-2530, so that we can arrange for the return of the transmitted materials to us at no cost to you."

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Visitors to Paradigm are accompanied by Paradigm personnel at all times and are not allowed access to files or data systems.

25. References

NYS ELAP manual

NELAC manual, section 5, July 2002

Standard Methods for the Examination of Water and Wastewater

SW846 Methods Volume

EPA 200 series methods, 40CFR 136

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Appendix A – Code of Ethics

PARADIGM ETHICS POLICY

All Paradigm staff involved in the generation, reporting, or discussion of laboratory data must agree to abide by the following:

1. To cooperate in elevating and maintaining the professional status of independent scientific, engineering and testing firms and in securing recognition of the value of services rendered by them.

2. To assert competency only in work for which adequate equipment and personnel are available or adequate preparation has been made.

3. To have a clear understanding with the client as to the extent and kind of services to be rendered, especially in fields where different grades of characters of services are offered.

4. To endeavor in reports to make clear the significance and limitations of findings reported.

5. To safeguard reports as far as possible against misinterpretation or misuse, and to contend against such misinterpretation or misuse.

6. To oppose and refrain from incompetent and fraudulent inspection, sampling, analysis, testing, consultation, development and research work.

7. To deal openly, honestly, and fairly in all business and financial matters with employees, clients and the public.

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"I will strive to: Maintain a high level of personal integrity and professional competence. Understand, promote, and implement the laws, guidelines, and standards with regard to the conduct and reporting of studies under my jurisdiction. Protect confidential information. Report findings accurately and honestly and make recommendations impartially. Avoid circumstances where my professional judgement may be compromised or where a conflict of interest could occur or be perceived to occur. Maintain an objective attitude toward evaluation of study integrity regardless of any external influences."

Society of Quality Assurance in the U.S.

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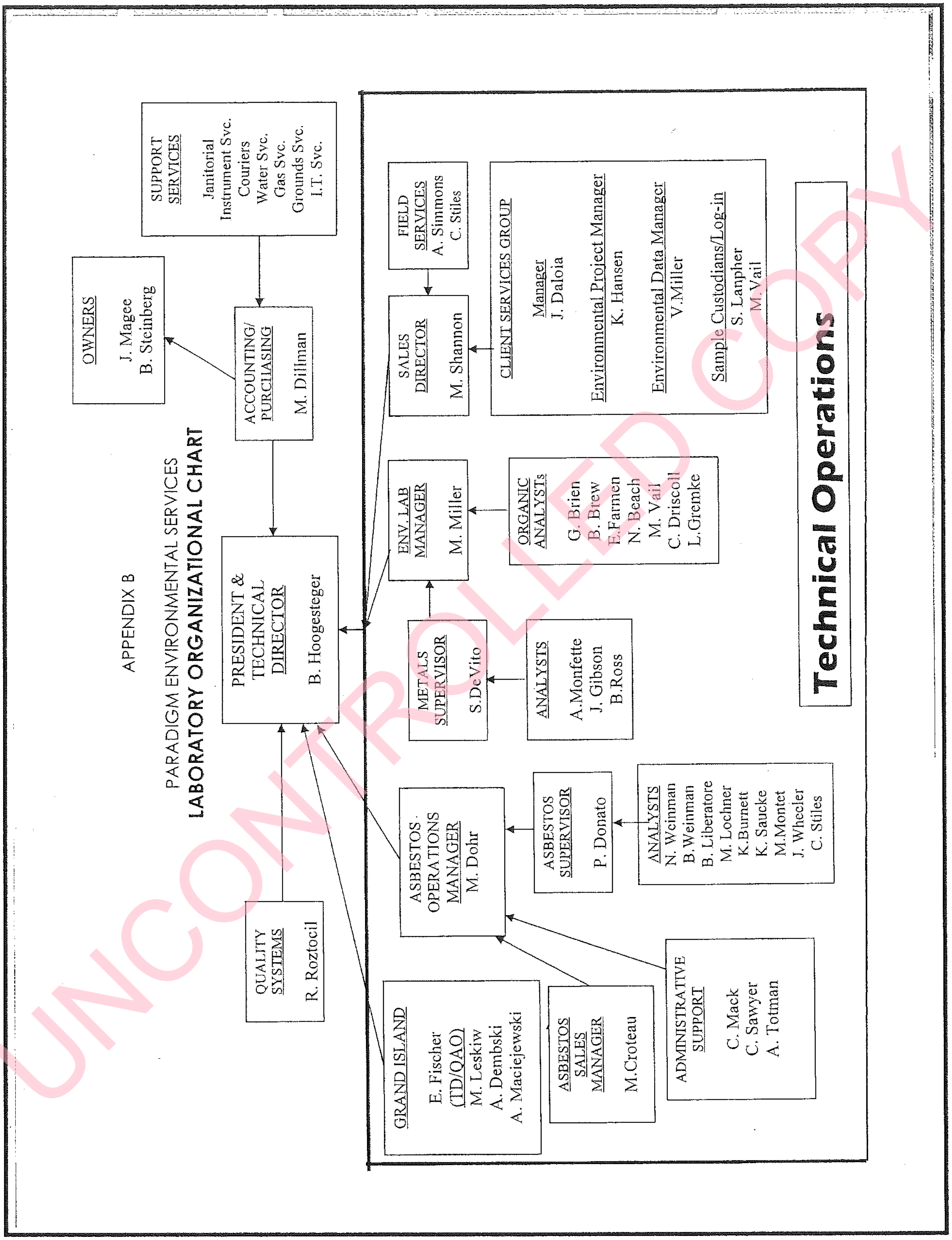
APPENDIX B – ORGANIZATIONAL CHART



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APPENDIX C, TABLE 1

Paradigm Environmental Services, Inc.
CONTAINERS, PRESERVATION, & HOLDING TIMES
NON-AQUEOUS

Do not freeze samples

PARAMETER	QUANTITY	CONTAINER	PRESERVATION	HOLDING TIME
% Water, GC	10 g/40 ml	voa vial (unpres)	<=6°C	14 days
% Water, Karl Fischer	10 g/40 ml	voa vial (unpres)	<=6°C	28 days
Ammonia	5 g	glass jar	<=6°C	28 days
B, Mo, Sn, Ti, Si	5 g	glass jar	<=6°C	6 months
Bomb/IC Cl, Br, I, F	5 g	glass jar, no headspace	None	28 days
BTU	40 ml	voa vial (unpres)	<=6°C	28 days
Chloride	5 g	glass jar	<=6°C	28 days
Chromium, Hexavalent	5 g	p, g	<=6°C	30 days
Cyanide, Total	3 g	glass jar	<=6°C	14 days
Flashpoint 1010	30 g	glass jar	<=6°C	N/A
Fluoride	5 g	glass jar	<=6°C	28 days
Formaldehyde	5 g	glass jar	<=6°C	14 days
Glycols, APC	2 oz.	glass jar	<=6°C	7 days
Glycols, GC	2 oz.	glass jar	<=6°C	14 days
Ignitability 1030	50 g	p, g	room temp	N/A
Nitrate	5 g	glass jar	<=6°C	48 hours
Nitrite	5 g	glass jar	<=6°C	48 hours
Oil & Grease	25 g	glass jar	<=6°C	28 days
Ortho-phosphate	100 g	glass jar	<=6°C	48 hours
Paint Filter Test	100 g	p, g	<=6°C	N/A
pH	5 g	p,g	<=6°C	15 min after addition of water
Phenolics, Total	5 g	glass jar	<=6°C	28 days
Phosphorus, Total	3 g	glass jar	<=6°C	28 days
Radon (air)	N/A	cassette	N/A	7 days
Reactivity	20 g	glass jar	<=6°C	7 days
Solids (various)	50 g	glass jar	<=6°C	7 days
Specific Gravity	50 ml	N/A	N/A	N/A

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Sulfate	5 g	glass jar	<=6°C	28 days
Sulfide	10 g	glass jar	<=6°C	7 days
TKN	3 g	glass jar	<=6°C	28 days
TOC	5 g	VOA vial	<=6°C	28 days
TOX	20 g	glass jar	<=6°C	28 days
TS, TVS	10 g	p, g	<=6°C	7 days

Appendix C, Table 2.

Paradigm Environmental Services, Inc.
CONTAINERS, PRESERVATION, & HOLDING TIMES
NON-AQUEOUS

** Do not freeze samples*

PARAMETER	QUANTITY	CONTAINER	PRESERVATION	HOLDING TIME
METALS				
Flame/ICP Metals	5 g	glass, plastic	None	6 months
Mercury	5 g	glass, plastic	None	28 days
TCLP	100 g	glass, plastic	None	6 months, except 28 days for Hg
ORGANICS				
8260 TCL, Stars, TCL + Stars; BTEX; MTBE - (for 5035)	4x40 ml	VOA vial	H2O in 2 vials, methanol in 3rd vial, only soil in 4th vial	48 hr/14 days if frozen
	4x40 ml	VOA vial	Bisulfide soln in 2 vials, methanol in 3rd vial, only soil in 4th vial	14 days
	2g	glass jar	<=6°C	14 days
	Encore Sampler	3 Encores, 1 wide-mouth jar or voa vial	<=6°C	48 hr until transfer to 5035 vials/14 days if frozen
8260 GRO	2 g	glass jar	<=6°C	14 days
TCLP Voa	25 g	glass jar	<=6°C	14 days

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PCBs (soil, solid, sludge)	5 g	glass, plastic	<=6°C	1 year/ 1 year
PCBs (caulk)	0.1 g	glass, plastic	<=6°C	1 year/ 1 year
PCBs (oil)	2 g	glass, plastic	<=6°C	1 year/ 1 year
PCBs (wipe)	1 sterile cotton gauze pad	glass, plastic	Hexane	1 year/ 1 year
8270 ABN, Stars; Pest; Herb; 8015 DRO; 310.13 PHC/TPH	35 g	glass jar	<=6°C	14 days/40 days
TCLP Svoa	100 g	glass jar	<=6°C	14 days/40 days
TCLP Pest	100 g	glass jar	<=6°C	14 days/40 days
TCLP Herb	100 g	glass jar	<=6°C	14 days/40 days
TCLP Pest, Herb, Svoa	100 g	glass jar	<=6°C	14 days/40 days

Appendix C, Table 3.

Paradigm Environmental Services, Inc. CONTAINERS, PRESERVATION, & HOLDING TIMES **AQUEOUS**				
Do not freeze samples.	***Temp is N/A for samples analyzed within 15 min of sampling.***			
PARAMETER	QUANTITY	CONTAINER	PRESERVATION	HOLDING TIME
% water GC	40 ml	voa vial (unpres)	<=6°C	14 days
% water Karl Fisher	40 ml	voa vial (unpres)	<=6°C	28 days
Acidity	100 ml	p,g, no headspace; sep. bottle	<=6°C	14 days/48 hr if headspace
Alkalinity - Total, Carb, Bicarb	100 ml	p,g, no headspace; sep. bottle	<=6°C	14 days/48 hr if headspace
Ammonia as N	25 ml	p,g	<=6°C, H_2SO_4 pH <2	28 days
Asbestos	1000 ml	p	<=6°C	48 hours
Ash	40 ml	voa vial (unpres)	<=6°C	not known
B, Mo, Au, Sn, Ti, Si	50 ml	p,g (B, Si in p)	<=6°C, HNO_3 pH <2	6 months
BOD5, BOD28	500 ml	p,g	<=6°C	48 hours
Bromide	25 ml	p,g	None	28 days
BTU	40 ml	voa vial (unpres)	<=6°C	28 days

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CBOD5	500 ml	p,g	<=6°C	48 hours
Chloride	100 ml	p,g	None	28 days
Chlorine Demand	1000 ml	p,g	<=6°C	7 days
Chromium, Hexavalent	100 ml	p,g	<=6°C	24 hours
COD	25 ml	p,g	<=6°C, H_2SO_4 pH <2	28 days
Color, PCU	100 ml	p,g	<=6°C	48 hours
Conductivity	50 ml	p, g	<=6°C	28 days
Cyanide-Total & Amenable=Free	100 ml	p,g	<=6°C, NaOH, .6g ascorbic acid pH >12	14 days
DOC	4 oz jar	p, g	<=6°C, pres after filtering w/ H_3PO_4	28 days
Eh	4 oz jar	p,g	None	ASAP - field parameter
Flashpoint 1010	30 ml	glass	<=6°C	N/A
Fluoride	125 ml	p	None	28 days
Formaldehyde 8315	100 ml	p,g	<=6°C	3 days
Glycols, APC	2 oz jar	glass	<=6°C	7 days
Glycols, GC	2 oz jar	glass	<=6°C	7 days
Hardness	100 ml	p,g	<=6°C, HNO_3 or H_2SO_4 pH <2	6 months
MBAS (surfactants)	250 ml	p,g	<=6°C	48 hours
Nitrate *	25 ml	p,g	<=6°C	48 hours
Nitrate-Nitrite	100 ml	p, g	<=6°C, H_2SO_4 pH <2	28 days
Nitrite	75 ml	p,g	<=6°C	48 hours
Oil & Grease/Silica gel	1000 ml	glass; separate bottle	<=6°C, H_2SO_4 or HCl pH <2	28 days

Paradigm Environmental Services, Inc.

CONTAINERS, PRESERVATION, & HOLDING TIMES

AQUEOUS

Do not freeze samples. ***Temp is N/A for samples analyzed within 15 min of sampling.***

PARAMETER	QUANTITY	CONTAINER	PRESERVATION	HOLDING TIME
Orthophosphate	100 ml	p,g	<=6°C, filter within 15 min	48 hours
pH	10 ml	p,g	None	Analyze within 15 min
Phenolics, Total	500 ml	glass; separate bottle	<=6°C, H_2SO_4 pH <2	28 days
Phosphorus, Total	50ml	p,g	<=6°C, H_2SO_4 pH <2	28 days

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Radiological Tests (for MCPW)	1-2 Liters	p, g	HNO_3 pH <2; temp N/A	6 months
Radon	100 ml	p,g	<=6ºC	48 hours
Reactivity	500 ml	glass	<=6ºC	7 days
Residual Chlorine	20 ml	p,g	None	Analyze within 15 min
Settleable Solids	1000 ml	p,g	<=6ºC	48 hours
Solids, Dissolved (TDS)	100 ml	p,g	<=6ºC	7 days
Solids, Suspended (TSS)	200 ml	p,g	<=6ºC	7 days
Specific Gravity	50 ml	N/A	N/A	N/A
Sulfate	25 ml	p, g	<=6ºC	28 days
Sulfide	25 ml	p, g	<=6ºC, NaOH + zinc acetate pH > 9	7 days
Sulfite	25 ml	p, g	<=6ºC	15 min
Temperature	field test	p, g	None	15 min
TKN	100 ml	p, g	<=6ºC, H_2SO_4 pH <2	28 days
TOC	25 ml	p,g	<=6ºC, H_3PO_4 pH <2	28 days; 14 days for Adk
TOX	250 ml	glass	<=6ºC, H_2SO_4 pH <2	28 days
Turbidity	50 ml	p, g	<=6ºC	48 hours
BACTERIOLOGY - make sure headspace in bottle for mixing				
Coliform, Total (DW)	100 ml	coli bottle	<=6ºC, 0.008% $Na_2S_2O_3$	30 hours
Coliform, Total (WW), chlorinated	100 ml	coli bottle	<=6ºC, 0.008% $Na_2S_2O_3$	8 hours
Coliform, Total (WW)	100 ml	sterile bottle	<=6ºC	8 hours
Fecal Coliform	100 ml	coli bottle	<=6ºC, 0.008% $Na_2S_2O_3$	8 hours
Iron Bacteria	1000 ml	plastic	<=6ºC	None
Standard Plate Count (DW)	100 ml	coli bottle	<=6ºC, 0.008% $Na_2S_2O_3$	8 hours
Standard Plate Count (WW)	100 ml	coli bottle	<=6ºC, 0.008% $Na_2S_2O_3$	8 hours
* Nitrate - Drinking water HT is 14 days for chlorinated samples				

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Appendix C, Table 4.

Paradigm Environmental Services, Inc.
CONTAINERS, PRESERVATION, & HOLDING TIMES
AQUEOUS

** Do not freeze samples*

PARAMETER	QUANTITY	CONTAINER	PRESERVATION	HOLDING TIME
METALS				
Flame/ICP Metals **	200 ml	p,g	HNO_3 pH <2	6 months
Mercury **	100 ml	p,g	HNO_3 pH <2	28 days
Hardness **	100 ml	p,g	HNO3 pH <2	6 months
Dissolved/Soluble Metals	100 ml	p,g	None	6 months, 28 days for Hg
TCLP Metals	100 ml	p,g	None	6 months, 28 days for Hg
**If unpreserved, add acid and let sample sit 24 hrs before digestion in order to be compliant for preservation.				
ORGANICS				
8260 TCL, Stars, TCL + Stars; 624; 601/602; BTEX; MTBE; TICS	2x40 ml	VOA vial	<=6°C, HCl pH <2	14 days
* Voa 600 series (WW) – analyst will check for residual chlorine after analyzing the sample and record the result on the COC				
*unpreserved voas HT 7 days				
TCLP Voa	40 ml minimum	glass	<=6°C, filter into HCl vial	14 days
Pesticides - 8081	1 Liter	glass	<=6°C	7 days/ 40 days
Pesticides - 608	1 Liter	glass	<=6°C, pH 5-9, 0.5 ml 10% soln $Na_2S_2O_3$ if Cl present; adjust pH with 5% NaOH or H_2SO_4 soln if needed	7 days/ 40 days if Cl and pH correct; if not, 72 hrs/40 days
8270 ABN	1 Liter	glass	<=6°C	7 days/40 days
625 ABN, 625 BN	1 Liter	glass	<=6°C, pH 7-10, 0.5 ml 10% soln $Na_2S_2O_3$ if Cl present; adjust pH with 5% NaOH or H_2SO_4 soln if needed	7 days/40 days
625 Acid	1 Liter	glass	<=6°C, 0.5 ml 10% soln Na2S2O3 if Cl present	7 days/40 days

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Nitrosamines by 625	1 liter	glass	<=6°C, pH 7-10, 0.5 ml 10% soln $Na_2S_2O_3$ if Cl present; adjust pH with 5% NaOH or H_2SO_4 soln if needed	7 days/40 days
610	1 Liter	glass	<=6°C, 0.5 ml 10% soln $Na_2S_2O_3$ if Cl present	7 days 40 days
608 PCB	1 Liter	glass	<=6°C	1 year
8082 PCB	1 Liter	glass	<=6°C	1 year
8270 Stars, 310.13 TPH/PHC, Herbicides	1 Liter	glass	<=6°C	7 days/40 days
TCLP Svoa, Pest, Herb	1 Liter for all; 250 ml ea. when separate	glass	<=6°C	7 days/40 days
Sub-Out Organics				
503.1	3x40 ml	VOA vial	<=6°C, HCl pH <2	14 days
524.2	3x40 ml	VOA vial	<=6°C, HCl pH <2	14 days
525	1 Liter	glass	<=6°C, 0.5 ml 10% soln Na2S2O3 if Cl present, HCl pH <2	14 days
552	2x40 ml	VOA vial	NH4Cl	28 days
Lactic Acid, Acetic Acid	2x40 ml	VOA vial	<=6°C	7 days
Methane, Ethane	2x40 ml	VOA vial	<=6°C	7 days
Alcohols	2x40 ml	VOA vial	<=6°C	7 days
Dioxin 1613 (2,3,7,8-TCDD)	2 Liter	amber glass	<=6°C, 0.5 ml 10% soln $Na_2S_2O_3$ if Cl present	7 days if NPW; 1 yr if DW

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Appendix C, Table 5.
Container Codes

Container	Size	Code
Voa Vials – with HCl		V1, V2, etc.
Voa Vials – unpreserved		VU
Glass Ambers – wide mouth	250 ml	S1
	500 ml	S2
	1000 ml	S3
Ambers – straight sided jars	8 oz.	AG8
Clear wide mouth jars	2 oz	G1
	4 oz	G2
	8 oz	G3
HDPE wide mouth jars	50 ml	P1
	100 ml	P2
	250 ml	P3
	500 ml	P4
	1000 ml	P5
Plastic Bags		PB
Coliform Sampler ($Na_2S_2O_3$)		C
Miscellaneous Glass		MG
Miscellaneous Plastic		MP
Air Cassettes		A
Tedlar Bags		AV
TO-15 Canisters		T
Miscellaneous (not glass or plastic)		MI

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APPENDIX D, FRONT VIEW

PARADIGM

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

CHAIN OF CUSTODY

REPORT TO:	INVOICE TO:	
CLIENT:	CLIENT:	LAB PROJECT ID
ADDRESS:	ADDRESS:	
CITY: STATE: ZIP:	CITY: STATE: ZIP:	Quotation #:
PHONE:	PHONE:	Email:
ATTN:	ATTN:	

PROJECT REFERENCE

Matrix Codes:
AQ - Aqueous Liquid
NQ - Non-Aqueous Liquid
WA - Water
WG - Groundwater
DW - Drinking Water
WW - Wastewater
SO - Soil
SL - Sludge
SD - Solid
PT - Paint
WP - Wipe
CK - Caulk
OL - Oil
AR - Air

REQUESTED ANALYSIS

	DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS											REMARKS	PARADIGM LAB SAMPLE NUMBER
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Turnaround Time	Report Supplements	
Availability contingent upon lab approval; additional fees may apply.		
Standard 5 day ☐	Batch QC ☐	Basic EDD ☐
Rush 3 day ☐	Category A ☐	NYSDEC EDD ☐
Rush 2 day ☐	Category B ☐	
Rush 1 day ☐		
Other ☐ please indicate:	Other ☐ please indicate:	Other EDD ☐ please indicate:

Sampled By _______________ Date/Time

Relinquished By _______________ Date/Time

Received By _______________ Date/Time

Received @ Lab By _______________ Date/Time

Total Cost: ☐

P.I.F. ☐

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APPENDIX D, REVERSE

PARADIGM ENVIRONMENTAL SERVICES, INC.

GENERAL TERMS AND CONDITIONS
LABORATORY SERVICES

These terms and conditions embody the whole agreement of the parties in the absence of a signed and executed contract between the Laboratory (LAB) and Client. They shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties. The LAB specifically rejects all additional, inconsistent, or conflicting terms, whether printed or otherwise set forth in any purchase order or other communication from the Client to the LAB. The invalidity or unenforceability in whole or in part of any provision, term, or condition hereof shall not affect in any way the validity or enforceability of the remainder of Terms and Conditions. No waiver by LAB of any provision, term, or condition hereof or of any breach by or obligation of the Client hereunder shall constitute a waiver of such provision, term, or condition on any other occasion or a waiver of any other breach by or obligation of the Client. This agreement shall be administered and interpreted under the laws of the state which services are procured.

Warranty. Recognizing that the nature of many samples is unknown and that some may contain potentially hazardous components, LAB warrants only that it will perform testing services, obtain findings, and prepare reports in accordance with generally accepted analytical laboratory principles and practices at the time of performance of services. LAB makes no other warranty, express or implied.

Scope and Compensation. LAB agrees to perform the services described in the chain of custody which these terms and conditions are attached. Unless the parties agree in writing to the contrary, the duties of LAB shall not be construed to exceed the services specifically described.

Payment terms are net 30 days from the date of invoice. All overdue payments are subject to an interest charge of one and one-half percent (1-1/2%) per month or a portion thereof. Client shall also be responsible for costs of collection, including payment of reasonable attorney fees if such expense is incurred. The prices, unless stated, do not include any sale, use or other taxes. Such taxes will be added to invoice prices when required.

Prices. Compensation for services performed will be based on the current Lab Analytical Fee Schedule or on verbal quotations agreed to in writing by the parties.

Limitations of Liability. In the event of any error, omission, or other professional negligence, the sole and exclusive responsibility of LAB shall be to re-perform the deficient work at its own expense and LAB shall have no other liability whatsoever. All claims shall be deemed waived unless made in writing and received by LAB within ninety (90) days following completion of services.

Lab shall have no liability, obligation, or responsibility of any kind for losses, costs, expenses, or other damages (including but not limited to any special, direct, incidental or consequential damages) with respect to Lab's services or results.

All results provided by LAB are strictly for the use of its clients and LAB is in no way responsible for the use of such results by clients or third parties. All results should be considered in their entirety, and LAB is not responsible for the separation, detachment, or other use of any portion of these results.

Hazard Disclosure. Client represents and warrants that any sample delivered to LAB will be preceded or accompanied by complete written disclosure of the presence of any hazardous substances known or suspect by Client. Client further warrants that any sample containing any hazardous substance that is to be delivered to LAB will be packaged, labeled, transported, and delivered properly and in accordance with applicable laws.

Sample Handling. Prior to Lab's acceptance of any sample (or after any revocation of acceptance), the entire risk of loss or of damage to such sample remains with Client. Samples are accepted when receipt is acknowledged on chain of custody documentation. In no event will LAB have any responsibility for the action or inaction of any carrier shipping or delivered any sample to or from LAB premises.

Disposal of hazardous waste samples is the responsibility of the Client. If the Client does not wish such samples returned, LAB may add storage and disposal fees to the final invoice. Maximum storage time for samples is 30 days after completion of analysis unless modified by applicable state or federal laws. Client will be required to give the LAB written instructions concerning disposal of these samples.

Lab reserves the absolute right, exercisable at any time, to refuse to receive delivery of, refuse to accept, or revoke acceptance of any sample, which, in the sole judgment of LAB (a) is of unsuitable volume, (b) may be or become unsuitable for or may pose a risk in handling, transport, or processing for any health, safety, environmental or other reason whether or not due to the presence in the sample of any hazardous substance, and whether or not such presence has been disclosed to LAB by Client or (c) if the condition or sample date make the sample unsuitable for analysis.

Legal Responsibility. LAB is solely responsible for performance of this contract, except any obligation assigned pursuant to item #10, and no affiliated company, director, officer, employee, or agent shall have any legal responsibility hereunder, whether in contract or tort including negligence.

Assignment. LAB may assign its performance obligations under this contract to other parties, as it deems necessary. LAB shall disclose to Client any assignee (subcontractor) by ELAP ID # on the submitted final report.

Force Majeure. LAB shall have no responsibility or liability to the Client for any failure or delay in performance by LAB, which results in whole or in part from any cause or circumstance beyond the reasonable control of LAB. Such causes and circumstances shall include, but not limited to, acts of God, acts or orders of any government authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, difficulties or delays in transportation, mail or delivery services, inability to obtain sufficient services or supplies from Lab's usual suppliers, or any other cause beyond LAB's reasonable control.

Law. This contract shall be continued under the laws of the State of New York without regard to its conflicts of laws provision.

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Appendix D, Chain of Custody Supplement

PARADIGM

Chain of Custody Supplement

Client:	____________	**Completed by:**	____________
Lab Project ID:	____________	**Date:**	____________

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	*NELAC compliance with the sample condition requirements upon receipt* Yes	No	N/A
Container Type	☐	☐	☐
Comments ____________			
Transferred to method-compliant container	☐	☐	☐
Headspace (<1 mL)	☐	☐	☐
Comments ____________			
Preservation	☐	☐	☐
Comments ____________			
Chlorine Absent (<0.10 ppm per test strip)	☐	☐	☐
Comments ____________			
Holding Time	☐	☐	☐
Comments ____________			
Temperature	☐	☐	☐
Comments ____________			
Sufficient Sample Quantity	☐	☐	☐
Comments ____________			

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Appendix E

PARADIGM ENVIRONMENTAL SERVICES LABORATORY EQUIPMENT LIST

ASBESTOS

1	JEOL TEM-100CX Transmission Electron Microscope
1	SPI Plasma Prep II air filter asher/etcher
1	Denton Vacuum Carbon Coater
4	Olympus BH-2 Polarized/Phase Contrast Microscopes
2	Olympus Stereo Microscopes
2	Airfiltronix Hoods
2	Final Air Hoods
1	Thermolyne 4800 Furnace
1	Mettler Toledo Balance AB104
1	Quick Fix Acetone Vaporizer
1	BGI Acetone Vaporizer
2	Fisher Scientific 1'x1' Hot Plates

METALS

1	Perkin-Elmer Optima 7300 DV ICP Perkin-Elmer S10 Autosampler Computer with Windows NT and Perkin-Elmer Winlab Software, Printer Polyscience Chiller
1	Perkin-Elmer FIMS 100 Mercury Cold Vapor analyzer Perkin-Elmer As-44 Autosampler Computer with Windows NT and Perkin-Elmer Winlab software, Printer

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ORGANICS

1 Hewlett-Packard 6890 Gas Chromatograph
Hewlett-Packard 5973 Mass Spectrometer
EST Enchon Purge and Trap
EST 8100 Autosampler

1 Hewlett-Packard 5890 Gas Chromatograph
Electron Capture Detector / ECD
Hewlett-Packard 7673 Autosampler

1 Hewlett-Packard 5890 Gas Chromatograph
Flame Ionization Detector
Hewlett-Packard 7673 Autosampler

1 Agilent 6890 Gas Chromatograph
Agilent 5973 Mass Spectrometer
Agilent 7683 Autosampler

1 Agilent 6890 Gas Chromatograph with Micro ECD
Agilent 7683 Autosampler

MISCELLANEOUS

1 Shimadzu AUY220 Analytical Balance

1 Farberware Drying Oven

1 Thelco Model 6 Incubator

1 Market Forge Sterilmatic Autoclave

1 Fisher Accumet pH meter, Model 15

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MISCELLANEOUS CONTINUED

1	Hoodaire 6' Fume Hood
1	Kewaunee 6' Fume Hood
2	Fisher Scientific 1'x1' Hot Plates
2	Environmental Express SC154 Hot Block Digestors
1	Sonics and Materials 375 Watt Probe Sonicator
1	Setra EL-2000S Toploading Balance
1	Vortex Genie
1	FS3 Fisher Scientific Sonicator
1	Corning Scholar 171 Stirrer
1	VWR Scientific Turbidity Meter
1	Environmental Express 6 position TCLP Spinner
1	Labconco RapidVap
1	Orion Model 105 Conductivity Meter

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APPENDIX F – APPROVED TEST METHODS

Please refer to end of appendix for corresponding lab codes based on AB,

Category	***Method***	***Accrediting Body*** *Primary AB
Non-Potable Water		
• Semi-Volatiles	EPA 8270D	NY*
	EPA 625	NY*
• Volatiles	EPA 8260C	NY* OK
	EPA 624	NY*
• PCBs	EPA 8082A	NY*
	EPA 608	NY*
• Pesticides	EPA 8081B	NY*
	EPA 608	NY*
• Metals	EPA 6010C	NY*
	EPA 200.7 Rev. 4.4	NY*
	EPA 245.1 Rev. 3.0	NY*
	EPA 7470A	NY*
• Hardness	EPA200.7 Rev. 4.4	NY*
• Hydrogen Ion (pH)	EPA 9040B	Not currently an approvable test
	SM18-21 4500-HB	
• Conductivity	SM18-21 2510B	NY*
• Temperature	SM18-21 2550B	NY*
• Total Residual Chlorine	SM18-21 4500-CIG	Not currently an approvable test
• Turbidity	EPA 180.1 Rev. 2.0	NY*
• Prep Methods	EPA 3005A	NY*
	EPA 3510C	NY*
Air and Emissions		
• Metals	NIOSH 7300	NY*
• Asbestos Fibers	NIOSH 7400 A Rules	NY*
• Asbestos TEM	NIOSH 7402	NY*
	40 CFR 763 TEM APX A No. III	NY* NVLAP

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<u>**Solid and Hazardous Waste**</u>

• Semi-Volatiles	EPA 8270D	NY*		
• Pesticides	EPA 8081B	NY*		
• PCBs	EPA 8082A	NY*		
• Volatiles	EPA 8260C	NY*		
• Metals	EPA 6010C	NY*		
	EPA 7471B	NY*		
• DRO	EPA 8015D	NY*		
• GRO	EPA 8260C	NY*		
• Corrosivity	EPA 9045C	NY*		
• Ignitability	EPA 1010A, EPA 1030	NY*		
• pH	EPA 9045C	NY*		
• Asbestos Friable	EPA 600/M4/82/020	NY*	PA	NVLAP
	Item 198.1 of Manual	NY*		
• Asbestos PLM NOB	Item 198.6 of Manual	NY*		
• Asbestos TEM NOB	Item 198.4 of Manual	NY*		
• Prep Methods	EPA 3050B	NY*		
	EPA 3550C	NY*		
	EPA 3580A	NY*		
	EPA 3585	NY*		
	EPA 5030B	NY*		
	EPA 5035A-L	NY*		
	EPA 5035A-H	NY*		
	APP. 14.2 HUD JUNE 1995	NY*		
	EPA 1311	NY*		

NYS ELAP Lab ID# 10958
NVLAP Lab Code 200530-0
Oklahoma DEQ # 9983
Pennsylvania DEP Lab ID# 68-02351

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Attachment 4

Environmental Data Validation, Inc.
Qualification Package

CORPORATE QUALIFICATION

FOR

EDV, INC.
ENVIRONMENTAL DATA VALIDATION, INC.
1326 ORANGEWOOD AVENUE
PITTSBURGH, PA 15216
PHONE-412-341-5281
FAX- 412-571-1932
WEB PAGE: http://www.edv-inc.com

OVERVIEW

Environmental Data Validation Inc. (EDV, Inc) is a SBA certified small, woman-owned, disadvantaged, hub-zone data validation and consulting business specializing in analytical data validation, environmental consulting and total environmental quality. Our motto is to deliver quality work on a timely basis. Established in 1990, EDV, Inc has kept its pace with changes and procedures in the environmental arena.

EDV, Inc is a group of scientists who are specialized in chemical and radiochemical data validation, environmental health and safety consulting, occupational health and safety consulting, risk assessment, hazard assessment, exposure assessments, environmental health assessments, ecological risk assessments, epidemiological/environmental study design and quality consulting. Our consultants are from the academic arena or private sector and include; environmental scientists, epidemiologists, toxicologist, public health specialists and environmental engineers, chemists, biologists and health and safety specialists.

As part of our commitment to quality and the environment, EDV, Inc established an Environmental Management System based on the ISO 14000 standard and an Environmental Policy Statement; the blue print on which the company operates, and the basis for the environmental management system. The Environmental Policy Statement in integrated in our QA/QC program.

EDV Inc., has undertaken comprehensive professional assignments on various types of projects such as; Superfund {Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)}, Comprehensive Long-Term Environmental Action (Navy CLEAN), Special Analytical Service (SAS), National Pollutant Discharge Elimination System (NPDES) and Resource Conservation and Recovery Act (RCRA).

Some specific client experience includes; consulting work with universities and private sector clients; environmental work with US NEESA - Navy Clean Program, Army Corps of Engineers, State of NY, (NYSDEC), State of PA, State of WV, Air Force Center for Environmental Excellence (AFCEE), USEPA Regions I, II, III, IV, and V, and many private sector clients.

CURRICULUM VITAE

Maxine Wright-Walters, PhD

Educational Background

University of Pittsburgh	2008 PhD. Environmental and Occupational Health (EOH)/Environmental Health Sciences (EHS)
Graduate School of Public Health Pittsburgh, PA	Dissertation Topic: Exposure Concentrations of Pharmaceutical Estrogens and Xenoestrogens in Municipal Wastewater Treatment Plant Sources, the Aquatic Environment and an Aquatic Health Risk Assessment of Bisphenol-A: Implications for Wildlife and Public Health
Duquesne University Pittsburgh, PA	1997 MSc. Environmental Science & Management Internship: Allegheny County Emergency Preparedness, and Response Center, Pittsburgh PA
New York Institute of Technology, Old Westbury, NY	1989 BS, Chemistry,
University of Technology (College of Arts Science and Technology) Jamaica W.I.	1986 Diploma in Pharmacy Thesis: Antimicrobial Properties of the *Mimosa Pudica* and its effect on the *neissera gonorrhea* organism.

Additional Training

RAB Certified EMS Lead Auditor	1998
American Chemical Society's short course in Microwave Enhanced Chemistry	1997
ISO 14000 Lead Auditor	1997
ISO 9000 auditor	1997
PACS data Validation	1997
Radiochemistry	1989
Radioactivity safety	1989
OSHA 40hr Health and Safety	1987
Data Validation	1987

Employment History

1991-present President/Project Manager, EDV, Inc., PA

Responsible for the day to day operation and management of this small environmental consulting business. Duties include: Recruiting and mentoring of staff, budgeting, marketing, environmental consulting to include development of Data Quality Objectives (DQOs), development of QA/QC and laboratory training programs and manuals, laboratory auditing, remedial investigation/feasibility studies (RI/FS), QAPPs and SAPs development. Environmental Health Assessments and Risk Assessments, ISO 9000 consulting to include implementation, training and auditing of quality systems, ISO 14000 consulting to include implementation, training and auditing of Environmental Management Systems (EMS). Environmental Health and Occupational Safety training and consulting. Laboratory consulting to include development of Good Laboratory Practices (GLP), methods development, auditing and training. Data validation of all types of parameters such as volatile target compounds (TCL), semi-volatile target compounds, pesticide/PCBs, dioxins & furans, conventional general/wet chemistry, TAL metals, leachate and reactivity characteristics (TCLP) priority pollutants-metals & organics; radiological parameters including gross alpha/beta, gamma spectroscopy parameters; thermal ionization mass spectroscopy, fluorometric uranium,, alpha spectroscopy-strontium 89/90; alpha spectrometry- thorium-237, uranium-234, 238, neptunium-237, plutonium-238, 239, 240, americium-241 and curium-242, 243, 244 and, liquid scintillation counting parameters-tritium. QA/QC consulting under various programs such as CERCLA (superfund), RCRA and Brownfield. Sales, proposal writing, and general project management. Conduct training courses at college and professional levels in areas such as: QMS (ISO 900:2000), EMS (ISO 14001) implementation, Introduction to ISO 14001, ISO14001 Internal auditing, laboratory auditing, organic/inorganic and radiochemical data validation and many others.

1990-1991 Senior Chemist, Ecotek LSI, GA

As a senior chemist responsibilities included; method development, troubleshooting, writing of SOPs for Sample Preparation laboratory and QC department, writing of training manuals; QC compliance and surveillance audits; radiological and chemical data validation for parameters such gross alpha/beta, gamma spectroscopy parameters; thermal ionization mass spectroscopy, fluorometric uranium spectroscopy-strontium 89/90; alpha spectrometry- thorium-237, uranium-234, 238, neptunium-237, plutonium-238, 239, 240, americium-241 and curium-242, 243, 244 and, liquid scintillation counting parameters-tritium; volatile target compounds (TCL), semi-volatile target compounds, pesticide/PCBs, dioxins & furans, conventional general/wet chemistry, TAL metals, leachate and reactivity characteristics (TCLP) priority pollutants-metals & organics.

1989-1990 Chief Chemist/Safety Officer, Syosset Labs, NY.

Responsibilities for this position included Quality Control, research, method development and validations. Training of new chemists to ensure familiarity and understanding of USP and In House methods. Testing of raw materials, in-process and finished products to confirm non-compliant results obtained by other chemists. Monitor the set-up and testing of all stability samples. Familiar with FDA regulations. Write SOPs, implementation of a Health and Safety program. Ensure the general safety of the building and all its employees within as per OSHA guidelines.

1987-1989 QC Chemist, Nytest Environmental, Port Washington, NY.
As a QC chemist duties included; wet chemistry analysis, organic and inorganic sample extraction and preparation, preparation of base-neutral, acid and pesticide spikes. Analysis of organic compounds via GC/GCMS, data validation of organic compounds such as BNAs, VOAs, Pest/PCBs.

Research

"Antimicrobial Properties of the *Mimosa Pudica* and its effect on the *neissera gonorrhea* organism." Researched the Mimosa Pudica for its antimicrobial properties and looked at its effects on the *neissera gonorrhea* organism. This research was done in 1986 at the Microbiology Department of the University of the West Indies. It was a requirement for final year pharmacy students at the College of Arts Science and Technology.

Research in Organic Chemistry, investigating the different pathways in the synthesis of organic compounds with emphasis on Opium compounds. This Research was done in 1985-1986 at the College of Arts Science and Technology-Pharmacy Department.

Instrumentation research, working specifically with the Gas Chromatograph in determining the relationship between peak areas and concentrations of compounds. This research was done in 1988 and funded by the Life Science Department, New York Institute of Technology.

Professional Training/Teaching

Consad Research, Pittsburgh, PA
Risk Assessment Expert for Department of Labor (DOL) review of risk assessment best practices within various agencies of the Federal government. Consult on drafting an exposure factors and risk characterization handbook that will be used to assist DOL in its risk assessment practices. 2008

GlaxoSmithKline, Pittsburgh, PA
Implementation of a complete ISO 14001 EMS to include executive briefings, baseline assessment, identification of aspects and impacts and chemical inventory and waste management. Internal and Lead auditor EMS training. Environmental Health and Occupational Safety training and consulting. 2006.

United States Department of Energy -National Environmental Technology Laboratory (NETL**)**
ISO 14001 training course in Implementation, Identifying Aspects and Impacts and Internal and Lead auditing. Environmental Health and Safety training course. 2003.

Tech-Seal, WV
Implementation of a complete EHS program. Auditor internal auditor training. Implementation of an ISO 9000 Quality Management System.2002.

Jefferson Community College, OH
ISO14001/EHS Implementation Consulting and Auditing as part of an ISO9000/14000 Consortia provided by the college to local businesses in the Weirton, WV area. 1998-2002.

Cutler-Hammer Technology, Center, Pittsburgh, PA (A former Westinghouse/DOD facility)
Implementation of a complete ISO 14001 EMS to include; executive briefings, baseline assessment, identification of aspects and impacts, and waste management. Internal and Lead auditor EMS training. Environmental Health and Safety Implementation, training and consulting. Conducted Chemical inventory and audit. The site has been certified in ISO 9001 and 14001. 2001.

Cutler-Hammer, Horsehead, NY (A former Westinghouse/DOD facility):
Implementation of a complete ISO 14001 EMS to include executive briefings, baseline assessment, identification of aspects and impacts and waste management. Internal and Lead auditor EMS training. Environmental Health and Safety training and consulting. The site has been certified in ISO 9001 and 14001. 2001.

Curtiss-Wright, EMD, Cheswick, PA (A former Westinghouse/DOD facility)
Planned and implemented records management system for Marketing, Engineering, and Human Resources using standardized databases for all functions. 2001.

Graduate Appointments

Graduate Assistant: Research Assistant for the Center for Healthy Communities. 2008

Graduate Assistant: Research Assistant for the Community Awareness Allegheny River Stewardship Project. 2007-2008

Graduate Research Assistant: Teaching and Research Assistant for the department of Environmental and Occupational Health 2001-2007

Public Teaching Experience (Public Courses)

Organic Data Validation, 1999-2006
Environmental Health and Safety Program Implementation, 1997-2007
Inorganic/Inorganic Data Validation, 1999-present
Radiochemical Data Validation, 2000-2006
ISO 14001 Implementation, 2002-2005
Environmental Management Systems Auditing, 2000-2004
Quality Management Systems, 2002

Academic Teaching Experience

University of Pittsburgh, PA. Co-Presenter/Co-Instructor: Community Awareness Presentation of the Allegheny River Stewardship Project, Alle-Kiski Health Foundation, Heinz Endowments and Highmark Foundation, 2007

University of Pittsburgh, PA. Guest Lecturer. Exposure Assessment, 2007

University of Pittsburgh, PA. Guest Lecturer. Dose-response Assessment, 2007

University of Pittsburgh, PA. Guest lecturer. Exposure Assessment for Baseline Risk Assessment for Superfund Sites, 2005

University of Pittsburgh, PA. Guest Lecturer. Risk Assessment. 2004-2005

University of Pittsburgh, PA. Guest Lecturer. Risk Communication. 2005

University of Pittsburgh, PA. Guest Lecturer. Chemical Fate and Transport in the Environment, 2004-2005

Duquesne University, PA. Co-instructor. Environmental Management Systems, 1998

Jefferson Community College, OH. Guest Lecturer. ISO 14000 Implementation. 1998-1999

Publication

Maxine Wright-Walters and Conrad Volz. Exposure of aquatic receptors to Bisphenol A: Evidence that current risk models may not be sufficiently protective. Ohio River Basin Conference, Pittsburgh,2008.

Maxine Wright-Walters and Conrad Volz. Pharmaceutical Estrogens and Xeno Estrogens in Municipal Wastewater Treatment Plants: Implications for Wildlife and Humans. Third National Conference on Environmental Science and Technology. North Carolina A&T State University on September, 2007.pp.80. Abstracts Issue.

Maxine Wright-Walters and Conrad Volz. Pharmaceutical Estrogens and Xeno Estrogens in Municipal Wastewater Treatment Plants: Implications for Wildlife and Humans. "Proceedings of the 2007 National Conference on Environmental Science and Technology", p 103-113. Springer 2009.

Volz, CD**.,** Dabney, B.,Cohen, P., Cude, C., Dooly, I., Kyprianou, R., Malecki, K., Richter, W., Schulman, A., Shaw, S., Vanderslice, J., **Walters, M**., and Vyas, V., September 2007. Handling Left Censored Water Contaminant Data for Descriptive Statistics and (CDC), Environmental Public Health Tracking Network (EPHT) from the Water Working Group, Non-Detect Subgroup**.**

R.S. Carruth; **M. Wright-Walters**; N. B. Sussman; B.D. Goldstein. The Use of Relative Risk Greater Than 2.0 in the American Court System. August 2004. International Society of Environmental Epidemiology (ISEE) Conference Proceedings, New York, NY.

Maxine M. Wright-Walters, Nancy B. Sussman, Roger S. Day, Russellyn S. Carruth and Bernard D. Goldstein An Alternative Approach to Determining the Legal Criterion of "More likely than Not" in the Absence of Statistical Significance December 2004. Society of Risk Analysis (SRA) Conference Proceedings, Baltimore, MD.

Charles Tomljanovic, **Maxine Wright-Walters** & Jules Stephensky Anthropogenic Electromagnetic Fields (EMFs) and Cancer: A Perspective. "Risk: Health Safety & Environment "- Vol 8. Pp 287-289. Summer 1997.

Additional Skill

Knowledge and ability to operate the following instruments: GC, GC/MS, ICPMS, HPLC, AA, Potentiometer, Osmometer, Ion Analyzer, UV/IR Spectrophotometer, Mass Spectrophotometer and GPC (automated and manual). Knowledge in ISO 9000, ISO 14000 and regulatory programs such as CWA, CAA, TSCA, FIFRA RCRA, NEPA and CERCLA. Familiar with FDA, DOD, DOE and other federal programs. Proficient in the use of Statistical programs such as SAS and Stata.

Professional Affiliation

Member of the American Chemical Society
Member of the Air and Waste Management Association.
Member of the American Society for Quality
Society of Risk Analysis

Attachment 5

Passive Diffusion Bag Sampling Log

300, 304-308 Andrews Street and 25 Evans Street
Rochester, NY
NYSDEC Site #E828144

Pasive Diffusion Bag Sampling Log

Well Designation	Date of Field Measurements	Condition of Well	Static Water Level from Top of Casing (ft)	Visual Color of Bailer Sample	Date of Passive Diffusion Bag (PDB) Deployment	Depth Below Ground Surface (BGS) of Centerpoint of PDB	Date of PDB Retrieval	Condition of Retrieved PDB Sampler
Overburden Wells								
MW-01								
MW-02								
MW-03A								
MW-04								
MW-05								
MW-06								
MW-07								
MW-08								
MW-09								
MW-10								
MW-11								
MW-12								
MW-13								
MW-14								
MW-15								
MW-16								
MW-17								
MW-18								
MW-19								
MW-20								
MW-21								
Bedrock Wells								
MW-01R								
MW-02R								
MW-04R								
MW-05R								
MW-06R								
MW-07R								
MW-09R								
MW-10R								
MW-14R								

Attachment 6

Chemtech List of TCL VOCs and Associated Detection Limits for Water Samples

Chemtech List of TCL VOCs
and Associated Detection Limits
for Water Samples

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8260B/C/5030B	Water	630-20-6	1,1,1,2-Tetrachloroethane	0.43	0.5	5
8260B/C/5030B	Water	71-55-6	1,1,1-Trichloroethane	0.4	0.75	5
8260B/C/5030B	Water	79-34-5	1,1,2,2-Tetrachloroethane	0.31	0.5	5
8260B/C/5030B	Water	79-00-5	1,1,2-Trichloroethane	0.38	0.5	5
8260B/C/5030B	Water	76-13-1	1,1,2-Trichlorotrifluoroethane	0.45	0.5	5
8260B/C/5030B	Water	75-34-3	1,1-Dichloroethane	0.36	0.5	5
8260B/C/5030B	Water	75-35-4	1,1-Dichloroethene	0.47	0.5	5
8260B/C/5030B	Water	563-58-6	1,1-Dichloropropene	0.39	0.5	5
8260B/C/5030B	Water	87-61-6	1,2,3-Trichlorobenzene	0.2	0.5	5
8260B/C/5030B	Water	96-18-4	1,2,3-Trichloropropane	0.5	0.5	5
8260B/C/5030B	Water	120-82-1	1,2,4-Trichlorobenzene	0.2	0.5	5
8260B/C/5030B	Water	95-63-6	1,2,4-Trimethylbenzene	0.38	0.5	5
8260B/C/5030B	Water	96-12-8	1,2-Dibromo-3-Chloropropane	0.46	2	5
8260B/C/5030B	Water	106-93-4	1,2-Dibromoethane	0.41	0.5	5
8260B/C/5030B	Water	95-50-1	1,2-Dichlorobenzene	0.45	0.5	5
8260B/C/5030B	Water	107-06-2	1,2-Dichloroethane	0.48	0.75	5
8260B/C/5030B	Water	78-87-5	1,2-Dichloropropane	0.46	0.5	5
8260B/C/5030B	Water	108-67-8	1,3,5-Trimethylbenzene	0.46	0.5	5
8260B/C/5030B	Water	541-73-1	1,3-Dichlorobenzene	0.43	0.5	5
8260B/C/5030B	Water	142-28-9	1,3-Dichloropropane	0.35	0.5	5
8260B/C/5030B	Water	106-46-7	1,4-Dichlorobenzene	0.32	0.5	5
8260B/C/5030B	Water	594-20-7	2,2-Dichloropropane	0.2	0.5	5
8260B/C/5030B	Water	78-93-3	2-Butanone	1.32	2.5	25
8260B/C/5030B	Water	110-75-8	2-Chloroethyl vinyl ether	1.79	2.5	25
8260B/C/5030B	Water	95-49-8	2-Chlorotoluene	0.43	0.5	5
8260B/C/5030B	Water	591-78-6	2-Hexanone	1.94	3.75	25
8260B/C/5030B	Water	95-49-8	4-Chlorotoluene	0.42	0.5	5
8260B/C/5030B	Water	108-10-1	4-Methyl-2-Pentanone	2.1	2.5	25
8260B/C/5030B	Water	67-64-1	Acetone	0.5	2.5	25
8260B/C/5030B	Water	107-02-8	Acrolein	0.5	5	25
8260B/C/5030B	Water	107-13-1	Acrylonitrile	1.76	2.5	25
8260B/C/5030B	Water	71-43-2	Benzene	0.32	0.5	5
8260B/C/5030B	Water	108-86-1	Bromobenzene	0.2	0.5	5
8260B/C/5030B	Water	74-97-5	Bromochloromethane	0.2	0.5	5
8260B/C/5030B	Water	75-27-4	Bromodichloromethane	0.36	0.5	5
8260B/C/5030B	Water	75-25-2	Bromoform	0.47	0.5	5
8260B/C/5030B	Water	74-83-9	Bromomethane	0.2	0.5	5
8260B/C/5030B	Water	75-15-0	Carbon disulfide	0.2	0.5	5
8260B/C/5030B	Water	56-23-5	Carbon Tetrachloride	0.2	0.5	5
8260B/C/5030B	Water	108-90-7	Chlorobenzene	0.49	0.5	5
8260B/C/5030B	Water	75-00-3	Chloroethane	0.2	0.5	5
8260B/C/5030B	Water	67-66-3	Chloroform	0.34	0.5	5
8260B/C/5030B	Water	74-87-3	Chloromethane	0.2	0.5	5
8260B/C/5030B	Water	156-59-2	cis-1,2-Dichloroethene	0.35	0.5	5
8260B/C/5030B	Water	10061-01-5	cis-1,3-Dichloropropene	0.31	0.5	5
8260B/C/5030B	Water	110-82-7	cyclohexane	0.2	0.5	5
8260B/C/5030B	Water	124-48-1	Dibromochloromethane	0.263	0.5	5
8260B/C/5030B	Water	74-95-3	Dibromomethane	0.44	0.5	5
8260B/C/5030B	Water	75-71-8	Dichlorodifluoromethane	0.2	0.5	5
8260B/C/5030B	Water	60-29-7	Diethyl Ether	0.27	2	5
8260B/C/5030B	Water	100-41-4	Ethyl Benzene	0.2	0.5	5
8260B/C/5030B	Water	67-72-1	Hexachloroethane	0.2	0.5	5
8260B/C/5030B	Water	87-68-3	Hexachlorobutadiene	0.2	0.5	5
8260B/C/5030B	Water	98-82-8	Isopropylbenzene	0.45	0.5	5
8260B/C/5030B	Water	136777-61-2	m/p-Xylenes	0.95	1	10
8260B/C/5030B	Water	79-20-9	Methyl Acetate	0.2	2	5
8260B/C/5030B	Water	1634-04-4	Methyl tert-butyl Ether	0.35	0.5	5
8260B/C/5030B	Water	108-87-2	Methylcyclohexane	0.2	0.5	5
8260B/C/5030B	Water	75-09-2	Methylene Chloride	0.41	0.5	5
8260B/C/5030B	Water	91-20-3	Naphthalene	0.2	0.5	5
8260B/C/5030B	Water	104-51-8	n-Butylbenzene	0.41	0.5	5
8260B/C/5030B	Water	103-65-1	N-propylbenzene	0.45	0.5	5

Chemtech List of TCL VOCs
and Associated Detection Limits
for Water Samples

8260B/C/5030B	Water	95-47-6	o-Xylene	0.43	0.5	5
8260B/C/5030B	Water	99-87-6	p-Isopropyltoluene	0.43	0.5	5
8260B/C/5030B	Water	135-98-8	Sec-butylbenzene	0.46	0.5	5
8260B/C/5030B	Water	100-42-5	Styrene	0.36	0.5	5
8260B/C/5030B	Water	10061-02-6	t-1,3-Dichloropropene	0.29	0.5	5
8260B/C/5030B	Water	27975-78-6	Tert butyl alcohol	0.5	2.5	25
8260B/C/5030B	Water	98-06-6	tert-Butylbenzene	0.44	0.5	5
8260B/C/5030B	Water	127-18-4	Tetrachloroethene	0.27	0.5	5
8260B/C/5030B	Water	108-88-3	Toluene	0.37	0.5	5
8260B/C/5030B	Water	156-60-5	trans-1,2-Dichloroethene	0.41	0.5	5
8260B/C/5030B	Water	79-01-6	Trichloroethene	0.28	0.5	5
8260B/C/5030B	Water	75-69-4	Trichlorofluoromethane	0.35	0.5	5
8260B/C/5030B	Water	108-05-4	Vinyl Acetate	1.05	2.5	25
8260B/C/5030B	Water	75-01-4	Vinyl chloride	0.34	0.5	5

Attachment 7

Chemtech Recommended Containers, Preservation Techniques, and Holding Times for CLP/ASP Analyses

APPENDIX C

Water Sampling and Holding Time Information

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Turbidity	180.1	2130B	Cool, 4 deg C	P or G	48 Hrs	100 mL
Nitrate	300	-----	Cool, 4 deg C	P or G	48 Hrs	250 mL
Nitrate-Nitrite	300	-----	Cool to 4 deg C, Conc. H_2SO_4 to pH<2	P or G	28 Days	250 mL
Fluoride	300	4500 F-C	Cool, 4 deg C	P or G	28 Days	300 mL
Cyanide	-----	4500-CN C&E	Cool, 4 deg C 50%NaOH pH>12	P or G	14 Days	500 mL
Sulfate	300	4500-SO4 E	Cool, 4 deg C	P or G	28 Days	50 mL
Total Dissolved Solids	-----	2540C	Cool, 4 deg C	P or G	7 Days	100 mL
Calcium	200.7	-----	1:1 HNO_3 to pH<2	P or G	6 Months	100 mL
Calcium-Hardness	200.7	-----	1:1 HNO_3 to pH<2	P or G	6 Months	100 mL
Alkalinity	-----	2320B	Cool, 4 deg C	P or G	14 Days	100 mL
Bromide	300	-----	None	P or G	28 Days	250 mL
Chloride	300	4500-CL C	Cool, 4 deg C	P or G	28 Days	100 mL
Chlorite	300	-----	1mL EDA to 1L Cool, 4 deg C	P or G	14 Days 10 mins	250 mL
Color	-----	2120B	Cool, 4 deg C	P or G	24 Hrs	100 mL
Foaming Agents (MBAS)	-----	5540C	Cool, 4 deg C	P or G	48 Hrs	250 mL
Odor	-----	2150B	Cool, 4 deg C	G only	24 Hrs	200 mL
Conductivity	120.1	2510B, 9050A	Cool, 4 deg C	P or G	28 Days	100 mL
Silica	200.7	-----	Cool, 4 deg C	P only	7 Days	50 mL
Ortho Phosphate	300	4500 P-E	Cool, 4 deg C	P or G	48 Hrs	50 mL
Chlorine, Residual Disinfectant	-----	4500Cl-G	None	P or G	15 minutes	200 mL
pH, Hydrogen ion	-----	4500-H-B	None	P or G	15 minutes	25 mL
Temperature	-----	2550B	None	P or G	15 minutes	1000 mL
Volatiles (Regulated)	524.2	-----	Cool, 4 deg C 1:1 HCl to pH<2	G, screw cap Teflon faced silicone septum	14 Days	60-120 mL

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Acidity as $CaCO_3$	-----	ASTM D1067-92	Cool, 4 deg C	P or G	14 Days	100 mL
Alkalinity as $CaCO_3$	-----	2320B	Cool, 4 deg C	P or G	14 Days	100 mL
Ammonia	-----	4500-NH3 H	Cool, 4 deg C, Conc. H_2SO_4 to pH<2	P or G	28 Days	400 mL
Biochemical Oxygen Demand	-----	5210B	Cool, 4 deg C	P or G	24 Hrs.	1000 mL
Carbonaceous BOD	-----	5210B	Cool, 4 deg C	P or G	24 Hrs.	1000 mL
Cyanide	-----	9012A	Cool 4 deg C, 50% NaOH to pH>12 0.6 g ascorbic acid if residual chlorine present	P or G	Sulfide absent: 14 Days (Sulfide Present 24 Hrs.)	500 mL
Cyanide, Amenable	-----	4500-CN C,G	Cool 4 deg C, 50% NaOH to pH>12 0.6 g ascorbic acid if residual chlorine present	P or G	Sulfide absent: 14 Days (Sulfide Present 24 Hrs.)	500 mL
Acid Soluble & Insoluble Sulfide	-----	9030B	2N Zn Acetate, 6N NaOH to pH > 9, Cool, 4 deg C	P or G	7 Days	8 oz.
Total Hardness	200.7	-----	HNO_3 to pH<2	P or G	6 Months	100 mL
Total Kjeldahl Nitrogen	-----	4500-N OrgBorC	Cool, 4 deg C Conc. H_2SO_4 to pH<2	P or G	28 Days	500 mL
Oil & Grease	-----	1664A	Cool 4 deg C, 1:1 HCL or conc. H_2SO_4 to pH<2	G	28 Days	1000 mL
Orthophosphate	300	4500-P E	Filter immediately, Cool 4 deg C	P or G	48 Hrs.	50 mL
Phenols	420.1	9065	Cool 4 deg C, Conc. H_2SO_4 to pH<2	G	28 Days	500 mL
Total Phosphorus	365.3	-----	Cool 4 deg C, Conc. H_2SO_4 to pH<2	G	28 Days	50 mL
Total-Residue (TS)	-----	2540 B	Cool, 4 deg C	P or G	7 Days	100 mL
Residue-filtered (TDS)	-----	2540 C	Cool, 4 deg C	P or G	7 Days	100 mL
Residue-non-filtered (TSS)	-----	2540 D	Cool, 4 deg C	P or G	7 Days	100 mL

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Residue-Settleable (SS)	-----	2540 F	Cool, 4 deg C	P or G	48 Hrs.	1000 mL
Residue-Volatile	160.4	-----	Cool, 4 deg C	P or G	7 Days	100 mL
Salinity	-----	2520 C	Cool, 4 deg C	G	28 Days	100 mL
Specific Conductance	120.1	2510B, 9050A	Cool, 4 deg C	P or G	28 Days	100 mL
Sulfate	300	4500-SO4 E	Cool, 4 deg C	P or G	28 Days	50ml
Sulfide	-----	9034	Cool 4 deg C, add 2N Zinc Acetate + 6N NaOH to pH>9	P or G	7 Days	50 mL
Sulfite (SO3)	-----	4500-SO3 B	Fix cooled samples (<50°C) immediately by adding 1mL EDTA soln./100mL sample	G, Bottle and Top	15 minutes	50 mL
Temperature	-----	2550 B	None Required	G, Bottle and Top	15 minutes	1000 mL
Metals	200.7	-----	1:1 HNO_3 to pH<2	G	6 Months	100 mL
Mercury	-----	7470A	Cool, 4 deg C	P or G	28 Days	8 oz.
Organochlorine Pesticides/PCB	608	8081A/N,8082/ 8082A	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present , Adjust to pH 5-9 with 10N NaOH or 1:1 H2SO4	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	1000 mL
Volatile Organics	624	8260B/C	Cool, 4 deg C 4 drops 10% $Na_2S_2O_3$ if residual chlorine present 1:1 HCl to pH <2	G, Vial screw cap with center hole Teflon-faced silicone septum	7 days without HCl 14 days with HCl	40 mL
Semi volatile Organics	625	8270C/D	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	1000 mL
DRO	-----	8015B	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	1000 mL
COD	-----	SM5220D	Cool, 4 deg C H2SO4 to pH<2	P	28 Days	1000 mL
TOC	-----	SW9060 Lloyd Kahn	Cool, 4 deg C HCl or H2SO4 to pH<2	P	28 days 14 days	1000 mL
Herbicide	-----	SW8151	Cool, 4 deg C	G, Amber	7 days until extraction 40 days after extraction	1 L

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
GRO	-----	8015B	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present 1:1 HCl to pH <2	G, Vial screw cap with center hole Teflon-faced silicone septum	7 days without HCl 14 days with HCl	40 mL
Gases	-----	3810	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present 1:1 HCl to pH <2	G, Vial screw cap with center hole Teflon-faced silicone septum	7 days without HCl 14 days with HCl	40 mL
HPLC (Explosive)	-----	8330A/B	Cool, 4 deg C	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	1000mL
Hexavalent Chromium	-----	3500 Cr D	Cool, 4 deg C	P	24 Hrs.	100mL
Ferrous Iron	-----	HACH 8146	Cool, 4 deg C	Amber G	24 Hrs.	250mL
RSK 175	-----	RSK 175	Cool, 4 deg C 1:1 H2SO4 or HCl to ph<2	G, Vial screw cap with center hole Teflon-faced silicone septum	14 days	40 mL
Formaldehyde	-----	HACH 8110	Cool, 4 deg C	P	Analyze Immediately within 48hrs	1000mL
Ferrous Iron	-----	HACH 8146 SM3500	Cool, 4 deg C	P	Analyze Immediately within 48hrs	1000mL
Chemical Warfare Agents	-----	8270-modified	Cool, 4 deg C	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	1000mL
Glycols	-----	Chemtech SOP	Cool, 4 deg C	G	28 days	100mL
Perchlorate	314.0	-----	-----	P or G	28 days	500mL

Container Key: P = Plastic
G =Glass
DW= Drinking Water

Soil/Hazardous Waste Sampling and Holding Time Information

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Ignitability	-----	1010	None	P or G	None	8 oz.
Ignitability of Solids	-----	1030	None	P or G	None	8 oz.
Corrosivity pH Waste>20% water	-----	9040B	Cool, 4 deg C	P	15 minutes	4 oz.
Corrosivity Toward Steel	-----	1110	Cool, 4 deg C	P	14 Days	4 oz.
Reactivity Cyanide	-----	SW-846 7.3.3.2	Cool, 4 deg C	P	14 Days	8 oz.
Reactivity Sulfide	-----	SW-846 7.3.4.2	Cool, 4 deg C	P	14 Days	8 oz.
TCLP Volatile Organics	-----	1311	Cool, 4 deg C	G	14 Days to TCLP extraction, 14 days to analysis	4 oz.
TCLP Metals	-----	1311	Cool, 4 deg C	G	180 Days to TCLP extraction, 180 days to analysis	16 oz
TCLP Mercury	-----	1311	Cool, 4 deg C	G	28 Days to TCLP extraction, 28 days to analysis	16 oz
TCLP Semi volatiles	-----	1311	Cool, 4 deg C	G	14 Days to TCLP extraction, 7 days to extraction, 40 days to analysis	16 oz
TCLP Pesticides and Herbicides	-----	1311	Cool, 4 deg C	G	14 Days to TCLP extraction, 7 days to extraction, 40 days to analysis	16 oz
PH	-----	9040B, 9041A, 9045C	Cool, 4 deg C	P	15 minutes	4 oz.

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Temperature	-----	2550 B	-----	P	15 minutes	4 oz.
Metals	-----	6010B/C	Cool, 4 deg C	P or G	6 Months	8 oz.
Mercury	-----	7471A	Cool, 4 deg C	P or G	28 Days	8 oz.
Organochlorine Pesticides	-----	8081A/B	Cool, 4 deg C	P or G	14 Days for extraction, 40 days to analysis	8 oz.
PCB's	-----	8082/8082A	Cool, 4 deg C	P or G	14 Days for extraction, 40 days to analysis	8 oz.
Chlorinated Herbicides	-----	8151A	Cool, 4 deg C	G, wide mouth, Teflon liner	14 Days	8 oz.
Volatile Organics	-----	8260B/C	Cool, 4 deg C	G, wide mouth, Teflon liner	14 Days	4 oz.
Semi volatile Organics	-----	8270C/D	Cool, 4 deg C	Amber Glass	14 Days to extraction, 40 days to analysis	8 oz.
Total Cyanide	-----	9012A	Cool, 4 deg C	P or G	14 Days	8 oz.
Amenable Cyanide	-----	9010B	Cool, 4 deg C	P or G	14 Days	8 oz.
Acid Soluble & Insoluble Sulfide	-----	9030B	Cool, 4 deg C No Headspace	P or G	7 Days	8 oz.
Extractable Sulfide	-----	9031	Cool, 4 deg C Fill solid surface with 2N Zinc Acetate until moistened, 4 drops 2N Zinc Acetate/100mL sample, 50%NaOH to pH>9	P or G	7 Days	8 oz.
Sulfate	-----	9038, 9056	Cool, 4 deg C	P or G	28 Days	8 oz.
pH, Soil and Waste	-----	9045C	Cool, 4 deg C	G	15 minutes	8 oz.

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Phenol	-----	9065	Cool 4 deg C	G	28 Days	8 oz.
Oil & Grease (Sludge, Sludge-Hem)	-----	9071B	Cool 4 deg C	G	28 Days	8 oz.
Paint Filter Liquids Test	-----	9095	Cool, 4 deg C	P or G	-----	8 oz.
Nitrate	-----	9056	Cool, 4 deg C	P or G	48 Hrs	8 oz.
Bromide	-----	9056	Cool, 4 deg C	P or G	28 Days	8 oz.
Chloride	-----	9056	None	P or G	28 Days	8 oz.
Fluoride	-----	9056, 9214	None	P	28 Days	8 oz.
Cation-Exchange Capacity	-----	9080, 9081	Cool, 4 deg C	P	-----	8 oz.
DRO	-----	8015B	Cool, 4 deg C	Amber Glass	14 Days to extraction, 40 days to analysis	8 oz.
GRO	-----	8015B	Cool, 4 deg C	G, wide mouth, Teflon liner	14 Days	4 oz.
Gases	-----	3810	Cool, 4 deg C	Amber Glass	14 Days	8 oz.
Hexavalent Chromium	------	3060, 7196A	Cool, 4 deg C	P	30 Days to extraction, 7 days to analysis	4 oz.
Explosives	------	8330A/B	Cool, 4 deg C	Amber Glass	14 Days to extraction, 40 days to analysis	16 oz.
TOC	-----	SW9060 Lloyd Kahn	Cool, 4 deg C	G	28 Days 14 Days	8 oz.
Herbicide	-----	SW8151	Cool, 4 deg C	G	14 Days to extraction, 40 days to analysis	4 oz.
Formaldehyde	-----	HACH 8110	Cool, 4 deg C	G	Analyze Immediately within 48hrs	4 oz.
Ferrous Iron	-----	HACH 8146 SM3500	Cool, 4 deg C	G	Analyze Immediately within 48hrs	4 oz.
Chemical Warfare Agents	-----	8270-modified	Cool, 4 deg C	G	14 days until extraction 40 days after extraction	8 oz.

Grain Size	-----	ASTM D422	-----	P or G	-----	4 oz.

CLP Sampling and Holding Time Information

Parameter	EPA Method	Preservation	Container	Holding Time	Minimum Volume
METALS (aqueous)	ILM05.3 ILM05.4 ISM01.2	HNO_3 to pH<2, Cool 4deg C	P	180 Days from VTSR	1000ml
CYANIDE (aqueous)	ILM05.3 ILM05.4 ISM01.2	NaOH to pH>12, Cool 4deg C	P	12 Days from VTSR	1000ml
MERCURY (aqueous)	ILM05.3 ILM05.4 ISM01.2	HNO_3 to pH<2, Cool 4deg C	P	26 Days from VTSR	1000ml
VOLATILE ORGANICS (aqueous)	OLM04.3, SOM01.X	HCL pH < 2, Cool 4deg C	G	10 Days from VTSR with preservative, 7 Days from VTSR without preservative	40ml
SEMI-VOLATILE ORGANICS (aqueous)	OMLO4.3, SOM01.X	Cool 4deg C	G	5 Days from VTSR for extraction 40 Days after extraction	1000ml
PESTICIDES (aqueous)	OLM04.3, SOM01.X	Cool 4deg C	G	5 Days from VTSR for extraction 40 Days after extraction	1000ml
PCBs (aqueous)	OLM04.3, SOM01.X	Cool 4deg C	G	5 Days from VTSR for extraction 40 Days after extraction	1000ml
METALS (solid/soils)	ILM05.3 ILM05.4 ISM01.2	Cool 4deg C	G	180 Days from VTSR	8 oz
*CYANIDE	ILM05.3 ILM05.4 ISM01.2	Cool 4deg C	G	12 Days from VTSR	8 oz
MERCURY (solid/soils)	ILM05.3 ILM05.4 ISM01.2	Cool 4deg C	G	26 Days from VTSR	8 oz
VOLATILE ORGANICS (solid/soils)	OLM04.3, SOM01.X	Cool 4deg C	G	10 Days from VTSR	4 oz
SEMI-VOLATILE ORGANICS (solid/soils)	OLM04.3, SOM01.X	Cool 4deg C	G	10 Days from VTSR for extraction 40 Days after extraction	8 oz
PESTICIDES (solid/soils)	OLM04.3, SOM01.X	Cool 4deg C	G	10 Days from VTSR for extraction 40 Days after extraction	8 oz
PCBs (solid/soils)	OLM04.3, SOM01.X	Cool 4deg C	G	10 Days from VTSR for extraction 40 Days after extraction	8 oz

*When chlorine is present ascorbic acid is used to remove the interference (0.6 g ascorbic acid)

Note: Unpreserved soil samples must be refrigerated at a temperature of –7 degC (±2 degC)