REMEDIAL INVESTIGATION/REMEDIAL ALTERNATIVES ANALYSIS WORK PLAN

300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET ROCHESTER, NEW YORK 14604

NYSDEC SITE #E828144

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Project No.: 4355S-10

Date: August 2011

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I, Nathan E. Simon, certify that I am currently a NYS registered professional engineer and that this Remedial Investigation/Remedial Alternatives Analysis Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

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1.0 INTRODUCTION

This Remedial Investigation/Remedial Alternatives Analysis (RI/RAA) Work Plan (RI/RAA Work Plan) was prepared by Day Environmental, Inc. (DAY) and Lu Engineers (LU), further identified as the "Team", for four adjacent parcels with a combined area of approximately 1.49 acres located at 300, 304-308, 320 Andrews Street and 25 Evans Street, City of Rochester, County of Monroe, New York (Site). A Project Locus Map is provided as Figure 1. The RI/RAA will be implemented under the New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Program (ERP) (Site # E828144). The Work Plan was prepared based on knowledge of the Site conditions provided in the ERP Application, Site conditions documented during demolition of existing Site structures, and the applicable NYSDEC guidance documents including, but not limited to, "DER-10, Technical Guidance for Site Investigation and Remediation" dated May 2010 and the NYSDEC "Municipal Assistance Environmental Restoration Projects 'Brownfield Program' Procedures Handbook" dated July 2004.

The Work Plan summarizes the known environmental conditions that exist at the Site, presents the investigation approach, quality control procedures, and scope of work for the completion of the Remedial Investigation (RI). A site-specific Health and Safety Plan (HASP) including a Community Air Monitoring Plan (CAMP), and a Quality Assurance Project Plan (QAPP), are included as RI/RAA Work Plan Appendices A and B, respectively. Implementation of the work described in this RI/RAA Work Plan will result in greater understanding of the environmental impacts to the subsurface soil, underground utilities, soil vapor, and groundwater associated with the historic use of the Site. There is no exposed surface soil at the Site (i.e., Site is covered with select crushed stone). The findings of the RI will assist in determination of appropriate remedial measures to address the identified environmental impacts. In addition, this RI/RAA Work Plan presents a summary of the scope of work to be conducted as Interim Remedial Measures (IRMs) in two suspected contaminant source areas. A separate IRM Work Plan(s) with details on the scope of work to be performed will be prepared and submitted for regulatory agency approval. Completion of a remedial Alternatives Analysis is also included as part of the scope of work presented in this RI/RAA Work Plan.

1.1 Proposed Future Use of Site

The Site is located in the Rochester Center City District (CCD). According to the City's Neighborhood and Business Development Department, future redevelopment of the Site is anticipated to consist of mixed residential and commercial use. Based on the CCD zoning, the proposed mixed-use development scenario, the urban setting of the Site, and NYSDEC requirements, soil sample analytical results will be compared to NYSDEC Part 375 Soil Cleanup Objectives (SCOs) for: 1) Unrestricted Use; 2) Restricted-Residential Use; 3) Restricted Commercial Use; and 4) the Protection of Groundwater.

1.2 Objectives

The RI objectives are listed below:

- Define the nature and extent of contamination, both on-site and off-site;
- Identify contaminant source areas;

- Evaluate a range of remedial alternatives, including the planned IRMs, to enable the preparation of a Proposed Remedial Action Plan (PRAP) and Record of Decision (ROD);
- Produce data of sufficient quantity and quality for remedial decision-making;
- Identify and characterize soil contamination, which may be acting as contaminant source areas. Delineate the areal and vertical extent of soil contamination, which may be leaching to and impacting groundwater quality at the Site. Of particular importance is to evaluate and scope potential IRMs, which could be utilized to potentially remediate highly contaminated soil source areas present in the unsaturated zone.
- Evaluate and characterize the extent and magnitude of groundwater contamination at the Site, including but not limited to dissolved phase volatile organic compounds (VOCs).
- Evaluate the presence of dense non-aqueous phase liquid (DNAPL) in soil, groundwater and bedrock;
- Describe the volume, concentration, persistence, mobility, state, and other significant characteristics of the contamination present both on-site and off-site;
- Evaluate the presence or potential for soil vapor to impact receptors or buildings;
- Determine the extent to which natural or anthropogenic barriers currently contain or impact migration or mobility of the contamination;
- Define the extent to which the contaminants have migrated or are expected to migrate and whether future migration may pose a threat to human health or the environment;
- Perform an exposure assessment to identify potential routes of exposure, populations and environmental receptors at risk;
- Define hydrogeologic factors (e.g., soil permeability, depth to saturated zone, hydrologic gradients, hydraulic conductivity, rock quality data, proximity to a drinking water aquifer, flood plain or wetland);
- Describe groundwater characteristics and current and potential groundwater use, including the identification of private wells and public water supply wells in the area, and include an appropriate sampling plan (if warranted);
- Identify surface water classifications and existing use designations in vicinity of the Site, if present;
- Describe the property’s contribution to an air, land, water, biota, or bioaccumulation contamination problem; and
- Determine the extent to which contamination levels pose an unacceptable risk to public health and/or the environment.

The goal of the RI is to obtain sufficient information to evaluate remedial alternatives, and ultimately recommend and select a remedial alternative that is protective of public health and the environment as part of the RAA.

The objectives of the RAA for this project are to identify evaluate and select a remedy or alternative remedies to address the contamination identified by the RI in accordance with the provision of Chapter 4 of DER-10. This includes:

1. Identifying remedial goals.
2. Identifying Remedial Action Objectives (RAOs) for the protection of public health and the environment.

3. Evaluating baseline considerations associated with: protection of public health and the environment; addressing sources of contamination; bulk storage tank and containment vessels; and groundwater protection and control measures.
4. Evaluating other considerations associated with remedial alternatives to address the contamination to the extent applicable, such as the potential for soil vapor intrusion, and impacts on adjacent properties.
5. Evaluating the need for a cover system, such as a soil cover, if contamination is present in exposed surface soil.
6. Evaluating the alternatives in relation to threshold criteria and primary balancing criteria listed in Section 4.2 of DER-10.

1.3 Applicable Project Standards, Criteria and Guidance

Applicable standards, criteria and guidance (SCG) values that will be used for this project are outlined below:

- Appropriate SCOs and other guidance as set forth in 6 NYCRR Part 375-4 Environmental Restoration Program dated December 14, 2006.
- Guidelines referenced in the NYSDEC document titled “DER-10 Technical Guidance for Site Investigation and Remediation”, May 2010.
- Appropriate water quality standards and guidance values (WQS/GV) as set forth in NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) document titled “Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations”, June 1998 and amended by a January 1999 Errata Sheet, an April 2000 Addendum and a June 2004 Addendum.
- MCPW Sewer Use Permit Effluent Standards.

Note: As discussed in section 2.2 of this RI/RAA Work Plan, previous Phase II ESA analytical laboratory test results for soil samples were compared to NYSDEC Technical Administrative Guidance Manual (TAGM) 4046 Recommend Soil Cleanup Objectives (RSCOs). Soil data to be generated during the RI/RAA will not be compared to TAGM 4046 RSCOs, but will be compared to Part 375 SCOs as stated above.

2.0 BACKGROUND AND PREVIOUS INVESTIGATIONS

This section presents a brief discussion of the settings/uses of the Site and the surrounding area. In addition, an overview of the environmental studies completed to date at the Site and the findings of these studies with respect to subsurface conditions and contaminant types/distribution are presented in this section.

2.1 Background

The Site is located in a commercial-use urban area in downtown Rochester, Monroe County, New York and is within the City of Rochester (City) CCD zoning district. The Site is bounded to the north by the Inner Loop highway, to the east by Franklin Square followed by a City-owned park, to the south by Andrews Street with commercial properties beyond, and to the west by Bristol Street with commercial properties beyond. Demolition of the 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. A narrow city street known as Evans Street separates the 320 Andrews Street parcel from the other three parcels that are contiguous with each other. Evans Street is closed to vehicle traffic, but it does contain underground utilities (e.g., sewer). Bristol Street, Franklin Square, Andrews Street, and the Inner Loop also contain underground utilities. A project locus map and a site plan are provided as Figures 1 and 2, respectively. 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. Specific information regarding the former on-site structures is provided below:

- 300 Andrews Street (Tax ID# 106.72-01-86) – one approximate 4,224 square-foot one and two-story brick building with a partial basement reportedly constructed in 1925.

- 304-308 Andrews Street (Tax ID# 106-72-01-85) – one approximate 15,425 square-foot one and two-story brick building with a partial basement reportedly constructed in 1920 with an addition in 1961.

- 320 Andrews Street (Tax ID# 106.72-01-84) – one approximate 8,000 square-foot one-story block building with a partial basement reportedly constructed in 1965.

- 25 Evans Street (Tax ID# 106.72-01-87) – one approximate 10,700 square-foot one-story slab-on-grade block building reportedly constructed in 1950.

The buildings discussed above were the most recent buildings on the Site. Other older buildings were also constructed and demolished in the past prior to the City's acquisition of the Site.

2.2 Previous Environmental Studies

The previous environmental assessments and studies completed at the site are summarized below.

Phase I Environmental Site Assessments (Phase I ESAs)

In June 2006, Leader Professional Services, Inc. (Leader) of Pittsford, New York performed a Phase I ESA for each of the four parcels that comprise the Site. In addition, environmental assessments, a Phase I ESA, and asbestos surveys were performed on portions of the Andrews Street site between 1990 and 2005. These reports identified 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. Recognized environmental conditions (RECs) identified in the 2006 Phase I ESAs for each parcel include:

25 Evans Street

- Former vehicle and equipment operations and materials use; including minor floor spills;
- Two closed in place 5,000-gallon underground storage tanks (USTs) and one out-of-service approximately 3,000-gallon aboveground storage tank (AST) located inside the building;
- A floor trench drain system inside the building;
- A former below grade service pit in the concrete floor inside the building that had been filled with crushed stone; and
- A few off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

300 Andrews Street

- Former operations and suspected materials storage or use, including painting, plumbing supply, boiler additives supply, cleaning supply and ink use;
- The presence of containers of oil, anti-freeze and paint in the building, and minor floor stains;
- The building area used ASTs to store fuel oil in the basement; and
- A few off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

304-308 Andrews Street

- Two out-of-service 275-gallon ASTs in the basement of the building;
- A floor drain inside the garage area of 308 Andrews St.;
- Chemical containers in vacant portion of the building;
- The historic operations and use of the building by a dry cleaning supply company, a chemical distributor, and a printer, including reports of spills and improper disposal practices; and

- A few off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

320 Andrews Street

- The historic operations and use of the property by a retail gasoline station and by a commercial bus company; and
- A few off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

Phase II Environmental Site Assessment (Phase II ESA)

Leader performed a Phase II ESA of the Site in 2006. The Phase II ESA consisted of the advancement of test borings, the installation of three overburden monitoring wells, the preliminary evaluation of selected floor drains and their discharge points, and the collection and analysis of selected soil and groundwater samples. Laboratory data summary tables, test boring logs, and well logs are included in Appendix C. Figure 2 shows these Phase II ESA test locations The Phase II ESA documented the presence of selected VOCs including tetrachloroethene (also referred to as perchloroethylene or PCE), which exceeded regulatory criteria in both soil and groundwater. Suspect petroleum fuel related VOCs were also detected at the Site. The findings of the Phase II ESA are summarized below:

- PCE was detected in 19 of the 21 soil samples collected across the Site, eight of which contained PCE concentrations exceeding the NYSDEC Technical Administrative Guidance Manual (TAGM) 4046 Recommend Soil Cleanup Objective (RSCO). These eight samples were collected at interior and exterior locations in proximity to the eastern side of the 304-308 Andrews Street building and included a sample collected from 1 foot below the ground surface (bgs) that contained a PCE concentration of 3,560 milligrams per kilogram (mg/kg) or parts per million (ppm). Peak PCE concentrations detected in soil samples from test locations are shown on Figure 2.
- PCE breakdown products including trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE) were detected in one sample collected east of the 304-308 Andrews Street building at depth of three feet bgs.
- TCE was detected in a soil sample collected off-site in the Franklin Square right-of-way and east of the 320 Andrews Street building at a depth of 2.5 feet and in a soil sample collected within the western portion of the 25 Evans Street building in proximity to the former vehicle service pit at a depth of 3.5 feet bgs.
- Polychlorinated biphenyls (PCBs) were not detected in four soil samples that were analyzed.
- Selected soil samples collected within the former garage footprint at 25 Evans Street at depths ranging between 2.5 and 6-feet bgs contained concentrations of petroleum related VOCs including p-isopropyltoluene, naphthalene, 1,2,4-trimethylbenezene and 1,3,5-trimethylbenzene above the corresponding RSCOs.

- PCE was detected in the three on-site monitoring wells located east of the 304-308 Andrews Street building and the 25 Evans Street building at concentrations ranging from 420 micrograms per liter (ug/L) or parts per billion (ppb) and 70,000 ppb, which is above the New York State groundwater quality standard of 5 ppb. The PCE breakdown products of TCE and cis-1,2-DCE were also detected in groundwater at monitoring well MW-2 located east of Evans Street at concentrations above the corresponding New York State groundwater quality standards.

- Evidence of light non-aqueous phase liquid (LNAPL) or DNAPL was not detected at test boring or monitoring well locations.

2.3 At Grade and Sub-Grade Demolition Phase Environmental Findings

Demolition of the above-grade Site structures was initiated on October 13, 2010 and completed on November 6, 2010. At-grade and sub-grade demolition was initiated on November 16, 2010 and completed in the spring of 2011. The demolition activities completed at the Site have prepared the Site for future study and remediation by removing the majority of the former buildings' sub-grade, at-grade and superstructure, as well as paved surfaces. The demolition of selected at-grade and sub-grade structures was completed in accordance with the "At-Grade and Sub-Grade Demolition Phase Environmental Work Plan" prepared for the City by DAY dated October 2010. In addition to the structural components of the buildings, the building's at-grade and sub-grade infrastructure (i.e., piping, drains, etc.) were also screened, demolished and removed in accordance with the Work Plan.

During at-grade and sub-grade demolition, portions of the at-grade and sub-grade structures were observed and screened as they were removed for evidence of impact. Screening involved visual observation for areas of staining or discoloration, olfactory evidence of volatile, chemical or petroleum-type impact and photoionization detector (PID) screening of the ambient air above and around the at-grade and sub-grade structures. In addition, during the at-grade and sub-grade demolition activities, soil/fill samples were collected and submitted for analytical laboratory testing. A sample log (Table 1), and analytical laboratory test results summary tables (Tables 5 thru 8) for soil samples, are included in Appendix D for the samples that were collected, including those tested, during the at-grade and sub-grade demolition work. Figure 3 shows the locations of hard fill material and soil samples. The findings of the environmental screening and laboratory analysis during the at-grade and sub-grade demolition work are summarized below:

- Ambient air PID screening of the demolition materials and exposed soils for the Site ranged between 0.0 ppm and 5.9 ppm. The 5.9 ppm measurement was collected in proximity to soil sample S-10 following the demolition of the 304-308 Andrews Street basement adjacent to the PCE-IRM area.

- Headspace PID screening of soil and demolition material samples ranged between 0.0 ppm and 208 ppm. The headspace sample with the 208 ppm measurement was collected from test pit TP-7. Test pit TP-7 was advanced within the 320 building footprint, in-proximity to the former gasoline station were a localized area of dark stained soil containing petroleum-type odors was observed.

- Dark staining and petroleum-type odors were noted below and in immediate proximity of the former 25 Evans Street concrete trench drain. The concrete trench drain was characterized and disposed off-site as a non-hazardous waste in accordance with applicable regulations.
- Dark staining emitting a sheen was noted on the concrete bottom of the vehicle service pit located on the 25 Evans Street parcel. Less than one 55-gallon drum of stained sediments from the interior of the vehicle service pit, and the bottom of the vehicle service pit itself, were removed and disposed off-site as a non-hazardous waste in accordance with applicable regulations.
- With the exception of two potential structures identified behind two basement wall patches on the eastern wall of the 304-308 Andrews Street building (i.e., designated as STR-2A and STR-2B) and the former 25 Evans Street trench drain, the remaining structures requiring additional study in the future are either in, or adjacent to, the PCE IRM area or the UST IRM area.
- In general, a heterogeneous fill layer beginning near the ground surface and ranging in thickness from 1.5 to 8 feet bgs was observed. The fill deposits contained soil with lesser amounts of cinders, coals, ash and construction debris (i.e., wood, brick, concrete), etc.
  - A fill material containing coal and cinders with possible dark staining was observed behind the eastern basement wall of the 304-308 Andrews Street building basement in the area of Structures STR-2A and STR-2B. Samples S-34 and S-24 were collected from similar fill materials observed during the removal of building footers located east of the 304-308 Andrews Street eastern basement wall and the northern building footer of the 25 Evans Street building, respectively.
- Twenty-one soil and fill samples were submitted for analytical laboratory for testing of target compound list (TCL) VOCs, TCL semi-volatile organic compounds (SVOCs), target analyte list (TAL) Metals, Cyanide, PCBs and Pesticides to confirm the presence or absence of impact.
  - Two soil samples tested contained one or more TCL VOCs exceeding one or more Part 375 SCOs.
    - Soil sample S-1 collected from STR-4 (concrete bollard footer void) contained PCE at a concentration exceeding its Part 375 Protection of Groundwater SCO.
    - Soil sample S-26 contained benzene at a concentration exceeding its Part 375 Protection of Groundwater SCO.
  - Soil samples S-7, S-9, S-24, S-26, S-28 and S-34 collected from a generally black fill material observed on the 300, 304-308 and 25 Evans Street properties, and impacted soil/fill associated with 25 Evans trench drain, contained SVOCs at concentrations exceeding one or more Part 375 Restricted Residential Use SCO and/or Protection of Groundwater SCO.
  - Soil Samples S-9, S-24, S-26, and S-28 collected from a generally black fill material observed on the 300 Andrews Street and 25 Evans Street properties, and impacted soil/fill associated with 25 Evans trench drain contained one or more TAL metals at concentrations exceeding one or more Part 375 Restricted Residential Use SCO and/or Protection of Groundwater SCO.

- PCBs were only detected at a concentration above its Part 375 Restricted Residential Use SCO in sample S-48 collected beneath the former concrete paved area in the west side of the 320 Andrews Street parcel.
- Pesticides were tested for, but not detected at concentrations exceeding Part 375 Restricted Residential SCOs or Protection of Groundwater SCOs. Only the one sample with detections [Sample 045/S-31(0.5')] exceeded the Part 375 Unrestricted Use SCO and Protection of Ecological Resources SCO for 4,4-DDT.
- Cyanide was tested for, but not detected at concentrations exceeding Part 375 SCOs.

- A water sample collected from the eastern portion of the 304-308 Andrews Street basement excavation contained a PCE concentration of 4.08µ/L.
- The surface materials (i.e., concrete building slabs, asphalt driveway, etc.) covering the PCE and UST IRM area and subsurface infrastructures (i.e., Drain 8, Pipe 15, STR-3, etc.) have not been removed. These areas will be addressed as an IRM under a separate work plan.
- The Site was backfilled with imported New York State Department of Transportation (NYSDOT) CR-2 and #3 washed stone from an off-site NYSDEC-approved source, and the backfill was compacted and graded in accordance with the City's specifications, to the extend practicable.

3.0 PHYSICAL CONDITIONS OF THE SITE AND SURROUNDINGS

The physical conditions of the Site and surroundings regarding the overburden, the bedrock and groundwater are discussed in Sections 3.1.1 through 3.1.3 below.

3.1 Overburden

Based on the Phase II ESA completed by Leader, on-site soils consist of miscellaneous fill materials that are generally underlain by lacustrine deposits and till. The miscellaneous fill deposits consisted of soil, cinders, ash, crushed stone, plastic, and construction debris (i.e., asphalt, glass, wood, brick, concrete). Fill deposits appear to extend to approximate depths ranging from 1.5 feet to 8 feet bgs. The lacustrine deposits ranged in type from typically brown clay to sand with 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. At a depth greater than 9 feet bgs, a glacial till was encountered that generally consists of dense gray-brown fine sand, silt and gravel. During the Phase II ESA, penetration of the glacial till layer was difficult utilizing direct-push methods resulting in changing the drilling techniques to a hollow stem auger. This till appears to be a heterogeneous unstratified/unsorted ablation till up to depths of 23 feet bgs where stratified silt and sand layers were encountered at monitoring wells MW-2 and MW-3 on the central portion of the Site. The total depth of the overburden ranges from 25.3 feet at monitoring well MW-1 at the northern boundary of the Site to greater than 30 feet at monitoring well MW-3 on the central portion of the Site.

3.2 Bedrock

Bedrock was encountered in soil borings at a depth of 25.3 at monitoring well MW-1 in the northern portion of the Site. The depth to bedrock appears to be shallower across the northern portion of the Site since it was not encountered at a depth of 30 feet in the central portion of the Site at monitoring well MW-3. The Eramosa Formation (a/k/a the Lockport dolomite formation) is anticipated to be the uppermost bedrock at the Site. The Lockport dolomite is a hard light to medium gray siliceous dolomite that serves as the capstone to the Genesee River high falls located west of the Site. The Lockport dolomite has a gradational contact with the dolomitic mudstones of the Rochester Shale Formation. The Rochester shale is less resistant to erosion than the Lockport dolomite.

3.3 Hydrogeology

Figure 1 (Project Locus Map) presents a portion of the topographic quadrangle that includes the Site. The Site and the surrounding area are generally level, with the exception of the adjacent property to the north, which slopes down towards the Inner Loop Expressway. There are no surface water bodies on or adjoining the Site. However, surface water due to precipitation events appears to flow off the Site toward Andrews Street to the South or into on-site catch basins, which both enter the City sewer system. The Genesee River is located approximately 1,600 feet west of the Site. No state or federally listed wetlands are located within a half-mile radius of the Site. Based on the Phase II ESA, the local groundwater flow direction appears to be northward toward the Inner Loop Expressway.

During the Phase II ESA, groundwater within the overburden was measured between 11.3 and 12.3 feet bgs with an apparent northward direction of groundwater flow toward the Inner Loop Expressway. The monitoring wells installed during the Phase II ESA are located in a north-south line that adversely affects the precision of determining the actual groundwater flow direction. Consequently, flow conditions determined during the RI may differ from the northward direction presented in the Phase II ESA. In addition, the local groundwater flow direction could vary from that presented in the Phase II ESA due to buried utilities, seasonal conditions, a stormwater/groundwater drainage system associated with the adjoining Inner Loop Expressway, or other factors.

4.0 PRELIMINARY CONCEPTUAL SITE MODEL

A preliminary conceptual site model describing the anticipated subsurface conditions, contaminant types and distribution patterns is presented in this section. The preliminary conceptual site model has been used as the basis for the studies described herein, and the data collected during the RI will be used to refine this model as the project progresses and assist in evaluating remedial options for the Site. This preliminary conceptual site model identifies and describes: (1) the known or potential sources of contamination; (2) the types of contaminants; and affected media; 3) release mechanisms and potential migration pathways; and 4) actual/potential human health and environmental receptors.

Historically, the Site has been used for various commercial and industrial purposes since the early 1920s, including plumbing supply, electrical supply, a bakery, a printer, a commercial bus depot, a bus repair garage, a gasoline station, chemical sales/distribution; a dry cleaning equipment distributor, a fuel oil contractor, and warehousing.

4.1 Known or Suspected On-Site Sources of Contamination

This conceptual site model is based on previous the findings of the 2006 Phase II ESA and also the 2010/2011 At-Grade and Sub-Grade Demolition work. Known or suspected on-site sources of contamination, the type of contamination at each source, and current information on extent of contamination are listed below in this section.

<u>PCE</u>

Two apparent source areas of the PCE detected at the Site have been identified along the eastern side of the 304-308 Andrews Street parcel. One area is located in a former asphalt-paved material loading location, and the second area is located inside a portion of the building that contains an apparent floor drain. These areas include the highest PCE concentrations detected in soil that are shown on Figure 2. The exterior PCE source area is immediately outside and south of the interior PCE source area.

- At the interior PCE source area, significant concentrations of PCE were encountered at shallow depths immediately beneath the concrete floor and extending to depths of at least 18 feet bgs. Contamination in this source area appears to extend laterally over an approximate 20-foot diameter area. The vertical and aerial extent of contamination that requires remediation has not yet been fully defined.
- At the exterior PCE source area, significant concentrations of PCE were encountered at shallow depths immediately beneath the former asphalt pavement and extending vertically up to 10 feet bgs. Contamination in this source area appears to extend laterally over an approximate 25-foot diameter area. The vertical and aerial extent of contamination that requires remediation has not yet been fully defined.

As documented in the 2006 Phase II ESA, the highest concentration of PCE detected in groundwater was at monitoring well MW-1, which is generally located north of these two PCE source areas. The Evans Street right-of-way lies between the PCE source areas and well MW-1, and this right-of-way contains buried utilities, including a combined storm and sanitary sewer system, that trend toward the north. It is presumed that the buried utilities may be acting as a preferential migration pathway for PCE to migrate north away from the PCE source areas, and groundwater is also presumed to flow northward based on the data obtained during the 2006 Phase II ESA.

In addition to the two PCE source areas described above, lower concentrations of PCE have been detected in fill/soil at generally shallow depths in soil samples collected from the 25 Evans Street parcel, and immediately east of the 320 Andrews Street parcel. It is presumed that the PCE in these areas may be associated to: 1) fill material; 2) past operations at, or in proximity to, these former building locations; and/or 3) possibly migration from the two primary PCE source areas discussed above via subsurface media beneath former impervious surfaces (buildings, paved parking lot) where VOC vapors may have partitioned into interstitial spaces within soil.

Other contaminants that are likely associated with the PCE as breakdown products include: TCE, DCE and vinyl chloride.

Existing USTs

The two abandoned USTs, presumed to have stored gasoline and diesel oil, on the eastern portion of the 25 Evans Street parcel have been identified as a potential source area for petroleum contamination. Some petroleum-type VOCs were detected in nearby soil sample during the 2006 Phase II ESA. The two abandoned USTs are scheduled to be permanently closed via removal as an IRM. It is possible that higher concentrations of petroleum contamination will be encountered in the tank removal excavation. This contamination would likely be impacting soil and groundwater, and any plume associated with this petroleum-type contamination would be expected to migrate less distance than a PCE plume due to its physical and chemical properties.

Former Trench Drain

A trench drain was located inside the former 25 Evans Street Building. During removal of the trench drain, dark stained soil/fill emanating petroleum and septic type odors was noted beneath the trench drain. Samples of this impacted soil/fill contained various SVOCs and metals above one or more Part 375 SCO. Based on limited test pitting through the trench drain area, and on other previous studies in the area, the vertical extent of impact appears limited to within about 4 feet below the former trench drain, and the lateral extent is anticipated to be limited to the area around the trench drain.

Former Vehicle Service Pit

A former vehicle service pit was located inside the former 25 Evans Street Building. To date, subsurface conditions in proximity to this service pit have not been fully characterized. It is possible that subsurface impacts associated with petroleum-type products, and possibly also degreasers, may be present in this area. Based on previous subsurface studies performed in proximity to the vehicle service pit, it appears any such impacts would be limited in extent.

Former Gasoline Station

A former gasoline station was located within the footprint of the recently demolished bus terminal building on the 320 Andrews Street parcel. Overlay of historic building drawings showed that three former pump islands and the former gas station building had been located within the footprint of the younger bus terminal building (refer to Figure 3). As the bus terminal building was demolished, one sample location (S-17 from Test Pit TP-7) contained soil that was petroleum-impacted. This sample did not contain TCL or TAL constituents at concentrations exceeding Part 375 SCOs. However, the extent of this residual contaminated soil has not yet been fully defined. Although anticipated to be unlikely, it is unknown if higher concentrations of petroleum impact are present.

Historical Fill Material

Historical heterogeneous fill material generally consisting of reworked soils containing lesser amounts of debris such as ash, cinders, glass, plastic, brick, etc. is present at the Site. This fill material appears to be a source of SVOCs and metals, which have been detected at some sample locations at concentrations exceeding one or more Part 375 Restricted Residential Use SCO and/or Protection of Groundwater SCO. With the exception of former basement areas that have been backfilled with imported clean Crusher Run #2 (CR2) and #3 washed stone during the 2010/2011 demolition work, the historic fill can generally be found across the Site. The top of the historic fill starts beneath the current surficial layer of clean CR2 that covers the Site, and the fill then extends to depths ranging between approximately two feet and eight feet bgs.

In addition, one soil/fill sample (S-48) collected from beneath the former concrete driving surface after its removal from the east side of the Andrews Street parcel contained 1.8 ppm PCBs, which exceeds its Part 375 Restricted Residential Use SCO. Based on the cumulative results or other soil/fill samples across the Site, it is expected that this PCB detection is an anomaly, and that migration of PCBs is limited. However, the vertical and lateral extent of PCBs in this area warrants additional delineation.

4.2 Potential Release Mechanisms and Contaminant Migration Pathways

Potential release mechanisms and contaminant migration pathways away from known or suspected source areas may have included one or more of the following:

- Volatilization directly from the ground surface into the air;
- Surficial flow across surfaces, possibly enhanced by precipitation events;
- Preferential subsurface migration within subsurface utilities or their bedding materials (including the stormwater/groundwater drainage system associated with the Inner Loop Expressway);
- Migration horizontally and vertically through the overburden soil, fill, bedrock, or groundwater; and/or;
- Migration along impermeable subsurface layers.

4.3 Potential Human Receptors and Environmental Receptors

The Site is currently vacant, is covered by a layer of clean CR2 imported backfill, is controlled by chain link fencing and locked gates, and there are no on-site potential human receptors or environmental receptors. However, there could be human receptors if the Site is redeveloped and the contaminants are not adequately addressed. In addition, it is possible that PCE-related and/or petroleum-related VOCs are migrating off-site (most likely in an inferred northerly direction) as a non-aqueous phase liquid (NAPL), a dissolved phase plume in soil vapor or groundwater, and/or possibly as a vapor within utilities or their bedding materials. Under these scenarios, it is possible that PCE could impact off-site human receptors in terms of the soil vapor intrusion exposure pathway. The City is serviced by public water supply, and groundwater in the City is not used as a potable source of water. In addition, there is some potential that off-site migration of contaminants could impact environmental and/or human receptors should contaminants enter the combined sewer system located around the Site, including the inner loop expressway north of the Site, which ultimately discharges to MCPW's VanLare Wastewater Treatment facility, or if contaminants entered the overflow system that appears to discharge to the Genesee River.

Based on site reconnaissance, review of Monroe County mapping information, review of the prior Phase I ESAs completed for the Site, and review of the Rochester school district website, there are a few sensitive receptors within one-half mile of the Site. These sensitive receptors include three schools in the Rochester school district and an early head start program. The locations of these schools are shown on Figure 4, and a summary of these locations is listed below:

School	Address	Relative Location
School Without Walls	111 North Clinton Avenue	~400 feet southwest of Site
Dr. Martin Luther King Jr. School #9	485 North Clinton Street	~1/2 mile north of Site
Early Head Start	49 Stone Street	~1/3 mile south of Site
World of Inquiry School #58	200 University Avenue	~1/2 mile east of Site

Other potentially sensitive environmental receptors that were evaluated during development of this RI/RAA Work Plan included wetlands, water bodies and potable water supply wells. There are no State wetlands or records of potable water supply wells within one-half mile of the Site based on a review of the prior Phase I ESA and the NYSDEC website noted above. The Genesee River is located approximately 0.25 mile west of the Site.

4.4 Nearby Known Off-Site Contamination Sources

The Site is located in the center section of Rochester immediately south of the Inner Loop Expressway. The surrounding land uses are consistent with a densely developed urban area with known contamination sites, as well as sensitive receptors such as school facilities and residential properties.

There are several known contamination sites located within one-half mile of the Site, which are regulated by the NYSDEC. The nearby known contaminated sites include three projects regulated under the NYSDEC Brownfield Cleanup Program (BCP), three projects regulated under the NYSDEC Voluntary Cleanup Program, and one active petroleum spill site. Information regarding these facilities was obtained from the NYSDEC environmental navigator application www.dec.ny.us. The locations of these known contamination sites are shown on Figure 4, and a summary of these nearby known contaminated sites is provided below:

Site	DEC Reference # and status	Relative Location	Contaminants of Concerns
Kirstein Building and Parking Lot	C828127 (Active)	~1,000 west of Site	Former gasoline station; petroleum and TCE
Ward Street Site	C828117 (Complete)	~1/2 mile northwest of Site	Petroleum, PCE and TCE
8-28 Ward Street Site	C828136 (Complete)	~1/2 mile northwest of Site	Petroleum, PCE and TCE
Speedy Cleaners-Court Street Site	V00001 (Complete)	~1/2 mile south of Site	Chlorinated solvents
RGE – Front Street	V00073 (Active)	~1/3 mile west of Site, opposite side of Genesee River	Former MGP facility
RGE – Beebee Station	V00014 (Complete)	~1/2 mile west of Site, opposite of Genesee River	Former MGP facility
462 North Street	Spill #9205715 (open)	~1/2 mile northeast of Site	Petroleum spill at former gasoline station

No information has been obtained to suggest these nearby sources of contamination have impacted subsurface conditions at the Site.

5.0 SCOPE OF WORK

This section presents the scope of work to meet the project objectives provided in Section 1.2 of this RI/RAA Work Plan. In general, this work will be completed in accordance with provisions and guidance outlined in the NYSDEC document titled "DER-10 Technical Guidance for Site Investigation and Remediation" dated May 2010, and will include regular communication with the City and the NYSDEC.

The site-specific HASP attached as Appendix A outlines the policies and procedures to protect workers and the public from potential environmental hazards during activities that have the potential to disturb contaminated subsurface materials. The HASP includes a CAMP that is required for intrusive activities at the Site during this project, and also an Emergency Contingency Plan (ECP) should unanticipated emergencies or Site conditions be realized.

The QAPP included in Appendix B describes the procedures to be used to provide for the integrity of the field data and analytical data to be collected. The QAPP includes specific information pertaining to the handling of samples, analytical methods to be used, Quality Assurance/Quality Control (QA/QC) procedures to be followed, analytical laboratory reporting limits, documentation procedures, project organization, decontamination procedures, sampling procedures, and a sampling and analysis plan.

5.1 Remedial Investigation

The RI will include a detailed evaluation of the nature and extent of contamination at the Site. The RI will include a review of existing records of utilities on and adjacent to the Site, a comprehensive geophysical survey, a utility assessment with contingency air sampling and laboratory analysis, test pit excavations, Triad soil and groundwater sampling, soil sampling with off-site analytical laboratory analyses, bedrock and overburden monitoring well installation, groundwater sampling with off-site analytical laboratory analyses, hydraulic conductivity testing of the overburden and bedrock aquifers, investigation derived waste (IDW) management, data evaluation and report preparation. A summary of the analytical laboratory-testing program anticipated for this RI is provided as Table 1 of the QAPP included as Appendix B. The NYSDEC shall be notified at least seven days in advance of any field activities so that it can arrange to have a representative on-site, if desired.

5.1.1 Site Preparation and Security

An existing perimeter chain link fence system with locked gates controls access to the Site. The Team will coordinate with the City to obtain a key to the lock on the gate(s) associated with the existing perimeter fencing system. The Team and its subcontractors will be responsible for the security of their own personnel and equipment while on the Site. The Team will also be responsible for maintaining the fencing and any gates, and controlling access to the Site during on-site project activities.

5.1.2 Geophysical Survey

The history of the Site indicates that USTs have existed at two areas of the Site (i.e., beneath the eastern end of the former building on the 25 Evans Street parcel, and somewhere beneath the former building on the southeast portion of the 320 Andrews Street parcel). In addition, it currently cannot be ruled out that a buried tank or sump associated with PCE solvent may be present on the portion of the 304–308 Andrews Street parcel formerly used by a dry cleaning equipment distributor.

A geophysical survey will be conducted over the entire Site, including areas with floor slabs, using approximate 3-foot line spacing. AMEC Geomatrix will conduct this geophysical survey using a Geonics EM-61 high resolution time domain electromagnetic metal detector. An EZ Locator Ground Penetrating Radar (GPR) will also be used to further evaluate and confirm select magnetic anomalies. Using these two methods in conjunction with each other will provide information to locate subsurface anomalies that may indicate the presence of sumps, tanks or other potentially significant buried metallic objects. A report will be prepared that includes a map showing magnetic anomalies that represent detected buried metals.

Utilities will also be mapped to the extent possible using the geophysical survey data. A Global Positioning System (GPS) will be used to locate grid boundaries, as well as the visible sources of anomalous geophysical readings such as drain grates, fences, vertical piping, reinforced concrete, fill areas and other findings. Precise mapping of these Site features will allow more complete screening of the surveyed areas and help to eliminate "noise" to the extent possible.

The results of the geophysical study, including the locations of potential subsurface anomalies such as UST locations, will be geo-referenced and incorporated into the Global Information System (GIS) database. The results will be used to assist in determining the locations of subsequent subsurface investigations, such as test pit excavations, overburden soil boring locations, and monitoring well installation locations.

Once substantial anomalies in the grid area are located, they will be further investigated using an excavator during the test pit investigation phase of this project presented in Section 5.1.4 of this RI/RAA Work Plan. Excavation will continue until a source for each substantial anomaly is identified. The geophysical survey findings will also be used to help locate wells and test borings to assist in obtaining representative data and a thorough understanding of subsurface conditions at the Site. Finally, the geophysical survey results will be used as part of the utility assessment.

5.1.3 Utility Assessment

Identifying any potential preferred contamination migration pathways is a significant objective of the RI. Understanding active and former utility infrastructure at a site is critical for identifying potential preferred contamination pathways. Publicly available City and utility records will be obtained, reviewed and verified with field observations in order to identify utilities on-site and immediately off-site, including buried sewer systems (e.g., storm, sanitary or combined), electric lines, natural gas lines, water delivery lines, etc. As part of this work, the Team plans to meet with select utility entities (e.g., MCPW) to discuss their utilities in relation to this project. Data gathered during the demolition activities will also be included in the utility assessment. The precise locations of utilities identified during the demolition activities are being recorded using a GPS and transferred into GIS database for the Site. The utility information being gathered during the demolition activities include the locations, types, depths, construction details, and point of discharge locations for any identified drains, sewers or other subsurface utilities.

Buried utilities currently identified in the Evans Street right-of-way that divides the 320 Andrews Street parcel from the other Site parcels includes a 15-inch inner diameter vitreous tile (15” V.T.) combined sewer system and two associated manholes and catch basin (refer to Figure 2). As shown, this segment of combined sewer starts within the Evans Street right-of-way that is bordered by the Site parcels, and then flows northward into the right-of-way of the Inner Loop expressway.

Identified floor drains will be cleaned and dye tested to assist in identifying floor drain discharge locations. The Team will retain an appropriate plumbing subcontractor and coordinate the work with Monroe County Pure Waters and the City. Removed materials and recoverable washwaters generated during any cleaning of pipes, etc. to allow the dye testing to be performed will be containerized in NYSDOT-approved 55-gallon steel drums or an on-site storage tank. Management of IDW is discussed in Section 5.1.7. Dyes used will be non-toxic and biodegradable. The anticipated lines to be dye tested include:

- The drain located inside the eastern portion of the building on the 304-308 Andrews Street parcel; and
- Other lines encountered during the demolition phase of the project if their integrity is kept intact.

The interior of the on-site drains discussed above, and on-site and off-site nearby sewers (e.g., likely in Evans Street, Bristol Street, downgradient of these streets off-site to the north, and other areas with buried lines that are determined to warrant observation) will be videotaped to assist in evaluating the integrity of these systems, and also look for evidence of potential infiltration/exfiltration locations. The Team will coordinate the utility assessment work with the City and Monroe County Pure Waters. The actual videotaping equipment to be used will depend upon the actual dimensions of floor drains and sewer systems that are selected for videotaping. It is anticipated that videotaping would be conducted using a Radiodetection GatorCam2 Video Inspection System with video recorder (similar equipment) designed for potentially hazardous areas. In addition, a Radiodetection RD4000RX Above Ground Locator (or similar equipment) will be used in conjunction with the GatorCam2 to detect the location and depth of the GatorCam2 at the ground surface as it is moved through the underground utility piping, etc. so that the location of the buried piping can be marked on the ground surface and then recorded using the GPS for inclusion in the GIS project database. For piping greater than four inches in diameter, an Inuktun VT100 video crawler inspection system (or similar equipment) that is designed for potentially hazardous areas will also be used to enhance the quality of video that is captured. An electronic copy of videos obtained during this task will be provided to the City and the NYSDEC as part of the RI Report.

If field evidence of PCE or petroleum-related impacts to the utilities are identified (staining, dye testing results from suspect discharge areas, odors, elevated PID readings, etc.), or are suspected in relation to contaminant source areas or plumes, then air samples will be collected from accessible portions of these utilities for selected VOCs as part of the utility assessment. Based on existing utilities at the around the Site, it is anticipated that air samples within the utility would be collected from one down-pipe location and one on-site pipe location in relation to known or suspected source areas or plumes. Up-pipe locations are not present at the Site. In addition, one ambient outdoor air background sample would be collected as a quality control measure. The samples will be collected over an approximate 1-hour period in batch-certified Summa canisters equipped with regulators. The air samples would be relinquished to Chemtech Consulting Group, Inc. (Chemtech), which is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified analytical laboratory (NYSDOH ELAP #11376). Chemtech will test the air samples for VOCs using United States Environmental Protection Agency (USEPA) Method TO-15. The specific list of VOCs to be reported is provided in the QAPP. The test results will be used to assist in determining corrective actions should VOCs be impacting the air space inside the sewer systems (e.g., replace or line sewer systems with new and chemically compatible materials, etc.). The air testing should be indicative of VOCs that may be present in water or sediments in the utilities due to partitioning from these media to the air.

5.1.4 Test Pit Excavations

Prior to implementing the test pit excavation intrusive work, a utility stakeout and utility clearance will be obtained. To further evaluate subsurface conditions across the Site, the Team proposes to excavate up to 10 test pits at select locations of the Site. The test pits are intended to 1) assist in evaluating the nature and extent of contamination; 2) evaluate various sub-grade structures and abandoned USTs; 3) evaluate suspected potential preferential contaminant migration pathways; 4) assist in the collection of soil samples to be tested for investigative parameters; and, 5) evaluate select magnetic anomalies that may be identified during the geophysical survey. Figure 5 shows the proposed locations of six test pits. Additional test pits are reserved for geophysical anomalies, further delineation, or other circumstances that are deemed appropriate. The six test pits shown are in the following locations:

- Two test pits (TP-1 and TP-2) across the former trench drain and former building area on the 25 Evans Street parcel, which will also be used to evaluate the extent of black-colored historic fill on this parcel;
- Two test pits (TP-3 and TP-4) along the buried utilities located within the right-of-way of Evans Street;
- One test pit (TP-5) at the area of former suspect structures STR-2A and STR-2B on the 304-308 Andrews Street parcel; and
- One test pit (TP-6) to assist in evaluating the extent of black-colored historic fill on the southern portion of the 304-308 Andrews Street parcel.

TREC Environmental, Inc. will be retained to provide a backhoe or mini-excavator and operator to advance the test pits to depths up to approximately 12 feet (e.g., the reach of equipment). This subcontractor will call in a utility stakeout prior to start of intrusive work. If an abandoned UST or other structure is encountered, an attempt may be made to excavate the test pit to a depth that is below the invert of the UST or structure within the reach limits of the equipment. In order to minimize the spread of potentially contaminated soil/fill material at the Site, excavated materials from test pits will be staged on polyethylene plastic sheeting. Any drums, containers encountered, as well as NAPL or other free product, generated as a result of the test pitting activities will be containerized, characterized and disposed in accordance with applicable regulations.

Soils encountered in the test pit excavations will be screened using a PID equipped with a 10.6 electron volt (eV) lamp. Samples from the test pits with the greatest field evidence of impact (i.e., elevated PID readings above ambient air background conditions, staining, suspect fill material, odors, etc.) will be collected for possible analytical laboratory testing. If field evidence of impact is not encountered at a test pit, one or more soil samples collected from immediately above the water table or near the bottom of the test pit may be collected for possible analytical laboratory testing. In addition, samples below areas of greatest field evidence of impact may be collected to assist in evaluating vertical extent of impact requiring remediation. Pertinent field observations will be recorded for each location on a test pit excavation log. Details regarding the field reporting protocols are provided in the attached QAPP.

If field observations and/or elevated PID readings suggest the presence of DNAPL or light non-aqueous phase liquid (LNAPL), the Team will perform a shake test on an aliquot of the corresponding soil sample using hydrophobic dye. The Team has used this method on other projects to assist in evaluating the presence of residual DNAPL or LNAPL in soil samples. The sample aliquot, a couple ounces of potable water, and a small amount (i.e., pinch) of Sudan IV or equivalent will be placed in a sealable plastic baggie, agitated, and then noted for pigment staining. If organic DNAPL or LNAPL is present, the Sudan IV Pigment should result in pigment staining.

Soil samples from test pit excavations will be submitted under chain-of-custody control for analytical laboratory testing by Chemtech. The test pit excavation soil sample selection for analysis criteria are listed below:

- Confirm evidence of field contamination (elevated PID readings, staining, odors, present of NAPL fill material, etc.). Sample collected from the zone of greatest evidence of field contamination.
- Approximately one to two feet below significant changes in the nature and extent of identified field contamination.
- At the base of the test pit excavation to document the soil conditions, and;
- Adjacent to subsurface structures of environmental concern such as abandoned utilities or other preferential pathways for contaminant migration.

It is anticipated that a total of six soil samples will be collected for analytical analyses using the procedures listed in the QAPP. Three of the test pits (i.e., TP-1, TP-2 and TP-6) are approximately 50 to 70 feet long in order to obtain visual documentation of fill types. It is possible that different materials or subsurface conditions may be encountered in different portions of these long test pits. If such conditions are noted, additional samples will be collected for possible analytical laboratory testing, the NYSDEC will be consulted, and up to three of these additional samples (beyond the six specified above) will be selected for analytical laboratory testing. The soil samples will be analyzed for the following suite of analytical parameters:

- TCL VOCs plus methyl-tert-butyl ether (MTBE); and tentatively identified compounds (TICs);
- TCL SVOCs plus TICs;
- TCL PCBs; and
- Target Analyte List (TAL) Metals.

[Note: Validated ASP Category B test results for 19 soil samples collected from various locations and depths across the Site during the at-grade/below-grade demolition project show that pesticides were not detected at concentrations exceeding NYSDEC Part 375 Restricted Residential Use SCOs or Protection of Groundwater SCOs. Of these samples, 18 were "non-detect" for pesticides, and the one sample with detections only exceeded the Unrestricted Use SCO and Protection of Ecological Resources SCO for 4,4-DDT. In addition, the validated ASP Category B test results for 21 soil samples collected from various locations and depths across the Site during the at-grade/below-grade demolition project show that cyanide was not detected at concentrations exceeding NYSDEC Part 375 Restricted Residential Use SCOs or Protection of Groundwater SCOs. Based on these validated ASP Category B test results, and also historical information that does not identify or suggest pesticide or cyanide use or storage at the Site, and with concurrence from the NYSDEC and NYSDOH, analysis of soil samples for pesticides and cyanide is not included in the scope of this RI/RAA Work Plan.]

Following completion of each test pit excavation, the location will be restored to its original condition by backfilling and compacting the excavated material in one-foot lifts by tamping the ground surface with the backhoe bucket. Excavated materials will be re-used in the test pit excavation to the maximum extent possible in accordance with Section 3.3(e)4 of DER-10. In the event that some of the excavated materials cannot be placed back into the test pit, the subject material will be staged on, and covered with, 6 mil polyethylene plastic sheeting for later characterization, handling and disposal as an investigation-derived waste. The backhoe or mini-excavator will be decontaminated prior to use at each test pit location. Decontamination water will be handled as IDW in accordance with Section 5.1.7.

5.1.5 Soil Boring and Subsurface Characterization Investigation

The subsurface investigation will be conducted in two phases. The first phase will utilize the Triad Approach to focus on the portions of the Site identified with potential chlorinated solvent contamination, and potentially DNAPL. The second phase of the subsurface investigation will use the data gathered during the Triad investigation and other data gathered as part of this investigation including, but not limited to, the geophysical survey, the utility assessment, review of historical engineering plans, findings during the demolition activities at the Site, etc. Prior to implementing either phase of intrusive work, a utility stakeout and utility clearance will be obtained. In addition, any necessary right-of-way permits and approvals to conduct drilling activities will be obtained prior to conducting the drilling effort.

Triad Investigation

The Triad Approach to site characterization is an iterative method of evaluating data collected in real-time. Streamlined Site Characterization & Closure, Inc. (S2C2) of Raritan, New Jersey will be retained to assist in the Triad field investigation effort. A combination of membrane interface probe (MIP) data, interval specific soil and groundwater testing results (collaborative data set), and 3D visualization will be used to assist in delineating the PCE source area and plume in a dynamic real time manner and display that information in an easily understood format. This real-time data collection and evaluation technique allows modification of the field program as work progresses; thus, maximizing the efficiency of the investigation and optimizing the sample locations utilized for laboratory analyses. In addition, the Triad Approach will be used to modify the primarily conceptual site model as required by the encountered field conditions.

Prior to beginning initial MIP pushes, the MIP will be field-calibrated to a known concentration of chlorinated VOCs. This is performed by adding a known amount of TCE to a known volume of water to prepare a solution with a known concentration of TCE. The MIP is immersed in the cylinder of known TCE concentration, and then the output on the detectors is evaluated. This calibration step is performed prior to and after each MIP boring to assure the instrument is accurately reporting results.

The real time information produced by the MIP includes:

1. Dipole electrical conductivity measurements to determine lithology.
2. Rate of Push measurement: push speed can be used to evaluate lithology.
3. PID results: general information about volatile compounds; primarily tuned to chlorinated VOCs, but can see some petroleum hydrocarbon VOCs.
4. Halogen Specific Detector (XSD) detector results: primary detector used to evaluate chlorinated VOCs.

A maximum of 40 soil test borings will be completed during this phase of the investigation. The general locations of some of the initial planned test locations are shown on Figure 5. The test borings will be completed using a Geoprobe 6600 series rig, which should be capable of providing adequate down-pressure to reach the bedrock interface, with the additional ability to spin augers if necessary. At each location, the MIP and/or soil sampling equipment (Macro-Core or dual-tube) will be used to continuously log saturated and unsaturated soils down to equipment refusal, and also collect groundwater samples.

Triad MIP and soil/groundwater sampling and analysis for chlorinated VOCs will be completed in the following order:

1. First step will be to verify the MIP is "seeing" the chlorinated VOCs in the soil and groundwater at the Site. This will be done by performing two to four pushes in proximity to previous 2006 Phase II ESA test locations B-17, B-17B, B-32, and/or B-34. These are locations where there is existing information on PCE concentrations in subsurface media. The MIP is advanced adjacent to the previous location and the results monitored on the XSD & PID. Ideally during this step, the MIP is pushed

through the entire impacted zone to evaluate the vertical extent of chlorinated VOCs and observe the field computer readings return to low levels.

2. After evaluating the response of the MIP in relation to the existing information, the next step will be to begin delineation of the source area. This is done through a series of "step out" MIP borings from the known locations until field computer readings begin to reduce significantly. Step outs in source areas are usually limited to short distances because normally the high concentrations are confined to a relatively small area clustered around the discharge point. MIP readings in source areas can be 10e7 or 10e8 microvolts. Readings below 10e6 microvolts can indicate that the edges of the concentrated PCE impacted area are being reached. Because of the potential for "carry over", a heated trunk line (HTL) will be used for this work. The heated trunk line purges the gas return line of residual VOCs so that there is little to no lag time between MIP pushes.

3. After an appropriate amount of MIP pushes in and around the source areas are completed, soil and/or groundwater samples will be collected to further verify the function of the MIP, identify the specific chemicals in the soil & groundwater (MIP only "sees" total VOCs) and obtain concentrations of chemicals to the site specific relationship between the MIP microvolt readings (approximate ppm or ppb PCE concentrations compare to microvolt readings) and actual concentrations of the chemicals of concern. Up to ten samples will be tested on a rapid turnaround basis by Paradigm Environmental Services, Inc. of Rochester, New York (Paradigm). Paradigm is a NYSDOH ELAP certified laboratory for VOC analyses (ELAP ID #10958). Paradigm will analyze the samples for halogenated VOCs (USEPA Method 8260) within one business day of collection (e.g., in as little as 4 hours) so that the data collected can provide near real-time information that can be incorporated into the Triad Approach. The list of halogenated VOCs to be reported by Paradigm is provided in the QAPP.

4. Once the source area impacts have been adequately delineated, the Triad program will shift to delineating the plume of dissolved VOCs, and other areas where significantly lower PCE concentrations have previously been detected in soil/fill (e.g., area east of former building on the 320 Andrews Street parcel, and beneath portions of the former building on the 25 Evans Street parcel). Experience has shown that the when properly calibrated, the MIP can "see" chlorinated VOC concentrations as low as 100 to 150 ppb. Unless dissolved concentrations are significant, a heated trunk line <u>will not</u> be used during the MIP plume delineation. Since plume delineation is based on tracking dissolved VOCs, initial plume delineation MIP borings will be placed adjacent to existing wells MW-1 and MW-2, and the MIP will be pushed throughout the screened interval of each well. Once the comparison between MIP & MW sampling results has been established, the MIP will be used to assist in delineating the plume and also other areas of the Site for general site coverage. A combination of "step outs" and transects across the inferred plume flow direction will be used to accomplish this work. This will include test locations within the right-of-way of Evans Street that contains buried utilities that may be acting as a preferential migration pathway for contamination. Depending on plume size, two to three transects maybe necessary.

5. Following plume delineation, a final step of soil and/or groundwater sampling and analysis will be performed using the MIP results as a guide. Soil samples will be collected continuously from the ground surface to equipment refusal using Macro-Core or dual tube sampling devices. Groundwater samples will be collected from specific 3-foot intervals in the saturated zone where the highest MIP results were recorded. The groundwater samples will be collected using a Geoprobe System Screen Point 16 discrete groundwater sampling system or a temporary polyvinyl chloride (PVC) screen and riser well point. Additional information regarding the direct-push soil sampling and groundwater sampling procedures and program is provided in the QAPP. The samples will be collected for the following purposes:

   a. Soil samples from "hot areas" to obtain chemical-specific information for the purposes of evaluating treatment options such as in-situ chemical oxidation or thermal destruction.

   b. "Clean bottom" soil and groundwater samples to verify vertical delineation. Sample intervals will be determined from the MIP logs.

   c. "Clean" horizontal delineation groundwater and soil samples to further define the edges of the impacted area(s).

   d. Groundwater grab samples from plume locations to further evaluate interval specific contaminant concentrations for the purposes of evaluating possible plume treatment options.

   It is anticipated that a total of 18 soil samples will be collected for laboratory analyses using the procedures listed in the QAPP. The soil samples will be analyzed for the full TCL/TAL list parameters, which consist of the following:

   - TCL VOCs plus MTBE and TICs;
   - TCL SVOCs plus TICs;
   - TCL PCBs; and
   - TAL Metals.

   The results will be reported in Analytical Services Protocol (ASP) Category B deliverables. The MIP, Macro-Core, and dual tube standard operating procedures (SOPs) are included in the QAPP.

6. Field observations, detector readings, and MIP results will be recorded in the field in accordance with the attached QAPP. The data collected, in conjunction with other data developed during this investigation will be input into a 3D ArcGIS database, or equivalent database format, to develop two and three dimensional depictions of lithology and contaminant mass distributions. Such information will be useful during the subsequent evaluation of remedial alternatives and refining the conceptual site model.

MIP refusal may be shallower than the top of bedrock/fractured bedrock, but the MIP will provide the most-detailed "snap-shot" of subsurface impacts compared to other techniques currently available. As a contingency, if subsurface conditions prevent adequate MIP logging, depth discrete soil and groundwater samples will be collected for rapid turnaround halogenated VOC testing utilizing Paradigm as a supplement to the MIP data. Paradigm will analyze the samples within one business day of collection (e.g., in as little as 4 hours) so that the data collected will provide near real-time information that can be incorporated into the Triad Approach. The list of halogenated VOCs to be reported by Paradigm is provided in the QAPP.

Supplemental Soil Investigation

Following completion of the Triad investigation, up to 20 deep test borings will be completed by SJB Services, Inc. (SJB) of Henrietta, New York or equivalent drilling contractor. [Note: The proposed soil boring locations will later be converted to overburden and bedrock wells, and these borings are shown as wells on Figure 5] These locations may be modified based on the results of the Triad investigation. If the Triad approach substantially modifies the sample locations shown on Figure 5, the NYSDEC Project Manager will be provided a copy of the modified sample locations. The soil borings will be completed using a rotary drill-rig and/or direct-push drill-rig capable of advancing 4.25" inner diameter Hollow Stem Augers (HSAs). The anticipated HSA borehole diameter is 8". GPS (or tape measurements as a back up) will be used to mark out the test boring locations in the field.

The test borings are to be advanced to further evaluate known and suspected areas of concern and to fill any data gaps that may exist regarding the nature and extent of contamination located either on-site or off-site. These 20 test borings will be converted into groundwater monitoring wells as noted in Section 5.1.6. Each boring will be drilled through approximately 30 feet of overburden materials (i.e., at least 7 feet below the top of the observed first water-bearing zone). In addition, 9 of the boring locations that are advanced with a rotary drill-rig will be drilled through approximately 12 feet of bedrock.

Specific areas to be further evaluated by the array of test borings include:

- In proximity to the vehicle service pit, trench drain, former parts cleaner, and abandoned USTs located inside the building on the 25 Evans Street parcel;
- In proximity to the PCE source area on the eastern portion of the 304-308 Andrews Street parcel;
- At a location north of the Site in the right-of-way of the New York State Inner Loop to evaluate the potential off-site migration in the direction of suspected groundwater flow, and along a storm sewer that is suspected to be a preferred migration pathway;
- Adjacent to the right-of way of Evans Street to evaluate potential preferential migration in proximity to buried utilities in this area;
- On the 320 Andrews Street parcel near the area of the former gasoline station and at key locations to fill in data gaps;
- Immediately off-site east of the 320 Andrews Street parcel in the right-of-way of Franklin Square where PCE was detected in near-surface soil samples;
- Along the west boundary of the 304-308 Andrews Street parcel in proximity to an adjoining off-site parcel with documented historic dry cleaning operations;

- On the southwest corner of the 300 Andrews Street parcel at an inferred upgradient background position; and
- At other various locations across the Site to fill in other data gaps.

During drilling, Macro-Core samples will be driven in continuous 4-foot intervals to the desired depths. If the drill-rig encounters Macro-Core refusal or poor sample recoveries, continuous split spoon samples may be collected via Standard Penetration Test (SPT) methods in the overburden ahead of the hollow stem augers. If SPT refusal is encountered, then the HSAs will be used to advance the borings, and sampling will resume if auger refusal is not encountered. Split-spoon and Macro-Core soil samples will be classified, logged, and the headspace of portions of the samples will also be screened with a PID. Selected soil samples will be collected for potential analytical analyses to confirm the field observation findings.

If field observations and/or elevated PID readings suggest the presence of DNAPL or LNAPL, the Team will perform a shake test on an aliquot of the corresponding soil sample with hydrophobic dye using the procedure outline in Section 5.1.4. If DNAPL is encountered, representatives of the City and the NYSDEC will be consulted to discuss options to prevent investigation induced vertical migration of DNAPL. Such options could include no further advancement of the boring and installation of a well at the depth where the DNAPL was encountered, immediately grouting up the boring, etc.

Based on field observations during the soil boring investigation, soil samples will be collected for analytical analyses by ChemTech. The soil sample selection for analysis criteria are listed below:

- Confirm evidence of field contamination (elevated PID readings, staining, odors, present of NAPL, etc.). Sample will be collected from the zone of greatest evidence of field contamination;
- Approximately one to two feet below significant changes in the nature and extent of identified field contamination;
- Adjacent to subsurface structures of environmental concern such as abandoned utilities or other preferential pathways for contaminant migration;
- At the bedrock/overburden interface if this interface is encountered above the water-table; and/or,
- Approximately one foot above the encountered water table.

It is anticipated that up to a total of 18 soil samples will be collected for laboratory analyses using the procedures listed in the QAPP. The soil samples will be analyzed for the following suite of analytical parameters:

- TCL VOCs plus MTBE and TICs;
- TCL SVOCs plus TICs;
- TCL PCBs; and
- TAL Metals.

As previously identified, nine rotary-drilled soil borings will be extended into bedrock for installation of bedrock groundwater monitoring wells. The borings will be extended at least two feet into competent bedrock using a HSA or an appropriate-sized roller bit. A permanent 4” steel casing will then be installed and sealed with appropriate cement mixture into the bedrock and will extend to above the ground surface. Ten feet of bedrock will then be cored using HQ-sized coring equipment (or NX-sized coring equipment followed by reaming with a 3-7/8” diameter roller bit). The bedrock underlying the overburden at the Site is anticipated to consist of Lockport Dolomite. The bedrock cores will be photographed and maintained on-site during the RI. As defined in the QAPP, pertinent information concerning the rock coring will be recorded on test boring logs. As noted above and in the QAPP, the field investigation results and sample locations will be placed into geographical database for later data interpretation and remedial evaluation efforts.

Observations, PID screening, soil and rock descriptions, rock quality determinations, drilling water lost, etc. for each boring will be recorded on test boring logs as further described in the QAPP

Drilling equipment will be decontaminated prior to use at each location. Drill cuttings, drill water, and decontamination water will be handled as IDW in accordance with Section 5.1.7.

<u>Targeted PCB Evaluation (Localized Area on West Side of 320 Andrews St Parcel)</u>

PCBs were detected at a concentration of 1.8 mg/kg at previous soil sample location S-48 that was collected from a depth of 0.5 feet, which corresponds to immediately beneath the concrete pavement that was removed along the west side of the 320 Andrews Street parcel. This detected concentration exceeded some NYSDEC Part 375 SCOs.

In order to further evaluate the extent of PCBs in soil in this area, SJB will direct-push four-foot long Geoprobe macro core samplers to collect soil samples at five shallow test borings (designated as SB-1 through SB-5) to a depth of 4 feet. At SB-1, situated in proximity to previous test location S-48, a sample from the 2-4 foot depth interval will be collected for laboratory analysis. At SB-2 through SB-5, soil samples from the 0-2 foot depth interval and 2-4 foot depth interval will be collected for laboratory analysis. The proposed shallow test boring locations are shown on Figure 5, GPS (or tape measurements as a back-up) will be used to mark out the test boring locations in the field. The nine soil samples collected will be analyzed by Chemtech for TCL PCBs using the procedures listed in the QAPP.

5.1.6 Groundwater Investigation

A groundwater evaluation is proposed as part of the scope of investigation for this project. The purpose of the groundwater evaluation is to evaluate groundwater quality at the Site, evaluate potential off-site impacts migrating onto the Site, evaluate suspected preferential migration pathways along buried utilities, evaluate potential off-site migration of site contaminants, and evaluate the vertical and lateral extents of known and suspected contamination in groundwater.

A total of 20 soil borings will be converted into monitoring wells (11 overburden wells and 9 bedrock wells). Based on the preliminary conceptual site model the first water-bearing unit at the Site is anticipated to be the overburden lacustrine and glacial till deposits. The proposed monitoring well locations are shown on Figure 5.

Overburden Well Installation

Eleven of the soil borings will be converted to overburden monitoring wells. The monitoring wells will be installed utilizing a two-inch inside diameter, Schedule 40 PVC casing and screen materials. A schematic overburden well construction diagram is shown on Figure 6. If DNAPL is encountered, the NYSDEC will be notified of the finding, a decision will be made regarding installation of the well, and the well construction materials may be modified to ensure that these materials are chemically compatible with the encountered DNAPL. The base of the well will include a 12-inch sediment collection sump. Above the collection sump will be a No. 10 slot screen that is attached to a solid PVC riser casing with a PVC cap that will extend from the top of the screened section to the ground surface. The anticipated screen length will be 10 feet with approximately three feet above the observed water table and seven feet below the observed water table. The actual length of the well screen may vary due to the encountered field conditions. For example, a 15 feet well screen may be selected if the encountered water-bearing materials exhibit a low hydraulic conductivity, which inherently reduces the resolution of the field determination of the water table.

The annulus around the collection sump and well screen will be filled with a washed and graded silica sand pack that will be placed to at least two feet above the top of the screen interval. A minimum two-foot thick bentonite seal will be placed above the sand pack and hydrated with potable water. Following hydration of the bentonite, the remaining annulus will be filled with cement/bentonite grout consisting of approximately 96% Portland type 1 (or similar) cement to 4% granular bentonite mixture and water. The cement/bentonite grout will be tremied into the well annulus to approximately one foot below grade. A curb box with locking cap will be placed over each well and cemented in-place.

Bedrock Monitoring Well Installation

Nine test borings that were advanced 12 feet into bedrock will be converted into bedrock monitoring wells. The bedrock wells will be installed as open borehole wells unless long-term integrity of the borehole is a concern. If potential collapse of the borehole is a concern based on field conditions encountered, then the bedrock wells will be installed using the procedures for an overburden well as noted above. A schematic bedrock well construction diagram is shown on Figure 7.

Well Development

At least two days following installation, the monitoring wells will be developed in accordance with the protocol outlined in the QAPP. For bedrock wells, the Team will track the amount of water removed during development in relation to the amount of water lost during previous drilling. As identified in the QAPP, modifications to the well development protocol may be necessary if considerable amounts of lost drill water cannot be efficiently removed during standard well development procedures.

Groundwater Sampling

A total of two rounds of groundwater samples will be collected from the 20 newly installed monitoring wells and existing monitoring wells MW-1, MW-2 and MW-3 that were installed during the 2006 Phase II ESA. The first round of groundwater samples will be collected for laboratory analysis at least two weeks following adequate development of the subject monitoring wells, or at a time approved by the NYSDEC if greater than 10 volumes of drill water is lost and is not recovered during development. To assist in meeting the desired project schedule, the second round of groundwater sampling will be collected approximately four months after the initial groundwater sampling round. To the extent possible and in coordination with the NYSDEC, sampling events will occur during seasonal high and seasonal low groundwater table conditions.

At least the first round of groundwater samples will be collected utilizing low-flow purging and sampling procedures. With input from the NYSDEC, a decision will be made whether low-flow sampling is required during the second round. Any alternate groundwater sampling methods will be proposed to the NYSDEC for its approval. The low-flow procedures are outlined in the QAPP.

The groundwater samples will be analyzed for the following suite of parameters by Chemtech.

- TCL VOCs plus MTBE and TICs;
- TCL SVOCs and TICs;
- TCL PCBs;
- TCL pesticides;
- TAL Metals; and,
- Cyanide.

With input from the NYSDEC, a decision will be made whether any of the parameter lists identified above can be eliminated on the second round samples, and whether every well requires sampling during the second round. Such modifications will be requested in a written letter to the NYSDEC and NYSDOH that includes the first round of groundwater data, including data generated to date in a tabular format with appropriate SCGs for comparison. Also, during the second round of groundwater sampling, one or more of the following additional analytical parameters may also be performed on a groundwater sample from up to three monitoring well locations as part of the remedial alternatives evaluation. The selected monitoring well locations and actual remedial alternatives sampling parameters listed below will be based on the data collected during the first sampling round, other aspects of the RI, and with input from the NYSDEC.

- Alkalinity;
- Chlorides;
- Sulfate;
- Natural Oxygen Demand (NOD); and
- Halorespiring Bacteria (e.g., Dehalococcoides, functional genes, etc.).

Prior to use and between monitoring wells, the portable bladder pump and other reusable (non-disposable) groundwater sampling equipment will be decontaminated. Water generated from the well sampling and equipment decontamination activities will be containerized as IDW for later disposal. Procedures for managing IDW are provided in Section 5.1.7.

Well Surveying and Groundwater Potentiometric Surface Evaluation

A licensed surveyor will measure the locations and elevations of each new monitoring well and the three existing monitoring wells at the Site. During each sampling event, static groundwater measurements will be collected from each monitoring well using an electronic static water level meter or an oil/water interface meter. Static water-level measurements will also be obtained during other portions of the RI, such as during the slug testing activities described below. Groundwater elevations will be calculated for the two groundwater sampling events, and corresponding potentiometric groundwater contour maps will be prepared illustrating the approximate groundwater elevations and groundwater flow direction(s) for each water-bearing unit. The survey information and groundwater elevations will also be imported into the GIS database for the Site.

Overburden and Bedrock Aquifer Physical Characterization

The hydraulic conductivity of the water-bearing units at the Site will be calculated using in-situ slug testing techniques from selected locations in both the overburden and bedrock aquifers. Each slug test will be conducted by instantaneously changing the water level in a monitoring well by the introduction, and subsequent removal, of a non-reactive solid and sealed PVC pipe, "the slug", and measuring the aquifer's response to the changing water-level over time. Slug tests will be conducted by both inserting and removing the slug. Removal of the slug will be conducted only after the well has receded to 98% of the original water level. The slug test procedures are described in Bouwer, H., 1989. The Bouwer and Rice slug test--an update, Groundwater, vol. 27, no. 3, pp. 304-309 and the original Bouwer, H and R.C. Rice 1976 article in the Water Resources Research Journal. Slug test data will be imported to specialized software such as SuperSlug to calculate hydraulic conductivity, and if appropriate the transmissivity. The hydraulic conductivity data will also be used to evaluate the local groundwater velocity combined with potentiometric data gathered at the Site.

Slug tests will be conducted from a total of eight monitoring wells at the Site following completion of the first round of groundwater sampling. The location and water-bearing units of the slug tests will be determined based on an evaluation of the RI data obtained to date. It is anticipated that slug tests will be performed at four monitoring wells in the overburden aquifer and four wells in the bedrock aquifer at the Site. Based on the extent of groundwater impacts to the overburden and bedrock aquifers, the number of slug tests conducted in each water-bearing unit may change. For example, if groundwater impacts are primarily limited to the overburden aquifer, then most of the slug tests will be conducted from monitoring wells screened in the overburden deposits.

5.1.7 Investigation Derived Wastes Management and Disposal

It is anticipated that solid and liquid study-derived wastes will be generated during the RI. IDW will be managed in general accordance with the applicable provisions set forth of DER-10 Section 3.3(e). Below is an anticipated proposed method for handling, characterization and disposal of IDW.

Potentially contaminated liquid wastes will likely include: decontamination water, drilling water, well development water, and purge water. The handling of the contaminated liquids is further discussed below. Storage of liquid IDW will be generally collected in an on-site storage tank or frac tank. The anticipated location of this storage tank is on the northern portion of the Site (refer to Figure 2 in the HASP). Liquids that are grossly contaminated or suspected to contain DNAPL may be placed in separate drums and labeled accordingly. Management of liquid IDW following completion of the first round of groundwater sampling may be modified following review of the RI results. It is anticipated that liquid IDW will be discharged to the Monroe County Pure Waters sanitary sewer system under a sewer use permit. Obtaining a sewer use permit may require sampling the IDW for the parameters of concern. Any sampling of IDW necessary to obtain a sewer use permit will be incorporated into the RI/RAA Report. A copy of the Monroe County Pure Waters sewer use permit will be provided to the NYSDEC prior to any discharge to the sanitary sewer system. Drummed liquid IDW that is grossly contaminated or suspected to contain DNAPL will also be characterized using the investigation test results and other sampling data as necessary to dispose or treat the material in accordance with the applicable rules and regulations.

Potentially contaminated solid wastes will likely include disposable sampling equipment and personal protective equipment (PPE), soil samples that were collected but not selected for analytical laboratory testing, soil cuttings from direct-push and rotary drilling operations, and possibly a small amount of displaced excavated material (i.e., soil or fill) that cannot be placed back in test pits during backfilling due to compaction difficulties, depending upon the nature of the excavated material. The handling of contaminated solid wastes is further discussed below. It is anticipated that the solid IDW will be placed in a lined and covered roll-off stored adjacent to the decontamination area. As an exception, solids that are grossly contaminated or suspected to contain DNAPL may be placed in separate drums and labeled accordingly. The IDW solids will be characterized and disposed of off-site in accordance with the applicable rules and regulations. If based on a review of the RI and IRM results that re-use of the IDW is possible, the NYSDEC will be notified of the proposed re-use of IDW for approval prior to implementation.

5.1.8 Analytical Laboratory Quality Assurance/Quality Control

Chemtech will complete a majority of the analytical laboratory testing. In addition, rapid response analytical laboratory testing will be conducted by Paradigm during the Triad portion of the RI. These two laboratories are NYSDOH ELAP certified. Further details on the analytical laboratory QA/QC program for this project are provided in the QAPP.

Environmental Data Validation, Inc. (EDV) will independently prepare a Data Usability Summary Report (DUSR) in accordance with the provisions set forth in Appendix 2B of the NYSDEC "DER-10 Technical Guidance for Site Investigation and Remediation" dated May 2010. The findings of the DUSR(s) will be incorporated in analytical laboratory tables that will be included in the RI and other associated reports as applicable. Further information is provided in the QAPP.

5.2 Interim Remedial Measures

There are two IRMs included as part of this project. The first IRM involves the removal of two abandoned 5,000-gallon USTs and potentially petroleum-impacted soil located beneath the eastern portion of the building on the 25 Evans Street parcel. The second IRM is associated with removal of PCE-impacted soil on the 304-308 Andrews Street parcel. These IRMs are intended to mitigate these two known source areas in a timely manner prior to development of a remedy for the remainder of the Site. The IRMs will be conducted in accordance with an IRM Work Plan that will be a separate and stand-alone document from this work plan. The IRM results may be used to modify the preliminary conceptual site model and the RI investigation depending on the timing and findings of the IRM.

5.3 Soil Vapor Intrusion Evaluation

The presence of VOCs, specifically PCE, in the soil and groundwater at the Site poses a potential route of exposure on-site and off-site via soil vapor intrusion into existing or future buildings. Due to the fact that the site buildings have been demolished and that an IRM to excavate PCE-contaminated soil source area is planned, the soil vapor intrusion evaluation is deferred at this time. However, once the PCE soil source area IRM has been completed and the extent of the soil and groundwater contamination has been delineated, an evaluation regarding the potential for soil vapor intrusion will be completed. The proposed scope will be provided to the NYSDEC as an addendum to this RI/RAA Work Plan. Once the scope is approved by the NYSDEC with consultation from the NYSDOH, the soil vapor intrusion evaluation will be implemented.

6.0 REMEDIAL INVESTIGATION/REMEDIAL ALTERNATIVES ANALYSIS REPORT

The RI/RAA report will be prepared in accordance with provisions set forth in DER-10 and the ERP Handbook. The RI/RAA report will present the findings and outcome of the RI, the results of the IRMs, and an analysis and recommendation of remedial alternatives. An executive summary will be included in the RI/RAA report.

The RI portion of the report will include, but is not limited to the following components:

- Technical overview and details on the investigative and IRM work performed;
- A description of the physical characteristics of the Site, including soil/fill types, hydrogeological characteristics, proximity to a drinking water aquifer, absence of surface water, floodplains, and wetlands for this specific Site, etc.;
- Identification of the nature and extent of contamination, including identification of known or suspected sources of contamination;
- A discussion on contaminant fate and transport, including potential routes of migration, contaminant persistence, and documented contaminant migration as well factors that affect contaminant migration;
- A qualitative human health exposure assessment, and completion of a Fish and Wildlife Resources Impact Analysis (FWRIA) Decision Key;
- A Summary and Conclusions section, including identification of data limitations or recommendations for future work;
- Identifications of recommended RAOs;
- Appropriate figures including a project locus map, site plan depicting Site features, sample location figures and results of various testing (e.g., geophysical survey results, VOCs in detected in soil, groundwater or other media, including isopleth maps), potentiometric groundwater contour maps for the overburden and deeper bedrock zones, top of bedrock contour map if sufficient data collected, extent of NAPL if appropriate, etc.;
- Stratigraphic cross-sections prepared using information and data obtained during the investigation;
- Identification of SCG values that pertain to the Site;
- Data tables including: a table(s) providing specifics on each sample tested (e.g., sample designation, location, date, depth interval, test parameters, UTM NAD 83 coordinates), summary tables comparing detected constituents to appropriate regulatory SCG values; a table summarizing the nature and extent of constituents detected at the Site; and tables for other various investigation-related data or information). The analytical laboratory results for soil samples tested will be compared to appropriate NYSDEC Part 375 SCOs. The analytical laboratory results for groundwater samples will be compared to NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 groundwater standards and guidance values;
- Analytical laboratory reports and associated QA/QC evaluation (e.g., DUSRs);

- Field logs and data, including test boring logs, and well construction diagrams, well development logs, well sampling logs, hydraulic conductivity testing data, PID readings from soil screening and CAMP monitoring, and MIP monitoring;
- Photographs;
- Conclusions and recommendations regarding the extent of the areas of concern, identification of any unacceptable exposure pathways, and recommendations of future work (e.g. none, additional investigation, or an evaluation of remedial alternatives);
- An updated conceptual site model; and
- Other information as deemed appropriate.

To the extent required by the NYSDEC at the time of report submission, data generated as part of the RI will be submitted to the NYSDEC in the appropriate electronic data deliverable format.

The RAA portion of the report will discuss potential remediation options for addressing any impacts documented in the RI portion of the report. A detailed evaluation will be conducted for each remedial alternative taking into consideration factors identified in DER-10 and the ERP Handbook. Evaluation criteria include, but are not limited to:

- Overall protection of human health and the environment, including potential exposures;
- Compliance with SCG values;
- Long-term effectiveness and permanence;
- Short-term effectiveness;
- Reduction of toxicity, mobility and/or volume;
- Implementability;
- Current use and reasonably anticipated future use of the Site;
- Community acceptance, and
- Cost.

The RAA will identify general response actions including an estimate of the volumes/areas of contaminated media. General response actions include categories such as treatment, containment, excavation, extraction, disposal, institutional controls, engineering controls, or various combinations. Cumulative data will be used as the project progresses to modify general response actions as deemed appropriate. Where presumptive remedies are available to address an area of contaminated media, they will be strongly considered; however, innovative technologies will also be considered. Applicable general response actions will be developed on a medium-specific basis, similar to the development of RAOs. For each medium addressed, the volumes or areas to be remediated will be identified and characterized with respect to requirements for protectiveness, taking into account the chemical and physical characterization. During this step, technologies that are not suitable for the Site will be eliminated from further consideration.

Technology types for each general response action associated with an impacted media will be screened for appropriateness. Technology types may include chemical treatment, enhanced biodegradation, capping, thermal destruction, dewatering, etc. The technologies that appear feasible and capable of meeting the Standards, Criteria and Guidance goals will be used in development of remedial alternatives for the Site. The technologies will then be assembled into media-specific or site-wide remedial alternatives. The following components of each alternative will be discussed: size and configuration of processes; anticipated remediation duration; spatial requirements; disposal options; permit requirements; and beneficial or adverse impacts on fish and wildlife.

A no action alternative and a pre-disposal alternative will also be developed and evaluated for the Site. Other alternatives will be developed that take into consideration: current use and anticipated future use of the Site, additional removal of source areas beyond that already addressed by the IRMs; and contaminant containment. The remedial alternatives will then be compared to the evaluation criteria and a comparative analysis will be completed. Based on the remedial alternative analysis, a remedial alternative for the Site will be recommended, which will include a discussion on the reasons for selection. The criteria of community acceptance will be evaluated upon completion of the public comment period.

The RI/RAA Report will be submitted to the NYSDEC for their review and comment. Following review and comment from the NYSDEC, the RI/RAA Report will be finalized, stamped and signed by a currently-registered New York State licensed Professional Engineer (P.E.) prior to approval by the NYSDEC. Based on the findings of the RI/RAA Report, the NYSDEC will prepare a PRAP summarizing the proposed remedy for the Site. The final RI/RAA Report will include an electronic copy in the appropriate PDF format required by the NYSDEC.

7.0 REPORTING SCHEDULE

The RI will proceed immediately following NYSDEC approval of this Work Plan. Demolition of the existing above-grade structures started in October 2010 in an effort to expedite the project and improve site access to conduct the RI. The two IRMs will proceed after the Triad investigation is complete. A detailed schedule for each phase of the RI/RAA project is included as Appendix E. As shown, it is anticipated that the duration of the RI/RAA project after work plan approval will be approximately 14 months including anticipated NYSDEC review time frames.

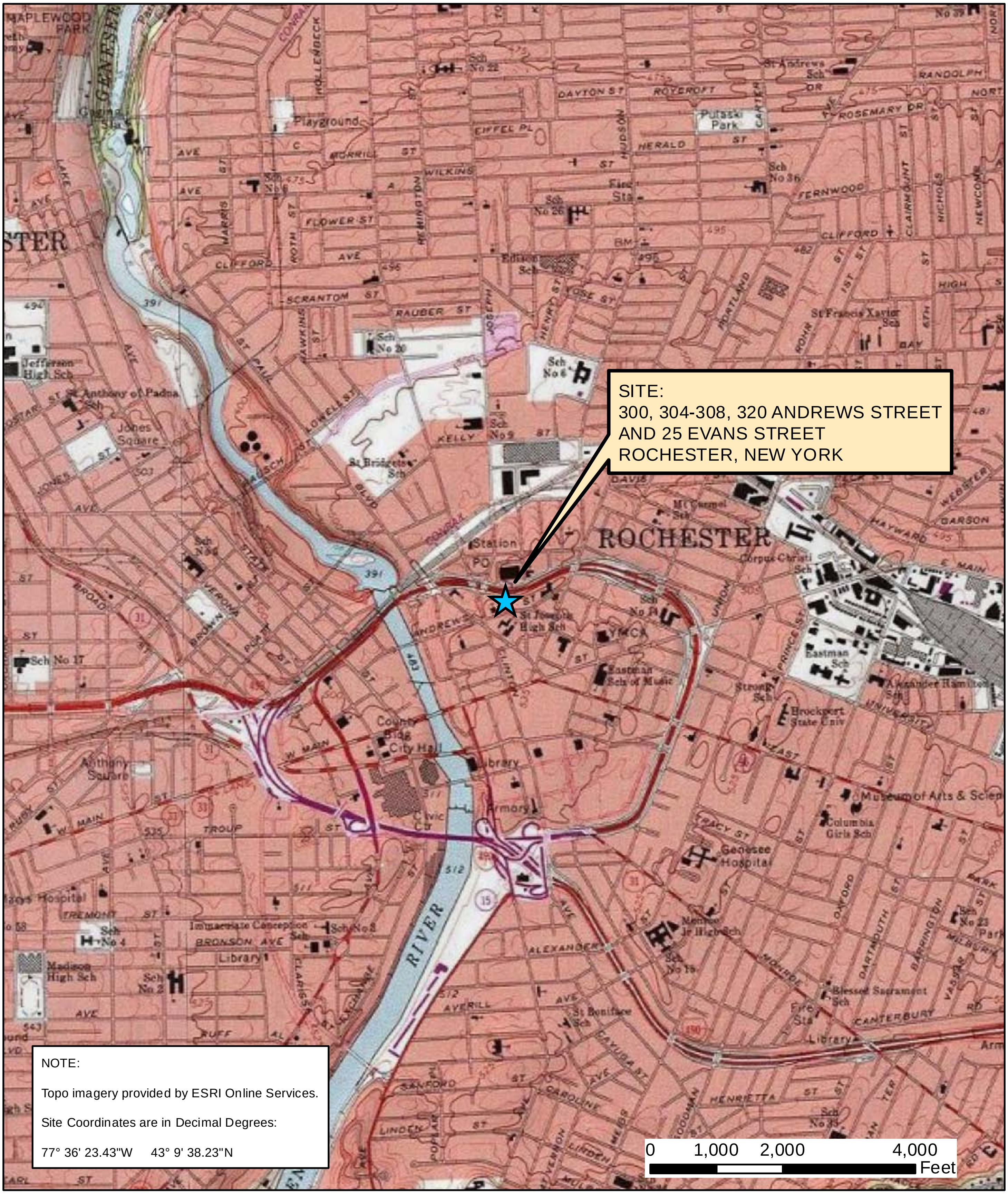
8.0 ACRONYMS

ASP	Analytical Services Protocol
AST	Aboveground Storage Tank
BCP	Brownfield Cleanup Program
Bgs	Below the Ground Surface
cis-1,2-DCE	cis-1,2-Dichloroethene
CAMP	Community Air Monitoring Plan
CCD	Center City District
Chemtech	Chemtech Consulting Group, Inc.
City	City of Rochester
COD	Chemical Oxygen Demand
CR2	Crusher Run #2
DAY	Day Environmental, Inc.
DNAPL	Dense Non-Aqueous Phase Liquid
DUSR	Data Usability Summary Report
ECP	Emergency Contingency Plan
EDV	Environmental Data Validation, Inc.
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
FWRIA	Fish and Wildlife Resources Impact Analysis
GIS	Geographic Information System
GPR	Ground Penetrating Radar
GPS	Global Positioning System
HASP	Health And Safety Plan
HTL	Heated Trunk Line
HSA	Hollow Stem Auger
IDW	Investigation Derived Waste
IRM	Interim Remedial Measure
Leader	Leader Professional Services, Inc.
MIP	Membrane Interface Probe
mg/kg	Milligram per Kilogram, or parts per million
MTBE	Methyl-Tert-Butyl Ether
LNAPL	Light Non-Aqueous Phase Liquid
LU	Lu Engineers
NAPL	Non-Aqueous Phase Liquid
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.
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene (a/k/a perchloroethene)
P.E.	Professional Engineer
Phase I ESA	Phase I Environmental Site Assessment
Phase II ESA	Phase II Environmental Site Assessment
PID	Photoionization Detector
PPB	Parts Per Billion
PPE	Personal Protective Equipment
PPM	Parts Per Million
PRAP	Proposed Remedial Action Plan
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RI/RAA	Remedial Investigation/remedial Alternatives Analysis

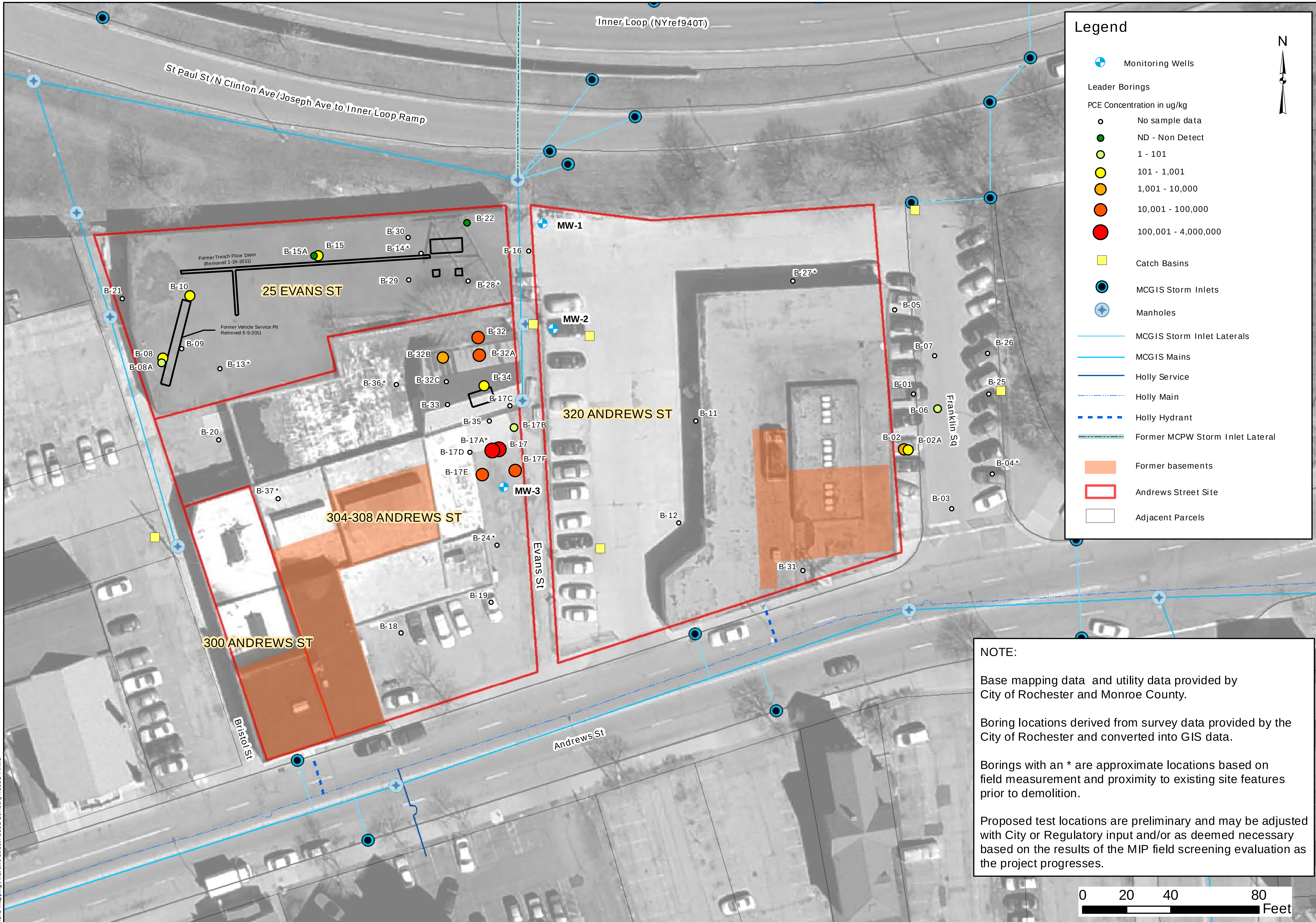
ROD	Record of Decision
RSCO	Recommended Soil Cleanup Objective
S2C2	Streamlined Site Characterization & Closure, Inc.
SCG	Standard, Criteria and Guidance
SCO	Soil Cleanup Objective
SJB	SJB Services, Inc.
SOP	Standard Operating Procedure
SPT	Standard Penetration Test
SVOC	Semi-Volatile Organic Compound
TAGM	Technical Administrative Guidance Manual
TAL	Target Analyte List
TCE	Trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TOC	Total Organic Carbon
TOGs	Technical and Operational Guidance Series
Ug/l	Microgram per Liter
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
XSD	Halogen Specific Detector

FIGURES

\GIS\GIS Mapping\Andrews Street\4355S-1A.mxd



Date: 11-05-2010 Drawn By: CPS Scale: AS NOTED	day **DAY ENVIRONMENTAL, INC.** **Environmental Consultants** **Rochester, New York 14614-1008** **New York, New York 10016-0701**	Project Title: 300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET ROCHESTER, NEW YORK (NYSDEC SITE NO.: E828144) RI / RAA WORK PLAN Drawing Title: Project Locus Map	Project No.: 4355S-10 FIGURE 1



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DRAWN BY CPS
SCALE AS NOTED

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DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14614-1008
New York, New York 10016-0710

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK (NYSDEC SITE NO.: E828144)
RI / RAA WORK PLAN

Drawing Title
Site Plan with Previous Test Locations and Peak PCE Concentrations Detected in Soil Samples

Project No.
4355S-10

FIGURE 2

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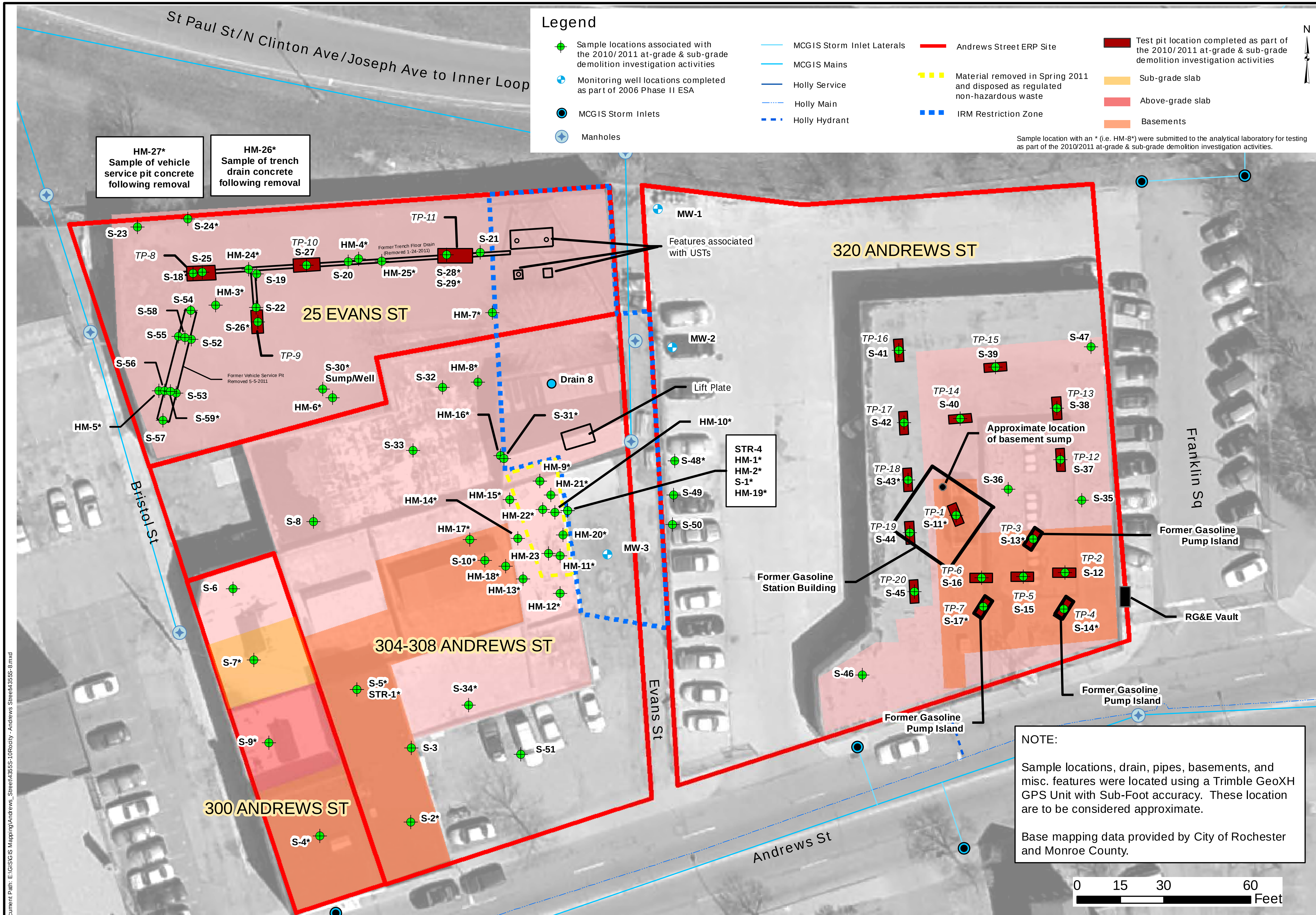

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DATE ISSUED	08-08-2011

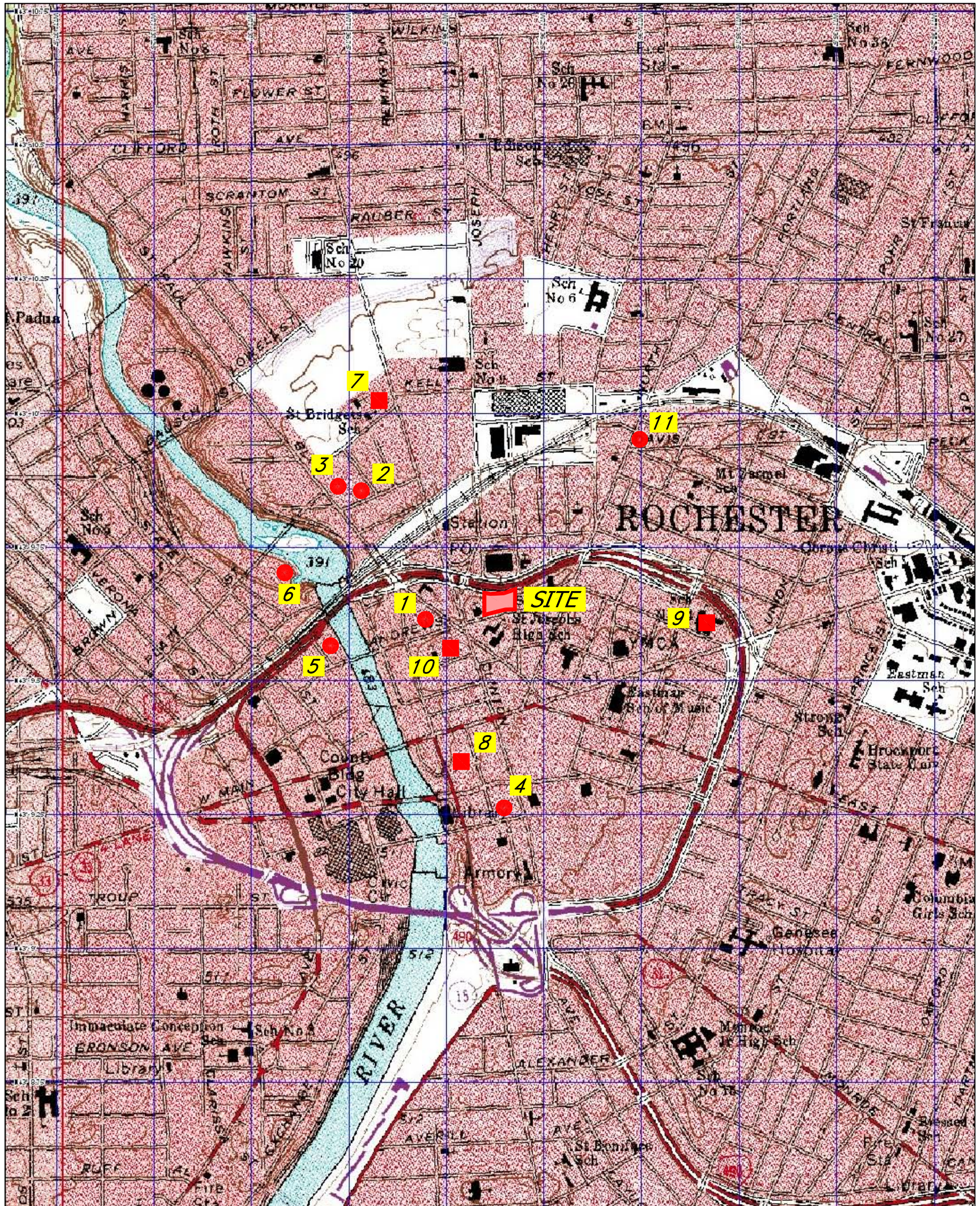
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14614-1008
New York, New York 10016-0710

Project Title
300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET
ROCHESTER, NEW YORK (NYSDEC SITE NO.: E828144)
RI / RAA WORK PLAN

Drawing Title
Site Plan - Sample Locations

Project No.
4355S-10

FIGURE 3



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS
500 ft Scale: 1 : 17,600 Detail: 14-0 Datum: WGS84

N

LEGEND

SITE – 300, 304–308, 320 Andrews Street and 25 Evans Street

Nearby Contaminated Site

Nearby School/Sensitive Receptor

1 Brownfield Cleanup Program Site #C828127 Active With Petroleum and TCE Contamination

2 Brownfield Cleanup Program Site #C828117 Completed Petroleum and PCE Contamination

3 Brownfield Cleanup Program Site #C828136 Completed Petroleum and PCE Contamination

4 Voluntary Cleanup Program Site #V00001 Completed Chlorinated Sovent Contamination

5 Voluntary Cleanup Program Site #V00073 Active Former RG&E MGP Facility

6 Voluntary Cleanup Program Site #V00014 Completed Former RG&E MGP Facility

7 Dr. Martin Luther King Jr. Elementary School 9 485 North Clinton Avenue

8 Early Head Start 49 Stone Street

9 World Of Inquiry School 58 200 University Avenue

10 School Without Walls 111 North Clinton Avenue

11 NYSDEC Spill #9205715 Active With Petroleum

DATE	DATE DRAWN	DATE ISSUED
11-2010	11-8-2010	8-5-2011

PROJECT MANAGER	DRAWN BY	SCALE
ADL	RJM	As Noted

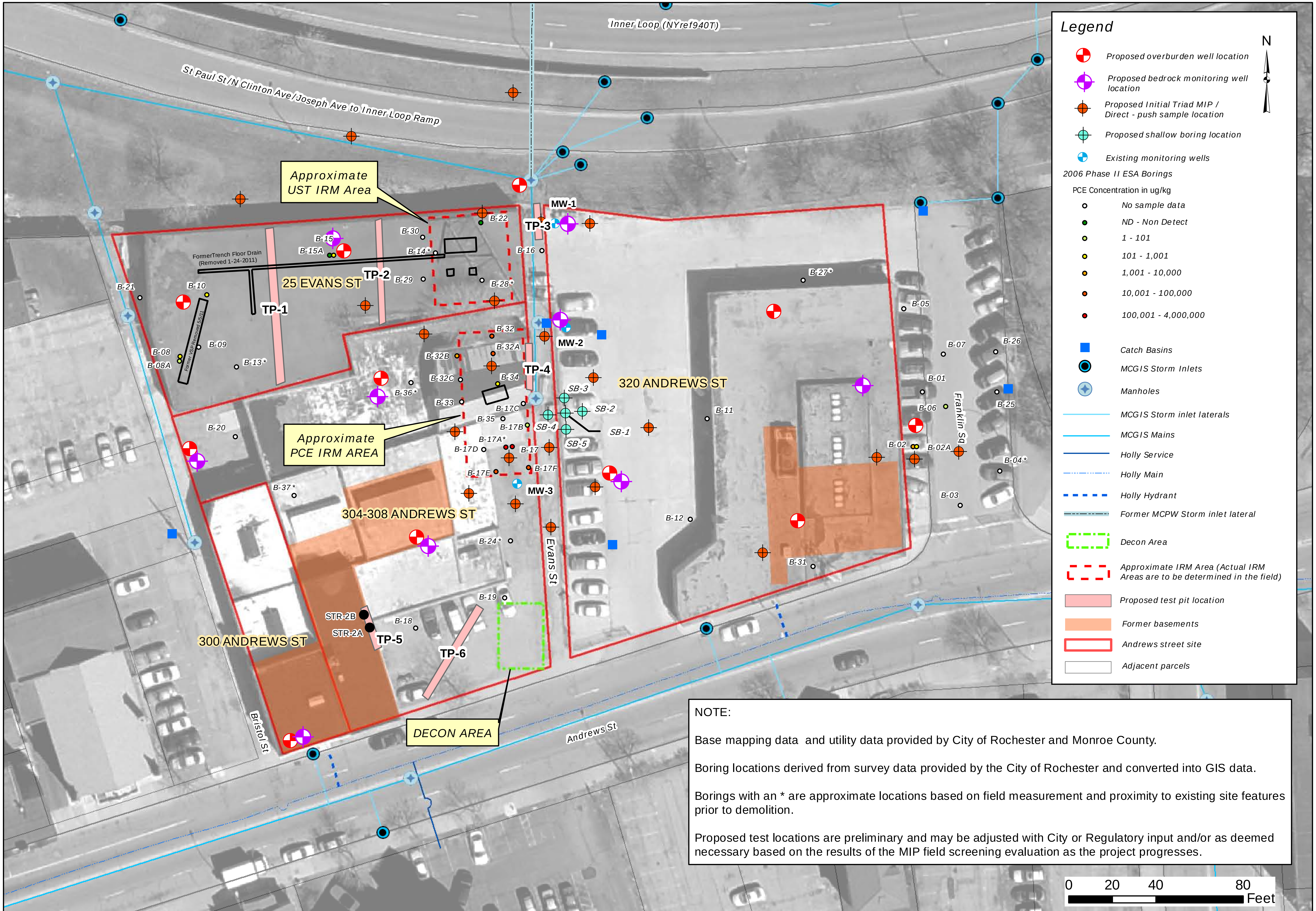
day
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14614-1008
NEW YORK, NEW YORK 10016-0710

PROJECT TITLE
300, 304-308, 320 ANDREWS STREET AND 25 EVANS STREET
ROCHESTER, NEW YORK
NYSDEC SITE NO. E828144
RI/RAA WORK PLAN

DRAWING TITLE
Nearby Contaminated Sites And Sensitive Receptors

PROJECT NO.
4355S-10

FIGURE 4



DATE 03-2010
DATE DRAWN 03-2010
DATE ISSUED 05-09-2011
DESIGNED BY JAD
DRAWN BY CPS
SCALE AS NOTED

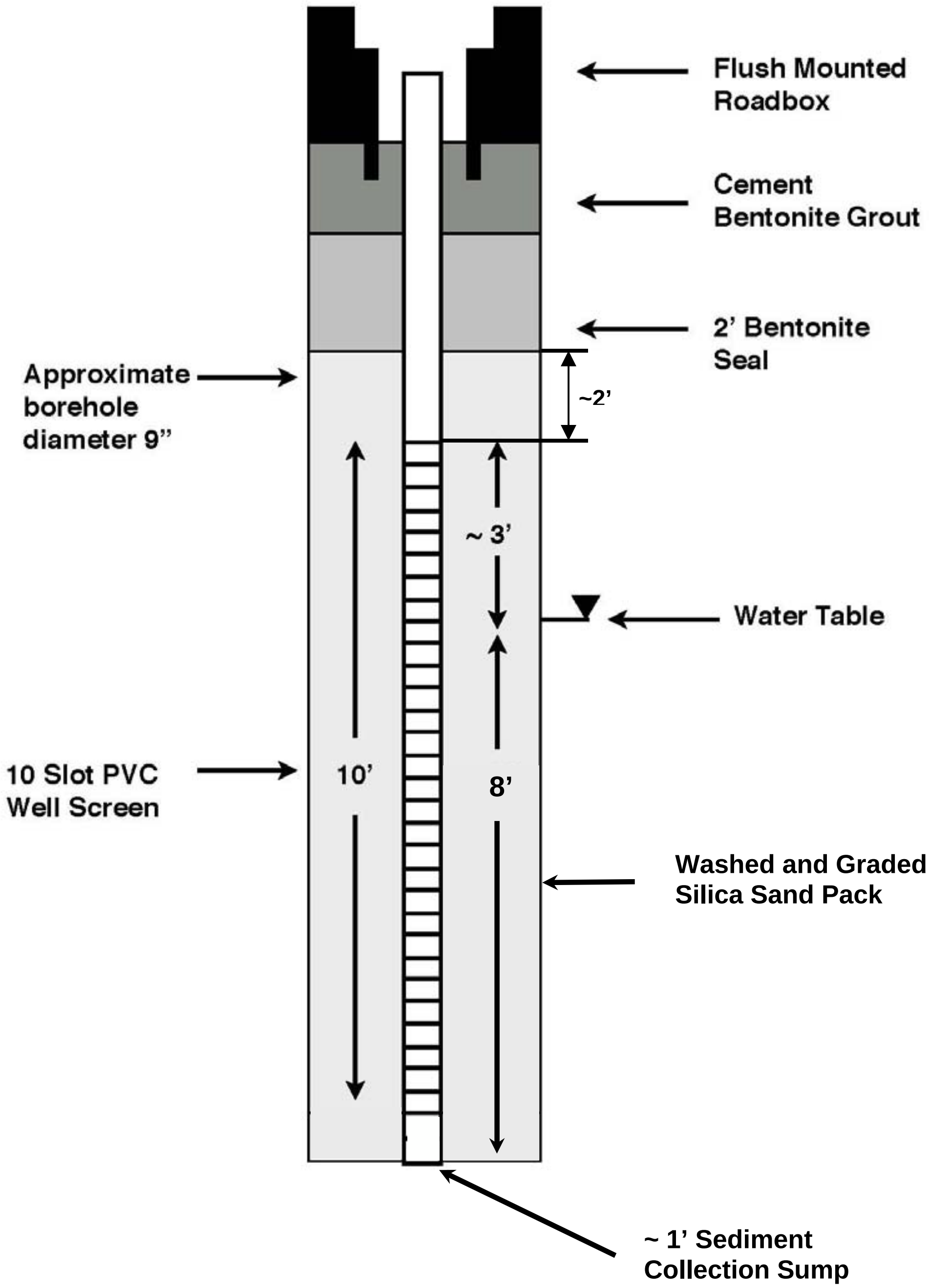
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14614-1008
New York, New York 10016-0710

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK (NYSDEC SITE NO.: E828144)
RI / RAA WORK PLAN

Drawing Title
Site Plan with Proposed Test Locations

Project No.
4355S-10

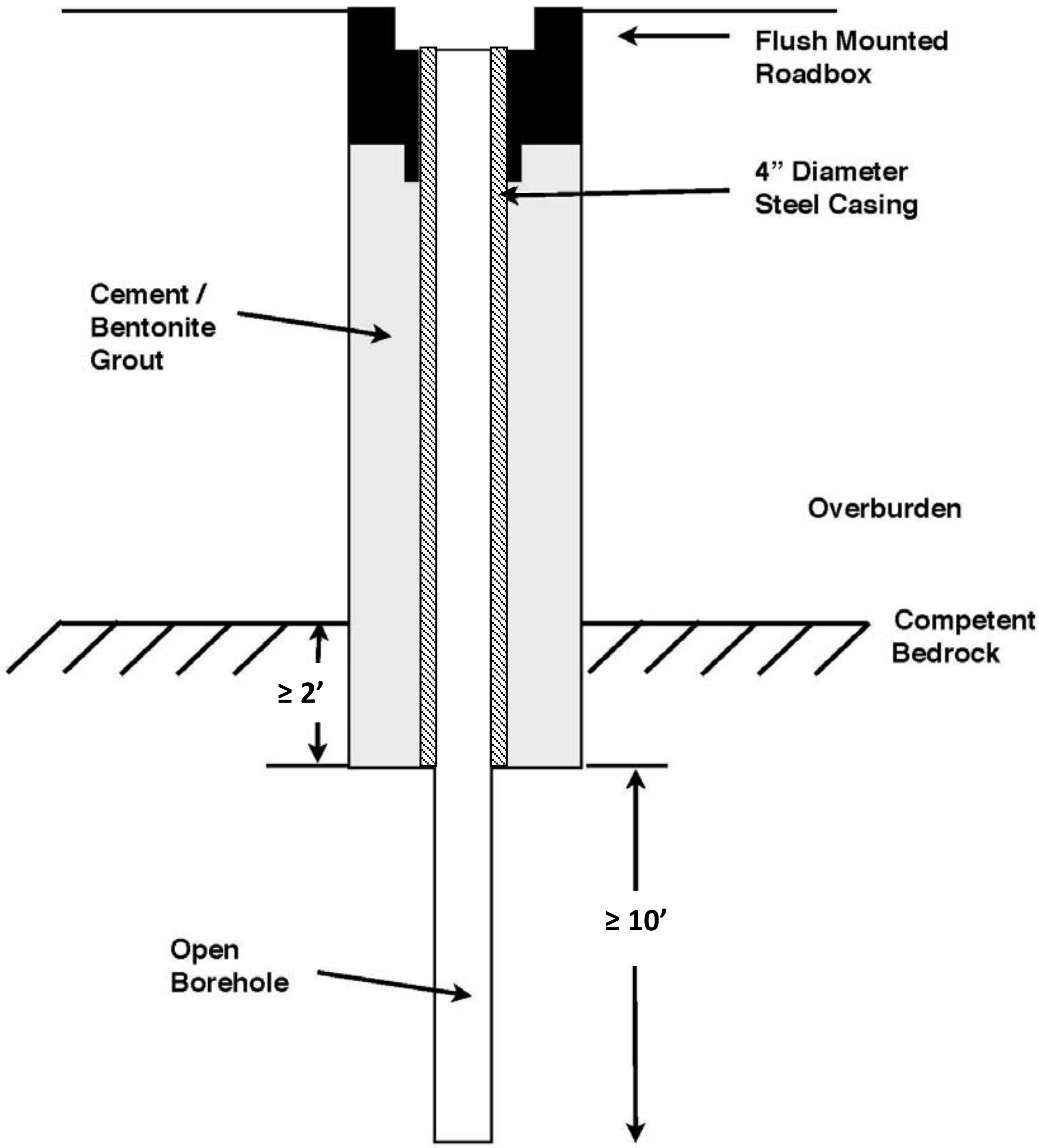
FIGURE 5



NOT TO SCALE

GIS Mapping\Andrews Street/4355S-10Rocity/Well Mount Figure.doc

DATE 8/9/2011 DRAWN BY CPS SCALE Not to Scale	day DAY ENVIRONMENTAL, INC. ENVIRONMENTAL CONSULTANTS ROCHESTER, NEW YORK 14614-1008 NEW YORK. NEW YORK 10165-1617	PROJECT TITLE 300, 304-308, 320 ANDREWS STREET AND 25 EVAN STREET ROCHESTER, NEW YORK (NYSDEC SITE # E828144) RI / RAA WORK PLAN DRAWING TITLE Schematic Overburden Well Design	PROJECT NO. 4355S-10 FIGURE 6



NOT TO SCALE

GIS Mapping\Andrews Street/4355S-10Rocity/Bedrock Well Figure.doc

DATE 8/9/2011 DRAWN BY CPS SCALE Not to Scale	day DAY ENVIRONMENTAL, INC. ENVIRONMENTAL CONSULTANTS ROCHESTER, NEW YORK 14614-1008 NEW YORK, NEW YORK 10165-1617	PROJECT TITLE 300, 304-308, 320 ANDREWS STREET AND 25 EVAN STREET ROCHESTER, NEW YORK (NYSDEC SITE # E828144) RI / RAA WORK PLAN DRAWING TITLE Schematic Bedrock Well Design	PROJECT NO. 4355S-10 FIGURE 7

APPENDIX A
(Refer to CD)

Health and Safety Plan

HEALTH AND SAFETY PLAN

ENVIRONMENTAL RESTORATION PROGRAM
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.
40 Commercial Street
Rochester, New York 14614

And

Lu Engineers
175 Sullys Trail, Suite 202
Pittsford, New York 14534

Project No.: 4355S-10

Date: August 2011

TABLE OF CONTENTS

ATTACHMENTS

1.0 INTRODUCTION

Day Environmental, Inc. (DAY) and Lu Engineers (LU) 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 Remedial Investigation described in the Remedial Investigation/Remedial Alternatives Analysis (RI/RAA) Work Plan. This project is being conducted under the New York State Department of Environmental Protection (NYSDEC) Environmental Restoration Program (ERP) for the City of Rochester (the City). The subject Site is comprised of four parcels with a combined area of approximately 1.49 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.

Although the HASP focuses on the specific work activities planned for this 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 located in a commercial-use urban area in the City of Rochester, Monroe County, New York. The Site is bounded to the north by the Inner Loop highway, to the east by Franklin Square followed by a City-owned park, to the south by Andrews Street with commercial properties beyond, and to the west by Bristol Street with commercial properties beyond. Demolition of the above-grade on-site structures was completed in the Spring of 2011. Prior to demolition, the Site was improved with four buildings with associated paved parking lots and city streets. A narrow city street known as Evans Street separates the 320 Andrews Street parcel from the other three parcels that are contiguous with each other. Evans Street is closed to vehicle traffic, but it does contain underground utilities (e.g., sewer). Bristol Street, franklin Square, Andrews Street, and the Inner Loop also contain underground utilities. 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. Specific information regarding the former structures is provided below:

- 300 Andrews Street (Tax ID# 106.72-01-86) – one approximate 4,224 square-foot one and two-story brick building with a partial basement reportedly constructed in 1925.

- 304-308 Andrews Street (Tax ID# 106-72-01-85) – one approximate 15,425 square-foot one and two-story brick building with a partial basement reportedly constructed in 1920 with an addition in 1961.

- 320 Andrews Street (Tax ID# 106.72-01-84) – one approximate 8,000 square-foot one-story block building with a partial basement reportedly constructed in 1965.

- 25 Evans Street (Tax ID# 106.72-01-87) – one approximate 10,700 square-foot one-story slab-on-grade block building reportedly constructed in 1950.

Recognized environmental conditions (RECs) identified in previous Phase I Environmental Site Assessments for each parcel are listed below.

25 Evans Street

- Former vehicle and equipment operations and materials use, including minor floor spills;
- Two closed in place 5,000-gallon underground storage tanks (USTs) and one out-of-service approximate 3,000-gallon aboveground storage tank (AST) located inside the building;
- A floor trench drain system inside the building;
- A former interior below grade vehicle service pit within the concrete floor partially filled with crushed stone; and
- Off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

300 Andrews Street

- Former operations and suspected materials storage or use, including printing, plumbing supply, boiler additives supply, cleaning supply, and ink use;
- The presence of containers of oil, anti-freeze and paint in the building, and minor floor stains;
- The building once used ASTs to store fuel oil in the basement; and
- Off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

304-308 Andrews Street

- Two out-of-service 275-gallon ASTs in the basement of the building;
- A floor drain inside the garage area of 308 Andrews St.;
- Chemical containers in vacant portion of the building;
- The historic operations and use of the building by a dry cleaning supply company, a chemical distributor, and a printer, including reports of spills and improper disposal practices; and
- Off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

320 Andrews Street

- The historic operation and use of the property by a retail gasoline station and by a commercial bus company; and
- Off-site concerns on adjoining properties, including those identified for the other parcels that comprise the Site.

In 2006, a Phase II Environmental Site Assessment (Phase II ESA) was conducted at the Site to evaluate the identified RECs. The findings of the Phase II ESA are summarized below:

- Tetrachloroethene (PCE or perchloroethene) was detected in 19 of the 21 soil samples collected across the Site, eight of which contained PCE concentrations exceeding the NYSDEC Technical Administrative Guidance Manual (TAGM) 4046 Recommend Soil Cleanup Objective (RSCO). These eight samples were collected at interior and exterior locations in proximity to the eastern side of the 304-308 Andrews Street building and included a sample collected from 1 foot below the ground surface (bgs) that contained a PCE concentration of 3,560 milligrams per kilogram (mg/kg) or parts per million (ppm).
- PCE breakdown products including trichloroethene (TCE) and cis-1,2-dichloroethene (DCE) were detected in one sample collected east of the 304-308 Andrews Street building at depth of three feet bgs.
- TCE was detected in a soil sample collected east of the 320 Andrews Street building at a depth of 2.5 feet and in a soil sample collected within the western portion of the 25 Evans Street building in proximity to the former vehicle service pit at a depth of 3.5 feet bgs.
- Polychlorinated biphenyls (PCBs) were not detected in four soil samples that were analyzed.
- Selected soil samples collected within the former garage footprint at 25 Evans Street at depths ranging between 2.5 and 6-feet bgs contained concentrations of petroleum related volatile organic compounds (VOCs) including p-isopropyltoluene, naphthalene, 1,2,4-trimethylbenezene and 1,3,5-trimethylbenzene above the corresponding RSCOs.
- PCE was detected in the three on-site monitoring wells located east of the 304-308 Andrews Street building and the 25 Evans Street building at concentrations ranging from 420 micrograms per liter (ug/L) or parts per billion (ppb) and 70,000 ppb, which is above the New York State groundwater quality standard of 5 ppb. The PCE breakdown products of TCE and DCE were also detected in groundwater at monitoring well MW-2 located east of Evans Street at concentrations above the corresponding New York State groundwater quality standards.
- Evidence of light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL) was not detected at test boring or monitoring well locations.

In 2010 and 2011, environmental conditions were monitored during the demolition of the Site buildings. Select soil samples were analyzed for full target compound list (TCL)/target analyte list (TAL) parameters and cyanide. A summary of the environmental conditions encountered in soil/fill during the demolition work are summarized below:

- Soil samples collected from a generally black fill material observed on the 300, 304-308 and 25 Evans Street properties, and impacted soil/fill associated with the 25 Evans Street trench drain, contained semi-volatile organic compounds (SVOCs) and/or metals at concentrations exceeding one or more Part 375 soil cleanup objectives (SCOs).

- A soil/fill sample collected from near the PCE source area PCE Interim Remedial Measure (IRM) area was confirmed to contain one or more VOCs at concentrations exceeding Part 375 SCOs.
- A soil/fill sample collected from the impacted trench drain media also contained one or more VOCs at concentrations exceeding Part 375 SCOs.
- Samples from across the Site were tested for pesticides and cyanide, but they were not detected at concentrations exceeding Part 375 Restricted Residential SCOs or Protection of Groundwater SCOs. Only one sample [Sample 045/S-31 (0.5')] exceeded the Unrestricted Use SCO and Protection of Ecological Resources SCO for 4,4-DDT.
- PCBs were only detected above Part 375 SCOs in one soil/fill sample collected beneath the former concrete pad area on the west side of the 320 Andrews Street parcel.

1.2 PLANNED ACTIVITIES COVERED BY HASP

This HASP is intended to be used during this NYSDEC ERP project for the on-site environmental activities. Currently, identified activities include:

- Site preparation activities;
- Geophysical Survey;
- Underground Utility Assessment;
- Test Pit Excavations;
- Completion of Soil Borings;
- Monitoring Well Installation and Sampling;
- In-situ Aquifer Testing; and,
- Investigation Derived Waste Management.

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

2.0 KEY PERSONNEL AND MANAGEMENT

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

2.1 PROJECT MANAGER

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

2.2 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 identification of protection levels. The air monitoring data obtained by the SSO will be available for review by the City, regulatory agencies, and other on-site personnel.

2.3 EMPLOYEE SAFETY RESPONSIBILITY

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

2.4 KEY SAFETY PERSONNEL

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

DAY Project Manager	Jeffrey Danzinger
DAY Site Safety Officer	William Battiste, Charles Hampton, or Nathan Simon

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

LU Project Manager	Gregory Andrus
LU Site Safety Officer	Laura Neubauer, Eric Detweiler, or Bryan Bancroft

3.0 SAFETY RESPONSIBILITY

Contractors, consultants, state or local agencies, or other parties, and their employees, involved with this project will be responsible for their own safety while on-site. Their employees will be required to understand the information contained in this HASP, and must follow the recommendations that are made in this document. As an alternative, contractors, consultants, state or local agencies, or other parties, and their employees, involved with this project can utilize their own health and safety plan for this project as long as it is found acceptable to the New York State Department of Health (NYSDOH) and/or the Monroe County Department of Public Health (MCDPH).

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 hazards listed below deal specifically with those hazards associated with the management of potentially contaminated media (e.g., soil, fill, etc.).

4.1 CHEMICAL HAZARDS

Chemical substances can enter the unprotected body by inhalation, skin absorption, ingestion, or injection (i.e., a puncture wound, etc.). A contaminant can cause damage to 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

CONSTITUENT	OSHA PEL	NIOSH REL	IDLH
Mercury	0.1 mg/m^3	0.05 mg/m^3	10 mg/m^3
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

The potential routes of exposure for these analytes and chemicals include inhalation, ingestion, skin absorption and/or skin/eye contact. The potential for exposure through any one of these routes will depend on the activity conducted. The most likely routes of exposure for the activities that are performed during environmental activities at the Site include inhalation and skin/eye contact.

4.2 PHYSICAL HAZARDS

There are physical hazards associated with this project, which might compound the chemical hazards. Hazard identification, training, adherence to the planned environmental measures, and careful housekeeping can prevent many problems or accidents arising from 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 in conjunction with the fall hazard. Good housekeeping practices are essential to minimize the trip hazards.

- Small Quantity Flammable Liquids - Small quantities of flammable liquids will be stored in "safety" cans and labeled according to contents.

- 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 - Work around 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.

Proper hearing protection will be worn as deemed necessary. In general, feasible administrative or engineering controls shall be utilized when on-site personnel are subjected to noise exceeding an 8-hour time weighted average (TWA) sound level of 90 decibels on the A-weighted scale (dBA). In addition, whenever employee noise exposures equal or exceed an 8-hour TWA sound level of 85 dBA, employers 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 excavation 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

To prevent migration of contamination caused through tracking by personnel or equipment, work areas, and personal protective equipment staging/decontamination areas will be specified prior to beginning operations. An existing chain link perimeter fence system with locked gates controls access to the Site (refer to Figure 2). The Team will coordinate with the City to obtain a key to locks on the gates associated with this perimeter fencing system.

5.1 SITE 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 and complete personal and equipment decontamination procedures. This can reduce potential off-site migration of contaminated 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 work zone and transition zone. Refer to Figure 2 for the tentative locations of the work zones.

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.

- Personnel admitted in the work zone shall be properly trained in health and safety techniques and equipment usage.

- No personnel shall be admitted in the work zone without the proper safety equipment.

- Proper decontamination procedures shall be followed before leaving the Site.

6.0 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 mobilization	D	
Site preparation	D	
Geophysical Survey	D	
Intrusive work (e.g., utility assessment, test pit excavation, soil boring completion, monitoring well installation, soil sampling, groundwater sampling, in-situ groundwater testing, etc.)	C/Modified D/D	Based on air monitoring, and SSO discretion
Decontamination Area	D	
Site breakdown and demobilization	D	

It is anticipated that work conducted as part of this project will be performed in Level D or modified Level D PPE. If conditions are encountered that require Level A or Level B PPE, the work will immediately be stopped. The appropriate government agencies (e.g., City, NYSDEC, NYSDOH, MCDPH, etc.) will be notified and the proper health and safety measures will be implemented (e.g., develop and implement engineering controls, upgrade in PPE, etc.). If conditions are encountered that require Level C PPE, the work will be temporarily suspended and the work site will be evaluated to limit exposure prior to implementing Level C PPE.

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, and/or Level C PPE are 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.

6.2.1 Level D

Level D consists of the following:

- Safety glasses
- Hard hat when working with heavy equipment
- Steel-toed or composite-toed work boots
- Protective gloves during sampling or handling of potentially contaminated 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
- Protective gloves during sampling or handling of potentially contaminated media
- Outer protective wear, such as Tyvek coverall [Tyveks (Sarans) and polyvinyl chloride (PVC) acid gear will be required when workers have a potential to be exposed to impacted liquids or impacted particulates].

6.2.3 Level C

Level C consists of the following:

- Air-purifying respirator with appropriate cartridges
- Outer protective wear, such as Tyvek coverall [Tyveks (Sarans) and PVC acid gear will be required when workers have a potential to be exposed to impacted liquids or particulates].
- Hard hat when working with heavy equipment
- Steel-toed or composite-toed work boots
- Nitrile, neoprene, or PVC overboots, if appropriate
- Nitrile, neoprene, or PVC gloves, if appropriate
- Face shield (when projectiles or splashes pose a hazard)

6.2.4 Level B

Level B protection consists of the items required for Level C protection with the exception that an air-supplied respirator is used in place of the air-purifying respirator. Level B PPE is not anticipated to be required during this project. If the need for level B PPE becomes evident, 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 PM and SSO. Subsequently, the appropriate safety measures (including Level B PPE) must be implemented prior to commencing site activities.

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 not anticipated to be required during this project. If the need for level A PPE becomes evident, 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 PM and SSO. Subsequently, the appropriate safety measures (including Level A PPE) must be implemented prior to commencing site activities.

6.3 RESPIRATORY PROTECTION

Any respirator used will meet the requirements of the OSHA 29 CFR 1910.134. Both the respirator and cartridges specified shall be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910). 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 milligrams per cubic meter (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 when they leave the work site.

7.1 PERSONNEL DECONTAMINATION

Personnel involved with activities that involve disturbing contaminated 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. Remove soil/debris from boots and gloves
3. Remove boots
4. Remove gloves
5. Remove Tyvek suit and discard, if applicable
6. Remove and wash respirator, if applicable
7. Go to support zone

7.2 EQUIPMENT DECONTAMINATION

Decontamination procedures for equipment are presented as Section 4.0 of the Quality Assurance Project Plan (QAPP).

7.3 DISPOSAL

Disposable clothing will be disposed in accordance with applicable regulations. Liquids (e.g., decontamination water, etc.) or solids (e.g., soil) generated by remedial activities will be disposed in accordance with applicable regulations.

8.0 AIR MONITORING

During activities that have the potential to disturb contaminated soil, fill material, or groundwater, air monitoring will be conducted in order to determine airborne particulate and contamination levels. 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. Readings will be recorded and be available for 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	< 5 ppm in breathing zone	Level D
	5-25 ppm in breathing zone	Cease work, implement measures to reduce air emissions when the work performed, etc. If levels can not be brought below 5 ppm in the breathing zone, then upgrade PPE to Level C.
	26-250 ppm in breathing zone	Level B, Stop work, evaluate the use of engineering controls, etc.
	>250 ppm in breathing zone	Level A, Stop work, evaluate the use of engineering controls, etc.
RTAM Particulate Meter	< 100 $\mu g/m^3$ over an integrated period not to exceed 15 minutes.	Continue working
	> 100 $\mu g/m^3$	Cease work, implement dust suppression, change in way work performed, etc. If levels can not be brought below 150 $\mu g/m^3$, then upgrade PPE to Level C.

8.1 PARTICULATE MONITORING

During activities where contaminated materials (e.g., soil, fill, etc.) may be disturbed, air monitoring will include real-time monitoring for particulates using a real-time aerosol monitor (RTAM) particulate meter at the perimeter of the work zone in accordance with the Final DER-10 Technical Guidance for Site Investigation and Remediation dated May 2010. DER-10 uses an action level of 100 $\mu g/m^3$ (0.10 mg/m^3) over background conditions for an integrated period not to exceed 15 minutes. If the action level is exceeded, or if visible dust is encountered, 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.

8.2 VOLATILE ORGANIC COMPOUND MONITORING

During activities where contaminated materials may be disturbed, a photoionization detector (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 measurements before operations begin in an area to determine the amount of VOCs naturally occurring in the air. This is referred to as a background level. Levels of VOCs will periodically be measured in the air at active work sites, and at the transition zone when levels are detected above background in the work zone.

8.3 COMMUNITY AIR MONITORING PLAN

During intrusive activities, and activities that have the potential to disturb contaminated soil, fill material, or groundwater, 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 in progress 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. The most significant nearby receptor is the School Without Walls located approximately three blocks south of the Site at 111 North Clinton Street. Due to proximity of the School Without Walls, at least one of the CAMP station will be placed between the area of intrusive activities and the school. One CAMP monitoring station will be placed at a downwind Site perimeter location. A Site Plan depicting potential CAMP station locations is provided on Figure 2. 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 the work areas.

Continuous monitoring will be conducted during ground intrusive activities involving potentially contaminated soil, fill material or groundwater. Ground intrusive activities include, but are not limited to, test pitting or trenching, advancement/installation of test borings or monitoring wells, 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 collection of soil samples or groundwater samples, etc.).

8.3.1 VOC Monitoring, Response Levels, and Actions

VOCs must be monitored at the downwind perimeter of the immediate work area (i.e., 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 exclusion 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 exclusion 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, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less (but in no case less than 20 feet), is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

The 15-minute readings must be recorded and made available for NYSDEC and NYSDOH personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

8.3.2 Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the work zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) 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 $\mu g/m^3$ 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 µg/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 µg/m^3 of the upwind level and in preventing visible dust migration.

Readings will be recorded and made available for review.

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 <5ppm 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 µg/m^3 over an integrated period not to exceed 15 minutes, and no observable dust leaving the work area.	Continue working
	> 100 µg/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 µg/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.). 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
Poison Control Center:	(800) 222-1222
NYSDEC	
Charlotte Theobald	(585) 226-5354
Spills Hotline	(585) 226-2466
NYSDOH	
Melissa Menetti	(518) 402-7860
MCDPH	
Jeffrey Kosmala, P.E.	(585) 753-5470
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
LU ENGINEERS	
Gregory Andrus	(585) 385-7417 x215
Nearest Hospital	Highland Hospital 1000 South Avenue, Rochester, NY 14620 (585) 473-2200 (Main) (585) 341-6880 (Emergency Department)
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 Emergency Medical Services (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, Emergency Medical Services (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 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.

Small fires on-site may be actively extinguished; however, extreme care shall be taken while in 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.

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 remedial 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.

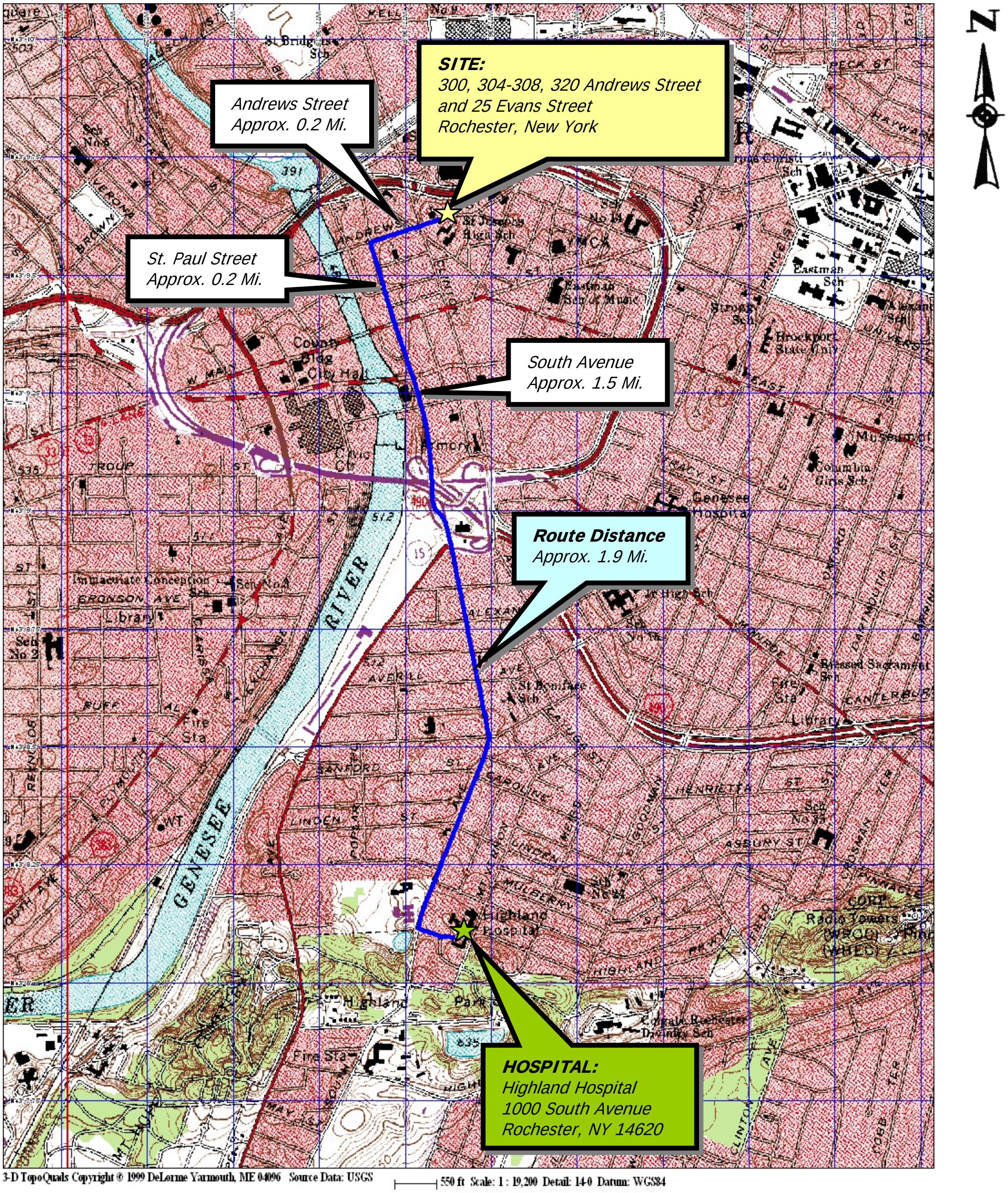
Prior to any handling, unanticipated containers will be visually assessed by the SSO to gain as much information as possible about their contents. As a precautionary measure, personnel shall assume that unlabelled containers and/or tanks contain hazardous materials until their contents are characterized. 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

AST	Aboveground Storage Tank
CAMP	Community Air Monitoring Program
CFR	Code of Federal Regulations
City	City of Rochester
CPR	Cardio-Pulmonary Resuscitation
DAY	Day Environmental, Inc.
dBA	Decibels on the A-Weighted Scale
DCE	Cis-1,2-Dichloroethene
DNAPL	Dense Non-Aqueous Phase Liquid
ECP	Emergency Contingency Plan
EMS	Emergency Medical Service
ERP	Environmental Restoration Program
HASP	Health and Safety Plan
IDLH	Immediately Dangerous to Life or Heath
IRM	Interim Remedial Measure
LNAPL	Light Non-Aqueous Phase Liquid
LU	Lu Engineers
MCDPH	Monroe County Department of Public Health
mg/m^3	Milligram Per Meter Cubed
NIOSH	National Institute for Occupational Safety and Health
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PCE	Perchloroethene, or Tetrachloroethene
PEL	Permissible Exposure Limit
Phase II ESA	Phase II Environmental Site Assessment
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
QAPP	Quality Assurance Project Plan
REC	Recognized Environmental Condition
REL	Recommended Exposure Limit
RI/RAA	Remedial Investigation/remedial Alternatives Analysis
RSCO	Recommended Soil Cleanup Objective
RTAM	Real-Time Aerosol Monitor
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SSO	Site Safety Officer
SVOC	Semi-Volatile Organic Compound
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TCE	Trichloroethene
TCL	Target Compound List
TWA	Time-Weighted Average
$\mu g/m^3$	Micrograms Per Meter Cubed
UST	Underground Storage Tank
VOC	Volatile Organic Compound

ATTACHMENT 1

Figure 1- Route for Emergency Services



Drawing Produced From: 3-D TopoQuads, DeLorme Map Co., referencing USGS quad map Rochester East (NY) 1995.

DATE
3-21-2011

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

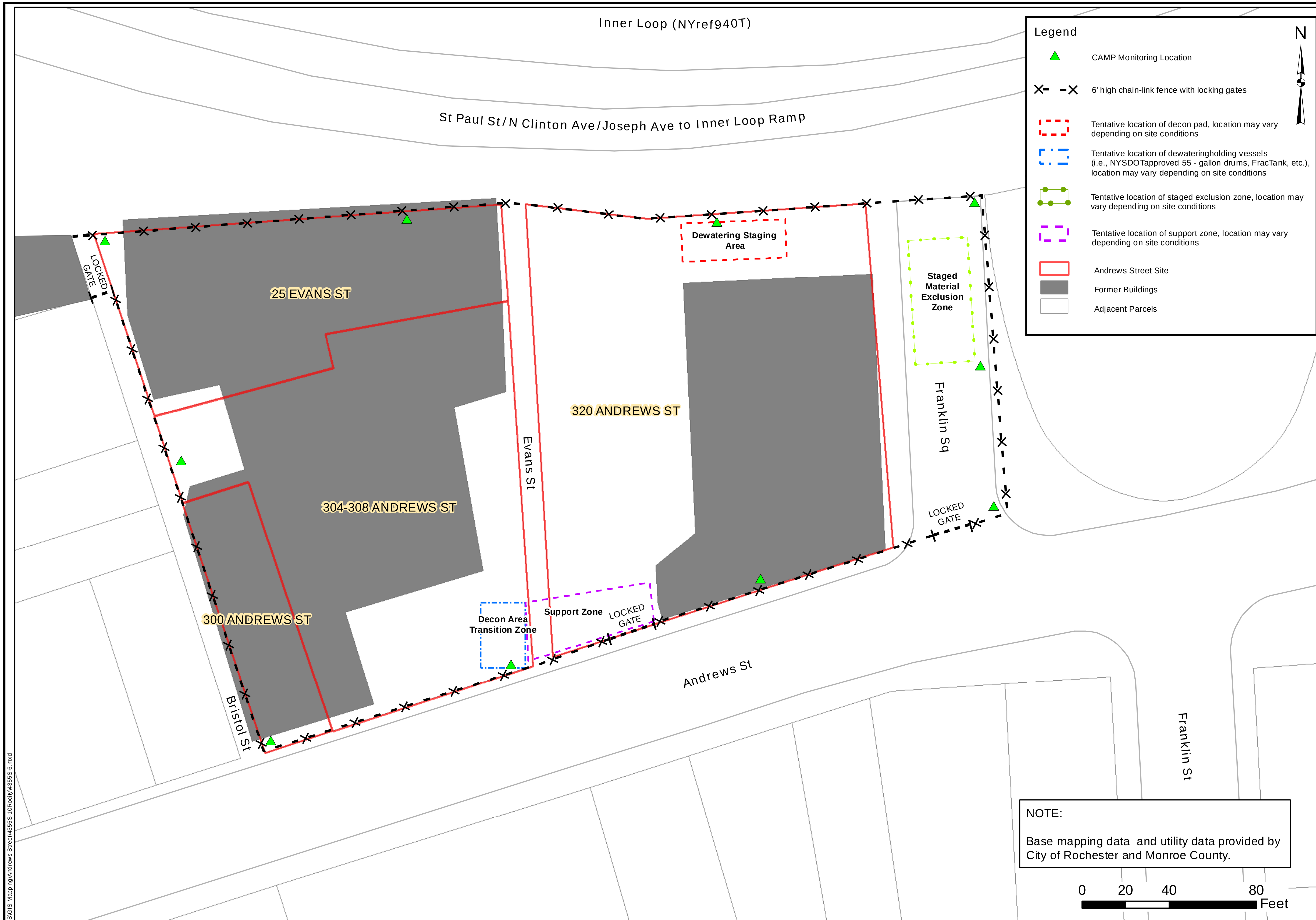
DRAWING TITLE
ROUTE FOR EMERGENCY SERVICES

PROJECT NO.
4355S-10

FIGURE 1

ATTACHMENT 2

Figure 2- Site Plan Depicting Tentative CAMP Station Locations



DATE	DATE DRAWN	DATE ISSUED
03-2010	03-2010	08-08-2011
DESIGNED BY	DRAWN BY	SCALE
NES	CPS	AS NOTED

day
DAY ENVIRONMENTAL, INC.
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Rochester, New York 14614-1008
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Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

HEALTH AND SAFETY PLAN NYSDEC SITE NO.: E828144

Drawing Title
Site Plan Depicting Tentative CAMP Station Locations

Project No.
4355S-10

FIGURE 2

APPENDIX B
(Refer to CD)

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.
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And

Lu Engineers
175 Sullys Trail, Suite 202
Pittsford, New York 14534

Project No.: 4355S-10

Date: August 2011

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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 document 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 Remedial Investigation/Remedial Alternatives Analysis Work Plan (RI/RAA Work Plan) for the Site 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 procedures to be used during sampling of environmental media, other field activities, and the analytical laboratory testing of samples. The components of the QAPP are provided herein.

1.1 Project Scope and Project Goals

The QAPP applies to the aspects of the project associated with the collection of field data, 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 investigation will include a geophysical survey, utility assessment, utility air sampling, soil sampling (test pit excavations and soil borings), real-time and near real-time Triad sampling, groundwater sampling, and aquifer physical characteristics evaluations. A summary of the anticipated number of analytical samples is provided in Table 1. Detailed discussions of the project scope and project goals are provided in the RI/RAA Work Plan. In general, the project goal is to obtain sufficient information to characterize the nature and extent of contamination at the Site sufficiently to develop remedial alternatives for the Site.

2.0 PROJECT/TASK ORGANIZATION

Project organization and tentative personnel to implement the work are outlined in this section of the QAPP.

2.1 City Project Manager

Mr. Joseph J. Biondolillo will serve as the City of Rochester (City) Project Manager on this project. 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 Team Organization

Day Environmental, Inc. (DAY) and Lu Engineers (LU) have formed a consulting team to complete this project for the City, and are collectively referred to as the Team in this QAPP. In addition, James P. Mack, LLC will act as subconsultant on this project to provide additional strength to the Team in regard to Triad investigations, and dense non-aqueous phase liquid (DNAPL) evaluation. Additional information regarding key personnel of the Team and James P. Mack, LLC is provided below, and resumes of key personnel are included in Attachment 1.

DAY Principal in Charge

The Principal in Charge is responsible for review of project documents and ensuring the project is completed in accordance with relative work plans. Mr. David D. Day, P.E. will serve as DAY's Principle-in-Charge on this project.

DAY Project Manager

The DAY Project Manager has the 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 will serve as DAY's Project Manager on this project, and will serve as DAY's primary point of contact and control for the project.

DAY Quality Assurance Officer

The Quality Assurance Officer is 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. will serve as DAY's Quality Assurance Officer on 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.

DAY Technical Staff

DAY's technical staff for this project consists of 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.

LU Principal in Charge

Mr. Steven Campbell, CHMM, will be the Principal-In-Charge for the work effort to be performed by LU on this project. Mr. Campbell will be responsible for review of LU's work on this project.

LU Project Manager

Gregory Andrus, CHMM, will serve as the Project Manager for the work effort to be performed by LU on this project. Mr. Andrus will be responsible implementation and deliverables associated with the scope of work that LU is performing on this project.

James P. Mack, LLC

Mr. James P. Mack will serve as a technical consultant to the Team to provide specialized Triad Approach and DNAPL evaluation consulting services on this project. Mr. Macke will be consulted during the Triad investigation phase of this project, including interpretation of Triad-related test results, data, etc. to be incorporated into the RI Report.

2.3 Analytical Laboratories

The following two analytical laboratories will be used as part of the RI:

- Chemtech Consulting Group, Inc. (Chemtech) of Mountainside, New Jersey will be used for most of the analytical services work. Chemtech is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified analytical laboratory (ELAP ID11376). A copy of the Chemtech Quality Assurance Manual (QAM) is provided as Attachment 2.

  Divya Mehta is the Chief Operating Officer and Technical Director for Chemtech. The laboratory 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.

  Mohammed Ahmed of Chemtech will act as the Laboratory Manager on this project. 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 will provide the near-real time analytical services during the Triad investigation portion of the RI. Paradigm is a NYSDOH ELAP certified laboratory (ELAP ID 10958). A copy of Paradigm Statement of Qualifications (SOQ) is provided as Attachment 3.

  Bruce Hoogester is the President and 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.

  Nathan Beach or Matthew Miller of Paradigm are Organics Supervisors that will work in conjunction with the laboratory QA unit regarding QA elements of specific sample analyses tasks.

3.0 QUALITY ASSURANCE/QUALITY CONTROL

As part of this Work Plan, QA/QC protocol and procedures have been developed and are described below. The objective of the QA/QC protocol and procedures is to ensure that the information, data, and decisions associated with this project are technically sound and properly documented. The QA/QC protocol and procedures also pertain to the collection, evaluation, and review of activities and data that are part of this project. These QA/QC protocol and procedures will be modified in supplemental work plans when deemed appropriate.

3.1 Operation and Calibration of On-Site Monitoring Equipment

On-site monitoring equipment will play a significant role in meeting the Remedial Investigation objectives and to determine the appropriate personal protective equipment (PPE) as noted in the health and safety plan (HASP). The on-site monitoring equipment includes volatile organic compound (VOC) monitors, particulate monitors, oil/water interface probes, an electronic static water level indicator; water quality monitors, and global position system (GPS). Operation and calibration of on-site monitoring equipment that are anticipated for use during the RI are discussed below.

3.1.1 VOC Monitoring Equipment

Real-time monitoring for VOCs will be conducted to evaluate the nature and extent of petroleum and chlorinated solvents discharges at the Site and to determine the appropriate personal protective equipment as noted in the HASP. The primary field instrument for monitoring VOCs during the RI will be a photoionization detector (PID). It is anticipated that a Minirae 2000 PID (or equivalent) equipped with a 10.6 eV lamp will be used during this project. An accredited firm/testing laboratory will calibrate the equipment on a yearly basis. During fieldwork, the PID will be calibrated on a daily basis in accordance with the manufacturer’s specifications. Isobutylene gas will be used to calibrate the PID prior to use and as necessary during fieldwork. Measurements will be collected before operations begin in an area to determine the amount of VOCs naturally occurring in the air (i.e., background concentrations).

A Geoprobe Membrane Interface Probe (MIP) equipped with a dipole electrical conductivity meter, a PID and a Halogen Specific Detector (XSD) detector will be used during the chlorinated solvent Triad investigation. The Standard Operation Procedure (SOP) for this equipment is included in Attachment 4.

3.1.2 Particulate Monitoring Equipment

Particulate monitoring will be conducted during intrusive activities as noted in the Community Air Monitoring Plan (CAMP) portion of the HASP. It is anticipated that the particulate air monitoring will be conducted using a real-time aerosol monitor (RTAM) particulate meter. An accredited firm/testing laboratory will calibrate the equipment on a yearly basis. During fieldwork, the particulate meter will be regularly calibrated in accordance with the manufacturer’s specifications. Measurements will be collected along the upwind perimeter of the intrusive investigation activities to determine the amount of particulates naturally occurring in the air (i.e., background concentrations) as per the requirements of the CAMP.

3.1.3 Global Positioning System Equipment

A GPS unit will be used to obtain the precise locations of sampling points and significant site features. It is anticipated that a Trimble GeoXH will be used during this project. The GPS location accuracy of less than 1 horizontal foot is the data quality objective for this project. The GPS unit will be calibrated as needed in accordance with the manufacturer's specifications. The GPS location data will conform to Rochester's GIS coordinate system (NAD 1983 State Plane New York West) to match data gathered during the Site demolition activities and adjacent features that may affect contaminant migration such as underground utilities.

3.1.4 Miscellaneous Field Monitoring Equipment

Several other pieces of miscellaneous field monitoring equipment will be used as part of the project. It is anticipated that the other field monitoring equipment utilized during portions of the project include:

- An electronic static water level indicator;
- An oil/water interface meter, and;
- A Horiba U-22 water quality meter that measures pH, specific conductivity, temperature, dissolved oxygen, oxygen-reduction potential, and turbidity.

These meters will be calibrated, operated, and maintained in accordance with the manufacturer's recommendations.

3.2 Geophysical Survey Techniques

Geophysical surveys will be conducted to identify potentially significant ferro-metallic (iron-containing metal) materials in the subsurface. To minimize potential interference, a Geonics, Ltd. EM-61 will be used. The EM-61 minimizes the effect of potential interference by using a pair of antennas that allow subtraction of "noise" produced by surficial metallic debris and many other forms of electromagnetic interference.

Grids will be set up throughout the subject areas measured using a tape measure and compass and marked out using spray paint and/or pin flags. A grid spacing of five feet is typically selected based on the sensitivity of the instrument and the fact the subject of the survey is primarily underground storage tanks and metallic piping or conduits. The Site is generally open with few surface obstructions, allowing as few as three grids to be laid out for the survey. Locations where obvious sources of interference such as chain-link fences, bollards etc., will be avoided to the extent possible to prevent artificially anomalous readings from being taken during the survey. The Site Plan (Figure 2 of the RI/RAA Work Plan) indicates the planned extent of the geophysical survey.

Data will be collected within each survey area and automatically stored in a PDA-type computer attached to the EM-61. Data will be logged into the PDA along with GPS data captured during the survey process with a linked Trimble Geo XT unit. Data is then transferred electronically to a laptop computer and converted into proper formats for developing contour maps. All data contouring will be completed with Surfer® manufactured by Golden Software, Inc.. The contour images will then be electronically transferred to the Site Plan using ArcGIS 10®.

Ground Penetrating Radar will also be used at the Site. The Mala GPR unit will be used to confirm the anomalies found with the EM-61 Grids. GPR will also be used to location and depth of mapped utilities to the extent possible. Areas of the Site that are inaccessible or include excessive interference during the EM survey will also be evaluated using GPR. This data will processed and analyzed in the field and the images saved for reference.

3.3 Utility Air Sampling and Analysis

Utility air sampling and analysis for VOCs may be used as a screening tool if evidence of contamination is detected during the utility assessment. The air samples will be collected in batch-certified SUMMA canisters equipped with 0.1 liter per minute (L/min) flow regulators, If possible, the SUMMA canisters will be placed directly in the subsurface utility. If the utility is too small or access to the utility is sufficiently restricted to directly place the SUMMA canister into the utility line, then dedicated polyethylene or tygon tubing will be connected from the canister to the subsurface utility. The SUMMA canister flow regulators will be opened in accordance with the manufacturers' specifications and the initial pressure reading is recorded. Assuming 6-liter SUMMA canisters connected to regulators with a flow rate of 0.1 L/min, it is anticipated that the utility air samples will be collected over an approximately 60-minute period. Following collection of the air samples, the final pressure reading is recorded and the SUMMA canister flow regulator is closed in accordance with the manufacturer's recommendations.

Care will be taken to seal the utility in the vicinity of the sample location to prevent mixing of the subsurface utility air with the ambient air during the sampling effort. If the SUMMA canister is placed directly in the utility, the nearby access points will be sealed with polypropylene plastic sheeting and duct tape or equivalent. If the sample is collected via dedicated tubing, then the access point of the tubing to the utility will be sealed as described above.

Chemtech will test the air samples for VOCs using United States Environmental Protection Agency (USEPA) Method TO-15. The specific list of VOCs to be reported is provided in Attachment 5.

3.4 Triad Soil and Groundwater Sampling

As part of the Triad investigation, soil and/or groundwater samples will be collected for near real-time analysis. Soil samples will be collected using the Geoprobe Macro-Core MC5 soil sampling system, or the Geoprobe DT22 Dual Tube soil sampling system. Groundwater samples will be collected using the Geoprobe Screen Point 16 groundwater sampler, or by inserting a polyvinyl chloride (PVC) screen with riser into the boring and collecting a sample using tubing that inserted down hole and connected to a pump or by use of a bailer. Copies of SOPs for the Geoprobe soil and groundwater sampling techniques mentioned above are included in Attachment 4.

3.5 General Boring Screening and Logging

A Team representative will: document visual observations; screen the split spoon and macro-core samples with a PID; collect selected portions of the samples for possible laboratory analysis; collect other portions of the samples (and process and screen the headspace of these selected samples with a PID); photograph the test boring work; and prepare test boring logs that provide pertinent field information. Pertinent information will be recorded on test boring/well logs, and will include:

- Date, boring/well identification, and project identification;
- Name of individual developing the log;
- Name of drilling contractor;
- Drill make and model, and auger size;
- Identification of alternative drilling methods used and justification thereof;
- Depths recorded in feet and fractions thereof (tenths of inches) referenced to ground surface;
- Standard penetration test (ASTM D-1586) blow counts;
- The length of the sample interval and the percentage of the sample recovered;
- Description of soil type using the Unified Soil Classification System;
- The depth of the first encountered water table, along with the method of determination, referenced to ground surface;
- Drilling and borehole characteristics;
- Sequential stratigraphic boundaries and soil types consistent with logging performed on other project elements;
- Well specifications (materials; screened interval; amount of Portland cement, bentonite and water used to mix grout; etc.); and
- PID screening results of ambient headspace air above selected soil samples.

The logs described above for wells advanced into bedrock will also include pertinent information pertaining to the following characteristics noted on the bedrock cores:

- Bedrock type and lithology;
- Core Recovery Calculations and Rock Quality Determinations (RQDs);
- Bedrock color and texture;
- Bedrock degree of decomposition, weathering, and disintegration;
- Bedrock fracture types (e.g., vertical, lateral, diagonal, mechanical), density, and fracture infilling (e.g., mineralization, which is common in certain layers of Lockport Dolomite); and,
- The anticipated formation name.

3.6 Soil Sample Headspace Screening

The recovered soil samples will be visually examined by a Team representative for evidence of suspect contamination (e.g., staining, unusual odors) and screened with a PID. Portions of the recovered soil samples may be placed in containers for possible analytical laboratory testing. Different portions of the soil samples will concurrently be placed in sealable Ziploc®-type plastic baggies, and will be field screened the same day they are collected. Each sample will be agitated and homogenized for at least 30 seconds and allowed to equilibrate for at least three minutes. The ambient headspace air inside the baggie above each sample will be screened for total VOC vapors with the PID equipped with a 10.6 eV lamp. The sampling port for the PID will be placed in the ambient air headspace inside the bag by opening a corner of the "locked" portion of the bag. The PID will monitor air inside the baggie for a period of at least 15 seconds and the peak readings measured will be recorded on a log sheet or log book.

3.7 NAPL Screening Shake Test

Field evidence of suspect non-aqueous phase liquid (NAPL) will be confirmed in the field utilizing a hydrophobic dye shake test. Field evidence of suspect NAPL include, but not limited to, elevated PID readings (i.e., greater than 1,000 parts per million (ppm)), saturated soil with petroleum or solvent odors or significant staining, and apparent free phase or residual NAPL. The NAPL screening shake test is applicable for both light non-aqueous phase liquid (LNAPL) and DNAPL. If field evidence suggests the presence of LNAPL or DNAPL, the Team will perform a shake test on an aliquot of the corresponding soil sample using hydrophobic dye. The sample aliquot will be mixed with approximately two ounces potable water, and a pinch of Sudan IV or equivalent hydrophobic dye will be placed in a sealable plastic baggie, agitated for approximately 10 seconds, and then noted for pigment staining. If organic NAPL is present, the Sudan IV Pigment should result in pigment staining. The NAPL screening shake test results will be documented and if possible photographed for documentation purposes. The hydrophobic dye will be handled with care using a new pair of disposable gloves. Following the shake test, the plastic baggie containing the soil-dye moisture and associated PPE should be managed as investigation derived waste (IDW). Soils containing hydrophobic dye and PPE will not be used for confirmatory analytical analyses or headspace readings.

3.8 Well Development

Monitoring wells will be developed by utilizing either a new dedicated disposable bailer with dedicated cord, and/or a pump and dedicated disposable tubing depending on the field conditions. Monitoring well development can occur a minimum of 48 hours after installation. No fluids will be added to the wells during development without prior approval of the NYSDEC, and well development equipment will be decontaminated prior to development of each well.

The well development procedure is listed below:

- Obtain pre-development static water level and oil/water interface reading for presence of LNAPL or DNAPL using a Heron Model HO1.L oil/water interface probe or similar instrument;

- Calculate water/sediment volume in the well;
- Obtain initial field water quality measurements (e.g., pH, specific conductivity, turbidity, temperature, and PID readings). The pH, specific conductivity, turbidity and temperature readings will be obtained using Horiba U-22 water quality meter (or similar equipment);
- Select development method and set up equipment depending on method used;
- Alternate water agitation methods (e.g., moving a bailer or pump tubing up and down inside the screened interval) and water removal methods (e.g., pumping or bailing) in order to suspend and remove solids from the well;
- Obtain field water quality measurements for every two to five gallons of water removed. Record water quantities and rates removed;
- Stop development when the following water quality criteria are met and at least 10 well volumes have been removed;
  - Water is clear and free of sediment and turbidity is less than 50 nephelometric turbidity units (NTUs);
  - pH is ±0.1 standard unit between readings;
  - Specific conductivity is ±3% between readings, and;
  - Temperature is ±10% between readings.
- Obtain post-development water level readings; and
- Document development procedures, measurements, quantities, etc.

In a case where considerable drill water is lost to the formation (i.e. greater than 10 well volumes) during boring advancement activities, the above well development procedures may be modified. Prior to modifying the well development procedures, the NYSDEC will be consulted on whether to attempt to remove a volume of water greater than the volume of water lost, or to conduct conventional development and allow a greater amount of time between development and the first round of initial groundwater sampling.

Pertinent information for each well will be recorded on well development logs.

3.9 Low-Flow Groundwater Purging and Sampling

The low-flow procedures that will be utilized are outlined below:

- In order to minimize the potential re-suspension of solids in the bottom of the well, well depths will not be measured prior to or during low-flow purging and sampling. Well depth information will be obtained from measurements collected during well development or the well logs.
- PID readings will be obtained from the well headspace immediately following opening the well. The peak PID readings will be noted on the field logbook.
- Prior to purging and sampling, static water level measurements will be taken from each well using a Heron Model HO1.L oil/water interface probe or similar instrument. The presence or absence of LNAPL will be determined. If present, the thickness of LNAPL will be obtained.

- If necessary to confirm whether NAPL is present in groundwater that contain PID measurements greater than 500 ppm or other field indications of NAPL, hydrophobic dye (i.e., Sudan IV) may be introduced to an aliquot of the sample. If LNAPL or DNAPL is detected, the NYSDEC will be notified to determine whether analytical characterization of the NAPL is warranted.
- A portable bladder pump connected to new disposable polyethylene tubing will be lowered and positioned at or slightly above the mid-point of the well screen or cored open bedrock when this interval is set in relatively homogeneous material. When the screened interval or cored open bedrock interval is set in heterogeneous materials, the pump will be positioned adjacent to the zone of highest hydraulic conductivity (as defined by geologic samples). Care will be taken to install and lower the bladder pump slowly in order to minimize disturbance of the water column.
- The pump will be connected to a control box that is operated on compressed gas (nitrogen, air, etc.) and is capable of varying pumping rates. An in-line flow-through cell attached to a Horiba U-22 water quality meter (or similar equipment) will be connected to the bladder pump effluent tubing to measure water quality data.
- The pump will be started at a low pumping rate of 100 ml/min or less (for pumps that cannot achieve a flow rate this low, the pump will be started at the lowest pump rate possible). The water level in the well will be measured and the pump rate will be adjusted (i.e., increased or decreased) until the drawdown is stabilized. In order to establish the optimum flow-rate for purging and sampling, the water level in the well will be measured on a periodic basis (i.e., every one or two minutes) using an electronic water level meter or the Heron Model HO1.L oil/water interface meter (or equivalent). When the water level in the well has stabilized (i.e., use goal of < 0.33 feet of constant drawdown), the water level measurements will be collected less frequently.
- While purging the well at the stabilized water level, water quality indicator parameters will be monitored on a three to five minute basis with a Horiba U-22 water quality meter (or similar equipment). Water quality indicator parameters will be considered stabilized after three consecutive readings for each of the following parameters are generally achieved:
    - pH ($\pm$ 0.1);
    - specific conductance ($\pm$ 3%);
    - dissolved oxygen ($\pm$ 10 %);
    - oxidation-reduction potential ($\pm$ 10 mV);
    - temperature ($\pm$ 10%); and
    - turbidity ($\pm$ 10%, when turbidity is greater than 10 NTUs).
- Following stabilization of the water quality parameters, the flow-through cell will be disconnected and a groundwater sample will be collected from the bladder pump effluent tubing. The pumping rate during sampling will remain at the established purging rate or it may be adjusted downward to minimize aeration, bubble formation, or turbulent filling of sample containers. A pumping rate below 250 ml/min will be used when collecting VOC samples.

- To minimize the potential for re-suspension of solids in the bottom of the well, the presence of DNAPL will be determined following purging and sampling at each well location using the Heron oil/water interface probe (or equivalent).
- Field observations, real-time parameter readings, and other pertinent information obtained during the sampling effort will be noted in the field logbook and a low-flow groundwater purge and sample form.

3.10 Waste Characterization Sampling

IDW will be managed in accordance with the guidelines outlined in Section 5.1.7 of the RI/RAA Work Plan. Supplemental sampling of the IDW is anticipated in order to obtain approvals for disposal and/or recycling at an authorized solid waste management facility or publicly owned wastewater treatment works (liquids). The following protocols likely apply to IDW sampling:

- The objective of IDW sampling is to characterize a substantial mass of waste requiring disposal. Consequently, the sample should be collected in a manner that is representative of the entire waste mass and not limited to a specific zone of concern or observed contamination.
- Grab samples may be composited to form one sample for analytical analyses.

4.0 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 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, bailers, rope, pump tubing, latex gloves, etc.). However, when equipment must be re-used (e.g., drill rigs, static water level indicator, split spoon samplers, 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.

The effectiveness of the equipment decontamination of non-dedicated sampling equipment such as split-spoon samplers will be evaluated via analytical laboratory testing of field blanks (e.g., rinsate samples). Decontamination liquids and disposable equipment and PPE will be containerized and left on-site until a proper disposal method is determined. The location of a dedicated decontamination area is shown on Figure 5 of the RI/RAA Work Plan.

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.

New laboratory-grade sample containers will be used to collect samples. Sufficient volume (i.e., as specified by the analytical laboratory and on Chemtech Table included in Attachment 6) will be collected to ensure that the laboratory has adequate sample volume to perform the specified analyses. 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.

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. The sample preservation requirements and holding times that will be adhered are provided in Attachment 6.

Chain-Of-Custody

Samples that are collected for subsequent testing as part of this project 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.

Sample Labels

Sample labels for field samples and 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 or sample logbook.

The following information will be provided on each sample label:

Name of company;
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 the seals on the coolers to ensure that the seals are not accidentally broken during shipment. Sample receipt personnel at the laboratory will check and document whether the seals on the shipping coolers are intact when received.

Sample Identification

The following format will be used on the labels affixed to sample containers to identify samples:

Each sample will be numbered starting at the next number that follows the last number used during the demolition phase study. The number will then continue in succession (i.e., if the last number used in the demo phase is 049, then the first number to be used during the RI will be 050, and then continue on with 051, 052, 053, etc.). The sample test location will also be provided after the sample number using the following test location designations:

UA-xx	Utility Air Sample
T-xx (x-x)	Test pit excavation soil sample with depth interval below ground surface in tenths of a foot (x – x’).
B-xx (x-x’)	Boring soil sample with depth interval in parentheses below ground surface in tenths of a foot (x – x’)
MW-XX	Groundwater sample with monitoring well number
TBxx/xx/xx-	Trip Blank sample with day/month/year
FBxx/xx/xx-	Field Blank sample (rinsate) with day/month/year

As an example, assuming the first project sample is a soil sample collected from a test pit T-1 at a depth of 10 feet, the sample will be designated as 051/T-1(10’).

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

Chemtech's analytical laboratory test results will be reported in NYSDEC Analytical Services Protocol (ASP) Category B deliverable reports. Paradigm's results will be reported in a short report format since its services are considered part of the Triad Approach. Analytical laboratory test results for soil samples will be reported on a dry-weight basis. Chemtech and Paradigm will make every effort to analyze the samples using the lowest practical quantitation limits (PQLs) possible for air, soil and groundwater samples (refer to Attachments in this QAPP). In addition, analytical laboratory results will be provided to the NYSDEC using the NYSDEC's Equis Format.

Chemtech and Paradigm 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 the Chemtech QAM and Paradigm SOQ 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 QAM/SOP and the NYSDEC ASP. Data quality indicators include: precision, accuracy, representation, completeness, and comparability.

Table 1 provides a summary of the analytical samples scheduled for collection and anticipated sampling parameters. The analytical methods to be used for each type of sample and sample matrix are identified on Table 1 and in the RI/RAA Work Plan. In order to provide control over the collection, analysis, review, and interpretation of analytical laboratory data, the following QA/QC samples will be included as part of this project.

- During the groundwater monitoring for VOCs, one trip blank will be included per set of 20 liquid samples with a minimum of one trip blank per sample shipment. The trip blanks will be analyzed for target compound list (TCL) VOCs.

- One matrix spike/matrix spike duplicate (MS/MSD) for each sample matrix, for each sampling event of 20 samples, or per shipment if less than 20 samples, within a seven-day period. Specific parameters that MS/MSD samples will be tested for is dependent upon the test parameters of the field samples that are being analyzed.

- One field blank (i.e., rinsate sample) will be collected from reusable sampling equipment for each sampling event of 20 samples, or per shipment if less than 20 samples. The field blank(s) will be tested for the suite parameters of the samples obtained using the subject re-useable sampling equipment (i.e. split spoon samplers).

The collection and analysis of halogenated VOCs on a near-real time basis by Paradigm is exempted from the trip blank, field blank, and MS/MSD sampling and analysis requirements listed above. The list of halogenated VOCs to be reported by Paradigm, and the associated detection limits are included in Attachment 7.

Data Usability Summary Report

Dr. Maxine Wright-Walters of Environmental Data Validation Inc. (EDV) of Pittsburgh, Pennsylvania will complete a data usability summary report (DUSR) on the Category B deliverables analytical laboratory data that is generated as part of the scope of work in the RI/RAA work plan. The DUSR will be conducted in accordance with the provisions set forth in Appendix 2B of DER-10 Technical Guidance for Site Investigation and Remediation dated May 2010. The findings of the DUSR will be incorporated in the final RI/RAA report. A copy of Dr. Maxine Wright-Walters curriculum vitae is included in Attachment 8.

Reporting

Analytical and QC data will be included in the final RI/RAA report. The final report will summarize the environmental work and provide evaluation of the data that is generated, including the validity of the results in the context of QA/QC procedures.

7.0 RECORD KEEPING AND DATA MANAGEMENT

The Team will document project activities 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 evidence of contamination such as staining, odors, degree of saturation, etc.
- Field meter measurements collected during monitoring activities;
- Sampling locations and depths measured in tenths of feet;
- Measurements of sample locations, and test locations, excavations, etc.;
- Personnel and equipment on-site;
- Weather conditions; and
- Other pertinent information as warranted.

In addition, the field notes will be converted into logs for each test pit excavation, soil test boring and monitoring well completed as part of the RI.

Differential GPS, swing ties from existing surveyed site structures, and/or a licensed surveyor will be used to collect spatial data. The spatial data will be plotted using integrated GIS and/or computer-aided design (CAD) mapping. Electronic and hard copy files will be maintained by the Team.

As noted above, the Team will utilize its Trimble Geo-XH sub-foot accuracy GPS with ESRI ArcPad installed software with GIS shape files that have been developed for the Site. A Trimble GeoBeacon will also be available for use to perform real-time differential correction during the fieldwork. During the at-grade and sub-grade demolition activities, the Team's on-site representative used the Geo-XH GPS to measure the locations of sample locations, structures of concern, buried utilities, etc. Each structure of concern and data point will be joined with pertinent information such as PID, XSD readings, odors, staining, descriptions, and whether additional follow up work is required.

8.0 ACRONYMS

ASP	Analytical Services Protocol
CAD	Computer-Aided Design
CAMP	Community Air Monitoring Plan
Chemtech	Chemtech Consulting Group, Inc.
City	City of Rochester
CLP	Contract Laboratory Protocol
DAY	Day Environmental, Inc.
DNAPL	Dense Non-Aqueous Phase Liquid
DUSR	Data Usability Summary Report
EDV	Environmental Data Validation, Inc.
ELAP	Environmental Laboratory Approval Program
GPS	Global Positioning System
HASP	Health and Safety Plan
IDW	Investigation-Derived Waste
LNAPL	Light Non-Aqueous Phase Liquid
LU	Lu Engineers
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAPL	Non-Aqueous Phase Liquid
NTU	Nephelometric Turbidity Units
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
MIP	Membrane Interface Probe
Paradigm	Paradigm Environmental Services, Inc.
PID	Photoionization Detector
PPE	Personal Protective Equipment
PQL	Practical Quantitation Limit
PVC	Polyvinyl Chloride
QAM	Quality Assurance Manual
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RI/RAA	Remedial Investigation/Remedial Alternatives Analysis
RQD	Rock Quality Determination
RTAM	Real-Time Aerosol Monitor
SOP	Standard Operating Procedure
SOQ	Statement of Qualification
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
XSD	Halogen Specific Detector

TABLE

TABLE 1
SUMMARY OF ANALYTICAL LABORATORY TESTING
RI/RAA QAPP
NYSDEC SITE ERP #E828144

TASK	ANALYTICAL LABORATORY	PARAMETERS	METHOD	SAMPLE MATRIX	MAXIMUM ANTICIPATED # OF FIELD SAMPLES	TRIP BLANKS	MS/MSD OR MS/MD	DUPLICATE SAMPLES	FIELD BLANKS
Utility Assessment	Chemtech	VOCs	TO-15	Air	7	0	0	0	0
Test Pit Excavations	Chemtech	TCL VOCs+MTBE+TICs	8260	Soil	6	0	1	0	1
		TCL SVOCs+TICs	8270	Soil	6	0	1	0	1
		TCL PCBs	8082	Soil	6	0	1	0	1
		TAL Metals	6010/7471	Soil	6	0	1	0	1
		pH	SW9045	Soil	2	0	0	0	0
		TOC	Walkley-Black or Lloyd Kahn	Soil	2	0	0	0	0
Soil Borings	Paradigm	Halogenated VOCs (Near-Real Time)	8260	Soil/ Groundwater	20	0	0	0	0
	Chemtech	TCL VOCs+MTBE+TICs	8260	Soil	36	0	2	0	2
		TCL SVOCs+TICs	8270	Soil	36	0	2	0	2
		TCL PCBs	8082	Soil	36	0	2	0	2
		TAL Metals	6010/7471	Soil	36	0	2	0	2
		pH	SW9045	Soil	2	0	0	0	0
		TOC	Walkley-Black or Lloyd Kahn	Soil	2	0	0	0	0
	Chemtech	TCL PCBs (Shallow TBs in Targeted Area)	8082	Soil	9	0	1	0	1
Groundwater Evaluation (23 wells, 2 sampling events)	Chemtech	TCL VOCs+MTBE+TICs	8260	Groundwater	46	2	4	0	4
		TCL SVOCs+TICs	8270	Groundwater	46	0	4	0	4
		TCL PCBs	8082	Groundwater	46	0	4	0	4
		TCL Pesticides	8081	Groundwater	46	0	4	0	4
		TAL Metals	6010/7471	Groundwater	46	0	4	0	4
		Cyanide	9012	Groundwater	46	0	4	0	4
		Alkalinity	SM2320	Groundwater	3	0	0	0	0
		Chloride and Sulfate	E300IC	Groundwater	3	0	0	0	0
	TBD	NOD	TBD	Groundwater	3	0	0	0	0
		Halorespirable Bacteria	TBD	Groundwater	3	0	0	0	0
PCE IRM	Chemtech	TCL VOCs	8260	Soil	10	0	1	0	0
UST IRM	Chemtech	TCL VOCs	8260	Soil	5	0	1	0	0
		TCL SVOCs	8270	Soil	5	0	1	0	0
Waste Characterization (PCE IRM Waste, UST IRM Waste, and Study-Derived Waste)	Chemtech	Full Priority Pollutant TCLP	1311,8260B, 6010B/7470A, 8081B, 8151A, 8270D	Soil	5	0	0	0	0
		Ignitability	1010	Soil	5	0	0	0	0
		Reactivity	SW846,7.3	Soil	5	0	0	0	0
		Corrosivity	9040B	Soil	5	0	0	0	0
		Paint Filter Test	9095A	Soil	5	0	0	0	0
		TCL VOCs	624	Water	1	0	0	0	0
		TCL SVOCs	625	Water	1	0	0	0	0
		TCL PCBs	624 or 608	Water	1	0	0	0	0
		RCRA Metals	200.7/245.2	Water	1	0	0	0	0

Note: Refer to Attachments 3, 5, 6, 7 for additional information requested by DER-10 Section 2.4(a)v

Attachment 1

Resumes of Key Personnel

DAVID D. DAY, P.E.

EXPERIENCE

Day Environmental, Inc.: 1985 to present
Years with Other Companies: 10 years

AREAS OF SPECIALIZATION

-Environmental Restoration/Remediation
-Environmental Site Assessment
-Environmental Compliance

EDUCATION

University of Michigan, M.S. Environmental Engineering, 1975
Michigan State University, B.S. Civil/Sanitary Engineering, 1974

REGISTRATION/AFFILIATIONS

Licensed Professional Engineer in New York
40-Hr OSHA Hazardous Waste Site Worker Training
8-Hr OSHA Hazardous Waste Site Supervisor Training
8-Hr OSHA Haz Waste Site Worker Refresher Training
National Society of Professional Engineers
Environmental Assessment Association
Rochester Engineering Society, Inc.
Water Environment Federation
Certified Environmental Inspector
Certified Environmental Specialist

RESPONSIBILITIES AND PROJECT EXPERIENCE

President, Day Environmental, Inc. *(DAY)*. As a founder and principal of the firm, Mr. Day is responsible for the overall management and operation. He also provides technical guidance and support to the Industrial Compliance Group, Phase I Assessment Group, and the Phase II/Remediation Group. In addition, he periodically serves as Project Manager on some of the firm's larger or more complicated projects.

Mr. Day has over 30 years of experience working on environmental projects for industry or as a consultant. Examples of the types of environmental projects that he has worked on are described below.

Brownfield Assistance Program, City of Rochester. Principal for a project to assist the City of Rochester (City) in implementing its EPA funded Brownfield Assistance Program (BAP). The project has involved working with the City's Department of Environmental Services and Department of Economic Development to evaluate potential sites as candidates for the BAP program. DAY has conducted Phase I Environmental Site Assessments, Phase I confirmational intrusive studies, environmental management plans, and health and safety plans for this project at under-utilized sites within the City. This work has led to the redevelopment of some of the BAP sites into active, tax-producing sites.

Investigation/Remediation of Former Department of Defense Site, Rochester, NY. Principal for a project to conduct investigation/remediation at a site that was formerly used by the Department of Defense (DOD) for the production of ocean-going ships, and missiles. DAY has negotiated with the New York State Department of Environmental Conservation (NYSDEC) to conduct this work under a Voluntary Clean-Up Agreement. The study is scheduled to take place over a period of 10+ years, with interim remedial measures being implemented on an as-needed basis. Soils, groundwater, and wetlands in the vicinity of the site are contaminated with a variety of contaminants including volatile organic compounds, metals, and PCBs.

Remediation at a Former Printed Circuit Board Facility, Rochester, NY. Principal for a project to conduct remedial activities at a NYSDEC listed inactive hazardous waste disposal site. The remediation is being conducted under the Brownfield Cleanup Program (BCP). DAY completed a Remedial Investigation/Feasibility Study (RI/FS), and a remedial alternative was proposed for the site. The NYSDEC approved the proposed remedial alternative, and remedial activities are currently being implemented. After remedial activities are completed, operation of a groundwater remedial system and on-going monitoring will continue for 20+ years.

Phase I/Phase II/Remediation Services, City of Rochester, NY. Principal for a project to conduct Phase I, Phase II, and remediation services for the City of Rochester on an as-needed basis. These services have been provided on a variety of different types of sites within the City.

Slag and Fill Management Project, Greece and Rochester, NY. Principal for a project to coordinate and oversee the removal of 25,000+ yards of slag-contaminated fill material from a residential site in Greece, NY. The fill material was contaminated with slag that came from a site that was being redeveloped in the City of Rochester. The contaminated fill material was removed from the residential site to a site within the City, where the fill material was screened, and the separated slag was transported to a solid waste facility for disposal. DAY worked closely with City officials, the NYSDEC, contractors, the public, and other regulatory authorities on this project.

Compliance Audits at Various Industrial Facilities in New York. Project Manager/Principal for compliance audits conducted at industrial facilities. The compliance audits encompassed the following types of environmental issues: air pollution, water pollution, hazardous and solid waste management, tank management, and petroleum handling and storage. The compliance audits have been conducted at a variety of different types of facilities including: plating facilities, auto dealerships, heat treating facilities, packaging/printing facilities, power generating facilities, tool and die operations, and other types of manufacturing operations.

Phase I Assessments Throughout New York State. Principal to review 1,500+ environmental assessments conducted for the purpose of real estate transactions. These assessments were conducted on a variety of different types of facilities, including industrial sites, manufacturing operations, and former railroad properties.

Electric Utility SPCC Plan Implementation, Western, New York. Project Manager/Principal and certifying professional engineer for a Spill Prevention Control and Countermeasures (SPCC) Plan covering 162 electrical substations located throughout western New York. The project involved identifying potential spill pathways at each of the substations, and ranking the potential for a spill to impact navigable water (i.e., low, medium or high risk). When needed, recommendations were also developed to reduce the risk of navigable water impact. The approach utilized on this project was very cost effective and resulted in the certification of one SPCC plan for 162 electrical substations.

Hazardous Waste and Hazardous Material Compliance Audit at a Major Railroad Yard Facility. Project Manager/Principal for conducting a compliance audit at the Railroad Yard facility to assess hazardous waste and hazardous material handling and storage. The audit report outlined recommendations for improving the handling and storage of hazardous materials and wastes.

RCRA Training For a Major Railroad Operation in New York and Connecticut. Provided training to over 400 railroad personnel on handling and storage of hazardous waste as required by the Resource, Conservation, and Recovery Act (RCRA).

Hazardous Waste Tank Certification Project at Large Industrial Facility, Rochester, NY. Project Manager/Principal responsible for developing tank certification reports for 50 hazardous waste storage tanks as required by the New York State hazardous waste regulations.

Remedial Investigation on a New York State Inactive Hazardous Waste Site, Clarendon, NY. Project Manager/Principal for a $300,000 remedial investigation at a site where groundwater was contaminated by volatile organic compounds. Worked with client's attorney to secure funding of this project by insurance companies. The project was completed as required by the New York State Department of Environmental Conservation (NYSDEC) Order-on-Consent.

Drain Study at a Major Manufacturing Facility, New York. Project Manager/Principal for conducting a $200,000+ investigation to determine the discharge location (i.e., sanitary sewer, storm sewer, drywells, subsurface, etc.) of the various operations (i.e., processes, floor drains, hub drains, roof drains, sumps, scrubber drains, sinks, etc.) at a 5 million square foot manufacturing facility that contained over 40 buildings. A database was established to identify and track the discharge sources and locations to ensure compliance with local, State, and federal regulations.

Remediation at a Scrap Yard, Olean, NY. Project Manager/Principal for investigation and remediation of several hundred drums and containers that were abandoned at a scrap yard. The drums and containers contained a variety of types of hazardous wastes. The investigation and clean-up was conducted and completed under a USEPA Order-On-Consent.

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

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 22 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 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 180 Phase II Environmental Site Assessments and over 20 environmental restoration projects. Examples are provided below:

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.

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 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. Mr. Danzinger was also responsible for the development of a Remedial Investigation/Remedial Alternatives Analysis (RI/RAA) report and a subsequent remedial work Plan (RWP). The RWP was approved by the NYSDEC and will be implemented in the near future. 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.

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.

Low-Rise Apartment Complex, 225-405 Mt. Hope Ave., Rochester, New York: Under the NYSDEC Brownfield Cleanup Program (BCP Site #C828125), Mr. Danzinger is managing a remedial investigation 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.

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.

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 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.

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.

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).

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 Environmental, Inc.: April 1992 to present
Years with Other Firms: 4 years

AREAS OF SPECIALIZATION

- Remedial Services
- Environmental Facilities Design and Design/Build Services

EDUCATION

University of Rochester, B.S. Chemical Engineering, 1987
University of California at Berkeley, Graduate Coursework, Chemical Engineering

REGISTRATIONS/AFFILIATIONS

- Registered Professional Engineer in State of New York
- 40 Hour OSHA Hazardous Waste Site Worker Training
- Member, Water Environment Federation
- Member, National Fire Protection Association

RESPONSIBILITIES AND PROJECT EXPERIENCE

Mr. Kline has 22 years of professional experience. At Day Environmental, he is primarily responsible for engineering, design, and project coordination for the installation of environmental facilities and support systems. Areas of expertise include soil and groundwater remedial treatment, water and wastewater treatment, chemical and petroleum bulk handling facilities, industrial ventilation and air pollution control, and solid waste management. Representative projects are described below.

Soils and Groundwater Remedial Projects

Brownfields Remedial Cleanup at Former General Circuits Site, Rochester, New York. Current Project Manager responsible for ongoing remedial project in cooperation with NYSDEC and NYSDOH involving design and installation of multiple engineering controls, including carbon air filtration (only known site in this region for which this was approved) to address soil vapor intrusion within a large, complex industrial site encompassing over a dozen current industrial tenants. Also responsible for design and installation of a groundwater extraction and treatment system for this same site incorporating a novel and untested groundwater treatment technology for contaminant removal developed by professors at Cornell University.

Soil Vapor Intrusion Mitigation at Old Millhouse Restaurant, Gorham, New York. Project Engineer for design and installation of vapor barrier and subslab ventilation system in basement and crawlspace of a turn-of-the-century building currently utilized as an active restaurant. Vapor barrier was a custom design (fiber-reinforced thinset concrete with shallow vapor collection system) to accommodate limited access and headspace requirements, and work was completed with no disruption to restaurant business.

General Motors Corp. Harrison Radiator Division Facility Remedial Investigation, Lockport, New York. Project Engineer for state-mandated contaminant site investigation at a contaminated automotive industrial manufacturing site, including well installation, data acquisition and interpretation, and preparation of reports assessing degree and sources of contamination, and remedial recommendations. Also assisted in construction review of wastewater treatment system and outfall renovation.

Superfund Site Assessments/Remedial Investigations at Love Canal, Niagara Falls, New York. Project Engineer responsible for on-site coordination of hazardous waste sampling and treatability testing activities and assisting in various site waste characterization evaluations.

Other Remedial Systems Designs. Senior Engineer responsible for design of multiple other NYSDEC and NYSDOH-compliant soil-vapor extraction, bioventing, active and passive ventilation systems, and groundwater treatment systems at various industrial, commercial and residential sites throughout New York.

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)

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.

Corning-Tropel Optics Manufacturing Facility, Fairport, New York. Project Manager and Senior Engineer responsible for: (i) design and implementation of multiple ventilation, process exhaust, and particulate and organic vapor removal systems associated with production operations; (ii) design and implementation of closed-loop heated and chilled process water supply systems and HVAC control systems (multi-zone temp. control maintains temp. within tenths of a degree for temperature-sensitive precision optics manufacturing operations); and (iii) 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.

Teledyne CAE Aeronautical Defense Plating Facility, Toledo, Ohio. Project Manager and Senior Engineer 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 equipment to handle current waste stream; and (iii) installation of additional air pollution control equipment for source control of metal finishing process air emissions.

STEVEN CAMPBELL, CHMM

Environmental Division Leader

scampbell@luengineers.com

Lu Engineers

- 23 Years Experience
- ERP Brownfield Specialist
- Certified Hazardous Materials Manager
- Environmental Division Leader

-EDUCATION-

B.S., Environmental Health and Safety, 1987, Brockport State University

-CERTIFICATIONS-

Certified Hazardous Materials Manager (CHMM)
Hazardous Waste Operations and Emergency Response
40 Hour Site Worker- Supervisor Level
Emergency Spill Response-Hazmat Technician and Incident Commander
US Department of Transportation Hazardous Materials -Transport Awareness Level

-PROJECT EXPERIENCE-

Mr. Campbell is the Environmental Division Leader responsible for all environmental projects performed by the company. He has worked in the field of environmental health and safety for over 23 years. During his career, he has worked as an environmental scientist and Project Manager in the governmental, consulting, and private sectors. Mr. Campbell has investigated and inspected properties ranging from low environmental concerns to major Superfund sites as both a government contractor and private consultant.

BROWNFIELDS

Orchard-Whitney ERP Investigation, Rochester, NY
As Project Manager, Mr. Campbell was responsible for providing environmental services for the Orchard-Whitney Brownfield site for the City of Rochester, NY under the NYSDEC Environmental Restoration Program. The 3.9 acres site is located in a strategic economic development area of the City. The goal of this project is to generate a NYSDEC approved Site Investigation/Remedial Alternatives Report (SI/RAR). Initial tasks involved waste characterization and an asbestos, hazardous waste and lead pre-demolition survey for a former manufacturing facility. Lu Engineers provided oversight for demolition of the buildings. Lu Engineers staff assisted with tasks such as tank and sensitive equipment removals and unforeseen environmental conditions. A subsurface investigation was completed after the building demolition. The subsurface investigation was used to further define the horizontal and vertical extent and concentrations of contaminants in the soil and groundwater. All of this will provide a basis for developing remedial alternatives that are based on conceptual future uses. Survey, GIS mapping and planning for citizen's participation meetings will be provided as necessary.

Former Frink America property, NYSDEC ERP Brownfield, Clayton, NY
On this waterfront Brownfield site, Mr. Campbell served as Project Manager for the NYS Environmental Restoration Program (ERP). The project involved asbestos abatement, building demolition, the identification of the vertical and horizontal extent of contamination, surface soil sampling, borings, removal of underground storage tanks, PCB sampling, an RI/FS report and development of an IRM Work Plan to address known impacted soils. An ERP grant application was also prepared. After remediation, the newly developed property will house residences, public boat docks, a riverwalk, a small inn, office space and a marina while creating new park areas and enhanced deep water port space along the St. Lawrence River.

City of Rochester, Environmental Investigation Term Contract, Rochester, NY
Mr. Campbell served as Project Manager responsible for providing environmental investigation services through a two year term contract for the City of Rochester's Division of Environmental Quality. Over 50 projects have been completed under the life of this term contract. Projects have included tank removals, site investigations, transformer removals, drain sampling, monitoring well installations, watershed evaluations, asbestos surveys at over 100 City owned sites, demolition oversight and employee air monitoring.

STEVEN CAMPBELL, CHMM

Environmental Division Leader

Lu Engineers

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Sewall's Island, ERP Brownfield Investigation, City of Watertown, NY
Mr. Campbell is the Project Manager in charge of providing a Remedial Investigation/Alternatives Analysis Report (RI/AAR) on Sewall's Island for the City of Watertown, New York. The site consists of 11 parcels representing a total of 15.18 acres. Our scope of work on this project includes completion of a NYSDEC approved Environmental Assessment and as necessary an Interim Remedial Measures (IRM) Work Plan, a geophysical survey, identification of asbestos containing materials in on-site debris, Remedial Investigation Implementation, completion of an instrument survey, a Remedial Investigation/ Alternatives Analysis Report and conducting public meetings to inform the public of findings and recommendations pursuant to requirements of the ERP program.

Former Nichol Inn, ERP Brownfield Investigation, Steuben County, NY
Mr. Campbell is the Project Manager currently working with Steuben County at the Nichol Inn property located in the Town of Pulteney, NY to provide a Remedial Investigation/ Alternatives Analysis Report. This report will be relied upon as a basis for making appropriate decisions for site remediation and future development. The Scope of Work also includes an Environmental Assessment and Interim Remedial Measures Work Plan, geophysical survey, asbestos survey, asbestos removal, building demolition and tank removal, a remedial Investigation Implementation, and instrument survey. This project is being completed under the NYSDEC Environmental Restoration Program.

XLI Corporation, Brownfield Redevelopment, Rochester, NY
Mr. Campbell was the Project Manager for a Brownfield redevelopment project for property located within the boundaries of a landfill listed on the NYS List of Inactive Hazardous Waste Disposal Sites. The project included: engineering design with site layout, storm water collection and conveyance along with storm water retention/detention facility; surveying services including base mapping; review of site specific environmental investigations; health and safety plan; and developing a plan for the removal and relocation of landfill materials present. Mr. Campbell worked closely with the City of Rochester and XLI Corporation to provide site development alternatives that satisfy the requirements of the City's Brownfield Pilot Program.

Karenlee Drive, Henrietta, NY
In his role as Project Manager, Mr. Campbell implemented a Work Plan for the former wastewater treatment plant in the Town of Henrietta, NY. The report was completed in accordance with the New York State Department of Environmental Conservation Brownfield Program along with a Phase I and Phase II Environmental Assessment. Oversight was provided for the tank removals, installation of seven monitoring wells, the collection of subsurface soil samples during the well installation, the collection of water samples from the installed wells and the collection of surface soil samples. Information from this project was utilized to determine the extent and concentration of suspected site contamination and its impact on proposed future site improvements.

Almor Voluntary Cleanup Plan, Warsaw, NY
As Project Manager, Mr. Campbell assisted the Wyoming County Industrial Development Agency by providing environmental services for the cleanup of the former Almor manufacturing plant. Extensive research was conducted during the remedial investigation in order to determine the nature and extent of the wastes and contamination associated with the property. Additional services include a geoprobe investigation of the site, stream sampling, groundwater sampling, limited soil removal and testing on an underground storage tank found on the site.

Regional Traffic Operations Center, Rochester, NY
Mr. Campbell was the Project Manager for a project proposed Traffic Operations Center facility located at the Greater Rochester International Airport. He performed hazardous substance and remedial investigations including abatement design. The $10 million facility was constructed on lands previously used as an electroplating facility and a Major Oil Storage Facility. The Lu team also completed a geophysical survey to determine the location of buried features, soil-vapor surveys, over 60 soil borings, installation of groundwater monitoring wells and sampling. He also made recommendations for design abatement, developed construction abatement drawings, handled all coordination with NYDEC and performed environmental construction monitoring.

GREG ANDRUS, CHMM

Geologist/ Hydrogeologist

gregandrus@luengineers.com

Lu Engineers

-EDUCATION-

B.S., Geology, 1987, Washington & Lee University, Lexington, VA
Hydrogeology, Graduate Level Studies, SUNY at Brockport, Brockport, NY

-TRAINING, CERTIFICATIONS & ASSOCIATIONS-

Certified Hazardous Materials Manager, 1998
OSHA 40-Hour Training and Refresher Courses
OSHA Confined Space Entry Training
Air Program Information Management Systems
ACHMM Finger Lakes Chapter, Past President
PC Applications in Risk Assessment, Modeling and GIS
New York State Council of Professional Geologists
National Groundwater Association

- 22 Years Experience
- ERP Brownfield Specialist
- Extensive Environmental Investigation/Remediation Experience
- Certified Hazardous Materials Manager (CHMM)

-PROJECT EXPERIENCE-

Mr. Andrus' 23 years of experience includes a diverse range of geological and environmental engineering projects. Areas of specialization include: ERP and Brownfield Projects, remedial investigation/site characterization, site remediation, site assessment, regulatory compliance, geophysical surveys and permitting. His experience also includes bulk petroleum facility consulting, wetland studies, asbestos building surveys, and building demolition.

Town of Clarkson, ERP Investigation, Clarkson, NY
Mr. Andrus is managing the remedial investigation and interim remedial measures on a former gas/service station located on Route 104 in the Town of Clarkson. He also prepared an ERP application to obtain funding, and a Remedial Investigation Work Plan for NYSDEC approval.

Port Leyden ERP Investigation; Town of Leyden, NY
Mr. Andrus is the project manager for this NYSDEC funded ERP site that was a former gas/service station. The site investigation included a geophysical investigation to identify tanks and underground utilities, soil borings, test pits, soil vapor intrusion sampling, well installation, and the removal of six underground storage tanks as an IRM. Mr. Andrus also prepared cost estimates, bid documents and specifications on behalf of the Town of Leyden.

Churchville Ford, Private Brownfield Site
Lu Engineers conducted a Site Investigation under the NYSDEC Brownfield Program at the Churchville Ford Site. The goal of the project was to identify the vertical and horizontal extent of chlorinated solvent contamination in order to establish an appropriate cleanup alternative. Mr. Andrus provided scoping, budget, and hydrogeological and engineering review and remedial design. The site is currently in the remediation phase of the Brownfield Program.

Orchard-Whitney ERP Investigation, City of Rochester, NY
Lu Engineers is currently providing environmental services for the City of Rochester's investigation of the Orchard-Whitney Brownfield site for the City of Rochester under the NYSDEC Environmental Restoration Program. The 3.9 acres site is located in a strategic economic development area of the City. The goal of this project is to generate a NYSDEC-approved Site Investigation/Remedial Alternatives Report (SI/RAR). Mr. Andrus managed the initial tasks of waste characterization and an asbestos, hazardous waste and lead pre-demolition survey. He assisted with and coordinated tasks such as tank and sensitive equipment removals and unforeseen environmental conditions and is managing the subsurface/remedial investigation process for this site.

GREG ANDRUS, CHMM

Geologist/ Hydrogeologist

gregandrus@luengineers.com

Lu Engineers

Air Force Research Laboratory / Rome Research Site (AFRL/RRS), Rome, NY
Mr. Andrus served as project manager for ***four consecutive*** multi-year IDIQ contracts to provide civil and environmental engineering services to the AFRL/RRS at the former Griffiss Air Force Base. Under these contracts, Lu Engineers has conducted wetland delineations, multiple BRAC site investigations and cleanups, decommissioning of wells, archaeological surveys, UST closures and disposal area closures, design of backflow preventers; on-call environmental sampling services, demolition and hazmat assessment asbestos surveys and wastewater sampling.

Former Davis-Howland Oil Company Facility, Rochester, NY
Mr. Andrus has been the Project Manager for continued remedial design, construction oversight and remedial operations and maintenance on this NYSDEC IHWS site contaminated with chlorinated solvent. This $2 million project involved the implementation of remedial activities including trailer mounted remediation system with groundwater and pump, vapor extraction and air sparging. Treatment included a thermal/catalytic oxidizer. He managed a soil vapor survey on residential/commercial properties in the area. He oversaw interior vapor sampling and sub-slab basement ambient air sampling in residences surrounding the site.

Karenlee Drive, Henrietta, NY
Lu Engineers completed and implemented a Work Plan for the former wastewater treatment plant at 100 Karenlee Drive in the Town of Henrietta in accordance with the NYSDEC Voluntary Cleanup Program. Mr. Andrus provided oversight of installation of seven monitoring wells, the collection of subsurface soil samples during the well installation, the collection of water samples from the installed wells and the collection of eight surface soil samples. After all of the information had been obtained a report describing the findings of the investigation was prepared for the Town of Henrietta. The information from this project was utilized to determine the extent and concentration of suspected site contamination and its impact on proposed future site improvements.

Regional Traffic Operations Center/Former Webaco Oil Property, Rochester, NY
Mr. Andrus assisted with periodic biocell evaluation of petroleum contaminated soils at the former Webaco Oil property at the Greater Rochester International Airport. Long-term biocell monitoring services and soil sampling were necessary to satisfy NYSDEC requirements.

Hidden Valley Electronics Inactive Hazardous Waste Site, Vestal, NY
Mr. Andrus served as Project Manager for design/build environmental remediation services at the former Hidden Valley Electronics in Vestal, NY. The property consists of a 13,215 square foot manufacturing building and a paved/gravel parking lot. Mr. Andrus installed a sub-slab ventilation/soil vapor extraction (SVE) system at the site to draw contaminated soil vapor from beneath the slab-on-grade floor of the main site building.

Stuart-Olver-Holtz Site, Henrietta, NY
Mr. Andrus was the Project Manager for inspection services in support of the demolition of a former auto dealership (Stuart-Olver-Holtz), an Inactive Hazardous Waste Site. Greg was on site for all contractor activities and was responsible for the environmental services at this site.

Preferred Electric Motors Site, Rochester, NY
As Project Manager, Mr. Andrus provided assistance with Remedial Investigation/Feasibility Study (RI/FS) at a NYSDEC Inactive Hazardous Waste Site in Rochester, NY. Tasks included preparation of a site-specific Health and Safety Plan, boundary and well survey, geophysical (magnetic and GPR) surveys, Geoprobe sampling, sediment/soil/water sampling, soil/gas sampling, indoor air/ sub-slab sampling and utility stakeout.

JAMES PHILIP MACK, LSRP

ADDRESS

25 Starview Drive
Hillsborough, New Jersey 08844
(908) 369 7137 (h)
(908) 448 6566 (c)

EDUCATION

M.S. Geology, Adelphi University, 1980
Garden City, New York

B.S. Geology, Waynesburg College, 1974
Waynesburg, Pennsylvania

LICENSE

New Jersey Licensed Site Remediation Professional (LSRP)
License Number: 509037

EMPLOYMENT HISTORY

- 1981 to 1985: Project Manager, Fred C. Hart Associates
- 1986 to 1987: Senior Project Manager, Fred C. Hart Associates
- 1988 to 1990: Vice President, Geosciences Operations, Hart Environmental Management
- 1990 to 1995: Managing Principal & Chief Geoscientist (Eastern Region), McLaren/Hart
- 1996 to 2000: Vice President and Regional Manager (Warren, N.J. Office), McLaren/Hart
- 2000 to 2010: Director, Brownfield Technical Assistance Program
  York Center for Environmental Engineering and Science (YCEES)
  Northeast Hazardous Substance Research Center (NHSRC)
  New Jersey Institute of Technology (NJIT)
- 2010 to present: President and Owner: James P. Mack, LLC

JAMES P. MACK, LLC

James P. Mack LLC was founded by James Mack to provide environmental services to business, industry, developers and others involved with the investigation, clean up and redevelopment of environmental impacted properties. Mr. Mack has over 30 years experience with performing environmental projects in New Jersey and throughout the US. With the advent of the Licensed Site Remediation Professional (LSRP) program, Mr. Mack, an LSRP, has broadened the services of James P. Mack LLC to include independent LSRP services.

James P. Mack has specific skills and experience with the Triad approach, a method of site characterization that provides increased accuracy and confidence in the outcome of investigations and remediations. He has used the Triad approach to expedite Brownfield redevelopment and to assure that clean ups in urban areas produce safe and healthy environments.

In addition to his specialized skills, Mr. Mack has experience with:

- ISRA Preliminary Assessments/Site Investigations
- Phase 1 Environmental Site Assessments
- Remedial Investigations
- Remediation Design and Oversight
- Brownfield Inventories
- Community Outreach

RELEVANT PROJECT EXPERIENCE

Licensed Site Remediation Professional

Response Action Outcome: Hillside New Jersey

Mr. Mack prepared a Response Action Outcome (RAO) for this commercial property located adjacent to Route 22. Because of its location in a highly urbanized area of New Jersey, the groundwater surrounding this property was impacted. Additionally, there had been a spill and clean up of petroleum compounds at this site. Recognizing that conventional site characterization methods would not produce a robust enough data set to fully understand the intermingling of contaminants, Mr. Mack applied the Triad approach to increase data density without significantly effecting cost. The increased data density allowed for a more complete interpretation of groundwater impacts. It was determined that four plumes of varying shapes and chemical mixtures were intermingling in site groundwater. Based on the enhanced site knowledge, an unrestricted use RAO was issued.

Immediate Environmental Concern (IEC): Rutherford, New Jersey
Mr. Mack became involved with this site after the off-site IEC condition was discovered. Based on this discovery the regulatory timeframe for addressing vapor intrusion IEC was triggered, including the 270 day IEC Source Control Report. Because of the aggressive time requirements, Mr. Mack used the Triad approach to delineate the source area. Based on the accuracy of the delineation, a source area treatment remedial action was developed that consisted of chemical injections and excavation. Under the LSRP program, Mr. Mack successfully used an innovative characterization program to comply with regulatory time frames and treat an IEC Vapor Intrusion source area. Further LSRP responsibilities include developing a site wide Remedial Action Work Plan and oversight of demolition of a pilot plant.

Immediate Environmental Concern (IEC): Wyckoff, New Jersey
Subslab and indoor air testing at this facility determined that an IEC condition was present with regard to Vapor Intrusion. The responsible party elected to "opt in" to the LSRP program and Mr. Mack was designated the LSRP. The IEC Response Action Form was submitted, triggering regulatory timeframes. Mr. Mack complied with the 120 day IEC Engineered System Response Action regulatory timeframe by implementing three subslab depressurization pilot tests to develop VI mitigation system design parameters. A full scale system was designed and implemented based on the pilot tests. Mr. Mack provided LSRP oversight and compliance.

Response Action Outcome: Hackensack, New Jersey
Mr. Mack is the designated LSRP for this property in Hackensack, New Jersey. Project involves chlorinated solvent issues related to off-site releases. Owners of the property performed a Remedial Investigation with a RAO to determine if impacts have migrated on to their property.

Response Action Outcome: Carteret, New Jersey
At a development site, chlorinated solvent impacts were identified in several well points. Mr. Mack was designated the LSRP for development of a Response Action Outcome with a Remedial Investigation. Mr. Mack used the Triad approach to delineate the CVOC impacts in the overburden aquifer and prepare a Groundwater Permit and CEA with a WRA.

Brownfield Redevelopment

Patterson Plank Road Brownfield Redevelopment Area; Carlstadt, New Jersey
In association with his responsibilities at the New Jersey Institute of Technology, Mr. Mack provided technical consulting to the New Jersey Meadowlands Commission

(NJMC) to evaluate environmental conditions and redevelopment potential for 40 acres of industrial properties within the Paterson Plank Road Redevelopment Area in Carlstadt, NJ. The project was complicated because it required the assemblage of numerous small lots to create property large enough to attract potential developers. This project was funded under a USEPA Brownfields Grant. The results from the Area Wide Assessment were used by the NJMC to prepare a developer's Request for Proposals (RFP). Under separate contract to the NJMC, Mr. Mack developed a GIS based inventory of Brownfield sites within the Meadowlands District. The purpose of the inventory was to support the revised NJMC Master Plan and defined additional areas within the district that could support redevelopment.

Milltown-Ford Avenue Redevelopment Project; Milltown, New Jersey

Mr. Mack provided direct technical assistance to the Middlesex County Improvement Authority (MCIA) and the Milltown Ford Ave. Redevelopment Agency to implement an assessment of this 22-acre former tire manufacturing facility. The MCIA received a $350,000 grant from the USEPA to undertake investigation and redevelopment planning for this site. The New Jersey Department of Environmental Protection (NJDEP) selected this project as a case study to evaluate the use of the Triad approach. Mr. Mack's involvement was primarily associated with implementing Triad approach and obtaining grant funding to complete the investigation. These activities included working with stakeholders, providing technical guidance on the Triad investigation and preparing HDSRF grant applications. The full scale Triad investigation involved three mobile laboratories, a computerized real time database system and a graphical interface for displaying daily information. The project involved a wide range of contaminants including VOCs, PAHs, Metals, PCBs and TPH. Field investigations included a landfill area delineation and mapping of a chlorobenzene groundwater plume. Overall $1.5 million in grant funding was used to support the environmental investigations.

Livingston Street Site; Elizabeth, New Jersey

The property was an anodizing facility for a significant timeframe. In 2000 EPA performed an emergency removal action that removed liquids from tanks; the tanks themselves, drums and impacted soil beneath the main anodizing operation. The City of Elizabeth acquired the property through foreclosure and seeks to redevelop the site into residential housing. The City received USEPA Brownfield grant funding and NJDEP HDSRF funding to demolish the building and remediate remaining impacts. Mr. Mack worked with the City to develop a demolition plan and specifications. This included inventorying building contents, an asbestos survey, a lead based paint survey, a universal waste identification survey and sampling building materials (concrete, steel and debris) for RCRA disposal characterization.

Hudson County Area Wide Assessment; Kearny and Harrison, New Jersey

In association with his responsibilities at the New Jersey Institute of Technology, Mr. Mack worked with the Hudson County Economic Development Corporation (HCEDC) to apply for a $200,000 USEPA Brownfield grant to perform three area wide assessments. One of the locations selected for the grant funds was a portion of the Harrison Redevelopment Area. This location will be redeveloped with condo style residential and a major issue was the extent of historic fill. Mr. Mack developed a technique for delineating historic fill using the Triad approach. Also, Mr. Mack supervised a redevelopment investigation at the former Keystone Metal Finisher site. Secaucus had acquired the property through foreclosure and wanted to evaluate the redevelopment potential. Using EPA Brownfield grant funding, Mr. Mack designed an investigation and presented the results to Secaucus officials.

North Jersey Transportation Planning Authority (NJTPA) Freight Related Brownfield Inventory and Redevelopment Study.
The NJTPA and NJIT received a grant from the US Highway Administration to perform an inventory of Brownfield sites in the Port Newark and Elizabeth area. The purpose was to identify large Brownfield sites that were in industrial areas that could be redeveloped as warehouse and distribution centers. Mr. Mack conducted the inventory, which involved outreach to municipalities in the port district, aerial photograph mapping, wind shield surveys and working with property owners to identify potential sites. A GIS based data management system was developed that located possible sites and linked the location to site condition information.

Portfields Brownfield Development Program
Mr. Mack worked with the Port Authority of New York and New Jersey (PANYNJ) and the NJ Economic Development Authority (NJEDA) to expand on the findings from the NJTPA study with regard to sites in the port district that have the potential for freight related redevelopment. Using the GIS database, the PANYNJ and NJEDA identified 17 potential properties that are large enough to support modern distribution centers. Mr. Mack assisted this effort through GIS mapping, data review, file searches, database development and marketing/outreach. The goal of this project was to work with communities, property owners and developers by providing technical and financial assistance as well as further inventorying of potential sites.

Brownfield Inventory of the NJ Meadowlands District
Mr. Mack worked with the NJ Meadowlands Commission to develop a brownfield inventory of properties in the Meadowlands District. The first phase of this project involved a GIS based screening process of parcels to systematically eliminate sites from the inventory. Based on this screen, a select group of possible parcels were identified. The second phase involved windshield surveys of candidate sites and developing a report for the NJMC.

Triad Investigations

South Street Elementary School; Newark, New Jersey

Mr. Mack provided technical services to the New Jersey School Development Authority in association with the site characterization and remediation of the property for the proposed South Street Elementary School in Newark's Ironbound section. A Preliminary Assessment/Site Investigation identified the potential for impacts from COVCs and petroleum hydrocarbon. A Triad based RI was performed that used a combination of electrical conductivity (EC) probe, MIP and fuel florescent detector (FFD) probe to quickly map the lithology and identify the locations of the VOC and TPH impacts. 3D imaging software was used to depict the soil impact and design the remediation approach. From this image, targeted intervals were identified for soil and groundwater sampling. Collectively this data set formed a collaborative data package that was used to vastly improve the site CSM and develop a remedial approach. . The 3D image was also used to communicate site conditions to the public

Early Childhood Center 14; Jersey City, New Jersey

Mr. Mack provided technical services to the New Jersey School Development Authority in association with the site characterization and remediation of the property for the proposed ECC-14 in Jersey City. This 3 ac site was the location of the former Jersey City Printing building. Preliminary Assessment/Site Investigation activities had indicated the potential for CVOC impacts. Using a combination of EC probe and MIP, a Triad based RI program was implemented which systematically tracked the CVOC impacts to a source area. Source area concentrations were over 50 ppm PCE and over 45 ft bgs. Interval specific soil and groundwater sampling was used to confirm direct sensing probe data and develop chemistry information on the CVOC breakdown pattern. The direct sensing readings and analytical chemistry results were input into a ArcGIS 3D imaging system and displayed for public and stakeholder communication as well as remedial design.

Dudley School Replacement Site; Camden, New Jersey

This project involved using the Triad approach to characterize a 10-acre collection of properties in Camden designated for a replacement school. This project was intended to demonstrate that the Triad approach could be used to quickly investigate urban properties and determine remedial costs. In a period of seven days over 200 soil and groundwater samples were collected and analyzed using a variety of sampling and real time analytical techniques. The result was that two petroleum plumes were delineated; a drum cleaning operation was shown not to be a significant source; and site wide metals impacts from artificial fill were defined. Mr. Mack used the results of the Triad investigation in a portion of the site to design a groundwater and soil treatment system for TPH impacts. The remedial approach consisted of a combination insitu chemical oxidation and bioremediation. Mr. Mack prepared a RAW for the insitu treatment program, designed the injection program and supervised the application.

Camden Early Childhood Development Center; Camden, NJ

As part of his support to the NJSDA, Mr. Mack implemented a Triad investigation at a location intended for an ECDC facility in Camden. During installation of foundation systems for the new building, it was discovered that high levels of arsenic existed in the soil and construction of the building was halted. Mr. Mack supervised a Triad investigation to rapidly determine the source of the arsenic and identify a remedial approach. Using a collaborative data set approach that integrated a number of field testing methods (conductivity probe, hand held XRF, GPS, ArcGIS and Category 2 XRF), the lithology was quickly mapped and the source of the arsenic was located. The findings were that a layer of coal ash had been placed in an old stream channel in the late 1800's and subsequently buried by a sequence of rubble fill. The Triad program allowed for a determination of the site condition in two months. Construction was restated after discussions with NJDEP regarding appropriate remedial measures. The detailed information supported the conclusion that the arsenic in the ash layer was contained and controlled and the appropriate remedial measures could be installed to make a safe school.

Former Industrial Facility; Harmony Township, New Jersey

Soil impacted with PCBs had been identified at this former industrial facility. Several RIs conducted over 10 years had failed to adequately delineate the extent of impacts. Mr. Mack supervised the design and implementation of a Triad based RI that delineated the extent of PCB impacts within one month. Prior to full scale implementation a brief Methods Determination Study was performed to select the appropriate field testing approach. The RI involved collecting over 300 soil samples and using the field generated results for dynamic decision making which rapidly achieve delineation. The testing results were used to create a 3D image of the data set, which was then used to communicate the findings to NJDEP and USEPA.

Lanning Square School Site; Camden, New Jersey

This Triad project involved delineation of TPH impacted soil using a fuel fluorescent detector (FFD). Fuel oil had leaked for a 10,000 gallon UST creating a zone of TPH and LNAPL contamination. Because of school construction schedule, the impacts needed to be defined and remediated quickly. Using previously collected data to formulate an initial CSM, the FFD delineated the extent of TPH impacts in four days. Targeted soil and groundwater sampling was used to confirm the FFD findings. The data was entered into 3D imaging software, which clearly depicted the contaminated zone. The 3D image was used a basis for engineering design of a remedial approach. The clean up consisted of sheet piling to isolate the impacted soil, dewatering to expose the impacts below the water table and soil excavation. The entire project was completed in three months, which successfully maintained the school construction schedule.

Characterization and Remediation

Investigation and Remediation of Chlorinated Solvent Impacts; Mark IV Industries, Metuchen, New Jersey

During Mr. Mack's employment at McLaren/Hart he was the Project Manager and Principal Hydrogeologist for the investigation and remediation of a chlorinated solvent plume at this former manufacturing facility. Work included delineation of the extent of the CVOC impacts in the overburden aquifer, preparation of a remedial investigation report and remedial action work plan and design and installation of an air sparging groundwater treatment system. Mr. Mack supervised the development of the engineering design of the air sparging system and the detailed plans and specifications for the system as well as the operation and performance monitoring/reporting.

Investigation and Remedial Evaluation of Chromium Ore Processing Residue Disposal Locations; Hudson County, New Jersey

This project involved performing site characterizations at over 30 industrial properties in Kearney and Newark, N.J where COPR had been disposed. The COPR was used as fill material in low lands near marsh areas. The project consisted of developing NJDEP approved work plans, sampling soil and groundwater at 30 sites, developing project specific testing methods for Cr^{+6}, preparing risk assessments and regular meetings with NJDEP. Mr. Mack managed the project from 1991 to 1996. Total project billings exceeded $10 million and Mr. Mack managed a project staff of 8 professionals.

Project Manager for Investigation and Cleanup at the U.S. Pipe Manufacturing Facility; Burlington, New Jersey

This project involved extensive investigation of soil and groundwater conditions at an active manufacturing facility on the Delaware River in Burlington, NJ. Contaminants included chlorinated solvents, PCBs, PAHs and heavy metals. Based upon this work, Mr. Mack prepared a NJDEP approved Soil and Groundwater Remedial Action Work plan. Remedial actions consisted of excavation and disposal of impacted soil, various types of caps and groundwater treatment using air sparging and soil vapor extraction. Remediation costs were managed by using innovative techniques such as a mobile laboratory to generate real time data and 3D imaging of hot spots. Also involved establishing deed restrictions for areas where metals impacts in soil exceeded NJDEP Residential Soil Clean up Criteria.

PUBLICATIONS AND PRESENTATIONS

1. Mack, J; Librizzi, W; Yaesenchak, L.; 2003; An Innovative Approach to the Characterization of Brownfield Properties; Fourth International Conference on Ecosystems and Sustainable Development, Siena Italy

2. Mack, J; Woll, B; Ellerbusch, F; Vettner, J; 2003; Facilitating Brownfields Transactions Using Triad and Environmental Insurance; Remediation Journal, Spring 2003
3. Mack, J; Ellerbusch, F; Librizzi, W; 2003; Characterizing a Brownfields Recreational Reuse Using the Triad Approach- Assunpink Creek Greenways Project; Remediation Journal, Autumn 2003
4. Ellerbusch,F; Mack, J; Shim, J; Using the Triad Approach to Expedite the Acquisition of an Abbott District School Site; Remediation Journal, Winter 2004
5. Mack, J.; 2003; Matching Technology Approaches with Site Decisions: Systematic Planning for Site Specific Needs; RevTech Conference, Pittsburgh, PA
6. Mack J.; 2003; Area Wide Assessments for Brownfield Redevelopment; RevTech Conference, Pittsburgh, PA
7. Mack, J.; Crumbling, D.; Ellerbusch, F.; A Data Integration Framework to Support Triad Projects; Remediation Journal, Winter 2005
8. Mack, J; 2005; Milltown Redevelopment Project Triad Investigation: Data Management Program; National Brownfields Conference, Denver, Colorado
9. Mack, J: 2005; Milltown Redevelopment Project-Applying Triad Under a State Regulatory Program; National Brownfields Conference, Denver, Colorado
10. Triad Instructor, USEPA Region 4 Triad Training, Atlanta, Georgia, March 2009
11. Mack, J.; Limbrick, E. Use of Collaborative Data Sets and Imaging in Site Characterization; Advanced Site Characterizations Conference, New Brunswick, New Jersey, June 2009.

Attachment 2

Chemtech Quality Assurance Manual

QUALITY ASSURANCE MANUAL

CHEMTECH

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Document Control Number: A2040129

Revision Number: 21

Date Effective: June 15, 2010

Approved By:

Divya Mehta
Technical Director

6-15-10
Date

Krupa Dubey
QA/QC Director

6/15/10
Date

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 Standard (06/2003) and NELAP policies. Chemtech will comply with the requirements in Department of Defense Quality Systems Manual for Environmental laboratories, Version 4.1 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 attention to detail 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 which is the keystone to the Chemtech quality program.

1.3 ANNUAL REVIEWS AND PLANNING

As part of our 2003 NELAC 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.

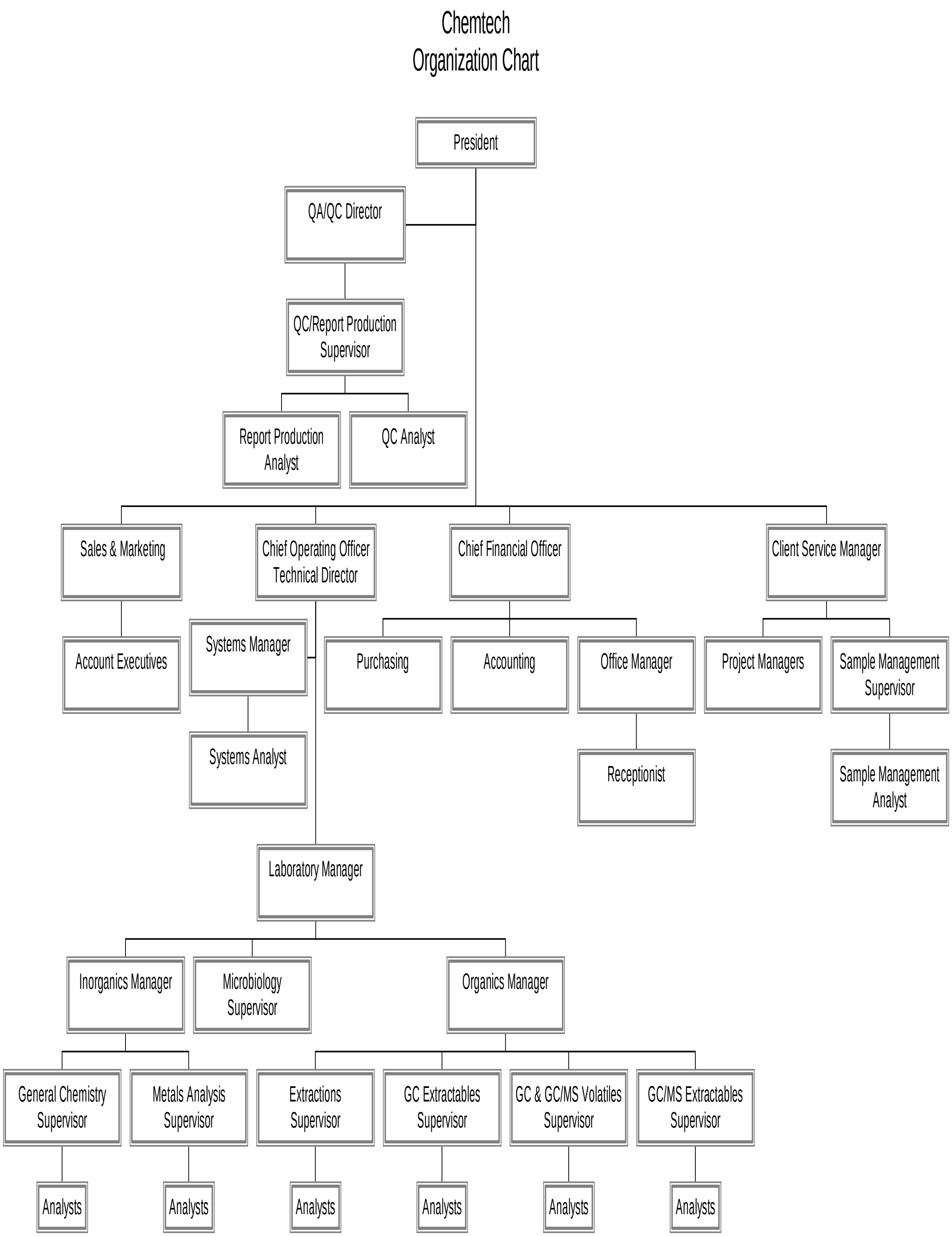
Chief Operating Officer/Technical Director: Facilitates uniformity and focus in all aspects of the company's technical affairs; including, Quality Assurance, Information Systems, and Organic and Inorganic technical direction. Strives to align the strategies, initiative and direction of technical affairs 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 President.

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: Supervises, 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.


Chemtech
Organization Chart
President
QA/QC Director
QC/Report Production Supervisor
Report Production Analyst
QC Analyst
Sales & Marketing
Chief Operating Officer Technical Director
Chief Financial Officer
Client Service Manager
Account Executives
Systems Manager
Systems Analyst
Purchasing
Accounting
Office Manager
Receptionist
Project Managers
Sample Management Supervisor
Sample Management Analyst
Laboratory Manager
Inorganics Manager
Microbiology Supervisor
Organics Manager
General Chemistry Supervisor
Metals Analysis Supervisor
Extractions Supervisor
GC Extractables Supervisor
GC & GC/MS Volatiles Supervisor
GC/MS Extractables Supervisor
Analysts
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Analysts

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, and monitoring of the Quality Program. 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 President.

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 logbook of all signatures and initials of all technical personnel. New technical employee's signatures and initials are added to the logbook on the first day of their employment. Ex-employee signatures are kept on file but annotated with the last day of employment.

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 during employee orientation and must sign an Employee Ethics Statement. During the orientation, 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 Seminars are presented annually, and all employees are required to attend. Personnel files are updated to include the date the employee attended the annual Ethics Training Seminar.

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.

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.

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/8260B SW 5035/8260B SOM01.2	SW 5030B/SW 8260B SW5035/SW 8260B OLC02.1 OLC03.1 EPA 524.2 EPA 624 SOM01.2
Volatile Organics by GC	SW 8015B SW 5030B/SW 8021B SW 5035/8021B	SW 8015B SW 5030B/SW 8021B SW 5035/8021B EPA 601 EPA 602
Semi volatiles by GC/MS	SW 3510C/SW 8270C SW 3520C/SW 8270C SW 3540C/SW 8270C SW 3545/SW 8270C SW 3580A/SW 8270C SW 3550B SOM01.2	EPA 625 SW 3510C/SW 8270C SW 3520C/SW 8270C SW 3540C/SW 8270C SW 3545/SW 8270C SW 3580A/SW 8270C OLC02.1 OLC03.1 SOM01.2
Semi volatiles by GC	SW 8015B	SW 8015B
Pesticides &/ or PCBs	SW 3510C/SW 8081A&/or 8082 SW 3520C/SW 8081A&/or 8082 SW 3540C/SW 8081A&/or 8082 SW 3545/SW 8081A&/or 8082 SW 3580A/SW 8081A&/or 8082 SOM01.2	SW 3510C/SW 8081A&/or 8082 SW 3520C/SW 8081A&/or 8082 SW 3540C/SW 8081A&/or 8082 SW 3545/SW 8081A&/or 8082 SW 3580A/SW 8081A&/or 8082 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 SW 7471A SW 3050B ILM05.4	EPA 200.7 EPA 245.1 SW 6010B SW 7470A SW 3005A SW 3010A ILM05.4
Wet Chemistry		
Acidity	------	ASTM D1067-92
Alkalinity	------	SM 2320 B
Alkalinity, Bicarbonate	------	SM 2320 B
Ammonia	------	SM 4500-NH3 H
Anions: Bromate Bromide Chloride Fluoride Nitrate Nitrite Orthophosphate Sulfate	------	EPA 300.0
ASTM Leaching Procedure	ASTM 3987	------
Biochemical Oxygen Demand (BOD5)	------	SM 5210B
Bromide	------	EPA 300.0
Carbon Dioxide	------	SM4500
Carbonaceous BOD (cBOD)	------	SM 5210B
Cation-Exchange Capacity	SW 9080 SW 9081	------
Chemical Oxygen Demand (COD)	------	SM 5220D
Chloride	SW 9056	EPA 300.0 SM 4500-Cl C
Color	------	SM 2120B
Conductivity	SW 9050A	EPA 120.1 SM 2510 B
Corrosivity	SW 9040B	SW 9040B
Corrosivity Toward Steel	SW 1110	SW 1110

Analytical Fraction	Soil/Solid Matrix Methods	Aqueous Matrix Methods
Cyanide	SW 9010B SW 9012A	SM 4500-CN C&E
Cyanide-Amenable	SW 9010B	SM 4500-CN C,G
Dissolved Oxygen	-----	SM 4500-O G
Extractions	SW 3610 SW 3620 SW 3640 SW 3665 SW 8440	SW 3610 SW 3620 SW 3640 SW 3665 SW 8440
Ferrous Iron	------	SM 3500 B SM 3500FE-D
Flashpoint	SW 1010 SW 1030	SW 1010 SW 1030
Foaming Agents	-----	SM 5540 C
Fluoride	SW 9056	EPA 300.0
Hardness, Calcium	------	EPA 200.7
Hardness, Total	------	EPA 200.7
Hexavalent Chromium	SW 3060A/SW 7196A	SM 3500-Cr D
Ignitability	SW 1010 SW 1030	SW 1010 SW 1030
Methylene Blue Active Substances (MBAS) Surfactants	------	SM 5540 C
Nitrate	SW 9056	EPA 300.0
Nitrate/Nitrite	------	EPA 300.0
Nitrite	SW 9056	EPA 300.0
Odor	------	SM 2150 B
Oil & Grease	SW 9071B	EPA 1664A
Orthophosphate	SW 9056	EPA 300.0 SM 4500-P,E
Paint Filter Test	------	SW 9095
pH	SW 9040B SW 9045C	SM 18 4500-H B SW 9041A

Analytical Fraction	Soil/Solid Matrix Methods	Aqueous Matrix Methods
Phenolics	SW 9065	EPA 420.1
Phosphorus, Ortho	SW 9056	EPA 300.0 SM 4500 P-E
Phosphorus, Total	EPA 365.3	------
Reactive Cyanide	SW 7.3.3.2 Rev 3	SW 7.3.3.2 Rev 3
Reactive Sulfide	SW 7.3.4.2 Rev 3	SW 7.3.4.2 Rev 3
Residual Chlorine	-----	SM 4500-Cl G
Settleable Solids	------	SM 2540 F
Silica	SW 6010B	EPA 200.7
SPLP Extraction	SW 1312	SW 1312
Sulfate	SW9038 SW9056	EPA 300.0 SM 4500SO4 E
Sulfide	SW 9030B SW 9031 SW 9034	------
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
Total Organic Carbon (TOC)	SW 9060 Lloyd Kahn	SM 5310 B
Total Organic Halides (TOX)	SW 9020B	SW 9020B
Extractable Organic Halides (EOX)	SW 9023	SW 9023
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
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
GC SEMI VOA Lab							
HPLC	HPLC-1	Hewlett Packard Series 1100 DAD	JP73007001/ US72101011/ US72101340	May 1999	July 2001	Pest Lab	Used
Auto sampler	HPLC-1	Hewlett Packard 1313 AS	US72102636	May 1999	July 2001	Pest Lab	Used
Computer	HPLC-1	HP Vectra XA	US73465640	May 1999	July 2001	Pest 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-2	Hewlett Packard Series 1100 DAD	US64402121 US72101011 JP73007001	Oct. 2006	Oct. 2006	Pest Lab	Used
Auto sampler	HPLC-2	Hewlett Packard 1313 AS	Us80603781	Oct. 2006	Oct. 2006	Pest Lab	Used
Computer	HPLC-2	HP Vectra XA	------	Oct. 2006	Oct. 2006	Pest Lab	Used
ECD	ECD-1	Shimadzu AOC-20	C11144007149KG	Feb 2004	Feb 2004	Pest Lab	Used
Auto Sampler	ECD-1	Hewlett Packard 7673A	2718A07921	June 1992	July 2001	Pest Lab	Used
Inject Tower	ECD-1	Hewlett Packard	30130721923	June 1992	July 2001	Pest Lab	Used
Controller	ECD-1	Hewlett Packard	3330A32763	June 1992	July 2001	Pest Lab	Used
Computer	ECD-1	Seventeam	3862A403	June 1992	July 2001	Pest Lab	Used
ECD	ECD-4	Hewlett Packard	3203A40376	May 1999	July 2001	Pest Lab	Used
Auto Sampler	ECD-4	Hewlett Packard	3429A35966	May 1999	July 2001	Pest Lab	Used
Inject Tower	ECD-4	Hewlett Packard	3443A40532	May 1999	July 2001	Pest Lab	Used
Computer	ECD-4	ACER 324	93006805	May 1999	July 2001	Pest Lab	Used
Controller	ECD-4	Hewlett Packard	3049A23728	May 1999	July 2001	Pest Lab	Used
ECD	ECD-5	Hewlett Packard 5890 Series II	3115A34809	June 1992	July 2001	Pest Lab	Used
Auto Sampler	ECD-5	Hewlett Packard	3137A26240	June 1992	July 2001	Pest Lab	Used
Inject Tower	ECD-5	Hewlett Packard	3013A22005	June 1992	July 2001	Pest Lab	Used
Controller	ECD-5	Hewlett Packard	3018A21613	June 1992	July 2001	Pest Lab	Used
Computer	ECD-5	Expert Group 36X MAX	-----------------	June 1992	July 2001	Pest Lab	Used
ECD	ECD-6	Hewlett Packard 5890 Series II	3235A44756	May 1999	July 2001	Pest Lab	Used
Auto Sampler	ECD-6	Hewlett Packard	2718A07968	May 1999	July 2001	Pest Lab	Used
Inject Tower	ECD-6	Hewlett Packard	3231A31724	May 1999	July 2001	Pest Lab	Used
Controller	ECD-6	Hewlett Packard	3113A26547	May 1999	July 2001	Pest Lab	Used
Computer	ECD-6	Expert Group	CN548014091	May 1999	July 2001	Pest Lab	Used
ECD	ECD-7	Agilent Technologies 6890N	CN10521041	June 2005	June 2005	Pest Lab	New
Auto Sampler	ECD-7	Agilent 7683	CN52033127	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							
Inject Tower	ECD-7	Agilent 7683B	CN51825037	June 2005	June 2005	Pest Lab	New
Computer	ECD-7	Dell	CN-0G1494-70821-359-25-KF	June 2005	June 2005	Pest Lab	New
ECD	ECD-8	Hewlett Packard 5890 Series II	2541A06937	May 1999	July 2001	Pest Lab	Used
Auto Sampler	ECD-8	Shimadzu	CN11154103480	May 1999	July 2001	Pest Lab	Used
Inject Tower	ECD-8	Shimadzu	CN11144107786	May 1999	July 2001	Pest Lab	Used
Controller	ECD-8	Shimadzu	629611	May 1999	July 2001	Pest Lab	Used
FID	ECD-9	Agilent Tech 6890N	CN10410002	June 2005	June 2005	Pest Lab	New
Auto Sampler	ECD-9	Agilent 7683	CN41128296	June 2005	June 2005	Pest Lab	New
Inject Tower	ECD-9	Agilent Tech	CN41235695	June 2005	June 2005	Pest Lab	New
Computer	ECD-9	Dell	J2YZZ31	June 2005	June 2005	Pest Lab	New
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
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

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							
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
MSD	MSVOA-D	Hewlett Packard 5971	3234A04258	May 1999	July 2001	VOA Lab	Used
GC	MSVOA-D	Hewlett Packard 5890 Series II	3033A31948	May 1999	July 2001	VOA Lab	Used
Auto Sampler	MSVOA-D	OI Analytical 4552	14293	May 1999	July 2001	VOA Lab	Used
Concentrator	MSVOA-D	LSC2000	92056013	2004	Feb 04	VOA Lab	New
Computer	MSVOA-D	MINTA ACER 32X	93007352	May 1999	July 2001	VOA Lab	Used
MSD	MSVOA-E	Hewlett Packard 5972	3435A01877	May 1999	July 2001	VOA Lab	Used
GC	MSVOA-E	Hewlett Packard 5890	2443A3670	May 1999	July 2001	VOA Lab	Used
Auto Sampler	MSVOA-E	OI Analytical 4552	13854	May 1999	July 2001	VOA Lab	Used
Concentrator	MSVOA-E	OI 4660 Eclipse	A405466419P	2004	Feb 04	VOA Lab	New
Computer	MSVOA-E	--------------------	-------------------	May 1999	July 2001	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	A4054664DP	July 2001	July 2001	VOA Lab	Recondition
Auto Sampler	MSVOA-F	OI4552	13990	July 2001	July 2001	VOA Lab	Recondition
Computer	MSVOA-F	MINTA ACER 32X	93007037	May 1999	July 2001	VOA Lab	Used
MSD	MSVOA-G	Hewlett Packard 5971A	2749A00075	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	338466642P	2003	March 2003	VOA Lab	Used
Auto Sampler	MSVOA-G	OI Archon 5100	12225	May 1999	July 2001	VOA Lab	Used
Computer	MSVOA-G	Expert Group	------------------	May 1999	July 2001	VOA Lab	Used
MSD	MSVOA-H	Hewlett Packard 5971 Series	3188A03008	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							
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	OI Archon 5100	12011	May 1999	July 2001	VOA Lab	Used
Computer	MSVOA-H	MINTA ACER 32X	93006275	May 1999	July 2001	VOA Lab	Used
MSD	MSVOA-I	Hewlett Packard 5971 Series	IOW24-528	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	EST Archon	12971	2003	March 2003	VOA Lab	Used
Computer	MSVOA-I	Expert Group 36X Max	-----------	June 1992	July 2001	VOA Lab	Used
MSD	MSVOA-K	Hewlett Packard 5971A Series	3324A04574	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	Dell XPS D233	DLCY9	December 2002	Jan 2003	VOA Lab	New
MSD	MSVOA-L	Agilent 5975	US52430266	2004	March 2004	VOA Lab	New
GC	MSVOA-L	Agilent 6890	CN10524059	2004	March 2004	VOA Lab	New
Concentrator	MSVOA-L	Entech 7100A	1224	2004	March 2004	VOA Lab	New
Auto Sampler	MSVOA-L	Entech 7500	-----------------	2004	March 2004	VOA Lab	New
Computer	MSVOA-L	Dell XP	------------------	2004	March 2004	VOA Lab	New
MSD	MSVOA-M	Agilent 5971	-----------------	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	-----------------	2004	March 2004	VOA Lab	New
Computer	MSVOA-M	Dell XP	------------------	2004	March 2004	VOA Lab	New
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

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							
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
Metals Lab							
ICAP	ICP-4	Thermo Scientific ICAP series 6000	20070701	Mar. 2007	Mar. 2007	Metals Lab	New
Autosampler	ICP-4	Thermo Scientific CETAC ASX-520	020766A520	Mar. 2007	Mar. 2007	Metals Lab	New
Circulator	ICP-4	Thermo Scientific Neslab Merlin M33	107011028	Mar. 2007	Mar. 2007	Metals Lab	New
Computer	ICP-4	Dell	----------------	Mar. 2007	Mar. 2007	Metals Lab	New
ICAP	ICP-5	Thermo Scientific ICAP series 6000	20081906	June 2008	June 2008	Metals Lab	New
Autosampler	ICP-5	Thermo Scientific CETAC ASX-520	120761A500	June 2008	June 2008	Metals Lab	New
Circulator	ICP-5	Thermo Scientific Neslab Thermoflex 900	108101036	June 2008	June 2008	Metals Lab	New
Computer	ICP-5	Dell	----------------	June 2008	June 2008	Metals Lab	New
ICP MS	ICPMS 1	Thermo Elemental	X0315	Dec 2003	Feb 2004	Metals Lab	New
Auto Sampler	ICPMS-1	ASX-510 Autosampler	120308ASX	Dec 2003	Feb 2004	Metals Lab	New
Circulator	ICP MS 1	Thermo Neslab (Water Circulator)	103240043	Dec 2003	Feb 2004	Metals Lab	New
Computer	ICP MS 1	Dell XP	1 DCV V0J	Dec 2003	Feb 2004	Metals Lab	New
Mercury Analyzer	CV-1	Leeman Labs PS 200II Automated Mercury Analyzer	62345	Jan 2002	Jan 2002	Metals Lab	New
Computer	CV-1	Dell	---------------	June 2002	June 2002	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
Hot Plate	M HP-1	Valad Electric Co. 24 X 36	1920	Jan 2002	Jan 2002	Metals Digestion 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							
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
Water Bath	M WB-1	Boekel Industries	0413	June 2008	June 2008	Metals Digestion Lab	New
Scale	M SC-1	Adventurer Pro	8027100143	June 2006	June 2006	Metals Digestion Lab	New
Scale	M SC-2	Mettler PJ 400	G62435	May 1999	July 2001	Metals Digestion Lab	Used
Scale	M SC-3	Mettler PE360	47890	May 1999	July 2001	Metals Digestion Lab	Used
Block Digestor	M BD-1	Environmental Express Hot Block	615CEC0814	Jan 2002	Jan 2002	Metals Digestion Lab	New
Microwave Digestor	M D-1	Mars	MD8656	June 2006	June 2006	Metals Digestion Lab	New
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 761	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	18300024004129	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

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	Pump 818	1818011004182	June 2005	June 2005	General Chemistry Lab	New
Separation Center	IC-2	820	1820023004135	June 2005	June 2005	General Chemistry Lab	New
Liquid Handling Unit	IC-2	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
Hot Plate	WC HP-1	COD Reactor	4069	May 1999	July 2001	General Chemistry Lab	Used
Hot Plate	WC HP-2	HACH Hot Plate 1650010	880711134	May 1999	July 2001	General Chemistry Lab	Used
Stirrer	WC S-1	PMC	------	June 2006	June 2006	General Chemistry Lab	New
Stirrer	WC S-2	Fisher Thermix Model 220T	101	May 1999	July 2001	General Chemistry Lab	Used
Stirrer	WC S-3	Corning	-----	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
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	ThermoOrion 350	------	July 2004	July 2004	General Chemistry Lab	New
TOX 10 Sigma	TOX	Cosa Instrument Corp. 10 sigma	-------	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							
TOX 10 Sigma Boat Controller	TOX	Cosa Instrument Corp. 10 sigma	-------	May 1999	July 2001	General Chemistry Lab	Used
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	Gibson Model RM18F5WX	LA23205322	May 1999	July 2001	General Chemistry Lab	used
Refrigerator	WC-Ref-2	Frigidaire	BA42511879	May 1999	July 2001	General Chemistry Lab	used
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
COD	COD-1	Hach DR/2010 Spectrophotometer	971100006417	May 1999	July 2001	General Chemistry Lab	used
GBC	GBC	Monitek-TA1/Nephelometer	T04136701H7E	May 1999	July 2001	General Chemistry Lab	used
Conductance Meter	Conductanc e Meter	YSI Model 35 Conductance Meter	K8002530	May 1999	July 2001	General Chemistry Lab	used
Muffle Furnace	Muffle Furnace	Blue M Model M15A-2A	7419	May 1999	July 2001	General Chemistry Lab	used
TKN Heater	TKN Heater	Labconco TKN Heater (6 position)	183300	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
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

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							
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	Koehlex 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
Refrigerator	SM Ref-1	Kelvinator (Ice Packs)	LA2120468	May 1999	July 2001	Sample Management	used
Refrigerator	SM Ref-2	White Westinghouse (Ice Packs)	BA93101799	May 1999	July 2001	Sample Management	used
Walk in Refrigerator	SM-Walk in-1	Bally (10' X 38')	---------------	May 1999	July 2001	Sample Management	used
Scale	SMB-3	Sartorius Model L320	36050083	May 1999	July 2001	Sample Management	used
Temperature Gun	Temperature Gun	Mannix Model # IRT4	----------------	2005	2005	Sample Management	New
Extractions Lab							
Sonicator	SONC-1	TEKMAR Sonicator	------------	May 1999	July 2001	Extractions Lab	used
Sonicator	SONC-2	TEKMAR Sonicator	------------	May 1999	July 2001	Extractions Lab	used
Sonicator	SONC-3	Heat Systems-Ultrasonics Inc (W-380)	------------	May 1999	July 2001	Extractions Lab	used
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
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
IR	IR-1	Perkin Elmer 1310 Infrared Spectrophotometer	135039	May 1999	July 2001	Extractions lab	used
Oven	EX Oven-2	Fisher 117G	----------------	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)
Extractions Lab							
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	General Chemistry Lab	Used
Hot Plate	EX HP-1	Corning PC-35	-------------	May 1999	July 2001	General Chemistry Lab	Used
pH Meter	EX pH meter-1	Hanna Instruments pH 211	283704	**2004**	**2004**	Extractions Lab	**New**
Touch Vortexer	Vortex	Glas-Col	263248	May 1999	July 2001	General Chemistry Lab	Used
Centrifuge	Centrifug e	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**
Auto Soxhlet	Auto Soxhlet-1	Soxtherm/Multistat	4031743	Feb 2004	March 2004	Extractions Lab	New
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**

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							
SPE DEX Controller	SPE Controlle r	Horizon	04-0433	**2004**	**2004**	Extractions Lab	**New**
ROT-X-TRACT-LC	LL-Extractor	Organomation Liquid-Liquid extractor	--------------	**Nov 2005**	**Nov 2005**	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.

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 receive a copy of the updated document control of the QA Manual, SOP's, and any other related documents. 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.

A copy of current applicable SOP (analytical, administrative, and or procedural) and QA Manual is kept in each department. The original document of each outdated SOP or QA manual is retained in the QA/QC office.

14.3 DOCUMENT REVISIONS: All laboratory documents under document control are reviewed atleast 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 hard copy or 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.

SOP's are maintained in electronic read only format on Chemtech LIMS network server. All original hard copies are kept in the QA/QC office in official SOP file. 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.

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 and the NELAC standard. The internal audit program addresses all elements of the quality system, including the environmental testing activities.

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” 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 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:

$$RF = \frac{\text{Area of compound} \times \text{Concentration of ISTD}}{\text{Area of ISTD} \times \text{Concentration of compound}}$$

$$\%\,RSD = \frac{SD}{RF} \times 100$$

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 glass and electronic thermometer used in the laboratory is certified annually, metal thermometer is certified quarterly, infrared detection devices are verified every six months, against a NIST certified thermometer, which is traceable to the manufacturer. The certified reference thermometer is calibrated once every five years. All data is recorded in a 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. 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.

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 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 also 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.

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, Program Policy and Structure, July, 2003.

3. NELAC, Quality Systems, July, 2003.

4. DOD Quality Systems Manual for Environmental Laboratories Version 4.1

26. Resume of Key Personnel and Certification list

26.1 Certification List

STATE	STATUS	LABORATORY ID	Certification Categories
NJ-NELAP	Certified	20012	DW, WW, SHW
NY-ELAP	Certified	11376	DW, WW, SHW, AIR
CONNETICUT	Certified	PH-0649	DW, WW, SHW
MARYLAND	Certified	296	DW
MASSACHUSETTS	Certified	M-NJ503	WW
Maine	Certified	NJ0503	DW, WW, GRO,DRO
OKLAHOMA	Certified	9705	WW
PENNSYLVANIA	Certified	68-548	DW
RHODE ISLAND	Certified	LAO00259	DW,WW,,SHW, Air
USDA	Certified	S-47647	Soil Permit
USEPA	CLP	CHEMED	metals, cyanide

26.2 Key Employee Resume

NAME: Krupa Dubey **POSITION: QA/QC Director**

Dates: Feb. 2006 – 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			
LTM Medical College Mumbai, India	*1991*	*1993*	***Medical Lab Technology***	------	***1993***
Khalsa College Mumbai, India	*1988*	*1991*	***Microbiology***	------	***BS, 1991***

Professional Experience

Name & Address of Employer: CHEMTECH Mountainside, NJ 07092 **Title of Position & Dates:** ***QC Supervisor;*** ***11/2002 – 01/06***	**Responsibilities included:** Supervision 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: CHEMTECH Mountainside, NJ 07092 **Title of Position & Dates:** ***GC & GC/MS Volatiles and Extractables Supervisor;*** ***5/2000 – 11/2002***	**Responsibilities included:** Supervision of GC/MS analysts, production scheduling and co-ordination of work flow, perform and review GC/MS analyses using SW-846, EPA CLP methodologies and interpretation of mass spectra, perform SIM analysis, plot control charts for establishing QC acceptance criteria, conduct assessments, precision and accuracy, proficiency, technical data review, troubleshoot instrument operations and other technical problems.

Name & Address of Employer: CHEMTECH 205, Campus Plaza 1, Edison, NJ **Title of Position & Dates:** ***GC/MS Analyst,*** ***5/1999 – 5/2000***	**Responsibilities included:** Analysis of water, wastewater, soil, and air samples for volatile and semivolatile organics, pesticides and PCBs using SW846, CLP, and USEPA methodologies. Daily maintenance of instruments. Data reduction.
Name & Address of Employer: CHEMTECH Consulting 205, Campus Plaza 1, Edison, NJ **Title of Position & Dates:** ***Microbiologist,*** ***4/1998 – 4/1999***	**Responsibilities included:** Analysis of water samples for Bacteria Count, Total Coliform, and *E.coli*, Fecal Coliform, and Standard Plate Count using Standard Methods and EPA procedures. BOD, COD, analyses. Preparation of agar media and standard solutions.
Name & Address of Employer: Medline Pathology Laboratory **Title of Position & Dates** *Lab Manager,* *3/95 – 4/97*	**Responsibilities included:** Supervision of Medical Laboratory technologists; scheduling workflow. Microbiological detection of infectious diseases, serological testing, antibiotic testing, review of laboratory procedures.
Name & Address of Employer: Shree Hospital & ICCU **Title of Position:** ***Medical Laboratory Technologist,*** ***3/93 – 2/95***	**Responsibilities included:** Agar plating, isolation of bacteria; plate count, bacteria count; preparation of agar media; antibiotic sensitivity testing.

Professional Skills

- Troubleshooting of GC/MS, Tekmar autosampler
- Data package production using Enviroforms
- 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

NAME: Deepak Patel **POSITION: Extractions Supervisor**

DATES: Nov 2003-Present

RESPONSIBILITIES: Supervision of Extractions department, schedule and coordinate workflow for the extractions analysts. Perform extractions on samples for BNA and Pesticide/PCB analyses. Updating LIM system. Review and updating of Extractions SOPs.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Polytechnic of NY		*1975*	***Chemical Engineering***	***Environmental***	***MS 5 / 75***
Polytechnic of NY		*1976*	***Management***	***Business***	***MS 5/ 77***

Professional Experience

Name & Address of Employer: NYCTA (MTA) New York, NY **Title of Position:** ***Construction Supervisor II***	**Responsibilities included:** Monitor Installation of 3 elevators.
Name & Address of Employer: CHEMTECH Edison, NJ **Title of Position:** ***Organic Extraction***	**Responsibilities included:** Supervision of Extractions department, schedule and coordinate workflow for the extractions analysts. Perform extractions on samples for BNA and Pesticide/PCB analyses. Updating LIM system. Review and updating of Extractions SOPs.

Professional Skills

OSHA- training- 8 hour course

NAME: **Rajesh Parikh** **POSITION: Extraction analyst**

DATES: **June 2003-Present**

RESPONSIBILITIES: 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.

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: 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.

Computer Skills

Microsoft Office 2000-Excel, Windows

NAME: Danuta Roguska **POSITION: Metals analysis Supervisor**

Dates: 5/99 to Present

RESPONSIBILITIES: Supervision of Metals and General Chemistry 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			
Warsaw University Warsaw, Poland	*1976*	*1981*	***Chemistry***	------	***BS; 1981***

Professional Experience

Employer / Position	Responsibilities
Name & Address of Employer: Analab Inc. 205 Campus Plaza 1, Edison, NJ 08837 **Title of Position & Dates:** ***Laboratory Chemist; 9/90 to 5/99***	**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: Analab, Inc. **Title of Position & Dates:** ***Laboratory Chemist; 9/90 to 4/92***	**Responsibilities included:** Phenolics distillations, titrations, PHC, reactive CB (EPA Method 9010, 9012), pH, TSS, TDS, COD, TCLP leaching for solids, semisolids, drinking-, , ground-, and wastewater.
Name & Address of Employer: Analab Inc. 205 Campus Plaza 1, Edison, NJ **Title of Position & Dates:** ***Analyst; 4/92 to 8/99***	**Responsibilities included:** Running AA spectroscope, Flame PE 1100B; AA spectroscope, Furnace PE 5100 HGA & PE4100; Cold vapor Mercury analysis; regular maintenance of AA spectroscopes; analytical reporting.
Name & Address of Employer: Analyst Chem Laboratory Parczew, Poland **Title of Position:** ***Analyst; 7/83 to 9/86***	**Responsibilities included:** Wet Chemistry Analytical Methods; procedures – distillation, acid/base titrations, PHC, reactive CN, pH, TSS, TDS, COD.

Name & Address of Employer: Debowa Kloda Middle School Debowa Kloda, Poland	**Responsibilities included:** Taught Chemistry and Physics; Grades 7-9.
Title of Position: ***Science Teacher;*** ***9/81 – 6/83***	

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: James Moore **POSITION: General Chemistry Supervisor**

Dates: 03/08 to Present

RESPONSIBILITIES: Perform General Chemistry analysis as per SW846 protocol. Update LIMS system. Troubleshoot instruments.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Cook College, Rutgers	*2002*	*2004*	***Env. Science***	------	***BS; 2004***

Professional Experience

Name & Address of Employer: Cook College **Title of Position & Dates:** ***Graduate Assistant*** 07/05 – 01/08	**Responsibilities included:** Manage surface water lab, operate Lachat Quikchem FIA autoanalyzer, test surface water for total coliforms, write SOPs.
Name & Address of Employer: Cook College **Title of Position & Dates:** ***Research Assistant*** 09/03 – 06/05	**Responsibilities included:** Operated autolab to measure nutrients, entered and maintained data in database, prepared media, monitored growth of species.
Name & Address of Employer: Sussex County community college **Title of Position & Dates:** ***Laboratory Assistant*** 09/98 – 05/02	**Responsibilities included:** Set-up lab assignments, assist and prepare media.

Computer Skills

Microsoft Windows, EISC reporting software and Internet.

NAME: Jaswal Sarabjit **POSITION: Inorganics Analyst**

Dates: 12/89 to Present

RESPONSIBILITIES: Supervision of Metals and General Chemistry 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 **Title of Position:** ***Metals data processing*** ***Feb, 2004- June 2004***	**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.
Name & Address of Employer: College of Staten Island Staten Island, New York **Title of Position:** ***Lab Tech*** ***2002-2003***	**Responsibilities included:** Laboratory technician in the Engineering sciences and Physics department.

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.

Computer Skills

Microsoft Office, EISC

Other Achievements or Awards

Travel Award to participate in Asian Aerosol Conference

NAME: Himanshu N. Prajapati **POSITION: GC/MS Extractables Supervisor**

Dates: 10/2002 – Present

RESPONSIBILITIES: 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 workflow for other analysts.

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 **Title of Position:** ***QC Analyst; 9/04-12/04***	**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.
Name & Address of Employer: CHEMTECH 284 Sheffield Street Mountainside, NJ 07092 **Title of Position:** ***GC/MS Analyst; 04/00-10/02***	**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.
Name & Address of Employer: G.S.F.C Surat, Gujarat, India **Title of Position:** *Shift Engineer; 02/98-11/98*	**Responsibilities included:** Supervising a continuously running plant of plastic manufacturing. Testing of raw materials and final products.

Name & Address of Employer: ECT Engineers & Associated Ahmedabad, Gujarat, India	**Responsibilities included:** Surveying of company/factory for energy conservation. Implementing energy conservation plans.
Title of Position: *Energy Saving Engineer;* *10/97-2/98*	

Professional Skills

Proficient with the analysis of samples for inorganic parameters.

Computer Skills

MS Office- Word and Excel
Data Processing software

NAME: Divyajit Mehta POSITION: Technical Director/Chief Operating Officer

Dates: 1989 – Present

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*	------	*INCOMPLETE*

Professional Experience

Name & Address of Employer: CHEMTECH MOUNTAINSIDE, NJ	**Responsibilities included:** Oversee overall technical laboratory performance and compliance with regulations and contracts.
Title of Position: ***CHIEF OPERATIONS/LABORATORY DIRECTOR*** 1/99-Present	
Name & Address of Employer: CHEMTECH ENGLEWOOD, NJ	**Responsibilities included:** Responsible for the technical efforts of the inorganic department and compliance with EPA contract
Title of Position: ***INORGANIC MANAGER*** *1/89 – 1/99*	

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

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: Kalpana Raythatha **POSITION: Data Reviewer**

Dates: Nov 2002 – Present

RESPONSIBILITIES: Data deliverable production, data review of GC/MS Volatile, GC/MS Semivolatile, Pesticides, PCB, Herbicides, Metals and Wet Chemistry based on SW-846, CLP and 40 CFR methodology depending on the project requirement. Verify all QC requirements; contract compliance, screening and method requirements. Verify client requirements were met. Assist on data assembly for final data package.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
HK Arts College *Gujarat University, India*	*1973*	*1977*	***Arts***	***Statistics***	***BA 1977***

Professional Experience

Name & Address of Employer: ***CHEMTECH*** 284 Sheffield Street Mountainside, NJ 07092 **Title of Position & Dates:** ***Metals Report Production*** ***May 00-Nov 2002***	**Responsibilities included:** Review data submitted for reports for Metals based on SW 846, EPA and CLP methodology. Process raw metals data into reporting format and integrate the sections of data for final report. Assist the QC department with any data corrections.
Name & Address of Employer: ***Chemtech*** ***Englewood, NJ*** **Title of Position & Dates:** *Wet Chemistry Report Production*	**Responsibilities included:** Review data submitted for reports for Wet Chem based on SW 846, EPA and CLP methodology. Entered data in the LIMS System and integrate the sections of data for final report. Assist the QC department with any data corrections.
Name & Address of Employer: ***Chemtech*** ***Englewood, NJ*** **Title of Position & Dates:** *Wet Chemistry Report Production*	**Responsibilities included:** Maintained hard copy and electronic file and records of analytical data. Responsible for arranging pickup and delivery of Data Packages by interfacing Fedex, UPS and courier.
Name & Address of Employer: S. Goldberg & Co. Hackensack, NJ **Title of Position & Dates:** *Production Operator*	**Responsibilities included:** Worked on molding production line.

Professional Skills

Familiar with most Quality Control/Quality Assurance procedures. Proficient in most General Chemistry test procedures.

Computer Skills

MS Office – MS Word, MS Excel

NAME: **Shelly Guha** **POSITION: Data Reviewer**

Dates: Feb. 2006 – Present

RESPONSIBILITIES: Data deliverable production, data review of GC/MS Volatile, GC/MS Semivolatile, Pesticides, PCB, Herbicides, Metals and Wet Chemistry based on SW-846, CLP and 40 CFR methodology depending on the project requirement. Verify all QC requirements; contract compliance, screening and method requirements. Verify client requirements were met. Assist on data assembly for final data package.

Educational Background

College/University	Dates Attended		Major	Minor	Degree & Date
	From	To			
Osmania University, India	*1987*	*1989*	***Organic Chemistry***	-----	***MS 1989***
Osmania University, India	*1983*	*1986*	***Science***	-----	***BS 1986***

Professional Experience

Name & Address of Employer: ***CHEMTECH*** 284 Sheffield Street Mountainside, NJ 07092 **Title of Position & Dates:** ***GC/MS analyst*** ***Dec. 04-Feb. 06***	**Responsibilities included:** Perform sample analysis as per EPA 600 series, SW 846 and CLP protocols. Assist supervisor with SOP updates. Update LIMS system. Troubleshoot instrument.
Name & Address of Employer: Molecu Wire Corp, NJ **Title of Position & Dates:** *Lab Technician* *Feb. 04-Dec. 04*	**Responsibilities included:** Carried out conductivity, resistance tests on wires. Preparation and standardization of solutions. Maintaining test results and procedures in Electronic media.

Professional Skills

Familiar with most Quality Control/Quality Assurance procedures.

Computer Skills

Windows NT Server, UNIX and DOS, Developer/2000, Visual Basic 6.0, ORACLE 7.0/8.0, MS-SQL 7.0, Chem-Win, HTML FoxPro 2.6, Office Tools and Internet

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:	Responsibilities included:
Kroma Dyestuffs Ltd., India	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: Malgorzata Starzec **POSITION: GC/MS Analyst (Volatile)**

Dates: 11/2002 – 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			
Warsaw University, Poland	1987	1992	*Chemistry*	-----	*BS, 1992*

Professional Experience

Name & Address of Employer: CHEMTECH Consulting Mountainside, NJ	Responsibilities included: 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. Troubleshooting of instruments and other technical problems according to methodology
Title of Position & Dates: *GC/MS Analyst* *11/02 – Present*	

Professional Skills

- 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

Employer / Position	Responsibilities
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:** ***GC/MS Volatile 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: Sanghi Industries Ltd.	**Responsibilities included:** Worked as assistant engineer in cement plant using 100% lignite as fuel.
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 / Title of Position & Dates	Responsibilities included
Name & Address of Employer: Chemtech	**Responsibilities included:** 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.
Title of Position & Dates: ***President***	

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

Title: QAM-20	
Revision#: 20	Revision Date: 9/28/2009
File: QA Manual Rev.20.doc	
Title: Chemical Hygiene Plan-08	
Revision#: 08	Revision Date: 3/31/2009
File: Chemical Hygiene Plan 2008.doc	
Title: Conflict of Interest Plan-04	
Revision#: 4	Revision Date: 9/10/2009
File: Conflict of Interest Plan-04.doc	
Title: Affirmative Action Program Executive 11246-02	
Revision#: 2	Revision Date: 6/1/2009
File: Affirmative Action Program Executive 11246-02.doc	
Title: AAP Section 503 and 4212-01	
Revision#: 1.0	Revision Date: 6/1/2009
File: Affirmative Action Program Section 503&4212-01.doc	
	Field Methods
Title: M4020-PCB Inmmunoassay-04	
Revision#: 04	Revision Date: 3/31/2009
File: M4020-PCB Immunoassay-04.doc	
Title: M3815-Field GC-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: M3815-Field GC-03.doc	
	General Chem
Title: M1010A-Flash Point-05	
Revision#: 5.0	Revision Date: 9/9/2009
File: M1010A-Flash Point-05.doc	
Title: M1110-Corrosivity-04	
Revision#: 4.0	Revision Date: 3/31/2009
File: M7.2-Corrosivity-04.doc	
Title: M1311-TCLP-06	
Revision#: 6	Revision Date: 9/9/2009
File: M1311-TCLP-06.doc	
Title: MSM2540B &160.4,SM2540G- TS&T&VS-07	
Revision#: 7.0	Revision Date: 3/31/2009
File: MSM2540B & 160.4-SM2540G-TS & T&VS-07.doc	
Title: M180.1 Turbidity-09	
Revision#: 9.0	Revision Date: 3/31/2009

File: M180.1-Turbidity-09.doc

Title: M300.0-Inorganic Anions-10
Revision#: 10 Revision Date: 10/26/2009
File: M300.0-Inorganic Anions-10.doc

Title: M3060A,7196A-Hex.Chromium-12
Revision#: 12 Revision Date: 10/15/2009
File: M3060A,7196A-Hex.Chromium-12.doc

Title: M3500-CRD- Hex. Chromium-04
Revision#: 4.0 Revision Date: 3/31/2009
File: M3500-CRD-Hex.Chromium-04.doc

Title: M365.3&SM4500-P E-08
Revision#: 8.0 Revision Date: 3/31/2009
File: M365.3 & SM4500-P E,B5-08.doc

Title: MSM5210B-BOD-CBOD-06
Revision#: 6 Revision Date: 10/26/2009
File: MSM5210B-BOD-CBOD-06.doc

Title: MSM4500-Cl G-Residual Chlorine-04
Revision#: 4.0 Revision Date: 3/31/2009
File: M4500-Cl-04.doc

Title: MSM4500- SO4 E-Sulfate-04
Revision#: 4.0 Revision Date: 3/31/2009
File: M4500E-Sulfate-04.doc

Title: MChpt.7- Reactivity-05
Revision#: 5.0 Revision Date: 3/31/2009
File: MChpt.7-Reactivity-05.doc

Title: M9010-Total Cyanide-09
Revision#: 9 Revision Date: 9/9/2009
File: M9010C-Total Cyanide-09.doc

Title: M9020B TOX-04
Revision#: 4.0 Revision Date: 3/31/2009
File: M9020B-TOX-04.doc

Title: M9023EOX-Total Organic Halide-05
Revision#: 5.0 Revision Date: 3/31/2009
File: M9023EOX-Total Organic Halide-05.doc

Title: M9040C-pH-05
Revision#: 5 Revision Date: 9/9/2009
File: M9040C-pH-05.doc

Title: M9045C-pH-05
Revision#: 5 Revision Date: 9/9/2009
File: M9045C-pH-05.doc

Title: M9060/A-TOC-11	
Revision#: 11	Revision Date: 9/24/2009
File: M9060-A-TOC-11.doc	
Title: MASTM-grain size-04	
Revision#: 4.0	Revision Date: 3/31/2009
File: MD422-Grain Size-04.doc	
Title: MAVS-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: M-AVS-03.doc	
Title: MLloyd Kahn-TOC-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: MLloyd Kahn-TOC-03.doc	
Title: Musathama-Nitrocellulose-soil-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: MUSATHAMA-Nitrocellulose-soil-03.doc	
Title: Musasthama-Nitrocellulose-water-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: MUSATHAMA-Nitrocellulose-water-03.doc	
Title: M120.1-Conductivity-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: M120.1-Conductivity-03.doc	
Title: M2150B-Odor-03	
Revision#: 3.0	Revision Date: 6/16/2009
File: M2150B-odor-03.doc	
Title: M2320B-Alkalinity-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: M2320B-Alkalinity-05.doc	
Title: M2120B-Color-04	
Revision#: 4.0	Revision Date: 3/31/2009
File: M2120B-Color-04.doc	
Title: M5220 C&D-COD-07	
Revision#: 7	Revision Date: 3/15/2009
File: M5220D-COD-07.doc	
Title: M4500HB-pH-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: M4500HB-pH-03.doc	
Title: M5310-TOC-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: M5310 C-TOC-03.doc	
Title: M5540C-MBAS-05	

Revision#: 5	Revision Date: 10/26/2009
File: M5540C-MBAS-05.doc	
Title: M9041A-pH-03	
Revision#: 3	Revision Date: 9/9/2009
File: M9041A-pH-03.doc	
Title: M9056/A-Inorganic Anions-06	
Revision#: 6	Revision Date: 10/15/2009
File: M9056-A-Inorganic Anions-06.doc	
Title: M9065-Phenolics-04	
Revision#: 4	Revision Date: 9/24/2009
File: M9065-Phenolics-04.doc	
Title: M9071B-Oil & Grease-07	
Revision#: 7	Revision Date: 9/24/2009
File: M9071B-Oil & Grease-07.doc	
Title: M9080-Cation Exchange-03	
Revision#: 3	Revision Date: 9/9/2009
File: M9080-Cation Exchange-03.doc	
Title: M9081-Cation Exchange-03	
Revision#: 3	Revision Date: 9/9/2009
File: M9081-Cation Exchange-03.doc	
Title: M9095A/B-Free liquids-06	
Revision#: 6	Revision Date: 9/9/2009
File: M9095A-B-Free Liquids-06.doc	
Title: M-percent solids-04	
Revision#: 4.0	Revision Date: 6/16/2009
File: M-percent solids-04.doc	
Title: M1312-SPLP-05	
Revision#: 5	Revision Date: 9/9/2009
File: M1312-SPLP-05.doc	
Title: M1664-O&G-NPM-07	
Revision#: 7	Revision Date: 9/24/2009
File: M1664A-O&G-NPM-07.doc	
Title: MSM4500-NH3 G,H-Ammonia-07	
Revision#: 7	Revision Date: 10/26/2009
File: MSM4500-NH3 G,H-Ammonia-07.doc	
Title: M9012A-Total Cyanide-11	
Revision#: 11	Revision Date: 9/11/2009
File: M9012A-Total Cyanide-11.doc	
Title: M9030B-Sulfide-04	
Revision#: 4	Revision Date: 9/9/2009

File: M9030B-Sulfide-04.doc

Title: MILM05.2CN-Cyanide-05
Revision#: 5.0 Revision Date: 3/31/2009
File: MILM05.2CN-Cyanide-05.DOC

Title: M9050-Conductivity-02
Revision#: 2.0 Revision Date: 3/31/2009
File: M9050-Conductivity-02.DOC

Title: MSW846,7.1-Ignitability-04
Revision#: 4.0 Revision Date: 3/31/2009
File: MSW846 7.1-Ignitability-04.doc

Title: M7.2-Corrosivity-04
Revision#: 4.0 Revision Date: 3/31/2009
File: M7.2-Corrosivity-04.doc

Title: M1030-Ignitability-04
Revision#: 4 Revision Date: 9/9/2009
File: M1030-Ignitability-04.doc

Title: MILM4.1CN-Cyanide-04
Revision#: 4.0 Revision Date: 3/31/2009
File: MILM04.1CN-Cyanide-04.doc

Title: M9034-Sulfide-05
Revision#: 5 Revision Date: 9/9/2009
File: M9034-Sulfide-05.doc

Title: M420.1-Phenolics-03
Revision#: 3.0 Revision Date: 3/31/2009
File: M420.1-Phenolics-03.doc

Title: MILM05.3CN-Cyanide-07
Revision#: 7.0 Revision Date: 3/31/2009
File: MILM5.3CN-Cyanide-07.pdf

Title: MD1498-Redox Potential-02
Revision#: 2.0 Revision Date: 3/31/2009
File: M1498-Redox Potential-02.doc

Title: M9038-Sulfate-02
Revision#: 2 Revision Date: 9/24/2009
File: M9038-Sulfate-02.doc

Title: MILM5.4CN-Cyanide-04
Revision#: 4.0 Revision Date: 9/15/2009
File: MILM5.4CN-Cyanide-04.doc

Title: M-percent solids-01 (ILM05.4)
Revision#: 1.0 Revision Date: 3/31/2009
File: M-percent solids-01 (ILM05.4).doc

Title: MASTM D1067-92-Acidity-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MASTM D1067-92-Acidity-01.doc

Title: MSM2130B-Turbidity-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM2130B-Turbidity-02.doc

Title: MSM2510B-Conductivity-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM2510B-Conductivity-02.doc

Title: MSM2540C-Total Dissolved Solids-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MSM2540C-Total Dissolved Solids-01.doc

Title: MSM2540D-Suspended Solids-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MSM2540D-Suspended Solids-01.doc

Title: MSM2540F-Settleable Solids-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MSM2540F-Settleable Solids-01.doc

Title: MSM2550B-Temperature-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MSM2550B-Temperature-01.doc

Title: MSM4500 Cl-C-Chloride-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM4500 Cl-C, E-Chloride-02.doc

Title: MSM4500-CN C,E-Cyanide-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM4500-CN C,E-Cyanide-02.doc

Title: MSM4500-CN C,G-Amenable Cyanide-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM4500-CN C,G-Amenable Cyanide-02.doc

Title: MSM4500-O C-Dissolved Oxygen-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM4500-O C-Dissolved Oxygen-02.doc

Title: MSM4500-O G-Dissolved Oxygen-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM4500-O G-Dissolved Oxygen-02.doc

Title: MSM4500-SO3 B-Sulfite-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MSM4500-SO3 B-Sulfite-02.doc

Title: MSM4500-NO2 B-Nitrite-02

Revision#: 2.0 Revision Date: 3/31/2009
File: MSM4500-NO2 B-Nitrite-02.doc

Title: MSM4500-N Org BorC-TKN-03
Revision#: 3 Revision Date: 10/26/2009
File: MSM4500-N Org BorC-TKN-03.doc

Title: M9013-Cyanide Distillation-04
Revision#: 4 Revision Date: 9/24/2009
File: M9013-Cyanide Distillation-04.doc

Title: M9031-Sulfide-03
Revision#: 3 Revision Date: 9/24/2009
File: M9031-Sulfide-03.doc

Title: MOQA-QAM-025-TPH-02
Revision#: 2.0 Revision Date: 3/31/2009
File: MOQA-QAM-025-TPH-02.doc

Title: MHACH8146-Ferrous Iron-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MHACH8146-Ferrous Iron-01.doc

Title: MHACH8110-Formaldehyde-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MHACH8110-Formaldehyde-01.doc

Metals

Title: M3010A-Digestion-09
Revision#: 09 Revision Date: 9/11/2009
File: M3010A-Digestion-09.doc

Title: M7470A-Mercury-10
Revision#: 10 Revision Date: 9/11/2009
File: M7470A-Mercury-10.doc

Title: M200.7-2340B-Hardness-05
Revision#: 5.0 Revision Date: 3/31/2009
File: M200.7-2340B-Hardness-05.doc

Title: M7471A-Mercury-09
Revision#: 9 Revision Date: 9/11/2009
File: M7471A-B-Mercury-09.doc

Title: M200.7-Trace Elements-08
Revision#: 8 Revision Date: 10/26/2009
File: M200.7-Trace Elements-08.doc

Title: M245.1-Mercury-07
Revision#: 7 Revision Date: 10/26/2009
File: M245.1-Mercury-07.doc

Title: M3050B-Digestion-12
Revision#: 12 Revision Date: 9/11/2009

File: M3050B-Digestion-12.doc

Title: M6010B/C-Trace elements-16
Revision#: 16 Revision Date: 9/11/2009
File: M6010B-C-Trace Elements-16.doc

Title: M3005A-Digestion-06
Revision#: 6.0 Revision Date: 3/31/2009
File: M3005A-Digestion-06.doc

Title: M200.8-Trace Elements-07
Revision#: 7 Revision Date: 10/26/2009
File: M200.8-Trace Elements-07.doc

Title: MILM05.3-Trace Metals-08
Revision#: 8.0 Revision Date: 3/31/2009
File: MILM05.3-Trace Metals-08.doc

Title: MILM5.3HGS-Mercury in soil-06
Revision#: 6.0 Revision Date: 3/31/2009
File: MILM5.3HGS-Mercury in Soil-06.doc

Title: MILM5.3HGW-Mercury in water-06
Revision#: 6.0 Revision Date: 3/31/2009
File: MILM5.3HGW-Mercury in Water-06.doc

Title: MILM05.3-Metals ICPMS-03
Revision#: 3.0 Revision Date: 3/31/2009
File: MILM05.3-Metals ICPMS-03.doc

Title: M6020/6020A-Metals ICPMS-11
Revision#: 11 Revision Date: 10/26/2009
File: M6020-6020A-Metals ICPMS-11.doc

Title: MILM5.4HGS-Mercury in Soil-03
Revision#: 3.0 Revision Date: 8/14/2009
File: MILM5.4HGS-Mercury in Soil-03.doc

Title: MILM5.4HGW-Mercury in Water-03
Revision#: 3.0 Revision Date: 9/14/2009
File: MILM5.4HGW-Mercury in Water-03.doc

Title: MILM05.4-Metals ICPMS-06
Revision#: 6.0 Revision Date: 9/15/2009
File: MILM05.4-Metals ICPMS-06.doc

Title: MILM05.4-Trace Metals-03
Revision#: 4.0 Revision Date: 9/15/2009
File: MILM05.4-Trace Metals-04.doc

Title: M6010-SM2340B-Hardness-01
Revision#: 1.0 Revision Date: 3/31/2009
File: M6010-SM2340B-Hardness-01.doc

Title: MPM-10-Digestion-01	
Revision#: 1.0	Revision Date: 3/31/2009
File: MPM-10-Digestion-01.doc	
	Procedural
Title: P201-Data Review-14	
Revision#: 14	Revision Date: 9/9/2009
File: P201-Data Review-14.doc	
Title: P202-Reagent Check-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P202-Reagent Check-05.doc	
Title: P203-MDL, IDOC-11	
Revision#: 11	Revision Date: 3/31/2009
File: P203-MDL, IDOC-11.doc	
Title: P205-Chemical Waste Disposal-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P205-Waste Disposal-06.doc	
Title: P206-Bottle Check-04	
Revision#: 4.0	Revision Date: 3/31/2009
File: P206-Bottle Check-04.doc	
Title: P207-ASTM Type II Water-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P207-ASTM Type II Water-05.doc	
Title: P208-Thermometer Calibration-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P208-Thermometer Calibration-06.doc	
Title: P209-Scale Calibration-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P209-Scale Calibration-06.doc	
Title: P210-Corrective-Preventive Action-07	
Revision#: 7	Revision Date: 10/15/2009
File: P210-Corrective-Preventive Action-07.doc	
Title: P211-Control Charts-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P211-Control Charts-05.doc	
Title: P212-Water Purity-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P212-Water purity-06.doc	
Title: P213-Calibration of Auto Pipettes-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P213-Calibration of Auto Pipettes-06.doc	

Title: P214-Subcontracting-07	
Revision#: 7	Revision Date: 9/30/2009
File: P214-Subcontracting-07.doc	
Title: P215-Hood Calibration-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P215-Hood Calibration-05.doc	
Title: P216-Calibration and Temperature Setting-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P216- Calibration and Temperature setting-06.doc	
Title: P217-Glassware Cleaning-07	
Revision#: 7.0	Revision Date: 3/31/2009
File: P217-Glassware Cleaning-07.doc	
Title: P218-Chemical Storage-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P218-Chemical Storage-06.doc	
Title: P219-Disposal of Chemicals-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P219-Disposal of Chemicals-05.doc	
Title: P220-Traceability-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P220-Traceability-06.doc	
Title: P222-Standard Operating Procedures Prep-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P222-Standard Operating Procedures Prep-06.doc	
Title: P225-Rules for Rounding-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P225-Rules for Rounding-06.doc	
Title: P223-Material Safety Data and Records-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P223-Material Safety Data and Records-05.doc	
Title: P226-Corrections-06	
Revision#: 6	Revision Date: 10/30/2009
File: P226-Corrections-06.doc	
Title: P227-Services and Daily Maintenance-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P227-Services and Daily Maintenance-06.doc	
Title: P250-Log-in Procedure-13	

Revision#: 13	Revision Date: 9/21/2009
File: P250-Log-in Procedure-13.doc	
Title: P229-Computer Security and Backup-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P229-Computer Backup and Storage-06.doc	
Title: P230-Sample Aliquot-04	
Revision#: 4.0	Revision Date: 3/31/2009
File: P230-Sample Aliquot-04.doc	
Title: P231-Data Archive-06	
Revision#: 6	Revision Date: 10/30/2009
File: P231-Data Archive-06.doc	
Title: P232-Data Storage-06	
Revision#: 7	Revision Date: 10/30/2009
File: P232-Data Storage-07.DOC	
Title: P204-COC Procedure-06	
Revision#: 6.0	Revision Date: 3/31/2009
File: P204-COC Procedure-06.doc	
Title: P228-Storage and Disposal of PCBs-04	
Revision#: 4.0	Revision Date: 3/31/2009
File: P228-Storage & Disposal PCB Materials-04.doc	
Title: P236-fax procedure-02	
Revision#: 2.0	Revision Date: 3/31/2009
File: P236-fax procedure-02.doc	
Title: P235-Worklist-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: P235-Worklist-03.doc	
Title: P234-Field Sampling-02	
Revision#: 2.0	Revision Date: 3/31/2009
File: P234-Field Sampling-02.doc	
Title: P224-Bottle Prep-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P224-Bottle Prep-05.doc	
Title: P237-Training-05	
Revision#: 5.0	Revision Date: 3/31/2009
File: P237-Training-05.doc	
Title: P238-Field Chlorine test-01	
Revision#: 1.0	Revision Date: 3/31/2009
File: P238-Field Chlorine test-01.doc	
Title: P243-Manual Integration Policy and Electronic Logbook-05	
Revision#: 5	Revision Date: 10/15/2009

File: P243-Electronic Logbook-05.doc

Title: P244-Calibration Policy-04
Revision#: 4 Revision Date: 10/26/2009
File: P244-Calibration Policy-04.doc

Title: P241-Air Canister Cleanup-04
Revision#: 5.0 Revision Date: 9/9/2009
File: P241-Air Canister Cleanup-05.DOC

Title: P251-Quotation Project Chronicle-03
Revision#: 3 Revision Date: 10/26/2009
File: P251-Quotation Project Chronicle-03.doc

Title: P252-Ethics Policy-01
Revision#: 1.0 Revision Date: 3/31/2009
File: P252-Ethics policy-01.doc

Title: P253-Uncertainty Policy-02
Revision#: 2.0 Revision Date: 3/31/2009
File: P253-Uncertainty Policy-02.doc

Title: P255-Maintenance-01
Revision#: 1.0 Revision Date: 11/18/2009
File: P255-Maintenance-01.doc

Title: P254-Purchasing and supplies-02
Revision#: 2 Revision Date: 10/30/2009
File: P254-Purchasing and supplies-02.doc

Title: P256-Storage blank-01
Revision#: 1.0 Revision Date: 10/15/2009
File: P256-Storage blank-01.doc

GC VOA

Title: M8015-GRO-11
Revision#: 11 Revision Date: 10/26/2009
File: M8015B-C-GRO-11.doc

Title: MRSK-175
Revision#: 1.0 Revision Date: 1/15/2010
File: MRSK-175-01.doc

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Title: M524.2-DWVOA-10
Revision#: 10 Revision Date: 9/9/2009
File: M524.2-DWVOA-10.doc

Title: M5035-Closed P&T-06
Revision#: 6 Revision Date: 3/31/2009
File: M5035-5035A-Closed P&T-06.doc

Title: M624-WWMSVOA-07
Revision#: 07 Revision Date: 9/9/2009

File: M624-WWMSVOA-07.DOC

Title: M8260B/C-SWGCMSVOA-15
Revision#: 15 Revision Date: 9/9/2009
File: M8260B-C-SWGCMSVOA-15.doc

Title: M5030-P&T-05
Revision#: 5.0 Revision Date: 3/31/2009
File: M5030B-P&TWater-05.doc

Title: MTO-15-Air VOC-06
Revision#: 7 Revision Date: 9/9/2009
File: MTO15-Air VOC-07.doc

Title: MLow Level USEPA TO-15-Air VOC-01
Revision#: 1.0 Revision Date: 3/31/2009
File: MLow Level USEPA TO-15-Air VOC-01.doc

Title: MSOM01.2-GCMS VOA-02
Revision#: 2 Revision Date: 11/17/2009
File: MSOM01.2-GCMS VOA-02.doc

Title: MSOM01.2-GCMS VOA Trace and SIM-02
Revision#: 2 Revision Date: 11/17/2009
File: MSOM01.2-GCMS VOA Trace and SIM-02.doc

Extractions

Title: M3510C,3580A-Extraction SVOC-11
Revision#: 11 Revision Date: 9/14/2009
File: M3510C,3580A-Extraction SVOC-11.doc

Title: M3510C,3580A-Extraction DRO-06
Revision#: 6.0 Revision Date: 9/14/2009
File: M3510C,3580A-Extraction DRO-06.doc

Title: M3510C,3580A-Extraction PCB-08
Revision#: 08 Revision Date: 9/14/2009
File: M3510C,3580A-Extraction PCB-08.doc

Title: M3510C,3580A-Extraction Pesticide-07
Revision#: 7.0 Revision Date: 9/14/2009
File: M3510C,3580A-Extraction Pesticide-07.doc

Title: M3510C,3550B-Extraction HPLCPAH-04
Revision#: 4.0 Revision Date: 3/31/2009
File: M3510C,3550B-Extraction HPLCPAH-04.doc

Title: M3610-Alumina cln up-03
Revision#: 3.0 Revision Date: 3/31/2009
File: M3610-Alumina cleanup-03.doc

Title: M3620C-Florisil cleanup-04	
Revision#: 4.0	Revision Date: 9/14/2009
File: M3620C-Florisil cleanup-04.doc	
Title: M3630C-Silica Gel CleanUp-04	
Revision#: 4.0	Revision Date: 9/14/2009
File: M3630-SilicaGelcleanup-04.doc	
Title: M3640A-GPC cleanup-04	
Revision#: 4.0	Revision Date: 9/14/2009
File: M3640A-GPC cleanup-04.doc	
Title: M3660B-Sulfur Cleanup-04	
Revision#: 4.0	Revision Date: 9/14/2009
File: M3660-Sulfur cleanup-04.doc	
Title: M3665A-Sulfuric Acid Cleanup-04	
Revision#: 4.0	Revision Date: 9/14/2009
File: M3665A-Sulfuric Acid cleanup-04.doc	
Title: M3545A-Pressurized Fluid Extraction-06	
Revision#: 6.0	Revision Date: 9/14/2009
File: M3545A-Pressurized Fluid Extraction-06.doc	
Title: M3520C-Pest-PCB Liquid-Liquid extraction-03	
Revision#: 3.0	Revision Date: 3/31/2009
File: M3520C-Pest-PCB Liquid-Liquid extraction-03.doc	
Title: M3541-ASE Extraction-04	
Revision#: 4.0	Revision Date: 9/14/2009
File: M3541-ASE extraction-04.doc	
Title: MSOM01.2-Sample Prep-01	
Revision#: 1.0	Revision Date: 3/31/2009
File: MSOM01.2-Sample Prep-01.doc	
Title: M3535A-HPLC EXP prep-02	
Revision#: 02	Revision Date: 9/14/2009
File: M3535A-HPLC EXP prep-02.doc	
Title: M8330/A-Explosives salting prep-02	
Revision#: 2.0	Revision Date: 9/23/2009
File: M8330-A-Explosives salting prep-02.doc	
	GC SVOC
Title: M608-WW Pesticide PCB-07	
Revision#: 7.0	Revision Date: 3/31/2009
File: M608-WW Pesticide PCB-07.doc	
Title: M8015B/C-DRO-13	
Revision#: 13	Revision Date: 9/11/2009

File: M8015B-C-DRO-13.doc

Title: M8081A/B-Pesticide-13
Revision#: 13 Revision Date: 9/11/2009
File: M8081A-B-Pesticide-13.doc

Title: M8082/8082A-PCB-11
Revision#: 11 Revision Date: 9/24/2009
File: M8082-8082A-PCB-11.doc

Title: M8151-Herbicide-12
Revision#: 12 Revision Date: 9/25/2009
File: M8151A-Herbicide-12.doc

Title: MOLC03.2-Pesticide-PCB-03
Revision#: 3.0 Revision Date: 3/31/2009
File: MOLC03.2-Pesticide-PCB-03.doc

Title: M8082-PCB screening-01
Revision#: 1.0 Revision Date: 3/31/2009
File: M8082-PCB screening-01.doc

Title: M8015Modified-Direct Inject-01
Revision#: 1.0 Revision Date: 3/31/2009
File: M8015Modified-Direct Inject-01.doc

Title: MSOM01.2-PCB-02
Revision#: 2 Revision Date: 11/17/2009
File: MSOM01.2-PCB-02.doc

Title: MSOM01.2-Pesticide-02
Revision#: 2 Revision Date: 11/17/2009
File: MSOM01.2-Pesticide-02.doc

GCMS SVOC

Title: M625-BNA-08
Revision#: 8.0 Revision Date: 3/31/2009
File: M625-BNA-08.doc

Title: M8270C/D-BNA-15
Revision#: 15 Revision Date: 9/9/2009
File: M8270C-D-BNA-15.doc

Title: MSOM01.2-SVOC-02
Revision#: 2 Revision Date: 11/17/2009
File: MSOM01.2-SVOC-02.doc

Title: M8330A-Nitroaromatics-09
Revision#: 09 Revision Date: 9/25/2009
File: M8330-A-Nitroaromatics-09.doc

28. Nelac Certificate and Parameter List

New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CAP03.00180	AE	GC/MS, Canisters	[EPA TO-15]	Acetaldehyde
Certified	Yes	NJ	CAP03.00184	AE	GC/MS, Canisters	[EPA TO-15]	Acetone
Certified	Yes	NJ	CAP03.00185	AE	GC/MS, Canisters	[EPA TO-15]	Acetonitrile
Certified	Yes	NJ	CAP03.00190	AE	GC/MS, Canisters	[EPA TO-15]	Acetophenone
Certified	Yes	NJ	CAP03.00195	AE	GC/MS, Canisters	[EPA TO-15]	Acrolein
Certified	Yes	NJ	CAP03.00200	AE	GC/MS, Canisters	[EPA TO-15]	Acrylamide
Certified	Yes	NJ	CAP03.00205	AE	GC/MS, Canisters	[EPA TO-15]	Acrylic acid
Certified	Yes	NJ	CAP03.00210	AE	GC/MS, Canisters	[EPA TO-15]	Acrylonitrile
Certified	Yes	NJ	CAP03.00215	AE	GC/MS, Canisters	[EPA TO-15]	Allyl chloride
Certified	Yes	NJ	CAP03.00220	AE	GC/MS, Canisters	[EPA TO-15]	Aniline
Certified	Yes	NJ	CAP03.00225	AE	GC/MS, Canisters	[EPA TO-15]	Benzene
Certified	Yes	NJ	CAP03.00230	AE	GC/MS, Canisters	[EPA TO-15]	Benzyl chloride
Certified	Yes	NJ	CAP03.00235	AE	GC/MS, Canisters	[EPA TO-15]	Propiolactone (beta-)
Certified	Yes	NJ	CAP03.00240	AE	GC/MS, Canisters	[EPA TO-15]	Bis (2-chloroethyl) ether
Certified	Yes	NJ	CAP03.00245	AE	GC/MS, Canisters	[EPA TO-15]	Bis (chloromethyl) ether
Certified	Yes	NJ	CAP03.00250	AE	GC/MS, Canisters	[EPA TO-15]	Bromodichloromethane
Certified	Yes	NJ	CAP03.00255	AE	GC/MS, Canisters	[EPA TO-15]	Bromoform
Certified	Yes	NJ	CAP03.00260	AE	GC/MS, Canisters	[EPA TO-15]	Bromomethane
Certified	Yes	NJ	CAP03.00265	AE	GC/MS, Canisters	[EPA TO-15]	Butadiene (1,3-)
Certified	Yes	NJ	CAP03.00270	AE	GC/MS, Canisters	[EPA TO-15]	Carbon disulfide
Certified	Yes	NJ	CAP03.00275	AE	GC/MS, Canisters	[EPA TO-15]	Carbon tetrachloride
Certified	Yes	NJ	CAP03.00280	AE	GC/MS, Canisters	[EPA TO-15]	Carbon oxysulfide (Carbonyl sulfide)
Certified	Yes	NJ	CAP03.00285	AE	GC/MS, Canisters	[EPA TO-15]	Catechol
Certified	Yes	NJ	CAP03.00290	AE	GC/MS, Canisters	[EPA TO-15]	Butadiene (2-chloro-1,3-)
Certified	Yes	NJ	CAP03.00295	AE	GC/MS, Canisters	[EPA TO-15]	Chloroacetic acid
Certified	Yes	NJ	CAP03.00300	AE	GC/MS, Canisters	[EPA TO-15]	Chlorobenzene
Certified	Yes	NJ	CAP03.00305	AE	GC/MS, Canisters	[EPA TO-15]	Chloroethane
Certified	Yes	NJ	CAP03.00310	AE	GC/MS, Canisters	[EPA TO-15]	Chloroform
Certified	Yes	NJ	CAP03.00315	AE	GC/MS, Canisters	[EPA TO-15]	Chloromethane
Certified	Yes	NJ	CAP03.00320	AE	GC/MS, Canisters	[EPA TO-15]	Chloromethyl methyl ether
Certified	Yes	NJ	CAP03.00325	AE	GC/MS, Canisters	[EPA TO-15]	Chlorotoluene (2-)

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New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program
ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CAP03.00330	AE	GC/MS, Canisters	[EPA TO-15]	Cresols/Cresylic acid
Certified	Yes	NJ	CAP03.00335	AE	GC/MS, Canisters	[EPA TO-15]	Cyclohexane
Certified	Yes	NJ	CAP03.00340	AE	GC/MS, Canisters	[EPA TO-15]	Diazomethane
Certified	Yes	NJ	CAP03.00342	AE	GC/MS, Canisters	[EPA TO-15]	Dibromochloromethane
Certified	Yes	NJ	CAP03.00345	AE	GC/MS, Canisters	[EPA TO-15]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	CAP03.00350	AE	GC/MS, Canisters	[EPA TO-15]	Dibromoethane (1,2-) (EDB)
Certified	Yes	NJ	CAP03.00355	AE	GC/MS, Canisters	[EPA TO-15]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	CAP03.00360	AE	GC/MS, Canisters	[EPA TO-15]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	CAP03.00365	AE	GC/MS, Canisters	[EPA TO-15]	Dichlorobenzene (1,4-)
Certified	Yes	NJ	CAP03.00368	AE	GC/MS, Canisters	[EPA TO-15]	Dichlorodifluoromethane
Certified	Yes	NJ	CAP03.00370	AE	GC/MS, Canisters	[EPA TO-15]	Dichloroethane (1,1-)
Certified	Yes	NJ	CAP03.00375	AE	GC/MS, Canisters	[EPA TO-15]	Dichloroethane (1,2-)
Certified	Yes	NJ	CAP03.00380	AE	GC/MS, Canisters	[EPA TO-15]	Dichloroethene (1,1-)
Certified	Yes	NJ	CAP03.00384	AE	GC/MS, Canisters	[EPA TO-15]	Dichloroethene (cis-1,2-)
Certified	Yes	NJ	CAP03.00385	AE	GC/MS, Canisters	[EPA TO-15]	Dichloroethene (trans-1,2-)
Certified	Yes	NJ	CAP03.00390	AE	GC/MS, Canisters	[EPA TO-15]	Dichlorofluoromethane
Certified	Yes	NJ	CAP03.00395	AE	GC/MS, Canisters	[EPA TO-15]	Dichloropropane (1,2-)
Certified	Yes	NJ	CAP03.00400	AE	GC/MS, Canisters	[EPA TO-15]	Dichloropropene (cis-1,3-)
Certified	Yes	NJ	CAP03.00401	AE	GC/MS, Canisters	[EPA TO-15]	Dichloropropene (trans-1,3-)
Certified	Yes	NJ	CAP03.00405	AE	GC/MS, Canisters	[EPA TO-15]	Dichlorotetrafluoroethane (1,2-)
Certified	Yes	NJ	CAP03.00410	AE	GC/MS, Canisters	[EPA TO-15]	Diethyl sulfate
Certified	Yes	NJ	CAP03.00415	AE	GC/MS, Canisters	[EPA TO-15]	Dimethyl sulfate
Certified	Yes	NJ	CAP03.00420	AE	GC/MS, Canisters	[EPA TO-15]	Dimethylaniline (N, N-)
Certified	Yes	NJ	CAP03.00425	AE	GC/MS, Canisters	[EPA TO-15]	Dimethylcarbamoyl chloride
Certified	Yes	NJ	CAP03.00430	AE	GC/MS, Canisters	[EPA TO-15]	Dimethyl formamide (N, N-)
Certified	Yes	NJ	CAP03.00435	AE	GC/MS, Canisters	[EPA TO-15]	Dimethyl hydrazine (1,1-)
Certified	Yes	NJ	CAP03.00440	AE	GC/MS, Canisters	[EPA TO-15]	Dioxane (1,4-)
Certified	Yes	NJ	CAP03.00445	AE	GC/MS, Canisters	[EPA TO-15]	Epichlorohydrin
Certified	Yes	NJ	CAP03.00450	AE	GC/MS, Canisters	[EPA TO-15]	Epoxybutane (1,2-)
Certified	Yes	NJ	CAP03.00451	AE	GC/MS, Canisters	[EPA TO-15]	Ethanol
Certified	Yes	NJ	CAP03.00452	AE	GC/MS, Canisters	[EPA TO-15]	Ethyl acetate
Certified	Yes	NJ	CAP03.00455	AE	GC/MS, Canisters	[EPA TO-15]	Ethyl acrylate

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Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CAP03.00460	AE	GC/MS, Canisters	[EPA TO-15]	Ethyl carbamate (Urethane)
Certified	Yes	NJ	CAP03.00465	AE	GC/MS, Canisters	[EPA TO-15]	Ethylbenzene
Certified	Yes	NJ	CAP03.00470	AE	GC/MS, Canisters	[EPA TO-15]	Ethylene Oxide
Certified	Yes	NJ	CAP03.00475	AE	GC/MS, Canisters	[EPA TO-15]	Ethyleneimine
Certified	Yes	NJ	CAP03.00480	AE	GC/MS, Canisters	[EPA TO-15]	Ethyltoluene (4-)
Certified	Yes	NJ	CAP03.00485	AE	GC/MS, Canisters	[EPA TO-15]	Formaldehyde
Applied	No	NJ	CAP03.00487	AE	GC/MS, Canisters	[EPA TO-15]	Gasoline range organic
Certified	Yes	NJ	CAP03.00490	AE	GC/MS, Canisters	[EPA TO-15]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	CAP03.00495	AE	GC/MS, Canisters	[EPA TO-15]	Hexachloroethane
Certified	Yes	NJ	CAP03.00498	AE	GC/MS, Canisters	[EPA TO-15]	Hexanone (2-)
Certified	Yes	NJ	CAP03.00500	AE	GC/MS, Canisters	[EPA TO-15]	Heptane (n-)
Certified	Yes	NJ	CAP03.00505	AE	GC/MS, Canisters	[EPA TO-15]	Hexane (n-)
Certified	Yes	NJ	CAP03.00510	AE	GC/MS, Canisters	[EPA TO-15]	Isophorone
Certified	Yes	NJ	CAP03.00511	AE	GC/MS, Canisters	[EPA TO-15]	Isopropanol
Certified	Yes	NJ	CAP03.00515	AE	GC/MS, Canisters	[EPA TO-15]	Isopropylbenzene
Certified	Yes	NJ	CAP03.00520	AE	GC/MS, Canisters	[EPA TO-15]	Methyl alcohol (Methanol)
Certified	Yes	NJ	CAP03.00525	AE	GC/MS, Canisters	[EPA TO-15]	Methyl ethyl ketone
Certified	Yes	NJ	CAP03.00530	AE	GC/MS, Canisters	[EPA TO-15]	Methyl iodide
Certified	Yes	NJ	CAP03.00535	AE	GC/MS, Canisters	[EPA TO-15]	Methyl isobutyl ketone
Certified	Yes	NJ	CAP03.00540	AE	GC/MS, Canisters	[EPA TO-15]	Methyl isocyanate
Certified	Yes	NJ	CAP03.00545	AE	GC/MS, Canisters	[EPA TO-15]	Methyl methacrylate
Certified	Yes	NJ	CAP03.00550	AE	GC/MS, Canisters	[EPA TO-15]	Methyl tert-butyl ether
Certified	Yes	NJ	CAP03.00555	AE	GC/MS, Canisters	[EPA TO-15]	Methylene chloride (Dichloromethane)
Certified	Yes	NJ	CAP03.00560	AE	GC/MS, Canisters	[EPA TO-15]	Methylhydrazine
Certified	Yes	NJ	CAP03.00565	AE	GC/MS, Canisters	[EPA TO-15]	Methylphenol (2-)
Applied	No	NJ	CAP03.00567	AE	GC/MS, Canisters	[EPA TO-15]	Naphthalene
Certified	Yes	NJ	CAP03.00570	AE	GC/MS, Canisters	[EPA TO-15]	Nitrobenzene
Certified	Yes	NJ	CAP03.00575	AE	GC/MS, Canisters	[EPA TO-15]	Nitropropane (2-)
Certified	Yes	NJ	CAP03.00580	AE	GC/MS, Canisters	[EPA TO-15]	N-Nitrosodimethylamine
Certified	Yes	NJ	CAP03.00585	AE	GC/MS, Canisters	[EPA TO-15]	N-Nitrosomorpholine
Certified	Yes	NJ	CAP03.00590	AE	GC/MS, Canisters	[EPA TO-15]	N-Nitroso-N-methylurea
Certified	Yes	NJ	CAP03.00595	AE	GC/MS, Canisters	[EPA TO-15]	Phenol

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 -- Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CAP03.00600	AE	GC/MS, Canisters	[EPA TO-15]	Phosgene
Certified	Yes	NJ	CAP03.00605	AE	GC/MS, Canisters	[EPA TO-15]	Propionaldehyde
Certified	Yes	NJ	CAP03.00610	AE	GC/MS, Canisters	[EPA TO-15]	Propyleneimine (1,2-)
Certified	Yes	NJ	CAP03.00612	AE	GC/MS, Canisters	[EPA TO-15]	Propylene
Certified	Yes	NJ	CAP03.00615	AE	GC/MS, Canisters	[EPA TO-15]	Propylene oxide
Certified	Yes	NJ	CAP03.00620	AE	GC/MS, Canisters	[EPA TO-15]	Propane sultone (1,3-)
Certified	Yes	NJ	CAP03.00625	AE	GC/MS, Canisters	[EPA TO-15]	Styrene
Certified	Yes	NJ	CAP03.00630	AE	GC/MS, Canisters	[EPA TO-15]	Styrene oxide
Certified	Yes	NJ	CAP03.00635	AE	GC/MS, Canisters	[EPA TO-15]	Trichlorobenzene (1,2,4-)
Certified	Yes	NJ	CAP03.00640	AE	GC/MS, Canisters	[EPA TO-15]	Trimethylbenzene (1,3,5-)
Certified	Yes	NJ	CAP03.00645	AE	GC/MS, Canisters	[EPA TO-15]	Trimethylbenzene (1,2,4-)
Certified	Yes	NJ	CAP03.00650	AE	GC/MS, Canisters	[EPA TO-15]	Trimethylpentane (2,2,4-)
Certified	Yes	NJ	CAP03.00652	AE	GC/MS, Canisters	[EPA TO-15]	Tert-butyl alcohol
Certified	Yes	NJ	CAP03.00655	AE	GC/MS, Canisters	[EPA TO-15]	Tetrachloroethane (1,1,2,2-)
Certified	Yes	NJ	CAP03.00660	AE	GC/MS, Canisters	[EPA TO-15]	Tetrachloroethene
Certified	Yes	NJ	CAP03.00662	AE	GC/MS, Canisters	[EPA TO-15]	Tetrahydrofuran
Certified	Yes	NJ	CAP03.00665	AE	GC/MS, Canisters	[EPA TO-15]	Toluene
Certified	Yes	NJ	CAP03.00670	AE	GC/MS, Canisters	[EPA TO-15]	Trichloroethane (1,1,1-)
Certified	Yes	NJ	CAP03.00675	AE	GC/MS, Canisters	[EPA TO-15]	Trichloroethane (1,1,2-)
Certified	Yes	NJ	CAP03.00680	AE	GC/MS, Canisters	[EPA TO-15]	Trichloroethene
Certified	Yes	NJ	CAP03.00684	AE	GC/MS, Canisters	[EPA TO-15]	Trichlorofluoromethane
Certified	Yes	NJ	CAP03.00685	AE	GC/MS, Canisters	[EPA TO-15]	Trichloro (1,1,2-) trifluoroethane (1,2,2-)
Certified	Yes	NJ	CAP03.00690	AE	GC/MS, Canisters	[EPA TO-15]	Triethylamine
Certified	Yes	NJ	CAP03.00695	AE	GC/MS, Canisters	[EPA TO-15]	Trifluoromethane
Certified	Yes	NJ	CAP03.00700	AE	GC/MS, Canisters	[EPA TO-15]	Vinyl acetate
Certified	Yes	NJ	CAP03.00705	AE	GC/MS, Canisters	[EPA TO-15]	Vinyl bromide
Certified	Yes	NJ	CAP03.00710	AE	GC/MS, Canisters	[EPA TO-15]	Vinyl chloride
Certified	Yes	NJ	CAP03.00715	AE	GC/MS, Canisters	[EPA TO-15]	Xylene (m-)
Certified	Yes	NJ	CAP03.00720	AE	GC/MS, Canisters	[EPA TO-15]	Xylene (o-)
Certified	Yes	NJ	CAP03.00725	AE	GC/MS, Canisters	[EPA TO-15]	Xylene (p-)
Certified	Yes	NJ	CAP03.00730	AE	GC/MS, Canisters	[EPA TO-15]	Xylenes (total)
Applied	No	NJ	CAP03.00735	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Acetic acid

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.00740	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Acetone
Applied	No	NJ	CAP03.00745	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Acetonitrile
Applied	No	NJ	CAP03.00750	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Acrylonitrile
Applied	No	NJ	CAP03.00755	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Aniline
Applied	No	NJ	CAP03.00760	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Benzene
Applied	No	NJ	CAP03.00765	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butane
Applied	No	NJ	CAP03.00770	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butanol (1-)
Applied	No	NJ	CAP03.00775	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butoxyethanol
Applied	No	NJ	CAP03.00780	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butoxyethylacetate
Applied	No	NJ	CAP03.00785	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butyl Acetate (n-)
Applied	No	NJ	CAP03.00790	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butyl Acetate (t-)
Applied	No	NJ	CAP03.00795	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butyl aldehyde
Applied	No	NJ	CAP03.00800	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Carbon tetrachloride
Applied	No	NJ	CAP03.00805	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Chlorobenzene
Applied	No	NJ	CAP03.00810	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Cyclohexanone
Applied	No	NJ	CAP03.00815	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Decane (n-)
Applied	No	NJ	CAP03.00820	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Dichloroethane (1,2-)
Applied	No	NJ	CAP03.00825	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Dodecane (n-)
Applied	No	NJ	CAP03.00830	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethanol
Applied	No	NJ	CAP03.00835	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethoxyethanol
Applied	No	NJ	CAP03.00840	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethoxyethylacetate
Applied	No	NJ	CAP03.00845	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethyl acetate
Applied	No	NJ	CAP03.00850	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethyl acrylate
Applied	No	NJ	CAP03.00855	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene
Applied	No	NJ	CAP03.00860	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene (1-methyl-2-)
Applied	No	NJ	CAP03.00865	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene (1-methyl-3-)
Applied	No	NJ	CAP03.00870	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene (1-methyl-4-)
Applied	No	NJ	CAP03.00875	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Furfural
Applied	No	NJ	CAP03.00880	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Heptane (n-)
Applied	No	NJ	CAP03.00885	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Hexane (n-)
Applied	No	NJ	CAP03.00890	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Iso-butyl alcohol
Applied	No	NJ	CAP03.00895	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Isobutylacetate

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284 SHEFFIELD ST
Mountainside, NJ 07092

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Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.00900	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Isophorone
Applied	No	NJ	CAP03.00905	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Isopropanol
Applied	No	NJ	CAP03.00910	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Isopropyl acetate
Applied	No	NJ	CAP03.00915	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Isopropylbenzene
Applied	No	NJ	CAP03.00920	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Maleic anhydride
Applied	No	NJ	CAP03.00925	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methoxyethanol (2-) (methyl cellosolve)
Applied	No	NJ	CAP03.00930	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methoxyethylacetate
Applied	No	NJ	CAP03.00935	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methoxypropanol
Applied	No	NJ	CAP03.00940	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methyl alcohol (Methanol)
Applied	No	NJ	CAP03.00945	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methyl ethyl ketone
Applied	No	NJ	CAP03.00950	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methyl isobutyl ketone
Applied	No	NJ	CAP03.00955	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methyl methacrylate
Applied	No	NJ	CAP03.00960	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methyl tert-butyl ether
Applied	No	NJ	CAP03.00965	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methyl acetate
Applied	No	NJ	CAP03.00970	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methylene chloride (Dichloromethane)
Applied	No	NJ	CAP03.00975	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Methylstyrene
Applied	No	NJ	CAP03.00980	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Nitrobenzene
Applied	No	NJ	CAP03.00985	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Nonane (-n)
Applied	No	NJ	CAP03.00990	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Propyl Alcohol (n-)
Applied	No	NJ	CAP03.00995	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Octane (-n)
Applied	No	NJ	CAP03.01000	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Octanol (1-)
Applied	No	NJ	CAP03.01005	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Pentane (-n)
Applied	No	NJ	CAP03.01010	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	PCB 1016
Applied	No	NJ	CAP03.01015	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	PCB 1221
Applied	No	NJ	CAP03.01020	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	PCB 1232
Applied	No	NJ	CAP03.01025	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	PCB 1242
Applied	No	NJ	CAP03.01030	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	PCB 1248
Applied	No	NJ	CAP03.01035	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	PCB 1254
Applied	No	NJ	CAP03.01040	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	PCB 1260
Applied	No	NJ	CAP03.01045	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Phenol
Applied	No	NJ	CAP03.01050	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Propionitrile
Applied	No	NJ	CAP03.01055	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Propyl acetate

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New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program
ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.01060	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Pyridine
Applied	No	NJ	CAP03.01065	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Propylbenzene (n-)
Applied	No	NJ	CAP03.01070	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Styrene
Applied	No	NJ	CAP03.01075	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Tetrachloroethane (1,1,1,2-)
Applied	No	NJ	CAP03.01080	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	CAP03.01085	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Tetrachloroethene
Applied	No	NJ	CAP03.01090	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Toluene
Applied	No	NJ	CAP03.01095	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trichloroethane (1,1,1-)
Applied	No	NJ	CAP03.01100	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trichloroethane (1,1,2-)
Applied	No	NJ	CAP03.01105	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trichloroethene
Applied	No	NJ	CAP03.01110	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trimethylbenzene (1,2,3-)
Applied	No	NJ	CAP03.01115	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trimethylbenzene (1,2,4-)
Applied	No	NJ	CAP03.01120	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trimethylbenzene (1,3,5-)
Applied	No	NJ	CAP03.01125	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Xylenes (total)
Applied	No	NJ	CAP03.01130	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Undecane (n-)
Applied	No	NJ	CAP03.03620	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aldrin
Applied	No	NJ	CAP03.03640	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aroclor 1242
Applied	No	NJ	CAP03.03650	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aroclor 1254
Applied	No	NJ	CAP03.03660	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aroclor 1260
Applied	No	NJ	CAP03.03690	AE	GC/ECD, HV PUF	[EPA TO-4A]	BHC [Alpha and Beta]
Applied	No	NJ	CAP03.03700	AE	GC/ECD, HV PUF	[EPA TO-4A]	Lindane (gamma BHC)
Applied	No	NJ	CAP03.03740	AE	GC/ECD, HV PUF	[EPA TO-4A]	Chlordane
Applied	No	NJ	CAP03.03780	AE	GC/ECD, HV PUF	[EPA TO-4A]	D (2,4-)
Applied	No	NJ	CAP03.03790	AE	GC/ECD, HV PUF	[EPA TO-4A]	Dacthal (DCPA)
Applied	No	NJ	CAP03.03800	AE	GC/ECD, HV PUF	[EPA TO-4A]	DDE (4,4'-)
Applied	No	NJ	CAP03.03810	AE	GC/ECD, HV PUF	[EPA TO-4A]	DDT (4,4'-)
Applied	No	NJ	CAP03.03860	AE	GC/ECD, HV PUF	[EPA TO-4A]	Dieldrin
Applied	No	NJ	CAP03.03910	AE	GC/ECD, HV PUF	[EPA TO-4A]	Heptachlor
Applied	No	NJ	CAP03.03920	AE	GC/ECD, HV PUF	[EPA TO-4A]	Heptachlor epoxide
Applied	No	NJ	CAP03.03960	AE	GC/ECD, HV PUF	[EPA TO-4A]	Methoxychlor
Applied	No	NJ	CAP03.03990	AE	GC/ECD, HV PUF	[EPA TO-4A]	Mirex
Applied	No	NJ	CAP03.05170	AE	GC/ECD, LV PUF	[EPA TO-10A]	Aldrin

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New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program
ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.05190	AE	GC/ECD, LV PUF	[EPA TO-10A]	Aroclor 1242
Applied	No	NJ	CAP03.05200	AE	GC/ECD, LV PUF	[EPA TO-10A]	Aroclor 1254
Applied	No	NJ	CAP03.05210	AE	GC/ECD, LV PUF	[EPA TO-10A]	Aroclor 1260
Applied	No	NJ	CAP03.05240	AE	GC/NPD, LV PUF	[EPA TO-10A]	BHC [Alpha and Beta]
Applied	No	NJ	CAP03.05280	AE	GC/ECD, LV PUF	[EPA TO-10A]	Chlordane
Applied	No	NJ	CAP03.05330	AE	GC/ECD, LV PUF	[EPA TO-10A]	D (2,4-)
Applied	No	NJ	CAP03.05340	AE	GC/ECD, LV PUF	[EPA TO-10A]	Dacthal (DCPA)
Applied	No	NJ	CAP03.05350	AE	GC/ECD, LV PUF	[EPA TO-10A]	DDE (4,4'-)
Applied	No	NJ	CAP03.05360	AE	GC/ECD, LV PUF	[EPA TO-10A]	DDT (4,4'-)
Applied	No	NJ	CAP03.05420	AE	GC/ECD, LV PUF	[EPA TO-10A]	Dieldrin
Applied	No	NJ	CAP03.05470	AE	GC/ECD, LV PUF	[EPA TO-10A]	Heptachlor
Applied	No	NJ	CAP03.05480	AE	GC/ECD, LV PUF	[EPA TO-10A]	Heptachlor epoxide
Applied	No	NJ	CAP03.05530	AE	GC/ECD, LV PUF	[EPA TO-10A]	Methoxychlor
Applied	No	NJ	CAP03.05550	AE	GC/ECD, LV PUF	[EPA TO-10A]	Mirex
Applied	No	NJ	CAP03.06150	AE	GC/MS	[EPA TO-13A]	Acenaphthene
Applied	No	NJ	CAP03.06160	AE	GC/MS	[EPA TO-13A]	Acenaphthylene
Applied	No	NJ	CAP03.06170	AE	GC/MS	[EPA TO-13A]	Anthracene
Applied	No	NJ	CAP03.06180	AE	GC/MS	[EPA TO-13A]	Benzo(a)anthracene
Applied	No	NJ	CAP03.06190	AE	GC/MS	[EPA TO-13A]	Benzo(a)pyrene
Applied	No	NJ	CAP03.06200	AE	GC/MS	[EPA TO-13A]	Benzo(b)fluoranthene
Applied	No	NJ	CAP03.06210	AE	GC/MS	[EPA TO-13A]	Benzo(k)fluoranthene
Applied	No	NJ	CAP03.06230	AE	GC/MS	[EPA TO-13A]	Benzo(ghi)perylene
Applied	No	NJ	CAP03.06240	AE	GC/MS	[EPA TO-13A]	Chrysene
Applied	No	NJ	CAP03.06260	AE	GC/MS	[EPA TO-13A]	Dibenzo(a,h)anthracene
Applied	No	NJ	CAP03.06270	AE	GC/MS	[EPA TO-13A]	Fluoranthene
Applied	No	NJ	CAP03.06280	AE	GC/MS	[EPA TO-13A]	Fluorene
Applied	No	NJ	CAP03.06290	AE	GC/MS	[EPA TO-13A]	Indeno(1,2,3-cd)pyrene
Applied	No	NJ	CAP03.06300	AE	GC/MS	[EPA TO-13A]	Naphthalene
Applied	No	NJ	CAP03.06320	AE	GC/MS	[EPA TO-13A]	Phenanthrene
Applied	No	NJ	CAP03.06330	AE	GC/MS	[EPA TO-13A]	Pyrene
Applied	No	NJ	CAP03.06850	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Acetone
Applied	No	NJ	CAP03.06852	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Allyl chloride

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Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.06854	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Benzene
Applied	No	NJ	CAP03.06856	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Bromodichloromethane
Applied	No	NJ	CAP03.06858	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Bromoform
Applied	No	NJ	CAP03.06860	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Bromomethane
Applied	No	NJ	CAP03.06862	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Butadiene (1,3-)
Applied	No	NJ	CAP03.06864	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Carbon disulfide
Applied	No	NJ	CAP03.06866	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Carbon tetrachloride
Applied	No	NJ	CAP03.06868	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chlorobenzene
Applied	No	NJ	CAP03.06870	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chloroethane
Applied	No	NJ	CAP03.06872	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chloroform
Applied	No	NJ	CAP03.06874	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chloromethane
Applied	No	NJ	CAP03.06876	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chlorotoluene (2-)
Applied	No	NJ	CAP03.06878	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Cyclohexane
Applied	No	NJ	CAP03.06880	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dibromochloromethane
Applied	No	NJ	CAP03.06882	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	CAP03.06884	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorobenzene (1,2-)
Applied	No	NJ	CAP03.06886	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorobenzene (1,3-)
Applied	No	NJ	CAP03.06888	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorobenzene (1,4-)
Applied	No	NJ	CAP03.06890	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorodifluoromethane
Applied	No	NJ	CAP03.06892	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethane (1,1-)
Applied	No	NJ	CAP03.06894	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethane (1,2-)
Applied	No	NJ	CAP03.06896	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethene (1,1-)
Applied	No	NJ	CAP03.06898	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethene (cis-1,2-)
Applied	No	NJ	CAP03.06900	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethene (trans-1,2-)
Applied	No	NJ	CAP03.06902	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloropropane (1,2-)
Applied	No	NJ	CAP03.06904	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloropropene (cis-1,3-)
Applied	No	NJ	CAP03.06906	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloropropene (trans-1,3-)
Applied	No	NJ	CAP03.06908	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorotetrafluoroethane (1,2-)
Applied	No	NJ	CAP03.06910	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dioxane (1,4-)
Applied	No	NJ	CAP03.06912	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Ethanol
Applied	No	NJ	CAP03.06914	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Ethylbenzene
Applied	No	NJ	CAP03.06916	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Ethyltoluene (4-)

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New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program
ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.06918	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Heptane (n-)
Applied	No	NJ	CAP03.06920	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Hexachlorobutadiene (1,3-)
Applied	No	NJ	CAP03.06922	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Hexane (n-)
Applied	No	NJ	CAP03.06924	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Isopropanol
Applied	No	NJ	CAP03.06926	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Methylene chloride (Dichloromethane)
Applied	No	NJ	CAP03.06928	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Methyl ethyl ketone
Applied	No	NJ	CAP03.06930	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Methyl isobutyl ketone
Applied	No	NJ	CAP03.06932	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Methyl methacrylate
Applied	No	NJ	CAP03.06934	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Methyl tert-butyl ether
Applied	No	NJ	CAP03.06936	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Styrene
Applied	No	NJ	CAP03.06938	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Tert-butyl alcohol
Applied	No	NJ	CAP03.06940	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	CAP03.06942	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Tetrachloroethene
Applied	No	NJ	CAP03.06944	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Tetrahydrofuran
Applied	No	NJ	CAP03.06946	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Toluene
Applied	No	NJ	CAP03.06948	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trichlorobenzene (1,2,4-)
Applied	No	NJ	CAP03.06950	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trichloroethane (1,1,1-)
Applied	No	NJ	CAP03.06952	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trichloroethane (1,1,2-)
Applied	No	NJ	CAP03.06954	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trichloroethene
Applied	No	NJ	CAP03.06956	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trichlorofluoromethane
Applied	No	NJ	CAP03.06958	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trichloro (1,1,2-) trifluoroethane (1,2,2-)
Applied	No	NJ	CAP03.06960	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trimethylbenzene (1,2,4-)
Applied	No	NJ	CAP03.06962	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trimethylbenzene (1,3,5-)
Applied	No	NJ	CAP03.06964	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Trimethylpentane (2,2,4-)
Applied	No	NJ	CAP03.06966	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Vinyl bromide
Applied	No	NJ	CAP03.06968	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Vinyl chloride
Applied	No	NJ	CAP03.06970	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Xylene (m- + p-)
Applied	No	NJ	CAP03.06972	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Xylene (o-)

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New Jersey Department of Environmental Protection
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ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SDW02 -- Inorganic Parameters Including Na + Ca

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW02.01000	DW	Nephelometric	[EPA 180.1] [SM 2130 B]	Turbidity
Applied	No	NJ	SDW02.02000	DW	Automated Cadmium Reduction	[EPA 353.2]	Nitrate
Certified	Yes	NJ	SDW02.04000	DW	Ion Chromatography	[EPA 300.0]	Nitrate
Certified	Yes	NJ	SDW02.08000	DW	Ion Chromatography	[EPA 300.0]	Nitrite
Applied	No	NJ	SDW02.13000	DW	Manual Potentiometric Ion Select Electrode	[SM 4500-F C]	Fluoride
Certified	Yes	NJ	SDW02.14000	DW	Ion Chromatography	[EPA 300.0]	Fluoride
Applied	No	NJ	SDW02.15100	DW	Spectrophotometric, Distill, Manual	[SM 4500-CN C,E]	Cyanide
Certified	Yes	NJ	SDW02.18100	DW	Turbidity, Spectrophotometric	[SM 4500-SO4 E]	Sulfate
Certified	Yes	NJ	SDW02.19000	DW	Ion Chromatography	[EPA 300.0]	Sulfate
Certified	Yes	NJ	SDW02.20000	DW	ICP	[EPA 200.7]	Sodium
Certified	Yes	NJ	SDW02.24000	DW	Gravimetric At 180	[SM 2540 C]	Total dissolved solids (TDS)
Certified	Yes	NJ	SDW02.27000	DW	ICP	[EPA 200.7] [SM 3120 B]	Calcium
Certified	Yes	NJ	SDW02.27200	DW	Ca as Carbonate	[EPA 200.7]	Calcium-hardness
Certified	Yes	NJ	SDW02.27300	DW	Hardness By Calculation	[EPA 200.7]	Total hardness
Certified	Yes	NJ	SDW02.28000	DW	Titrimetric Indicator	[SM 2320 B]	Alkalinity
Certified	Yes	NJ	SDW02.29000	DW	Electrometric Titration	[SM 2320 B]	Alkalinity
Certified	Yes	NJ	SDW02.29310	DW	Automated Phenate	[SM 4500-NH3 G]	Ammonia
Applied	No	NJ	SDW02.29500	DW	Ion Chromatography	[EPA 300.0]	Bromide
Certified	Yes	NJ	SDW02.31000	DW	Ion Chromatography	[EPA 300.0]	Chloride
Certified	Yes	NJ	SDW02.31100	DW	Ion Chromatography	[EPA 300.0]	Chlorate
Applied	No	NJ	SDW02.31120	DW	Ion Chromatography	[EPA 314.0]	Perchlorate
Applied	No	NJ	SDW02.31125	DW	LC/MS or LC/MS/MS	[EPA 331.0]	Perchlorate
Applied	No	NJ	SDW02.31200	DW	Ion Chromatography	[EPA 300.1]	Chlorite (monthly)
Certified	Yes	NJ	SDW02.32000	DW	Platinum-Cobalt	[SM 2120 B]	Color
Certified	Yes	NJ	SDW02.33000	DW	Methylene Blue	[SM 5540 C]	Foaming agents
Certified	Yes	NJ	SDW02.34000	DW	Consistent Series	[SM 2150 B]	Odor
Certified	Yes	NJ	SDW02.35000	DW	Conductance	[SM 2510 B]	Conductivity
Applied	No	NJ	SDW02.36400	DW	ICP	[EPA 200.7]	Silica
Certified	Yes	NJ	SDW02.37000	DW	Colorimetric	[SM 4500-P E]	Orthophosphate
Certified	Yes	NJ	SDW02.38000	DW	Ion Chromatography	[EPA 300.0]	Orthophosphate
Certified	Yes	NJ	SDW02.39600	DW	High Temp. Combustion	[SM 5310 B]	Total organic carbon (TOC)

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ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SDW03 – Analyze-Immediately Inorganic Parameter

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW03.03000	DW	DPD, Colorimetric	[SM 4500-Cl G]	Chlorine - residual
Certified	Yes	NJ	SDW03.08000	DW	Electrometric	[SM 4500-H B]	pH
Certified	Yes	NJ	SDW03.09000	DW	Thermometric	[SM 2550 B]	Temperature

Category: SDW04 – Inorganic Parameters, Metals

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW04.03000	DW	ICP	[EPA 200.7] [SM 3120 B]	Aluminum
Certified	Yes	NJ	SDW04.03100	DW	ICP/MS	[EPA 200.8]	Aluminum
Certified	Yes	NJ	SDW04.07000	DW	ICP/MS	[EPA 200.8]	Antimony
Certified	Yes	NJ	SDW04.12000	DW	ICP/MS	[EPA 200.8]	Arsenic
Certified	Yes	NJ	SDW04.16000	DW	ICP	[EPA 200.7]	Barium
Certified	Yes	NJ	SDW04.17000	DW	ICP/MS	[EPA 200.8]	Barium
Certified	Yes	NJ	SDW04.20000	DW	ICP	[EPA 200.7]	Beryllium
Certified	Yes	NJ	SDW04.21000	DW	ICP/MS	[EPA 200.8]	Beryllium
Certified	Yes	NJ	SDW04.24000	DW	ICP	[EPA 200.7]	Cadmium
Certified	Yes	NJ	SDW04.25000	DW	ICP/MS	[EPA 200.8]	Cadmium
Certified	Yes	NJ	SDW04.28000	DW	ICP	[EPA 200.7]	Chromium
Certified	Yes	NJ	SDW04.29000	DW	ICP/MS	[EPA 200.8]	Chromium
Certified	Yes	NJ	SDW04.33000	DW	ICP	[EPA 200.7]	Copper
Certified	Yes	NJ	SDW04.34000	DW	ICP/MS	[EPA 200.8]	Copper
Certified	Yes	NJ	SDW04.37000	DW	ICP	[EPA 200.7] [SM 3120 B]	Iron
Certified	Yes	NJ	SDW04.40000	DW	ICP/MS	[EPA 200.8]	Lead
Certified	Yes	NJ	SDW04.41100	DW	ICP	[EPA 200.7]	Magnesium
Certified	Yes	NJ	SDW04.44000	DW	ICP	[EPA 200.7]	Manganese
Certified	Yes	NJ	SDW04.45000	DW	ICP/MS	[EPA 200.8]	Manganese
Certified	Yes	NJ	SDW04.46000	DW	Manual Cold Vapor	[EPA 245.1]	Mercury
Applied	No	NJ	SDW04.48000	DW	ICP/MS	[EPA 200.8]	Mercury
Certified	Yes	NJ	SDW04.52000	DW	ICP	[EPA 200.7]	Nickel
Certified	Yes	NJ	SDW04.53000	DW	ICP/MS	[EPA 200.8]	Nickel

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New Jersey Department of Environmental Protection
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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SDW04 -- Inorganic Parameters, Metals

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW04.57000	DW	ICP/MS	[EPA 200.8]	Selenium
Certified	Yes	NJ	SDW04.62000	DW	ICP	[EPA 200.7] [SM 3120 B]	Silver
Certified	Yes	NJ	SDW04.63000	DW	ICP/MS	[EPA 200.8]	Silver
Certified	Yes	NJ	SDW04.65000	DW	ICP/MS	[EPA 200.8]	Thallium
Certified	Yes	NJ	SDW04.67000	DW	ICP	[EPA 200.7] [SM 3120 B]	Zinc
Certified	Yes	NJ	SDW04.68000	DW	ICP/MS	[EPA 200.8]	Zinc

Category: SDW05 -- Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SDW05.12010	DW	Solvent Extract, GC	[EPA 504.1]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	SDW05.12020	DW	Solvent Extract, GC	[EPA 504.1]	Dibromo-3-chloropropane (1,2-)
Applied	No	NJ	SDW05.12030	DW	Solvent Extract, GC	[EPA 504.1]	Trichloropropane (1,2,3-)

Category: SDW06 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW06.01010	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Bromoform
Certified	Yes	NJ	SDW06.01020	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chloroform
Certified	Yes	NJ	SDW06.01030	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dibromochloromethane
Certified	Yes	NJ	SDW06.01040	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Bromodichloromethane
Certified	Yes	NJ	SDW06.02010	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Benzene
Certified	Yes	NJ	SDW06.02020	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Carbon tetrachloride
Certified	Yes	NJ	SDW06.02030	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chlorobenzene
Certified	Yes	NJ	SDW06.02040	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	SDW06.02050	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	SDW06.02060	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichlorobenzene (1,4-)
Certified	Yes	NJ	SDW06.02070	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloroethane (1,1-)
Certified	Yes	NJ	SDW06.02080	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloroethane (1,2-)

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Category: SDW06 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW06.02090	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloroethene (cis-1,2-)
Certified	Yes	NJ	SDW06.02100	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloroethene (trans-1,2-)
Certified	Yes	NJ	SDW06.02110	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methylene chloride (Dichloromethane)
Certified	Yes	NJ	SDW06.02120	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropane (1,2-)
Certified	Yes	NJ	SDW06.02130	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Ethylbenzene
Certified	Yes	NJ	SDW06.02140	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methyl tert-butyl ether
Certified	Yes	NJ	SDW06.02150	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Naphthalene
Certified	Yes	NJ	SDW06.02160	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Styrene
Certified	Yes	NJ	SDW06.02170	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Tetrachloroethane (1,1,2,2-)
Certified	Yes	NJ	SDW06.02180	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Tetrachloroethene
Certified	Yes	NJ	SDW06.02190	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichloroethane (1,1,1-)
Certified	Yes	NJ	SDW06.02200	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichloroethene
Certified	Yes	NJ	SDW06.02210	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Toluene
Certified	Yes	NJ	SDW06.02220	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichlorobenzene (1,2,4-)
Certified	Yes	NJ	SDW06.02230	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloroethene (1,1-)
Certified	Yes	NJ	SDW06.02240	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichloroethane (1,1,2-)
Certified	Yes	NJ	SDW06.02250	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Vinyl chloride
Certified	Yes	NJ	SDW06.02260	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Xylenes (total)
Certified	Yes	NJ	SDW06.03010	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Bromobenzene
Certified	Yes	NJ	SDW06.03020	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Bromochloromethane
Certified	Yes	NJ	SDW06.03030	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Bromomethane
Certified	Yes	NJ	SDW06.03040	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Butyl benzene (n-)
Certified	Yes	NJ	SDW06.03050	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Sec-butylbenzene
Certified	Yes	NJ	SDW06.03060	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Tert-butylbenzene
Certified	Yes	NJ	SDW06.03070	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chloroethane
Certified	Yes	NJ	SDW06.03080	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chloromethane
Certified	Yes	NJ	SDW06.03090	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chlorotoluene (2-)
Certified	Yes	NJ	SDW06.03100	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chlorotoluene (4-)
Certified	Yes	NJ	SDW06.03110	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	SDW06.03120	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dibromoethane (1,2-) (EDB)
Certified	Yes	NJ	SDW06.03130	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dibromomethane
Certified	Yes	NJ	SDW06.03140	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichlorodifluoromethane

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SDW06 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW06.03150	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropane (1,3-)
Certified	Yes	NJ	SDW06.03160	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropane (2,2-)
Certified	Yes	NJ	SDW06.03170	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropene (1,1-)
Certified	Yes	NJ	SDW06.03180	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropene (cis-1,3-)
Certified	Yes	NJ	SDW06.03190	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropene (trans-1,3-)
Certified	Yes	NJ	SDW06.03200	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	SDW06.03210	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Isopropylbenzene
Certified	Yes	NJ	SDW06.03220	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Isopropyltoluene (4-)
Certified	Yes	NJ	SDW06.03230	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Propylbenzene (n-)
Certified	Yes	NJ	SDW06.03240	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Tetrachloroethane (1,1,1,2-)
Certified	Yes	NJ	SDW06.03250	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichlorobenzene (1,2,3-)
Applied	No	NJ	SDW06.03251	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichlorobenzene (1,3,5-)
Certified	Yes	NJ	SDW06.03260	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichlorofluoromethane
Certified	Yes	NJ	SDW06.03270	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichloropropane (1,2,3-)
Certified	Yes	NJ	SDW06.03280	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trimethylbenzene (1,2,4-)
Certified	Yes	NJ	SDW06.03300	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trimethylbenzene (1,3,5-)
Certified	Yes	NJ	SDW06.03310	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Nitrobenzene
Certified	Yes	NJ	SDW06.03410	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Acetone
Certified	Yes	NJ	SDW06.03420	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Acrylonitrile
Certified	Yes	NJ	SDW06.03430	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Allyl chloride
Certified	Yes	NJ	SDW06.03440	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Butanone (2-)
Certified	Yes	NJ	SDW06.03450	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Carbon disulfide
Certified	Yes	NJ	SDW06.03460	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chloroacetonitrile
Certified	Yes	NJ	SDW06.03470	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chlorobutane (1-)
Certified	Yes	NJ	SDW06.03480	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloro-2-butene (trans-1,4-)
Certified	Yes	NJ	SDW06.03490	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropanone (1,1-)
Certified	Yes	NJ	SDW06.03500	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Diethyl ether (Ethyl ether)
Certified	Yes	NJ	SDW06.03510	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Ethyl methacrylate
Certified	Yes	NJ	SDW06.03520	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Hexachloroethane
Certified	Yes	NJ	SDW06.03530	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Hexanone (2-)
Certified	Yes	NJ	SDW06.03540	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methacrylonitrile
Certified	Yes	NJ	SDW06.03550	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methyl acrylate

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SDW06 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW06.03560	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methyl iodide
Certified	Yes	NJ	SDW06.03570	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methyl methacrylate
Certified	Yes	NJ	SDW06.03580	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Pentanone (4-methyl-2-)
Certified	Yes	NJ	SDW06.03590	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Nitropropane (2-)
Certified	Yes	NJ	SDW06.03600	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Pentachloroethane
Certified	Yes	NJ	SDW06.03610	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Propionitrile
Applied	No	NJ	SDW06.03615	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Tert-butyl alcohol
Certified	Yes	NJ	SDW06.03620	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Tetrahydrofuran

Category: CLP01 -- Multi-Media, Multi-Conc. Inorganics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CLP01.03103	NPW	ICP/MS	[EPA ISM01.2]	Aluminum
Certified	Yes	NJ	CLP01.06102	NPW	ICP/MS	[EPA ILM05.4]	Antimony
Certified	Yes	NJ	CLP01.08102	NPW	ICP/MS	[EPA ILM05.4]	Arsenic
Certified	Yes	NJ	CLP01.11102	NPW	ICP/MS	[EPA ILM05.4]	Barium
Certified	Yes	NJ	CLP01.14102	NPW	ICP/MS	[EPA ILM05.4]	Beryllium
Certified	Yes	NJ	CLP01.19102	NPW	ICP/MS	[EPA ILM05.4]	Cadmium
Applied	No	NJ	CLP01.21103	NPW	ICP/MS	[EPA ISM01.2]	Calcium
Certified	Yes	NJ	CLP01.24102	NPW	ICP/MS	[EPA ILM05.4]	Chromium
Certified	Yes	NJ	CLP01.27102	NPW	ICP/MS	[EPA ILM05.4]	Cobalt
Certified	Yes	NJ	CLP01.30102	NPW	ICP/MS	[EPA ILM05.4]	Copper
Applied	No	NJ	CLP01.33103	NPW	ICP/MS	[EPA ISM01.2]	Iron
Certified	Yes	NJ	CLP01.36102	NPW	ICP/MS	[EPA ILM05.4]	Lead
Applied	No	NJ	CLP01.38103	NPW	ICP/MS	[EPA ISM01.2]	Magnesium
Certified	Yes	NJ	CLP01.41102	NPW	ICP/MS	[EPA ILM05.4]	Manganese
Certified	Yes	NJ	CLP01.47102	NPW	ICP/MS	[EPA ILM05.4]	Nickel
Applied	No	NJ	CLP01.49103	NPW	ICP/MS	[EPA ISM01.2]	Potassium
Certified	Yes	NJ	CLP01.51102	NPW	ICP/MS	[EPA ILM05.4]	Selenium
Certified	Yes	NJ	CLP01.54102	NPW	ICP/MS	[EPA ILM05.4]	Silver

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP01 -- Multi-Media, Multi-Conc. Inorganics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CLP01.56103	NPW	ICP/MS	[EPA ISM01.2]	Sodium
Certified	Yes	NJ	CLP01.59102	NPW	ICP/MS	[EPA ILM05.4]	Thallium
Certified	Yes	NJ	CLP01.63102	NPW	ICP/MS	[EPA ILM05.4]	Vanadium
Certified	Yes	NJ	CLP01.66102	NPW	ICP/MS	[EPA ILM05.4]	Zinc

Category: SHW03 -- Analyze-Immediately Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW03.02000	NPW	Thermometric	[SM 2550 B]	Temperature

Category: SHW04 -- Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW04.01000	NPW	Acid Digestion/Surface and Groundwater, ICP, FLAA	[SW-846 3005A, Rev. 1, 7/92]	Metals, Total Rec and Dissolved
Certified	Yes	NJ	SHW04.01500	NPW	Acid Digestion/Aqueous Samples, ICP, FLAA	[SW-846 3010A, Rev. 1, 7/92]	Metals, Total
Certified	Yes	NJ	SHW04.33000	NPW	AA, Manual Cold Vapor	[SW-846 7470A, Rev. 1, 9/94]	Mercury - liquid waste

Category: SHW05 -- Organic Parameters, Prep. / Screening

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW05.01000	NPW	Separatory Funnel Extraction	[SW-846 3510C, Rev. 3, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.02000	NPW	Continuous Liquid-Liquid Extraction	[SW-846 3520C, Rev. 3, 12/96]	Semivolatile organics
Applied	No	NJ	SHW05.02100	NPW	Solid Phase Extraction (SPE)	[SW-846 3535] [SW-846 3535A]	Semivolatile organics
Certified	Yes	NJ	SHW05.07000	NPW	Purge & Trap Aqueous	[SW-846 5030B, Rev. 2, 12/96]	Volatile organics

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Category: SHW09 – Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW09.17000	NPW	Wheatstone Bridge	[SW-846 9050A, Rev. 1, 12/96]	Specific conductance

Category: WPP02 – Inorg. Parameters, Nutrients and Demands

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP02.01000	NPW	Electrometric or Phenolphthalein	[ASTM D1067-92] [SM 2310 B(4A)]	Acidity as CaCO3
Certified	Yes	NJ	WPP02.01500	NPW	Electrometric or Color Titration	[SM 2320 B]	Alkalinity as CaCO3
Applied	No	NJ	WPP02.03000	NPW	Distillation, Titration	[SM 4500-NH3 B, E]	Ammonia
Certified	Yes	NJ	WPP02.04000	NPW	Automated Phenate	[SM 4500-NH3 H]	Ammonia
Certified	Yes	NJ	WPP02.05000	NPW	Dissolved Oxygen Depletion	[SM 5210 B]	Biochemical oxygen demand
Certified	Yes	NJ	WPP02.06000	NPW	ICP	[EPA 200.7] [SM 3120 B]	Boron
Applied	No	NJ	WPP02.06600	NPW	Ion Chromatography	[EPA 300.0]	Bromate
Certified	Yes	NJ	WPP02.07100	NPW	Ion Chromatography	[EPA 300.0]	Bromide
Certified	Yes	NJ	WPP02.08000	NPW	Digestion, ICP	[EPA 200.7]	Calcium
Certified	Yes	NJ	WPP02.08050	NPW	ICP/MS	[EPA 200.8]	Calcium
Certified	Yes	NJ	WPP02.09500	NPW	Dissolved Oxygen Depletion, Nitrification Inhibition	[SM 5210 B]	Carbonaceous BOD (CBOD)
Certified	Yes	NJ	WPP02.10500	NPW	Spectrophotometric Manual/Auto	[SM 5220 D]	Chemical oxygen demand
Certified	Yes	NJ	WPP02.11500	NPW	Titrimetric, Mercuric Nitrate	[SM 4500-Cl C]	Chloride
Certified	Yes	NJ	WPP02.12600	NPW	Ion Chromatography	[EPA 300.0]	Chloride
Applied	No	NJ	WPP02.12700	NPW	Ion Chromatography	[EPA 300.0]	Chlorate
Applied	No	NJ	WPP02.12800	NPW	Ion Chromatography	[EPA 300.0]	Chlorite
Certified	Yes	NJ	WPP02.13500	NPW	Colorimetric (Platinum-Cobalt)	[SM 2120 B]	Color
Applied	No	NJ	WPP02.14500	NPW	Distillation, Titrimetric	[SM 4500-CN C, D]	Cyanide
Certified	Yes	NJ	WPP02.15000	NPW	Distillation, Spectrophotometric (Manual)	[SM 4500-CN C, E]	Cyanide
Applied	No	NJ	WPP02.16000	NPW	Manual Distillation, Titrimetr/Spectro	[SM 4500-CN C,G]	Cyanide - amenable to Cl2
Applied	No	NJ	WPP02.16100	NPW	Manual, Microdiffusion, Colorimetry	[ASTM D4282-02]	Free Cyanide
Applied	No	NJ	WPP02.16110	NPW	Flow Injection, Gas Diffusion, Amperometry	[ASTM D7237-06]	Free Cyanide
Applied	No	NJ	WPP02.17500	NPW	Distillation + Colorimetric(Spadns)	[SM 4500-F B, D]	Fluoride
Certified	Yes	NJ	WPP02.18100	NPW	Ion Chromatography	[EPA 300.0]	Fluoride
Certified	Yes	NJ	WPP02.20100	NPW	Ca + Mg Carbonates, ICP	[EPA 200.7]	Hardness - total as CaCO3

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New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: WPP02 – Inorg. Parameters, Nutrients and Demands

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP02.20500	NPW	Digestion, Distillation, Titration	[SM 4500-N Org B or C]	Kjeldahl nitrogen - total
Certified	Yes	NJ	WPP02.24000	NPW	Digestion, ICP	[EPA 200.7]	Magnesium
Applied	No	NJ	WPP02.24050	NPW	ICP/MS	[EPA 200.8]	Magnesium
Certified	Yes	NJ	WPP02.26100	NPW	Ion Chromatography	[EPA 300.0]	Nitrate
Applied	No	NJ	WPP02.27000	NPW	Cadmium Reduction, Automated	[EPA 353.2]	Nitrate - nitrite
Applied	No	NJ	WPP02.27010	NPW	Ion Chromatography	[EPA 300.0]	Nitrate - nitrite
Applied	No	NJ	WPP02.27500	NPW	Spectrophotometric Auto Hydrazine	[SM 4500-NO3 H]	Nitrate - nitrite
Certified	Yes	NJ	WPP02.28000	NPW	Spectrophotometric, Manual	[SM 4500-NO2 B]	Nitrite
Certified	Yes	NJ	WPP02.28600	NPW	Ion Chromatography	[EPA 300.0]	Nitrite
Certified	Yes	NJ	WPP02.29100	NPW	Gravimetric, Hexane Extractable Material-LL	[EPA 1664A]	Oil & grease - hem-LL
Certified	Yes	NJ	WPP02.29150	NPW	Gravimetric, Hexane Extractable Material-SPE	[EPA 1664A]	Oil & grease - hem-SPE
Certified	Yes	NJ	WPP02.29200	NPW	Gravimetric, Silica Gel Treated-Hem	[EPA 1664A]	Oil & grease - sgt-non polar
Certified	Yes	NJ	WPP02.29250	NPW	Gravimetric, Silica Gel Treated-Hem-SPE	[EPA 1664A]	Oil & grease - non polar
Certified	Yes	NJ	WPP02.30000	NPW	Combustion or Oxidation	[SM 5310 B, C or D]	Total organic carbon (TOC)
Certified	Yes	NJ	WPP02.30500	NPW	Total Kjeldahl-N Minus Ammonia-N	[EPA 351.1,.2,.3,.4 - 350.1 .2 .3] [SM 4500-NH3 B, C, E, F, G, H]	Organic nitrogen
Certified	Yes	NJ	WPP02.31500	NPW	Ascorbic Acid, Manual Single Reagent	[SM 4500-P, E]	Orthophosphate
Certified	Yes	NJ	WPP02.32100	NPW	Ion Chromatography	[EPA 300.0]	Orthophosphate
Certified	Yes	NJ	WPP02.32500	NPW	Manual Distillation, Colorimetric 4AAP	[EPA 420.1]	Phenols
Certified	Yes	NJ	WPP02.34000	NPW	Persulfate Digestion + Manual	[EPA 365.3]	Phosphorus (total)
Certified	Yes	NJ	WPP02.36500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Potassium
Applied	No	NJ	WPP02.36550	NPW	ICP/MS	[EPA 200.8]	Potassium
Certified	Yes	NJ	WPP02.38000	NPW	Gravimetric, 103-105 Degrees C	[SM 2540 B]	Residue - total
Certified	Yes	NJ	WPP02.38500	NPW	Gravimetric, 180 Degrees C	[SM 2540 C]	Residue - filterable (TDS)
Certified	Yes	NJ	WPP02.39000	NPW	Gravimetric, 103-105 Degrees C, Post Washing	[SM 2540 D]	Residue - nonfilterable (TSS)
Certified	Yes	NJ	WPP02.39500	NPW	Volumetric (Imhoff Cone) or Gravimetric	[SM 2540 F]	Residue - settleable
Certified	Yes	NJ	WPP02.40000	NPW	Gravimetric, 550 Degrees C	[EPA 160.4]	Residue - volatile
Certified	Yes	NJ	WPP02.40100	NPW	Gravimetric, 500 Degrees C	[SM 2540 G]	Total, fixed, and volatile solids (SQAR)
Applied	No	NJ	WPP02.41000	NPW	Hydrometric (Density Salinity Tables)	[SM 2520 C]	Salinity
Certified	Yes	NJ	WPP02.42500	NPW	0.45u Filtration + ICP	[EPA 200.7] [SM 3120 B]	Silica - dissolved
Certified	Yes	NJ	WPP02.44000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Sodium
Applied	No	NJ	WPP02.44050	NPW	ICP/MS	[EPA 200.8]	Sodium

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: WPP02 – Inorg. Parameters, Nutrients and Demands

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP02.45500	NPW	Wheatstone Bridge	[EPA 120.1] [SM 2510 B]	Specific conductance
Certified	Yes	NJ	WPP02.46500	NPW	Turbidimetric	[OTHER 426C SM 15th Ed.]	Sulfate
Certified	Yes	NJ	WPP02.47100	NPW	Ion Chromatography	[EPA 300.0]	Sulfate
Certified	Yes	NJ	WPP02.47500	NPW	Titrimetric, Iodine	[SM 4500-S E or F]	Sulfides
Applied	No	NJ	WPP02.48110	NPW	Flocculation, Methylene Blue, Calculation	[SM 4500-S2- C+D.3.b.2+F (18th Ed.)]	Un-dissociated Hydrogen sulfide
Certified	Yes	NJ	WPP02.48500	NPW	Colorimetric (Methylene Blue)	[SM 5540 C]	Surfactants
Certified	Yes	NJ	WPP02.50000	NPW	Nephelometric	[EPA 180.1] [SM 2130 B]	Turbidity
Applied	No	NJ	WPP02.51000	NPW	Electrode	[SM 2710 B]	Specific oxygen uptake

Category: WPP03 – Analyze-Immediately Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP03.05000	NPW	Spectrophotometric, DPD	[SM 4500-Cl G]	Chlorine
Certified	Yes	NJ	WPP03.07000	NPW	Winkler, Azide Modification	[SM 4500-O C]	Oxygen (dissolved)
Certified	Yes	NJ	WPP03.08000	NPW	Electrode	[SM 4500-O G]	Oxygen (dissolved)
Certified	Yes	NJ	WPP03.09000	NPW	Electrometric	[SM 4500-H B]	pH
Applied	No	NJ	WPP03.12000	NPW	Titrimetric, Iodine-Iodate	[SM 4500-SO3 B]	Sulfite - SO3
Certified	Yes	NJ	WPP03.14000	NPW	Thermometric	[SM 2550 B]	Temperature

Category: WPP04 – Inorganic Parameters, Metals

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP04.02000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Aluminum
Certified	Yes	NJ	WPP04.02100	NPW	ICP/MS	[EPA 200.8]	Aluminum
Certified	Yes	NJ	WPP04.04500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Antimony
Certified	Yes	NJ	WPP04.04600	NPW	ICP/MS	[EPA 200.8]	Antimony
Certified	Yes	NJ	WPP04.05600	NPW	Digestion, ICP	[EPA 200.7] [SM 3120B]	Arsenic
Certified	Yes	NJ	WPP04.05700	NPW	ICP/MS	[EPA 200.8]	Arsenic
Certified	Yes	NJ	WPP04.08000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Barium

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: WPP04 -- Inorganic Parameters, Metals

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP04.08200	NPW	ICP/MS	[EPA 200.8]	Barium
Certified	Yes	NJ	WPP04.11000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Beryllium
Certified	Yes	NJ	WPP04.11100	NPW	ICP/MS	[EPA 200.8]	Beryllium
Certified	Yes	NJ	WPP04.13500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Cadmium
Certified	Yes	NJ	WPP04.13600	NPW	ICP/MS	[EPA 200.8]	Cadmium
Certified	Yes	NJ	WPP04.15000	NPW	0.45u Filter, Colorimetric DPC	[SM 3500-Cr D]	Chromium (VI)
Certified	Yes	NJ	WPP04.18000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Chromium
Certified	Yes	NJ	WPP04.18100	NPW	ICP/MS	[EPA 200.8]	Chromium
Certified	Yes	NJ	WPP04.19500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120B]	Cobalt
Certified	Yes	NJ	WPP04.19600	NPW	ICP/MS	[EPA 200.8]	Cobalt
Certified	Yes	NJ	WPP04.21500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Copper
Certified	Yes	NJ	WPP04.21600	NPW	ICP/MS	[EPA 200.8]	Copper
Certified	Yes	NJ	WPP04.26500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Iron
Applied	No	NJ	WPP04.26550	NPW	ICP/MS	[EPA 200.8]	Iron
Certified	Yes	NJ	WPP04.28000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Lead
Certified	Yes	NJ	WPP04.28100	NPW	ICP/MS	[EPA 200.8]	Lead
Certified	Yes	NJ	WPP04.31000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Manganese
Certified	Yes	NJ	WPP04.31100	NPW	ICP/MS	[EPA 200.8]	Manganese
Certified	Yes	NJ	WPP04.33000	NPW	Manual Cold Vapor	[EPA 245.1] [SM 3112 B]	Mercury
Certified	Yes	NJ	WPP04.35000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Molybdenum
Certified	Yes	NJ	WPP04.35200	NPW	ICP/MS	[EPA 200.8]	Molybdenum
Certified	Yes	NJ	WPP04.37500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Nickel
Certified	Yes	NJ	WPP04.37600	NPW	ICP/MS	[EPA 200.8]	Nickel
Certified	Yes	NJ	WPP04.45500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Selenium
Certified	Yes	NJ	WPP04.45600	NPW	ICP/MS	[EPA 200.8]	Selenium
Certified	Yes	NJ	WPP04.48000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Silver
Certified	Yes	NJ	WPP04.48200	NPW	ICP/MS	[EPA 200.8]	Silver
Certified	Yes	NJ	WPP04.50000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Thallium
Certified	Yes	NJ	WPP04.50100	NPW	ICP/MS	[EPA 200.8]	Thallium
Certified	Yes	NJ	WPP04.51100	NPW	Digestion, ICP	[EPA 200.7]	Tin
Applied	No	NJ	WPP04.51200	NPW	ICP/MS	[EPA 200.8]	Tin
Applied	No	NJ	WPP04.52050	NPW	Digestion, ICP	[EPA 200.7]	Titanium

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: WPP04 – Inorganic Parameters, Metals

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP04.52300	NPW	ICP/MS	[EPA 200.8]	Thorium
Certified	Yes	NJ	WPP04.52500	NPW	ICP/MS	[EPA 200.8]	Uranium
Certified	Yes	NJ	WPP04.54000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Vanadium
Certified	Yes	NJ	WPP04.54100	NPW	ICP/MS	[EPA 200.8]	Vanadium
Certified	Yes	NJ	WPP04.56500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Zinc
Certified	Yes	NJ	WPP04.56600	NPW	ICP/MS	[EPA 200.8]	Zinc

Category: WPP05 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP05.01010	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Bromodichloromethane
Applied	No	NJ	WPP05.01020	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Bromoform
Applied	No	NJ	WPP05.01030	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Bromomethane
Applied	No	NJ	WPP05.01040	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Carbon tetrachloride
Applied	No	NJ	WPP05.01060	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Chloroethane
Applied	No	NJ	WPP05.01070	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Chloroethyl vinyl ether (2-)
Applied	No	NJ	WPP05.01080	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Chloroform
Applied	No	NJ	WPP05.01090	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Chloromethane
Applied	No	NJ	WPP05.01100	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dibromochloromethane
Applied	No	NJ	WPP05.01110	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichlorobenzene (1,2-)
Applied	No	NJ	WPP05.01120	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichlorobenzene (1,3-)
Applied	No	NJ	WPP05.01130	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichlorobenzene (1,4-)
Applied	No	NJ	WPP05.01140	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichlorodifluoromethane
Applied	No	NJ	WPP05.01150	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichloroethane (1,1-)
Applied	No	NJ	WPP05.01160	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichloroethane (1,2-)
Applied	No	NJ	WPP05.01170	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichloroethene (1,1-)
Applied	No	NJ	WPP05.01180	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichloroethene (trans-1,2-)
Applied	No	NJ	WPP05.01190	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichloropropane (1,2-)
Applied	No	NJ	WPP05.01200	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichloropropene (cis-1,3-)
Applied	No	NJ	WPP05.01210	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Dichloropropene (trans-1,3-)

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Laboratory Name: CHEMTECH   Laboratory Number: 20012   Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: WPP05 -- Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP05.01220	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Methylene chloride (Dichloromethane)
Applied	No	NJ	WPP05.01230	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	WPP05.01240	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Tetrachloroethene
Applied	No	NJ	WPP05.01250	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichloroethane (1,1,1-)
Applied	No	NJ	WPP05.01260	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichloroethane (1,1,2-)
Applied	No	NJ	WPP05.01270	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichloroethene
Applied	No	NJ	WPP05.01280	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichlorofluoromethane
Applied	No	NJ	WPP05.01290	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Vinyl chloride
Applied	No	NJ	WPP05.02010	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Benzene
Applied	No	NJ	WPP05.02030	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Dichlorobenzene (1,2-)
Applied	No	NJ	WPP05.02040	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Dichlorobenzene (1,3-)
Applied	No	NJ	WPP05.02050	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Dichlorobenzene (1,4-)
Applied	No	NJ	WPP05.02060	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Ethylbenzene
Applied	No	NJ	WPP05.02062	NPW	Purge & Trap, GC (PID)	[EPA 602]	Methyl tert-butyl ether
Applied	No	NJ	WPP05.02064	NPW	Purge & Trap, GC (PID)	[EPA 602]	Tert-butyl alcohol
Applied	No	NJ	WPP05.02070	NPW	Purge & Trap, GC (PID)	[EPA 602]	Toluene
Applied	No	NJ	WPP05.02080	NPW	Purge & Trap, GC (PID)	[EPA 602]	Xylenes (total)
Certified	Yes	NJ	WPP05.09010	NPW	Extract/GC (ECD)	[EPA 608]	Aldrin
Certified	Yes	NJ	WPP05.09020	NPW	Extract/GC (ECD)	[EPA 608]	Alpha BHC
Certified	Yes	NJ	WPP05.09030	NPW	Extract/GC (ECD)	[EPA 608]	Beta BHC
Certified	Yes	NJ	WPP05.09040	NPW	Extract/GC (ECD)	[EPA 608]	Delta BHC
Certified	Yes	NJ	WPP05.09050	NPW	Extract/GC (ECD)	[EPA 608]	Lindane (gamma BHC)
Certified	Yes	NJ	WPP05.09060	NPW	Extract/GC (ECD)	[EPA 608]	Chlordane
Applied	No	NJ	WPP05.09062	NPW	Extract/GC (ECD)	[EPA 608]	Chlordane (alpha)
Applied	No	NJ	WPP05.09063	NPW	Extract/GC (ECD)	[EPA 608]	Chlordane (gamma)
Certified	Yes	NJ	WPP05.09070	NPW	Extract/GC (ECD)	[EPA 608]	DDD (4,4'-)
Certified	Yes	NJ	WPP05.09080	NPW	Extract/GC (ECD)	[EPA 608]	DDE (4,4'-)
Certified	Yes	NJ	WPP05.09090	NPW	Extract/GC (ECD)	[EPA 608]	DDT (4,4'-)
Certified	Yes	NJ	WPP05.09100	NPW	Extract/GC (ECD)	[EPA 608]	Dieldrin
Certified	Yes	NJ	WPP05.09110	NPW	Extract/GC (ECD)	[EPA 608]	Endosulfan I
Certified	Yes	NJ	WPP05.09120	NPW	Extract/GC (ECD)	[EPA 608]	Endosulfan II
Certified	Yes	NJ	WPP05.09130	NPW	Extract/GC (ECD)	[EPA 608]	Endosulfan sulfate

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: WPP05 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP05.09140	NPW	Extract/GC (ECD)	[EPA 608]	Endrin
Certified	Yes	NJ	WPP05.09150	NPW	Extract/GC (ECD)	[EPA 608]	Endrin aldehyde
Certified	Yes	NJ	WPP05.09160	NPW	Extract/GC (ECD)	[EPA 608]	Endrin ketone
Certified	Yes	NJ	WPP05.09170	NPW	Extract/GC (ECD)	[EPA 608]	Heptachlor
Certified	Yes	NJ	WPP05.09180	NPW	Extract/GC (ECD)	[EPA 608]	Heptachlor epoxide
Certified	Yes	NJ	WPP05.09190	NPW	Extract/GC (ECD)	[EPA 608]	Methoxychlor
Certified	Yes	NJ	WPP05.09200	NPW	Extract/GC (ECD)	[EPA 608]	Toxaphene
Certified	Yes	NJ	WPP05.11010	NPW	Extract/GC (ECD)	[EPA 608]	PCB 1016
Certified	Yes	NJ	WPP05.11020	NPW	Extract/GC (ECD)	[EPA 608]	PCB 1221
Certified	Yes	NJ	WPP05.11030	NPW	Extract/GC (ECD)	[EPA 608]	PCB 1232
Certified	Yes	NJ	WPP05.11040	NPW	Extract/GC (ECD)	[EPA 608]	PCB 1242
Certified	Yes	NJ	WPP05.11050	NPW	Extract/GC (ECD)	[EPA 608]	PCB 1248
Certified	Yes	NJ	WPP05.11060	NPW	Extract/GC (ECD)	[EPA 608]	PCB 1254
Certified	Yes	NJ	WPP05.11070	NPW	Extract/GC (ECD)	[EPA 608]	PCB 1260

Category: WPP06 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP06.02003	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Acetone
Applied	No	NJ	WPP06.02007	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Acrolein
Applied	No	NJ	WPP06.02009	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Acrylonitrile
Certified	Yes	NJ	WPP06.02010	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Benzene
Applied	No	NJ	WPP06.02015	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Bromobenzene
Applied	No	NJ	WPP06.02017	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Bromochloromethane
Certified	Yes	NJ	WPP06.02020	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Bromodichloromethane
Applied	No	NJ	WPP06.02025	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Bromoethane
Certified	Yes	NJ	WPP06.02030	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Bromoform
Certified	Yes	NJ	WPP06.02040	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Bromomethane
Applied	No	NJ	WPP06.02041	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Butanone (2-)
Applied	No	NJ	WPP06.02044	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Butyl benzene (n-)

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ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: WPP06 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP06.02045	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Carbon disulfide
Certified	Yes	NJ	WPP06.02050	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Carbon tetrachloride
Certified	Yes	NJ	WPP06.02060	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Chlorobenzene
Certified	Yes	NJ	WPP06.02070	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloroethane
Certified	Yes	NJ	WPP06.02080	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloroethyl vinyl ether (2-)
Certified	Yes	NJ	WPP06.02090	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloroform
Certified	Yes	NJ	WPP06.02100	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloromethane
Applied	No	NJ	WPP06.02103	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Chlorotoluene (2-)
Applied	No	NJ	WPP06.02105	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Chlorotoluene (4-)
Applied	No	NJ	WPP06.02106	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Cyclohexanone
Applied	No	NJ	WPP06.02107	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	WPP06.02110	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dibromochloromethane
Applied	No	NJ	WPP06.02115	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	WPP06.02116	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dibromomethane
Certified	Yes	NJ	WPP06.02120	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	WPP06.02130	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	WPP06.02140	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichlorobenzene (1,4-)
Applied	No	NJ	WPP06.02145	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichlorodifluoromethane
Certified	Yes	NJ	WPP06.02150	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethane (1,1-)
Certified	Yes	NJ	WPP06.02160	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethane (1,2-)
Certified	Yes	NJ	WPP06.02170	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethene (1,1-)
Applied	No	NJ	WPP06.02175	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloroethene (cis-1,2-)
Certified	Yes	NJ	WPP06.02180	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethene (trans-1,2-)
Certified	Yes	NJ	WPP06.02190	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloropropane (1,2-)
Applied	No	NJ	WPP06.02192	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloropropane (1,3-)
Applied	No	NJ	WPP06.02194	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloropropane (2,2-)
Applied	No	NJ	WPP06.02195	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloropropene (1,1-)
Certified	Yes	NJ	WPP06.02200	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloropropene (cis-1,3-)
Certified	Yes	NJ	WPP06.02210	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloropropene (trans-1,3-)
Applied	No	NJ	WPP06.02212	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Ethyl acetate
Certified	Yes	NJ	WPP06.02220	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Ethylbenzene
Certified	Yes	NJ	WPP06.02230	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Methylene chloride (Dichloromethane)

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Certified	Yes	NJ	WPP06.02232	NPW	GC/MS, P & T, Capillary Column	[EPA 624],	Methyl tert-butyl ether
Applied	No	NJ	WPP06.02233	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Methyl isobutyl ketone
Certified	Yes	NJ	WPP06.02234	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Tert-butyl alcohol
Certified	Yes	NJ	WPP06.02238	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Styrene
Certified	Yes	NJ	WPP06.02240	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	WPP06.02245	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Tetrachloroethane (1,1,1,2-)
Certified	Yes	NJ	WPP06.02250	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Tetrachloroethene
Certified	Yes	NJ	WPP06.02260	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Toluene
Certified	Yes	NJ	WPP06.02270	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Trichloroethane (1,1,1-)
Certified	Yes	NJ	WPP06.02280	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Trichloroethane (1,1,2-)
Certified	Yes	NJ	WPP06.02290	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Trichloroethene
Certified	Yes	NJ	WPP06.02300	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Trichlorofluoromethane
Applied	No	NJ	WPP06.02305	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trichloro (1,1,2-) trifluoroethane (1,2,2-)
Applied	No	NJ	WPP06.02307	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Vinyl acetate
Certified	Yes	NJ	WPP06.02310	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Vinyl chloride
Certified	Yes	NJ	WPP06.02312	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Xylenes (total)
Applied	No	NJ	WPP06.02315	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Xylene (o-)
Applied	No	NJ	WPP06.02317	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Xylene (m- + p-)
Applied	No	NJ	WPP06.02322	NPW	GC/MS, P&T, Capillary Column	[EPA 624]	Cyclohexane
Applied	No	NJ	WPP06.02325	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Hexanone (2-)
Applied	No	NJ	WPP06.02326	NPW	GC/MS, P&T, Capillary Column	[EPA 624]	Methyl acetate
Applied	No	NJ	WPP06.02328	NPW	GC/MS, P&T, Capillary Column	[EPA 624]	Methylcyclohexane
Applied	No	NJ	WPP06.02410	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dioxane (1,4-)
Applied	No	NJ	WPP06.02440	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Hexachlorobutadiene (1,3-)
Applied	No	NJ	WPP06.02460	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Isopropylbenzene
Applied	No	NJ	WPP06.02470	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Isopropyltoluene (4-)
Applied	No	NJ	WPP06.02510	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Naphthalene
Applied	No	NJ	WPP06.02540	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Propylbenzene (n-)
Applied	No	NJ	WPP06.02550	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Sec-butylbenzene
Applied	No	NJ	WPP06.02610	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trichlorobenzene (1,2,3-)
Applied	No	NJ	WPP06.02620	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trichlorobenzene (1,2,4-)
Applied	No	NJ	WPP06.02630	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trichloropropane (1,2,3-)

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Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP06.02650	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trimethylbenzene (1,2,4-)
Applied	No	NJ	WPP06.02660	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trimethylbenzene (1,3,5-)
Certified	Yes	NJ	WPP06.03010	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Acenaphthene
Certified	Yes	NJ	WPP06.03020	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Acenaphthylene
Certified	Yes	NJ	WPP06.03030	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Anthracene
Certified	Yes	NJ	WPP06.03040	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(a)anthracene
Certified	Yes	NJ	WPP06.03050	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(b)fluoranthene
Certified	Yes	NJ	WPP06.03060	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(k)fluoranthene
Certified	Yes	NJ	WPP06.03070	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(a)pyrene
Certified	Yes	NJ	WPP06.03080	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(ghi)perylene
Certified	Yes	NJ	WPP06.03090	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Butyl benzyl phthalate
Certified	Yes	NJ	WPP06.03100	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-chloroethyl) ether
Certified	Yes	NJ	WPP06.03110	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-chloroethoxy) methane
Certified	Yes	NJ	WPP06.03120	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-ethylhexyl) phthalate
Certified	Yes	NJ	WPP06.03130	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-chloroisopropyl) ether
Certified	Yes	NJ	WPP06.03140	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bromophenyl-phenyl ether (4-)
Certified	Yes	NJ	WPP06.03150	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Chloronaphthalene (2-)
Certified	Yes	NJ	WPP06.03160	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Chlorophenyl-phenyl ether (4-)
Certified	Yes	NJ	WPP06.03170	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Chrysene
Certified	Yes	NJ	WPP06.03180	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dibenzo(a,h)anthracene
Applied	No	NJ	WPP06.03186	NPW	Extract, GC/MS	[EPA 625]	Dibenzofuran
Certified	Yes	NJ	WPP06.03190	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Di-n-butyl phthalate
Certified	Yes	NJ	WPP06.03230	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dichlorobenzidine (3,3'-)
Certified	Yes	NJ	WPP06.03240	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Diethyl phthalate
Certified	Yes	NJ	WPP06.03250	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dimethyl phthalate
Certified	Yes	NJ	WPP06.03260	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dinitrotoluene (2,4-)
Certified	Yes	NJ	WPP06.03270	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dinitrotoluene (2,6-)
Certified	Yes	NJ	WPP06.03280	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Di-n-octyl phthalate
Certified	Yes	NJ	WPP06.03290	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Fluoranthene
Certified	Yes	NJ	WPP06.03300	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Fluorene
Certified	Yes	NJ	WPP06.03310	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexachlorobenzene
Certified	Yes	NJ	WPP06.03320	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexachlorobutadiene (1,3-)

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Certified	Yes	NJ	WPP06.03330	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexachloroethane
Certified	Yes	NJ	WPP06.03340	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Indeno(1,2,3-cd)pyrene
Certified	Yes	NJ	WPP06.03350	NPW	Extract, GC/MS	[EPA 625] [SM 6410B]	Isophorone
Certified	Yes	NJ	WPP06.03358	NPW	Extract, GC/MS	[EPA 625]	Methylnaphthalene (2-)
Certified	Yes	NJ	WPP06.03360	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Naphthalene
Certified	Yes	NJ	WPP06.03366	NPW	Extract, GC/MS	[EPA 625]	Chloroaniline (4-)
Certified	Yes	NJ	WPP06.03367	NPW	Extract, GC/MS	[EPA 625]	Nitroaniline (2-)
Certified	Yes	NJ	WPP06.03368	NPW	Extract, GC/MS	[EPA 625]	Nitroaniline (3-)
Certified	Yes	NJ	WPP06.03369	NPW	Extract, GC/MS	[EPA 625]	Nitroaniline (4-)
Certified	Yes	NJ	WPP06.03370	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Nitrobenzene
Certified	Yes	NJ	WPP06.03380	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	N-Nitroso-di-n-propylamine
Certified	Yes	NJ	WPP06.03390	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Phenanthrene
Certified	Yes	NJ	WPP06.03400	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Pyrene
Applied	No	NJ	WPP06.03405	NPW	Extract, GC/MS	[EPA 625]	Tetrachlorobenzene (1,2,4,5-)
Certified	Yes	NJ	WPP06.03410	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Trichlorobenzene (1,2,4-)
Certified	Yes	NJ	WPP06.03420	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Methyl phenol (4-chloro-3-)
Certified	Yes	NJ	WPP06.03430	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Chlorophenol (2-)
Certified	Yes	NJ	WPP06.03440	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dichlorophenol (2,4-)
Certified	Yes	NJ	WPP06.03450	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dimethylphenol (2,4-)
Certified	Yes	NJ	WPP06.03460	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dinitrophenol (2,4-)
Certified	Yes	NJ	WPP06.03470	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dinitrophenol (2-methyl-4,6-)
Certified	Yes	NJ	WPP06.03480	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Nitrophenol (2-)
Certified	Yes	NJ	WPP06.03490	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Nitrophenol (4-)
Certified	Yes	NJ	WPP06.03500	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Pentachlorophenol
Certified	Yes	NJ	WPP06.03510	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Phenol
Applied	No	NJ	WPP06.03512	NPW	Extract, GC/MS	[EPA 625]	Tetrachlorophenol (2,3,4,6-)
Certified	Yes	NJ	WPP06.03518	NPW	Extract, GC/MS	[EPA 625]	Trichlorophenol (2,4,5-)
Certified	Yes	NJ	WPP06.03520	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Trichlorophenol (2,4,6-)
Certified	Yes	NJ	WPP06.03530	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzoic acid
Certified	Yes	NJ	WPP06.03540	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Methylphenol (4-)
Certified	Yes	NJ	WPP06.03550	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Acetophenone
Certified	Yes	NJ	WPP06.03560	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Alpha - terpineol

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Certified	Yes	NJ	WPP06.03570	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Aniline
Certified	Yes	NJ	WPP06.03580	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzidine
Certified	Yes	NJ	WPP06.03590	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Carbazole
Certified	Yes	NJ	WPP06.03600	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dichloroaniline (2,3-)
Applied	No	NJ	WPP06.03605	NPW	Extract, GC/MS	[EPA 625]	Diphenylhydrazine (1,2-)
Certified	Yes	NJ	WPP06.03610	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Methylphenol (2-)
Applied	No	NJ	WPP06.03612	NPW	Extract, GC/MS	[EPA 625]	Methylphenol (3-)
Certified	Yes	NJ	WPP06.03620	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Decane (n-)
Certified	Yes	NJ	WPP06.03630	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Docosane (n-)
Certified	Yes	NJ	WPP06.03640	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dodecane (n-)
Certified	Yes	NJ	WPP06.03650	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Eicosane (n-)
Certified	Yes	NJ	WPP06.03660	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexachlorocyclopentadiene
Certified	Yes	NJ	WPP06.03670	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexadecane (n-)
Certified	Yes	NJ	WPP06.03680	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	N-Nitrosodimethylamine
Certified	Yes	NJ	WPP06.03690	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	N-Nitrosodiphenylamine
Certified	Yes	NJ	WPP06.03700	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Octadecane (n-)
Certified	Yes	NJ	WPP06.03710	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Tetradecane (n-)
Certified	Yes	NJ	WPP06.03720	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Pyridine
Certified	Yes	NJ	WPP06.03730	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Methylphenanthrene (1-)

Category: CLP01 – Multi-Media, Multi-Conc. Inorganics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP01.03003	NPW, SCM	ICP	[EPA ILM05.4]	Aluminum
Applied	No	NJ	CLP01.03004	NPW, SCM	ICP	[EPA ISM01.2]	Aluminum
Certified	Yes	NJ	CLP01.06003	NPW, SCM	ICP	[EPA ILM05.4]	Antimony
Applied	No	NJ	CLP01.06004	NPW, SCM	ICP	[EPA ISM01.2]	Antimony
Applied	No	NJ	CLP01.06103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Antimony
Certified	Yes	NJ	CLP01.08003	NPW, SCM	ICP	[EPA ILM05.4]	Arsenic
Applied	No	NJ	CLP01.08004	NPW, SCM	ICP	[EPA ISM01.2]	Arsenic

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New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program
ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP01 – Multi-Media, Multi-Conc. Inorganics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CLP01.08103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Arsenic
Certified	Yes	NJ	CLP01.11003	NPW, SCM	ICP	[EPA ILM05.4]	Barium
Applied	No	NJ	CLP01.11004	NPW, SCM	ICP	[EPA ISM01.2]	Barium
Applied	No	NJ	CLP01.11103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Barium
Certified	Yes	NJ	CLP01.14003	NPW, SCM	ICP	[EPA ILM05.4]	Beryllium
Applied	No	NJ	CLP01.14004	NPW, SCM	ICP	[EPA ISM01.2]	Beryllium
Applied	No	NJ	CLP01.14103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Beryllium
Certified	Yes	NJ	CLP01.19003	NPW, SCM	ICP	[EPA ILM05.4]	Cadmium
Applied	No	NJ	CLP01.19004	NPW, SCM	ICP	[EPA ISM01.2]	Cadmium
Applied	No	NJ	CLP01.19103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Cadmium
Certified	Yes	NJ	CLP01.21003	NPW, SCM	ICP	[EPA ILM05.4]	Calcium
Applied	No	NJ	CLP01.21004	NPW, SCM	ICP	[EPA ISM01.2]	Calcium
Certified	Yes	NJ	CLP01.24003	NPW, SCM	ICP	[EPA ILM05.4]	Chromium
Applied	No	NJ	CLP01.24004	NPW, SCM	ICP	[EPA ISM01.2]	Chromium
Applied	No	NJ	CLP01.24103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Chromium
Certified	Yes	NJ	CLP01.27003	NPW, SCM	ICP	[EPA ILM05.4]	Cobalt
Applied	No	NJ	CLP01.27004	NPW, SCM	ICP	[EPA ISM01.2]	Cobalt
Applied	No	NJ	CLP01.27103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Cobalt
Certified	Yes	NJ	CLP01.30003	NPW, SCM	ICP	[EPA ILM05.4]	Copper
Applied	No	NJ	CLP01.30004	NPW, SCM	ICP	[EPA ISM01.2]	Copper
Applied	No	NJ	CLP01.30103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Copper
Certified	Yes	NJ	CLP01.33003	NPW, SCM	ICP	[EPA ILM05.4]	Iron
Applied	No	NJ	CLP01.33004	NPW, SCM	ICP	[EPA ISM01.2]	Iron
Certified	Yes	NJ	CLP01.36003	NPW, SCM	ICP	[EPA ILM05.4]	Lead
Applied	No	NJ	CLP01.36004	NPW, SCM	ICP	[EPA ISM01.2]	Lead
Applied	No	NJ	CLP01.36103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Lead
Certified	Yes	NJ	CLP01.38003	NPW, SCM	ICP	[EPA ILM05.4]	Magnesium
Applied	No	NJ	CLP01.38004	NPW, SCM	ICP	[EPA ISM01.2]	Magnesium
Certified	Yes	NJ	CLP01.41003	NPW, SCM	ICP	[EPA ILM05.4]	Manganese
Applied	No	NJ	CLP01.41004	NPW, SCM	ICP	[EPA ISM01.2]	Manganese
Applied	No	NJ	CLP01.41103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Manganese
Certified	Yes	NJ	CLP01.42102	NPW, SCM	CVAA, Manual	[EPA ILM05.4]	Mercury

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP01 – Multi-Media, Multi-Conc. Inorganics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CLP01.42103	NPW, SCM	CVAA, Manual	[EPA ISM01.2]	Mercury
Applied	No	NJ	CLP01.43103	NPW, SCM	CVAA, Automated	[EPA ISM01.2]	Mercury
Certified	Yes	NJ	CLP01.47003	NPW, SCM	ICP	[EPA ILM05.4]	Nickel
Applied	No	NJ	CLP01.47004	NPW, SCM	ICP	[EPA ISM01.2]	Nickel
Applied	No	NJ	CLP01.47103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Nickel
Certified	Yes	NJ	CLP01.49003	NPW, SCM	ICP	[EPA ILM05.4]	Potassium
Applied	No	NJ	CLP01.49004	NPW, SCM	ICP	[EPA ISM01.2]	Potassium
Certified	Yes	NJ	CLP01.51003	NPW, SCM	ICP	[EPA ILM05.4]	Selenium
Applied	No	NJ	CLP01.51004	NPW, SCM	ICP	[EPA ISM01.2]	Selenium
Applied	No	NJ	CLP01.51103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Selenium
Certified	Yes	NJ	CLP01.54003	NPW, SCM	ICP	[EPA ILM05.4]	Silver
Applied	No	NJ	CLP01.54004	NPW, SCM	ICP	[EPA ISM01.2]	Silver
Applied	No	NJ	CLP01.54103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Silver
Certified	Yes	NJ	CLP01.56003	NPW, SCM	ICP	[EPA ILM05.4]	Sodium
Applied	No	NJ	CLP01.56004	NPW, SCM	ICP	[EPA ISM01.2]	Sodium
Certified	Yes	NJ	CLP01.59003	NPW, SCM	ICP	[EPA ILM05.4]	Thallium
Applied	No	NJ	CLP01.59004	NPW, SCM	ICP	[EPA ISM01.2]	Thallium
Applied	No	NJ	CLP01.59103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Thallium
Certified	Yes	NJ	CLP01.63003	NPW, SCM	ICP	[EPA ILM05.4]	Vanadium
Applied	No	NJ	CLP01.63004	NPW, SCM	ICP	[EPA ISM01.2]	Vanadium
Applied	No	NJ	CLP01.63103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Vanadium
Certified	Yes	NJ	CLP01.66003	NPW, SCM	ICP	[EPA ILM05.4]	Zinc
Applied	No	NJ	CLP01.66004	NPW, SCM	ICP	[EPA ISM01.2]	Zinc
Applied	No	NJ	CLP01.66103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Zinc
Applied	No	NJ	CLP01.67103	NPW, SCM	Micro Distillation, Spectrophotometric	[EPA ISM01.2]	Cyanide, Total in Water and Soil / Sediments
Certified	Yes	NJ	CLP01.69102	NPW, SCM	Midi Distillation, Spectrophotometric	[EPA ILM05.4]	Cyanide, Total in Water and Soil / Sediments
Applied	No	NJ	CLP01.69103	NPW, SCM	Midi Distillation, Spectrophotometric	[EPA ISM01.2]	Cyanide, Total in Water and Soil / Sediments

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National Environmental Laboratory Accreditation Program
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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP02 – Multi-Media, Multi-Conc. Organics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP02.01013	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Aldrin
Certified	Yes	NJ	CLP02.01023	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Alpha BHC
Certified	Yes	NJ	CLP02.01033	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Beta BHC
Certified	Yes	NJ	CLP02.01043	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Delta BHC
Certified	Yes	NJ	CLP02.01053	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Lindane (gamma BHC)
Certified	Yes	NJ	CLP02.01063	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Chlordane (alpha)
Certified	Yes	NJ	CLP02.01073	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Chlordane (gamma)
Certified	Yes	NJ	CLP02.01083	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	DDD (4,4'-)
Certified	Yes	NJ	CLP02.01093	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	DDE (4,4'-)
Certified	Yes	NJ	CLP02.01103	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	DDT (4,4'-)
Certified	Yes	NJ	CLP02.01113	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Dieldrin
Certified	Yes	NJ	CLP02.01123	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Endosulfan I
Certified	Yes	NJ	CLP02.01133	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Endosulfan II
Certified	Yes	NJ	CLP02.01143	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Endosulfan sulfate
Certified	Yes	NJ	CLP02.01153	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Endrin
Certified	Yes	NJ	CLP02.01163	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Endrin aldehyde
Certified	Yes	NJ	CLP02.01173	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Endrin ketone
Certified	Yes	NJ	CLP02.01183	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Heptachlor
Certified	Yes	NJ	CLP02.01193	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Heptachlor epoxide
Certified	Yes	NJ	CLP02.01203	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Methoxychlor
Certified	Yes	NJ	CLP02.01213	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	Toxaphene
Certified	Yes	NJ	CLP02.01233	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB 1016
Certified	Yes	NJ	CLP02.01243	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB 1221
Certified	Yes	NJ	CLP02.01253	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB 1232
Certified	Yes	NJ	CLP02.01263	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB 1242
Certified	Yes	NJ	CLP02.01273	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB 1248
Certified	Yes	NJ	CLP02.01283	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB 1254
Certified	Yes	NJ	CLP02.01293	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB 1260
Applied	No	NJ	CLP02.01303	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB-1262
Applied	No	NJ	CLP02.01313	NPW, SCM	Extraction/GC (ECD)	[EPA SOM01.2 (4/2007)]	PCB-1268
Certified	Yes	NJ	CLP02.03023	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Benzene
Certified	Yes	NJ	CLP02.03027	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Bromochloromethane

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Laboratory Name: CHEMTECH   Laboratory Number: 20012   Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP02 – Multi-Media, Multi-Conc. Organics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP02.03033	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chlorobenzene
Certified	Yes	NJ	CLP02.03043	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	CLP02.03053	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	CLP02.03063	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorobenzene (1,4-)
Certified	Yes	NJ	CLP02.03067	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dioxane (1,4-)
Certified	Yes	NJ	CLP02.03073	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Ethylbenzene
Certified	Yes	NJ	CLP02.03083	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Isopropylbenzene
Certified	Yes	NJ	CLP02.03089	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichlorobenzene (1,2,3-)
Certified	Yes	NJ	CLP02.03093	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichlorobenzene (1,2,4-)
Certified	Yes	NJ	CLP02.03103	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Styrene
Certified	Yes	NJ	CLP02.03113	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Toluene
Certified	Yes	NJ	CLP02.03117	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Xylene (m- + p-)
Certified	Yes	NJ	CLP02.03119	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Xylene (o-)
Certified	Yes	NJ	CLP02.03143	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Bromodichloromethane
Certified	Yes	NJ	CLP02.03153	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Bromoform
Certified	Yes	NJ	CLP02.03163	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Bromomethane
Certified	Yes	NJ	CLP02.03173	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Carbon tetrachloride
Certified	Yes	NJ	CLP02.03183	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chloroethane
Certified	Yes	NJ	CLP02.03193	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chloroform
Certified	Yes	NJ	CLP02.03203	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chloromethane
Certified	Yes	NJ	CLP02.03213	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloropropene (trans-1,3-)
Certified	Yes	NJ	CLP02.03223	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dibromoethane (1,2-) (EDB)
Certified	Yes	NJ	CLP02.03233	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dibromochloromethane
Certified	Yes	NJ	CLP02.03243	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	CLP02.03253	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorodifluoromethane
Certified	Yes	NJ	CLP02.03263	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethane (1,1-)
Certified	Yes	NJ	CLP02.03273	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethane (1,2-)
Certified	Yes	NJ	CLP02.03283	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethene (1,1-)
Certified	Yes	NJ	CLP02.03293	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethene (trans-1,2-)
Certified	Yes	NJ	CLP02.03303	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethene (cis-1,2-)
Certified	Yes	NJ	CLP02.03313	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloropropane (1,2-)
Certified	Yes	NJ	CLP02.03323	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloropropene (cis-1,3-)

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP02 – Multi-Media, Multi-Conc. Organics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP02.03333	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Methylene chloride (Dichloromethane)
Certified	Yes	NJ	CLP02.03343	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Tetrachloroethane (1,1,2,2-)
Certified	Yes.	NJ	CLP02.03353	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Tetrachloroethene
Certified	Yes	NJ	CLP02.03363	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichloroethane (1,1,1-)
Certified	Yes	NJ	CLP02.03373	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichloroethane (1,1,2-)
Certified	Yes	NJ	CLP02.03383	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichloroethene
Certified	Yes	NJ	CLP02.03393	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichlorofluoromethane
Certified	Yes	NJ	CLP02.03403	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichloro (1,1,2-) trifluoroethane (1,2,2-)
Certified	Yes	NJ	CLP02.03413	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Vinyl chloride
Certified	Yes	NJ	CLP02.03433	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Acetone
Certified	Yes	NJ	CLP02.03443	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Carbon disulfide
Certified	Yes	NJ	CLP02.03453	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Cyclohexane
Certified	Yes	NJ	CLP02.03463	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Butanone (2-)
Certified	Yes	NJ	CLP02.03473	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Hexanone (2-)
Certified	Yes	NJ	CLP02.03483	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Methyl acetate
Certified	Yes	NJ	CLP02.03493	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Methylcyclohexane
Certified	Yes	NJ	CLP02.03503	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Pentanone (4-methyl-2-)
Certified	Yes	NJ	CLP02.03513	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Tert-butyl methyl ether
Certified	Yes	NJ	CLP02.04023	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Atrazine
Certified	Yes	NJ	CLP02.04033	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	N-Nitrosodiphenylamine
Certified	Yes	NJ	CLP02.04043	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	N-Nitroso-di-n-propylamine
Certified	Yes	NJ	CLP02.04053	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Carbazole
Certified	Yes	NJ	CLP02.04063	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorobenzidine (3,3'-)
Certified	Yes	NJ	CLP02.04073	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Chloroaniline (4-)
Certified	Yes	NJ	CLP02.04083	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitroaniline (2-)
Certified	Yes	NJ	CLP02.04093	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitroaniline (3-)
Certified	Yes	NJ	CLP02.04103	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitroaniline (4-)
Certified	Yes	NJ	CLP02.04123	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Chloronaphthalene (2-)
Certified	Yes	NJ	CLP02.04133	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Hexachlorobenzene
Certified	Yes	NJ	CLP02.04143	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	CLP02.04153	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Hexachlorocyclopentadiene
Certified	Yes	NJ	CLP02.04163	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Hexachloroethane

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP02 -- Multi-Media, Multi-Conc. Organics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP02.04183	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-chloroethoxy) methane
Certified	Yes	NJ	CLP02.04193	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-chloroisopropyl) ether
Certified	Yes	NJ	CLP02.04203	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-chloroethyl) ether
Certified	Yes	NJ	CLP02.04213	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Chlorophenyl-phenyl ether (4-)
Certified	Yes	NJ	CLP02.04223	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bromophenyl-phenyl ether (4-)
Certified	Yes	NJ	CLP02.04233	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitroaromatics and isophorone
Certified	Yes	NJ	CLP02.04243	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dinitrotoluene (2,4-)
Certified	Yes	NJ	CLP02.04253	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dinitrotoluene (2,6-)
Certified	Yes	NJ	CLP02.04263	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Isophorone
Certified	Yes	NJ	CLP02.04273	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitrobenzene
Certified	Yes	NJ	CLP02.04293	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Butyl benzyl phthalate
Certified	Yes	NJ	CLP02.04303	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-ethylhexyl) phthalate
Certified	Yes	NJ	CLP02.04313	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Diethyl phthalate
Certified	Yes	NJ	CLP02.04323	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dimethyl phthalate
Certified	Yes	NJ	CLP02.04333	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Di-n-butyl phthalate
Certified	Yes	NJ	CLP02.04343	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Di-n-octyl phthalate
Certified	Yes	NJ	CLP02.04363	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Acenaphthene
Certified	Yes	NJ	CLP02.04373	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Anthracene
Certified	Yes	NJ	CLP02.04383	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Acenaphthylene
Certified	Yes	NJ	CLP02.04393	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(a)anthracene
Certified	Yes	NJ	CLP02.04403	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(a)pyrene
Certified	Yes	NJ	CLP02.04413	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(b)fluoranthene
Certified	Yes	NJ	CLP02.04423	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(ghi)perylene
Certified	Yes	NJ	CLP02.04433	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(k)fluoranthene
Certified	Yes	NJ	CLP02.04443	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Chrysene
Certified	Yes	NJ	CLP02.04453	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dibenzo(a,h)anthracene
Certified	Yes	NJ	CLP02.04463	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Fluoranthene
Certified	Yes	NJ	CLP02.04473	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Fluorene
Certified	Yes	NJ	CLP02.04483	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Indeno(1,2,3-cd)pyrene
Certified	Yes	NJ	CLP02.04493	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Methylnaphthalene (2-)
Certified	Yes	NJ	CLP02.04503	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Naphthalene
Certified	Yes	NJ	CLP02.04513	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Phenanthrene

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: CLP02 – Multi-Media, Multi-Conc. Organics

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Certified	Yes	NJ	CLP02.04523	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Pyrene
Certified	Yes	NJ	CLP02.04543	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Methyl phenol (4-chloro-3-)
Certified	Yes	NJ	CLP02.04553	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Chlorophenol (2-)
Certified	Yes	NJ	CLP02.04563	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorophenol (2,4-)
Certified	Yes	NJ	CLP02.04573	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dimethylphenol (2,4-)
Certified	Yes	NJ	CLP02.04583	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dinitrophenol (2,4-)
Certified	Yes	NJ	CLP02.04593	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dinitrophenol (2-methyl-4,6-)
Certified	Yes	NJ	CLP02.04603	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Methylphenol (2-)
Certified	Yes	NJ	CLP02.04613	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Methylphenol (4-)
Certified	Yes	NJ	CLP02.04623	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitrophenol (2-)
Certified	Yes	NJ	CLP02.04633	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitrophenol (4-)
Certified	Yes	NJ	CLP02.04643	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Pentachlorophenol
Certified	Yes	NJ	CLP02.04653	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Phenol
Certified	Yes	NJ	CLP02.04663	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Trichlorophenol (2,4,5-)
Certified	Yes	NJ	CLP02.04673	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Trichlorophenol (2,4,6-)
Certified	Yes	NJ	CLP02.04693	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Acetophenone
Certified	Yes	NJ	CLP02.04703	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzaldehyde
Certified	Yes	NJ	CLP02.04713	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Biphenyl (1,1'-)
Certified	Yes	NJ	CLP02.04723	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Caprolactam
Certified	Yes	NJ	CLP02.04733	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dibenzofuran
Certified	Yes	NJ	CLP02.04743	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Tetrachlorobenzene (1,2,4,5-)
Certified	Yes	NJ	CLP02.04753	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Tetrachlorophenol (2,3,4,6-)

Category: SHW02 – Characteristics of Hazardous Waste

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW02.01000	NPW, SCM	Pensky Martens	[SW-846 1010, Rev. 0, 9/86]	Ignitability
Certified	Yes	NJ	SHW02.03000	NPW, SCM	Aqueous Waste, Potentiometric	[SW-846 9040B, Rev. 2, 1/95]	Corrosivity - pH waste, >20% water
Certified	Yes	NJ	SHW02.04000	NPW, SCM	Weight Loss In Acid Media	[SW-846 1110, Rev. 0, 9/86]	Corrosivity toward steel
Certified	Yes	NJ	SHW02.06900	NPW, SCM	TCLP, Toxicity Procedure, ZHE	[SW-846 1311, Rev. 0, 7/92]	Volatile organics

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW02 – Characteristics of Hazardous Waste

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW02.06950	NPW, SCM	TCLP, Toxicity Procedure, Shaker	[SW-846 1311]	Semivolatile organics
Certified	Yes	NJ	SHW02.07000	NPW, SCM	TCLP, Toxicity Procedure, Shaker	[SW-846 1311, Rev. 0, 7/92]	Metals
Certified	Yes	NJ	SHW02.08000	NPW, SCM	Synthetic PPT Leachate Procedure	[SW-846 1312]	Metals - organics
Applied	No	NJ	SHW02.09000	NPW, SCM	Multiple Extractions	[SW-846 1320, Rev. 0, 9/86]	Metals - organics

Category: SHW03 – Analyze-Immediately Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW03.01000	NPW, SCM	Aqueous, Electrometric	[SW-846 9040B, Rev. 2, 1/95]	pH

Category: SHW04 – Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW04.02100	NPW, SCM	Acid Digestion For GFAA, Micro asst Aqueous	[SW-846 3015] [SW-846 3015A]	Metals
Applied	No	NJ	SHW04.03500	NPW, SCM	Microwave Acid Digest: Soil Sediment & Sludge	[SW-846 3051] [SW-846 3051A]	Metals
Certified	Yes	NJ	SHW04.05000	NPW, SCM	ICP	[SW-846 6010B]	Aluminum
Certified	Yes	NJ	SHW04.05500	NPW, SCM	ICP/MS	[SW-846 6020]	Aluminum
Certified	Yes	NJ	SHW04.06500	NPW, SCM	ICP	[SW-846 6010B]	Antimony
Certified	Yes	NJ	SHW04.07000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Antimony
Certified	Yes	NJ	SHW04.09000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Arsenic
Certified	Yes	NJ	SHW04.09500	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Arsenic
Certified	Yes	NJ	SHW04.11500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Barium
Certified	Yes	NJ	SHW04.12000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Barium
Certified	Yes	NJ	SHW04.13500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Beryllium
Certified	Yes	NJ	SHW04.14000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Beryllium
Certified	Yes	NJ	SHW04.15100	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Boron
Applied	No	NJ	SHW04.15101	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Boron
Certified	Yes	NJ	SHW04.15500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Cadmium
Certified	Yes	NJ	SHW04.16000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Cadmium

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Certified	Yes	NJ	SHW04.17500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Calcium
Certified	Yes	NJ	SHW04.17505	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Calcium
Certified	Yes	NJ	SHW04.18500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Chromium
Certified	Yes	NJ	SHW04.19000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Chromium
Certified	Yes	NJ	SHW04.21000	NPW, SCM	Colorimetric	[SW-846 7196A, Rev. 1, 7/92]	Chromium (VI)
Certified	Yes	NJ	SHW04.22500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Cobalt
Certified	Yes	NJ	SHW04.23000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Cobalt
Certified	Yes	NJ	SHW04.24500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Copper
Certified	Yes	NJ	SHW04.25000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Copper
Certified	Yes	NJ	SHW04.26000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Iron
Certified	Yes	NJ	SHW04.26005	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Iron
Certified	Yes	NJ	SHW04.27500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Lead
Certified	Yes	NJ	SHW04.28000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Lead
Applied	No	NJ	SHW04.29500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Lithium
Certified	Yes	NJ	SHW04.30500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Magnesium
Certified	Yes	NJ	SHW04.30505	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Magnesium
Certified	Yes	NJ	SHW04.31500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Manganese
Certified	Yes	NJ	SHW04.31600	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Manganese
Certified	Yes	NJ	SHW04.34000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Molybdenum
Applied	No	NJ	SHW04.34005	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Molybdenum
Certified	Yes	NJ	SHW04.35500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Nickel
Certified	Yes	NJ	SHW04.36000	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Nickel
Certified	Yes	NJ	SHW04.38000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Potassium
Certified	Yes	NJ	SHW04.38505	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Potassium
Certified	Yes	NJ	SHW04.39000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Selenium
Certified	Yes	NJ	SHW04.40600	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Selenium
Certified	Yes	NJ	SHW04.41000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Silver
Certified	Yes	NJ	SHW04.41500	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Silver
Certified	Yes	NJ	SHW04.43000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Sodium
Certified	Yes	NJ	SHW04.43005	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Sodium
Applied	No	NJ	SHW04.44000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Strontium
Applied	No	NJ	SHW04.44001	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Strontium

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Certified	Yes	NJ	SHW04.45000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Thallium
Certified	Yes	NJ	SHW04.45500	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Thallium
Certified	Yes	NJ	SHW04.47100	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Tin
Applied	No	NJ	SHW04.47105	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94] [SW-846 6020A]	Tin
Applied	No	NJ	SHW04.47145	NPW, SCM	ICP	[SW-846 6010B] [SW-846 6010C]	Titanium
Applied	No	NJ	SHW04.47150	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94] [SW-846 6020A]	Titanium
Applied	No	NJ	SHW04.47170	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Tungsten
Applied	No	NJ	SHW04.47300	NPW, SCM	ICP/MS	[SW-846 6020]	Uranium
Certified	Yes	NJ	SHW04.47500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Vanadium
Certified	Yes	NJ	SHW04.47505	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Vanadium
Certified	Yes	NJ	SHW04.49000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Zinc
Certified	Yes	NJ	SHW04.49500	NPW, SCM	ICP/MS	[SW-846 6020, Rev. 0, 9/94]	Zinc
Applied	No	NJ	SHW04.51050	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Zirconium

Category: SHW06 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW06.02010	NPW, SCM	Microextraction, GC, ECD	[SW-846 8011]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	SHW06.02020	NPW, SCM	Microextraction, GC, ECD	[SW-846 8011]	Dibromo-3-chloropropane (1,2-)
Applied	No	NJ	SHW06.02030	NPW, SCM	Microextraction, GC, ECD	[SW-846 8011]	Trichloropropane (1,2,3-)
Certified	Yes	NJ	SHW06.03010	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Acetone
Certified	Yes	NJ	SHW06.03020	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Acetonitrile
Certified	Yes	NJ	SHW06.03030	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Acrolein
Certified	Yes	NJ	SHW06.03040	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Allyl alcohol
Certified	Yes	NJ	SHW06.03050	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Tert-butyl alcohol
Certified	Yes	NJ	SHW06.03060	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Crotonaldehyde
Certified	Yes	NJ	SHW06.03070	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Dioxane (1,4-)
Certified	Yes	NJ	SHW06.03080	NPW, SCM	GC, Direct Injection, FID	[SW-846 8015B, Rev. 2, 12/96]	Ethylene Oxide
Certified	Yes	NJ	SHW06.03090	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Iso-butyl alcohol
Certified	Yes	NJ	SHW06.03100	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Methyl ethyl ketone

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW06 – Organic Parameters, Chromatography

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Certified	Yes	NJ	SHW06.03110	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	N-Nitroso-di-n-butylamine
Certified	Yes	NJ	SHW06.03120	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Paraldehyde
Certified	Yes	NJ	SHW06.03130	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Picoline (2-)
Certified	Yes	NJ	SHW06.03140	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Propionitrile
Certified	Yes	NJ	SHW06.03150	NPW, SCM	GC, Direct Injection, FID	[SW-846 8015B, Rev. 2, 12/96]	Pyridine
Certified	Yes	NJ	SHW06.03160	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B, Rev. 2, 12/96]	Toluidine (2-) (2-Methylaniline)
Certified	Yes	NJ	SHW06.04010	NPW, SCM	GC P&T, FID	[SW-846 8015B, Rev. 2, 12/96]	Gasoline range organic
Certified	Yes	NJ	SHW06.04500	NPW, SCM	Extraction, GC, FID	[SW-846 8015B, Rev. 2, 12/96]	Diesel range organic
Applied	No	NJ	SHW06.04511	NPW, SCM	Extraction, GC, FID	[OTHER FL - PRO]	Petroleum Organics
Certified	Yes	NJ	SHW06.04520	NPW, SCM	Extraction, GC, FID	[OTHER NJ-OQA-QAM-025, Rev. 7]	Petroleum Organics
Applied	No	NJ	SHW06.04530	NPW, SCM	Extraction, GC, FID	[OTHER NJDEP EPH 10/08, Rev. 2]	Extractable Petroleum Hydrocarbons
Applied	No	NJ	SHW06.05010	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Benzene
Applied	No	NJ	SHW06.05020	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Chlorobenzene
Applied	No	NJ	SHW06.05030	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichlorobenzene (1,2-)
Applied	No	NJ	SHW06.05040	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichlorobenzene (1,3-)
Applied	No	NJ	SHW06.05050	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichlorobenzene (1,4-)
Applied	No	NJ	SHW06.05060	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Ethylbenzene
Applied	No	NJ	SHW06.05066	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Naphthalene
Applied	No	NJ	SHW06.05068	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Styrene
Applied	No	NJ	SHW06.05070	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Toluene
Applied	No	NJ	SHW06.05080	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Xylene (o-)
Applied	No	NJ	SHW06.05090	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Xylene (m-)
Applied	No	NJ	SHW06.05100	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Xylene (p-)
Applied	No	NJ	SHW06.05110	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Bromodichloromethane
Applied	No	NJ	SHW06.05120	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Bromoform
Applied	No	NJ	SHW06.05130	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Bromomethane
Applied	No	NJ	SHW06.05140	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Carbon tetrachloride
Applied	No	NJ	SHW06.05150	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Chloroethane
Applied	No	NJ	SHW06.05160	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Chloroform
Applied	No	NJ	SHW06.05170	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Chloromethane
Applied	No	NJ	SHW06.05180	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloropropene (trans-1,3-)
Applied	No	NJ	SHW06.05190	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dibromochloromethane

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Applied	No	NJ	SHW06.05200	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichlorodifluoromethane
Applied	No	NJ	SHW06.05210	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloroethane (1,1-)
Applied	No	NJ	SHW06.05220	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloroethane (1,2-)
Applied	No	NJ	SHW06.05230	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloroethene (1,1-)
Applied	No	NJ	SHW06.05240	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloroethene (cis-1,2-)
Applied	No	NJ	SHW06.05250	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloroethene (trans-1,2-)
Applied	No	NJ	SHW06.05260	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloropropane (1,2-)
Applied	No	NJ	SHW06.05270	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Dichloropropene (cis-1,3-)
Applied	No	NJ	SHW06.05280	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Methylene chloride (Dichloromethane)
Applied	No	NJ	SHW06.05290	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	SHW06.05300	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Tetrachloroethene
Applied	No	NJ	SHW06.05310	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Trichloroethane (1,1,1-)
Applied	No	NJ	SHW06.05320	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Trichloroethane (1,1,2-)
Applied	No	NJ	SHW06.05330	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Trichloroethene
Applied	No	NJ	SHW06.05340	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Trichlorofluoromethane
Applied	No	NJ	SHW06.05350	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Vinyl chloride
Applied	No	NJ	SHW06.05360	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Methyl tert-butyl ether
Applied	No	NJ	SHW06.05370	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B, Rev. 2, 12/96]	Chloroethyl vinyl ether (2-)
Certified	Yes	NJ	SHW06.12010	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Aldrin
Certified	Yes	NJ	SHW06.12020	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Alpha BHC
Certified	Yes	NJ	SHW06.12030	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Beta BHC
Certified	Yes	NJ	SHW06.12040	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Delta BHC
Certified	Yes	NJ	SHW06.12050	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Lindane (gamma BHC)
Certified	Yes	NJ	SHW06.12060	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Chlordane (technical)
Certified	Yes	NJ	SHW06.12070	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Chlordane (alpha)
Certified	Yes	NJ	SHW06.12080	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Chlordane (gamma)
Certified	Yes	NJ	SHW06.12090	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	DDD (4,4'-)
Certified	Yes	NJ	SHW06.12100	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	DDE (4,4'-)
Certified	Yes	NJ	SHW06.12110	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	DDT (4,4'-)
Certified	Yes	NJ	SHW06.12120	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Dieldrin
Certified	Yes	NJ	SHW06.12130	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Endosulfan I
Certified	Yes	NJ	SHW06.12140	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Endosulfan II

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Certified	Yes	NJ	SHW06.12150	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Endosulfan sulfate
Certified	Yes	NJ	SHW06.12160	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Endrin
Certified	Yes	NJ	SHW06.12170	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Endrin aldehyde
Certified	Yes	NJ	SHW06.12180	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Endrin ketone
Certified	Yes	NJ	SHW06.12190	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Heptachlor
Certified	Yes	NJ	SHW06.12200	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Heptachlor epoxide
Certified	Yes	NJ	SHW06.12210	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Methoxychlor
Applied	No	NJ	SHW06.12212	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Mirex
Certified	Yes	NJ	SHW06.12220	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Toxaphene
Certified	Yes	NJ	SHW06.13110	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1016
Certified	Yes	NJ	SHW06.13120	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1221
Certified	Yes	NJ	SHW06.13130	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1232
Certified	Yes	NJ	SHW06.13140	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1242
Certified	Yes	NJ	SHW06.13150	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1248
Certified	Yes	NJ	SHW06.13160	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1254
Certified	Yes	NJ	SHW06.13170	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1260
Applied	No	NJ	SHW06.13200	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB Congeners (19)
Applied	No	NJ	SHW06.21010	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Azinphos methyl
Applied	No	NJ	SHW06.21015	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Chloropyrifos
Applied	No	NJ	SHW06.21020	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Demeton (o-)
Applied	No	NJ	SHW06.21030	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Demeton (s-)
Applied	No	NJ	SHW06.21040	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Diazinon
Applied	No	NJ	SHW06.21050	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Disulfoton
Applied	No	NJ	SHW06.21060	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Malathion
Applied	No	NJ	SHW06.21070	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Parathion
Applied	No	NJ	SHW06.21080	NPW, SCM	GC, Extract or Dir Inj, NPD or FPD,Cap	[SW-846 8141A, Rev. 1, 9/94] [SW-846 8141B]	Parathion methyl
Certified	Yes	NJ	SHW06.23010	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	Dalapon
Applied	No	NJ	SHW06.23011	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A]	DCPA
Certified	Yes	NJ	SHW06.23020	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	Dicamba
Applied	No	NJ	SHW06.23021	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A]	Dichlorprop
Certified	Yes	NJ	SHW06.23030	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	Dinoseb
Certified	Yes	NJ	SHW06.23040	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	D (2,4-)

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Applied	No	NJ	SHW06.23041	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A]	DB (2,4-)
Certified	Yes	NJ	SHW06.23050	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	T (2,4,5-)
Certified	Yes	NJ	SHW06.23060	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	TP (2,4,5-) (Silvex)
Applied	No	NJ	SHW06.23061	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev. 1, 9/96]	Dichlorobenzoic acid (3,5-)
Applied	No	NJ	SHW06.23062	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev. 1, 9/96]	Hydroxydicamba (5-)
Applied	No	NJ	SHW06.23063	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev. 1, 9/96]	MCPA
Applied	No	NJ	SHW06.23064	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev. 1, 9/96]	MCPP
Applied	No	NJ	SHW06.23065	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev. 1, 9/96]	Nitrophenol (4-)
Applied	No	NJ	SHW06.23066	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev. 1, 9/96]	Pentachlorophenol
Certified	Yes	NJ	SHW06.23070	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	Picloram
Applied	No	NJ	SHW06.23100	NPW, SCM	GC, Headspace, FID	[OTHER J. Chrom. Sci. RSK-175]	Ethane
Applied	No	NJ	SHW06.23105	NPW, SCM	GC, Headspace, FID	[OTHER J. Chrom. Sci. RSK-175]	Ethene
Applied	No	NJ	SHW06.23110	NPW, SCM	GC, Headspace, FID	[OTHER J. Chrom. Sci. RSK-175]	Methane
Applied	No	NJ	SHW06.24110	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Acenaphthene
Applied	No	NJ	SHW06.24120	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Acenaphthylene
Applied	No	NJ	SHW06.24130	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Anthracene
Applied	No	NJ	SHW06.24140	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Benzo(a)anthracene
Applied	No	NJ	SHW06.24150	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Benzo(a)pyrene
Applied	No	NJ	SHW06.24160	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Benzo(b)fluoranthene
Applied	No	NJ	SHW06.24170	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Benzo(ghi)perylene
Applied	No	NJ	SHW06.24180	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Benzo(k)fluoranthene
Applied	No	NJ	SHW06.24190	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Chrysene
Applied	No	NJ	SHW06.24200	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Dibenzo(a,h)anthracene
Applied	No	NJ	SHW06.24210	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Fluoranthene
Applied	No	NJ	SHW06.24220	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Fluorene
Applied	No	NJ	SHW06.24230	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Indeno(1,2,3-cd)pyrene
Applied	No	NJ	SHW06.24240	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Naphthalene
Applied	No	NJ	SHW06.24250	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Phenanthrene
Applied	No	NJ	SHW06.24260	NPW, SCM	Extraction, HPLC	[SW-846 8310, Rev. 0, 9/86]	Pyrene
Certified	Yes	NJ	SHW06.28010	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	HMX
Certified	Yes	NJ	SHW06.28020	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	RDX
Certified	Yes	NJ	SHW06.28030	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Trinitrobenzene (1,3,5-)

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New Jersey Department of Environmental Protection
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ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH **Laboratory Number:** 20012 **Activity ID:** NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW06 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW06.28040	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Dinitrobenzene (1,3-)
Certified	Yes	NJ	SHW06.28050	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Tetryl
Certified	Yes	NJ	SHW06.28060	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Nitrobenzene
Certified	Yes	NJ	SHW06.28070	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Trinitrotoluene (2,4,6-)
Certified	Yes	NJ	SHW06.28080	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Dinitrotoluene (4-amino-2,6-)
Certified	Yes	NJ	SHW06.28090	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Dinitrotoluene (2-amino-4,6-)
Certified	Yes	NJ	SHW06.28100	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Dinitrotoluene (2,4-)
Certified	Yes	NJ	SHW06.28110	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Dinitrotoluene (2,6-)
Certified	Yes	NJ	SHW06.28120	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Nitrotoluene (2-)
Certified	Yes	NJ	SHW06.28130	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Nitrotoluene (3-)
Certified	Yes	NJ	SHW06.28140	NPW, SCM	HPLC, UV Detector	[SW-846 8330, Rev. 0, 9/94]	Nitrotoluene (4-)
Applied	No	NJ	SHW06.29100	NPW, SCM	HPLC, UV Detector	[SW-846 8332 Rev. 0, 12/96]	Nitroglycerine

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW07.04004	NPW, SCM	GC/MS/SIM, Direct Aqueous Injection		Ethylene glycol
Applied	No	NJ	SHW07.04006	NPW, SCM	GC/MS/SIM, Direct Aqueous Injection		Propylene glycol
Certified	Yes	NJ	SHW07.04010	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Benzene
Applied	No	NJ	SHW07.04011	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Bromobenzene
Applied	No	NJ	SHW07.04012	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Butyl benzene (n-)
Applied	No	NJ	SHW07.04013	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Sec-butylbenzene
Applied	No	NJ	SHW07.04014	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Tert-butylbenzene
Applied	No	NJ	SHW07.04016	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Benzyl chloride
Certified	Yes	NJ	SHW07.04020	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Chlorobenzene
Applied	No	NJ	SHW07.04022	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Chlorotoluene (2-)
Applied	No	NJ	SHW07.04023	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Chlorotoluene (4-)
Certified	Yes	NJ	SHW07.04030	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	SHW07.04040	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	SHW07.04050	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichlorobenzene (1,4-)

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Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.04060	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Ethylbenzene
Applied	No	NJ	SHW07.04065	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Isopropylbenzene
Applied	No	NJ	SHW07.04067	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Propylbenzene (n-)
Certified	Yes	NJ	SHW07.04070	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Toluene
Applied	No	NJ	SHW07.04071	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Isopropyltoluene (4-)
Applied	No	NJ	SHW07.04072	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Trichlorobenzene (1,2,3-)
Applied	No	NJ	SHW07.04073	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Trimethylbenzene (1,2,4-)
Applied	No	NJ	SHW07.04074	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Trimethylbenzene (1,3,5-)
Applied	No	NJ	SHW07.04075	NPW, SCM	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C] [SW-846 8260B]	Trimethylbenzene (1,2,3-)
Certified	Yes	NJ	SHW07.04080	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Xylenes (total)
Applied	No	NJ	SHW07.04081	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Xylene (m-)
Applied	No	NJ	SHW07.04082	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Xylene (o-)
Applied	No	NJ	SHW07.04083	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Xylene (p-)
Applied	No	NJ	SHW07.04089	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Bromochloromethane
Certified	Yes	NJ	SHW07.04090	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Bromodichloromethane
Applied	No	NJ	SHW07.04095	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Bromoethane
Certified	Yes	NJ	SHW07.04100	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Bromoform
Certified	Yes	NJ	SHW07.04110	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Bromomethane
Applied	No	NJ	SHW07.04111	NPW, SCM	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C] [SW-846 8260B]	Cyclohexane
Certified	Yes	NJ	SHW07.04120	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Carbon tetrachloride
Certified	Yes	NJ	SHW07.04130	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Chloroethane
Certified	Yes	NJ	SHW07.04140	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Chloroethyl vinyl ether (2-)
Certified	Yes	NJ	SHW07.04150	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Chloroform
Certified	Yes	NJ	SHW07.04160	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Chloromethane
Certified	Yes	NJ	SHW07.04170	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloropropene (trans-1,3-)
Certified	Yes	NJ	SHW07.04180	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dibromochloromethane
Certified	Yes	NJ	SHW07.04185	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	SHW07.04186	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Dibromomethane
Certified	Yes	NJ	SHW07.04187	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	SHW07.04190	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichlorodifluoromethane
Certified	Yes	NJ	SHW07.04200	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloroethane (1,1-)
Certified	Yes	NJ	SHW07.04210	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloroethane (1,2-)

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Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.04220	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloroethene (1,1-)
Certified	Yes	NJ	SHW07.04230	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloroethene (trans-1,2-)
Certified	Yes	NJ	SHW07.04235	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloroethene (cis-1,2-)
Certified	Yes	NJ	SHW07.04240	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloropropane (1,2-)
Applied	No	NJ	SHW07.04241	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Dichloropropane (1,3-)
Applied	No	NJ	SHW07.04242	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Dichloropropane (2,2-)
Applied	No	NJ	SHW07.04249	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Dichloropropene (1,1-)
Certified	Yes	NJ	SHW07.04250	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloropropene (cis-1,3-)
Certified	Yes	NJ	SHW07.04260	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Methylene chloride (Dichloromethane)
Certified	Yes	NJ	SHW07.04270	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Tetrachloroethane (1,1,2,2-)
Certified	Yes	NJ	SHW07.04280	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Tetrachloroethene
Certified	Yes	NJ	SHW07.04290	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichloroethane (1,1,1-)
Certified	Yes	NJ	SHW07.04300	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichloroethane (1,1,2-)
Certified	Yes	NJ	SHW07.04310	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichloroethene
Certified	Yes	NJ	SHW07.04320	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichlorofluoromethane
Certified	Yes	NJ	SHW07.04322	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichloro (1,1,2-) trifluoroethane (1,2,2-)
Certified	Yes	NJ	SHW07.04325	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichloropropane (1,2,3-)
Certified	Yes	NJ	SHW07.04327	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Vinyl acetate
Certified	Yes	NJ	SHW07.04330	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Vinyl chloride
Certified	Yes	NJ	SHW07.04340	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Acetone
Certified	Yes	NJ	SHW07.04350	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Carbon disulfide
Certified	Yes	NJ	SHW07.04360	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Butanone (2-)
Applied	No	NJ	SHW07.04365	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Ethyl acetate
Certified	Yes	NJ	SHW07.04370	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Hexanone (2-)
Applied	No	NJ	SHW07.04374	NPW, SCM	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C] [SW-846 8260B]	Methyl acetate
Certified	Yes	NJ	SHW07.04375	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Methyl iodide
Certified	Yes	NJ	SHW07.04380	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Pentanone (4-methyl-2-)
Certified	Yes	NJ	SHW07.04390	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Methyl tert-butyl ether
Certified	Yes	NJ	SHW07.04395	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Tert-butyl alcohol
Certified	Yes	NJ	SHW07.04400	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Acrolein
Certified	Yes	NJ	SHW07.04410	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Acrylonitrile
Certified	Yes	NJ	SHW07.04500	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Hexachlorobutadiene (1,3-)

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284 SHEFFIELD ST
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Certified	Yes	NJ	SHW07.04530	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Hexachloroethane
Applied	No	NJ	SHW07.04535	NPW, SCM	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C] [SW-846 8260B]	Methylcyclohexane
Certified	Yes	NJ	SHW07.04540	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260C, Rev. 2, 12/96]	Naphthalene
Certified	Yes	NJ	SHW07.04550	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Styrene
Certified	Yes	NJ	SHW07.04560	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Tetrachloroethane (1,1,1,2-)
Certified	Yes	NJ	SHW07.04570	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichlorobenzene (1,2,4-)
Applied	No	NJ	SHW07.04572	NPW, SCM	GC/MS, Extract, or Direct Injection, Capillary	[SW-846 8260B]	Trimethylpentane (2,2,4-)
Certified	Yes	NJ	SHW07.04580	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Nitrobenzene
Applied	No	NJ	SHW07.04590	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Dioxane (1,4-)
Applied	No	NJ	SHW07.04665	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Acetophenone
Applied	No	NJ	SHW07.04702	NPW, SCM	GC/MS, Extract, or Direct Injection, Capillary	[SW-846 8270C]	Biphenyl (1,1'-)
Applied	No	NJ	SHW07.04975	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Tetrachlorobenzene (1,2,4,5-)
Applied	No	NJ	SHW07.04980	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Tetrachlorophenol (2,3,4,6-)
Applied	No	NJ	SHW07.05005	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	N-Nitrosodimethylamine
Certified	Yes	NJ	SHW07.05006	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	N-Nitroso-di-n-propylamine
Certified	Yes	NJ	SHW07.05010	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	N-Nitrosodiphenylamine
Certified	Yes	NJ	SHW07.05020	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Diphenylamine
Certified	Yes	NJ	SHW07.05030	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Carbazole
Certified	Yes	NJ	SHW07.05038	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzidine
Certified	Yes	NJ	SHW07.05040	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dichlorobenzidine (3,3'-)
Applied	No	NJ	SHW07.05045	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Diphenylhydrazine (1,2-)
Certified	Yes	NJ	SHW07.05048	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Aniline
Certified	Yes	NJ	SHW07.05050	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Chloraniline (4-)
Certified	Yes	NJ	SHW07.05060	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Nitroaniline (2-)
Certified	Yes	NJ	SHW07.05062	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Nitroaniline (3-)
Certified	Yes	NJ	SHW07.05063	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Nitroaniline (4-)
Certified	Yes	NJ	SHW07.05070	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Chloronaphthalene (2-)
Certified	Yes	NJ	SHW07.05080	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Hexachlorobenzene
Certified	Yes	NJ	SHW07.05090	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	SHW07.05100	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Hexachlorocyclopentadiene
Certified	Yes	NJ	SHW07.05110	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Hexachloroethane
Certified	Yes	NJ	SHW07.05120	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Trichlorobenzene (1,2,4-)

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.05130	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Bis (2-chloroethoxy) methane
Certified	Yes	NJ	SHW07.05132	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Bis (2-chloroethyl) ether
Certified	Yes	NJ	SHW07.05140	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Bis (2-chloroisopropyl) ether
Certified	Yes	NJ	SHW07.05150	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Chlorophenyl-phenyl ether (4-)
Certified	Yes	NJ	SHW07.05160	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Bromophenyl-phenyl ether (4-)
Certified	Yes	NJ	SHW07.05170	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dinitrotoluene (2,4-)
Certified	Yes	NJ	SHW07.05180	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dinitrotoluene (2,6-)
Certified	Yes	NJ	SHW07.05190	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Isophorone
Certified	Yes	NJ	SHW07.05200	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Nitrobenzene
Certified	Yes	NJ	SHW07.05210	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Butyl benzyl phthalate
Certified	Yes	NJ	SHW07.05220	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Bis (2-ethylhexyl) phthalate
Certified	Yes	NJ	SHW07.05230	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Diethyl phthalate
Certified	Yes	NJ	SHW07.05240	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dimethyl phthalate
Certified	Yes	NJ	SHW07.05250	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Di-n-butyl phthalate
Certified	Yes	NJ	SHW07.05260	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Di-n-octyl phthalate
Certified	Yes	NJ	SHW07.05270	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Acenaphthene
Certified	Yes	NJ	SHW07.05280	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Anthracene
Certified	Yes	NJ	SHW07.05290	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Acenaphthylene
Certified	Yes	NJ	SHW07.05300	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(a)anthracene
Certified	Yes	NJ	SHW07.05310	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(a)pyrene
Certified	Yes	NJ	SHW07.05320	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(b)fluoranthene
Certified	Yes	NJ	SHW07.05330	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(ghi)perylene
Certified	Yes	NJ	SHW07.05340	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(k)fluoranthene
Certified	Yes	NJ	SHW07.05350	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Chrysene
Certified	Yes	NJ	SHW07.05360	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dibenzo(a,h)anthracene
Certified	Yes	NJ	SHW07.05370	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Fluoranthene
Certified	Yes	NJ	SHW07.05380	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Fluorene
Certified	Yes	NJ	SHW07.05390	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Indeno(1,2,3-cd)pyrene
Certified	Yes	NJ	SHW07.05400	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methylnaphthalene (2-)
Certified	Yes	NJ	SHW07.05410	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Naphthalene
Certified	Yes	NJ	SHW07.05420	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Phenanthrene
Certified	Yes	NJ	SHW07.05430	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Pyrene

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284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.05440	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methyl phenol (4-chloro-3-)
Certified	Yes	NJ	SHW07.05450	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Chlorophenol (2-)
Certified	Yes	NJ	SHW07.05460	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dichlorophenol (2,4-)
Certified	Yes	NJ	SHW07.05470	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dimethylphenol (2,4-)
Certified	Yes	NJ	SHW07.05480	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dinitrophenol (2,4-)
Certified	Yes	NJ	SHW07.05490	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dinitrophenol (2-methyl-4,6-)
Certified	Yes	NJ	SHW07.05500	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methylphenol (2-)
Certified	Yes	NJ	SHW07.05510	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methylphenol (4-)
Certified	Yes	NJ	SHW07.05520	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Nitrophenol (2-)
Certified	Yes	NJ	SHW07.05530	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Nitrophenol (4-)
Certified	Yes	NJ	SHW07.05540	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Pentachlorophenol
Certified	Yes	NJ	SHW07.05550	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Phenol
Certified	Yes	NJ	SHW07.05560	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Trichlorophenol (2,4,5-)
Certified	Yes	NJ	SHW07.05570	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Trichlorophenol (2,4,6-)
Certified	Yes	NJ	SHW07.05590	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methylphenol (3-)
Certified	Yes	NJ	SHW07.05600	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dibenzofuran
Certified	Yes	NJ	SHW07.05691	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	SHW07.05692	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	SHW07.05700	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dichlorobenzene (1,4-)
Applied	No	NJ	SHW07.05705	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzaldehyde
Applied	No	NJ	SHW07.05710	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Benzoic acid
Applied	No	NJ	SHW07.05720	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Benzyl alcohol
Applied	No	NJ	SHW07.05740	NPW, SCM	Extraction, SIM, GC/MS	[ASTM D5739-00]	Petroleum Organics
Certified	Yes	NJ	SHW07.05750	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Pyridine
Applied	No	NJ	SHW07.05765	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Caprolactam
Applied	No	NJ	SHW07.05990	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Atrazine
Applied	No	NJ	SHW07.07584	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(a)anthracene
Applied	No	NJ	SHW07.07586	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(a)pyrene
Applied	No	NJ	SHW07.07588	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(b)fluoranthene
Applied	No	NJ	SHW07.07590	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Benzo(k)fluoranthene
Applied	No	NJ	SHW07.07594	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Dibenzo(a,h)anthracene
Applied	No	NJ	SHW07.07596	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Hexachlorobenzene

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW07.07598	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Indeno(1,2,3-cd)pyrene
Applied	No	NJ	SHW07.07608	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	N-Nitrosodimethylamine
Applied	No	NJ	SHW07.07616	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Pentachlorophenol

Category: SHW09 – Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW09.02000	NPW, SCM	Distillation	[SW-846 9010C]	Cyanide
Certified	Yes	NJ	SHW09.03000	NPW, SCM	Distillation	[SW-846 9010C]	Cyanide - amenable to Cl2
Applied	No	NJ	SHW09.04100	NPW, SCM	Titrimetric/Manual Spectrophotometric	[SW-846 9014, Rev. 0, 12/96]	Cyanide
Certified	Yes	NJ	SHW09.05000	NPW, SCM	Colorimetric, Automated	[SW-846 9012A, Rev. 1, 12/96]	Cyanide
Certified	Yes	NJ	SHW09.09000	NPW, SCM	Redox Titration	[SW-846 9030B, Rev. 2, 12/96]	Sulfides, acid sol. & insol.
Certified	Yes	NJ	SHW09.10000	NPW, SCM	Water Extraction, Distillation	[SW-846 9031, Rev. 0, 7/92]	Sulfides - extractable
Certified	Yes	NJ	SHW09.10100	NPW, SCM	Titration	[SW-846 9034, Rev. 0, 12/96]	Sulfides, acid sol. & insol.
Certified	Yes	NJ	SHW09.13000	NPW, SCM	Turbidimetric	[SW-846 9038, Rev. 0, 9/86]	Sulfate
Certified	Yes	NJ	SHW09.13050	NPW, SCM	Ion Chromatography	[SW-846 9056, Rev. 0, 9/94]	Sulfate
Certified	Yes	NJ	SHW09.14000	NPW, SCM	Electrometric	[SW-846 9040C]	pH - waste, >20% water
Certified	Yes	NJ	SHW09.15000	NPW, SCM	Wide Range pH Paper	[SW-846 9041A, Rev. 1, 7/92]	pH
Certified	Yes	NJ	SHW09.19000	NPW, SCM	Infrared Spectrometry or FID	[SW-846 9060, Rev. 0, 9/86]	Total organic carbon (TOC)
Certified	Yes	NJ	SHW09.21000	NPW, SCM	Colorimetric, Man, 4AAP Distillation	[SW-846 9065, Rev. 0, 9/86]	Phenols
Certified	Yes	NJ	SHW09.24100	NPW, SCM	Extraction & Gravimetric - LL or SPE	[SW-846 1664A, Rev. 1, 2/99]	Oil & grease - hem
Certified	Yes	NJ	SHW09.24150	NPW, SCM	Extraction & Gravimetric - LL or SPE	[SW-846 1664A, Rev. 1, 2/99]	Oil & grease - total hem-npm
Certified	Yes	NJ	SHW09.29150	NPW, SCM	Ion Chromatography	[SW-846 9056, Rev. 0, 12/94]	Nitrite
Certified	Yes	NJ	SHW09.30150	NPW, SCM	Ion Chromatography	[SW-846 9056, Rev. 0, 12/94]	Nitrate
Certified	Yes	NJ	SHW09.30250	NPW, SCM	Ion Chromatography	[SW-846 9056, Rev. 0, 12/96]	Bromide
Certified	Yes	NJ	SHW09.33100	NPW, SCM	Ion Chromatography	[SW-846 9056, Rev. 0, 12/96]	Chloride
Applied	No	NJ	SHW09.34000	NPW, SCM	Titrimetric, Silver Nitrate	[SW-846 9253, Rev. 0, 9/94]	Chloride
Applied	No	NJ	SHW09.34100	NPW, SCM	Aqueous, Ion-Selective Electrode	[SW-846 9214, Rev. 0, 12/96]	Fluoride
Certified	Yes	NJ	SHW09.34150	NPW, SCM	Ion Chromatography	[SW-846 9056, Rev. 0, 12/96]	Fluoride
Certified	Yes	NJ	SHW09.54150	NPW, SCM	Ion Chromatography	[SW-846 9056, Rev. 0, 12/94]	Orthophosphate

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW12 -- Immunoassay

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW12.10000	NPW, SCM	Screening	[SW-846 4010, Rev. 1, 12/96]	Immunoassay - pentachlorophenol

Category: SHW02 -- Characteristics of Hazardous Waste

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW02.02100	SCM	Burn Rate	[SW-846 1030]	Ignitability of solids
Applied	No	NJ	SHW02.10000	SCM	Extraction	[SW-846 1330A, Rev. 1, 7/92]	Metals - oily waste

Category: SHW04 -- Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW04.02200	SCM	Acid Digestion For AA or ICP, Oil	[SW-846 3031, Rev. 0, 12/96]	Metals
Applied	No	NJ	SHW04.02500	SCM	Dissolution of Oil, Grease & Wax	[SW-846 3040A, Rev. 1, 12/96]	Metals
Certified	Yes	NJ	SHW04.03000	SCM	Acid Digestion, Soil Sediment & Sludge	[SW-846 3050B, Rev. 2, 12/96]	Metals
Certified	Yes	NJ	SHW04.03700	SCM	Chromium VI Digestion	[SW-846 3060A, Rev. 1, 12/96]	Metals
Applied	No	NJ	SHW04.03800	SCM	Field X-Ray Fluorescence	[SW-846 6200, Rev. 0, 1/98]	Triad Metals
Certified	Yes	NJ	SHW04.33500	SCM	AA, Manual Cold Vapor	[SW-846 7471A, Rev. 1, 9/94]	Mercury - solid waste

Category: SHW05 -- Organic Parameters, Prep. / Screening

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW05.03000	SCM	Soxhlet Extraction	[SW-846 3540C, Rev. 3, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.04000	SCM	Automatic Soxhlet Extraction	[SW-846 3541, Rev. 0, 9/94]	Semivolatile organics
Certified	Yes	NJ	SHW05.04200	SCM	Pressurized Fluid Extraction	[SW-846 3545, Rev. 0, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.05000	SCM	Ultrasonic Extraction	[SW-846 3550B, Rev. 2, 12/96]	Semivolatile organics
Applied	No	NJ	SHW05.05100	SCM	Supercritical Fluid Ex. TPH	[SW-846 3560, Rev. 0, 12/96]	Semivolatile organics
Applied	No	NJ	SHW05.05200	SCM	Supercritical Fluid Ex. PAH	[SW-846 3561, Rev. 0, 12/96]	Semivolatile organics
Applied	No	NJ	SHW05.05210	SCM	Supercritical Fluid Ex. PCBs and Pesticides	[SW-846 3562]	Semivolatile organics

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New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2010 until 06/30/2011

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW05 – Organic Parameters, Prep. / Screening

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW05.06000	SCM	Waste Dilution	[SW-846 3580A, Rev. 1, 7/92]	Organics
Applied	No	NJ	SHW05.06100	SCM	Waste Dilution, Volatile organics	[SW-846 3585, Rev. 0, 12/96]	Organics
Certified	Yes	NJ	SHW05.07300	SCM	Closed System Purge & Trap	[SW-846 5035L, Rev. 0, 12/96]	Volatile organics - low conc.
Certified	Yes	NJ	SHW05.07310	SCM	Methanol Extract, Closed System P & T	[SW-846 5035H, Rev. 0, 12/96]	Volatile organics - high conc.
Certified	Yes	NJ	SHW05.10000	SCM	Cleanup-Alumina	[SW-846 3610B, Rev. 3, 12/96]	Semivolatile organics
Applied	No	NJ	SHW05.11000	SCM	Petroleum Waste, Cleanup Alumina	[SW-846 3611B, Rev. 2, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.12000	SCM	Cleanup-Florisil	[SW-846 3620B, Rev. 2, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.13000	SCM	Cleanup-Silica Gel	[SW-846 3630C, Rev. 3, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.14000	SCM	Cleanup-Gel Permeation	[SW-846 3640A, Rev. 1, 9/94]	Semivolatile organics
Applied	No	NJ	SHW05.15000	SCM	Cleanup-Acid/Base Partition	[SW-846 3650B, Rev. 2, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.16000	SCM	Cleanup-Sulfur Removal	[SW-846 3660B, Rev. 2, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.17000	SCM	Cleanup-Sulfuric Acid/KMnO4	[SW-846 3665A, Rev. 1, 12/96]	Semivolatile organics
Applied	No	NJ	SHW05.18000	SCM	Headspace, GC or GC/MS Screen	[SW-846 3810, Rev. 0, 9/86]	Volatile organics

Category: SHW06 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW06.01000	SCM	Field GC	[SW-846 3815, Rev. 0, 11/00]	Triad Organics

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW07.03000	SCM	Field GC/MS	[SW-846 8265, Rev. 0, 3/02]	Triad Organics

Category: SHW09 – Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW09.04000	SCM	Extraction, Oils and Solids	[SW-846 9013, Rev. 0, 7/92]	Cyanide

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environmental Protection
Environmental Laboratory Certification Program

LABORATORY PERSONNEL LIST

Effective as of: 07/01/2010

Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Position: Lead Tech. Director

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
DIVYAJIT MEHTA		9/19/2000		Complete/Qualified		

Position: Manager

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
DIVYAJIT MEHTA		9/19/2000		Complete/Qualified		NOT WES EVALUATED.

Position: Operator

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
KRUPA DUBEY	GC/MS	10/23/2000		Complete/Qualified		
HIMANSHU PRAJAPATI	GC/MS	10/1/2002		Complete/Qualified		ORGANIC SUPERVISOR.
MALGORZATA STARZEC	GC/MS	7/1/2009		Complete/Qualified		
SAMSETTIN YESHLJURT	GC/MS	3/30/2005		Complete/Qualified		
DANUTA ROGUSKA	ICP/MS	7/1/2009		Complete/Qualified		
JASWAL SARABJIT	ICP/MS	3/30/2005		Complete/Qualified		
HIMANSHU PRAJAPATI	LC/MS	7/1/2009		Complete/Qualified		

Position: QA Officer

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
KRUPA DUBEY		10/23/2000		Complete/Qualified		QUALITY CONTROL (QC) OFFICER.
MILDRED REYES		10/23/2000		Complete/Qualified		

Position: Supervisor/Tech Dir

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
DIVYAJIT MEHTA	CLP01 or CLP02	9/19/2000		Complete/Qualified		QUALIFIED FOR CLP INORGANICS ONLY.
JAMES MOORE	SDW02, WPP02, CAP01 or CAP04	7/1/2009		Complete/Qualified		
JAMES MOORE	SDW03, WPP03 or SHW03	7/1/2009		Complete/Qualified		
DANUTA ROGUSKA	SDW04, WPP04, SHW04, 09, 10 or CAP02	10/23/2000		Complete/Qualified		
KRUPA DUBEY	SDW05, 06, WPP05-07, SHW05-12 or CAP03	10/23/2000		Complete/Qualified		
DIVYAJIT MEHTA	SDW05, 06, WPP05-07, SHW05-12 or CAP03	3/30/2005		Complete/Qualified		

New Jersey Department of Environmental Protection
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ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
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Laboratory Name: CHEMTECH   Laboratory Number: 20012   Activity ID: NLC100001
284 SHEFFIELD ST
Mountainside, NJ 07092

Category: SHW09 – Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW09.08100	SCM	Extraction	[SW-846 9023, Rev. 0, 12/96]	Extractable organic halides (EOX)
Certified	Yes	NJ	SHW09.16000	SCM	Mix with Water or Calcium Chloride	[SW-846 9045C, Rev. 3, 1/95]	pH - soil and waste
Applied	No	NJ	SHW09.19100	SCM	Pyrolytic	[OTHER Lloyd Kahn]	Total organic carbon (TOC)
Certified	Yes	NJ	SHW09.25000	SCM	Extraction & Gravimetric	[SW-846 9071 B, Rev. 2, 5/99]	Oil & grease - sludge-hem
Applied	No	NJ	SHW09.25100	SCM	Extraction & Gravimetric - LL or SPE	[SW-846 9071 B]	Oil & grease - sludge-hem-npm
Applied	No	NJ	SHW09.28000	SCM	Colorimetric, Field Test Kits	[SW-846 9077, Rev. 0, 9/94]	Chlorine - total, petroleum
Applied	No	NJ	SHW09.28100	SCM	Soil Screen Test	[SW-846 9078, Rev. 0, 12/96]	Polychlorinated biphenyls (PCB's)
Applied	No	NJ	SHW09.28200	SCM	Transformer Oil Screen	[SW-846 9079, Rev. 0, 12/96]	Polychlorinated biphenyls (PCB's)
Certified	Yes	NJ	SHW09.29000	SCM	Flow-Through Paint Filter, Observation	[SW-846 9095, Rev. 0, 9/86]	Free liquid
Certified	Yes	NJ	SHW09.39000	SCM	Soils, Ammonium Acetate	[SW-846 9080, Rev. 0, 9/86]	Cation-exchange capacity
Certified	Yes	NJ	SHW09.40000	SCM	Soils, Sodium Acetate	[SW-846 9081, Rev. 0, 9/86]	Cation-exchange capacity
Applied	No	NJ	SHW09.53000	SCM	Soil, Colormetric Screen	[SW-846 8515, Rev. 0, 12/96]	Trinitrotoluene (2,4,6-)

Category: SHW12 – Immunoassay

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW12.12000	SCM	Screening	[SW-846 4020, Rev. 0, 12/96]	Immunoassay - polychlorinated biphenyls
Certified	Yes	NJ	SHW12.13000	SCM	Field Immunoassay	[SW-846 4000, Rev. 0, 12/96]	Triad Immunoassay

Joseph F. Aiello, Chief

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8260B/5030B	Water	630-20-6	1,1,1,2-Tetrachloroethane	0.43	2.5	5
8260B/5030B	Water	71-55-6	1,1,1-Trichloroethane	0.40	2.5	5
8260B/5030B	Water	79-34-5	1,1,2,2-Tetrachloroethane	0.31	2.5	5
8260B/5030B	Water	79-00-5	1,1,2-Trichloroethane	0.38	2.5	5
8260B/5030B	Water	76-13-1	1,1,2-Trichlorotrifluoroethane	0.45	2.5	5
8260B/5030B	Water	75-34-3	1,1-Dichloroethane	0.36	2.5	5
8260B/5030B	Water	75-35-4	1,1-Dichloroethene	0.47	2.5	5
8260B/5030B	Water	563-58-6	1,1-Dichloropropene	0.39	2.5	5
8260B/5030B	Water	87-61-6	1,2,3-Trichlorobenzene	0.65	2.5	5
8260B/5030B	Water	96-18-4	1,2,3-Trichloropropane	0.50	2.5	5
8260B/5030B	Water	120-82-1	1,2,4-Trichlorobenzene	0.62	2.5	5
8260B/5030B	Water	95-63-6	1,2,4-Trimethylbenzene	0.38	2.5	5
8260B/5030B	Water	96-12-8	1,2-Dibromo-3-Chloropropane	0.46	2.5	5
8260B/5030B	Water	106-93-4	1,2-Dibromoethane	0.41	2.5	5
8260B/5030B	Water	95-50-1	1,2-Dichlorobenzene	0.45	2.5	5
8260B/5030B	Water	107-06-2	1,2-Dichloroethane	0.48	2.5	5
8260B/5030B	Water	78-87-5	1,2-Dichloropropane	0.46	2.5	5
8260B/5030B	Water	108-67-8	1,3,5-Trimethylbenzene	0.46	2.5	5
8260B/5030B	Water	541-73-1	1,3-Dichlorobenzene	0.43	2.5	5
8260B/5030B	Water	142-28-9	1,3-Dichloropropane	0.35	2.5	5
8260B/5030B	Water	106-46-7	1,4-Dichlorobenzene	0.32	2.5	5
8260B/5030B	Water	594-20-7	2,2-Dichloropropane	0.55	2.5	5
8260B/5030B	Water	78-93-3	2-Butanone	1.32	12.5	25
8260B/5030B	Water	110-75-8	2-Chloroethyl vinyl ether	1.79	12.5	25
8260B/5030B	Water	95-49-8	2-Chlorotoluene	0.43	2.5	5
8260B/5030B	Water	591-78-6	2-Hexanone	1.94	12.5	25
8260B/5030B	Water	95-49-8	4-Chlorotoluene	0.42	2.5	5
8260B/5030B	Water	108-10-1	4-Methyl-2-Pentanone	2.10	12.5	25
8260B/5030B	Water	67-64-1	Acetone	2.75	12.5	25
8260B/5030B	Water	107-02-8	Acrolein	2.53	12.5	25
8260B/5030B	Water	107-13-1	Acrylonitrile	1.76	12.5	25
8260B/5030B	Water	71-43-2	Benzene	0.32	2.5	5
8260B/5030B	Water	108-86-1	Bromobenzene	0.52	2.5	5
8260B/5030B	Water	74-97-5	Bromochloromethane	2.25	2.5	5
8260B/5030B	Water	75-27-4	Bromodichloromethane	0.36	2.5	5
8260B/5030B	Water	75-25-2	Bromoform	0.47	2.5	5
8260B/5030B	Water	74-83-9	Bromomethane	0.62	2.5	5
8260B/5030B	Water	75-15-0	Carbon disulfide	0.54	2.5	5
8260B/5030B	Water	56-23-5	Carbon Tetrachloride	0.62	2.5	5
8260B/5030B	Water	108-90-7	Chlorobenzene	0.49	2.5	5
8260B/5030B	Water	75-00-3	Chloroethane	0.66	2.5	5
8260B/5030B	Water	67-66-3	Chloroform	0.34	2.5	5
8260B/5030B	Water	74-87-3	Chloromethane	0.54	2.5	5

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8260B/5030B	Water	156-59-2	cis-1,2-Dichloroethene	0.35	2.5	5
8260B/5030B	Water	10061-01-5	cis-1,3-Dichloropropene	0.31	2.5	5
8260B/5030B	Water	110-82-7	cyclohexane	0.55	2.5	5
8260B/5030B	Water	124-48-1	Dibromochloromethane	0.52	2.5	5
8260B/5030B	Water	74-95-3	Dibromomethane	0.44	2.5	5
8260B/5030B	Water	75-71-8	Dichlorodifluoromethane	0.55	2.5	5
8260B/5030B	Water	60-29-7	Diethyl Ether	0.27	2.5	5
8260B/5030B	Water	100-41-4	Ethyl Benzene	0.53	2.5	5
8260B/5030B	Water	67-72-1	Hexachloroethane	0.65	2.5	5
8260B/5030B	Water	87-68-3	Hexachlorobutadiene	1.28	2.5	5
8260B/5030B	Water	98-82-8	Isopropylbenzene	0.45	2.5	5
8260B/5030B	Water	136777-61-2	m/p-Xylenes	0.95	5.0	10
8260B/5030B	Water	79-20-9	Methyl Acetate	0.83	2.5	5
8260B/5030B	Water	1634-04-4	Methyl tert-butyl Ether	0.35	2.5	5
8260B/5030B	Water	108-87-2	Methylcyclohexane	0.68	2.5	5
8260B/5030B	Water	75-09-2	Methylene Chloride	0.41	2.5	5
8260B/5030B	Water	91-20-3	Naphthalene	0.67	2.5	5
8260B/5030B	Water	104-51-8	n-Butylbenzene	0.41	2.5	5
8260B/5030B	Water	103-65-1	N-propylbenzene	0.45	2.5	5
8260B/5030B	Water	95-47-6	o-Xylene	0.43	2.5	5
8260B/5030B	Water	99-87-6	p-Isopropyltoluene	0.43	2.5	5
8260B/5030B	Water	135-98-8	Sec-butylbenzene	0.46	2.5	5
8260B/5030B	Water	100-42-5	Styrene	0.36	2.5	5
8260B/5030B	Water	10061-02-6	t-1,3-Dichloropropene	0.29	2.5	5
8260B/5030B	Water	27975-78-6	Tert butyl alcohol	2.61	12.5	25
8260B/5030B	Water	98-06-6	tert-Butylbenzene	0.44	2.5	5
8260B/5030B	Water	127-18-4	Tetrachloroethene	0.27	2.5	5
8260B/5030B	Water	108-88-3	Toluene	0.37	2.5	5
8260B/5030B	Water	156-60-5	trans-1,2-Dichloroethene	0.41	2.5	5
8260B/5030B	Water	79-01-6	Trichloroethene	0.28	2.5	5
8260B/5030B	Water	75-69-4	Trichlorofluoromethane	0.35	2.5	5
8260B/5030B	Water	108-05-4	Vinyl Acetate	1.05	12.5	25
8260B/5030B	Water	75-01-4	Vinyl chloride	0.34	2.5	5

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8260-low/5030B	Water	630-20-6	1,1,1,2-Tetrachloroethane	0.43	0.5	1
8260-low/5030B	Water	71-55-6	1,1,1-Trichloroethane	0.40	0.5	1
8260-low/5030B	Water	79-34-5	1,1,2,2-Tetrachloroethane	0.31	0.5	1
8260-low/5030B	Water	79-00-5	1,1,2-Trichloroethane	0.38	0.5	1
8260-low/5030B	Water	76-13-1	1,1,2-Trichlorotrifluoroethane	0.45	0.5	1
8260-low/5030B	Water	75-34-3	1,1-Dichloroethane	0.36	0.5	1
8260-low/5030B	Water	75-35-4	1,1-Dichloroethene	0.47	0.5	1
8260-low/5030B	Water	563-58-6	1,1-Dichloropropene	0.39	0.5	1
8260-low/5030B	Water	87-61-6	1,2,3-Trichlorobenzene	0.20	0.5	1
8260-low/5030B	Water	96-18-4	1,2,3-Trichloropropane	0.50	0.5	1
8260-low/5030B	Water	120-82-1	1,2,4-Trichlorobenzene	0.20	0.5	1
8260-low/5030B	Water	95-63-6	1,2,4-Trimethylbenzene	0.38	0.5	1
8260-low/5030B	Water	96-12-8	1,2-Dibromo-3-Chloropropane	0.46	0.5	1
8260-low/5030B	Water	106-93-4	1,2-Dibromoethane	0.41	0.5	1
8260-low/5030B	Water	95-50-1	1,2-Dichlorobenzene	0.45	0.5	1
8260-low/5030B	Water	107-06-2	1,2-Dichloroethane	0.48	0.5	1
8260-low/5030B	Water	78-87-5	1,2-Dichloropropane	0.46	0.5	1
8260-low/5030B	Water	108-67-8	1,3,5-Trimethylbenzene	0.46	0.5	1
8260-low/5030B	Water	541-73-1	1,3-Dichlorobenzene	0.43	0.5	1
8260-low/5030B	Water	142-28-9	1,3-Dichloropropane	0.35	0.5	1
8260-low/5030B	Water	106-46-7	1,4-Dichlorobenzene	0.32	0.5	1
8260-low/5030B	Water	594-20-7	2,2-Dichloropropane	0.20	0.5	1
8260-low/5030B	Water	78-93-3	2-Butanone	1.32	2.5	5
8260-low/5030B	Water	110-75-8	2-Chloroethyl vinyl ether	1.79	2.5	5
8260-low/5030B	Water	95-49-8	2-Chlorotoluene	0.43	0.5	1
8260-low/5030B	Water	591-78-6	2-Hexanone	1.94	2.5	5
8260-low/5030B	Water	95-49-8	4-Chlorotoluene	0.42	0.5	1
8260-low/5030B	Water	108-10-1	4-Methyl-2-Pentanone	2.10	2.5	5
8260-low/5030B	Water	67-64-1	Acetone	0.50	2.5	5
8260-low/5030B	Water	107-02-8	Acrolein	0.50	2.5	5
8260-low/5030B	Water	107-13-1	Acrylonitrile	1.76	2.5	5
8260-low/5030B	Water	71-43-2	Benzene	0.32	0.5	1
8260-low/5030B	Water	108-86-1	Bromobenzene	0.20	0.5	1
8260-low/5030B	Water	74-97-5	Bromochloromethane	0.20	0.5	1
8260-low/5030B	Water	75-27-4	Bromodichloromethane	0.36	0.5	1
8260-low/5030B	Water	75-25-2	Bromoform	0.47	0.5	1
8260-low/5030B	Water	74-83-9	Bromomethane	0.20	0.5	1
8260-low/5030B	Water	75-15-0	Carbon disulfide	0.20	0.5	1
8260-low/5030B	Water	56-23-5	Carbon Tetrachloride	0.20	0.5	1
8260-low/5030B	Water	108-90-7	Chlorobenzene	0.49	0.5	1
8260-low/5030B	Water	75-00-3	Chloroethane	0.20	0.5	1
8260-low/5030B	Water	67-66-3	Chloroform	0.34	0.5	1
8260-low/5030B	Water	74-87-3	Chloromethane	0.20	0.5	1

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8260-low/5030B	Water	156-59-2	cis-1,2-Dichloroethene	0.35	0.5	1
8260-low/5030B	Water	10061-01-5	cis-1,3-Dichloropropene	0.31	0.5	1
8260-low/5030B	Water	110-82-7	cyclohexane	0.20	0.5	1
8260-low/5030B	Water	124-48-1	Dibromochloromethane	0.20	0.5	1
8260-low/5030B	Water	74-95-3	Dibromomethane	0.44	0.5	1
8260-low/5030B	Water	75-71-8	Dichlorodifluoromethane	0.20	0.5	1
8260-low/5030B	Water	60-29-7	Diethyl Ether	0.27	0.5	1
8260-low/5030B	Water	100-41-4	Ethyl Benzene	0.20	0.5	1
8260-low/5030B	Water	67-72-1	Hexachloroethane	0.20	0.5	1
8260-low/5030B	Water	87-68-3	Hexachlorobutadiene	0.20	0.5	1
8260-low/5030B	Water	98-82-8	Isopropylbenzene	0.45	0.5	1
8260-low/5030B	Water	136777-61-2	m/p-Xylenes	0.95	1	2
8260-low/5030B	Water	79-20-9	Methyl Acetate	0.20	0.5	1
8260-low/5030B	Water	1634-04-4	Methyl tert-butyl Ether	0.35	0.5	1
8260-low/5030B	Water	108-87-2	Methylcyclohexane	0.20	0.5	1
8260-low/5030B	Water	75-09-2	Methylene Chloride	0.41	0.5	1
8260-low/5030B	Water	91-20-3	Naphthalene	0.20	0.5	1
8260-low/5030B	Water	104-51-8	n-Butylbenzene	0.41	0.5	1
8260-low/5030B	Water	103-65-1	N-propylbenzene	0.45	0.5	1
8260-low/5030B	Water	95-47-6	o-Xylene	0.43	0.5	1
8260-low/5030B	Water	99-87-6	p-Isopropyltoluene	0.43	0.5	1
8260-low/5030B	Water	135-98-8	Sec-butylbenzene	0.46	0.5	1
8260-low/5030B	Water	100-42-5	Styrene	0.36	0.5	1
8260-low/5030B	Water	10061-02-6	t-1,3-Dichloropropene	0.29	0.5	1
8260-low/5030B	Water	27975-78-6	Tert butyl alcohol	0.50	2.5	5
8260-low/5030B	Water	98-06-6	tert-Butylbenzene	0.44	0.5	1
8260-low/5030B	Water	127-18-4	Tetrachloroethene	0.27	0.5	1
8260-low/5030B	Water	108-88-3	Toluene	0.37	0.5	1
8260-low/5030B	Water	156-60-5	trans-1,2-Dichloroethene	0.41	0.5	1
8260-low/5030B	Water	79-01-6	Trichloroethene	0.28	0.5	1
8260-low/5030B	Water	75-69-4	Trichlorofluoromethane	0.35	0.5	1
8260-low/5030B	Water	108-05-4	Vinyl Acetate	1.05	2.5	5
8260-low/5030B	Water	75-01-4	Vinyl chloride	0.34	0.5	1

Method	Matrix	CAS #	Compound	MDL ug/Kg	LOD ug/Kg	LOQ ug/Kg
8260B/5035A	Soil	630-20-6	1,1,1,2-Tetrachloroethane	0.43	2.5	5
8260B/5035A	Soil	71-55-6	1,1,1-Trichloroethane	0.88	2.5	5
8260B/5035A	Soil	79-34-5	1,1,2,2-Tetrachloroethane	0.46	2.5	5
8260B/5035A	Soil	79-00-5	1,1,2-Trichloroethane	0.90	2.5	5
8260B/5035A	Soil	76-13-1	1,1,2-Trichlorotrifluoroethane	1.33	2.5	5
8260B/5035A	Soil	75-34-3	1,1-Dichloroethane	0.94	2.5	5
8260B/5035A	Soil	75-35-4	1,1-Dichloroethene	1.47	2.5	5
8260B/5035A	Soil	563-58-6	1,1-Dichloropropene	0.46	2.5	5
8260B/5035A	Soil	87-61-6	1,2,3-Trichlorobenzene	0.50	2.5	5
8260B/5035A	Soil	96-18-4	1,2,3-Trichloropropane	0.49	2.5	5
8260B/5035A	Soil	120-82-1	1,2,4-Trichlorobenzene	0.70	2.5	5
8260B/5035A	Soil	95-63-6	1,2,4-Trimethylbenzene	0.50	2.5	5
8260B/5035A	Soil	96-12-8	1,2-Dibromo-3-Chloropropane	0.87	2.5	5
8260B/5035A	Soil	106-93-4	1,2-Dibromoethane	0.64	2.5	5
8260B/5035A	Soil	95-50-1	1,2-Dichlorobenzene	0.62	2.5	5
8260B/5035A	Soil	107-06-2	1,2-Dichloroethane	0.64	2.5	5
8260B/5035A	Soil	78-87-5	1,2-Dichloropropane	0.26	2.5	5
8260B/5035A	Soil	108-67-8	1,3,5-Trimethylbenzene	0.45	2.5	5
8260B/5035A	Soil	541-73-1	1,3-Dichlorobenzene	0.37	2.5	5
8260B/5035A	Soil	142-28-9	1,3-Dichloropropane	0.74	2.5	5
8260B/5035A	Soil	106-46-7	1,4-Dichlorobenzene	0.41	2.5	5
8260B/5035A	Soil	594-20-7	2,2-Dichloropropane	1.04	2.5	5
8260B/5035A	Soil	78-93-3	2-Butanone	3.11	12.5	25
8260B/5035A	Soil	110-75-8	2-Chloroethyl vinyl ether	11.51	12.5	25
8260B/5035A	Soil	95-49-8	2-Chlorotoluene	0.74	2.5	5
8260B/5035A	Soil	591-78-6	2-Hexanone	3.92	12.5	25
8260B/5035A	Soil	95-49-8	4-Chlorotoluene	0.62	2.5	5
8260B/5035A	Soil	108-10-1	4-Methyl-2-Pentanone	2.92	12.5	25
8260B/5035A	Soil	67-64-1	Acetone	3.02	12.5	25
8260B/5035A	Soil	107-02-8	Acrolein	3.98	12.5	25
8260B/5035A	Soil	107-13-1	Acrylonitrile	4.91	12.5	25
8260B/5035A	Soil	71-43-2	Benzene	0.38	2.5	5
8260B/5035A	Soil	108-86-1	Bromobenzene	0.52	2.5	5
8260B/5035A	Soil	74-97-5	Bromochloromethane	0.79	2.5	5
8260B/5035A	Soil	75-27-4	Bromodichloromethane	0.62	2.5	5
8260B/5035A	Soil	75-25-2	Bromoform	0.74	2.5	5
8260B/5035A	Soil	74-83-9	Bromomethane	2.45	2.5	5
8260B/5035A	Soil	75-15-0	Carbon disulfide	1.06	2.5	5

Method	Matrix	CAS #	Compound	MDL ug/Kg	LOD ug/Kg	LOQ ug/Kg
8260B/5035A	Soil	56-23-5	Carbon Tetrachloride	0.99	2.5	5
8260B/5035A	Soil	108-90-7	Chlorobenzene	0.50	2.5	5
8260B/5035A	Soil	75-00-3	Chloroethane	1.40	2.5	5
8260B/5035A	Soil	67-66-3	Chloroform	0.74	2.5	5
8260B/5035A	Soil	74-87-3	Chloromethane	0.86	2.5	5
8260B/5035A	Soil	156-59-2	cis-1,2-Dichloroethene	0.89	2.5	5
8260B/5035A	Soil	10061-01-5	cis-1,3-Dichloropropene	0.72	2.5	5
8260B/5035A	Soil	110-82-7	Cyclohexane	1.01	2.5	5
8260B/5035A	Soil	124-48-1	Dibromochloromethane	0.54	2.5	5
8260B/5035A	Soil	74-95-3	Dibromomethane	0.78	2.5	5
8260B/5035A	Soil	75-71-8	Dichlorodifluoromethane	0.65	2.5	5
8260B/5035A	Soil	60-29-7	Diethyl ether	1.92	2.5	5
8260B/5035A	Soil	100-41-4	Ethyl Benzene	0.62	2.5	5
8260B/5035A	Soil	87-68-3	Hexachlorobutadiene	0.79	2.5	5
8260B/5035A	Soil	67-72-1	Hexachloroethane	0.76	2.5	5
8260B/5035A	Soil	98-82-8	Isopropylbenzene	0.48	2.5	5
8260B/5035A	Soil	136777-61-2	m/p-Xylenes	0.72	5.0	10
8260B/5035A	Soil	79-20-9	Methyl Acetate	1.51	2.5	5
8260B/5035A	Soil	80-62-6	Methyl methacrylate	0.70	2.5	5
8260B/5035A	Soil	1634-04-4	Methyl tert-butyl Ether	0.96	2.5	5
8260B/5035A	Soil	108-87-2	Methyl cyclohexane	1.06	2.5	5
8260B/5035A	Soil	75-09-2	Methylene Chloride	1.42	2.5	5
8260B/5035A	Soil	91-20-3	Naphthalene	0.45	2.5	5
8260B/5035A	Soil	104-51-8	n-Butylbenzene	0.46	2.5	5
8260B/5035A	Soil	103-65-1	N-propylbenzene	0.36	2.5	5
8260B/5035A	Soil	95-47-6	o-Xylene	0.68	2.5	5
8260B/5035A	Soil	99-87-6	p-Isopropyltoluene	0.29	2.5	5
8260B/5035A	Soil	135-98-8	Sec-butylbenzene	0.52	2.5	5
8260B/5035A	Soil	100-42-5	Styrene	0.45	2.5	5
8260B/5035A	Soil	10061-02-6	t-1,3-Dichloropropene	0.79	2.5	5
8260B/5035A	Soil	27975-78-6	Tert butyl alcohol	7.41	12.5	25
8260B/5035A	Soil	98-06-6	tert-Butylbenzene	0.59	2.5	5
8260B/5035A	Soil	127-18-4	Tetrachloroethene	1.01	2.5	5
8260B/5035A	Soil	108-88-3	Toluene	0.64	2.5	5
8260B/5035A	Soil	156-60-5	trans-1,2-Dichloroethene	0.69	2.5	5
8260B/5035A	Soil	79-01-6	Trichloroethene	0.86	2.5	5
8260B/5035A	Soil	75-69-4	Trichlorofluoromethane	1.32	2.5	5
8260B/5035A	Soil	108-05-4	Vinyl Acetate	3.47	12.5	25
8260B/5035A	Soil	75-01-4	Vinyl chloride	1.23	2.5	5

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8270C/3510C	Water	92-52-4	1,1-Biphenyl	0.15	5	10
8270C/3510C	Water	95-94-3	1,2,4,5-Tetrachlorobenzene	0.20	5	10
8270C/3510C	Water	120-82-1	1,2,4-Trichlorobenzene	0.15	5	10
8270C/3510C	Water	95-50-1	1,2-Dichlorobenzene	0.26	5	10
8270C/3510C	Water	541-73-1	1,3-Dichlorobenzene	0.13	5	10
8270C/3510C	Water	106-46-7	1,4-Dichlorobenzene	0.20	5	10
8270C/3510C	Water	108-60-1	2,2-oxybis(1-Chloropropane)	0.17	5	10
8270C/3510C	Water	95-95-4	2,4,5-Trichlorophenol	0.40	5	10
8270C/3510C	Water	88-06-2	2,4,6-Trichlorophenol	0.56	5	10
8270C/3510C	Water	120-83-2	2,4-Dichlorophenol	0.66	5	10
8270C/3510C	Water	105-67-9	2,4-Dimethylphenol	0.71	5	10
8270C/3510C	Water	51-28-5	2,4-Dinitrophenol	2.10	5	10
8270C/3510C	Water	121-14-2	2,4-Dinitrotoluene	1.03	5	10
8270C/3510C	Water	606-20-2	2,6-Dinitrotoluene	0.32	5	10
8270C/3510C	Water	91-58-7	2-Chloronaphthalene	0.16	5	10
8270C/3510C	Water	95-57-8	2-Chlorophenol	0.54	5	10
8270C/3510C	Water	91-57-6	2-Methylnaphthalene	0.32	5	10
8270C/3510C	Water	95-48-7	2-Methylphenol	0.24	5	10
8270C/3510C	Water	88-74-4	2-Nitroaniline	0.49	5	10
8270C/3510C	Water	88-75-5	2-Nitrophenol	0.52	5	10
8270C/3510C	Water	91-94-1	3,3-Dichlorobenzidine	2.00	5	10
8270C/3510C	Water	65794-96-9	3+4-Methylphenols	0.38	5	10
8270C/3510C	Water	99-09-2	3-Nitroaniline	1.09	5	10
8270C/3510C	Water	534-52-1	4,6-Dinitro-2-methylphenol	0.74	5	10
8270C/3510C	Water	101-55-3	4-Bromophenyl-phenylether	0.23	5	10
8270C/3510C	Water	59-50-7	4-Chloro-3-methylphenol	0.40	5	10
8270C/3510C	Water	106-47-8	4-Chloroaniline	2.86	5	10
8270C/3510C	Water	7005-72-3	4-Chlorophenyl-phenylether	0.21	5	10
8270C/3510C	Water	100-01-6	4-Nitroaniline	1.36	5	10
8270C/3510C	Water	100-02-7	4-Nitrophenol	2.00	5	10
8270C/3510C	Water	83-32-9	Acenaphthene	0.21	5	10
8270C/3510C	Water	208-96-8	Acenaphthylene	0.70	5	10
8270C/3510C	Water	98-86-2	Acetophenone	0.14	5	10
8270C/3510C	Water	62-53-3	Aniline	3.37	5	10
8270C/3510C	Water	120-12-7	Anthracene	0.16	5	10
8270C/3510C	Water	1912-24-9	Atrazine	0.40	5	10
8270C/3510C	Water	122-66-7	Azobenzene	0.22	5	10
8270C/3510C	Water	100-52-7	Benzaldehyde	0.77	5	10

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8270C/3510C	Water	92-87-5	Benzidine	2.00	5	10
8270C/3510C	Water	56-55-3	Benzo(a)anthracene	0.16	5	10
8270C/3510C	Water	50-32-8	Benzo(a)pyrene	0.14	5	10
8270C/3510C	Water	205-99-2	Benzo(b)fluoranthene	0.29	5	10
8270C/3510C	Water	191-24-2	Benzo(g,h,i)perylene	0.29	5	10
8270C/3510C	Water	207-08-9	Benzo(k)fluoranthene	0.18	5	10
8270C/3510C	Water	65-85-0	Benzoic Acid	2.00	5	10
8270C/3510C	Water	100-51-6	Benzyl Alcohol	0.35	5	10
8270C/3510C	Water	111-91-1	bis(2-Chloroethoxy)methane	0.55	5	10
8270C/3510C	Water	111-44-4	bis(2-Chloroethyl)ether	0.55	5	10
8270C/3510C	Water	117-81-7	bis(2-Ethylhexyl)phthalate	0.16	5	10
8270C/3510C	Water	85-68-7	Butylbenzylphthalate	0.19	5	10
8270C/3510C	Water	105-60-2	Caprolactam	2.00	5	10
8270C/3510C	Water	86-74-8	Carbazole	0.22	5	10
8270C/3510C	Water	218-01-9	Chrysene	0.18	5	10
8270C/3510C	Water	53-70-3	Dibenz(a,h)anthracene	0.42	5	10
8270C/3510C	Water	132-64-9	Dibenzofuran	0.24	5	10
8270C/3510C	Water	84-66-2	Diethylphthalate	0.38	5	10
8270C/3510C	Water	131-11-3	Dimethylphthalate	0.22	5	10
8270C/3510C	Water	84-74-2	Di-n-butylphthalate	2.00	5	10
8270C/3510C	Water	117-84-0	Di-n-octyl phthalate	0.51	5	10
8270C/3510C	Water	206-44-0	Fluoranthene	0.40	5	10
8270C/3510C	Water	86-73-7	Fluorene	0.31	5	10
8270C/3510C	Water	118-74-1	Hexachlorobenzene	0.18	5	10
8270C/3510C	Water	87-68-3	Hexachlorobutadiene	0.25	5	10
8270C/3510C	Water	77-47-4	Hexachlorocyclopentadiene	0.24	5	10
8270C/3510C	Water	67-72-1	Hexachloroethane	0.25	5	10
8270C/3510C	Water	193-39-5	Indeno(1,2,3-cd)pyrene	0.15	5	10
8270C/3510C	Water	78-59-1	Isophorone	0.30	5	10
8270C/3510C	Water	91-20-3	Naphthalene	0.12	5	10
8270C/3510C	Water	98-95-3	Nitrobenzene	0.68	5	10
8270C/3510C	Water	62-75-9	N-nitrosodimethylamine	0.27	5	10
8270C/3510C	Water	621-64-7	N-Nitroso-di-n-propylamine	0.20	5	10
8270C/3510C	Water	86-30-6	N-Nitrosodiphenylamine	0.60	5	10
8270C/3510C	Water	87-86-5	Pentachlorophenol	1.72	5	10
8270C/3510C	Water	85-01-8	Phenanthrene	0.26	5	10
8270C/3510C	Water	108-95-2	Phenol	0.21	5	10
8270C/3510C	Water	129-00-0	Pyrene	0.20	5	10
8270C/3510C	Water	110-86-1	Pyridine	2.00	5	10

Method	Matrix	CAS #	Compound	MDL ug/Kg	LOD ug/Kg	LOQ ug/Kg
8270C/3541	Soil	92-52-4	1,1-Biphenyl	12.6	170	330
8270C/3541	Soil	95-94-3	1,2,4,5-Tetrachlorobenzene	13.1	170	330
8270C/3541	Soil	120-82-1	1,2,4-Trichlorobenzene	12.7	170	330
8270C/3541	Soil	95-50-1	1,2-Dichlorobenzene	12.7	170	330
8270C/3541	Soil	541-73-1	1,3-Dichlorobenzene	5.9	170	330
8270C/3541	Soil	106-46-7	1,4-Dichlorobenzene	11.4	170	330
8270C/3541	Soil	108-60-1	2,2-oxybis(1-Chloropropane)	13.8	170	330
8270C/3541	Soil	95-95-4	2,4,5-Trichlorophenol	23.4	170	330
8270C/3541	Soil	88-06-2	2,4,6-Trichlorophenol	10.2	170	330
8270C/3541	Soil	120-83-2	2,4-Dichlorophenol	12.7	170	330
8270C/3541	Soil	105-67-9	2,4-Dimethylphenol	18.9	170	330
8270C/3541	Soil	51-28-5	2,4-Dinitrophenol	33.9	170	330
8270C/3541	Soil	121-14-2	2,4-Dinitrotoluene	10.1	170	330
8270C/3541	Soil	606-20-2	2,6-Dinitrotoluene	13.6	170	330
8270C/3541	Soil	91-58-7	2-Chloronaphthalene	7.6	170	330
8270C/3541	Soil	95-57-8	2-Chlorophenol	17.6	170	330
8270C/3541	Soil	91-57-6	2-Methylnaphthalene	8.4	170	330
8270C/3541	Soil	95-48-7	2-Methylphenol	18.1	170	330
8270C/3541	Soil	88-74-4	2-Nitroaniline	14.8	170	330
8270C/3541	Soil	88-75-5	2-Nitrophenol	16.1	170	330
8270C/3541	Soil	91-94-1	3,3-Dichlorobenzidine	21.4	170	330
8270C/3541	Soil	65794-96-9	3+4-Methylphenols	17.3	170	330
8270C/3541	Soil	99-09-2	3-Nitroaniline	21.4	170	330
8270C/3541	Soil	534-52-1	4,6-Dinitro-2-methylphenol	19.1	170	330
8270C/3541	Soil	101-55-3	4-Bromophenyl-phenylether	6.5	170	330
8270C/3541	Soil	59-50-7	4-Chloro-3-methylphenol	14.8	170	330
8270C/3541	Soil	106-47-8	4-Chloroaniline	23.5	170	330
8270C/3541	Soil	7005-72-3	4-Chlorophenyl-phenylether	18.1	170	330
8270C/3541	Soil	100-01-6	4-Nitroaniline	43.4	170	330
8270C/3541	Soil	100-02-7	4-Nitrophenol	61.9	170	330
8270C/3541	Soil	83-32-9	Acenaphthene	9.4	170	330
8270C/3541	Soil	208-96-8	Acenaphthylene	8.4	170	330
8270C/3541	Soil	98-86-2	Acetophenone	10.2	170	330
8270C/3541	Soil	62-53-3	Aniline	28.4	170	330
8270C/3541	Soil	120-12-7	Anthracene	6.8	170	330
8270C/3541	Soil	1912-24-9	Atrazine	17.6	170	330
8270C/3541	Soil	122-66-7	Azobenzene	7.8	170	330
8270C/3541	Soil	100-52-7	Benzalaldehyde	17.4	170	330

Method	Matrix	CAS #	Compound	MDL ug/Kg	LOD ug/Kg	LOQ ug/Kg
8270C/3541	Soil	92-87-5	Benzidine	33.5	170	330
8270C/3541	Soil	56-55-3	Benzo(a)anthracene	15.9	170	330
8270C/3541	Soil	50-32-8	Benzo(a)pyrene	7.2	170	330
8270C/3541	Soil	205-99-2	Benzo(b)fluoranthene	10.9	170	330
8270C/3541	Soil	191-24-2	Benzo(g,h,i)perylene	13.5	170	330
8270C/3541	Soil	207-08-9	Benzo(k)fluoranthene	15.7	170	330
8270C/3541	Soil	65-85-0	Benzoic acid	66.0	170	330
8270C/3541	Soil	100-51-6	Benzyl Alcohol	12.5	170	330
8270C/3541	Soil	111-91-1	bis(2-Chloroethoxy)methane	19.2	170	330
8270C/3541	Soil	111-44-4	bis(2-Chloroethyl)ether	16.0	170	330
8270C/3541	Soil	117-81-7	bis(2-Ethylhexyl)phthalate	11.8	170	330
8270C/3541	Soil	85-68-7	Butylbenzylphthalate	16.0	170	330
8270C/3541	Soil	105-60-2	Caprolactam	15.5	170	330
8270C/3541	Soil	86-74-8	Carbazole	7.3	170	330
8270C/3541	Soil	218-01-9	Chrysene	15.1	170	330
8270C/3541	Soil	53-70-3	Dibenz(a,h)anthracene	9.6	170	330
8270C/3541	Soil	132-64-9	Dibenzofuran	13.0	170	330
8270C/3541	Soil	84-66-2	Diethylphthalate	5.2	170	330
8270C/3541	Soil	131-11-3	Dimethylphthalate	9.0	170	330
8270C/3541	Soil	84-74-2	Di-n-butylphthalate	26.2	170	330
8270C/3541	Soil	117-84-0	Di-n-octyl phthalate	3.8	170	330
8270C/3541	Soil	206-44-0	Fluoranthene	6.7	170	330
8270C/3541	Soil	86-73-7	Fluorene	12.6	170	330
8270C/3541	Soil	118-74-1	Hexachlorobenzene	13.6	170	330
8270C/3541	Soil	87-68-3	Hexachlorobutadiene	12.1	170	330
8270C/3541	Soil	77-47-4	Hexachlorocyclopentadiene	8.1	170	330
8270C/3541	Soil	67-72-1	Hexachloroethane	14.9	170	330
8270C/3541	Soil	193-39-5	Indeno(1,2,3-cd)pyrene	11.1	170	330
8270C/3541	Soil	78-59-1	Isophorone	11.0	170	330
8270C/3541	Soil	91-20-3	Naphthalene	11.5	170	330
8270C/3541	Soil	98-95-3	Nitrobenzene	12.6	170	330
8270C/3541	Soil	62-75-9	N-Nitrosodimethylamine	17.1	170	330
8270C/3541	Soil	621-64-7	N-Nitroso-di-n-propylamine	16.8	170	330
8270C/3541	Soil	86-30-6	N-Nitrosodiphenylamine	8.0	170	330
8270C/3541	Soil	87-86-5	Pentachlorophenol	22.8	170	330
8270C/3541	Soil	85-01-8	Phenanthrene	9.0	170	330
8270C/3541	Soil	108-95-2	Phenol	7.7	170	330
8270C/3541	Soil	129-00-0	Pyrene	8.0	170	330
8270C/3541	Soil	110-86-1	Pyridine	66.0	170	330

Method	Matrix	CAS#	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
7470A	Water	7439-97-6	Mercury	0.09	0.1	0.200
6010B/3010A	Water	7429-90-5	Aluminum	6.5	25.0	50.0
6010B/3010A	Water	7440-36-0	Antimony	8.0	12.5	25.0
6010B/3010A	Water	7440-38-2	Arsenic	4.2	5.0	10.0
6010B/3010A	Water	7440-39-3	Barium	4.0	25.0	50.0
6010B/3010A	Water	7440-41-7	Beryllium	0.7	1.5	3.0
6010B/3010A	Water	7440-42-8	Boron	3.4	25.0	50.0
6010B/3010A	Water	7440-43-9	Cadmium	0.5	1.5	3.0
6010B/3010A	Water	7440-70-2	Calcium	31.8	500.0	1000.0
6010B/3010A	Water	7440-47-3	Chromium	1.1	2.5	5.0
6010B/3010A	Water	7440-48-4	Cobalt	5.8	7.5	15.0
6010B/3010A	Water	7440-50-8	Copper	2.0	5.0	10.0
6010B/3010A	Water	7439-89-6	Iron	20.4	25.0	50.0
6010B/3010A	Water	7439-92-1	Lead	2.6	3.0	6.0
6010B/3010A	Water	7439-93-2	Lithium	3.9	5.0	10.0
6010B/3010A	Water	7439-95-4	Magnesium	32.5	500.0	1000.0
6010B/3010A	Water	7439-96-5	Manganese	1.7	5.0	10.0
6010B/3010A	Water	7439-98-7	Molybdenum	1.8	50.0	100.0
6010B/3010A	Water	7440-02-0	Nickel	4.2	10.0	20.0
6010B/3010A	Water	7440-09-7	Potassium	38.8	500.0	1000.0
6010B/3010A	Water	7782-49-2	Selenium	4.8	5.0	10.0
6010B/3010A	Water	7631-86-9	Silicon	32.9	100.0	200.0
6010B/3010A	Water	7440-22-4	Silver	1.5	2.5	5.0
6010B/3010A	Water	7440-23-5	Sodium	13.9	500.0	1000.0
6010B/3010A	Water	7704-34-9	Sulfur	2.0	5.0	10.0
6010B/3010A	Water	7440-28-0	Thallium	2.4	10.0	20.0
6010B/3010A	Water	7440-31-5	Tin	1.8	10.0	20.0
6010B/3010A	Water	7440-32-6	Titanium	0.7	10.0	20.0
6010B/3010A	Water	7440-62-2	Vanadium	6.1	10.0	20.0
6010B/3010A	Water	7440-66-6	Zinc	6.5	10.0	20.0

Method	Matrix	CAS#	Compound	MDL mg/Kg	LOD mg/Kg	LOQ mg/Kg
7471A	Soil	7439-97-6	Mercury	0.002	0.005	0.01
6010B/3050B	Soil	7429-90-5	Aluminum	0.84	2.5	5
6010B/3050B	Soil	7440-36-0	Antimony	0.56	1.25	2.5
6010B/3050B	Soil	7440-38-2	Arsenic	0.33	0.5	1
6010B/3050B	Soil	7440-39-3	Barium	0.40	2.5	5
6010B/3050B	Soil	7440-41-7	Beryllium	0.06	0.15	0.3
6010B/3050B	Soil	7440-42-8	Boron	0.380	2.5	5
6010B/3050B	Soil	7440-43-9	Cadmium	0.06	0.15	0.3
6010B/3050B	Soil	7440-70-2	Calcium	1.07	50	100
6010B/3050B	Soil	7440-47-3	Chromium	0.13	0.25	0.5
6010B/3050B	Soil	7440-48-4	Cobalt	0.57	0.75	1.5
6010B/3050B	Soil	7440-50-8	Copper	0.32	0.5	1
6010B/3050B	Soil	7439-89-6	Iron	1.33	2.5	5
6010B/3050B	Soil	7439-92-1	Lead	0.12	0.3	0.6
6010B/3050B	Soil	7439-93-2	Lithium	0.38	0.5	1
6010B/3050B	Soil	7439-95-4	Magnesium	4.58	50	100
6010B/3050B	Soil	7439-96-5	Manganese	0.19	0.5	1
6010B/3050B	Soil	7439-98-7	Molybdenum	0.120	5	10
6010B/3050B	Soil	7440-02-0	Nickel	0.46	1	2
6010B/3050B	Soil	7440-09-7	Potassium	3.50	50	100
6010B/3050B	Soil	7782-49-2	Selenium	0.41	0.5	1
6010B/3050B	Soil	7631-86-9	Silicon	3.550	10	20
6010B/3050B	Soil	7440-22-4	Silver	0.15	0.25	0.5
6010B/3050B	Soil	7440-23-5	Sodium	2.52	50	100
6010B/3050B	Soil	7704-34-9	Sulfur	0.760	1	2
6010B/3050B	Soil	7440-28-0	Thallium	0.27	1	2
6010B/3050B	Soil	7440-31-5	Tin	0.180	1.0	2
6010B/3050B	Soil	7440-32-6	Titanium	0.100	1.0	2
6010B/3050B	Soil	7440-62-2	Vanadium	0.59	1	2
6010B/3050B	Soil	7440-66-6	Zinc	0.70	1	2

Method	Matrix	CAS#	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8082/3510C	Water	12674-11-2	AROCLOR 1016	0.096	0.25	0.5
8082/3510C	Water	11104-28-2	AROCLOR 1221	0.190	0.25	0.5
8082/3510C	Water	11141-16-5	AROCLOR 1232	0.150	0.25	0.5
8082/3510C	Water	53469-21-9	AROCLOR 1242	0.089	0.25	0.5
8082/3510C	Water	12672-29-6	AROCLOR 1248	0.240	0.25	0.5
8082/3510C	Water	11097-69-1	AROCLOR 1254	0.044	0.25	0.5
8082/3510C	Water	11096-82-5	AROCLOR 1260	0.081	0.25	0.5

Method	Matrix	CAS#	Compound	MDL ug/Kg	LOD ug/Kg	LOQ ug/Kg
8082/3541	Soil	12674-11-2	AROCLOR 1016	3.47	8.5	17
8082/3541	Soil	11104-28-2	AROCLOR 1221	3.40	8.5	17
8082/3541	Soil	11141-16-5	AROCLOR 1232	7.47	8.5	17
8082/3541	Soil	53469-21-9	AROCLOR 1242	3.40	8.5	17
8082/3541	Soil	12672-29-6	AROCLOR 1248	6.59	8.5	17
8082/3541	Soil	11097-69-1	AROCLOR 1254	1.49	8.5	17
8082/3541	Soil	11096-82-5	AROCLOR 1260	4.11	8.5	17

Method	Matrix	CAS #	Compound	MDL ug/L	LOD ug/L	LOQ ug/L
8081A/3510C	Water	72-54-8	4,4'-DDD	0.0071	0.025	0.050
8081A/3510C	Water	72-55-9	4,4'-DDE	0.0040	0.025	0.050
8081A/3510C	Water	50-29-3	4,4'-DDT	0.0059	0.025	0.050
8081A/3510C	Water	309-00-2	Aldrin	0.0062	0.025	0.050
8081A/3510C	Water	319-84-6	alpha-BHC	0.0051	0.025	0.050
8081A/3510C	Water	5103-74-2	alpha-Chlordane	0.0049	0.025	0.050
8081A/3510C	Water	319-85-7	beta-BHC	0.0086	0.025	0.050
8081A/3510C	Water	57-74-9	Chlordane	0.1000	0.25	0.50
8081A/3510C	Water	319-86-8	delta-BHC	0.0056	0.025	0.050
8081A/3510C	Water	60-57-1	Dieldrin	0.0047	0.025	0.050
8081A/3510C	Water	959-98-8	Endosulfan I	0.0061	0.025	0.050
8081A/3510C	Water	33213-65-9	Endosulfan II	0.0055	0.025	0.050
8081A/3510C	Water	1031-07-8	Endosulfan sulfate	0.0060	0.025	0.050
8081A/3510C	Water	72-20-8	Endrin	0.0058	0.025	0.050
8081A/3510C	Water	7421-93-4	Endrin aldehyde	0.0045	0.025	0.050
8081A/3510C	Water	53494-70-5	Endrin ketone	0.0057	0.025	0.050
8081A/3510C	Water	58-89-9	gamma-BHC (Lindane)	0.0055	0.025	0.050
8081A/3510C	Water	5103-71-9	gamma-Chlordane	0.0050	0.025	0.050
8081A/3510C	Water	76-44-8	Heptachlor	0.0069	0.025	0.050
8081A/3510C	Water	1024-57-3	Heptachlor epoxide	0.0067	0.025	0.050
8081A/3510C	Water	72-43-5	Methoxychlor	0.0042	0.025	0.050
8081A/3510C	Water	8001-35-2	Toxaphene	0.1000	0.25	0.50

Method	Matrix	CAS #	Compound	MDL ug/Kg	LOD ug/Kg	LOQ ug/Kg
8081A/3541	Soil	72-54-8	4,4'-DDD	0.17	0.9	1.7
8081A/3541	Soil	72-55-9	4,4'-DDE	0.20	0.9	1.7
8081A/3541	Soil	50-29-3	4,4'-DDT	0.14	0.9	1.7
8081A/3541	Soil	309-00-2	Aldrin	0.10	0.9	1.7
8081A/3541	Soil	319-84-6	alpha-BHC	0.13	0.9	1.7
8081A/3541	Soil	5103-74-2	alpha-Chlordane	0.14	0.9	1.7
8081A/3541	Soil	319-85-7	beta-BHC	0.18	0.9	1.7
8081A/3541	Soil	57-74-9	Chlordane	3.40	8.5	17
8081A/3541	Soil	319-86-8	delta-BHC	0.10	0.9	1.7
8081A/3541	Soil	60-57-1	Dieldrin	0.13	0.9	1.7
8081A/3541	Soil	959-98-8	Endosulfan I	0.15	0.9	1.7
8081A/3541	Soil	33213-65-9	Endosulfan II	0.14	0.9	1.7
8081A/3541	Soil	1031-07-8	Endosulfan sulfate	0.15	0.9	1.7
8081A/3541	Soil	72-20-8	Endrin	0.18	0.9	1.7
8081A/3541	Soil	7421-93-4	Endrin aldehyde	0.15	0.9	1.7
8081A/3541	Soil	53494-70-5	Endrin ketone	0.13	0.9	1.7
8081A/3541	Soil	58-89-9	gamma-BHC (Lindane)	0.15	0.9	1.7
8081A/3541	Soil	5103-71-9	gamma-Chlordane	0.13	0.9	1.7
8081A/3541	Soil	76-44-8	Heptachlor	0.14	0.9	1.7
8081A/3541	Soil	1024-57-3	Heptachlor epoxide	0.16	0.9	1.7
8081A/3541	Soil	72-43-5	Methoxychlor	0.17	0.9	1.7
8081A/3541	Soil	8001-35-2	Toxaphene	3.40	8.5	17

	Method	MDL	LOD	LOQ	Units
Analytes					
Acidity(water)	ASTM D1067-92	**NA**	**2.000**	**2.000**	mg/L
Alkalinity(water)	SM2320B	**0.400**	**1.000**	**2.000**	mg/L
Amenable Cyanide(water)	SM4500-CN C,G	**NA**	**0.010**	**0.010**	mg/L
Amenable Cyanide(soil)	9010B	**NA**	**0.500**	**0.500**	mg/Kg
Ammonia(water)	SM4500 NH3 H	**0.034**	**0.050**	**0.100**	mg/L
Ammonia(soil)	SM4500 NH3 H	**0.010**	**1.000**	**2.000**	mg/Kg
BOD	SM5210B	**NA**	**2.000**	**2.000**	mg/L
Bromate(water)	300/9056	**0.032**	**1.500**	**3.000**	mg/L
Bromide(water)	300/9056	**0.066**	**0.250**	**0.500**	mg/L
Bromide(soil)	9056	**0.190**	**0.250**	**0.500**	mg/Kg
Cation Exchange(soil)	9080	**NA**	**NA**	**NA**	NA
Cation Exchange(soil)	9081	**NA**	**NA**	**NA**	NA
CBOD(water)	SM5210B	**NA**	**2.000**	**2.000**	mg/L
Chlorate(water)	300/9056	**0.04**	**1.50**	**3.00**	ug/L
Chloride(water)	300/9056	**0.203**	**0.250**	**0.500**	mg/L
Chloride(water)	SM4500 Cl-C	**0.400**	**1.000**	**2.000**	mg/L
Chloride(soil)	9056	**0.032**	**0.250**	**0.500**	mg/Kg
Chlorite(water)	300/9056	**0.018**	**1.500**	**3.000**	ug/L
COD(water)	SM5220D	**2.425**	**2.500**	**5.000**	mg/L
Conductivity(water)	SM2510B	**0.400**	**1.000**	**2.000**	umhos/cm
Conductivity(soil)	9050A	**NA**	**NA**	**NA**	NA
Corrosivity(soil)	9040B	**NA**	**NA**	**NA**	NA
Cyanide(water)	SM4500 CN C,E	**0.805**	**5.000**	**10.000**	ug/L
Cyanide(water)	9010C/9012A	**4.571**	**5.000**	**10.000**	ug/L
Cyanide(soil)	9010C/9012A	**0.033**	**0.250**	**0.500**	mg/Kg
Dissolved Oxygen(water)	SM4500-O G	**NA**	**NA**	**NA**	NA
Fluoride(water)	300/9056	**0.043**	**0.050**	**0.100**	mg/L
Fluoride(soil)	9056	**0.017**	**0.050**	**0.100**	mg/Kg
Foaming agents(water)	SM5540C	**0.009**	**0.005**	**0.010**	mg/L
Hexavalent Chromium(water)	3500 Cr D	**0.005**	**0.005**	**0.010**	mg/L
Hexavalent Chromium(water)	3060A/7196A	**0.002**	**0.005**	**0.010**	mg/L
Hexavalent Chromium(soil)	3060A/7196A	**0.080**	**0.200**	**0.400**	mg/Kg
Ignitability(water)	1010	**NA**	**NA**	**NA**	NA
Ignitability(soil)	1030	**NA**	**NA**	**NA**	NA
Nitrate(water)	300/9056	**0.027**	**0.050**	**0.100**	mg/L
Nitrate(soil)	9056	**0.011**	**0.050**	**0.100**	mg/Kg

Analytes	Method	MDL	LOD	LOQ	Units
Nitrite(water)	300/9056	**0.022**	**0.025**	**0.050**	mg/L
Nitrite(soil)	9056	**0.010**	**0.025**	**0.050**	mg/Kg
Oil & Grease(water)	1664A	**0.679**	**2.500**	**5.000**	mg/L
Orthophosphate(water)	300/9056	**0.010**	**0.025**	**0.050**	mg/L
Orthophosphate(water)	SM4500-P E	**0.004**	**0.005**	**0.010**	mg/L
Orthophosphate(soil)	9056	**0.002**	**0.005**	**0.010**	mg/Kg
Paint Filter(soil)	9095	**NA**	**1.000**	**1.000**	mg/L
Phenols(water)	420.1	**0.002**	**0.005**	**0.010**	mg/L
Phenols(water)	9065	**0.010**	**0.010**	**0.010**	mg/L
Phenols(soil)	9065	**0.078**	**0.625**	**1.250**	mg/Kg
Residual Chlorine(water)	SM4500-Cl G	**0.010**	**0.050**	**0.100**	mg/L
Salinity(water)	SM2520C	**NA**	**NA**	**NA**	NA
Settlable solids(water)	SM2540F	**NA**	**0.200**	**0.200**	mg/L
Sulfate(water)	300/9056	**0.132**	**0.250**	**0.500**	mg/L
Sulfate(water)	SM4500-SO4 E	**0.226**	**0.500**	**1.000**	mg/L
Sulfate(water)	9038	**0.339**	**0.500**	**1.000**	mg/L
Sulfate(soil)	9038	**0.157**	**5.000**	**10.000**	mg/Kg
Sulfate(soil)	9056	**0.096**	**5.000**	**10.000**	mg/Kg
Sulfide(water)	9030B/9034	**0.03**	**0.50**	**1.00**	mg/L
Sulfide(soil)	9030B/9034	**5.00**	**12.50**	**25.00**	mg/Kg
Sulfite(water)	SM4500-SO3 B	**NES**	**2.000**	**2.000**	mg/L
TDS(water)	SM2540C	**0.031**	**5.000**	**10.000**	mg/L
TKN(water)	SM4500-N OrgB or C	**0.096**	**0.250**	**0.500**	mg/L
TOC(water)	SM5310B	**0.080**	**0.250**	**0.500**	mg/L
TOC(water)	9060	**0.097**	**0.250**	**0.500**	mg/L
TOC(soil)	9060	**48.849**	**125.000**	**250.000**	mg/Kg
TOC(water)	Lloyd Kahn	**0.177**	**50.000**	**100.000**	mg/L
Total Phosphorus(water)	365.3	**0.005**	**0.005**	**0.010**	mg/L
Total fixed vol. Solids(water)	SM2540G	**NA**	**10.000**	**10.000**	mg/L
TPH(soil)	9071B	**5.000**	**12.500**	**25.000**	mg/Kg
TSS(water)	SM2540D	**NA**	**4.000**	**4.000**	mg/L
Turbidity(water)	180.1	**0.010**	**0.025**	**0.050**	NTU
Turbidity(water)	SM2130B	**0.010**	**0.025**	**0.050**	NTU
VS(water)	160.4	**NA**	**10**	**10**	mg/L

Attachment 3

Paradigm Statement of Qualifications

PARADIGM

ENVIRONMENTAL SERVICES, INC.

STATEMENT OF QUALIFICATIONS

TABLE OF CONTENTS

COMPANY PROFILE

Paradigm Environmental Services was established in 1988 to simplify today's complex environmental concerns. Utilizing a team approach, Paradigm provides architects, engineers, building owners, industrial clients, and contractors with advice and solutions to environmentally related problems.

Initially, Paradigm's environmental laboratory specialized in analysis of bulk materials and air samples for asbestos. Our clients included municipalities, schools, and industries involved in abatement projects. With an emphasis on fast, reliable service, Paradigm quickly developed a reputation as one of the leading asbestos laboratories in this area.

Next, we added project design and management services. With this addition, Paradigm was able to provide its clients with architectural design support services, and project management for asbestos abatement and remediation projects.

In early 1992, Paradigm decided to diversify into environmental chemistry. We began by offering inorganic and microbiological sample collection and analysis. In 1993 we added an organics laboratory, further enhancing our capabilities, and allowing us to offer our clients full, in-house laboratory services. Paradigm now provides a comprehensive list of services to industry, consultants, and contractors covering solid, aqueous, and air matrices.

Paradigm's staff of over twenty professionals including chemists, biologists, environmental specialists, industrial hygienists, and support personnel. Ninety percent of Paradigm's staff holds formal professional degrees.

Within the environmental consulting community, Paradigm has a reputation for service to its clients that is second to none. Our philosophy of service embraces quality, responsiveness, integrity and technical excellence. Client oriented service and technical expertise will continue to be the focus of our future endeavors.

PROFESSIONAL & TECHNICAL SERVICES

PARADIGM ENVIRONMENTAL IS PROUD TO OFFER THE FOLLOWING LIST OF VALUE ADDED SERVICES:

ASBESTOS

Air Sampling & Analysis

Bulk Materials Sampling & Analysis

Building Surveys

Project Design

Project Monitoring

ENVIRONMENTAL CHEMISTRY

RCRA Waste Analysis

Wastewater Sampling & Analysis

Groundwater Monitoring

STARS Petroleum Analysis

Hazardous Waste Characterizations

Vapor Intrusion / Air Analysis

LEAD BASED PAINT

Abatement Wipe Sampling & Analysis

Personal Air Monitoring

Non-Destructive XRF Building Surveys

Risk Assessments

LOSS CONTROL AND LOSS PREVENTION

Workers' Compensation Cost Containment

Workers' Compensation Loss Analysis

Behavioral Risk Improvement

Risk Assessment & Management

Training Design & Delivery

Return-to-Work Program

Audit Programs

SAFETY & HEALTH SERVICES

Safety Management for Business

Safety Audits

Site-Inspections & OSHA Compliance Inspections

Site-Specific plans,

Site Traffic Safety

Technical Consultation and Program Development

OSHA Compliance Training

Online OSHA Compliance Training

Loss Control Program Management

OSHA 10 and 30 Hour

Safety Program & Company Policy Development

LABORATORY CAPABILITIES

ENVIRONMENTAL ANALYSIS: AIR & EMISSIONS

- Fibers (Asbestos) PCM & TEM
- Purgeable Halocarbons
- Metals I, II and III
- Purgeable Aromatics
- Polychlorinated Biphenyls
- TO-15/TO-17

ENVIRONMENTAL ANALYSIS: SOLID & HAZARDOUS WASTE

- Corrosivity (pH)
- Ignitability
- TCLP
- Asbestos PLM & TEM
- Lead in Paint
- Lead in Wipes
- Lead in Air Strip
- Purgeable Aromatics
- Purgeable Halocarbons
- Chlorinated Hydrocarbons
- Chlorinated Hydrocarbon Pesticides
- Chlorophenoxy Acid Pesticides
- Metal I, II and III
- Polychlorinated Biphenyls
- Nitroaromatics Isophorone
- Nitrosamines
- Phthalate Esters
- Haloethers
- Polynuclear Aromatics Hydrocarbons
- Priority Pollutant Phenols

LABORATORY CAPABILITIES (CONTINUED)

ENVIRONMENTAL ANALYSIS: POTABLE WATER

- Drinking Water Bacteriology
- Drinking Water Copper, Iron and Sodium
- pH
- Calcium Hardness
- Specific Conductance

ENVIRONMENTAL ANALYSIS: NON-POTABLE WATER

- Amines
- Chlorinated Hydrocarbons
- Chlorinated Hydrocarbons Pesticides
- Chlorophenoxy Acid Pesticides
- Waste Water Metals I
- Waste Water Metals II
- Waste Water Metals III
- pH
- Purgeable Aromatics
- Purgeable Halocarbons
- Purgeable Organics

LABORATORY CERTIFICATIONS

Paradigm Environmental Services maintains the following Environmental Laboratory certifications.

- United States Environmental Protection Agency
  Lead-Based Paint Activities Certification #NY-01-042003-229

- New York State Department of Health (NELAC)
  Environmental Analyses/Air and Emissions #10958

- New York State Department of Health (NELAC)
  Environmental Analyses/Non-Potable Water #10958

- New York State Department of Health (NELAC)
  Environmental Analyses/Potable Water #10958

- New York State Department of Health (NELAC)
  Environmental Analyses/Solid and Hazardous Waste #10958

- National Voluntary Laboratory Accreditation (NVLAP)
  Airborne Asbestos Fiber Analysis/Bulk Asbestos Fiber Analysis

ANALYTICAL INSTRUMENTATION

Asbestos Analysis Instrumentation

• (6) Olympus Compound Microscopes capable of both Polarized Light and Phase Contrast Microscopy, Model BH-2.

• (6) Olympus Stereo Microscopes with 7x-40x Magnification, Model SZ.

• (2) Thermolyne Muffle Furnace, Model 48000.

• JEOL TEM 100CX Electron Microscope with EVEX EDX detector

• Hitachi TEM 100CX Electron Microscope with EVEX EDX detector

Atomic Absorption Instrumentation

• Perkin-Elmer FIMS-100 mercury analyzer with AS-90 autosampler.

• Perkin-Elmer Inductively Coupled Plasma (ICP) - Model 3300DV with AS-90 autosampler.

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Gas Chromatograph: Mass Spectrometry Analysis

• Agilent Series II Gas Chromatograph, Model 6890 with HP MSD, Model 5973, Enviroquant Data system, EST Enchon Purge & Trap, EST 8100 Autosampler.

• Agilent Series II Gas Chromatograph, Model 6890 with Agilent MSD, Model 5973 Agilent 7683 Autosampler

• Agilent Series II Gas Chromatograph, Model 6890 with Micro ECD, Agilent 7683 Autosampler

• Thermo Trace GC, DSQ Mass Spectrometer, Entech 7032A-L Autosampler, Entech 7100 Preconcentrator, Entech 4600 Dymanic Diluter, Entech 3100A Canister Cleaner, Barnstead International 3513 Oven

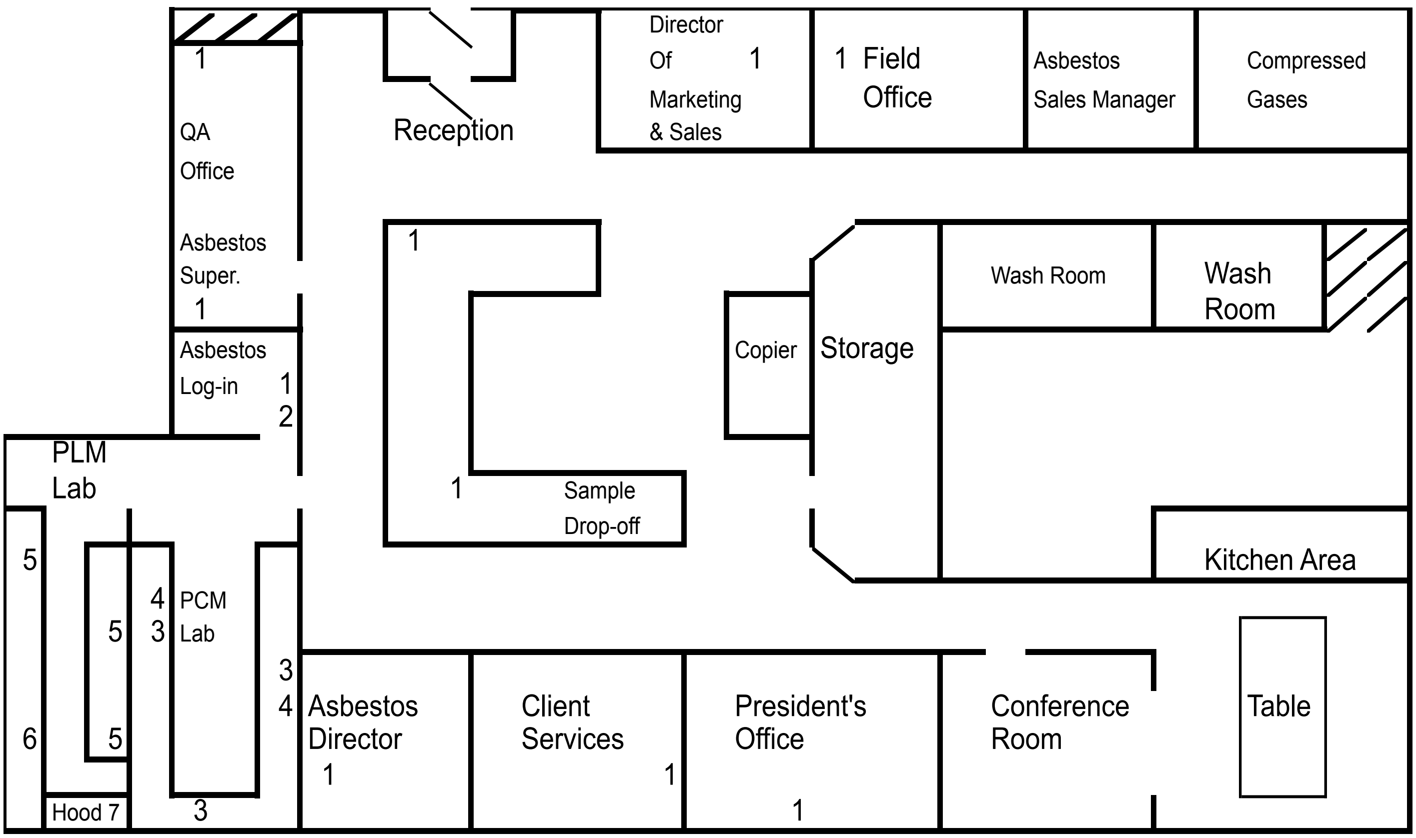
• Hewlett-Packard (HP) Series II Gas Chromatograph, Model 5890 with HP Auto Sampler, Model 7673A and Electron Capture Detector, Model 5971A; DOS Chemstation; and HP Vectra 486 computer.

• HP Series II Chromatograph with Chemstation, Model 5890; Flame Ionitation Dectector, HP Autosamplers, Model 7673A

FIELD SAMPLING EQUIPMENT

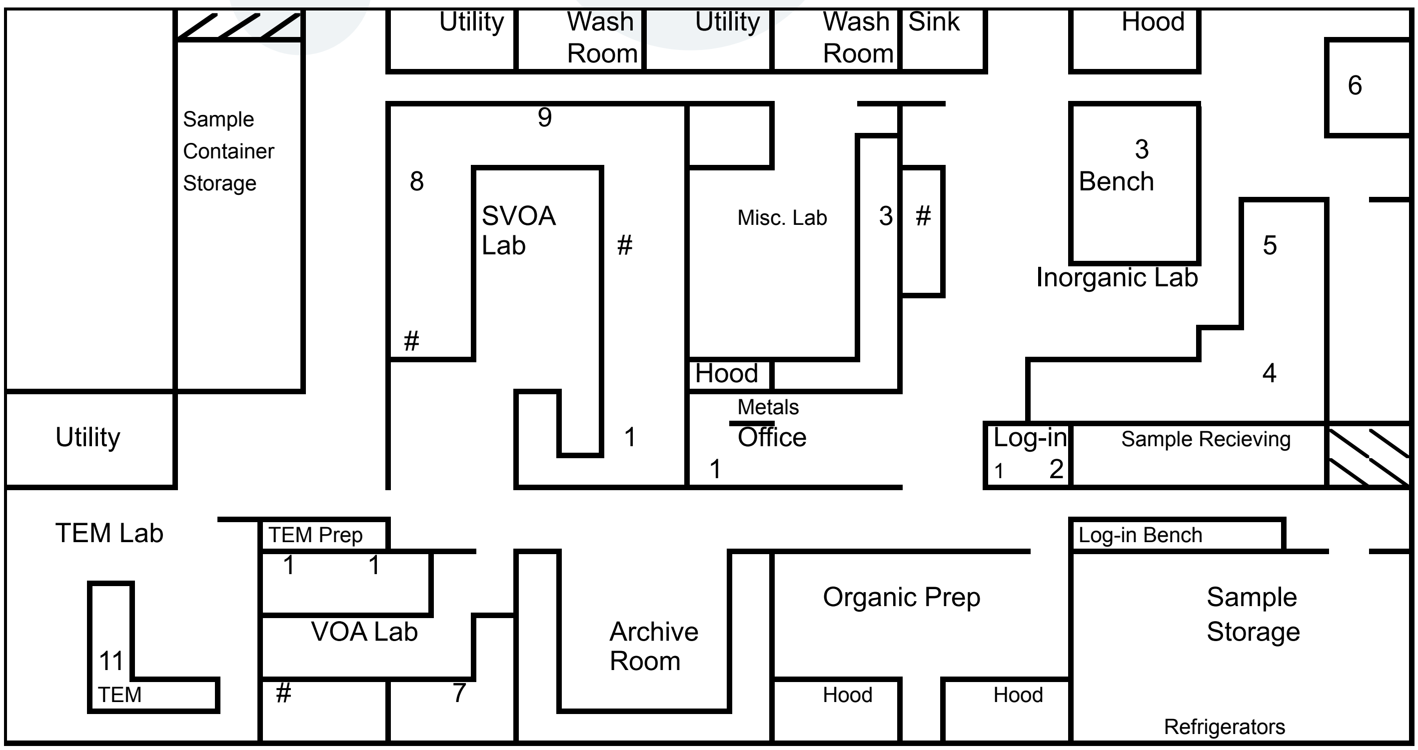
Instrument	Manufacturer	Model	Quantity
Precision Rotometer	Gilmont	No. 12	250
Soap Film Flowmeters	Gilian	Gilibrator	20
Anemometer	TSI	Velocity Check	20
Organic Vapor Monitor	Thermo Environmental	580 B OVM	6
Water Sampling Pump	ISCO	2910	10
Water Sampling Pump	ISCO	GLS	12
PH Meter	Hanna	pHep	6
Low Volumn Air Sampling Pump	Gillian	BDX 513	400
High Volumn Air Sampling Pump	Megalight	6025SE	1200
Coring Machine	Diamond	CB748	3
XRF Lead Analyzers	RMD	LPA-1	4

LABORATORY FLOOR PLAN
UPPER LEVEL



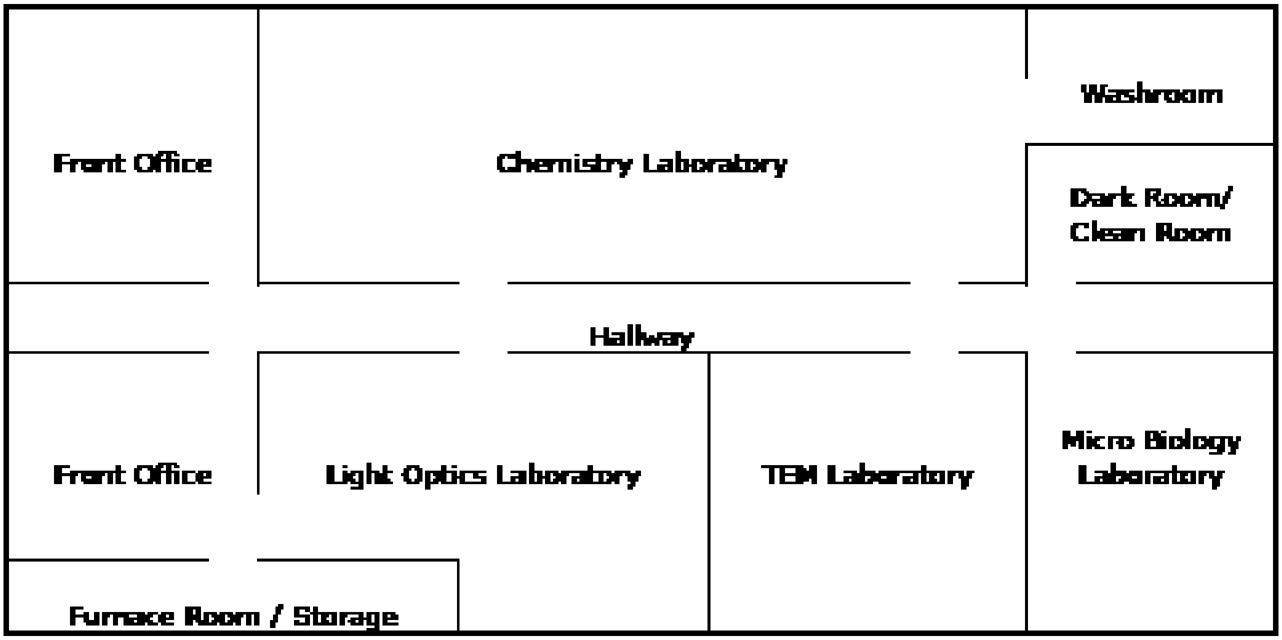
1. Computer Workstation
2. Sample Receipt Logbook
3. Workstation Equipped with Olympus BH-2 compound microscope set up for phase-contrast microscopy
4. Sample preparation workstation equipped with BGI acetone vaporizer
5. Workstation equipped with Olympus BH-2 compound microscope set up for either phase-contrast or polarized-light microscopy, and Olympus stereo microscope
6. Particle Hood equipped with a HEPA-filter
7. Thermolyne 4800 muffle furnace

LABORATORY FLOOR PLAN
LOWER LEVEL



1. Computer Workstation
2. Sample Receipt Logbook
3. Bench Chemistry Apparatus
4. Perkin-Elmer FIMS-100 Mercury Analyzer
5. Perkin-Elmer 4100ZL graphite furnace AA
6. Perkin-Elmer Optima 3300DV ICP
7. Volatile Air Analysis System TO-15
8. Hewlett Packard GC with dual ECD detectors
9. Hewlett Packard GC with FID detector
10. Agilent GC with micro ECD
11. JEOL 100 CX TEM/STEM microscope
12. TCLP Sample prep area
13. Agilent 5973/6890 GC/MS & EST Encon/8100 Purge and Trap
14. Agilent 5973/6890 GC/MS

GRAND ISLAND LABORATORY
FLOOR PLAN



METHODOLOGIES

Paradigm Environmental Services uses EPA and New York State Department of Health approved methodologies. Listed below is a summary of applied methodologies.

- Asbestos Regulations for the Construction Industry, EPA, 29 CFR 1926.1101.
- Interim Method for the Determination of Asbestos in Bulk Insulation Samples - EPA publication 600/M4-82-020 December 1982.
- Methods for Chemical Analysis of Water and Wastes, EPA 600/4 79 020.
- Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88/039.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA, 40 CFR Part 136, Appendix A.
- New York State Department of Health Environmental Laboratory approval Program Certification Manual.
- NIOSH Manual of Analytical Methods, 2nd & 3rd Editions.
- Standard Methods for the Examination of Water and Wastewater, 15th, 16th, 17th editions, APHA, AWWA, WPCF.
- Test Methods for Evaluating Solid Waste and Physical/Chemical Methods, EPA SW 846, Third Edition, Vol. IA, IB, IC, II.

QUALITY ASSURANCE
PROGRAM

ASBESTOS ANALYTICAL

Paradigm's quality assurance program is based on criteria determined by the U.S. Environmental Protection Agency (EPA), the NYS Department of Health Environmental Laboratory Approval Program (ELAP), and the NYS Department of Environmental Conservation (DEC). Within New York State the Department of Health is the official certifying body for laboratories and as such we follow their requirements for all certifiable analyses. The New York State Department of Health has adopted the NELAC quality systems as the basis for qualifying laboratories wishing to be certifies. NELAP is a nationally recognized program whereby laboratories are held to a higher, unified quality standard to ensure consistency and quality among accredited labs. Paradigm is certified by the NYS Department of Health to perform analysis of Air & Emissions, Solid & Hazardous Waste, Potable Water, and Non-Potable Water.

As a certified environmental laboratory, Paradigm is subject to routine audits by the NYS Department of Health and NVLAP. This audit is performed in-person by a DOH or NVLAP representative, and covers all aspects of laboratory operations. This includes sample receipt and processing, sample storage, sample analysis, instrument calibration and maintenance, standards and reagent preparation, and record keeping. Deficiencies are noted to the laboratory director in writing, and require documentation of corrective actions taken in response. Failure to correct deficiencies can lead to decertification.

The laboratory is also audited annually by the Quality Assurance Officer. The findings from this audit also require documentation of corrective actions, and the Quality Assurance Officer is responsible for conducting follow-up audits to verify the corrective actions are being implemented. Additionally, the Quality Assurance Officer conducts quarterly audits of projects that have been completed. Where errors are found that affect the reported results, the reports are revised and re-sent to the client with a letter documenting the error and correction.

In addition to the lab audits, proficiency samples are sent to Paradigm four times yearly by NYSDOH and also NVLAP. Continuing demonstration of analytical proficiency is required to maintain certification.

QUALITY ASSURANCE PROGRAM

ASBESTOS ANALYTICAL
AIR SAMPLE QUALITY CONTROL

MICROSCOPE CALIBRATION
Alignment of the phase contrast microscope is verified daily, and proper calibration is recorded in a workstation logbook.

FIELD BLANKS
A field blank is submitted with each set of environmental samples. Blanks and environmental samples are analyzed with identical procedure. A contaminated field blanks require correction, qualification, or rejection of the associated sample data.

REFERENCE SAMPLES
Reference samples in 3 fiber ranges are routinely analyzed by all analysts, and used to determine intra and inter counter standard deviations.

DUPLICATE SAMPLES
10% of all samples are reanalyzed to assess variability. Results are closely monitored relative to statistically established control windows.

PROFICIENCY SAMPLES
Semiannually, Paradigm Environmental analyzes performance evaluation samples from the NYS Department of Health and NVLAP. Samples are received covering air and bulk samples within the certifying categories previously listed. Analytical results are reported on the proper forms, and statistically evaluated against the pool of laboratory respondents. Results must fall within acceptance limits to maintain certification for category. Failure to submit acceptance results for two periods in a row results in decertification.

QUALITY ASSURANCE PROGRAM

ASBESTOS ANALYTICAL
BULK SAMPLE QUALITY CONTROL

MICROSCOPE CALIBRATION
Alignment of the polarized light microscope is verified daily, and proper calibration recorded in a work station logbook.

REPLICATE SAMPLES
Ten percent of each analyst's samples are re-analyzed by another analyst. These results are compared to check for problems identifying and quantitating asbestos in both friable and non-friable organically bound materials. The results are tabulated daily and quality control charts are printed out monthly.

DUPLICATE SAMPLES
Ten percent of each analyst's samples are re-analyzed by the same analyst. These results are compared to check the reproducibility of the analyst's results. The results are tabulated daily and printed out monthly.

REFERENCE SAMPLE
The laboratory manager supplies the analysts with standard reference samples on a daily basis. For friable materials, the reference standards are taken from previous rounds of proficiency samples so that a formulated weight is known. For non-friable organically bound materials, the reference standards are floor tile samples that have been analyzed by transmission electron microscopy. The results of the T.E.M. analysis are kept in the laboratory manager's files. Complete details of QA/QC procedures for asbestos analysis of bulk and air samples are found in NIOSH and ELAP methods manuals, and in the laboratory standard operating procedures.

PROFICIENCY SAMPLES
Semiannually, Paradigm Environmental analyzes performance evaluation samples from the NYS Department of Health. Samples are received covering air and bulk samples within the certifying categories previously listed. Analytical results are reported on Department of Health forms, and statistically evaluated against the pool of laboratory respondents. Results must fall within acceptance limits to maintain certification for category. Failure to submit acceptance results for two periods in a row results in decertification.

INTER-LABORATORY TESTING
Paradigm is required to participate in round-robin testing with at least two other independent laboratories. Samples are submitted to these laboratories at the rate of one in every two hundred samples analyzed. This aids in calibrating the analysts against those from other laboratories.

QUALITY ASSURANCE PROGRAM

ENVIRONMENTAL CHEMISTRY

Paradigm's quality assurance program is based on criteria determined by the USA Environmental Protection Agency (EPA), the NYS Department of Health Environmental Laboratory Approval Program (ELAP), and the NYS Department of Environmental Conservation (DEC). Within New York State the Department of Health is the official certifying body for laboratories, and as such we follow their requirements for all certifiable analyses.

Paradigm is certified by the NYS Department of Health to perform analysis of Air & Emissions, Solid & Hazardous Waste, Potable Water, and Non-Potable Water.

LABORATORY AUDITS

As a certified environmental laboratory, Paradigm is subject to a biennial audit by the NYS Department of Health. This audit is performed in-person by a team of trained DOH auditors, and covers all aspects of laboratory operations. This includes sample receipt and processing, sample storage, sample analysis, instrument calibration and maintenance, standards and reagent preparation, and record keeping. Deficiencies are noted to the laboratory director in writing, and require documentation of corrective actions taken in response. Failure to correct deficiencies can lead to decertification.

The laboratory is also audited annually by the Quality Assurance Officer. The findings from this audit also require documentation of corrective actions, and the Quality Assurance Officer is responsible for conducting follow-up audits to verify the corrective actions are being implemented. Additionally, the Quality Assurance Officer conducts quarterly audits of projects that have been completed. Where errors are found that affect the reported results, the reports are revised and re-sent to the client with a letter documenting the error and correction.

PERFORMANCE EVALUATION SAMPLES

Quarterly, Paradigm Environmental analyzes performance evaluation samples from the NYS Department of Health. Samples are received covering individual parameters and/or parameter groups within the certifying categories. Analytical results are reported and statistically evaluated against the pool of laboratory respondents. Results must fall within acceptance limits to maintain certification for an individual parameter or parameter group.

QUALITY ASSURANCE PROGRAM

ENVIRONMENTAL CHEMISTRY

QUALITY CONTROL SAMPLES

Good laboratory practices include the regular preparation and analysis of quality control samples. In addition, each regulatory program has specific requirements regarding the frequency and type of QC required. A comprehensive description of the QC required for analysis can be found in our Quality Assurance Manual, The EPA and DOH Methods Manuals, and our standard operating procedures.

The basic elements of laboratory quality control include:

- Method Blanks
- Laboratory Control Samples
- Matrix Spikes
- Duplicates
- Surrogates
- References
- Quality Control Samples

BLANKS

Preparation blanks consist of laboratory pure water, or a clean solid matrix, which is subjected to any extractions, digestions or distillations required to prepare samples for analysis. The resulting blank sample is then analyzed along side environmental samples under identical conditions. Blanks measure the cleanliness of an analytical system. Blanks are analyzed at a minimum frequency of 1 per 20 environmental samples or with each analytical or preparation batch.

LABORATORY CONTROL SAMPLES

Reference check samples are laboratory pure water, which has been spiked with a known amount of the analyte(s) of interest. Reference checks measure the accuracy of an analytical procedure. Reference check samples are analyzed at a minimum frequency of 1 per 20 environmental samples.

MATRIX SPIKES

Matrix spikes are duplicate environmental samples to which a known amount of the analyte(s) of interest have been added. Matrix spikes serve to measure the ability of an analytical system to accurately recover the analyte(s) of interest from the sample matrix. Matrix interferences may be positive or negative, causing false high or low readings respectively. Matrix spikes are analyzed at a minimum frequency of 1 per 20 environmental samples.

QUALITY ASSURANCE PROGRAM

ENVIRONMENTAL CHEMISTRY

DUPLICATES

Duplicate analyses measure the precision, or reproducibility, of an analytical system. Duplicates are created from identical portions of an environmental sample which has been split in the lab, and are analyzed at a minimum frequency of 1 per 20 environmental samples. Due to lack of measurable quantities, organics precision is often measured using duplicate matrix spikes.

SURROGATES

Surrogates are spikes which are added to all environmental samples and quality control samples destined for organics analysis. They consist of organic compounds which are similar in nature to the analytes of interest, but are not expected to be found in the environment. Surrogates are added prior to sample preparation, and are used to measure the performance of the analytical system as well as any matrix interferences.

REFERENCES

Reference samples are generally samples that are analyzed without being taken through the entire preparatory process. These samples verify the instrument is properly calibrated and that the calibration remains consistent throughout the duration of the analytical process.

QUALITY CONTROL SAMPLES

Quality control samples are purchased from independent vendors who certify their standards to NIST-traceable reference standards. These samples have been previously tested and they come with pre-determined acceptance limits. These quality control samples are taken through the entire preparatory and analytical process, and the derived values are compared to the manufacturer supplied acceptance limits. These samples are matrix specific and enable the laboratory to keep their analytical edge sharp.

QUALITY CONTROL LIMITS

Data concerning quality control is accumulated over time and used to statistically generate acceptance limits. QC recoveries which fall outside these limits, or outside EPA regulatory limits, indicate a problem with the analytical system or the sample matrix. Failure of the analytical system requires immediate suspension of analysis, corrective action, and re-analysis of any affected samples.

Matrix interferences are specific to a sample or group of samples, and are caused by the nature of the sample itself. Matrix interferences can in some cases be eliminated with additional preparatory procedures. For those samples with unavoidable matrix interferences, the data is flagged as a warning to the user.

STANDARD TURNAROUND TIME

Whenever possible, Standard Turnaround Times will be adhered to. If results are available sooner, they will be relayed to the client at that time. All analyses can be performed on an expedited basis upon client request. Emergency asbestos analysis can often be performed within hours of receipt.

Asbestos Analyses

Verbal and written results for PCM analyses will be available 48 hours after samples arrive at the Paradigm laboratory. PLM and TEM bulk samples have a standard turn-around time for 3-5 business days, and TEM airs have a standard turn-around of 3 days after receipt at the laboratory.

Inorganic Analyses

Verbal and written results will be available one week after samples arrive at the Paradigm laboratory.

Microbiological Analyses

Verbal and written results will be available 24 to 48 hours after samples arrive at the Paradigm laboratory.

Organic Analyses

Verbal and written results will be available one week after samples arrive at the Paradigm laboratory.

PROJECT HISTORY
ASBESTOS

EASTMAN KODAK COMPANY

For over 18 years Paradigm Environmental Services has and still provides Inspection Services, Air Monitoring /Project Monitoring and Design services for all Maintenance, Construction and Demolition related activities. Paradigm provided field and analytical capabilities for the largest manufacturing facility and corporate offices in the Northeast. These services were offered and performed 24 hours a day, 7 days a week, 365 days a year.

In addition, Paradigm recently completed the four-year, $240 Million "Footprint Reduction" Program at Kodak Park.

Services were retained by Eastman Kodak and LeChase Construction. Responsibilities included coordinating, scheduling, and supervising field work, reviewing final reports, and contract management. Field work included asbestos inspections for over 400 buildings encompassing over 20 million square feet.

Inspections included a review of existing information, visual inspection of the interior and exterior of the structure to identify potential locations of asbestos containing materials (ACM), collection of bulk samples of suspect materials for analysis, analysis of the bulk samples, and the preparation of the report. The report summarized data collection techniques, included drawings showing the amount and location of confirmed ACM, and an estimate of abatement costs.

Paradigm has coordinated abatement activities with the Contractors, Architect, Construction Manager and the occupants of the facility.

The abatement and demolition at Kodak Park concluded in 2007.

UNIVERSITY OF ROCHESTER
UNIVERSITY OF ROCHESTER MEDICAL CENTER

For over 18 years Paradigm Environmental Services has provided the prestigious University of Rochester and Medical Center with asbestos demolition surveys, asbestos renovation surveys, air monitoring, project monitoring and design services. The University of Rochester has invested millions of dollars in facility upgrade projects, of which asbestos is a critical component. The projects have ranged from several thousand square feet up to one million square feet of floor space. Paradigm's experience and delivery have been key in helping manage the University of Rochester and Medical Center with its asbestos program.

ANDREWS TERRACE

Paradigm was a key partner in the $25 Million Andrews Terrace Project to provide comprehensive asbestos management services. Andrews Terrace is located at 125 St.. Paul Street in Rochester, New York is a 1300 unit apartment complex and is approximately 450,000 square feet.

The project included coordinating, scheduling and supervising all field work. The field work started with an asbestos renovation survey of all apartments. The asbestos survey involved the inspection of all suspect materials located within each unit of Andrews Terrace. The subsequent phases of the project consisted of asbestos project monitoring, asbestos air monitoring and asbestos project design. As with all projects, attention to detail and project timing was imperative, and was delivered.

XEROX CORPORATION

For over 18 years Paradigm Environmental Services has and still provides Inspection Services, Air Monitoring /Project Monitoring and Design services for all Maintenance, Construction and Demolition related activities. Paradigm provided field and analytical capabilities for one of the largest manufacturing facilities in the Northeast. Xerox Corporation is made up of over 100 buildings encompassing over 10 Million square feet. These services were offered and performed 24 hours a day, 7 days a week, 365 days a year.

As with any operational public buildings, attention to detail and communication are essential. Paradigm has coordinated abatement activities with the building owner, building occupants, contractors, architects and construction managers. These services include environmental testing services, asbestos project monitoring, asbestos air sampling, and asbestos design services for removal of asbestos containing materials.

ROCHESTER PSYCHIATRIC CENTER

Paradigm Environmental Services provided project design for asbestos abatement and sampling services during the renovation of the 500,000 square foot Rochester Psychiatric Center. The approximate cost of the abatement was over $3 Million. This "high profile" renovation project included a team from a local architectural firm.

Paradigm has coordinated all phases of the project from inception with all parties involved. As with any public facility, attention to detail is a must. We are coordinating abatement activities with the contractors, architects and construction managers through the completion of the project. Paradigm has provided environmental testing services, asbestos project monitoring, asbestos air sampling, and asbestos design services for removal of asbestos containing materials.

GARLOCK SEALING TECHNOLOGIES

For over 18 years Paradigm Environmental Service has and still provides environmental inspection services, air and project monitoring services and project design services for all maintenance, construction and demolition related projects. Paradigm provides field and analytical services to one of the largest manufacturer of gasket materials in the United States.

Garlock presented Paradigm with an interesting challenge in that they were one of the few manufactures that used asbestos in the development of their products. This presented Paradigm with several abatement and demolition road blocks which were overcome by an experienced inspection and design team, which proved to be a valuable asset to the client during the remediation and demolition phase of the project. This experienced staff allowed the client to accomplish its goals of building demolition within the allotted time frame of the schedule. Paradigm also became involved in the reconstruction phase of the project when hazardous materials were discovered during the digging of the new foundations. Paradigm immediately responded to the emergency situation, evaluated it and provided the client with the fastest and most economical remediation methods that were regulatory compliant. This allowed the client to resume reconstruction of the facility with minimal delay.

ROCHESTER INSTITUTE OF TECHNOLOGY

Paradigm Environmental Services has successfully provided inspection and project design services to Rochester Institute of Technology for the demolition of an aging student housing complex situated on the campus grounds. This three year project was carefully planned out with the project team to meet RIT's schedule without any interruption to the ongoing student education and housing logistics that was confronted by the team.

RIT has over 15,000 students and is one of the largest higher education facilities in the Western NY region. With over 240 buildings covering 1,300 acres and 5 million square feet RIT continues to invest millions of dollars in facility upgrade projects, of which asbestos is a critical component. For the past 15 years Paradigm has worked with RIT in their pre-construction/ renovation planning to identify and assess the environmental hazards associated with the buildings and site master plan.

GENESEE HOSPITAL

For 14 years Paradigm Environmental Services provided the Genesee Hospital with a variety of field services which included emergency bulk sampling and analysis, full demolition inspection surveys and project and air monitoring services.

In 2001, Genesee Hospital was decomissioned and closed for operations by the state of New York. In 2007, Paradigm was hired by the current owner, Buckingham Properties, LLC., to perform a full asbestos and environmental investigation of the existing 130,000 square foot building. In addition, Paradigm was hired to complete a asbestos design and contractor bid package for the asbestos abatement and demolition of this 114 year old building. During abatement and demolition, Paradigm was retained to perform all project management and project air monitoring throughout this one year duration project.

DONOVAN BUILDING & THE BUFFALO AUDITORIUM

Paradigm Environmental Services provided inspection and project design services for one of the largest demolition projects in the Buffalo area. Paradigm worked closely with the engineering firm to develop a detailed asbestos survey for this $10 Million project. Upon completion of the asbestos survey contract bid specifications and variance applications were created by Paradigm. Remediation methods and cost projections were developed in order for the engineering firm to develop schedules and cost budgets.

K-12 SCHOOL DISTRICTS

Paradigm Environmental Services has and still provides inspection, design, and monitoring services for school districts such as Rochester Central School District, Greece Central School District, Pittsford Central School District, Victor Central School District, Irondequoit Central School District, Buffalo Central School District, Oswego Central School District, Utica Central School District, Owego Central School District, Newfane Central School District, Orchard Park Central School District, Ardsley Central School District, Beacon Central School District, BOCES Northern Westchester, Greenburgh School District, Irvington Central School District, Lakeland Central School District, New Rochelle Central School District, Portchester Central School District, Rye Central School District, Scarsdale Central School District, Tarrytown Central School District, and Yorktown Central School District.. We also update existing AHERA inspection documentation. Paradigm's development of design documents and enhanced survey reports meet and exceed current standards for renovation and management planning . This will assist school districts in projecting remediation costs long before projects are initiated. Paradigm recognizes the need for school districts to have a total understanding of their building components in order for them to properly plan budgets for upcoming renovations or building upgrades. Paradigm's large field and laboratory staff (90) is able to accomodate several school district's needs simultaniously.

KALEIDA HEALTH SYSTEM

Kaleida Health is the largest health care provider in Western New York encompassing Buffalo General Hospital, DeGraff Memorial Hospital, Millard Fillmore Gates Circle Hospital, Millard Fillmore Suburban Hospital, Women and Children's Hospital of Buffalo and numerous community healthcare centers representing over 5 Million square feet.

For the past five years Paradigm Environmental Services has provided asbestos and environmental design, investigation, and monitoring for all the facilities within the Kaleida Health System. These services include response to emergency situations as well as project related activities. These projects range from $5,000 to $5 Million. All of these projects must be completed with little interruption to daily operations.

NEW YORK CITY TRANSIT AUTHORTIY

Paradigm Environmental Service (PES) personnel have successfully provided Asbestos and Lead survey services, remediation design and project oversight for the New York City Transit Authority. This $10 Million System Wide contract required asbestos and lead surveys for all subway and elevated train stations throughout the NYCTA system. PES personnel completed over 200 subway station asbestos and lead surveys complete with drawings showing locations of ACM and Lead. Abatement design drawings were also required for all stations. This project was complete in 2007 within budget and on time.

The NYCTA required Paradigm Environmental Service personnel to work closely with facility personnel, the NYCTA System Safety Department and the procurement department. This project was successfully completed on time and within budget due to the extensive experience and expertise of the PES personnel.

GREENBURGH CITY HALL AND LIBRARY, GREENBURGH, NY

Paradigm Environmental Service (PES) personnel have successfully provided Asbestos and Lead survey services, remediation design and project oversight for the Greenburgh City Hall and Library. These buildings located in Greenburgh, NY required extensive destructive asbestos and lead surveys. The Town Hall and Library was surveyed for Asbestos and Lead for which PES personnel had to do an in depth destructive survey prior to abatement. The Town Hall was abated then totally demolished. The interior demolition of the Library required careful planning and accurate timing for each planned phase of this large undertaking and was crucial to its success and completion in 2008 of this $32 Million project.

This project and the expertise of Paradigm Environmental Service personnel were crucial to the successful cooperation between the Municipality, facility personnel, the general contractor and the architect of record.

VORNADO REAL ESTATE PROPERTIES, NYC

Paradigm Environmental Service (PES) personnel successfully provided Asbestos and Lead survey services, remediation design and project oversight for these Class A commercial office buildings located in New York City. 90 Park Avenue and 350 Park Avenue each required 6 floors of Asbestos and Lead testing prior to a complete interior demolition and renovation. These projects were conducted simultaneously with an area space totaling over 480,000 square feet and a project cost of $5 Million dollars. An extensive destructive asbestos and lead survey was required due to the nature and the project size. The demolition and renovation of these high profile commercial buildings required careful planning and accurate timing for each planned phase for each floor in these active occupied buildings. This project was completed in 2008 on time and within budget.

The multiple and simultaneous inspections included review of existing building information, visual inspection of the interior structure, collection and analysis of bulk and lead samples, report preparation and drawings showing the amount and location of confirmed ACM and Lead.

These activities were coordinated with Contractors, Architects, Construction Managers and the occupants of the facility.


NORWOOD E. JACKSON CORRECTIONAL CENTER, VALHALLA, NY

Paradigm Environmental Service (PES) personnel have successfully provided Asbestos and Lead survey services, remediation design and project oversight for the Westchester County, Department of Public Works (DPW), Norwood E. Jackson Correctional Center. The Correctional Center is located in Valhalla, NY and part of the Westchester County Medical Center Complex. This facility encompassed over 2 million square feet with a total project cost of $22 Million dollars. An extensive destructive asbestos and lead survey was required due to the nature and the project size. The demolition and renovation of this aging facility required careful planning and accurate timing of each planned phase of this large undertaking and was crucial to its success.

This project is typical of the scope of work from the DPW requiring Paradigm Environmental Service personnel to work closely with facility personnel, the general contractor and the architect of record. This project was successfully completed on time and within budget due to the extensive experience and expertise of the PES personnel.

VASSAR COLLEGE

Paradigm Environmental Services has performed several renovation surveys at Vassar College in the 100 building, 1,000 acre campus. Recently, Project Design, Project Monitoring, Asbestos survey, and a lead XRF survey was completed for the 60,000 square foot nursery school. The total cost of the project was approximately $200,000 at the 150 year old college. The project included coordinating, scheduling and supervising all field work. The asbestos survey involved the inspection of all suspect materials located within the project area. The subsequent phases of the project consisted of asbestos project monitoring, asbestos air monitoring and asbestos project design. As with all projects, attention to detail and project timing was imperative, and was delivered.

PSYCHIATRIC CENTER - HARLEM VALLEY, NY

Paradigm Environmental Services performed a pre-project design and asbestos survey for the 1924 vintage 80 building, 850 acre Harlem Valley Psychiatric Center for the Benjamin Development Companies. The project is part of the "Restore New York" program and has a $50 million mixed use redevelopment budget. The project team was comprised of a Developer, an Engineer, and Remediation Contractor and Paradigm Environmental Services. The initial project team developed pre-project budgets, project design, coordination of trades, and project management. The team delivered the project on time and 30% below the budget.

MANUFACTURING SITE, HASTING-ON-HUDSON, NY

This large industrial/manufacturing complex has multiple buildings slated for demolition as part of a long term clean-up and re-use plan. Paradigm has provided both Project Monitoring and Air Monitoring services in support of asbestos abatement prior to building demolition. The work is taking place over a several month period, and requires professional staffing both first and second shift. In addition to asbestos concerns, the site has numerous other hazardous environmental conditions. Paradigm has provided sampling and analysis services for PCB, lead paint, waste for disposal, and other materials of concern.

CHARTER SCHOOL RENOVATION, BRONX, NY

This project involved the renovation of a former Parochial school, for the purpose of conversion to a private K-8 Charter School. In order to accomplish this renovation, asbestos needed to be identified and abated with a $2,000,000 remediation cost. Paradigm provided provided Project Design, Air Sampling, and Project Monitoring services to the building owner. In addition, Project Management was provided during the approximate three month duration of the project.

GLEASON WORKS

Since 1995 Paradigm Environmental Services has provided comprehensive sampling and analytical services covering all aspects of environmental compliance at this facility. This includes wastewater monitoring, solid waste management, potable water testing, PCB sampling & analysis, and asbestos management.

Wastewater monitoring involves collection of discharged effluent at several locations within the facility. Instantaneous and composite samples are taken, with automated samplers employed to obtain representative samples over the appropriate hours of operation. On-site measurements and observations allow our experienced technicians to detect changes in the processes monitored, and notify the environmental manager immediately so corrective action can be implemented.

In support of a proactive waste management program, solid wastes are sampled and analyzed on a regular basis. Prior to arranging for disposal, we work with Gleason personnel to determine the best means of obtaining a representative sample, as well as the appropriate laboratory testing. Sample analysis is tailored to incorporate our client's knowledge of the waste, saving both time and money.

As an integral part of a PCB management program, Paradigm Environmental routinely provides sampling in areas of concern. Structural surfaces are sampled using solvent moistened wipes, and free oils collected to measure PCB levels. All samples are analyzed in our laboratory using GC-ECD.

Asbestos services include sampling and analysis of pipe insulation, flooring tiles, ceiling tiles, and miscellaneous building materials on an as-needed basis. Samples are analyzed using polarized light microscopy and transmission electron microscopy in our NYSDOH certified & NVLAP accredited laboratory.

BAUSCH & LOMB

Starting in 2000, Paradigm Environmental has provided field sampling and analytical services in support of groundwater remediation at the former B&L Frame Center. A groundwater monitoring program was established to measure the effectiveness of the pump and treat system installed to address solvent contamination. The program consists of routine field measurements, well sampling, and laboratory analysis for volatile organics on groundwater monitoring wells, extraction wells, and the groundwater treatment system.

Paradigm Environmental provides pre-labeled sample containers, preformatted chain-of-custody forms, field data sheets, disposable bailers, and coolers to field sampling personnel. Groundwater samples are analyzed for a site specific list of volatile organics, with analytical procedures and detection limits conforming to a NYSDEC approved Sampling & Analysis Plan. All analytical data is reported electronically in a customized Excel spreadsheet.

Consistent quality and expedient turnaround has allowed Bausch & Lomb to accurately assess the progress of their remediation effort, and adjust their program to maximize the effectiveness of the on-site treatment system.

CITY OF ROCHESTER

Paradigm Environmental provides analytical services directly to the City of Rochester, as well as the environmental consultants and contractors working on City owned properties. These services cover the full spectrum of Paradigm's offerings, including asbestos and environmental chemistry.

Direct services include analysis of ground waters, treatment system effluents, solid wastes, and building materials. Our centralized location is convenient to DEQ personnel, facilitating the transfer of samples and supplies, and enhancing communication.

Indirect services, through numerous environmental consultants and contractors, include all types of laboratory analyses required to support site investigations and remediation projects. Our excellent turnaround, reliability, and commitment to quality have positioned us as a preferred source of analytical services on City projects. As with our direct services, our proximity to both the consultants and the project sites is a notable convenience.

Just a few of the City projects we have worked on include:

City of Rochester Water Bureau
Port of Rochester Redevelopment
CSX Derailment Site
Ward Street
Brooks Landing
Charlotte Street

CONRAD GEOSCIENCE

For over a decade, Paradigm Environmental has provided a wide range of analytical services to Conrad Geoscience in support of their environmental consulting practice. This includes analysis of wastes, soils, groundwaters, soil vapor, indoor air, and building materials. As is common with many of our best consulting clients, Conrad places a high value on Paradigm's commitment to quality and service. This commitment, when combined with the knowledge and experience of Paradigm's personnel, has allowed us to serve as an essential partner on numerous high profile projects.

In 2004 Paradigm worked with Conrad to provide analytical services in support of a major landfill remediation project. The remediation consisted of excavation and removal of wastes from an abandoned landfill as part of a NYSDOT highway reconstruction project. More than 800 samples were analyzed over a nine month period to delineate contamination and characterize excavated soils. Delineation samples were analyzed for RCRA metals, TCLP metals, STARS list volatiles, and STARS list semi-volatiles. In addition, excavated soils destined for disposal were analyzed for the full TCLP list and PCB's. Customized report formats were developed in advance, specific to project requirements, and all analytical data transmitted electronically to facilitate data transfer and use. The maximum turnaround was 5 business days from the date of sample receipt. Many sample sets were successfully completed in a shorter time frame to accommodate on-site activities.

WASTE TECHNOLOGY SERVICES

For more than a decade Paradigm Environmental has served as Waste Technology's primary analytical services partner. WTS relies on Paradigm to provide timely and accurate analysis of waste materials destined for disposal. This allows WTS to properly characterize wastes and provide sound advice to their clients on disposal or recycling options. We also team with WTS on larger projects to provide turnkey solutions to complex waste generation and management issues. Examples include facility decommissioning, site remediation, and process control.

State College, PA

Paradigm Environmental provided sampling and analysis of building materials as part of a pre-demolition assessment of a decommissioned glass manufacturing facility. Field sampling was conducted using hammer drills powered by portable generators. Samples were taken at over 40 locations, primarily consisting of concrete flooring and walls. Samples were analyzed for heavy metals, cyanide, inorganic ions, and TCLP metals. Sample analyses were conducted in accord with the Pennsylvania DEP document entitled "Management of Fill". All samples were successfully analyzed within one week, allowing for speedy assessment of demolition debris prior to disposal.

Metal Alloy Manufacturing Facility

Paradigm provided analytical services on several occasions to support WTS oversight of investigation and remediation efforts at a central NY metal alloy manufacturing facility. This involved the analysis of soil, concrete, and groundwater for contaminants such as PCB's and RCRA metals. Our ability to provide accurate results with rapid turnaround allowed WTS to work with their clients in real time, and vastly improve the efficiency of on-site activities.

ENVIRONMENTAL CONSULTANTS

One of the major sectors Paradigm Environmental serves is the environmental consulting community. Consultants play a key role in the environmental field, providing expert advice on site assessments, site remediation, compliance management, and process control, and Paradigm takes a unique approach to serving their needs. Most consultants find our commitment to quality and service match up well with their own business ethics. Our focus on communication, adherence to deadlines, and integration into project teams, allows our consulting clients to approach analytical requirements with confidence. Since the introduction of environmental chemistry services in 1993, we have worked with literally hundreds of consultants on thousands of projects, and have developed a reputation for providing quality analytical services that truly add value to the projects we work on.

Some of the environmental consultants we routinely work with include:

Arcadis
Bergmann Associates
Clough, Harbour & Associates
Clark, Patterson & Lee
Conrad Geoscience
Day Environmental
EBI Consulting
Empire Geo Services
Ensol
Environmental Services Group (ESG)
ERM
Fisher Associates
Great Lakes Environmental
GZA
Haley & Aldrich
Hazard Evaluations
Labella Associates
Larsen Engineers
Leader Environmental
Lu Engineers
O'Brien & Gere Engineers
Passero Associates
Ravi Engineering
S&W Redevelopment
SAW Environmental
Stantec Environmental
Tritech Environmental
TVGA Engineering
URS Corporation
Waste Technology Services
Watts Engineers

EMPLOYEE PROFILES

BRUCE HOOGESTEGER

POSITION
Technical Director & President

EDUCATION
Bachelor's Degree in Chemistry from the University of New Hampshire

Masters Degree in Environmental Management from Washington University in St. Louis.

POST-GRADUATE EDUCATION
Extranuclear GC/MS Operations and Maintenance; Extranuclear Corporation, Pittsburgh, PA.

GC/MS Troubleshooting and Maintenance; Hewlett-Packard Corporation, Andover, MA

HPLC Operation and Maintenance; Waters Corporation, Hopkinton, MA

Total Quality Management; Pace, Inc., Hampton, NH

Front Line Leadership; Millpore Corporation, Bedford, MA

Strategic Cost Management; Eastman Kodak, Rochester, NY

FIELDS OF SPECIALIZATION
His responsibilities at Paradigm include administrative and technical management of the asbestos, inorganic, and organic laboratories. He is responsible for directing method development and validation and for verifying that proper quality control procedures are being followed. Mr. Hoogesteger oversees the Rochester, Buffalo, and Syracuse offices of Paradigm, and directs the asbestos, environmental, and IH staff in all three offices.

EXPERIENCE SUMMARY
Prior to joining Paradigm, Mr. Hoogesteger was employed at a national environmental laboratory for eight years. He served as the Organics Laboratory Manager in a 60 person full service environmental laboratory where he was responsible for technical development, QC oversight and project management. The lab was fully accredited and actively participated in all major Federal restoration/investigation analytical programs.

He has over 15 years of experience in the environmental analytical testing field and 2 years of experience in the food and drug testing field. He has worked extensively with GC, GC/MS, HPLC, and AA instrumentation and has firsthand experience with all major ELAP & EPA programs and methods.

MARSHALL E. SHANNON

POSITION
Environmental Sales Director

EDUCATION
Bachelor's of Science Degree in Chemistry and Biology from SUNY Brockport.

POST-GRADUATE EDUCATION
40 Hour OSHA Hazardous Materials Health and Safety Training

Xerox "Leadership Through Quality" training

ACIL Short Courses:
- Developing a Clear Business Strategy
- Effectively Marketing your Professional Services

FIELDS OF SPECIALIZATION
Mr. Shannon's responsibilities at Paradigm include identifying prospective clients and maintaining the long term viability of existing relationships.

EXPERIENCE SUMMARY
Mr. Shannon has over 26 years experience in the environmental field. He began his career in 1980 serving as a chemist in an environmental laboratory and quickly progressed to Laboratory Manager. He next took on the role of Customer Service Director, assembling and managing groups responsible for sales, customer service, sample receipt and processing and field sampling. More recently, Mr. Shannon held the position of Marketing Director for a local environmental laboratory, where he created and implemented a comprehensive marketing program, directed all sales activity, and assisted the servicing of major clients.

Mr. Shannon has a wide range of experience covering many aspects of environmental monitoring and compliance. His experience includes environmental chemistry, field sampling, on-site waste evaluations and waste disposal. He has participated in site assessments at major manufacturing facilities, conducted sampling and analysis
In support of large scale CSO Studies, and managed countless sampling and analysis programs for industry, municipalities, and consultants.

JANE DALOIA

POSITION

Client Services Manager

EDUCATION

Bachelors of Science Degree in Biology from SUNY Brockport.

POST-GRADUATE EDUCATION

Team Leader Skills Training
Fred Pryor Seminar- “How to Supervise People”
Cornell University Extension- “Supervisory Skills”

FIELDS OF SPECIALIZATION

Ms. Daloia joined Paradigm in 1998 as our customer Service Manager. Her responsibilities include client interaction relative to environmental chemistry, subcontracted services, and sample receipt/processing. Ms. Daloia is also involved in invoicing, waste disposal, and sample tracking..

EXPERIENCE SUMMARY

Ms. Daloia began her environmental career in 1985 as a laboratory technician with the Monroe County Department of Health. While at the Health Department, her responsibilities included bacteriological analysis, chemical analysis, field sampling, and personnel management. After leaving the Health Department in 1988, Ms. Daloia worked for a Rochester area environmental laboratory until joining Paradigm in 1998. While there, she held a variety of significant positions, including Wet Chemistry Supervisor, Metals Analyst Supervisor, and Quality Assurance Manager. As supervisor of both Wet Chemistry and Metals Analysis, Ms. Daloia scheduled and coordinated over 50 different environmental test procedures, and managed a staff of up to eight people..

REBECCA ROZTOCIL

POSITION
Quality Assurance Officer

EDUCATION
Bachelor of Science Degree in Biochemistry from Nazareth College in Rochester, N.Y.

POST-GRADUATE EDUCATION
Quality Control/Quality Assurance in Environ-Mental Laboratories, Alloway

Troubleshooting and Maintenance of AAs and ICPs, Perkin-Elmer Corporation

Waste management Seminar, New York Association of Approved Environmental Laboratories

New York Association of Accredited Environ-Mental Laboratories (NYAAEL) Board of Directors

FIELDS OF SPECIALIZATION
Ms. Roztocil has developed and organized operational methodologies and Standard Operating Procedures for the Inorganic Laboratory at Paradigm. She has also helped revise the Quality Assurance/Quality Control programs for flame and furnace atomic absorption spectrophotometry, and ICP atomic emission spectroscopy. In addition, Ms. Roztocil has trained technicians in inorganic analyses.

Currently, Ms. Roztocil is responsible for maintaining the integrity of the data reported to clients through the oversight of all quality
Related functions of the laboratory. She verifies that all laboratory functions are within conformance to the referenced methods and internal standard operating procedures. She works with the laboratory supervisors to identify and correct problem areas detected through routine QC samples and systems audits, and communicates with the state and accrediting authorities concerning accreditation, audits, and proficiency evaluations.

EXPERIENCE SUMMARY
While employed with a privately owned and operated environmental testing firm, Ms. Roztocil acquired experience in testing environmental samples for inorganic contaminants. This includes both metallic and non-metallic analyses. Additionally, she gained experience in flame and furnace atomic absorption, spectroscopy, cold vapor analysis, and inductively coupled plasma atomic emission spectroscopy.

NATHAN BEACH

POSITION

Organics Supervisor

EDUCATION

SUNY College at Fredonia – Bachelor of Science Degree in Geochemistry

POST-GRADUATE EDUCATION

- OSHA 29 CFR, part 1910.129
Hazardous Waste Operations Certification
- American Society of Mass Spectrometry
- New York State Council of Professional Geologists

FIELDS OF SPECIALIZATION

Has served as an assistant chemist in both organics and inorganics departments from 1997 to 1999.

EXPERIENCE SUMMARY

As an assistant chemist, Mr. Beach's duties included sample preparation for organic analysis by liquid/liquid and solid/liquid extractions, sample preparation for metals analysis by acid digestion, instrumental analysis using ICP, Furnace AA, GC and GC/MS. Mr. Beach was also responsible for assisting with sample receipt duties, as well as maintaining the laboratory sample storage and disposal program.

Mr. Beach became supervisor of the organics laboratory in 1999 and has since been responsible for overseeing the organic prep staff, analysis of samples for VOA and SVOA compounds by GC/MS, developing the TO-15 analytical system, reporting of analytical results and quality control for the organic laboratory. Mr. Beach also oversees the activities of two chemists.

MATTHEW M. MILLER

POSITION

Organics Supervisor

EDUCATION

Bachelor of Science, Aquatic Biology from SUNY College at Brockport, Brockport, NY.

PROFESSIONAL EXPERIENCE

Volatiles Department Manager (Feb.2008-Sept.2009) Columbia Analytical Services-Rochester, NY

- GC volatiles and GCMS volatiles departments were merged and I became manager of the newly integrated department.
- Manage all aspects of the department consisting of 10 analysts, 6 GC systems, 6 GCMS systems, 1 Headspace GCMS, and 1 TO15 GCMS.
- Responsibilities are the same as those listed below for the GC volatiles department.

GC Volatiles Department Manager (1999-2008) Columbia Analytical Services-Rochester, NY

- Responsible for coordinating unit workload, training and developing analysts, supervising analysts' work, reviewing and validating data, and writing and reviewing departmental SOP's.
- Personnel responsibilities include conducting employee performance evaluations, setting employee goals, recommending personnel changes, and conducting new hire interviews.
- Also responsible for meeting all corporate and client specific QA requirements. Ensure adherence to corporate safety policies.
- Analytical duties include performing soil and water analyses by GCMS methods 8260B and 624.
- Additional duties include troubleshooting, maintenance, and repair of all GC and GCMS instrumentation.

GC Volatiles Analyst (1996-1999) Columbia Analytical Services-Rochester, NY

- Responsible for analyzing water and soil samples by GC methods 8021, 601/602, and 8015. Also analyzed soil, oil, and water samples for TOC and TOX.
- Proficient in the operation, calibration, troubleshooting, and maintenance of purge and trap autosamplers and concentrators, capillary columns, gas chromatographs, and PID, FID, and ELCD detectors.
- Developed Massachusetts DEP Volatile Petroleum Hydrocarbon method.

JENNIFER LAPLANT

POSITION

Inorganic Supervisor

EDUCATION

Bachelor of Science Degree in Chemistry from SUNY College at Oswego

FIELDS OF SPECIALIZATION

Ms. LaPlant currently serves as the inorganic laboratory supervisor. Her responsibilities include the preparation and analysis of inorganic samples, waste management, quality control for the inorganic laboratory, data analysis and reporting, coordination and supervision of multiple analysts.

EXPERIENCE SUMMARY

While attending Oswego she interned at the City of Oswego Wastewater Treatment facility, where she performed laboratory analysis and gained first hand experience concerning treatment of wastewaters. Ms. LaPlant also participated in a Co-Operative program at Eastman Kodak during her senior year in high school, where she worked as a laboratory assistant involved with asbestos slide preparation and general lab procedures.

She has gained invaluable experience working in environmental laboratories in both New York and Connecticut. This experience includes wet chemistry analysis, organics sample preparation, and analysis of volatile organics, PCB's, pesticides and herbicides. She has also participated in the collection and charting of quality control data.

GERALD BRIEN

POSITION

Organics Laboratory Analyst

EDUCATION

Associate of Science Degree in Chemistry- Monroe Community College

FIELDS OF SPECIALIZATION

Mr. Brien works under the direction of the Organics Laboratory Supervisor, and is primarily responsible for the instrumental data analysis and reporting of sample data. He works with GC/MS, GC/FID, and GC/ECD systems, for the performance of semi-volatiles, petroleum hydrocarbon and PCB testing. He has also been trained in the Inorganics Laboratory and is knowledgeable about sample preparation and mercury analysis.

EXPERIENCE SUMMARY

Mr. Brien has extensive prior experience in research and development at Eastman Kodak Company. His prior work experiences have set the foundation for his current position and have given him a firm grasp of the importance of quality, which has been consistent with Paradigm's high expectations.

AMANDA LEEUWEN

POSITION

Organic Laboratory Technician

EDUCATION

Bachelor of Arts Degree in Environmental Science from Plattsburgh State University

FIELDS OF SPECIALIZATION

Ms. Leeuwen is the primary technician responsible for extracting solid and aqueous samples for the organic laboratory. She is responsible for coordinating sample preparation for the organic laboratory and prioritizing samples requiring more immediate turn around.

Ms. Leeuwen also participates in an analytical rotation which includes such analyses as ph, flashpoint, TCLP extractions and total coliform. Her attention to detail and willingness to work have made her an asset to the Paradigm team.

EXPERIENCE SUMMARY

Ms. Leeuwen's interest in ecology and environmental science enables her to apply what she has learned at college to her current work at Paradigm.

BILL BREW

POSITION

Organics Laboratory Analyst

EDUCATION

Bachelors of Science Degree in Chemistry from Rochester Institute of Technology in Rochester, New York

FIELDS OF SPECIALIZATION

Mr. Brew has been employed by Paradigm Environmental Services since 1999. He is an analyst in the organics laboratory. Mr. Brew has extensive prior experience in metals instrumentation and analysis, and is cross-trained in Paradigm Environmental's metal laboratory for sample analysis by AA and ICP.

Mr. Brew works under the direction of the Organics Laboratory Supervisor, and is primarily responsible for the instrumental analysis and reporting of samples. He works with both GC/MS methods, for the performance of volatiles, semi-volatiles, petroleum hydrocarbon and PCB testing. He also assists in sample preparations, TCLP extraction and sample log-in.

EXPERIENCE SUMMARY

Mr. Brew has several years prior environmental laboratory experience before joining Paradigm Environmental, with both public and private laboratories.

ELIZABETH HONCH

POSITION

Environmental Log-In Coordinator

EDUCATION

Bachelor of Science degree in Animal Science from Cornell University in 2001

FIELDS OF SPECIALIZATION

Ms. Honch is responsible for accepting all samples brought to the Environmental Lab at Paradigm Environmental. Ms. Honch must verify the Chains of Custody agree with the samples and notify the clients if there are any discrepancies or lack of clarity. She must enter all samples into the electronic database and alert analysis when samples arrive with an expedited turn-around.

Additionally, Ms. Honch has been cross-trained on analytical rotation, where she is able to keep her analytical skills sharp and also provide assistance to the analysts when sample load becomes heavy.

EXPERIENCE SUMMARY

Ms. Honch has interned in greenhouse production at Longwood Gardens (PA) and also the Bronx Zoo for horticulture. She also developed communication and speaking skills while working at a variety of nature centers as an environmental educator and naturalist.

STEVE PLACE

POSITION

Inorganics Laboratory Analyst

EDUCATION

Bachelor of Science Degree in Chemistry from Rochester Institute of Technology

FIELDS OF SPECIALIZATION

Mr. Place's previous employment has made his transition to Paradigm nearly seamless. He is currently performing the preparation and analysis of environmental samples for metals analysis within Paradigm. Due to his prior work experience, Mr. Place has an extensive knowledge of the quality requirements expected by the accreditation authorities and employers in this industry. As a consequence, Mr. Place has been able to join the Paradigm team as an efficient and highly trained player.

EXPERIENCE SUMMARY

Directly from college, Mr. Place entered the laboratory workforce at Columbia Analytical Services. While employed at Columbia Analytical Services, Mr. Place worked in the inorganic department performing preparation and analysis of environmental samples in the wet chemistry laboratory.

ANDREW SIMMONS

POSITION

Field Services Specialist

EDUCATION

Associates Degree in Natural Resource Conservation at Finger Lakes Community College in 2007

Bachelor's Degree in Environmental Studies at the College of Environmental Science and Forestry in 2009

FIELDS OF SPECIALIZATION

Mr. Simmons' performs many different tasks in the field for Paradigm. These include: the collection of water samples for pH and chlorine, the collection of air samples, sample preservation, maintaining test equipment, and collecting data.

MARY DOHR

POSITION

Asbestos Operations Manager/Technical Director

POST-GRADUATE EDUCATION

Microscopical Identification of Asbestos by Polarized Light Microscopy; McCrone Research Institute, Chicago, Illinois. 1993

NIOSH 582, Asbestos Air Analysis, February 1996.

Asbestos Analysis by TEM, MVA Associates, Atlanta (Norcross), GS: October 2000

Microscopy of Dust, Spores and Pollen; McCrone Research Institute, Chicago, Illinois; September 2001

FIELDS OF SPECIALIZATION

Ms. Dohr served as the asbestos laboratory manager for Paradigm Environmental Services for over ten years. Her experience began in 1990 and spans over 18 years completing PCM, PLM and TEM analysis.

Ms. Dohr manages report generation/record keeping procedures. She is also intimately involved with the laboratory and its personnel. Additionally, Ms. Dohr provides consultations to clients on sample analysis results, air monitoring procedures, and regulations involving federal and state governments.

EXPERIENCE SUMMARY

At Paradigm, Ms. Dohr's responsibilities include coordinating asbestos projects and every facet of information necessary to complete the project. Often this involves regular interfacing with clients. Through her efforts the laboratory is certified by the New York State Department of Health for Environmental Analyses/Air and Emissions (Serial #031063), and Environmental Analyses/Solid and Hazardous Waste (Serial#031374). The laboratory is certified by the National Voluntary Laboratory Accreditation Program to analyze asbestos in air and bulk samples.

ERIC FISCHER

POSITION

Asbestos Laboratory Director - Grand Island

EDUCATION

Bachelor of Science in Earth Science from State University College at Buffalo, Buffalo, New York

PROFESSIONAL CERTIFICATIONS

Asbestos Fiber Counting (NIOSCH 582)
EMSL PCM Certification
EMSL TEM Certification
EMSL PLM Certification

EXPERIENCE SUMMARY

Mr. Fischer has 10+ years in asbestos lab experience, mostly in managerial roles. He worked in NYC on EPA clearance samples after World Trade Center Bombing. He was also selected as an TEM air analyst for EPA project for contaminated vermiculite mines in Libby, Montana

PROFESSIONAL EXPERIENCE

Islechem LLC Grand Island, New York
2005 – 2009 Asbestos Technical Director, SEM Analyst

Chopra-Lee Inc. Grand Island, New York
2004 – 2005 Asbestos Department Manager, Senior Asbestos Analyst

EMSL Analytical Inc. Depew, New York
1998 – 2003 Supervisor, Asbestos Analyst

RICHARD DELIBERTO

POSITION

Senior Project Manager and Business Developer

EDUCATION

Bachelor's Degree in Geology/Environmental Science from Herbert H. Lehman College, City University of New York

Certified New York City Secondary Education Teacher

POST-GRADUATE EDUCATION

NYSDOL Certified Asbestos Inspector, Designer and Management Planner, Big Apple Occupational Safety Corporation, New York, NY

NYSDOL Certified Asbestos Trainer

OSHA Scaffolding Design Accreditation, URS Corporation, NY, NY

Training Instructor for the Restricted Handlers II (Allied Trades) – Glomar Corporation

FIELD OF SPECIALIZATION

His responsibilities at Paradigm include demonstration of services offered to clients who include Asbestos, Lead and PCB surveys, remediation design and oversight. Additional services offered are Health & Safety Training, Environmental Analysis of liquids and solids, hazardous waste, petroleum contamination, vapor intrusion monitoring and facility risk assessments. Environmental Chemistry analysis includes potable and non-potable water analysis, air emissions and field sampling and analysis. His main responsibility at Paradigm is as business development manager and company representative for the Hudson Valley region, New York and Western Connecticut areas.

EXPERIENCE SUMMARY

Prior to joining Paradigm, Mr. Deliberto was employed by the Port Authority of New York and New Jersey as an environmental scientist for 6 years then joining a nationally recognized environmental engineering firm from as senior environmental scientist and senior project manager. As environmental senior project manager, Mr. Deliberto was responsible for marketing and contract completion and is experienced in many aspects of the environmental engineering service industry.

Mr. Deliberto has over 20 years of experience in client services and management of environmental assessment, material analysis, remediation oversight and business development.

PETER DONATO

POSITION

Asbestos Laboratory Supervisor

EDUCATION

Bachelor's Degree in Biological Science, California State University at Fullerton

Masters in Business Administration (MBA), University of Phoenix

POST-GRADUATE EDUCATION

Polarized Light Microscopy for Bulk Sample Analysis: April 1999

Phase Contrast Microscopy (NIOSH 582 Equiv.): October 1999

Asbestos Analysis by TEM, MVA Associates, Atlanta (Norcross), GS: October 2000

Advanced Analysis of Diffraction Patterns, TAKA, Long Island, NY: November 2007

FIELDS OF SPECIALIZATION

He has been employed at Paradigm Environmental Services, Inc. since April 2000 as an analyst in the asbestos laboratory. Mr. Donato has been instrumental in the preparation and installation of Paradigm's Transmission Electron Microscope, which was installed in November 2000. He also created many quality control data sheets and charts for use with the TEM. Mr. Donato oversees the analysis of thousands of samples each year, as well as coordinating the schedules of roughly six other analysts. He also regularly assists in all forms of sample preparation, analysis and log-in.

EXPERIENCE SUMMARY

Prior to joining Paradigm, Mr. Donato worked at Clayton Environmental Consultants in Atlanta from March 1999 to April 2000. During that time, he worked under the supervision of Laboratory Manager, Alen Seagrave, and QA/QC Officer Wayne Skelton on two Phillips TEM microscopes. Mr. Donato's principal responsibilities included performing PCM, PLM, and TEM preparation and analysis. Daily sample preparation involved semi-quantitative and full-quantitative (NOB) bulk samples as well as AHERA and NIOSH 7402 air samples. Sample analysis also included daily Quality Assurance/Quality Control replicate analysis of samples, TEM calibrations, and data organization and report generation for AHERA and 7402 method air samples, semi-quantitative and full-quantitative bulk samples.

FERNANDA CHILDS

POSITION
Assistant Asbestos Laboratory Supervisor

EDUCATION
Bachelor Degree in Arts and Master of Arts Degree in Geology, University of Buffalo

POST-GRADUATE EDUCATION
Microscopical Identification of Asbestos by Polarized Light Microscopy; McCrone Research Institute, Chicago, Illinois. February 2005

FIELDS OF SPECIALIZATION
Currently Ms. Childs is one of the primary operators. She works under the direction of the Asbestos Laboratory Director, and is primarily responsible for the instrumental analysis of TEM samples.

EXPERIENCE SUMMARY
Ms. Childs has also taken a NIOSH 582 equivalent in-house training course and is certified to read PCM airs. She has also attended the PLM training course at the McCrone Institute and is certified in PLM analytical analysis. This flexibility is critical during the summer months when the demand for PCM and PLM analyses is at its peak.

BRIAN WEINMAN

POSITION
Asbestos Laboratory Analyst

EDUCATION
Associate of Science Degree from Monroe Community College

POST-GRADUATE EDUCATION

Microscopical Identification of Asbestos by Polarized Light Microscopy; McCrone Research Institute, Chicago Illinois.

FIELDS OF SPECIALIZATION
Mr. Weinman came to Paradigm already proficient at sample preparation and analysis. Mr. Weinman also is able to accept new samples to the laboratory and properly introduce the samples into the laboratory workflow for analysis. He is highly responsible and thorough, and is observant of all QA/QC requirements mandated by the analytical methods and accrediting authorities. He has proven himself an asset to the Paradigm team.

EXPERIENCE SUMMARY
He worked at a private testing lab prior to joining the Paradigm team analyzing asbestos samples by PCM and PLM for nearly two years. Mr. Weinman was able to learn the NIOSH, ELAP and OSHA requirements while working at Lozier

MARY HASENAUER

POSITION

Asbestos Laboratory Analyst

EDUCATION

Associate Degree in Chemical Technology from Monroe Community College

POST-GRADUATE EDUCATION

Microscopical Identification of Asbestos by Polarized Light Microscopy; McCrone Research Institute, Chicago, Illinois

TEM Manufacturer's Training JEM-1200EX

Quantitative Image Analysis; North Carolina State University, Raleigh, North Carolina

FIELDS OF SPECIALIZATION

Ms. Hasenauer is an analyst in the asbestos laboratory with proficiency in all aspects of PCM and TEM techniques.

She is fully trained in PLM analysis and has attended the initial training course at the McCrone Institute. This versatility is an extreme asset to the asbestos laboratory, especially during peak seasons.

EXPERIENCE SUMMARY

Ms. Hasenauer has over fifteen years of experience with electron microscopy analytical and sample preparation procedures. She worked with Xerox Corporation prior to working for Paradigm Environmental.

JACK D. FOX, PhD

POSITION

Managing Member and Technical Director
Vapor Trail Analytics, LLC

EDUCATION

Doctor of Philosophy from Binghamton University, State University of New York
Master of Science Degree from Binghamton University, State University of New York

PROFESSIONAL SOCIETIES

Member, American Chemical Society, 1991 – present.
Member, Air & Waste Management Association, 2008 – present.

VAPOR TRAIL ANALYTICS, LLC

Vapor Trail Analytics LLC is a commercial analytical laboratory specializing in the gas chromatographic-mass spectrometric analysis of volatile and semi-volatile chemicals in the vapor phase. Services are provided primarily to the environmental consulting, material emissions testing, specialty chemical, and food/flavor/fragrance manufacturing market segments. The company currently offers the following types of services:

- The determination of volatile organic compounds in ambient air using active sampling onto sorbent tubes
- The determination of volatile organic compounds using passive (diffusive) sampling onto sorbent tubes and badges
- The analysis of ozone-depleting chemicals in consumer electronics products
- The determination of off-odors in specialty chemical cleaning products
- Fragrance component analysis in industrial and consumer products
- Analysis of organically marketed consumer products for synthetic impurities

PAUL E. MAHONEY II

POSITION

President - Envoy Environmental

Eastman Kodak Company

As president of Envoy Environmental Consultants Paul has provided Eastman Kodak Company with 18 years of asbestos project demolition surveys, asbestos project monitoring and asbestos air sampling. These tasks range from small office areas to several million square feet of building foot print. The past five years Paul has been involved with the Eastman Kodak Company's $200 million dollar foot print reduction program. This project involved the demolition surveys, air monitoring, project monitoring and design of many buildings involving several million square feet. Paul worked hand in hand with LeChase Construction and Eastman Kodak Company to insure that all dead lines and schedules were met.

Rochester General Hospital

Paul has provided Rochester General Hospital with many types of asbestos services. They range form several thousand square feet of renovation surveys to performing air monitoring and project monitoring. Paul's most recent accomplishment has been the asbestos surveys at RGH for the new Pollisini entrance, along with the asbestos renovation survey for the new emergency room project. Paul has worked hand in hand with Rochester General Hospital staff to make sure that all time lines were met.

University of Rochester

Paul has provided the University of Rochester facilities management team with many years of asbestos services. Many of the services include asbestos demolition survey's renovation surveys asbestos project monitoring and asbestos air monitoring. Many of these projects range from a couple of hundred square feet to a 5000,000 square feet facility. The most recent demolition asbestos survey was the former Wegmans food Market located on Mt. Hope Ave. Paul worked with the facility management team to provide an on time and under budget product.

Rochester Institute of Technology

Paul has provided the Rochester Institute of Technology facilities management team with 18 years of asbestos knowledge. Paul has worked hand in hand with the RIT team on hundreds of renovation surveys to large scale demolition surveys. The most recent project was the demolition survey of a student housing facility. This housing facility has 35 separate buildings ranging from 7,000 square feet to 8,500 square feet per building. Paul and his team made sure that the budget and time line was on schedule and met.

Greece Central School District

Paul has provided Greece Central School District with many years of service. These services include asbestos demolition surveys asbestos renovation surveys, air monitoring and project monitoring within Greece. The school projects involved renovation and demolition of approximately 21 schools. These projects were and are considered fast track projects. Paul worked hand in hand with Greece Central School districts facility management team to insure that all schedules were met.

SHAWN HOUSE

POSITION

Vice President - Envoy Environmental
Director of Field Operations

EDUCATION

Alfred State College with an Associates Degree in Chemistry and Biology

PROFESSIONAL CERTIFICATIONS

EPA Certified Lead Inspector
NYS / EPA approved Asbestos Air Technician
OSHA Health and Safety Response (10-Hour OSHA course)
NYS / EPA approved Asbestos Project Monitor
NYS / EPA approved Asbestos Inspector

EXPERIENCE SUMMARY

Mr. House is responsible for overseeing several asbestos projects at once. He has more than 40 field technicians working on projects consecutively and is the director of all staff operations for over 8 years. He has also performed project management since 1990.

PROJECT EXPERIENCE

- Asbestos project monitoring at Xerox
- Asbestos project monitor at Corning Inc.
- Asbestos survey work performed at Greece Central School District
- Supervisor to all NYS projects including work at the State Jails and Correctional facilities
- Supervisor to all projects ongoing at Xerox for Lead and Asbestos.
- Air Monitoring at the U.S. Postal Service
- Air Monitoring at UPS
- Air Monitoring at the City of Rochester redevelopment program.
- Air Monitoring and Project Managed work at Brighton Central School District
- Air Monitoring and Project Managed work at Garlock Industry
- Air Monitoring at the University of Buffalo Steam Tunnel renovations 04'
- Air Monitoring at Rochester General Hospital
- Air Monitoring at Strong Memorial Hospital
- Air Monitoring at Park Ridge Hospital
- Air Monitoring and Project Managed work for Monroe County Projects over the last 3 years.
- Lead paint inspection for SUNY Cortland.
- Lead paint Inspection for the City of Rochester

GEOFF REED

POSITION

Vice President - Envoy Environmental
Asbestos Project Designer

PROFESSIONAL CERTIFICATIONS

NYS / EPA approved Asbestos Project Designer
NYS / EPA approved Asbestos Project Monitor
NYS / EPA approved Asbestos Inspector
NYS / EPA approved Asbestos Air Technician
EPA Lead Inspector/Risk Assessor
OSHA Health and Safety Response (10-Hour OSHA course)

EXPERIENCE SUMMARY

As an Asbestos Project Designer and Asbestos Inspector, Mr. Reed has over 21 years of experience in the environmental and asbestos/lead fields. He has been responsible for many asbestos projects including design, inspections, air sampling and project monitoring.

PROJECT EXPERIENCE

- Project Designer for The University of Rochester.
- Project Designer for FF Thompson Renovation projects.
- Project Designer for the Rochester General Hospital projects
- Project Designer for Xerox Renovation projects
- Project Designer for City School District projects
- Project Designer for Brighton Central School District.
- Project Designer for State University of Buffalo.
- Project Designer for Via Health.
- Project Designer for Rochester Gas and Electric projects.
- Project Designer for Nazareth College
- Project Designer for Colgate University.
- Project Designer for Frontier Telephone Corporation

GEOFF SIEBERT

POSITION

Asbestos Senior Project Manager - Poughkeepsie

EDUCATION

Attended - Monroe Community College and St. John Fisher College

PROFESSIONAL CERTIFICATIONS

NYS / EPA approved Asbestos Project Monitor
NYS / EPA approved Asbestos Inspector
NYS / EPA approved Asbestos Air Technician
OSHA Health and Safety Response (10-Hour OSHA course)

EXPERIENCE SUMMARY

As an Asbestos Project Monitor, Mr. Seibert has 8 years of experience in the environmental and asbestos/lead fields. He has been responsible for many asbestos projects including Project Monitoring and Air Sampling.

PROJECT EXPERIENCE

- Project Monitor/Air Sampling Technician for Eastman Kodak FRP multi million dollar demolition projects.
- Project Monitor/Air Sampling Technician for City of Rochester Demolition projects.
- Project Monitor/Air Sampling Technician for Xerox Tower Renovation projects
- Project Monitor/Air Sampling Technician for Garlock Industries Demolition projects.
- Lead Project Monitor/Air Sampling Technician for several Monroe County Projects.
- Project Monitor/Air Sampling Technician for The University of Rochester.
- Project Monitor/Air Sampling Technician for Rochester Institute of Technology.
- Project Monitor/Air Sampling Technician for ITT Space Systems.
- Project Monitor/Air Sampling Technician at Unity Health System.
- Project Monitor/Air Sampling Technician at Thompson Health System.
- Project Monitor/Air Sampling Technician at SUNY Brockport

GREGG MANCE

POSITION

Asbestos Project Designer

PROFESSIONAL CERTIFICATIONS

NYS / EPA approved Asbestos Project Designer
NYS / EPA approved Asbestos Project Monitor
NYS / EPA approved Asbestos Inspector
NYS / EPA approved Asbestos Air Technician
EPA Lead Inspector
OSHA Health and Safety Response (10-Hour OSHA course)
Ginna / Constellation Energy approved on-site Project Designer & Inspector

EXPERIENCE SUMMARY

As an Asbestos Project Designer and Asbestos Inspector, Mr. Mance has over 15 years of experience in the environmental and asbestos/lead fields. He has been responsible for many asbestos projects including design, inspections, air sampling and project monitoring.

PROJECT EXPERIENCE

- Project Designer for Eastman Kodak FRP multi million dollar demolition projects.
- Project Designer for FF Thompson Renovation projects.
- Project Designer fir the University of Rochester Projects
- Project Designer for Xerox Tower Renovation projects
- Project Designer for City of Rochester Demolition projects
- Project Designer for Rochester Psychiatric Center projects.
- Project Designer for State University Construction Fund.
- Project Designer for Monroe County Department of Public Works.
- Project Designer for Constellation Energy.
- Project Designer for Corning Glass.
- Project Designer for St. John Fisher College.
- Project Designer for SUNY Fredonia

GEOFFREY BIJAK

POSITION

Asbestos Project Designer

EDUCATION

Bachelors Degree from the University of Buffalo

PROFESSIONAL CERTIFICATIONS

NYS / EPA approved Asbestos Project Designer
NYS / EPA approved Asbestos Project Monitor
NYS / EPA approved Asbestos Inspector
NYS / EPA approved Asbestos Air Technician
EPA Lead Inspector and Risk Assessor
OSHA Health and Safety Response (10-Hour OSHA course)

EXPERIENCE SUMMARY

As an Asbestos Project Designer, Asbestos Inspector, EPA Lead Inspector and EPA Risk Assessor Mr. Bijak has over 10 years of experience in the environmental and asbestos/lead fields. He has been responsible for many asbestos projects including design, inspections, airs sampling project monitoring and lead inspections.

PROJECT EXPERIENCE

- Project Monitor for Eastman Kodak FRP Multi Million Dollar Demolition projects.
- Project Monitor for FF Thompson Renovation projects.
- Project Monitor/Air Sampling Tech. For The City of Rochester Projects.
- Project Monitor/Air Sampling Technician for City of Rochester Demolition projects
- Project Monitor/Air Sampling Technician for State University Construction Fund.
- Project Monitor/Air Sampling Technician for Monroe County Department of Public Works.
- Project Monitor/Air Sampling Technician for Constellation Energy.
- Project Monitor/Air Sampling Technician for Corning Glass.
- Project Monitor/Air Sampling Technician for St. John Fisher College.
- Project Monitor/Air Sampling Technician for SUNY Fredonia
- EPA Lead Inspector/Risk Assessor for the City of Rochester
- EPA Lead Inspector/Risk Assessor for the Town of Greece
- EPA Lead Inspector/Risk Assessor for the Town of Irondequoit

TED KNAPP

POSITION
Asbestos Technician

EDUCATION
Associates Degree, Environmental Technology- Monroe Community College

PROFESSIONAL CERTIFICATIONS
NYS / EPA approved Asbestos Inspector
NYS / EPA approved Asbestos Air Technician
OSHA Health and Safety Response (10-Hour OSHA course)
NYS / EPA approved Asbestos Project Monitor
Ginna / Constellation Energy approved on-site inspector

EXPERIENCE SUMMARY
As an Asbestos Technician, Mr. Knapp has 7 years of experience in the environmental and asbestos/lead fields. He has been responsible for several asbestos projects including air sampling and project monitoring.

PROJECT EXPERIENCE
- Lead Inspector for Eastman Kodak FRP Demolition projects.
- Lead Inspector for FF Thompson Renovation projects.
- Lead Inspector for Xerox Tower Renovation projects
- Lead Inspector for City of Rochester Demolition projects
- Lead Inspector for Rochester Psychiatric Center projects.
- Air Monitoring and Project Managed work for State University Construction Fund.
- Air Monitoring and Project Managed work for Monroe County Department of Public Works.
- Air Monitoring and Project Managed work for Monroe County Projects over the last 5 years.
- Lead Inspection and air monitoring at Constellation Energy.
- Air Monitoring at Nazareth College.
- Air Monitoring at St. John Fisher College.
- Air Monitoring at SUNY Fredonia

TED TRONNES

POSITION

Asbestos Project Monitor

EDUCATION

Associates Degree, Environmental Technology- Monroe Community College

PROFESSIONAL CERTIFICATIONS

NYS / EPA approved Asbestos Project Monitor
NYS / EPA approved Asbestos Inspector
NYS / EPA approved Asbestos Air Technician
OSHA Health and Safety Response (10-Hour OSHA course)
Ginna / Constellation Energy approved on-site inspector

EXPERIENCE SUMMARY

As an Asbestos Project Monitor, Mr. Tronnes has 3 years of experience in the environmental and asbestos/lead fields. He has been responsible for several asbestos projects including air sampling and project monitoring.

PROJECT EXPERIENCE

- Lead Project Monitor for Eastman Kodak FRP Demolition projects.
- Lead Project Monitor for FF Thompson Renovation projects.
- Lead Project Monitor for Xerox Tower Renovation projects
- Lead Project Monitor for City of Rochester Demolition projects
- Lead Project Monitor for Rochester Psychiatric Center projects.
- Project Monitor and Air Monitoring for State University Construction Fund.
- Project Monitor and Air Monitoring work for Monroe County Department of Public Works.
- Lead Project Monitor and Air monitoring at Constellation Energy.
- Project Monitor and Air Monitoring at Nazareth College.
- Project Monitoring and Air Monitoring at St. John Fisher College.
- Project Monitor and Air Monitoring at SUNY Fredonia

CHRIS ENRIGHT

POSITION

Asbestos Project Monitor

EDUCATION

Associates Degree, Criminal Justice- Monroe Community College

PROFESSIONAL CERTIFICATIONS

NYS / EPA approved Asbestos Project Monitor
NYS / EPA approved Asbestos Inspector
NYS / EPA approved Asbestos Air Technician
OSHA Health and Safety Response (10-Hour OSHA course)

EXPERIENCE SUMMARY

As an Asbestos Project Monitor, Mr. Enright has 4 years of experience in the environmental and asbestos/lead fields. He has been responsible for several asbestos projects including project monitoring and air monitoring.

PROJECT EXPERIENCE

- Lead Project Monitor for Corning Glass Demolition projects.
- Lead Project Monitor for Xerox Corporation Demolition projects.
- Lead Project Monitor for Bausch and Lomb Renovation projects.
- Lead Project Monitor for City of Rochester Demolition Projects
- Lead Project Monitor for Rochester Technology Park Projects.
- Lead Project Monitor for Carestream Renovation Projects.
- Lead Project Monitor for Via Health Demolition and Renovation Projects
- Project Monitoring and Air Monitoring work for Corcraft Products.
- Project Monitoring and Air Monitoring for Garlock Industries Renovation and Demolition Projects.
- Project Monitoring and Air Monitoring for City of Rochester Demolition Projects.
- Project Monitoring and Air Monitoring for Nexpress Solutions.
- Project Monitoring and Air Monitoring for Rochester Gas and Electric.
- Project Monitoring and Air Monitoring for at NYS Dormitory Authority.

CHARSIE MACK

POSITION

Client Services/Data Reporting

EDUCATION

Associates Degree in Liberal Arts with a concentration in Biology and Psychology from Monroe Community College.

Bachelor's Degree in Psychology from SUNY Geneseo.

FIELDS OF SPECIALIZATION

Ms. Mack has demonstrated a high degree of reliability and attention to detail. She is responsible for much of the reporting of data for the asbestos laboratory, and also much of the sub-out data. Additional, Ms. Mack assists in reception duties. Her background in the sciences has enabled her to quickly understand the technical aspects of her current position and have enabled her to focus on important details.

EXPERIENCE SUMMARY

Ms. Mack has held several positions in the medical and science industry including clinical technician at Strong Hospital and Laboratory Assistant at West Boca Medical Center in Boca Raton, Florida.

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PARADIGM
ENVIRONMENTAL SERVICES, INC.

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Attachment 4

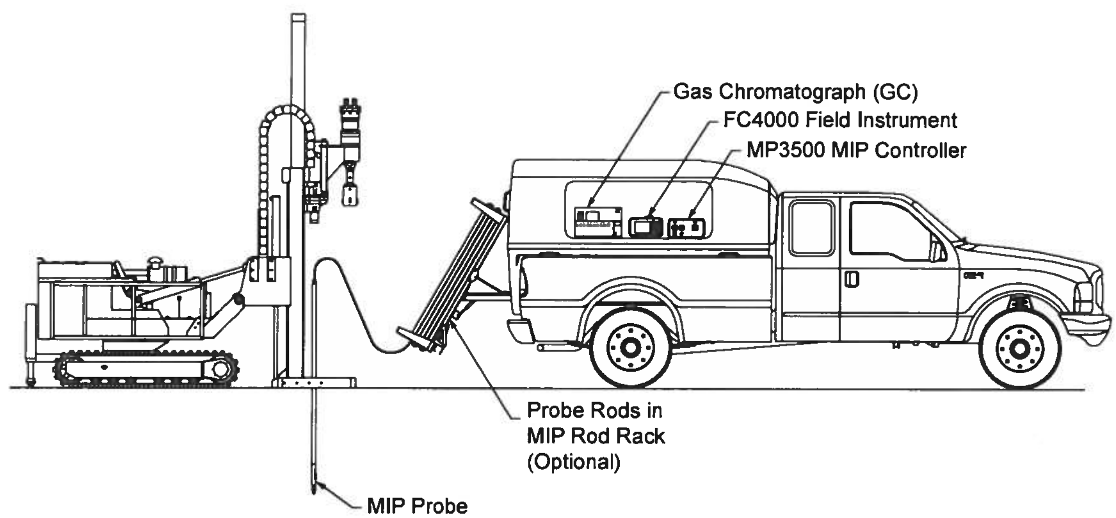
Geoprobe Standard Operating Procedures

Geoprobe® Membrane Interface Probe (MIP)

Standard Operating Procedure

Technical Bulletin No. MK3010

PREPARED: May, 2003
REVISED: June, 2009



THE MIP SYSTEM MAY BE DEDICATED TO A SINGLE CARRIER VEHICLE FOR USE IN TANDEM WITH MULTIPLE GEOPROBE® DIRECT PUSH MACHINE MODELS

Geoprobe Systems®

A DIVISION OF KEJR, INC.

Geoprobe Systems®

Geoprobe® and Geoprobe Systems®, Macro-Core® and Direct Image® are Registered Trademarks of Kejr, Inc., Salina, Kansas

Equipment and tool specifications, including weights, dimensions, materials, and operating specifications included in this brochure are subject to change without notice. Where specifications are critical to your application, please consult Geoprobe Systems®.

1.0 OBJECTIVE

This document serves as the standard operating procedure for use of the Geoprobe Systems® Membrane Interface Probe (MIP) to detect volatile organic compounds (VOCs) at depth in the subsurface.

2.0 BACKGROUND

2.1 Definitions

Geoprobe®: A brand name of high quality, hydraulically-powered machines that utilize both static force and percussion to advance sampling and logging tools into the subsurface. The Geoprobe® brand name refers to both machines and tools manufactured by Geoprobe Systems®, Salina, Kansas. Geoprobe® tools are used to perform soil core and soil gas sampling, groundwater sampling and testing, soil conductivity and contaminant logging, grouting, and materials injection.
**Geoprobe® is a registered trademark of Kejr, Inc., Salina, Kansas.*

Membrane Interface Probe (MIP): A system manufactured by Geoprobe Systems® for the detection and measurement of volatile organic compounds (VOCs) in the subsurface. A heated probe carrying a permeable membrane is advanced to depth in the soil. VOCs in the subsurface cross the membrane, enter into a carrier gas stream, and are swept to gas phase detectors at ground surface for measurement.

2.2 Discussion

The MIP is an interface between contaminates in the soil and the detectors at ground surface. It is a screening tool used to find the depth at which the contamination is located, but is not used to determine concentration of the compound. Two advantages of using the MIP are that it detects contamination in situ and can be used in all types of soil conditions.

Refer to Figure 2.1. The MIP is a logging tool used to make continuous measurements of VOCs in soil. Volatile compounds outside the probe diffuse across a membrane and are swept from the probe to a gas phase detector at ground surface. A log is made of detector response with probe depth. In order to speed diffusion, the probe membrane is heated to approximately 100° C (212° F).

Along with the detection of VOCs in the soil, the MIP also measures the electrical conductivity of the soil to give a probable lithology of the subsurface. This is accomplished by using a dipole measurement arrangement at the end of the MIP probe so that both conductivity and detector readings may be taken simultaneously. A simultaneous log of soil conductivity is recorded with the detector response.

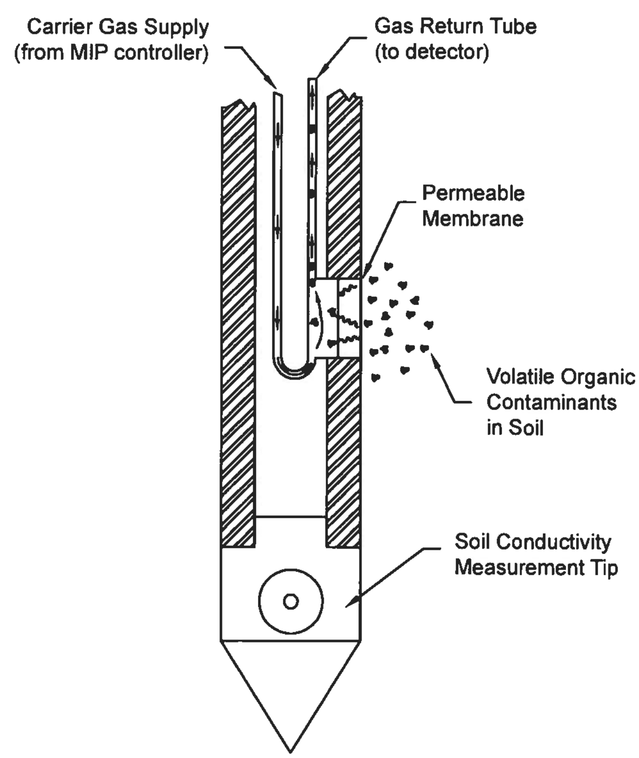


Figure 2.1
Schematic drawing of the MIP probe

3.0 Tools and Equipment

The following equipment is needed to perform and record an MIP log. Basic MIP system components are listed in this section and illustrated in Figure 3.1. Refer also to Appendix I for more required tools as determined by your specific model of Geoprobe® direct push machine.

3.1 Basic MIP System Components

Description	Quantity	Part Number
Field Instrument	(1)	FC4000 / FC5000
MIP Controller	(1)	MP3500 / MP6500
MIP/EC Acquisition Software	(1)	MP3517
MIP Probe	(1)	MP4510 / MP6510
Replacement Membrane	(1)	MP3512
Membrane Wrench	(1)	16172
LB Sample Tube (MP4510)	(1)	AT6621
Stringpot (linear position transducer)	(1)	SC160
Stringpot Cordset	(1)	SC161
MIP O-ring and Service Kit	(1)	MP2515
MIP Trunkline, 100-ft (30 m) length	(1)	MP2550
Extension Cord, 25-ft (8 m) length	(1)	SC153
Needle Valve	(1)	13700
24-in. Nafion Dryer Tube	(1)	12457
Drive Cushion*	(1)	23321
MIP Connection Tube (MP6510)	(1)	20701

3.2 Anchoring Equipment

Description	Quantity	Part Number
Soil Anchor, 4.0-in. OD flight	(3)	10245
Anchor Foot Bridge	(1)	10824
Anchor Plate	(3)	10167
GH60 Hex Adapter (if applicable)	(1)	10809
Chain Vise	(3)	10075

3.3 Optional Accessories

Description	Quantity	Part Number
MIP Trunkline, 150-ft (46 m) length	(1)	13999
MIP Trunkline, 200-ft (61 m) length	(1)	15698
FID Compressed Air System	(1)	AT1004
Hydrogen Gas Regulator	(1)	10344
Nitrogen Gas Regulator	(1)	13940
Cable Rod Rack, for 48-in. rods	(1)	18355
Rod Cart Assembly, for 1.25-in. OD rods	(1)	SC610
Rod Cart Hitch Rack, for SC610	(1)	SC650K
Rod Cart Carrier, for SC610	(1)	SC675
Rod Wiper, for 5400 Series foot	(1)	AT1255
Rod Wiper, for 66 Series foot	(1)	18181
Rod Grip Pull Handle, for GH40 hammer	(1)	GH1255
Rod Grip Pull Handle, for GH60 hammer	(1)	9641
Water Transport System	(1)	19011

*For Geoprobe® 66- and 77-Series Direct Push Machines only.

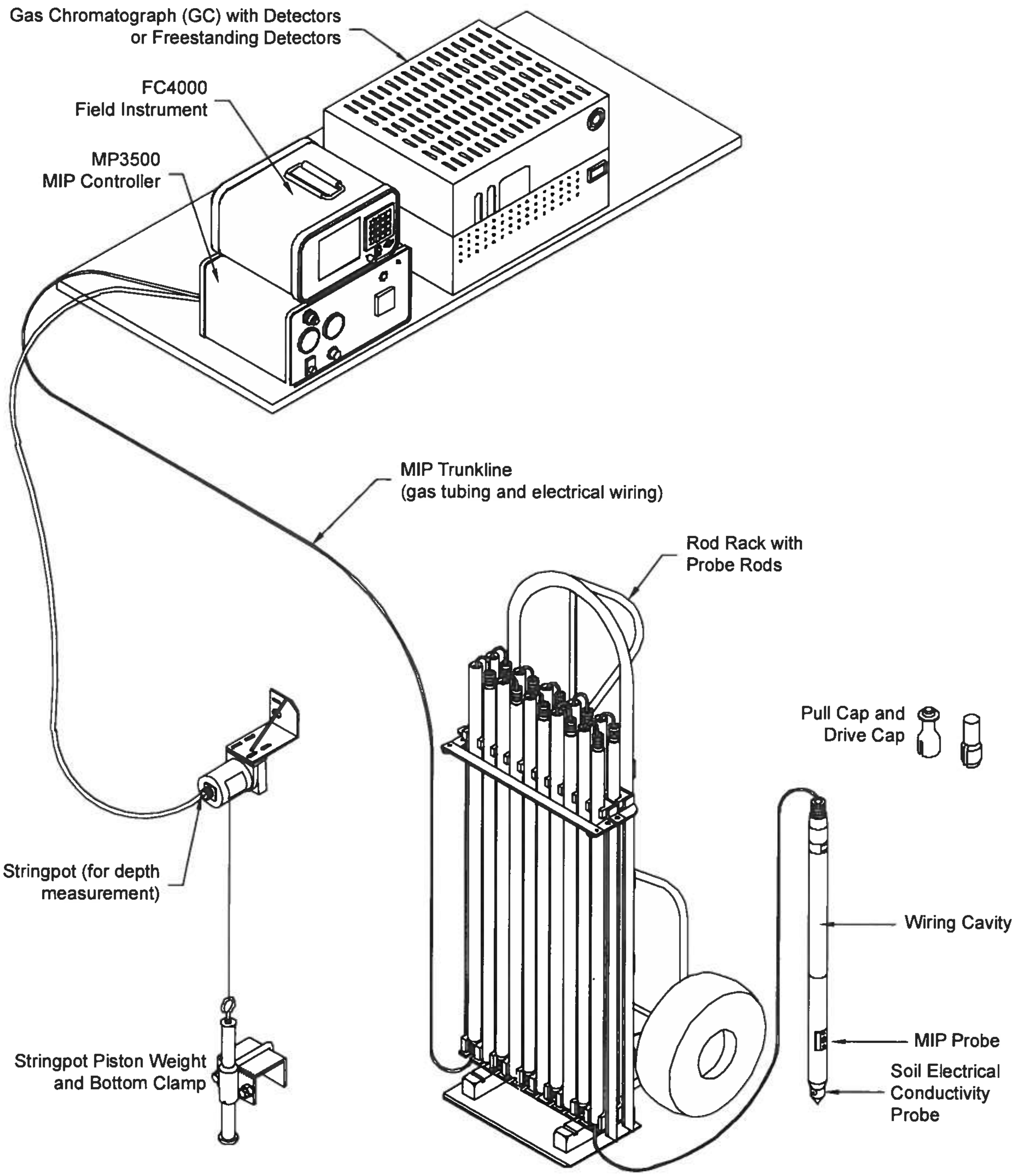


Figure 3.1
MIP system components

4.0: Quality Control - Response Testing

Response testing is an important quality control measure used to validate each log by proving that the integrity of the system is intact. Without running a response test, the operator will not know if the system is detecting the correct compounds or even if the system is working.

4.1 Preparation for Response Testing

Response testing is a necessary part of the MIP logging process because it ensures that the entire system is working correctly and also enables the operator to measure the trip time. Trip time is the time it takes for the contaminant to go from the probe, through the trunk line, and to the detectors. This time will need to be entered into the MIP software for depth calculations as described later in this document.

The following items are required to perform response testing:

- Neat sample of the analyte of interest (i.e.: benzene, TCE, PCE, etc.) purchased from chemical vendor
- Microliter syringes
- 25- or 50-mL Graduated cylinder
- Several 40-mL VOC vials with labels
- Testing cylinder made from a nominal 2-in. PVC pipe with a length of 24 in.
- 0.5 L plastic beaker or pitcher
- 25 mL Methanol
- Supply of fresh water, 0.5 L needed per test
- 5-gallon bucket filled with fine sand and water
- Stopwatch

Preparation of the stock standard is critical to the final outcome of the concentration to be placed into the testing cylinder.

1. Pour methanol into graduated cylinder to the 25 mL mark.

2. Pour 25 mL of methanol from graduated cylinder into 40-mL VOC vial.

3. Mix appropriate volume of desired neat analyte into 40-mL VOC vial containing 25 mL of methanol. The required volume of neat analyte for five common compounds is listed in Column 3 of Table 4.1. Use the equation at the then of this section to calculate the appropriate neat analyte volume for other compounds of interest.

4. Label the vial with name of standard (i.e. TCE, PCE, Benzene), concentration (50 mg/mL), date created, and created by (your name). This is the Stock Standard.

The equation used for making a stock standard is shown on the following page.

Table 4.1
Density and required volumes of neat compounds used to make a 50 mg/mL working standard into 25 ml of methanol

Compound	Density (mg/uL)	Volume of Neat Analyte Required to Prepare a Working Standard (uL)
Benzene	0.8765	1426
Toluene	0.8669	1442
Carbon Tetrachloride	1.594	784
PCE	1.6227	770
TCE	1.4642	854

25 mL (methanol) x 50 mg/mL = 1250 mg
1250 mg x 1/density of analyte = amount of neat material to be placed into 25 mL of Methanol

Example: Preparation of 50 mg/mL Benzene standard.
1250 mg x 1/0.8765 mg/uL = 1426 uL
Use 1426 uL of neat Benzene in 25 mL of Methanol to get a 50 mg/mL standard.

4.2 Response Test Procedure

With the standard prepared, the operator is ready to test the response of the probe as described below.

1. Stabilize the baseline by immersing the probe in a container with enough water to fully cover the membrane. This is necessary due to the sensitivity of the photoionization detector (PID) and the electron capture detector (ECD) to oxygen.

2. Access the MIP Time software and view the detector vs. time data. The detector signals should be stable before proceeding.

3. Obtain 500 mL of water (either tap water or distilled) in a suitable measuring container.

Table 4.2
Volume of 50 mg/mL working standard and final concentration in 0.5 L test sample volume

Volume of 50 mg/mL Standard	Final Concentration of 0.5 L Sample (mg/L or ppm)
1000 uL	100
100 uL	10
10 uL	1

4. Use a standard volume specified in Table 4.2 to mix the desired test concentration. This is the Working Standard.

5. Pour the working standard into a nominal 2-inch x 24-inch PVC pipe and immediately insert the MIP into the solution (Fig. 4.1). Leave the probe in the test solution for 45 seconds. At the end of 45 seconds, place the probe back in the container of water.

6. From the results on the MIP Time software the trip time and response time can both be measured (Fig. 4.2).

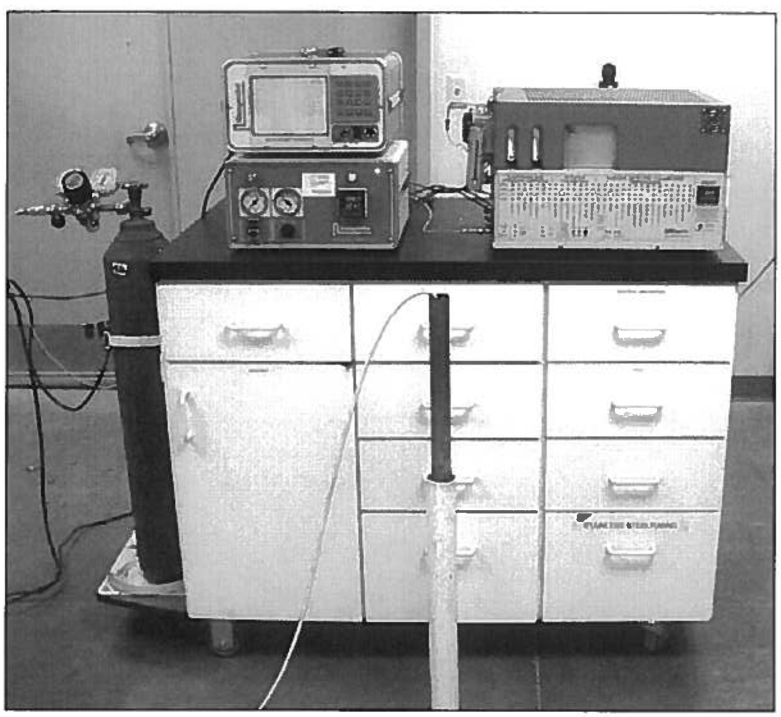


Figure 4.1
The MIP probe is placed in a PVC pipe containing the standard solution.

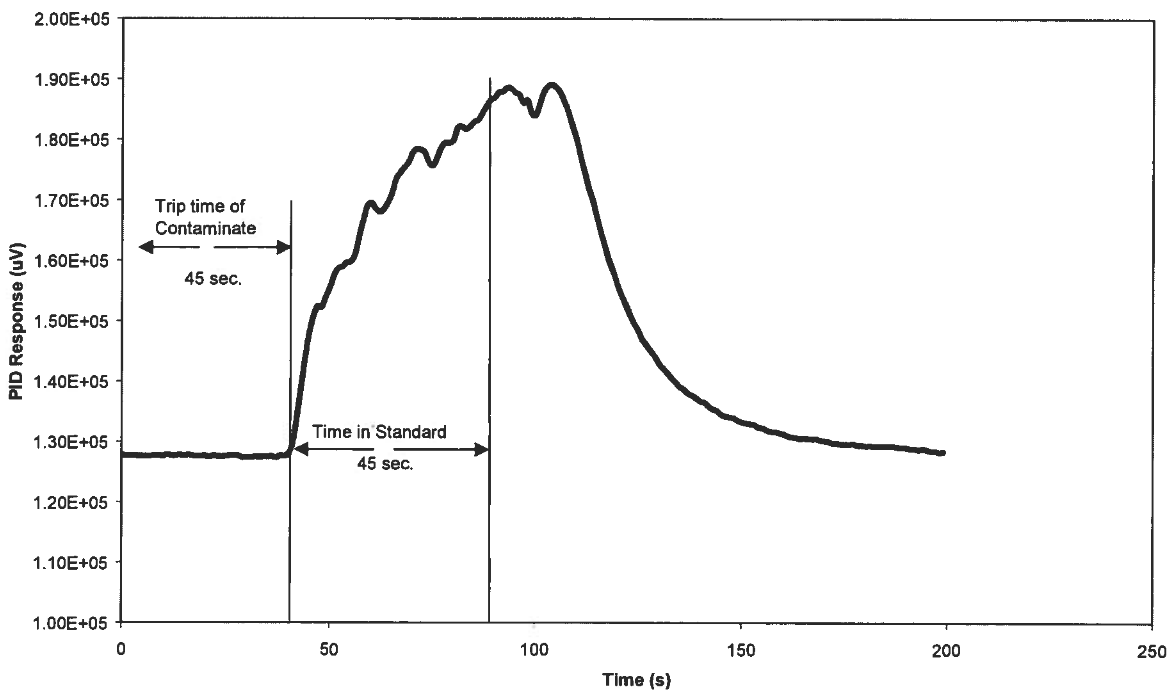


Figure 4.2
SRI PID Response Test - 10 ppm Benzene

5.0 Field Operation

1. Power on the generator.

2. Turn on any gases that will be used for the MIP system (i.e. nitrogen carrier gas, hydrogen for the FID, etc.). Check the flow rate of the system and psi on the mass flow controller. Compare these numbers to previous work.

3. Power on the detector or detectors and allow to warm up to set temperature (approximately 30 minutes).

4. Power on the MIP Controller.

5. Power on the computer or the Field Instrument.

6. Advance a pre-probe 3 to 4 feet into the subsurface at the location to be logged.

7. Remove the pre-probe and raise the probe foot of the direct push machine.

8. If advancing the MIP with percussion, raise the probe foot enough to slide the rod wiper plate underneath.

9. If pushing only, turn the desired amount of anchors into the subsurface and return the probe foot to the position from which the pre-probe was advanced. Leave the probe foot raised sufficiently to allow sliding the rod wiper underneath.

10. Place the rod wiper plate under the foot such that the opening is directly over the pre-probed hole. Lower the foot firmly onto the rod wiper.

11. If pushing only, position the anchoring bridge over the foot of the machine such that the anchors extend through the holes in the bridge (fig. 5.1). Install a chain vise at each anchor to secure the bridge.

12. With the software loaded, run a response test (Section 4.0) and record the height of the peak response and the trip time into a field notebook. Refer to Figure 4.2.

13. Enter the trip time obtained during response testing.

14. Attach a slotted drive cap to the MIP drive head.

15. Insert the MIP point into rod wiper opening and drive it into the soil until the membrane of the probe is at ground level.

16. Connect the stringpot cable to the stringpot weight located on the probe foot and pull keeper pin so the weight drops to the ground.

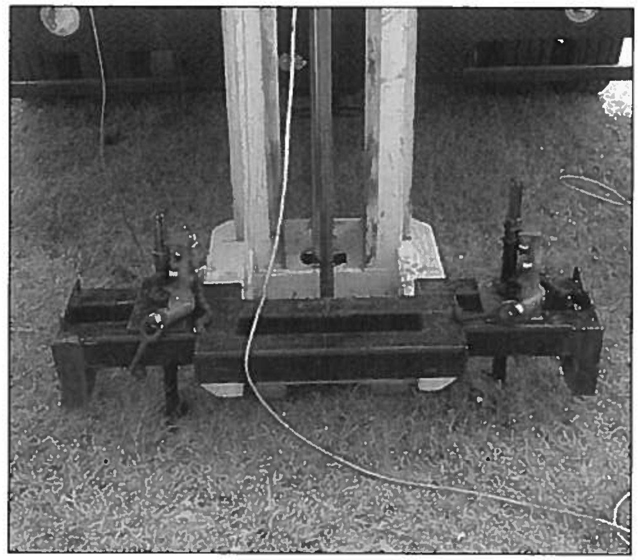


Figure 5.1
Anchor the probe foot to allow advancement of MIP probe by push only (no percussion).

NOTE: Do not allow the stringpot cable to retract into the stringpot housing at a high rate. This will ultimately damage the stringpot.

17. Record the system parameters in a field notebook at this time (i.e.. mass flow, trip time).

NOTE: If the mass flow reading drops or rises more than one psi, turn off the flow at the primary controller and remove the probe from the ground. If the temperature monitor quits heating or gives an error, remove the probe from the ground.

18. Place the trigger switch in the "ON" position.

19. Advance the probe at a rate of 1 ft/min to the predetermined log depth or until refusal is attained.

20. When the MIP log is complete, turn the trigger off and slowly return the stringpot cable into the stringpot housing.

21. Pull the probe rod string using either the Geoprobe® rod grip pull system or a slotted pull cap.

22. When the MIP reaches the surface, clean the face with water and run a response test. This response test should be written down in the field notes and compared to the initial test. This system check ensures the data for that log is valid.

23. Save the data to a 3.5-inch floppy disk or CompactFlash® card and exit the MIP software.

24. Data from the MIP can now be graphed with Direct Image® MIP Display Log or imported into any spreadsheet for graphing.

6.0 Replacing a Membrane on the MIP Probe

A probe membrane is considered in good working condition as long as two requirements are met: 1) The butane sanity test result is greater than 1.0E+06 uV response, 2) Flow of the system has not varied more than 3 mL/min from the original flow of the system (a flow meter or bubble flow meter should be kept with the system at all times). If either one of these requirements are not met, a new face must be installed as follows.

1. Turn the heater off and allow the block to cool to less than 50° C on the control panel readout.

2. Clean the entire heating block with water and a clean rag to remove any debris.

3. Dry the block completely before proceeding.

4. Remove the membrane using the membrane wrench (Fig. 6.1). Keep the wrench parallel to the probe while removing the membrane to ensure proper engagement with socket head cap screw.

NOTE: Do Not leave the membrane cavity open for extended periods. Debris can become lodged in the gas openings in the plug.

5. Remove and discard the copper washer as shown in Figure 6.2. Each new membrane is accompanied by a new copper washer. **Do not reuse the copper washer.**

6. Inspect the open cavity for any foreign objects. Remove any objects present and clean the inside of cavity of any soil that was deposited on the wall of the block.

7. Insert the new copper washer around the brass plug making sure that it sits flat on the surface of the block.

8. Install the new membrane by threading it into the socket. Use the membrane wrench to tighten the membrane to a snug fit. Do not overtighten.

9. Turn the gas on and leave the heater off. Apply water to the membrane and surrounding area to check for leaks. If a leak is detected (bubbles are formed in the water), use the membrane wrench to further tighten the membrane.

10. Use a flow meter/bubble flow meter to check flow to the detectors. Record this value in a field notebook.

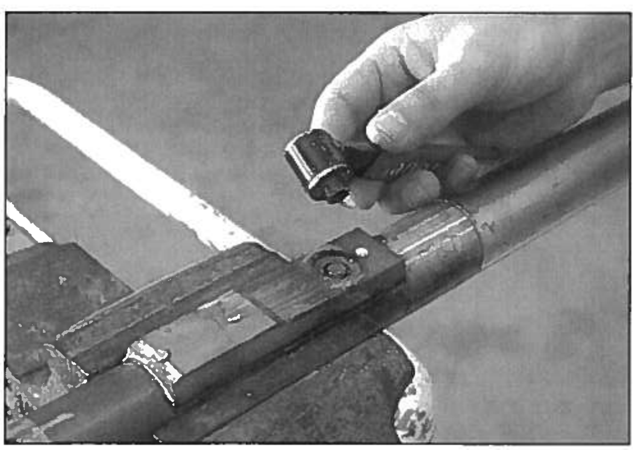


Figure 6.1
Unthread the membrane from the probe block.

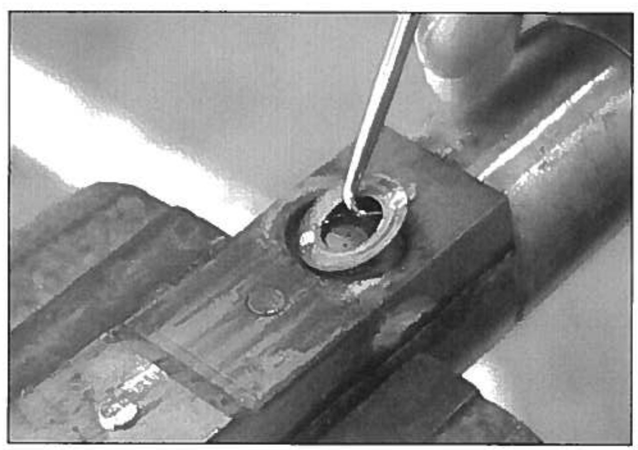


Figure 6.2
Remove and discard the copper washer.

Appendix I: Tools for Various Direct Push Machines

Model 5400 and 54DT Direct Push Machines

Description	*Part Number*
Stringpot Mounting Bracket	SC110
Stringpot Bottom Clamp	SC111
Stringpot Piston Weight	SC112
Slotted Drive Cap, for 1.25-in. rods	AT1202
Slotted Pull Cap, for 1.25-in. rods	AT1203
MIP Drive Adapter, for 1.25-in. rods	MP2512
MIP Drive Head	GW1516
Probe Rod, 1.25-in. x 48-in.	AT1248

Model 54LT Direct Push Machine

Description	*Part Number*
Stringpot Mounting Bracket	11433
Stringpot Bottom Clamp	SC111
Stringpot Piston Weight	SC112
Slotted Drive Cap, for 1.25-in. rods	AT1202
Slotted Pull Cap, for 1.25-in. rods	AT1203
MIP Drive Adapter, for 1.25-in. rods	MP2512
MIP Drive Head	GW1516
Probe Rod, 1.25-in. x 48-in.	AT1248

Model 5410 Direct Push Machine

Description	*Part Number*
Stringpot Piston Weight	SC112
Slotted Drive Cap, for 1.25-in. rods	AT1202
Slotted Pull Cap, for 1.25-in. rods	AT1203
MIP Drive Adapter, for 1.25-in. rods	MP2512
MIP Drive Head	GW1516
Probe Rod, 1.25-in. x 48-in.	AT1248

Model 6600, 66DT and 6610DT Direct Push Machines

Description	*Part Number*
Stringpot Mounting Bracket	16971
Stringpot Bottom Clamp	11751
Stringpot Piston Weight	SC112
Slotted Drive Cap, for 1.5-in. rods	15607
Slotted Pull Cap, for 1.5-in. rods	15164
Drive Cap Adapter, for GH60 and 1.25-in. rods	15498
MIP Drive Adapter, for 1.5-in. rods	18563
MIP Friction Reducer	18564
Probe Rod, 1.5-in. x 48-in.	13359

Geoprobe Systems®

A DIVISION OF KEJR, INC.

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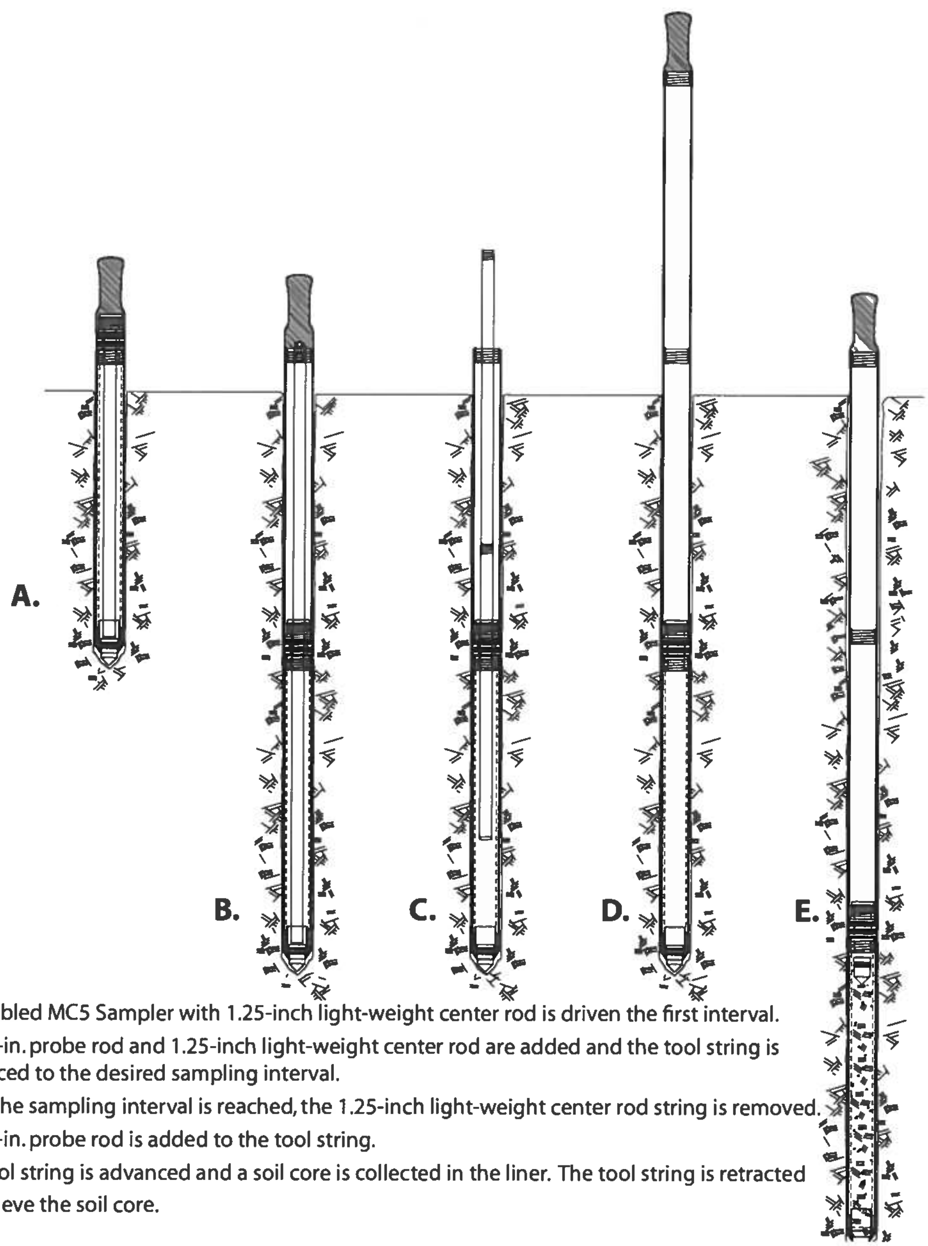
www.geoprobe.com

GEOPROBE® MACRO-CORE® MC5
1.25-INCH LIGHT-WEIGHT CENTER ROD SOIL SAMPLING SYSTEM

STANDARD OPERATING PROCEDURE

Technical Bulletin No. MK3139

PREPARED: January, 2011



A. Assembled MC5 Sampler with 1.25-inch light-weight center rod is driven the first interval.
B. A 2.25-in. probe rod and 1.25-inch light-weight center rod are added and the tool string is advanced to the desired sampling interval.
C. Once the sampling interval is reached, the 1.25-inch light-weight center rod string is removed.
D. A 2.25-in. probe rod is added to the tool string.
E. The tool string is advanced and a soil core is collected in the liner. The tool string is retracted to retrieve the soil core.

OPERATION OF THE MACRO-CORE® MC5 SOIL SAMPLING SYSTEM

Geoprobe Systems®

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Macro-Core® and Large Bore Soil Samplers
manufactured under US Patent 5,606,139.

Macro-Core® Closed-Piston Drive Point
manufactured under US Patent 5,542,481

1.0 OBJECTIVE

The objective of this procedure is to collect a representative soil sample at depth and recover it for visual inspection and/or chemical analysis.

2.0 BACKGROUND

2.1 Definitions

Geoprobe®*: A brand name of high quality, hydraulically-powered machines that utilize both static force and percussion to advance sampling and logging tools into the subsurface. The Geoprobe® brand name refers to both machines and tools manufactured by Geoprobe Systems®, Salina, Kansas. Geoprobe® tools are used to perform soil core and soil gas sampling, groundwater sampling and testing, soil conductivity and contaminant logging, grouting, and materials injection.

**Geoprobe® and Geoprobe Systems® are registered trademarks of Kejr, Inc., Salina, Kansas.*

Macro-Core® MC5 Soil Sampler:** A solid barrel, direct push device for collecting continuous core samples of unconsolidated materials at depth. Although other lengths are available, the standard Macro-Core® MC5 Sample Tubes come in lengths of 48 inches and 60 inches with an outside diameter of 2.25 inches. Samples are collected inside a removable liner. The Macro-Core® MC5 Sampler may be used in an open-tube or closed-point configuration.

***Macro-Core® is a registered trademarks of Kejr, Inc., Salina, Kansas.*

Liner: A removable/replaceable, thin-walled tube inserted inside the Macro-Core® MC5 sample tube for the purpose of containing and storing soil samples. While other lengths are available, the most common Macro-Core® MC5 Liners are 48 inches and 60 inches in length. The liner length should correspond to the length of the sample tube used. Liner materials include stainless steel, Teflon®, and PVC.

1.25-inch Light-Weight Center Rods: Used as the inner Rod String for Macro-Core® MC5 sampling. 1.25-inch Light-Weight Center rods come in lengths of 48 inches and 60 inches. They provide a weight reduction of up to 64% over standard 1.25-inch probe rods.

2.2 Discussion

In this procedure, an assembled Macro-Core® MC5 Soil Sampler is driven one sampling interval into the subsurface and retrieved using a Geoprobe® direct push machine. The collected soil core is removed from the sampler along with the used liner. After decon, the Macro-Core® sampler is reassembled using a new liner. The clean sampler is then advanced back down the same hole to collect the next soil core. The Macro-Core® Sampler may be used as an open-tube or closed-point sampler.

The Macro-Core® MC5 Soil Sampler is commonly used as an open-tube sampler (Fig. 2.1A). In this configuration, coring starts at the ground surface with a sampler that is open at the leading end. The sampler is driven into the subsurface and then pulled from the ground to retrieve the first soil core. In stable soils, an open-tube sampler is advanced back down the same hold to collect the next core.

In unstable soils which tend to collapse into the core hold, the Macro-Core® MC5 Sampler can be equipped with a 1.25-inch Center Rod Closed-Point assembly (Fig 2.1B). The point fits firmly into the cutting shoe and is held in place by the 1.25-inch light-weight center rods. The Macro-Core® MC5 Center Rod System prevents collapsed soil from entering the sampler as it is advanced to the bottom of an existing hole, thus ensuring collection of a representative sample. Once the 1.25-inch light weight center rod system is removed, the point will be pushed up the liner during the next sampling interval. The point assembly is later retrieved from the sampler with the liner and soil core.

The Macro-Core® MC5 Soil Sampler is a true discrete sampler. It can be driven through undisturbed soil to a desired depth using the 1.25-inch Light Weight Center Rod System. Once the 1.25-inch light-weight center rods are removed, a representative sample is recovered from the desired depth.

Loose soils may fall from the bottom of the sampler as it is retrieved from depth. The MC Core Catcher (Fig. 3.1) alleviates this problem. Excellent results are obtained when the core catcher is used with saturated sands and other non-cohesive soils. A core catcher should not be used with tight soils as it may actually inhibit sample recovery. In that case, a MC Spacer Ring or extended shank cutting shoe can be used. Constructed of PVC, the core catcher is suitable for use with all Geoprobe® liners.

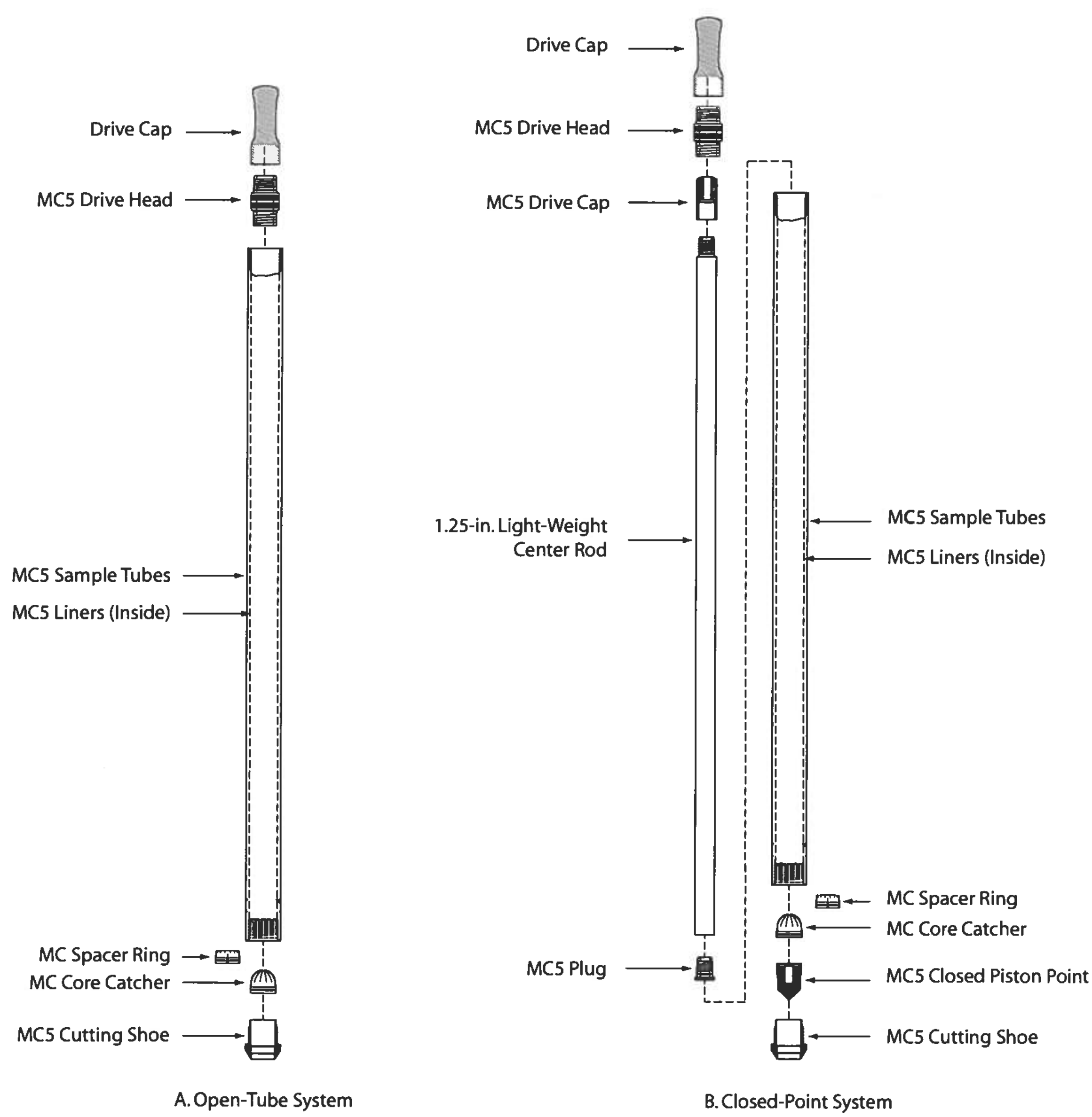


Figure 2.1
Macro-Core® MC5 Soil Sampler Configurations

3.0 TOOLS AND EQUIPMENT

The following tools and equipment can be used to recover representative soil cores with the MC5 Soil Sampling System. Sample tubes, 1.25-inch light-weight center rods, probe rods, and liners all need to be of equal length in order to obtain a sample. Refer to Figure 3.1 for identification of the specified parts. Additional tooling options are available in Appendix A.

MC5 Sampler Parts	**Part Number**
MC5 Drive Head, 2.25 in. bored	28646
MC5 Drive Head, 2.125 in. bored	23640
MC5 Sample Tubes, 60 in.	22992
MC5 Sample Tubes, 48 in.	22923
MC5 Sample Tubes, 1 m.	24239
MC5 Sample Tubes, 36 in.	24238
MC5 Sample Tubes, 24 in.	24237
MC5 Cutting Shoe, standard, 2.25 in. OD	22922
MC5 Cutting Shoe, undersized, 1.35 in. ID	23957
MC5 Cutting Shoe, standard, 2.25 in. OD (extended shank)	23978
MC5 Cutting Shoe, undersized, 1.35 in. ID (extended shank)	28237
MC5 Cutting Shoe, undersized, 1.25 in. ID (extended shank)	26078
MC5 Cutting Shoe, Heavy Duty, 1.35 in. ID,	29552
MC5 Closed Piston Point, standard	28113
MC5 Closed Piston Point, undersized	26865

Center Rods (1.25 in.) and Center Rod Accessories	**Part Number**
1.25-in. Center Rod, 60 in. Lightweight	27600
1.25-in. Center Rod, 48 in. Lightweight	21900
Probe Rod, 1.25 in. x 1 m.	AT1239
Probe Rod, 1.25 in. x 36 in.	AT1236
Probe Rod, 1.25 in. x 24 in.	AT1224
MC5 Drive Cap, 1.25 in. Center Rod, Threadless	23639
MC5 Plug Threaded, 1.25 in.	23641
1.25 in. Pull Cap	AT1204

	Part Numbers for Specific Probe Rod OD	
Probe Rods and Probe Rod Accessories	**2.25-in. OD**	**2.125-in. OD**
Probe Rod, 60 in.	25301	AT2160
Probe Rod, 48 in.	25300	AT2148
Probe Rod, 1 m.	25352	AT2139
Probe Rod, 2.125 in. x 36 in.		AT2136
Probe Rod, 2.125 in. x 24 in.		13072
Drive Cap, GH60 Series, Threadless.	31530	8397
Drive Cap, GH40 Series, Threadless	31405	
Drive Cap, GH40 Series, Threaded.		AT2101
Pull Cap.	25298	AT2104

MC5 Liners, Accessories, and Miscellaneous Tools	**Part Number**
MC Liners, 60 in. (66 liners)	10074
MC Liners, 48 in. (66 liners)	AT927K
MC Liners, 1m. (66 liners)	AT928K
MC Liners, 36 in. (66 liners)	AT921K
MC Liners, 24 in. (66 liners)	AT926K
MC Core Catcher	AT8531
MC Spacer Ring	AT8532
MC Spacer Ring (Bulk Box of 500)	AT8533K
Vinyl End Caps (Package of 66)	AT726K
Liner Cutter	AT8010
Universal Liner Holder	22734
Rod Wiper Weldment	23633
Rod Wiper Doughnuts, 2.125-in and 2.25-in.	26876
Two Pipe Wrenches	

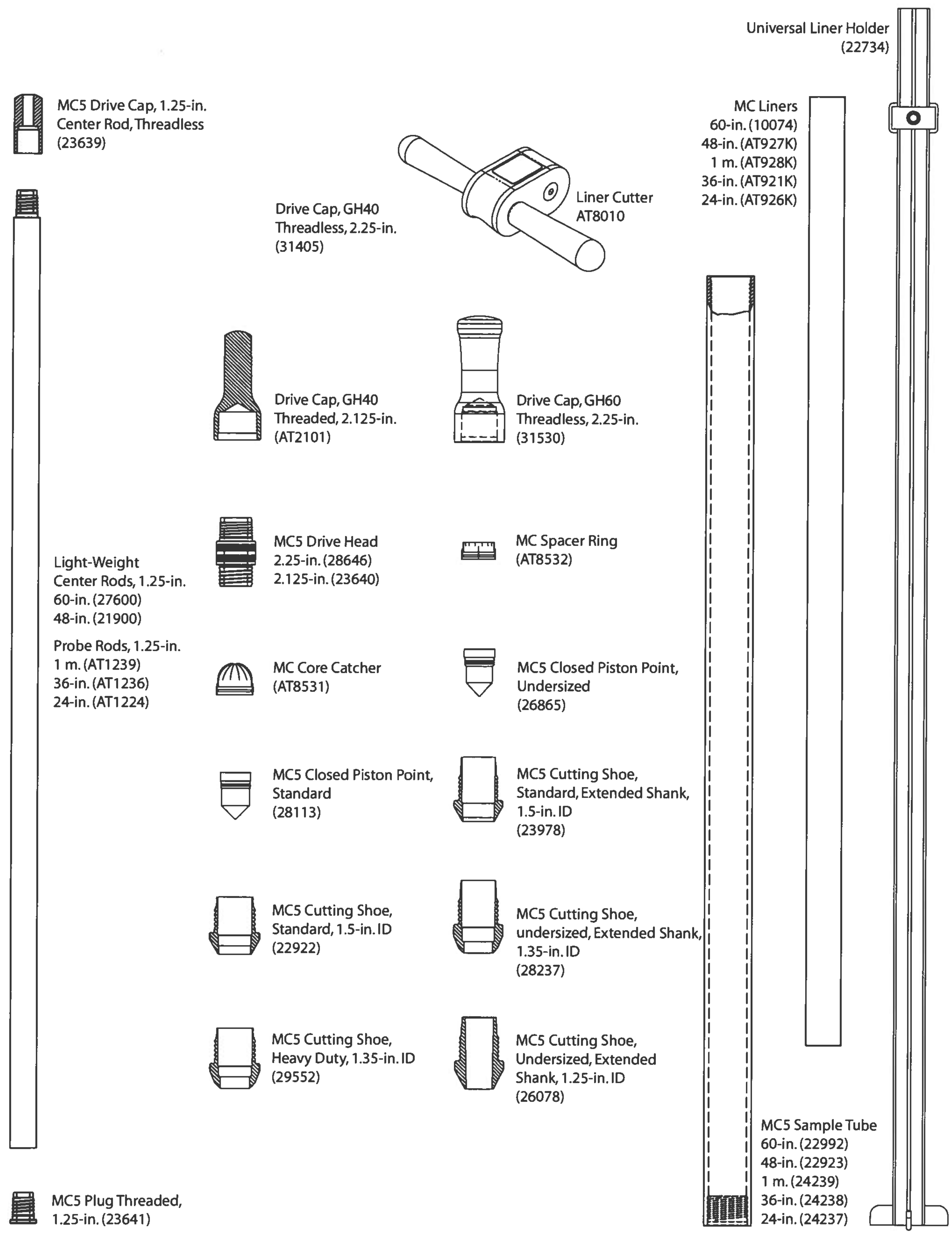


Figure 3.1
Macro-Core® MC5 Soil Sampler Parts

3.1 Tool Options

Five major components of the MC5 Soil Sampling System are sample tubes, probe rods, 1.25-inch light-weight center rods, sample liners, and cutting shoes. These items are manufactured in a variety of sizes to fit the specific needs of the operator. This section identifies the specific tool options available for use with the MC5 Soil Sampling System.

Sample Tubes
MC5 Sample tubes come in lengths of 60 inches (1524 mm), 48 inches (1219 mm), 1 meter, 36 inches (914 mm), and 24 inches (610 mm).

Probe Rods
Standard Geoprobe® 2.125-inch and 2.25-inch OD probe rods are required to operate the MC5 Soil Sampling System. The specific length of rods may be selected by the operator. The most common rod lengths used in MC5 Soil Sampling are the 60-inch and 48-inch rods.

1.25-inch Light-Weight Center Rods
1.25-inch Light-Weight Center Rods (1.25-inch / 32-mm OD) are recommended for the inner rod string of the MC5 system when utilizing an outer casing of 48- or 60-inch long rods. Choose the light-weight rod length that matches the length of rods used for the outer casing (48-inch light-weight rods with 48-inch outer casing, etc.). Currently, standard Geoprobe® 1.25-inch probe rods must be used with 24-inch, 36-inch, and 1-meter MC5 Sample Tubes.

A weight reduction of up to 64% is provided by the 1.25-inch Light-Weight Center Rods over standard 1.25-inch probe rods. As a result, considerably less energy is expended when retrieving the 1.25-inch Light-Weight Center Rods from within the outer casing during operation of the MC5 System.

Sample Liners
Sample liners are made of heavy-duty clear plastic for convenient inspection of the soil sample. Nominal lengths of 24 inches, 36 inches, 1 meter, 48 inches, and 60 inches are available. Choose the liner length corresponding to the length of the sample tube used (e.g. 60-inch liners with 60-inch sample tubes).

Cutting Shoes
Six cutting shoes are available for use with the MC5 Soil Sampling System (Fig. 3.2). The extended shank cutting shoes (23978, 28237, and 26078) fit inside the sample liner and help soil pass freely into the liner. The other three cutting shoes (22922, 23957, 29552) require an MC Core Catcher (AT8531) or MC Spacer Ring (AT8532) in order to properly connect to the sample liners.

The most prominently used cutting shoes are the two "standard" cutting shoes (22922 and 23978). These cutting shoes collect a 1.5-inch (38-mm) diameter soil core.

Undersized cuttings shoes (23957, 28237, and 29552) collect a smaller 1.35-inch (34-mm) soil core and are used in formations with plastic clays or other soil types that lead to overfilling of the sampler liner. Of these, the 29552 and 28237 cutting shoes are also thicker at the leading end for increased durability in harsh conditions where cobbles or large gravel are present.

Soil formations with highly plastic clays may call for an even smaller soil core. In these conditions, a 26078 cutting shoe with its 1.25-inch (32-mm) soil core is most effective.

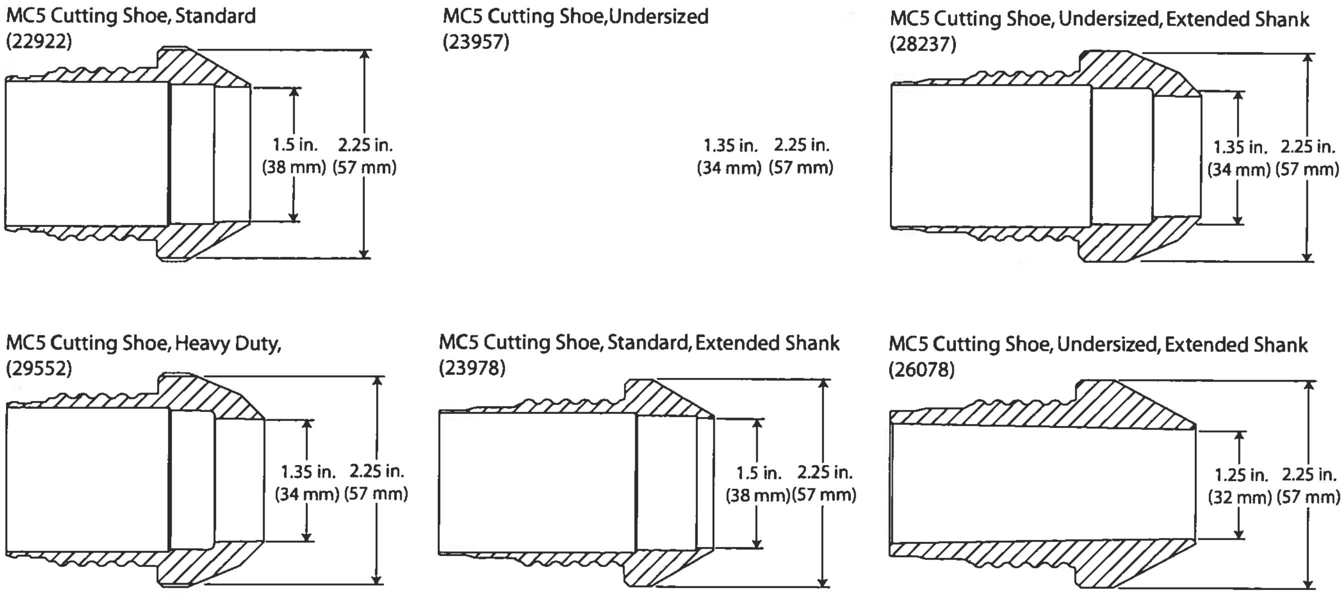


Figure 3.2
Cutting Shoe Options for Macro-Core® MC5 Soil Sampler

4.0 OPERATION

All parts shown in illustrations are those most commonly used configuration for the MC5 Sampling System. Refer to Section 3.0 for part numbers and additional tooling options.

4.1 Decontamination

Before and after each use, thoroughly clean all parts of the soil sampling system according to project requirements. Parts should be inspected for wear or damage at this time. During sampling, a clean new liner is used for each soil core.

Cleaning inside the probe rods and MC5 sample tubes is accomplished with the nylon brushes and extension rods listed in Appendix A. Thread a nylon brush and handle onto an extension rod of suitable length. Using clean water and phosphate-free soap, cycle the brush inside the probe rod or sample tube to remove contaminants. Rinse with clean water and allow to air dry.

4.2 Field Blank

It is suggested that a field blank be taken on a representative sample liner prior to starting a project and at regular intervals during extended projects. Liners can become contaminated in storage. A field blank will prove that the liners do not carry contaminates which can be transferred to soil samples. The following information is offered as an example method which may be used to take a field blank. Make the appropriate modifications for the specific analytes of interest to the investigation.

Example Procedure Required Equipment

MC Liner .... (1)
MC Vinyl End Caps .... (2)

Distilled Water...(100 ml)
VOA Vial (or other appropriate sample container).........................(1)

1. Place a vinyl end cap on one end of the liner.
2. Pour 100 milliliters of distilled water (or other suitable extracting fluid) into the liner.
3. Place a vinyl end cap on the open end of the liner.
4. From the vertical position, repeatedly invert the liner so that the distilled water contacts the entire inner surface. Repeat this step for one minute.
5. Remove one end cap from the liner, empty contents into an appropriate sample container, and cap the container.
6. Perform analysis on the extract water for the analytes of interest to the investigation.

4.3 Open-Tube Sampler Assembly

1a. Using the MC Core Catcher

Place the open end of an MC Core Catcher over the threaded end of an MC5 Cutting Shoe (22992, 23957, 29552) as shown in Figure 4.2. Apply pressure to the core catcher until it snaps into the machined groove on the cutting shoe. The core catcher should be used in loose soils, especially saturated sands (non-cohesive soils). Use of the core catcher is not necessary in tough, cohesive soils or tight clays, and may interfere with sampling especially in soft clays. The "fingers" of the core catcher flex outward to let soil move into the liner while sampling.

Figure 4.1. The spacer ring fits securely onto the MC5 Cutting Shoe.

1b. Using the MC Spacer Ring

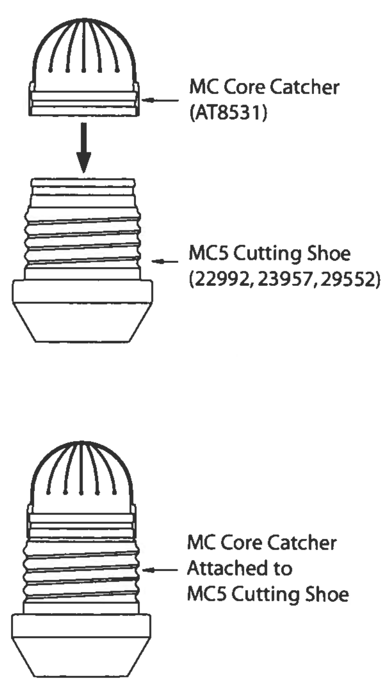


Figure 4.2
Core Catcher Attachment

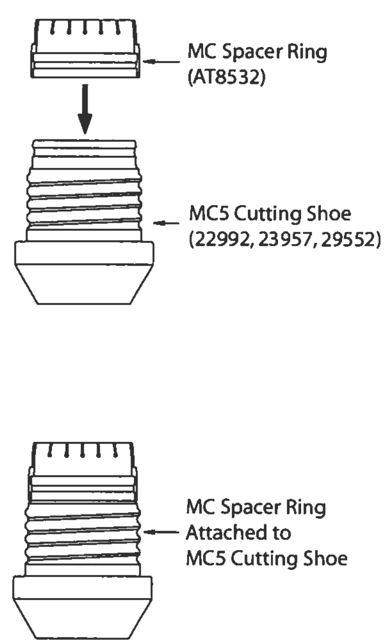


Figure 4.3
Spacer Ring Attachment

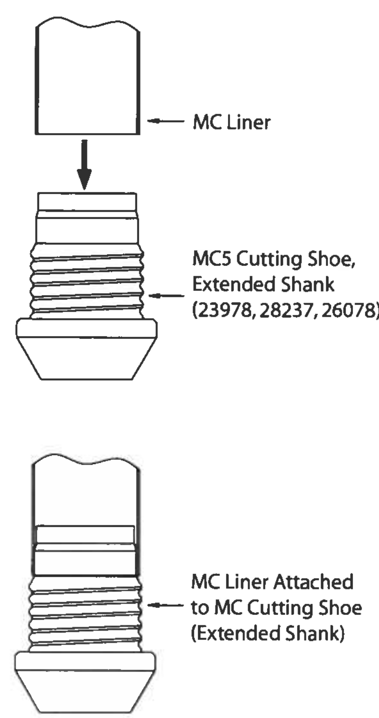


Figure 4.4
Liner Attachment on Extended Shank

Push the base of an MC Spacer Ring onto the threaded end of an MC5 Cutting Shoe (22992, 23957, 29552) until it snaps into the machined groove on the cutting shoe (Fig. 4.1 and Fig. 4.3). Spacer rings should be used when sampling cohesive soils. It allows soil to pass freely over the junction between the liner and cutting shoe.

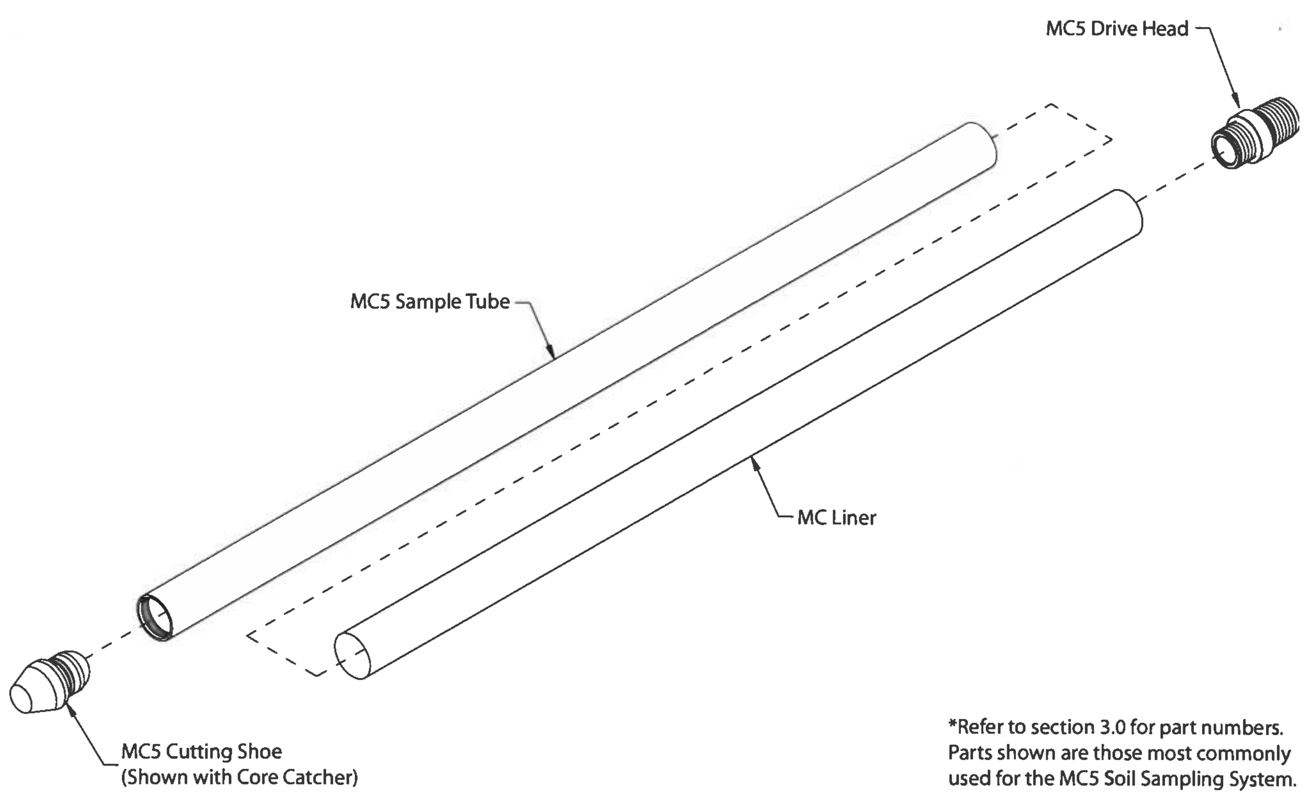
1c. Using the Extended Shank Cutting Shoe
The cutting shoes with extended shanks (23978, 28237, 26078) do not use core catchers or spacer rings. MC5 Liners should securely slide onto the end of these cutting shoes (Fig. 4.4). The extended shank cutting shoes should only be used when sampling cohesive soils. When sampling loose soils, especially saturated sands (non-cohesive soils), a cutting shoe with an MC Core Catcher is recommended.

2. Place either end of the liner onto the spacer ring or core catcher (Fig. 4.6). If you are using a cutting shoe with an extended shank, do not use a spacer ring or core catcher (Fig. 4.7). The liner should fit securely onto the spacer ring, core catcher, or cutting shoe.

3. Slide whole assembly into either end of the sample tube (Fig. 4.8). Thread the cutting shoe onto the sample tube (Fig. 4.9). If the thread is clean, it should easily thread on by hand. In some cases, a wrench may be necessary for tightening. There shouldn't be a gap between the cutting shoe and sample tube.

4. Thread an MC5 Drive Head into the top of the sample tube (Fig. 4.10). Securely tighten the drive head by hand. Ensure that the end of the sample tube contacts the machined shoulder of the drive head.

Sampler Assembly is Complete



*Refer to section 3.0 for part numbers. Parts shown are those most commonly used for the MC5 Soil Sampling System.

Figure 4.5
MC5 Open-Tube Sampler Assembly

Figure 4.6. Place either end of the liner onto the spacer ring or core catcher. The liner should fit securely.

Figure 4.7. Place either end of the liner onto the extended shank cutting shoe. (This is used in place of a spacer ring or core catcher)

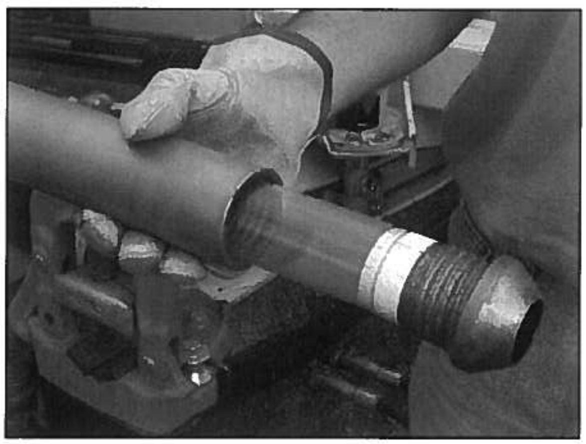


Figure 4.8. Slide whole assembly into either end of the sample tube.

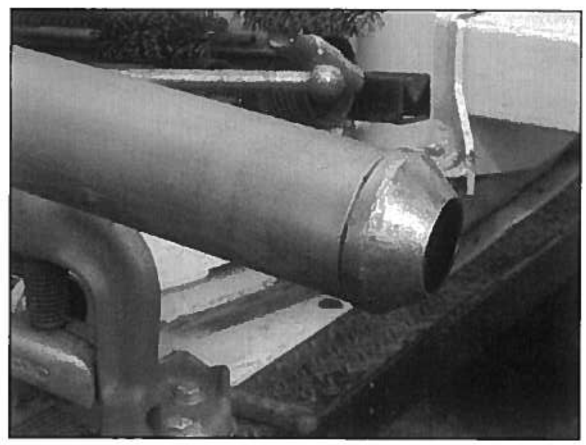


Figure 4.9. Thread the cutting shoe onto the sample tube.

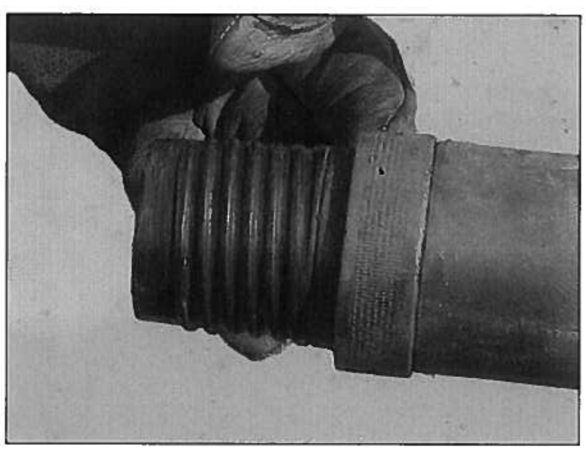


Figure 4.10. Thread the MC5 Drive Head onto the opposite end of the sample tube. Tighten by hand.

4.4 MC5 Closed-Point Sampler Assembly

The Macro-Core® 1.25-inch Light-Weight Center Rod Sampling System seals the leading end of the sampler with a point (Fig. 4.11) assembly that is held in place with a 1.25-inch light weight center rod. Once advanced to the top of the sampling interval, the 1.25-inch Light-Weight Center Rods are removed from the probe rod string.

1. Install an O-ring in the machined groove on the piston rod point (Fig. 4.12).

2. Push the MC5 Closed Piston Point (28113 or 26865) completely into the cutting shoe as shown in Figure 4.12. Note that the standard point (28113) is used with 1.5-inch (38-mm) ID cutting shoes and the undersized point (26865) is for cutting shoes with a 1.35-inch (34-mm) ID.

Figure 4.11. The MC5 Closed Piston Point slides into the cutting shoe.

3a. Using the MC Core Catcher
Place the open end of an MC Core Catcher over the threaded end of an MC5 Cutting Shoe (22992, 23957, 29552) as shown in Figure 4.13. Apply pressure to the core catcher until it snaps into the machined groove on the cutting shoe. The core catcher should be used in loose soils, especially saturated sands (non-cohesive soils). Use of the core catcher is not necessary in tough, cohesive soils or tight clays, and may interfere with sampling especially in soft clays. The "fingers" of the core catcher flex outward to let soil move into the liner while sampling.

3b. Using the MC Spacer Ring
Push the base of an MC Spacer Ring onto the threaded end of an MC5 Cutting Shoe (22992, 23957, 29552) until it snaps into the machined groove on the cutting shoe (Fig. 4.14). Spacer rings should be used when sampling cohesive soils. It allows soil to pass freely over the junction between the liner and cutting shoe.

3c. Using the Extended Shank Cutting Shoe
The cutting shoes with extended shanks (23978, 28237) do not use core catchers or spacer rings. MC5 Liners should securely slide onto the end of these cutting shoes (Fig. 4.15). The extended shank cutting shoes shoud only be used when sampling cohesive soils. When sampling loose soils, especially saturated sands (non-cohesive soils), a cutting shoe with an MC Core Catcher is recommended.

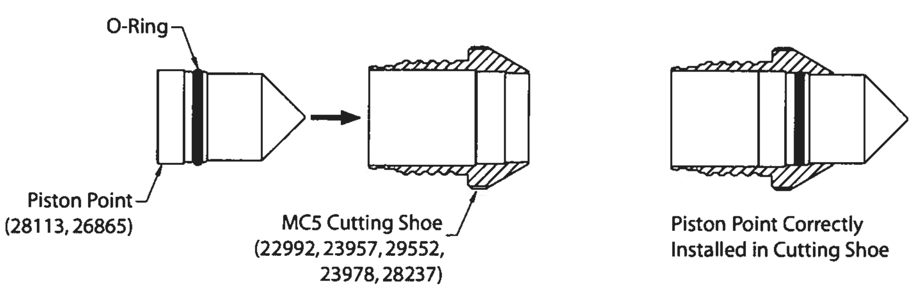


Figure 4.12
Installation of MC5 Closed Piston Point Assembly in MC5 Cutting Shoe

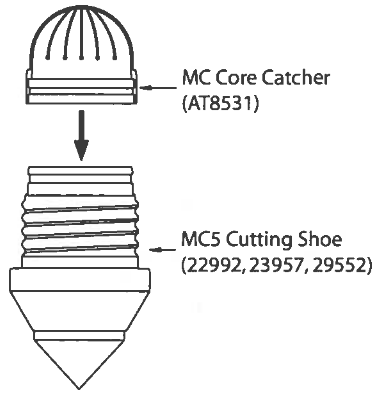


Figure 4.13
Core Catcher Attachment With Point Assembly

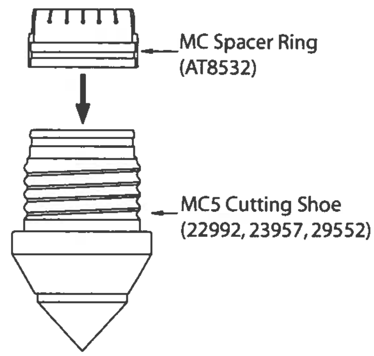


Figure 4.14
Spacer Ring Attachment With Point Assembly

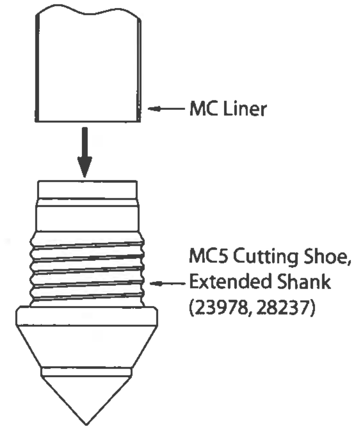


Figure 4.15
Liner Attachment on Extended Shank With Point Assembly

Refer to Figure 4.16 for MC5 Closed-Point Sampler Assembly

4. Place either end of the liner onto the spacer ring or core catcher (Fig. 4.18). If you are using a cutting shoe with an extended shank, do not use a spacer ring or core catcher (Fig. 4.19). The liner should fit securely onto the spacer ring, core catcher, or cutting shoe.

5. Slide whole assembly into either end of the sample tube (Fig. 4.20). Thread the cutting shoe onto the sample tube (Fig. 4.21). If the thread is clean, it should easily thread on by hand. In some cases, a wrench may be necessary for tightening. There shouldn't be a gap between the cutting shoe and sample tube.

6. Thread an MC5 Drive Head into the top of the sample tube. Securely tighten the drive head by hand. Ensure that the end of the sample tube contacts the machined shoulder of the drive head (Refer to Figure 4.10).

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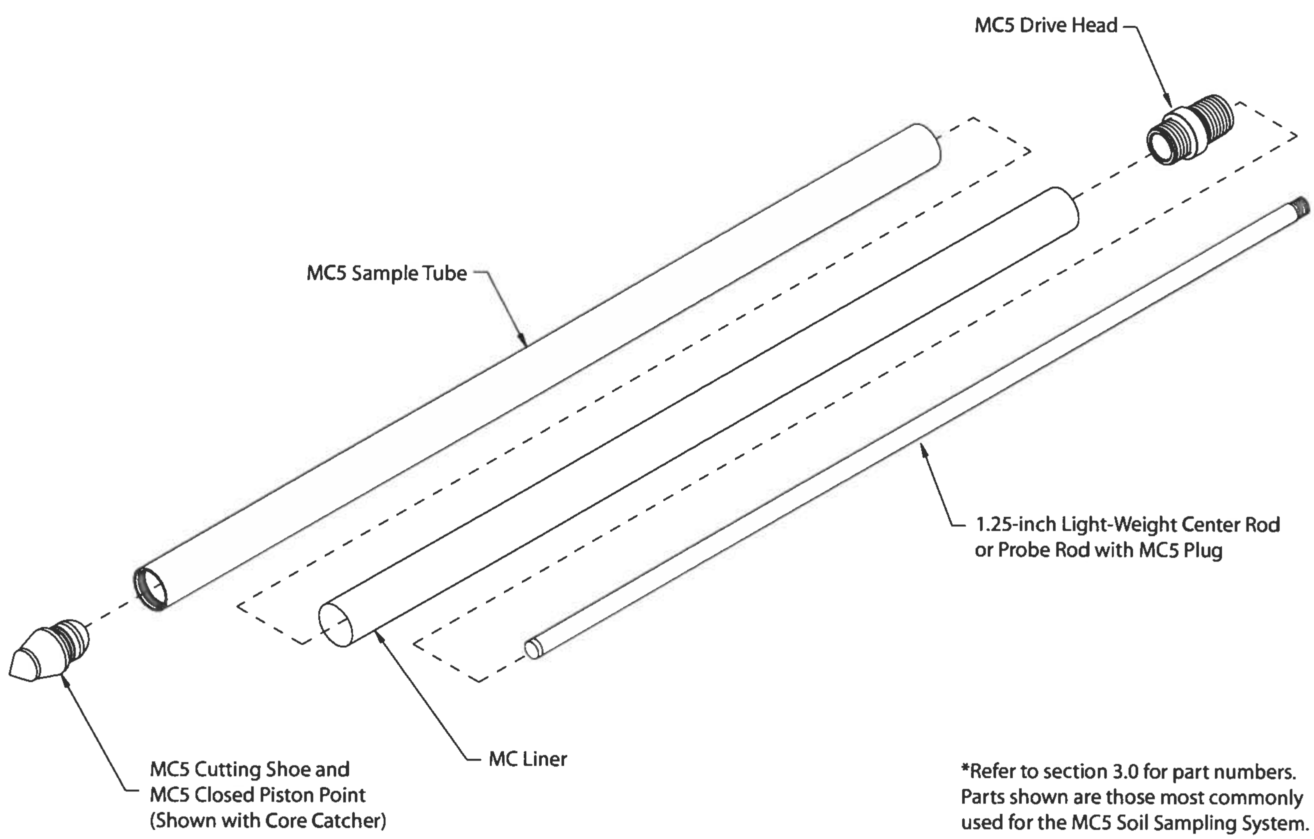


Figure 4.16
MC5 Closed-Point Sampler Assembly

7. Thread an MC5 Plug (23641) onto 1.25-inch light-weight center rod (Fig. 4.22). Note that light-weight center rods are only available in 48-inch and 60-inch lengths. Utilize 1.25-inch probe rods if other lengths are required.

8. Insert the light-weight center rod and MC5 Plug into sample tube assembly (Fig. 4.23), sending the plug end in first. Allow it to come in contact with the top of the Piston Point (Fig. 4.17).

Sampler Assembly is Complete

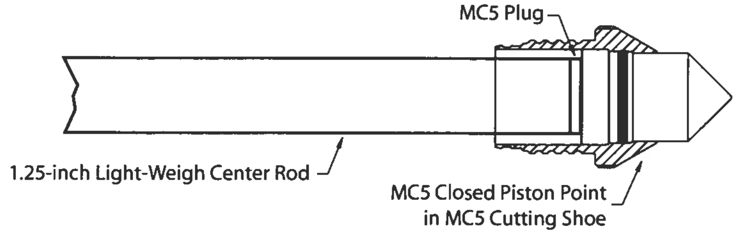


Figure 4.17
MC5 Closed-Point Center Rod Assembly

Figure 4.18. Place either end of the liner onto the spacer ring or core catcher. The liner should fit securely.

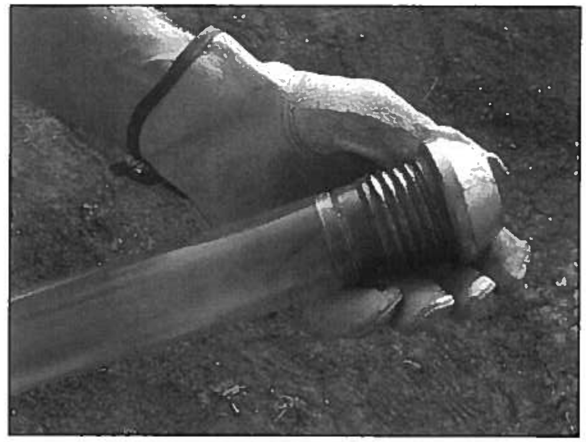


Figure 4.19. Place either end of the liner onto the extended shank cutting shoe. (This is used in place of a spacer ring or core catcher)

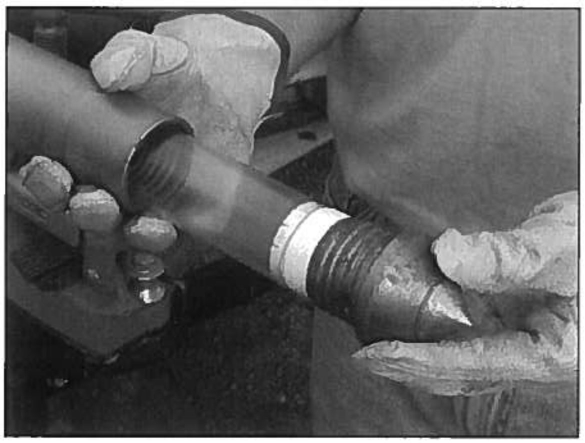


Figure 4.20. Slide whole assembly into either end of the sample tube.

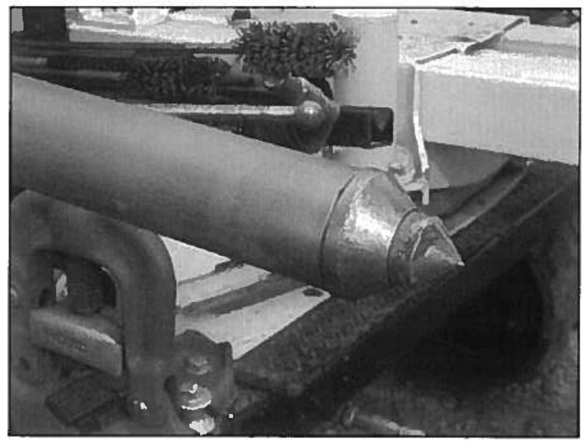


Figure 4.21. Thread the cutting shoe and point onto the sample tube.

Figure 4.22. The MC5 Plug is threaded onto the end of the 1.25-inch light-weight center rod.

Figure 4.23. The MC5 Plug and a 1.25-inch light-weight center rod are inserted into the sample tube.

4.7 Open-Tube Sampling

The MC5 Open-Tube Sampler is used to gather continuous soil cores beginning from ground surface. A representative soil sample is obtained by driving the assembled sampler one sampling interval into the subsurface through undisturbed soil. Upon retrieving the sampler, the liner and soil core are removed. The sampler is then properly decontaminated, reassembled with a new liner, and inserted back down the same hole to collect the next soil core.

Instructions for operating the MC5 Open-Tube Sampler are given in this section.

1. Place a drive cap onto the drive head (Fig. 4.24) of an assembled Open-Tube Sampler (Refer to Section 4.3 for sampler assembly).

2. Raise the probe unit hammer assembly to its highest position by fully extending the probe cylinder.

3. Position the MC5 Sampler directly under the hammer with the cutting shoe centered between the toes of the probe foot. The sampler should now be parallel to the probe derrick. Step back from the unit and visually check sampler alignment (Fig. 4.25).

4. Apply static weight and hammer percussion to advance the sampler until the drive head reaches the ground surface. (Fig. 4.27A)

   NOTE: Activate hammer percussion whenever collecting soil. Percussion helps shear the soil at the leading end of the sampler so that it moves into the sample tube for increased recovery.

5. Raise the hammer assembly a few inches to provide access to the top of the sampler.

6. Remove the drive cap and thread a pull cap onto the sampler drive head (Fig. 4.26).

7. Lower the hammer assembly and hook the hammer latch over the pull cap. Raise the hammer assembly to pull the sampler completely out of the ground. If a winch is available, it can be used with a pull plate to retract the tool string. A Rod Grip Pull Handle can also be used to retract the tool string.

8. Proceed to Section 4.9 for instructions on recovering the soil core from the MC5 Sampler.

To sample consecutive soil cores, advance a clean sampler down the previously opened hole (Fig. 4.27B) to the top of the next sampling interval (Fig. 4.27C). Drive the tool string the length of the sampler to collect the next soil core (Fig. 4.27D). Switch to an MC5 Center Rod Sampler if excessive side slough is encountered.

NOTE: Use caution when advancing or retrieving the sampler within an open hole. Low side friction may allow the sampler and probe rods to drop down the hole when released. To prevent equipment loss, hold onto the tool string with a pipe wrench when needed.

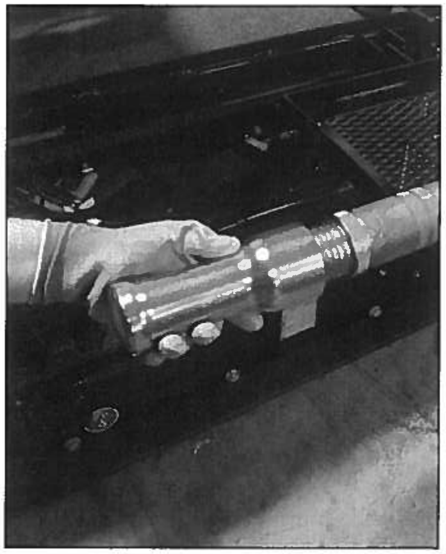


Figure 4.24. Place drive cap onto sampler drive head.

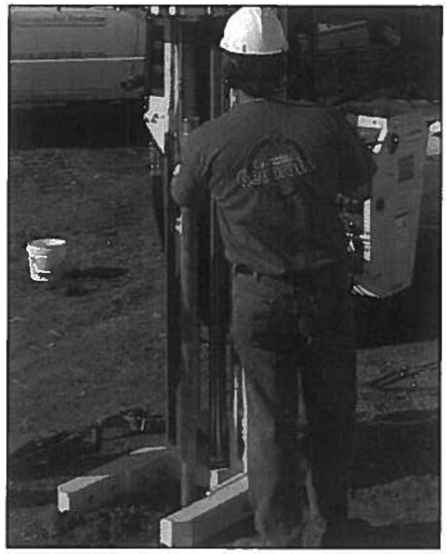


Figure 4.25. The sampler should be parallel to the probe derrick for driving.

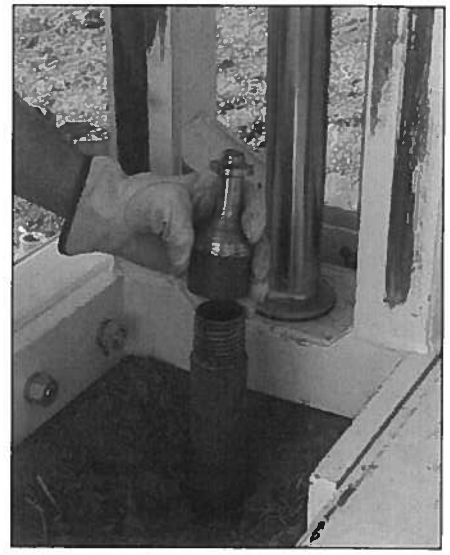


Figure 4.26. The pull cap is one way to remove the sampler from the ground.

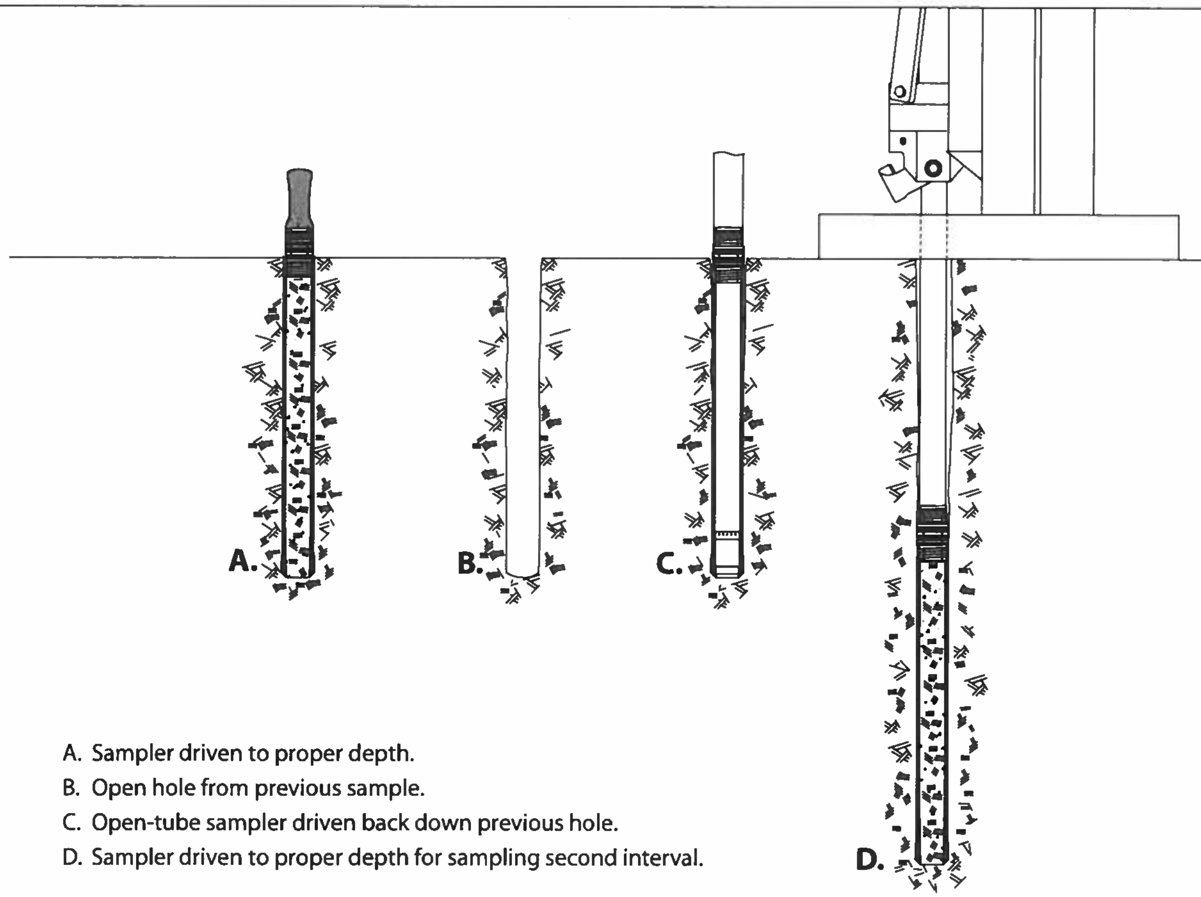


Figure 4.27
Phases of MC5 Open-Tube Soil Sampling

4.8 Closed-Point Sampling with the MC5 Center Rod System

Material collapsing from the probe hole sidewall can make it difficult to collect representative soil cores from significant depths with an open-tube sampler. To overcome this problem, the MC5 Sampler can be equipped with a center rod assembly that will hold the piston point in place. This allows the sealed sampler to pass through the slough material and then it can be opened at the appropriate sampling interval.

Instructions for operating the MC5 Closed-Point Sampler are given in this section.

1. Place a drive cap onto the center rod and a drive cap onto the drive head of an assembled Closed-Point Sampler (Refer to Section 4.4 for sampler assembly).

2. Raise the probe unit hammer assembly to its highest position by fully extending the probe cylinder.

3. Position the MC5 Sampler directly under the hammer with the cutting shoe centered between the toes of the probe foot. The sampler should now be parallel to the probe derrick. Step back from the unit and visually check sampler alignment (Fig. 4.25).

4. Apply static weight and hammer percussion to advance the sampler until the drive head reaches the ground surface (Fig. 4.28A).

5. Add additional probe rods and 1.25-inch light-weight center rods to the tool string until the desired sampling interval is reached (Fig. 4.28B).

6. Once the sampling interval is reached, remove the center rod string (Fig. 4.28C).

7. Add an additional probe rod to the string and place a drive cap on the probe rod (Fig. 4.28D).

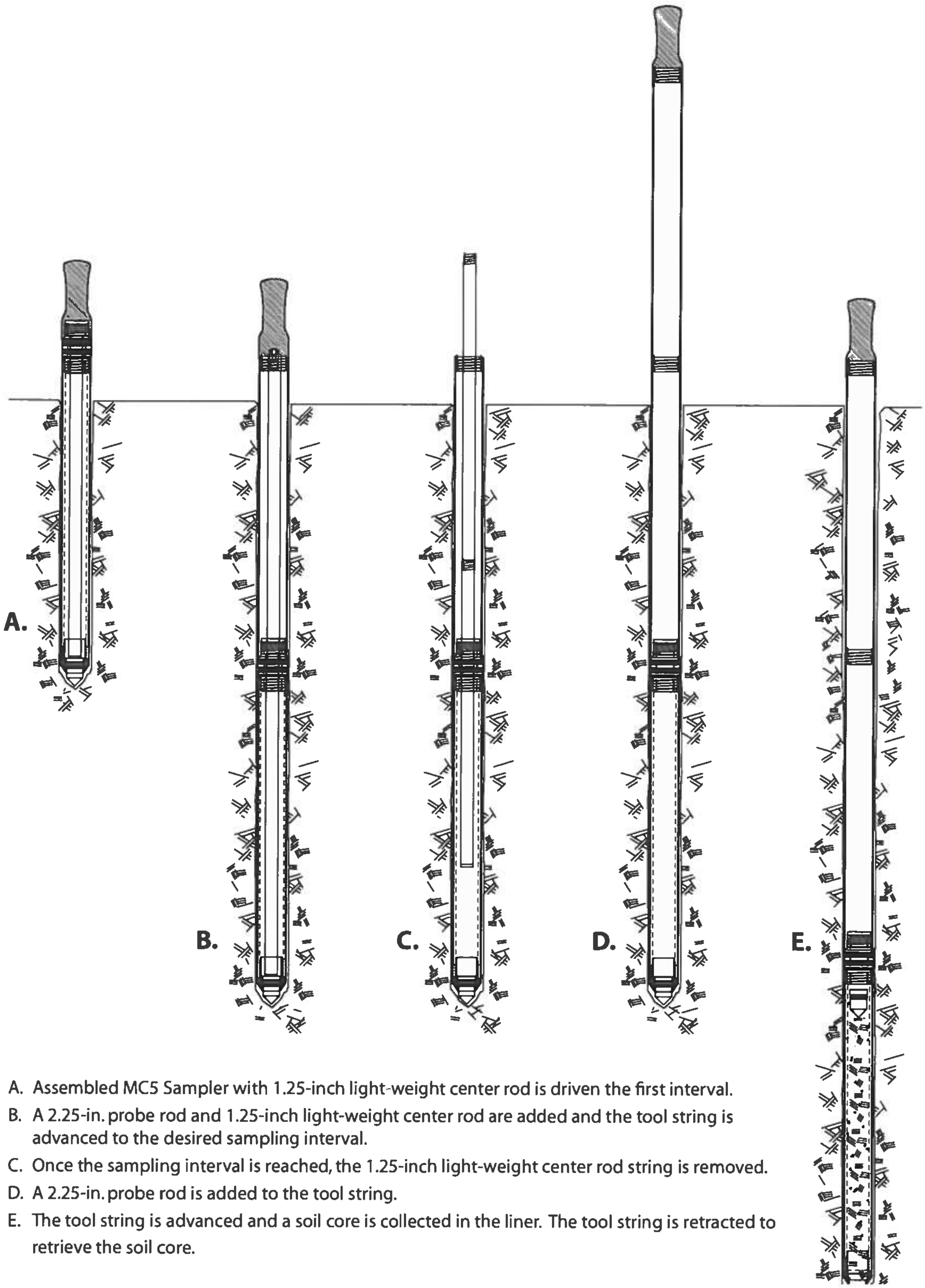
8. Advance the tool string to collect the soil core in the liner (Fig. 4.28E).

   NOTE: Activate hammer percussion whenever collecting soil. Percussion helps shear the soil at the leading end of the sampler so that it moves into the sample tube for increased recovery.

9. Lower the hammer assembly and hook the hammer latch over the pull cap. Raise the hammer assembly to pull the first probe rod out of the ground. Remove the rod and place the pull cap on the next rod of the tool string. Continue pulling probe rods until the MC5 Sampler is brought to the ground surface. If a winch is available, it can be used with a pull plate to retract the tool string. An RG Handle is another option to retract the tool string.

   NOTE: Use caution when advancing or retrieving the sampler within an open hole. Low side friction may allow the sampler and probe rods to drop down the hole when released. To prevent equipment loss, hold onto the tool string with a pipe wrench when needed.

10. Proceed to Section 4.9 for instructions on recovering the soil core from the MC5 Sampler.



A. Assembled MC5 Sampler with 1.25-inch light-weight center rod is driven the first interval.
B. A 2.25-in. probe rod and 1.25-inch light-weight center rod are added and the tool string is advanced to the desired sampling interval.
C. Once the sampling interval is reached, the 1.25-inch light-weight center rod string is removed.
D. A 2.25-in. probe rod is added to the tool string.
E. The tool string is advanced and a soil core is collected in the liner. The tool string is retracted to retrieve the soil core.

Figure 4.28
Phases of MC5 Closed-Point Center Rod System

4.9 Soil Core Recovery

The soil sample is easily removed from the MC5 Sampler by unthreading the cutting shoe and pulling out the liner (Fig. 4.29). A few sharp taps on the cutting shoe with a pipe wrench will often loosen the threads sufficiently to allow removal by hand. If needed, the exterior of the cutting shoe features wrench flats for attaching a wrench to loosen tight threads. With the cutting shoe removed, simply pull the liner and soil core from the sample tube (Fig. 4.31). A Hydraulic Liner Extruder is also available for mounting on your machine to remove liners (Fig. 4.30).

If the closed-point sampler is used, the piston point is now retrieved from the end of the liner (Fig. 4.32). Secure the soil sampler by placing a vinyl end cap on each end of the liner.

Undisturbed soil samples can be obtained from liners by splitting the liner. The MC Liner (AT8010) is used to make longitudinal cuts along the liner (Fig. 4.33).

Figure 4.29. Remove the MC5 Cutting Shoe and liner from the MC5 Sampler Tube.

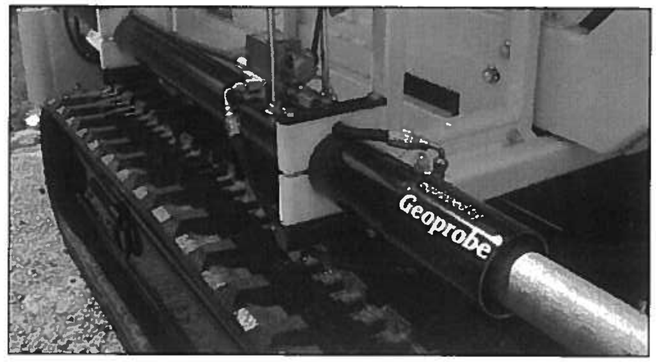


Figure 4.30. The Hydraulic Liner Extruder helps remove the liner.

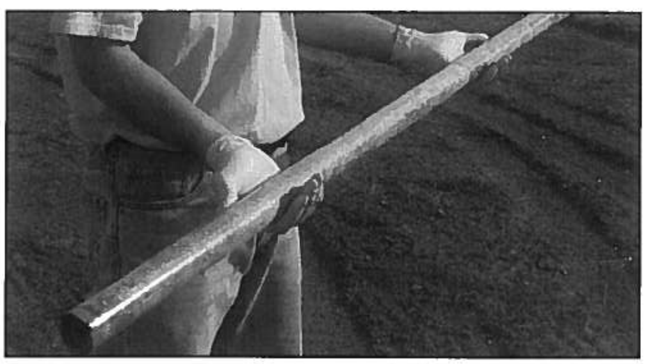


Figure 4.31. MC5 Liner filled with soil core.

Figure 4.32. MC5 Closed Piston Point is retrieved from the top of the liner.

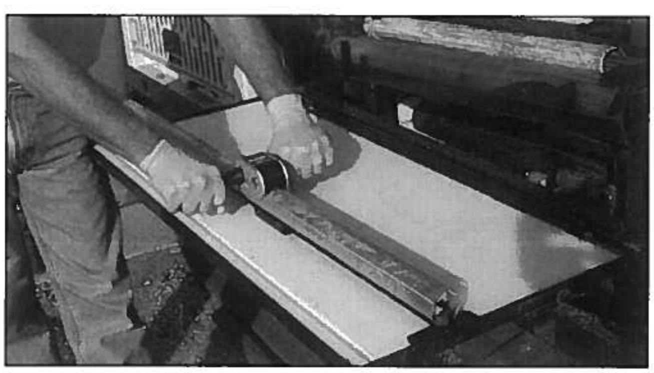


Figure 4.33. MC Liner Cutter makes two longitudinal cuts in PVC Liners.

4.10 Tips to Maximize Sampling Productivity

The following suggestions are based on the collective experiences of Geoprobe® operators:

1. Organize your truck or van. Assign storage areas to all tools and equipment for easy location. Transport sample tubes, probe rods, 1.25-inch light-weight center rods, and liners in racks. Above all, minimize the number of items lying loose in the back of your vehicle.

2. Take three or four samplers to the field. This allows the collection of several samples before stopping to clean and decontaminate the equipment. A system is sometimes used where one individual operates the probe while another marks the soil cores and decontaminates the used samplers.

3. A machine vise is recommended. With the sampler held in a vise, the operator has both hands free to remove the cutting shoe, drive head, and sample liner. Cleanup is also easier with both hands free. Geoprobe® offers an optional machine vise (FA300).

4. Organize your worksite. Practice with the sampler to identify a comfortable setup and then use the layout whenever sampling. A collapsible table or stand is handy to hold decontaminated sampler tubes and liners. Equipment may also be protected from contamination by placing it on a sheet of plastic on the ground.

   Instead of counting probe rods for each trip in-and-out of the probe hole, identify separate locations for "new" rods and "used" rods. Collect the first sample from the open hole using "new" rods. As each probe rod is removed during sampler retrieval, place it in the "used" rod location. Now advance a clean sampler back down the same hole using all of the rods from the "used" location. Add one "new" rod to the string and then drive the tools to collect the next soil core. Once again, remove each probe rod and place it in the "used" rod location as the sampler is retrieved. Repeat this cycle using all the "used" rods to reach the bottom of the probe hole, and one "new" rod to fill the sampler.

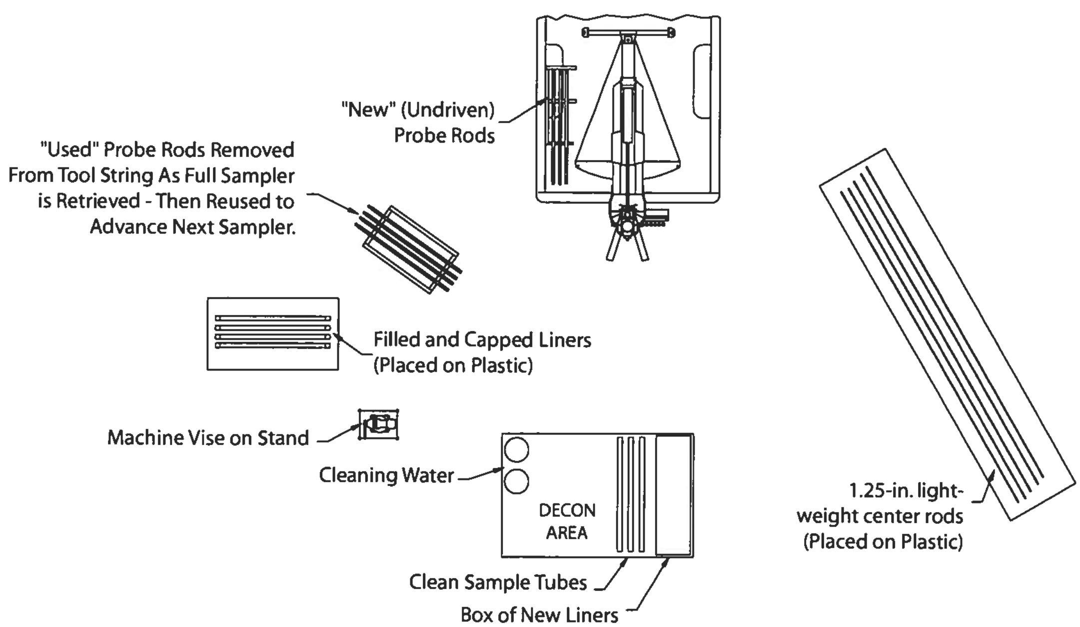


Figure 4.36
Equipment Layout Example to Maximize Sampling Productivity

5. Cleanup is very important from the standpoint of operation as well as decontamination. Remove all dirt and grit from the threads of the drive head, cutting shoe, and sample tube with a nylon brush (BU700). Without sufficient cleaning, the cutting shoe and drive head will not thread completely onto the sample tube and probe rods. The threads may be damaged if the sampler is driven in this condition.

   Ensure that all soil is removed from inside the sample tube. Sand particles are especially troublesome as they can bind liners in the sampler. Full liners are difficult to remove under such conditions. In extreme cases, the soil sample must be removed from the liner before it can be freed from the sample tube.

5.0 REFERENCES

Geoprobe Systems®, 2003. *Tools Catalog, V. 6.*

APPENDIX A
ALTERNATIVE PARTS

Geoprobe® Tools and Equipment	Part Number
Drive Cap, GH40 Series, Threaded, 2.25 in.	25362
Drive Cap, GH60 Series, Threaded, 2.25 in.	25363
Drive Cap, GH60 Series, Threaded, 2.125 in.	15673
Nylon Brush, Macro-Core® Tool	BU700
Nylon Brush, 2.25-in. and 2.125-in. probe rods	BU2125
Extension Rod Handle	AT69
Extension Rod (60-in.)	10073
Extension Rod (48-in.)	AT671
Extension Rod (36-in.)	AT67

Equipment and tool specifications, including weights, dimensions, materials, and operating specifications included in this brochure are subject to change without notice. Where specifications are critical to your application, please consult Geoprobe Systems®.

Geoprobe Systems®

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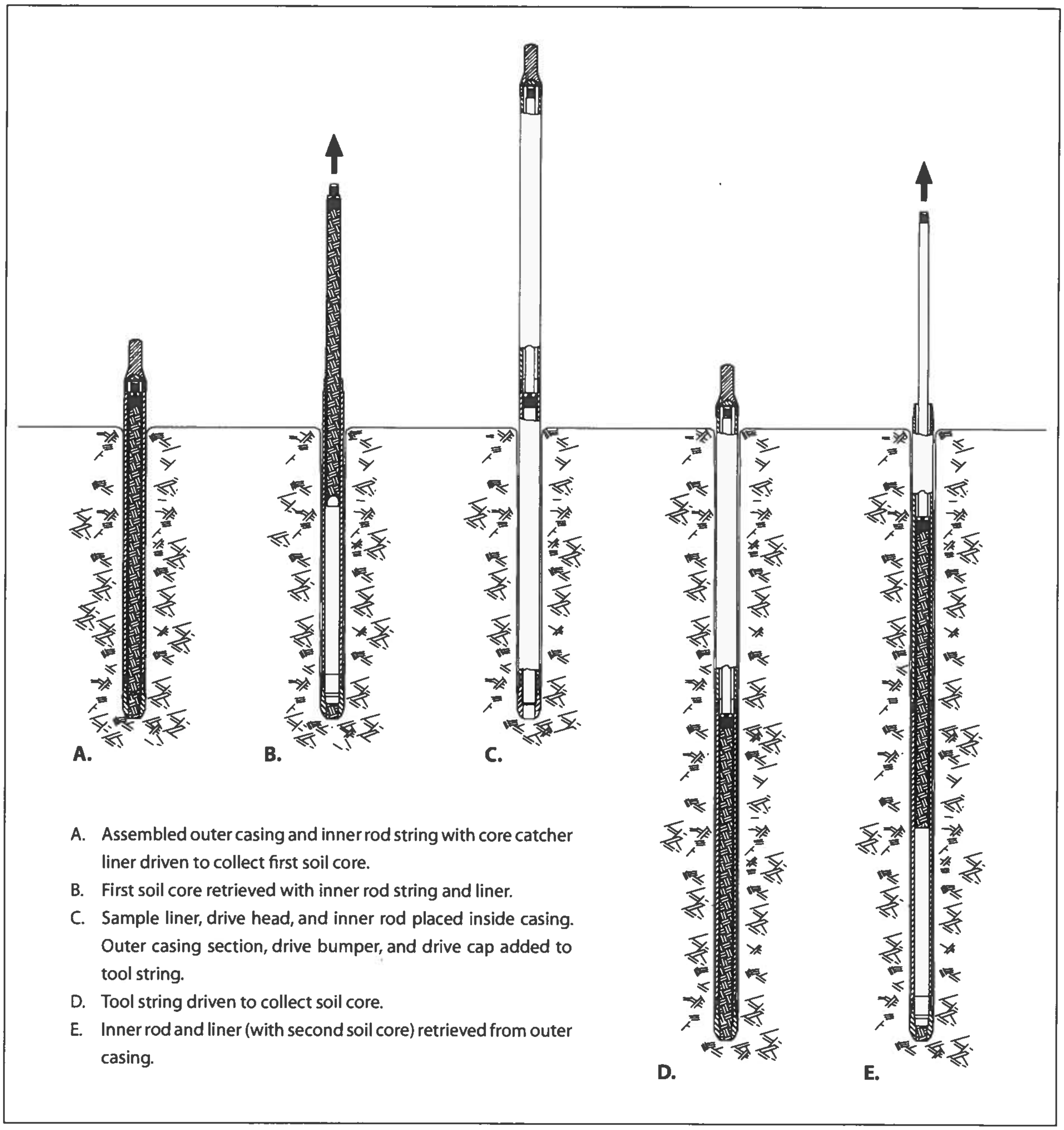
GEOPROBE® DT22 DUAL TUBE SOIL SAMPLING SYSTEM
CONTINUOUS CORE SOIL SAMPLER

STANDARD OPERATING PROCEDURE

Technical Bulletin No. MK3140

PREPARED: November, 2006
REVISED: January, 2011



A. Assembled outer casing and inner rod string with core catcher liner driven to collect first soil core.
B. First soil core retrieved with inner rod string and liner.
C. Sample liner, drive head, and inner rod placed inside casing. Outer casing section, drive bumper, and drive cap added to tool string.
D. Tool string driven to collect soil core.
E. Inner rod and liner (with second soil core) retrieved from outer casing.

OPERATION OF THE DUAL TUBE 22 SOIL SAMPLING SYSTEM

Geoprobe Systems®

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Registered Trademarks of Kejr, Inc., Salina, Kansas

Geoprobe® Prepacked Screens are manufactured under
U.S. Patent No. 7,735,553B2.

1.0 OBJECTIVE

The objective of this procedure is to collect a representative soil sample at depth through an enclosed casing and recover it for visual inspection and/or chemical analysis.

2.0 BACKGROUND

2.1 Definitions

Geoprobe®: A brand name of high quality, hydraulically-powered machines that utilize both static force and percussion to advance sampling and logging tools into the subsurface. The Geoprobe® brand name refers to both machines and tools manufactured by Geoprobe Systems®, Salina, Kansas. Geoprobe® tools are used to perform soil core and soil gas sampling, groundwater sampling, soil conductivity and contaminant logging, grouting, and materials injection.
** Geoprobe® and Geoprobe Systems® are registered trademarks of Kejr Engineering, Inc., Salina, Kansas*

Dual Tube 22 Soil Sampling System: A direct push system for collecting continuous core samples of unconsolidated materials from within a sealed casing of Geoprobe® 2.25-inch (57 mm) outside diameter (OD) probe rods. Samples are collected and retrieved within a liner that is threaded onto the leading end of a string of Geoprobe® 1.25-inch (32 mm) OD Light-Weight Center Rods and inserted to the bottom of the outer casing. Collected samples measure up to approximately 980 ml in volume in the form of a 1.125-inch x 60-inch (29 mm x 1524 mm) core.

Liner: A 1.375-inch (35 mm) OD thin-walled, PVC tube that is inserted into the outer casing on the leading end of the inner rod string for the purpose of containing and retrieving core samples. Liners are available in two configurations; a simple open tube or a tube with a core catcher permanently attached to the leading end. Nominal liner lengths include 36 inches, 1 meter, 48 inches, and 60 inches.
***Nominal liner length identifies the length of tools with which the liner is used (see Page 8). The actual end-to-end lengths of the various DT22 liners will differ from the specified nominal lengths.*

Core Catcher: A dome-shaped device positioned at the leading end of a liner to prevent loss of collected soil during retrieval of the liner and soil core. Flexible fingers at the top of the core catcher are pushed outward by soil entering the liner during advancement of the tool string. As the filled liner is subsequently retrieved, the fingers of the core catcher move back inward, effectively closing off the end of the liner and limiting soil loss. The core catcher designed for the DT22 system is made of PVC material and is permanently fused to the liner.

2.2 Discussion

Dual tube sampling gets its name from the fact that two sets of probe rods are used to retrieve continuous soil core samples from the subsurface. One set of rods is driven into the ground as an outer casing (Fig. 2.1). These rods receive the driving force from the hammer and provide a sealed casing through which soil samples may be recovered. The second, smaller set of rods are placed inside the outer casing with a sample liner attached to the leading end of the rod string (Fig. 2.1). These smaller rods hold the liner in place as the outer casing is driven to fill the liner with soil. The inner rods are then retracted to retrieve the full liner.

Standard Geoprobe® 2.25-inch OD probe rods provide the outer casing for the DT22 Dual Tube Soil Sampling System. A cutting shoe is threaded into the leading end of the rod string. When driven into the subsurface, the cutting shoe shears a 1.125-inch OD soil core which is collected inside the casing in a clear plastic liner.

The second set of rods in the DT22 system are Geoprobe® 1.25-inch OD Light-Weight Center rods. A sample liner is attached to the end of these smaller rods and then inserted into the casing. The 1.25-inch rods hold the liner tight against the cutting shoe as the outer casing is driven to collect the soil core. Once filled with soil, the liner is removed from the bottom of the outer casing by lifting out the 1.25-inch rods.

The outer, 2.25-inch probe rods provide a cased hole through which to sample. The main advantage of sampling through a cased hole is that there is no side slough to contend with. In addition, the outer casing effectively seals the probe hole when sampling through perched water tables. These factors mean that sample cross-contamination is eliminated. The DT22 sampling system is therefore ideal for continuous coring in both saturated and unsaturated zones.

Solid Drive Tip

A DT22 Discrete Point 1.25 pin (22956) can be placed on the leading end of the 1.25 inner rod string in place of a sample liner (Fig. 2.2). When installed in the outer casing, the drive tip firmly seats within the cutting shoe and effectively seals the tool string as it is driven into the subsurface. This enables the operator to advance the outer casing to the bottom of a pre-cored hole or through undisturbed soil to reach the top of the sampling interval.

Grouting

The DT22 system allows bottom-up grouting through the primary tool string. This means that a cement or bentonite grout mix can be pumped through the outer casing as it is withdrawn from the ground. This is in contrast to most other soil samplers which require driving a second set of tools back down the probe hole in order to deliver the grout mix.

Monitoring Well Installation

An expendable cutting shoe enables the operator to install a Geoprobe® Prepacked Screen Monitoring Well through the outer casing of the DT22 Dual Tube System. After the collection of continuous soil cores to the desired depth, prepacked screens can be inserted to the bottom of the outer casing on the leading end of a PVC riser string. The well is finished, complete with grout barrier, bentonite well seal, and a high-solids bentonite slurry/neat cement grout, during retrieval of the outer casing.

SP22 Groundwater Sampler

The Screen Point 22 (SP22) Groundwater Sampler can be used in conjunction with the DT22 Dual Tube System to perform soil sampling, groundwater sampling, and slug testing at multiple depth intervals in one probe push.

With the SP22 sampler, a stainless steel or PVC screen is lowered to the bottom of the DT22 outer casing on the leading end of a string of either 1.25-inch OD light-weight center rods or 0.75-inch schedule 40 flush-thread PVC riser. The outer casing is then retracted while the SP22 screen is held in place with the 1.25-inch rods or PVC riser. This exposes the screen to the formation for groundwater sampling or slug testing. When sampling or testing is complete, the SP22 screen is removed with the inner rod or riser string and DT22 sampling may continue.

For specific information on using the SP22 sampler, refer to *Geoprobe® Screen Point 22 Groundwater Sampler - Standard Operating Procedure* (Geoprobe® Technical Bulletin No. MK3173).

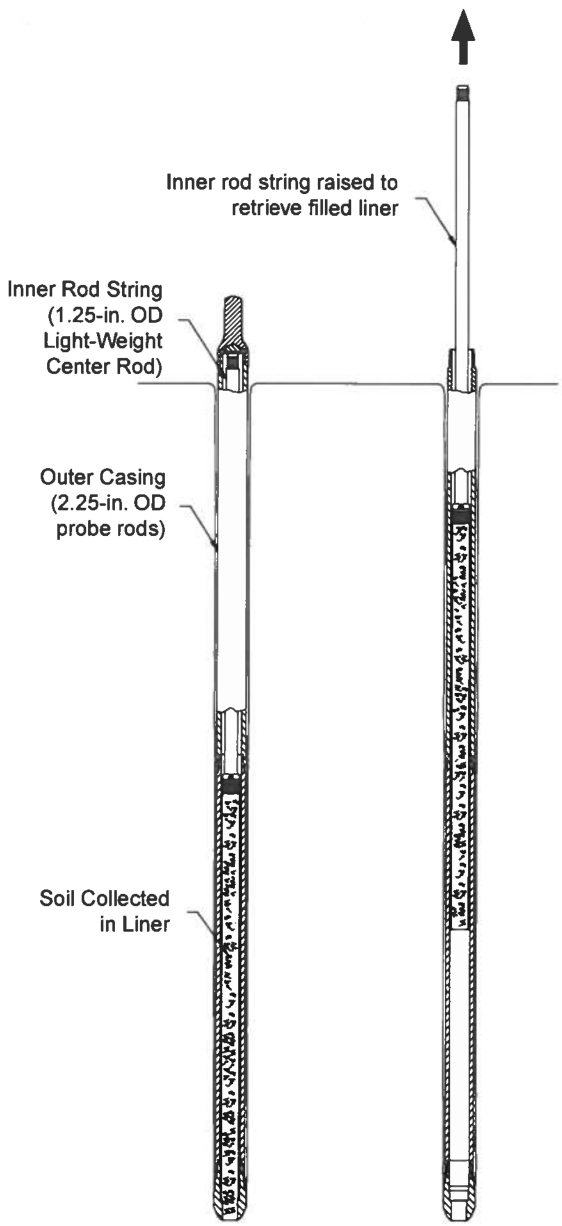

FIGURE 2.1
Outer Casing Driven With Liner

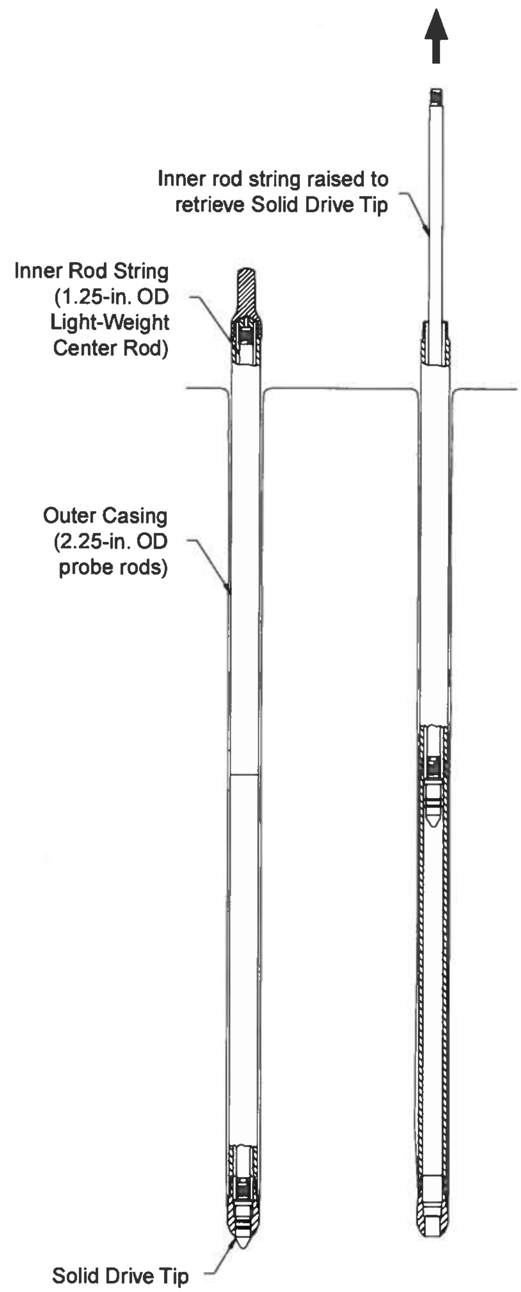

FIGURE 2.2
Outer Casing Driven With Solid Drive Tip

3.0 REQUIRED EQUIPMENT

The following equipment is used to recover samples with the Geoprobe® Dual Tube 22 Soil Sampling and probing systems. Refer to Figure 3.1 for parts identification.

DUAL TUBE 22 SAMPLER PARTS	QUANTITY	PART NUMBER
DT22 Drive Bumper	-10-	DT4010
DT22 Drive Head Cushion Assembly	-1-	42236
DT22 Drive Cushion Assist Handle	-1-	45425
DT22 Threadless Drive Cap, for 1.25-inch rods	-1-	22955
DT22 Liner Drive Head Assembly, for 1.25-inch rods	-1-	DT4052
DT22 Thread Cutting Drive Head Assembly, for 1.25-inch rods	-1-	41675
Rebuild Kit for DT22 Liner Drive Head	-1-	DT4051K
DT22 Solid Drive Tip, for 1.25-inch rods	-1-	22956
O-rings for Solid Drive Tip, Pkg. of 25	variable	DT4070R
DT22 Liner, 60-inch, Box of 50*	variable	DT4061K
DT22 Liner, 48-inch, Box of 50*	variable	DT4048K
DT22 Liner, 1-meter, Box of 50*	variable	DT4039K
DT22 Liner, 36-inch, Box of 50*	variable	DT4036K
DT22 Liner with Core Catcher, 60-inch, Box of 50*	variable	DT4161K
DT22 Liner with Core Catcher, 48-inch, Box of 50*	variable	DT4148K
DT22 Liner with Core Catcher, 1-meter, Box of 50*	variable	DT4139K
DT22 Liner with Core Catcher, 36-inch, Box of 50*	variable	DT4136K
DT22 Liner Cutter	-1-	28751
DT22 Vinyl End Caps, Pkg. of 100 (50 pair)	variable	DT4026K
Universal Liner Holder	-1-	22734
DT22 Cutting Shoe, Standard	-1-	25341
DT22 Expendable Cutting Shoe Holder	-1-	29402
DT22 Expendable Cutting Shoe, 2.375-inch OD	variable	DT4045
O-rings for Expendable Cutting Shoe, Pkg. of 50	variable	DT4045R

CENTER RODS AND CENTER ROD ACCESSORIES	QUANTITY	PART NUMBER
Light-Weight Center Rod, 1.25-inch OD x 60 inches*	variable	27600
Light-Weight Center Rod, 1.25-inch OD x 48 inches*	variable	21900
Light-Weight Center Rod, 1.25-inch OD x 36 inches*	variable	43012
Light-Weight Center Rod, 1.25-inch OD x 1 meter*	variable	32318
Leaf Puller Assembly, for 1.25-inch rods	-1-	31499
Adjustable Rod Clamp	-1-	27216

PROBE RODS AND PROBE ROD ACCESSORIES	QUANTITY	PART NUMBER
Probe Rod, 2.25-inch OD x 60 inches*	variable	25301
Probe Rod, 2.25-inch OD x 48 inches*	variable	25300
Probe Rod, 2.25-inch OD x 1 meter*	variable	25352
Probe Rod, 2.25-inch OD x 36 inches*	variable	33245
O-rings for 2.25-inch rods, Pkg. of 25	variable	AT2100R
GH60 Threadless Drive Cap, for 2.25-inch rods**	-1-	31530
GH60 Threaded Drive Cap, for 2.25-inch rods**	-1-	25363
GH40 Threadless Drive Cap, for 2.25-inch rods	-1-	31405
GH40 Threaded Drive Cap, for 2.25-inch rods	-1-	25362
Pull Cap, for 2.25-inch rods	-1-	33622
Rod Grip Pull System, for GH40 Hammer and 2.25-inch rods	-1-	29461
Rod Grip Pull Handle, for GH60 Hammer and 2.25-inch rods	-1-	29385

* Match length of rods to desired liner length. Use 60-inch rods with 60-inch liners, 48-inch rods with 48-inch liners, etc.

** The considerable percussive force of the GH60 Hydraulic Hammer may result in reduced tool life for components such as the DT22 Drive Bumper and rod string as compared to operation with the GH40 Hydraulic Hammer.

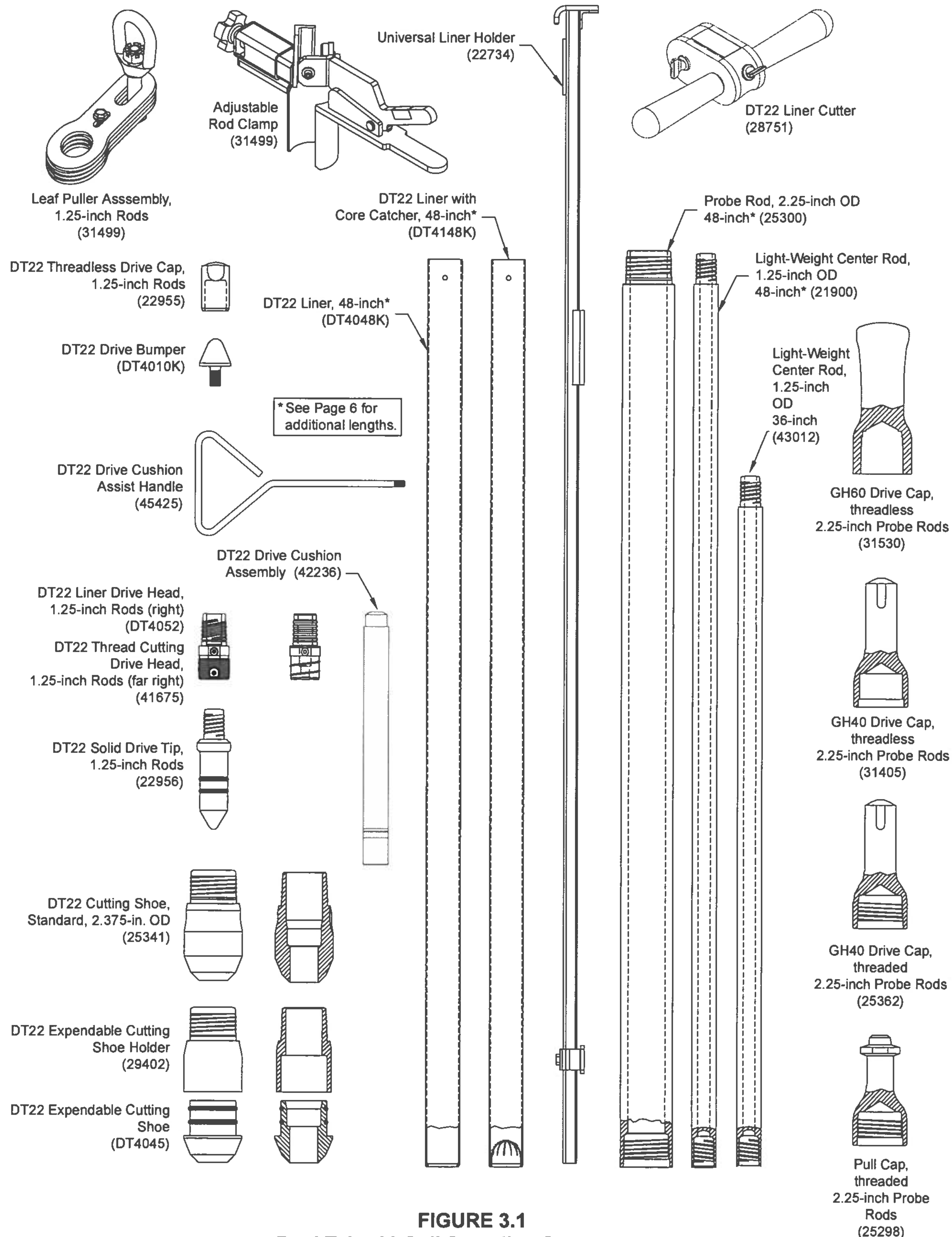

FIGURE 3.1
Dual Tube 22 Soil Sampling System Parts

3.1 Tool Options

Three major components of the DT22 Soil Sampling System are probe rods, sample liners, and cutting shoes. These items are manufactured in a variety of sizes to fit the specific needs of the operator. This section identifies the specific tool options available for use with the DT22 Dual Tube System.

Probe Rods

Geoprobe® 1.25-inch (32 mm) OD Light-Weight Center Rods and 2.25-inch (57 mm) OD probe rods are required to operate the DT22 Soil Sampling System. Both rod sets (1.25-inch and 2.25-inch) must be of the same length.

Sample Liners

Sample liners are made of a heavy-duty clear plastic for convenient inspection of the soil sample. Lengths of 36, 48, 60 inches, and 1 meter are available with an OD of 1.375 inches (35 mm).

Sample liners with integral core catchers are available in lengths of 36, 48, 60 inches, and 1 meter. Utilize the core catcher liners when sampling flowing sands, noncohesive soils, extremely dry soils, or any other materials that fall from the liner during retrieval. DT22 core catcher liners are used with the same equipment as open sample liners. No special tooling or adapters are required.

Cutting Shoes

The standard DT22 Cutting Shoe is available for use with the DT22 Dual Tube System (Fig. 3.2). The DT22 sampling system may also employ an expendable cutting shoe. In this arrangement, a DT22 Expendable Cutting Shoe Holder (29402) is threaded into the leading end of the outer casing. A DT22 Expendable Cutting Shoe (DT4045) is then inserted into the holder. Upon completion of soil sampling, the outer casing is withdrawn slightly. The expendable cutting shoe detaches from the holder, leaving an open casing through which a prepacked screen monitoring well may be installed. Dimensions for the expendable cutting shoe are the same as the standard cutting shoe (ID = 1.125 in. (29 mm) and OD = 2.375 in. (60 mm)).

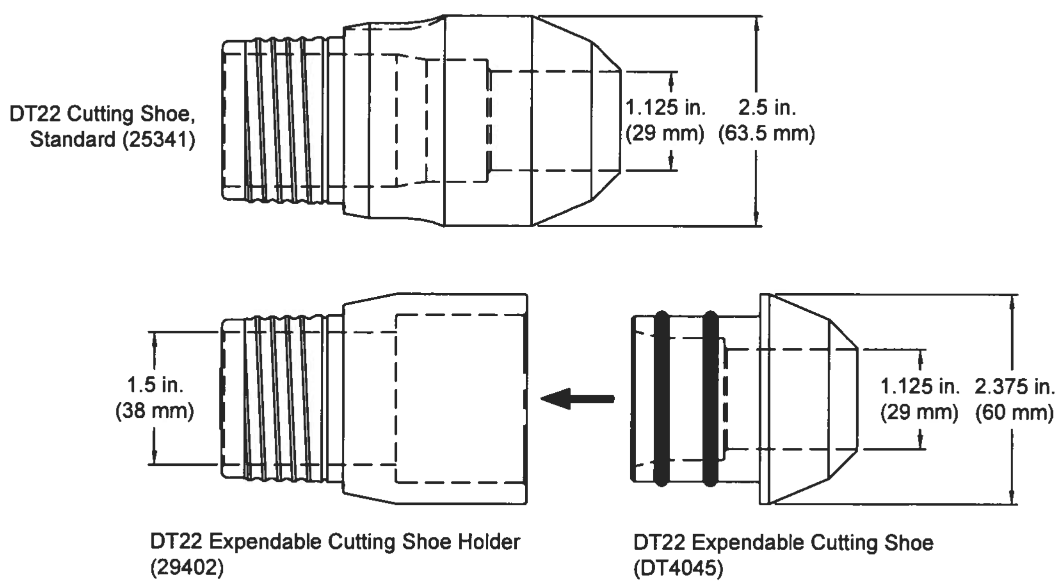

FIGURE 3.2
Cutting Shoe Options for the DT22 Dual Tube Soil Sampling System

4.0 OPERATION

4.1 Decontamination

Before and after each use, thoroughly clean all parts of the sampling system according to project requirements. Parts should also be inspected for wear or damage. During sampling, a clean new liner is used for each soil core.

4.2 Operational Overview

The DT22 Soil Sampling System is designed to collect continuous soil cores. Sampling may begin either from ground surface or a predetermined depth below ground. Once sampling begins, consecutive soil cores must be removed as the outer casing is advanced to greater depths.

When sampling is to begin at the ground surface, the first soil core should be collected using a core catcher liner to maximize sample recovery (Fig. 4.1-A). This is especially true when the first core is composed of dry, loose soil. Upon removal of the first liner and soil core (Fig. 4.1-B), a new liner is inserted to the bottom of the outer casing on the end of an inner rod. A section of outer casing is added to the tool string (Fig. 4.1-C) and the entire tool string is driven to fill the liner with soil (Fig. 4.1-D). The filled liner is removed from the outer casing to retrieve the second soil core (Fig. 4.1-E). A new liner is then inserted to the bottom of the outer casing and the process is repeated over the entire sampling interval.

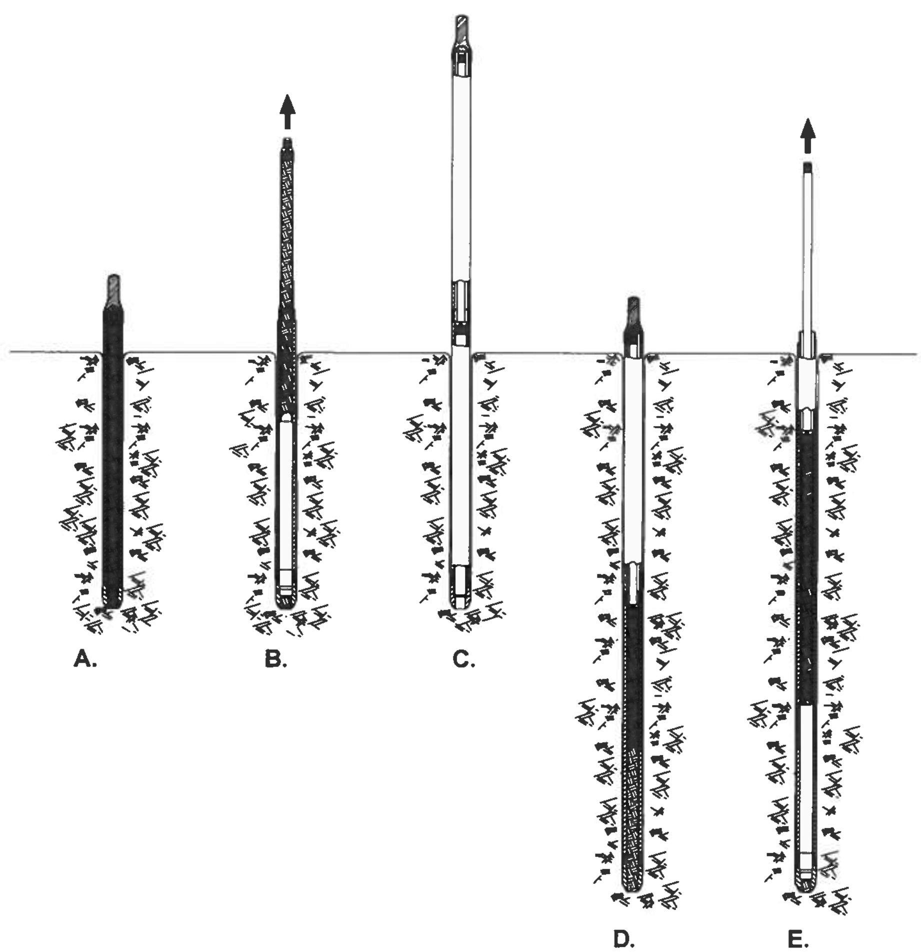

FIGURE 4.1
Continuous Core Sampling From Ground Surface with Dual Tube 22 System

When the sampling interval begins at some depth below ground surface, a DT22 Solid Drive Tip is installed in the outer casing and the entire assembly is driven from ground surface directly through undisturbed soil (Fig. 4.2-A). This enables the operator to reach the top of the sampling interval without stopping to remove unwanted soil cores. Once the interval is reached, the solid drive tip is removed (Fig 4.2-B) and sampling continues as described in the preceding paragraphs (Fig. 4.2-C, Fig. 4.2-D, and Fig. 4.2-E).

Specific instructions for the assembly and operation of the DT22 Dual Tube Soil Sampling System are given in the following sections.

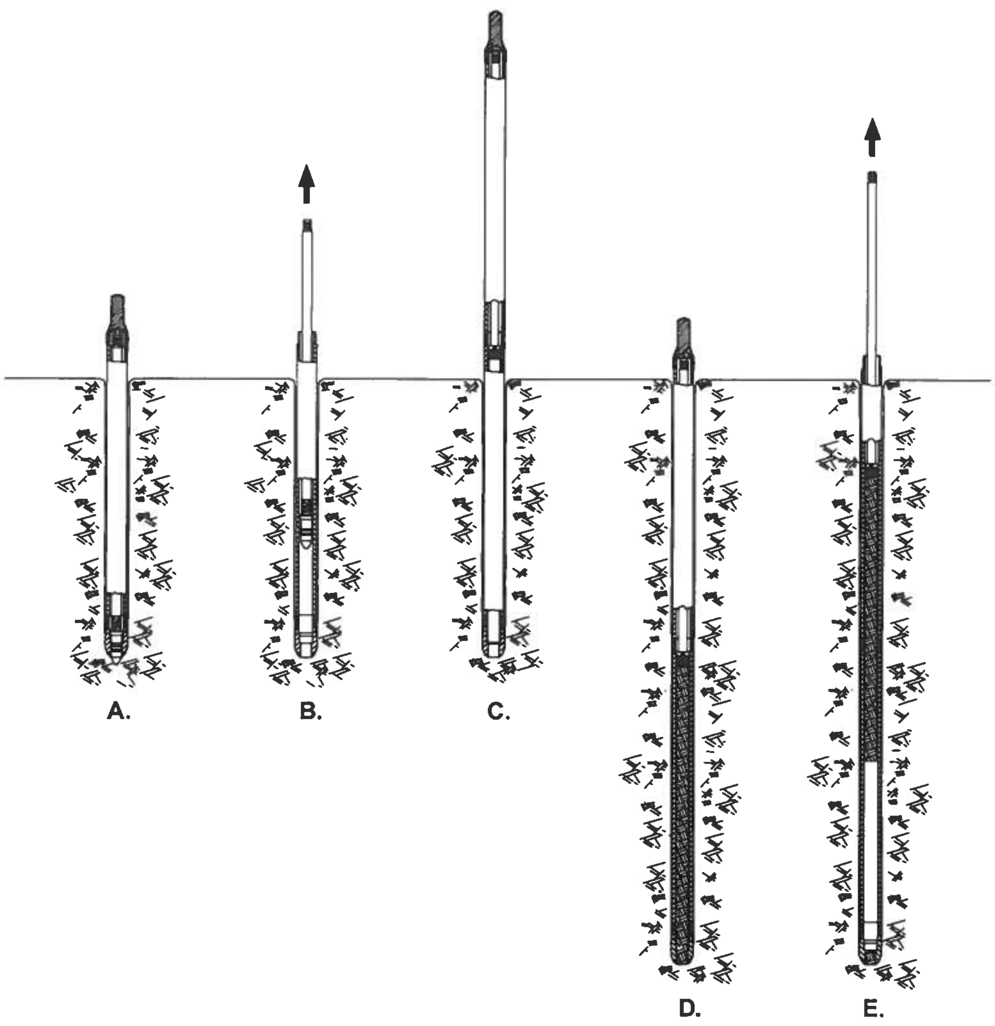

FIGURE 4.2
Outer Casing Driven Through Undisturbed Soil to Begin Sampling with DT22 System

4.3 Assembling and Driving the Outer Casing Using a DT22 Solid Drive Tip

If soil sampling is to begin at some depth below ground surface, the outer casing of the DT22 Dual Tube System can be driven to the top of the sampling interval with a DT22 Solid Drive Tip installed in the leading end. The solid drive tip seals the outer casing as it is driven to depth. Once the desired sampling interval is reached, the solid drive tip is removed to allow collection of the first soil core. This section describes assembling and driving the outer casing using the DT22 Solid Drive Tip.

1. When using a DT22 Standard Cutting Shoe (25341) install an O-ring (AT2100R) at the base of the threads as shown in Figure 4.3. If using an expendable cutting shoe, install an AT2100R O-ring on the DT22 Expendable Cutting Shoe Holder (29402) and two DT4045R O-Rings on the DT22 Expendable Cutting Shoe (DT4045) (Fig. 4.3).

2. Thread the DT22 Cutting Shoe or DT22 Expendable Point Holder into the leading end of a 2.25-inch OD Probe Rod (25300). Completely tighten the cutting shoe or cutting shoe holder using a pipe wrench.

3. Install an O-ring (DT4070R) in both grooves of the DT22 Solid Drive Point (22956) (Fig.4.4).

4. Thread the solid drive point into the female end of a 1.25-inch OD Light-Weight Center Rod of the same length as the 2.25-inch probe rod (outer casing).

5. Lubricate the O-rings on the solid drive point with a small amount of deionized water. Insert the point and probe rod into the outer casing until the point partially extends from the bottom of the cutting shoe.

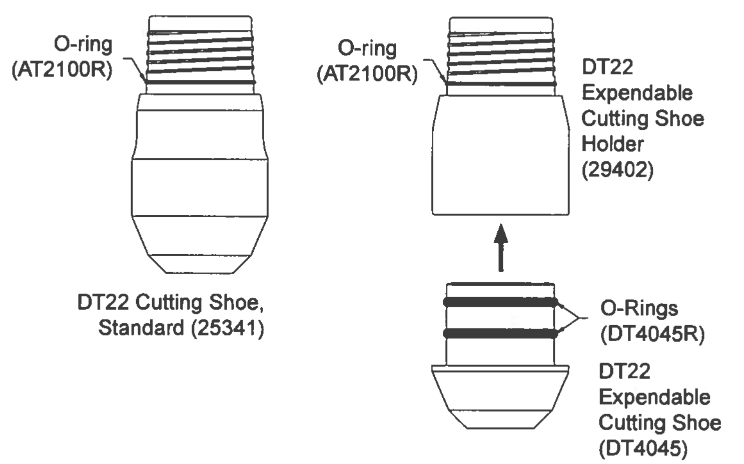

FIGURE 4.3
DT22 Cutting Shoes Utilize O-ring Seals

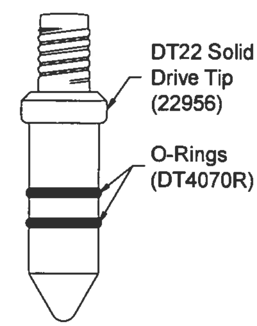

FIGURE 4.4
Solid Drive Point Utilizes Two O-Rings

6. Place a DT22 Threadless Drive Cap (22955) on top of the inner rod (Fig. 4.5). This drive cap is threadless for quick installation/removal, yet still provides protection for the probe rod threads.

7. Install a GH40 Threadless Drive Cap (31405) or GH60 Threadless Drive Cap (31530) on the 2.25-inch probe rod (outer casing) as shown in Figure 4.5.

   Certain soil conditions may allow the outer casing to advance slightly ahead of the inner rod string when using a threadless drive cap on the outer casing. The result is poor sample recovery and alignment problems when adding rods to the tool string. Utilizing a threaded drive cap on the 2.25-inch probe rods may solve this issue. The GH40 Series (25362) and GH60 Series (25363) threaded drive caps secure the inner rod string of the DT22 system during percussion so that the outer casing and inner rod string are advanced as one assembly.

   NOTE: Do not allow the threaded drive cap to unthread while driving the tool string. Failure to keep the drive cap tight during percussion will fuse the drive cap to the outer casing and permanently damage the threads of both the drive cap and top probe rod.

8. Place the assembled outer casing section under the direct push machine for driving. Position the casing directly under the hammer with the cutting shoe centered between the toes of the probe foot.

9. Lower the hydraulic hammer onto the drive cap and advance the outer casing into the subsurface.

10. Raise the hydraulic hammer and remove the drive cap from the outer casing and the threadless drive cap from the inner rod string.

11. Place an O-ring (AT2100R) on the outer casing section that extends from the ground (Fig. 4.6).

12. Thread a 1.25-inch Light-Weight Center Rod onto the inner rod string. Place a 2.25-inch probe rod over the inner rods and thread it onto the outer casing (Fig. 4.7). Completely tighten the outer casing using a pipe wrench.

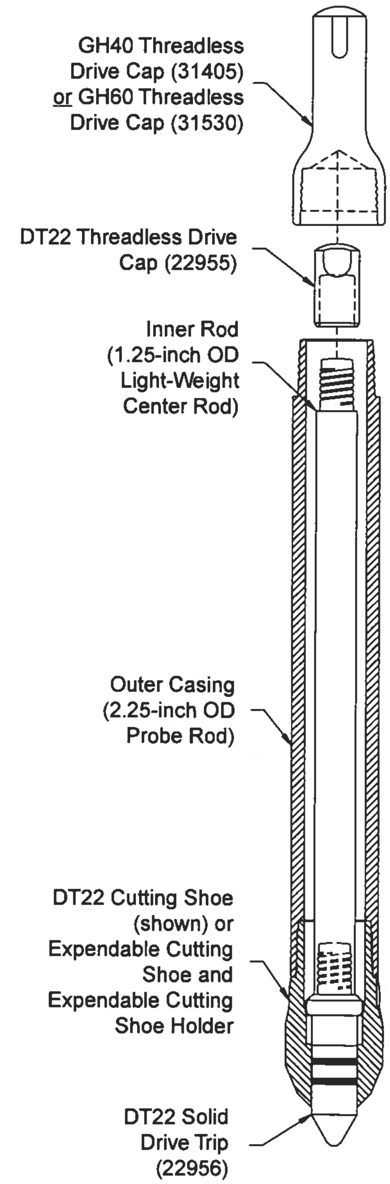

FIGURE 4.5
Outer Casing with Solid Drive Tip

13. Place the threadless drive cap on top of the inner rod. Thread the 2.25-inch drive cap over the threadless drive cap and onto the outer casing.

14. Lower the hydraulic hammer onto the drive cap and advance the outer casing into the subsurface.

   Repeat Steps 10-13 until the leading end of the outer casing is at the top of the proposed sampling interval. Continue with Step 15 to remove the DT22 Solid Drive Point for sampling.

15. Raise the hydraulic hammer and retract the probe derrick to provide access to the top of the tool string.

16. Unthread the 2.25-inch drive cap and remove the threadless drive cap from the inner rods.

17. Thread a 1.25-inch OD Light-Weight Center Rod onto the inner rod string. Lift and remove the inner rods from the outer casing. The DT22 Solid Drive Point is removed from the leading end of the casing with the inner rods.

    The outer casing is now ready for sampling.

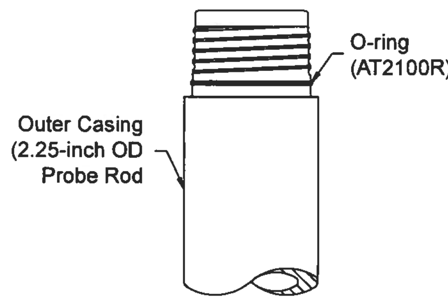

FIGURE 4.6
Outer Casing Joints are Sealed with O-Rings

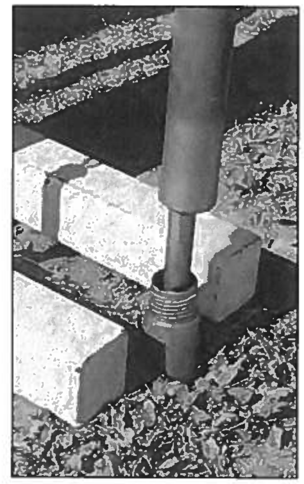

Figure 4.7. Thread a 2.25-inch probe rod onto the outer casing string.

4.4 Liner Drive Head Assembly

There are two liner drive heads for the DT22 System - the DT4052 DT22 Liner Drive Head (Fig. 4.8) and the 41675 DT22 Thread Cutting Drive Head (Fig. 4.9). The main function of both liners drive heads is to connect a liner to the leading end of the inner rod string. This enables the inner rods to hold the liner tight against the cutting shoe to fill the liner with soil as the outer casing is driven. The inner rods are then used to retrieve the liner and soil core from within the outer casing.

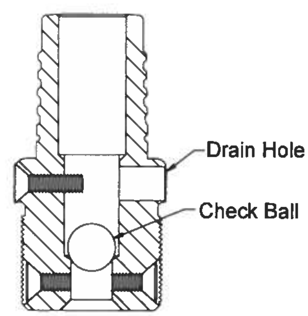

FIGURE 4.8
DT22 Liner Drive Head Features (DT4052 shown)

The liner drive head assembly includes an internal check ball to improve sample recovery (Fig. 4.8) Vacuum is created below the filled liner as it is lifted from the bottom of the outer casing. Because the inner rod string and liner drive head are hollow, atmospheric air can travel through the rods creating a positive pressure differential above the soil core during retrieval. The check ball seals the liner drive head to eliminate air flow into the liner which could otherwise push the soil sample out of the liner. The check ball also allows air to escape through the liner drive head and inner rod string when lowering a new liner down the outer casing and as soil enters the liner during sampling.

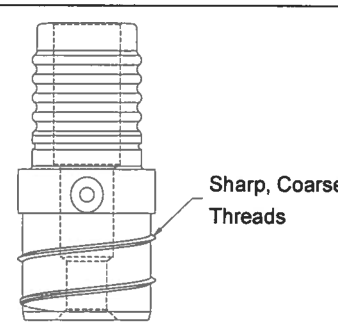

FIGURE 4.9
DT22 Thread Cutting Drive Head (41675)

Saturated conditions can also challenge sample recovery. Water enters the outer casing either from the saturated formation or is deliberately poured from the ground surface to keep flowing sands out of the casing. As with air in unsaturated formations, the check ball lets water pass through the liner drive head as a new liner is lowered to the bottom of the casing and during sampling as the liner is filled with soil. The check ball then seals the drive head during retrieval so that water draining from the inner rods does not wash the sample out the bottom of the liner. A drain hole located on the side of the liner drive head (Fig. 4.8) allows water to exit the inner rods and travel harmlessly along the outside of the liner.

The DT4052 is the primary liner drive head for the DT22 system. The 41675 DT22 Thread Cutting Drive Head has the advantage of quicker assembly/disassembly due to the fact that the liner is simply twisted onto/off of the sharp, coarse threads on the end of the drive head (Fig. 4.9). But this is at the cost of reduced holding force on the liner. Because of this, the 41675 liner drive head should be limited to shallow depths and mild sampling conditions.

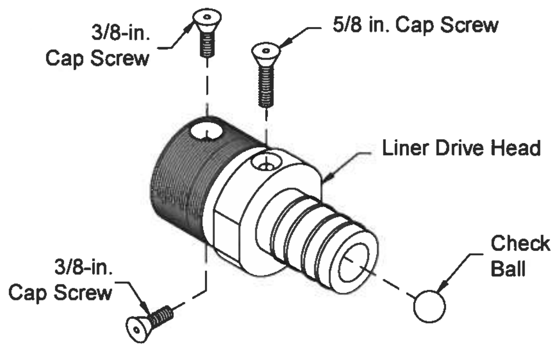

FIGURE 4.10
DT4052 Liner Drive Head Components

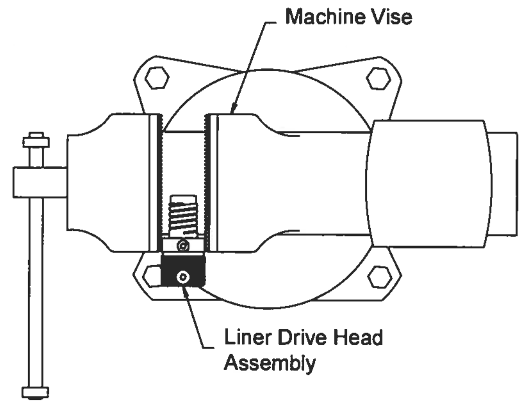

FIGURE 4.11
Place Liner Drive Head in Vise

The DT4052 Liner Drive Head Assembly is made up of five parts as shown in Figure 4.10. The two 3/8-inch flat head socket cap screws are used to attach liners to the liner drive head. The longer 5/8-inch flat head socket cap screw holds the stainless steel check ball within the liner drive head. To disassemble the liner drive head for cleaning, simply unthread the 5/8-inch cap screw and remove the check ball.

Instructions for attaching a liner to the DT22 Liner Drive Head Assembly (DT4052) are given below.

1. Visually inspect the liner drive head assembly to ensure that the check ball moves freely within the drive head and the drain hole is unobstructed.

2. Place the liner drive head assembly in a machine vise so that either one of the 3/8-inch caps screws is on top as shown in Figure 4.11.

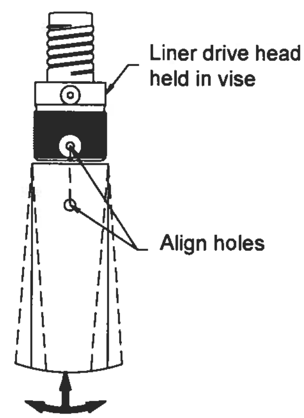

FIGURE 4.12
Push Liner Onto Liner Drive Head

NOTE: Only one 3/8-inch cap screw is used to attach a liner to the liner drive head assembly. Two 3/8-inch cap screws are included on the drive head to provide a backup in case one incurs thread damage. Either cap screw may be used to attach the liner.

3. Remove the 3/8-inch cap screw using a 3/32-inch hex key.

4. Place the open end of a DT22 Liner against the bottom of the liner drive head. Align the hole in the liner with the hole in the liner drive head as shown in Figure 4.12. Wiggle the free end of the liner back-and-forth while pushing the liner onto the drive head (Fig. 4.12).

5. Thread the 3/8-inch cap screw through the liner and back into the liner drive head (Fig. 4.13). Tighten the cap screw with the 3/32-inch hex key.

The DT22 Liner is now attached to the DT22 Liner Drive Head Assembly (Fig. 4.14).

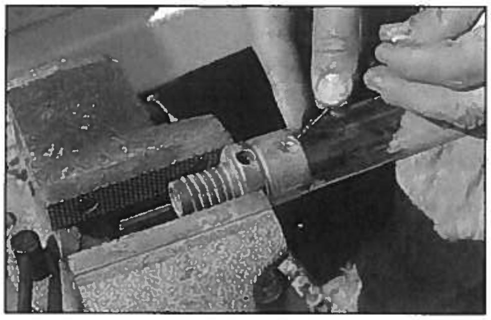

Figure 4.13. Thread cap screw into liner drive head to secure liner.

Figure 4.14. Liner attached to liner drive head and ready for sampling.

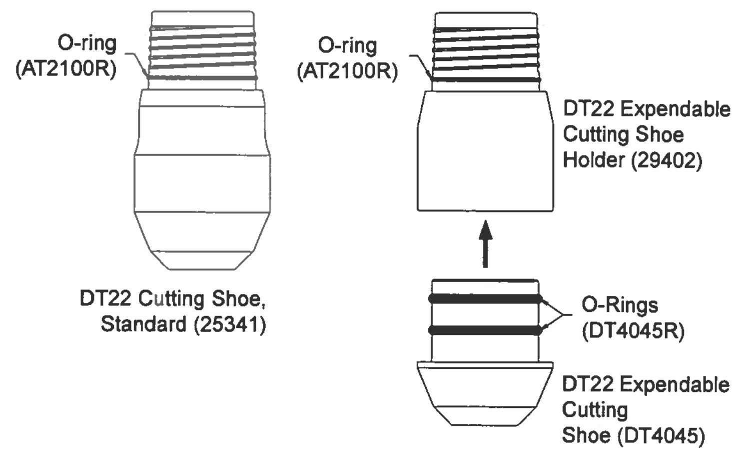

FIGURE 4.15
DT22 Cutting Shoes Utilize O-ring Seals

Figure 4.16. Place probe rod (outer casing) in a vise and tighten the cutting shoe with a pipe wrench.

4.5 Soil Core Collection

This section describes collection of continuous soil core samples from within the sealed outer casing of the DT22 Dual Tube Soil Sampling System. The procedure is written for a sampling series that begins at the ground surface. If sampling is to begin after driving the outer casing through undisturbed soil using a DT22 Solid Drive Tip, skip ahead to Step 13 of this section.

1. Install an O-ring (AT2100R) at the base of the threads on the Standard Cutting Shoe (25341) as shown in Figure 4.15. If using an expendable cutting shoe, install an AT2100R O-ring on the expendable cutting shoe holder and two DT4045R O-Rings on the expendable cutting shoe (Fig. 4.15).

2. Thread the DT22 Cutting Shoe or DT22 Expendable Point Holder into the leading end of a 2.25-inch OD Probe Rod (25300). Completely tighten the cutting shoe or cutting shoe holder using a machine vise and pipe wrench as shown in Figure 4.16.

3. Attach a DT22 Liner Drive Head Assembly (DT4052) of DT22 Thread Cutting Drive Head (41675) to a new liner as described in Section 4.4. A core catcher liner is recommended for when the first soil core begins at ground surface as this configuration will provide maximum sample recovery.

4. Insert the liner and drive head into the 2.25-inch OD probe rod such that the core catcher contacts the cutting shoe as shown in Figure 4.17.

5. Place a DT22 Drive Bumper (DT4010) on top of the liner drive head (Figure 4.17).

6. Install a GH40 Threadless Drive Cap (31405) or GH60 Threadless Drive Cap (31530) onto the 2.25-inch probe rod (outer casing) as shown in Figure 4.17.

   NOTE: See Step 7 of Section 4.3 for additional drive cap options.

7. Place the assembled outer casing section under the direct push machine for driving. Position the casing directly under the hydraulic hammer with the cutting shoe centered between the toes of the probe foot.

8. Lower the hydraulic hammer onto the drive cap and advance the outer casing into the subsurface using continuous percussion.

9. Raise the hydraulic hammer and move the probe assembly back to provide access to the top of the tool string.

10. Remove the drive cap and drive bumper.

11. Thread a 1.25-inch Light-Weight Center Rod onto the liner drive head. Rotate the probe rod and liner assembly two or three revolutions to shear the soil core at the bottom of the liner. Lift the probe rod and filled liner from the outer casing to retrieve the first soil core.

12. Remove the filled liner from the liner drive head as described in Section 4.6. Prepare the soil core for subsampling or storage as specified by the project plan.

13. Place an O-ring (AT2100R) in the groove just below the male threads on the top section of the outer casing (Fig. 4.18).

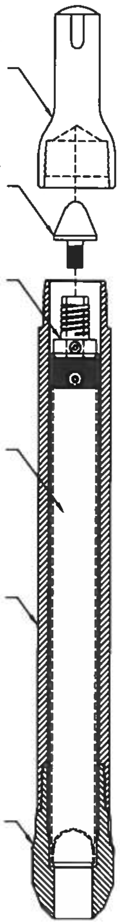

FIGURE 4.17
Outer Casing with DT22 Liner

14. Thread a 1.25-inch Light-Weight Center Rod onto an assembled DT22 Liner Drive Head (or DT22 Thread Cutting Drive Head) and DT22 Liner (Fig. 4.19).

15. Insert the liner and probe rod into the outer casing (Fig. 4.20). The inner rod will extend past the top of the outer casing if only one section of casing was previously driven into the ground. If the casing was driven to a greater depth, continue adding 1.25-inch Light-Weight Center Rods until the last rod extends from the casing.

16. Place a 2.25-inch probe rod over the inner rods and thread it onto the outer casing (Fig. 4.21). Completely tighten the outer casing using a pipe wrench.

17. Place a DT22 Drive Cushion Assembly on top of the inner rod as shown in Figure 4.22.

18. Install a drive cap (31405 or 31530) onto the 2.25-inch probe rod (Fig. 4.22).

19. Lower the hydraulic hammer onto the drive cap and advance the outer casing one liner length into the subsurface to collect the first soil core. Apply hammer percussion to the tool string as this helps move soil through the cutting shoe and into the liner for increased sample recovery.

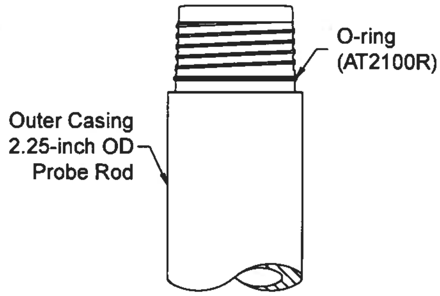

FIGURE 4.18
Outer Casing Joints are Sealed with O-Rings

Figure 4.19. Thread liner and liner drive head into 1.25-inch Light-Weight Center Rod.

Figure 4.20. Lower liner to bottom of outer casing on leading end of inner rods.

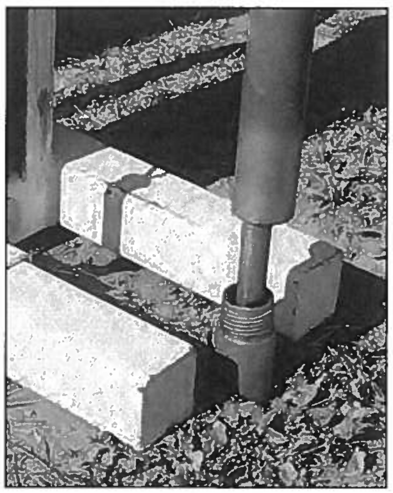

Figure 4.21. Place a 2.25-inch probe rod over the 1.25-inch inner rod and thread it onto the outer casing string.

Figure 4.22. Place a DT22 Drive Cushion Assembly on top of the inner rods and a drive cap onto the outer casing.

Figure 4.23. Thread a 1.25-inch Light-Weight Center Rod onto inner rod string to retrieve filled liner.

20. Raise the hydraulic hammer and retract the probe derrick to provide access to the top of the tool string.

21. Unthread the drive cap and remove the DT22 Drive Cushion Assembly.

22. Thread a 1.25-inch Light-Weight Center Rod onto the inner rod (Fig. 4.23). Rotate the inner rods two or three revolutions to shear the soil core at the bottom of the liner. Raise the inner rods to retrieve the filled liner.

23. Remove the filled liner from the liner drive head as described in Section 4.6.

(Repeat Steps 13-23 to collect consecutive soil core samples.)

4.6 Removing the DT22 Liner Drive Head (DT4052) from a Filled DT22 Liner

The liner drive head remains attached to the filled liner after retrieval from the outer casing (Fig. 4.24). In order to decontaminate the drive head for further sampling, it must first be removed from the filled liner. The DT22 Thread Cutting Drive Head (41675) is removed by simply placing the drive head in a vise and manually unthreading the liner. The process is slightly more involved for the DT22 Liner Drive Head (DT4045), but is easily accomplished using a machine vise and sharp utility knife as described below.

Place the liner drive head in the machine vise such that the 3/8-inch cap screw threaded through the liner is positioned on top. Remove the cap screw with a 3/32-inch hex key.

Using a utility knife, score a line from the top of the liner to the bottom of the drive head (Fig. 4.25). Move the free end of the liner side-to-side until the top of the liner splits and releases from the drive head (Fig. 4.26). The soil core may now be prepared for storage or analysis according to project guidelines.

Figure 4.24. Liner drive head remains attached to filled liner after retrieval from outer casing.

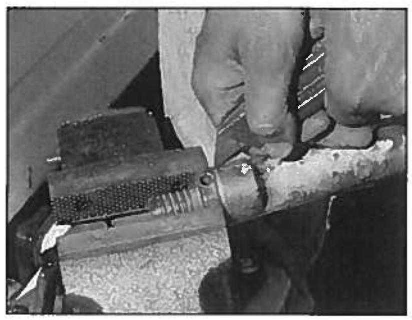

Figure 4.25. Score a line from top of liner to base of liner drive head using a utility knife.

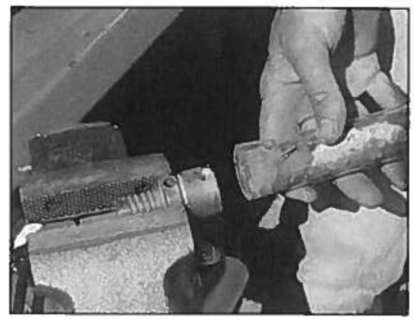

Figure 4.26. Move free end of liner back-and-forth to split liner and free it from the liner drive head.

Cutting the Liner Open

The DT22 Liner Cutter (28751) is a light-weight cutter that safely and efficiently slices an approximately 1.125-inch wide strip the entire length of a filled polymer liner. Two hooked cutting blades, one mounted on each side of the cutter as show in Figure 4.27, make a lengthwise opening in the liner for easy access and viewing of the sample material. The cutter features guards (covers) for each blade to maximize operator safety. However, care should always be used when operating this device.

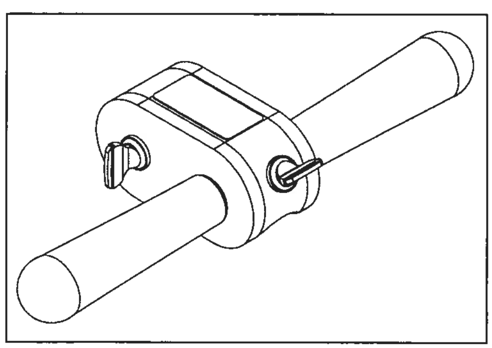

Figure 4.27. The DT22 Liner Cutter (28751) safely removes an approximately 1.125-inch wide strip the entire length of a filled polymer liner.

Suggested Equipment

- DT22 Liner Cutter (28751)
- Universal Liner Holder (22734)
- Filled polymer DT22 Liner

Safety

- Always grasp the cutter by the handles to avoid accidental contact with the cutter blades.
- Apply slight downward pressure on the cutter while drawing it down the length of the liner. This will help maintain contact with the liner and avoid having the cutter unexpectedly slip off of the liner.
- Wear leather gloves while operating the liner cutter.

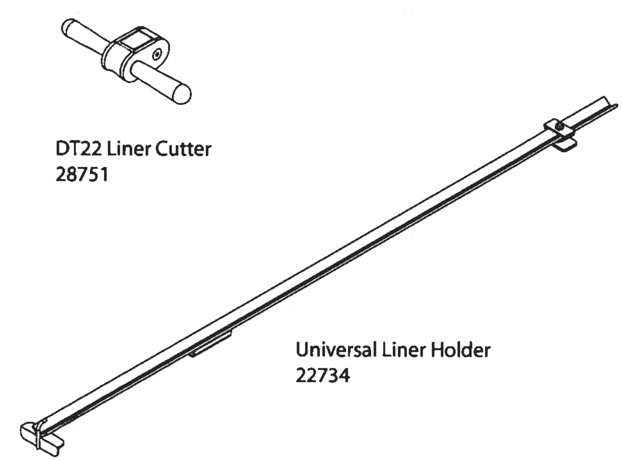

Figure 4.28: A universal liner holder is used to secure the liner when operating the liner cutter.

- Utilize a Universal Liner Holder to secure the liner for cutting. Never attempt to hold the liner by hand while cutting.
- Replace dull or damaged blades immediately. Do not operate the cutter with dull or damaged blades.

Operation

1. Place the universal liner holder on a solid surface such as a sturdy work table.
2. Install the liner in the liner holder. Adjust the stop on the liner holder to secure the liner tightly to the holder.
3. Grasping the cutter by the handles, place the cutter on the liner beginning at the end of the holder which has the bent rod. Ensure that the cutter blades are positioned over the end of the liner to initiate the cut.
4. With slight downward pressure on the cutter, draw the cutter slowly and smoothly along the liner as shown in Figure 4.29. It will not take a great deal of force to cut the liner. If excessive force is required, the cutter blades may be dull and require replacement.
5. When the cutter has been drawn the entire length of the liner, the cut section of liner may be removed to access the sample material.

⚠ CAUTION

Cutting Hazard!
Always grasp the cutter by the handles.

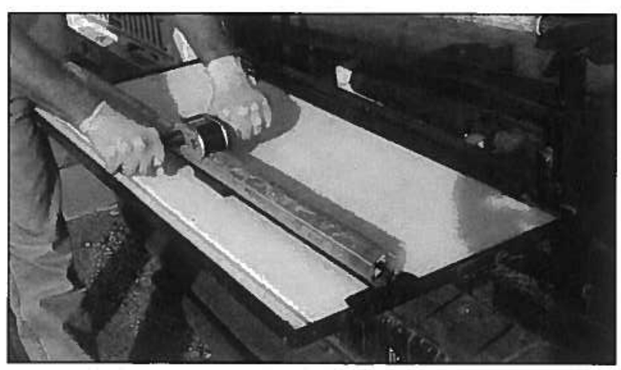

Figure 4.29. Secure the liner with the universal liner holder for cutting. Always place the liner holder on a solid surface such as the work table shown here.

4.8 Dual Tube Soil Sampling Tips

Saturated sands are the most difficult formations to sample with the DT22 system. Saturated conditions place positive pressure on the soil outside of the outer casing. When sampling in noncohesive formations (e.g. sands) below the water table, it may be necessary to add water to the outer casing to prevent formation heave. Adding water to the probe rods puts a positive head on the system and may keep formation material from flowing into the rods as the liner and soil sample are retracted. If a small amount of formation material is still drawn into the outer casing as the soil core is retrieved, the material may be displaced by slightly raising the outer casing while lowering the next new liner to depth. Water must be maintained within the outer casing during this process to overcome the hydraulic head imparted by the formation fluid.

DT22 core catcher liners will provide the best sample recovery in saturated noncohesive formations.

DT22 core catcher liners will help considerably with sample recovery in noncohesive soils and other materials that do not fill the liner diameter. Core catcher liners are not recommended for cohesive or expansive soils as the core catchers may actually inhibit soil movement into the liner.

Some formation materials may extrude during sampling and cause problems due to overfilled liners. If such conditions are encountered, try using a shorter sample interval such as driving the tool string 36 inches when using a 48-inch liner. This can help avoid overfilling the liners and may improve sample recovery.

4.9 Outer Casing Retrieval

The outer casing of the DT22 Dual Tube System may be retrieved in one of three ways:

1. Casing pulled then probe hole sealed from ground surface with granular bentonite.

   The outer casing may be pulled from the ground with the probe machine and a Pull Cap (25298) or a Rod Grip Pull System (for GH40 Hammers [29461] or for GH60 Hammers [29385]) if the probe hole is to be sealed with granular bentonite from the ground surface (Fig. 4.30). This method is used for shallow probe holes in stable formations only. Such conditions allow the entire probe hole to be sealed with granular bentonite.

2. Casing pulled with probe hole sealed from bottom-up during retrieval.

   Bottom-up grouting should be performed during casing retrieval in unstable formations where side slough is probable. Such conditions create void spaces in the probe hole if granular bentonite is installed from the ground surface.

   A Geoprobe® Grout System is used to deliver a sealing material (high-solids bentonite slurry or neat cement grout) to the bottom of the outer casing through flexible tubing. The grout mix is pumped through the tubing to seal the void remaining as the outer casing is retrieved (Fig. 4.31). This is an advantage of the DT22 Dual Tube System as other soil samplers require a second set of tools to deliver grout to the bottom of the probe hole. Contact Geoprobe Systems® for more information on bottom-up grouting.

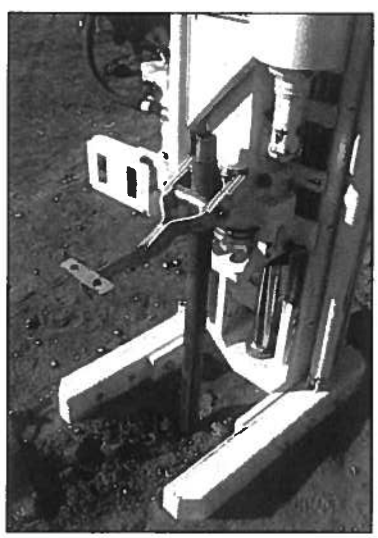

Figure 4.30 Outer casing may be retrieved with a pull cap or rod grip pull system if the probe hole is sealed with granular bentonite.

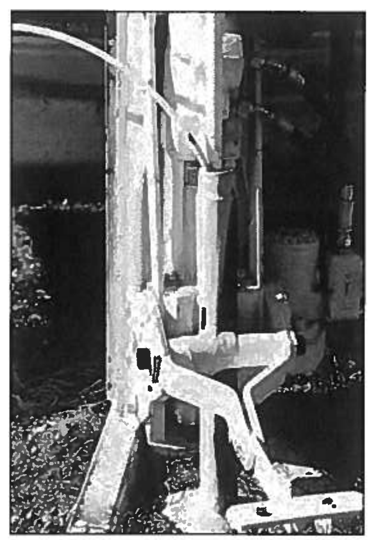

Figure 4.31. A grout machine and flexible tubing allow bottom-up grouting as the outer casing is retrieved.

3. Casing pulled with Geoprobe® Prepacked Screen Well installed during retrieval.

The final option is to install a 1.4-inch OD Geoprobe® Prepacked Screen Monitoring Well in the probe hole during retrieval of the outer casing. A DT22 Expendable Cutting Shoe Holder (29402) and a DT22 Expendable Cutting Shoe (DT4045) allow the operator to collect continuous soil cores as the outer casing is driven to depth. When sampling is complete, the outer rods are raised and the expendable cutting shoe is removed from the leading rod. This leaves an open casing through which a set of prepacked screens is lowered on the leading end of a PVC riser string (Fig. 4.32). The well is finished, complete with grout barrier, bentonite well seal, and a high-solids bentonite slurry/neat cement grout, during retrieval of the outer casing.

Refer to *Geoprobe® 0.5-in. x 1.4-in. OD and 0.75-in. x 1.4-in. OD Prepacked Screen Monitoring Wells Standard Operating Procedure* (Geoprobe® Technical Bulletin No. 962000) for specific information on well installation.

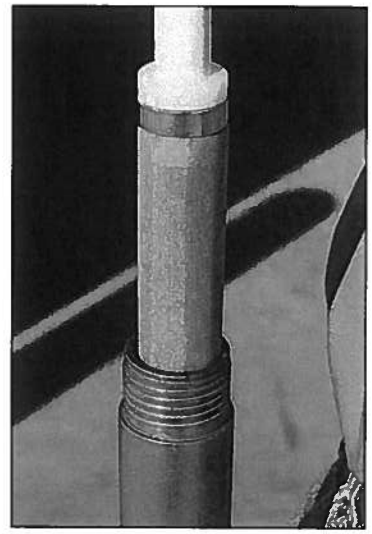

Figure 4.32. Geoprobe® prepacked screens may be installed through the outer casing when an expendable cutting shoe is used.

5.0 REFERENCES

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Geoprobe Systems®, *Geoprobe Systems® Tools Catalog,* Vol. 6, 2003.

Equipment and tool specifications, including weights, dimensions, materials, and operating specifications included in this brochure are subject to change without notice. Where specifications are critical to your application, please consult Geoprobe® Systems.

Geoprobe Systems®

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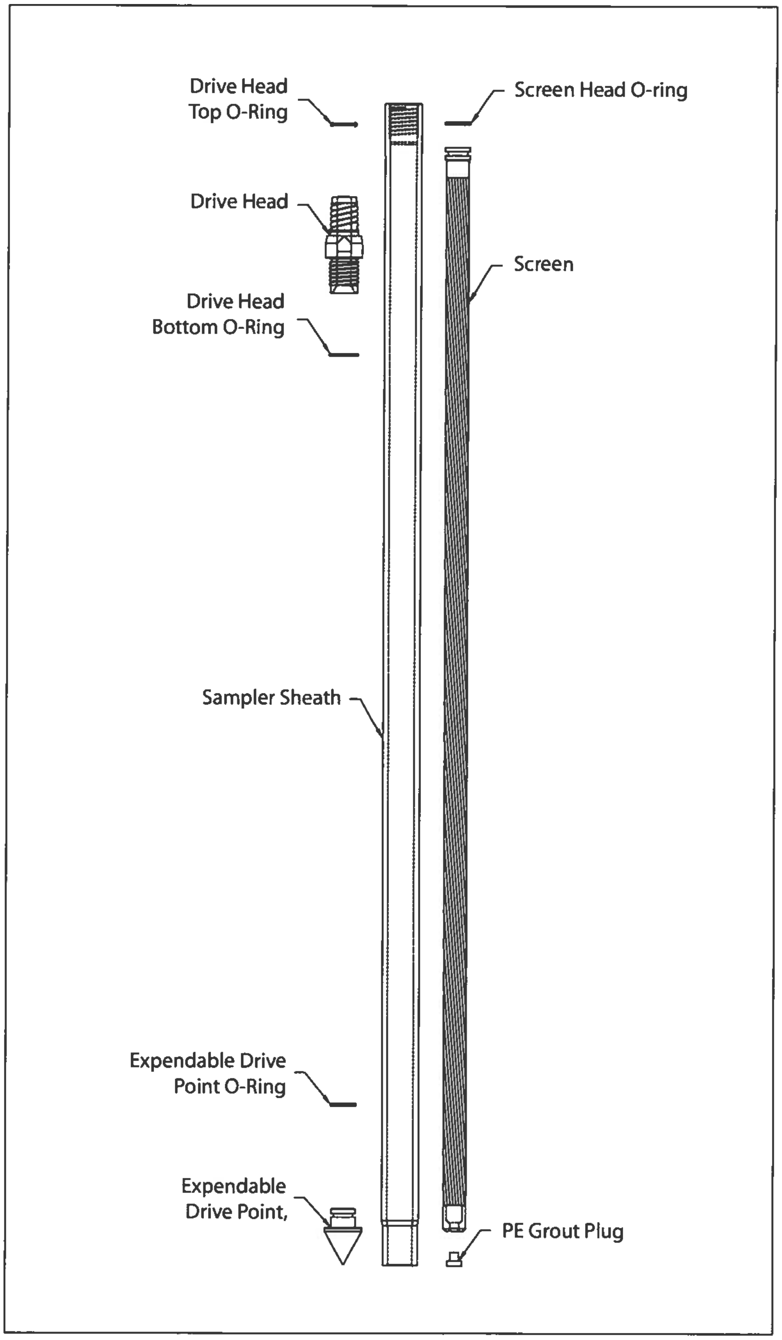
GEOPROBE® SCREEN POINT 16 GROUNDWATER SAMPLER

STANDARD OPERATING PROCEDURE

Technical Bulletin No. MK3142

PREPARED: November, 2006



GEOPROBE® SCREEN POINT 16 GROUNDWATER SAMPLER PARTS

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Screen Point 16 Groundwater Sampler is manufactured under U.S. Patent 5,612,498

1.0 OBJECTIVE

The objective of this procedure is to drive a sealed stainless steel or PVC screen to depth, deploy the screen, obtain a representative water sample from the screen interval, and grout the probe hole during abandonment. The Screen Point 16 Groundwater Sampler enables the operator to conduct abandonment grouting that meets American Society for Testing and Materials (ASTM) Method D 5299 requirements for decommissioning wells and borings for environmental activities (ASTM 1993).

2.0 BACKGROUND

2.1 Definitions

Geoprobe®: A brand name of high quality, hydraulically powered machines that utilize both static force and percussion to advance sampling and logging tools into the subsurface. The Geoprobe® brand name refers to both machines and tools manufactured by Geoprobe Systems®, Salina, Kansas. Geoprobe® tools are used to perform soil core and soil gas sampling, groundwater sampling and monitoring, soil conductivity and contaminant logging, grouting, and materials injection.

Screen Point 16 (SP16) Groundwater Sampler: A direct push device consisting of a PVC or stainless steel screen that is driven to depth within a sealed, steel sheath and then deployed for the collection of representative groundwater samples. The assembled SP16 Sampler is approximately 51.5 inches (1308 mm) long with an OD of 1.625 inches (41 mm). Upon deployment, up to 41 inches (1041 mm) of screen can be exposed to the formation. The Screen Point 16 Groundwater Sampler is designed for use with 1.5-inch probe rods and machines equipped with the more powerful GH60 Hydraulic Hammer. Operators with GH40 Series hammers may chose to use this sampler in soils where driving is difficult.

Rod Grip Pull System: An attachment mounted on the hydraulic hammer of a direct push machine which makes it possible to retract the tool string with extension rods or flexible tubing protruding from the top of the probe rods. The Rod Grip Pull System includes a pull block with rod grip jaws that are bolted directly to the machine. A removable handle assembly straddles the tool string while hooking onto the pull block to effectively grip the probe rods as the hammer is raised. A separate handle assembly is required for each probe rod diameter.

2.2 Discussion

In this procedure, the assembled Screen Point 16 Groundwater Sampler (Fig. 2.1A) is threaded onto the leading end of a Geoprobe® probe rod and advanced into the subsurface with a Geoprobe® direct push machine. Additional probe rods are added incrementally and advanced until the desired sampling interval is reached. While the sampler is advanced to depth, O-ring seals at each rod joint, the drive head, and the expendable drive point provide a watertight system. This system eliminates the threat of formation fluids entering the screen before deployment and assures sample integrity.

Once at the desired sampling interval, extension rods are sent downhole until the leading rod contacts the bottom of the sampler screen. The tool string is then retracted approximately 44 inches (1118 mm) while the screen is held in place with the extension rods (Fig. 2.1B). As the tool string is retracted, the expendable point is released from the sampler sheath. The tool string and sheath may be retracted the full length of the screen or as little as a few inches if a small sampling interval is desired.

There are three types of screens that can be used in the Screen Point 16 Groundwater Sampler. Two of the these, a stainless steel screen with a standard slot size of 0.004 inches (0.10 mm) and a PVC screen with a standard slot size of 0.010 inches (0.25 mm), are recovered with the tool string after sampling. The third screen is also manufactured from PVC with a standard slot size of 0.010 inches (0.25 mm), but is designed to be left downhole when sampling is complete. This disposable screen has an exposed screen length of approximately 43 inches (1092 mm). The two screens that are recovered with the sampler both have an exposed screen length of approximately 41 inches (1041 mm).

(continued on following page)

An O-ring on the head of the stainless steel screens maintains a seal at the top of the screen. As a result, any liquid entering the sampler during screen deployment must first pass through the screen. PVC screens do not require an O-ring because the tolerance between the screen head and sampler sheath is near that of the screen slot size.

The screens are constructed such that flexible tubing, a mini-bailer, or a small-diameter bladder pump can be inserted into the screen cavity. This makes direct sampling possible from anywhere within the saturated zone. A removable plug in the lower end of the screens allows the user to grout as the sampler is extracted for further use.

Groundwater samples can be obtained in a number of ways. A common method utilizes polyethylene (TB25L) or Teflon® (TB25T) tubing and a Check Valve Assembly (GW4210). The check valve (with check ball) is attached to one end of the tubing and inserted down the casing until it is immersed in groundwater. Water is pumped through the tubing and to the ground surface by oscillating the tubing up and down.

An alternative means of collecting groundwater samples is to attach a peristaltic or vacuum pump to the tubing. This method is limited in that water can be pumped to the surface from a maximum depth of approximately 26 feet (8 m). Another technique for groundwater sampling is to use a stainless steel Mini-Bailer Assembly (GW41). The mini-bailer is lowered down the inside of the casing below the water level where it fills with water and is then retrieved from the casing.

The latest option for collecting groundwater from the SP16 sampler is to utilize a Geoprobe® MB470 Series Mechanical Bladder Pump (MBP)*. The MBP may be used to meet requirements of the low-flow sampling protocol (Puls and Barcelona 1996, ASTM 2003). Through participation in a U.S. EPA Environmental Technology Verification study, it was confirmed that the MB470 can provide representative samples (EPA 2003).

**The Mechanical Bladder Pump is manufactured under U.S. Patent No. 6,877,965 issued April 12, 2005.*

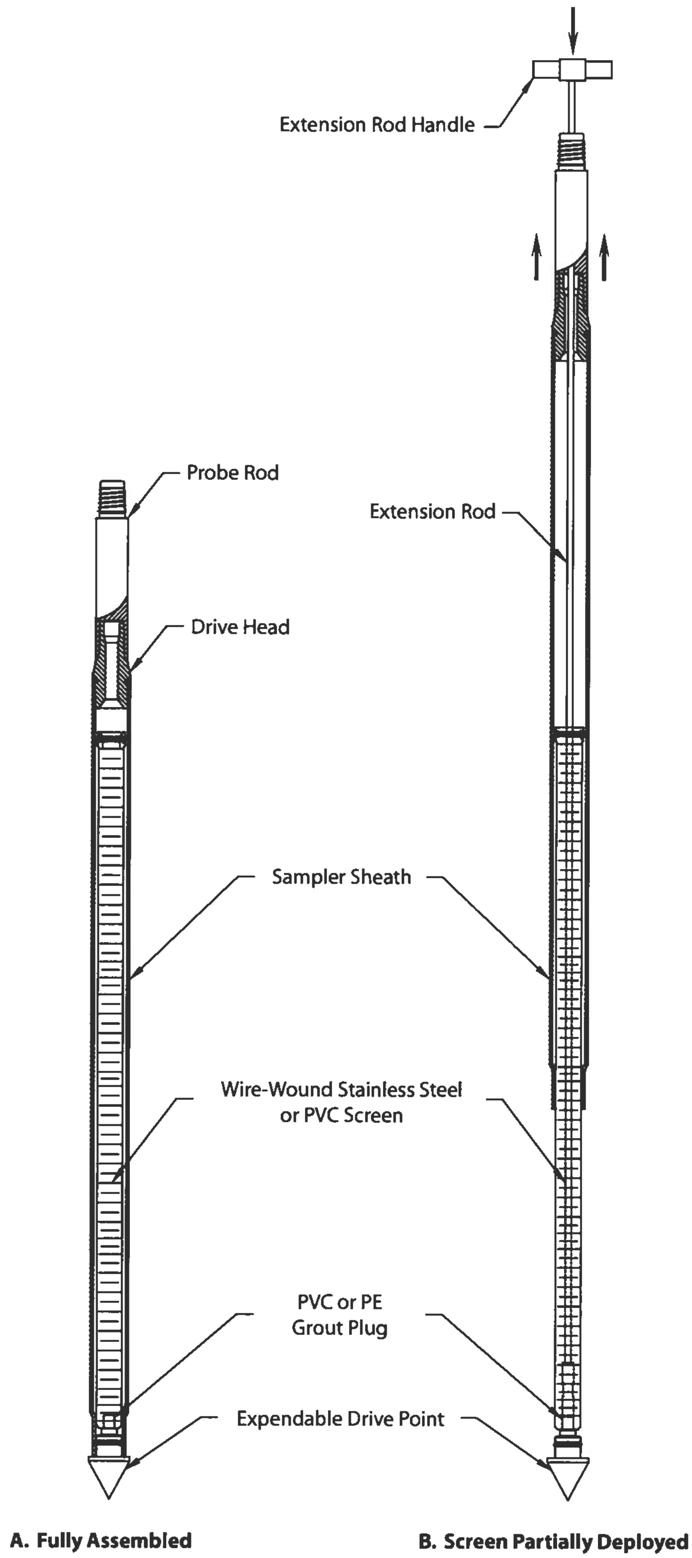


FIGURE 2.1
Screen Point 16 Groundwater Sampler

3.0 TOOLS AND EQUIPMENT

The following tools and equipment can be used to successfully recover representative groundwater samples with the Geoprobe® Screen Point 16 Groundwater Sampler. Refer to Figures 3.1 and 3.2 for identification of the specified parts. Tools are listed below for the most common SP16 / 1.5-inch probe rod configurations. Additional parts for optional rod sizes and accessories are listed in Appendix A.

SP16 Sampler Parts	**Part Number**
SP16 Sampler Sheath	15187
SP16 Drive Head, 0.5-inch bore, 1.5-inch rods*	18307
SP16 O-ring Service Kit, 1.5-inch rods *(includes 4 each of the O-ring packets below)*	15844
O-rings for Top of SP16 Drive Head, 1.5-inch rods only (Pkt. of 25)	*15389*
O-rings for Bottom of SP16 Drive Head (Pkt. of 25)	*13196*
O-rings for GW1520 Screen Head (Pkt. of 25)	*GW1520R*
O-rings for SP16 Expendable Drive Point (Pkt. of 25)	*GW1555R*
Screen, Wire-Wound Stainless Steel, 4-Slot*	GW1520
Grout Plugs, PE (Pkg. of 25)	GW1552K
Expendable Drive Points, steel, 1.625-inch OD (Pkg. of 25)*	GW1555K
Screen Point 16 Groundwater Sampler Kit, 1.5-inch Probe Rods *(includes 1 each of: 15187, 18307, 15844, GW1520, GW1535, GW1540, GW1555K, and GW1552K)*	15770

Probe Rods and Probe Rod Accessories	**Part Number**
Drive Cap, 1.5-inch probe rods, threadless, (for GH60 Hammer)	12787
Pull Cap, 1.5-inch probe rods	15090
Probe Rod, 1.5-inch x 60-inch*	11121

Extension Rods and Extension Rod Accessories	**Part Number**
Screen Push Adapter	GW1535
Grout Plug Push Adapter	GW1540
Extension Rod, 60-inch*	10073
Extension Rod Coupler	AT68
Extension Rod Handle	AT69
Extension Rod Jig	AT690
Extension Rod Quick Link Coupler, pin	AT695
Extension Rod Quick Link Coupler, box	AT696

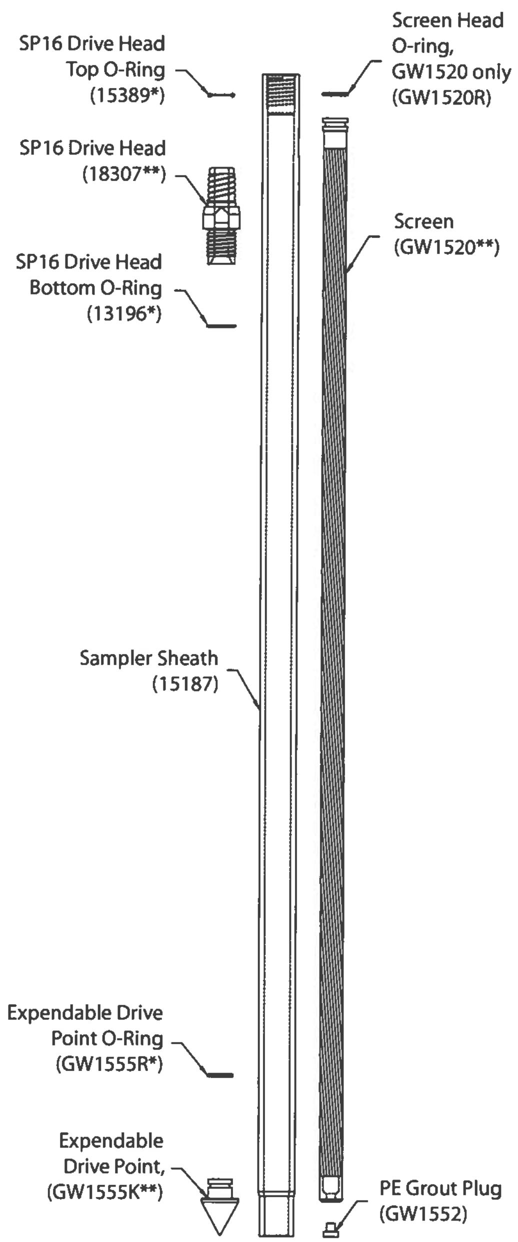
Grout Accessories	**Part Number**
Grout Nozzle, for 0.375-inch OD tubing	GW1545
High-Pressure Nylon Tubing, 0.375-inch OD / 0.25-inch ID, 100-ft. (30 m)	11633
Grout Machine, self-contained*	GS1000
Grout System Accessories Package, 1.5-inch rods	GS1015

Groundwater Purging and Sampling Accessories	**Part Number**
Polyethylene Tubing, 0.375-inch OD, 500 ft.*	TB25L
Check Valve Assembly, 0.375-inch OD Tubing*	GW4210
Water Level Meter, 0.438-inch OD Probe, 100 ft. cable*	GW2000
Mechanical Bladder Pump**	MB470
Mini Bailer Assembly, stainless steel	GW41

Additional Tools	**Part Number**
Adjustable Wrench, 6.0-inch	FA200
Adjustable Wrench, 10.0-inch	FA201
Pipe Wrenches	NA

* See Appendix A for additional tooling options.

** Refer to the Standard Operating Procedure (SOP) for the Mechanical Bladder Pump (Technical Bulletin No. MK3013) for additional tooling needs.



* Included in the SP16 O-ring Service Kit (15844)
** Part numbers show most common tool configuration. See Appendix A for alternative parts.

FIGURE 3.1
SP16 Sampler Parts

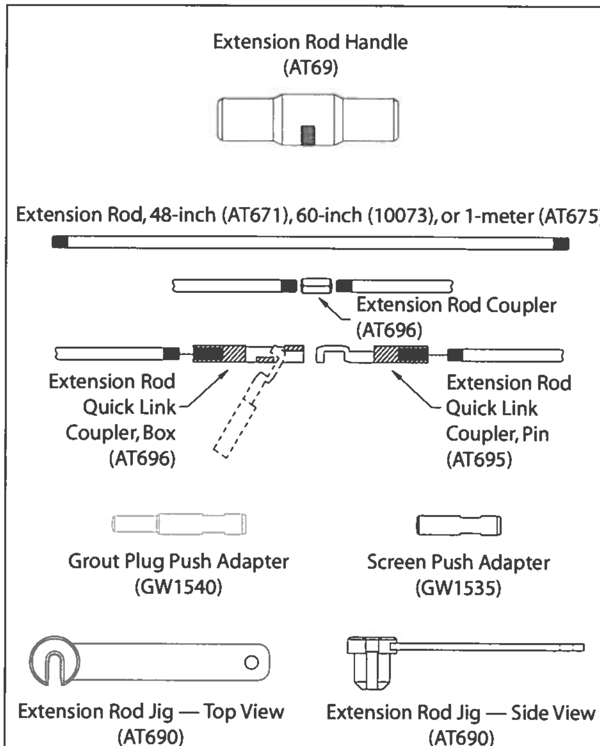


FIGURE 3.2
Geoprobe® Extension Rods and Accessories

4.0 OPERATION

4.1 Basic Operation

The SP16 sampler utilize a stainless steel or PVC screen which is encased in an alloy steel sampler sheath. An expendable drive point is placed in the lower end of the sheath while a drive head is attached to the top. O-rings on the drive head and expendable point provide a watertight sheath which keeps contaminants out of the system as the sampler is driven to depth.

Once the sampling interval is reached, extension rods equipped with a screen push adapter are inserted down the ID of the probe rods. The tool string is then retracted up to 44 inches (1118 mm) while the screen is held in place with the extension rods. The system is now ready for groundwater sampling. When sampling is complete, a removable plug in the bottom of the screen allows for grouting below the sampler as the tool string is retrieved.

4.2 Sampler Options

The Screen Point 15 and Screen Point 16 Groundwater Samplers are nearly identical. Subtle differences in the design of the SP16 sampler make it more durable than the earlier SP15 system. Operators of GH60-equipped machines should always utilize SP16 tooling. Operators of machines equipped with GH40 Series hammers may also choose SP16 tooling when sampling in difficult probing conditions.

A 1.75-inch OD Expendable Drive Point (17066K) and Disposable PVC Screen (16089) provide two useful options for the SP16 sampler. The 1.75-inch drive point may be used when soil conditions make it difficult to remove the sampler after driving to depth. The disposable PVC screen may be left downhole after sampling (when regulations permit) to eliminate the time required for screen decontamination.

4.3 Decontamination

In order to collect representative groundwater samples, all sampler parts must be thoroughly cleaned before and after each use. Scrub all metal parts using a stiff brush and a nonphosphate soap solution. Steam cleaning may be substituted for hand-washing if available. Rinse with distilled water and allow to air-dry before assembly.

4.4 SP16 Sampler Assembly (Figure 4.1)

Part numbers are listed for a standard SP16 sampler using 1.5-inch probe rods. Refer to Page 6 for screen and drive head alternatives.

1. Place an O-ring on a steel expendable drive point (GW1555K). Firmly seat the expendable point in the necked end of a sampler sheath (15187).

2. Install a PE Grout Plug (GW1552) in the bottom end of a Wire-wound Stainless Steel Screen (GW1520). Place a GW1520R O-ring in the groove on the top end of the screen.

3. Slide the screen inside of the sampler sheath with the grout plug toward the bottom of the sampler. Ensure that the expendable point was not displaced by the screen.

4. Install a bottom O-ring (13196) on a Drive Head (18307 or 15188). Thread the drive head into the sampler sheath using an adjustable wrench if necessary to ensure complete engagement of the threads. Attach a Drive Cap (12787 or 15590) to the top of the drive head.

   NOTE: The 18307 drive head should be used whenever possible as the smaller 0.5-inch ID provides a greater material cross-section for increased durability.

Sampler assembly is complete.

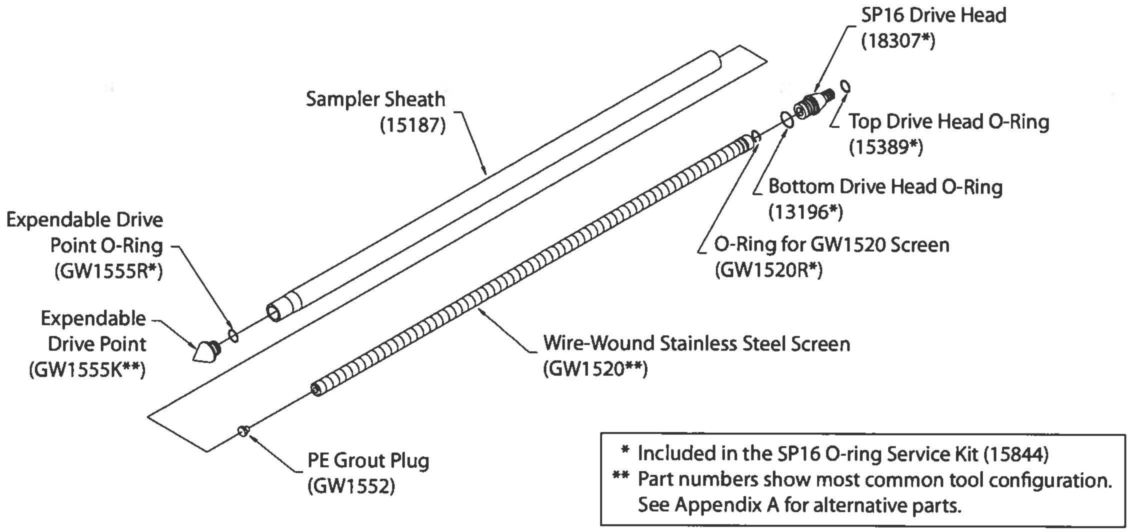


FIGURE 4.1
Screen Point 16 Groundwater Sampler Assembly

4.5 Advancing the SP16 Sampler

To provide adequate room for screen deployment with the Rod Grip Pull System, the probe derrick should be extended a little over halfway out of the carrier vehicle when positioning for operation.

1. Begin by placing the assembled sampler (Fig. 2.1.A) in the driving position beneath the hydraulic hammer of the direct push machine as shown in Figure 4.2.

2. Advance the sampler with the throttle control at slow speed for the first few feet to ensure that the sampler is aligned properly. Switch to fast speed for the remainder of the probe stroke.

3. Completely raise the hammer assembly. Remove the drive cap and place an O-ring in the top groove of the drive head. Distilled water may be used to lubricate the O-ring if needed.

   Add a probe rod (length to be determined by operator) and reattach the drive cap to the rod string. Drive the sampler the entire length of the new rod with the throttle control at fast speed.

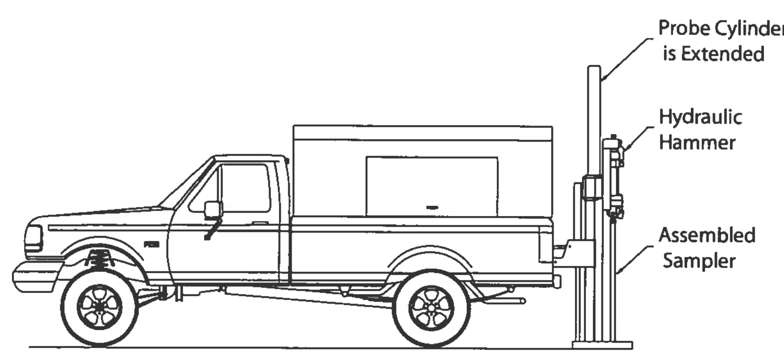


FIGURE 4.2
Screen Point 16 Groundwater Sampler in Driving Position

4. Repeat Step 3 until the desired sampling interval is reached. Approximately 12 inches (305 mm) of the last probe rod must extend above the ground surface to allow attachment of the puller assembly. A 12-inch (305 mm) rod may be added if the tool string is over-driven.

5. Remove the drive cap and retract the probe derrick away from the tool string.

4.6 Screen Deployment

1. Thread a screen push adapter (GW1535) on an extension rod of suitable length (AT671, 10073, or AT675). Attach a threaded coupler (AT68) to the other end of the extension rod. Lower the extension rod inside of the probe rod taking care not to drop it down the tool string. An extension rod jig (AT690) may be used to hold the rods.

2. Add extension rods until the adapter contacts the bottom of the screen. To speed up this step, it is recommended that Extension Rod Quick Links (AT695 and AT696) are used at every other rod joint.

3. Ensure that at least 48 inches (1219 mm) of extension rod protrudes from the probe rod. Thread an extension rod handle (AT69) on the top extension rod.

4. Maneuver the probe assembly into position for pulling.

5. Raise (pull) the tool string while physically holding the screen in place with the extension rods (Fig. 4.3.B). A slight knock with the extension rod string will help to dislodge the expendable point and start the screen moving inside the sheath.

   Raise the hammer and tool string about 44 inches (1118 cm) if using a GW1520 or GW1530 screen. At this point the screen head will contact the necked portion of the sampler sheath (Fig. 4.3.C.) and the extension rods will rise with the probe rods. Use care when deploying a PVC screen so as not to break the screen when it contacts the bottom of the sampler sheath.

   The Disposable Screen (16089) will extend completely out of the sheath if the tool string is raised more than 45 inches (1143 mm). Measure and mark this distance on the top extension rod to avoid losing the screen during deployment.

6. Remove the rod grip handle, lower the hammer assembly, and retract the probe derrick. Remove the top extension rod (with handle) and top probe rod. Finally, extract all extension rods.

7. Groundwater samples can now be collected with a mini-bailer, peristaltic or vacuum pump, tubing bottom check valve assembly, bladder pump, or other acceptable small diameter sampling device.

   When inserting tubing or a bladder pump down the rod string, ensure that it enters the screen interval. The leading end of the tubing or bladder pump will sometimes catch at the screen head giving the illusion that the bottom of the screen has been reached. An up-and-down motion combined with rotation helps move the tubing or bladder pump past the lip and into the screen.

4.7 Abandonment Grouting for GW1520 and GW1530 Screens

The SP16 Sampler can meet ASTM D 5299 requirements for abandoning environmental wells or borings when grouting is conducted properly. A removable grout plug makes it possible to deploy tubing through the bottom of GW1520 and GW1530 screens. A GS500 or GS1000 Grout Machine is then used to pump grout into the open probe hole as the sampler is withdrawn. The following procedure is presented as an example only and should be modified to satisfy local abandonment grouting regulations.

1. Maneuver the probe assembly into position for pulling. Attach the rod grip puller to the top probe rod. Raise the tool string approximately 4 to 6 inches (102 to 152 cm) to allow removal of the grout plug.

2. Thread the Grout Plug Push Adapter (GW1540) onto an extension rod. Insert the adapter and extension rod inside the probe rod string. Add extension rods until the adapter contacts the grout plug at the bottom of the screen. Attach the handle to the top extension rod. When the extension rods are slightly raised and lowered, a relatively soft rebound should be felt as the adapter contacts the grout plug. This is especially true when using a PVC screen.

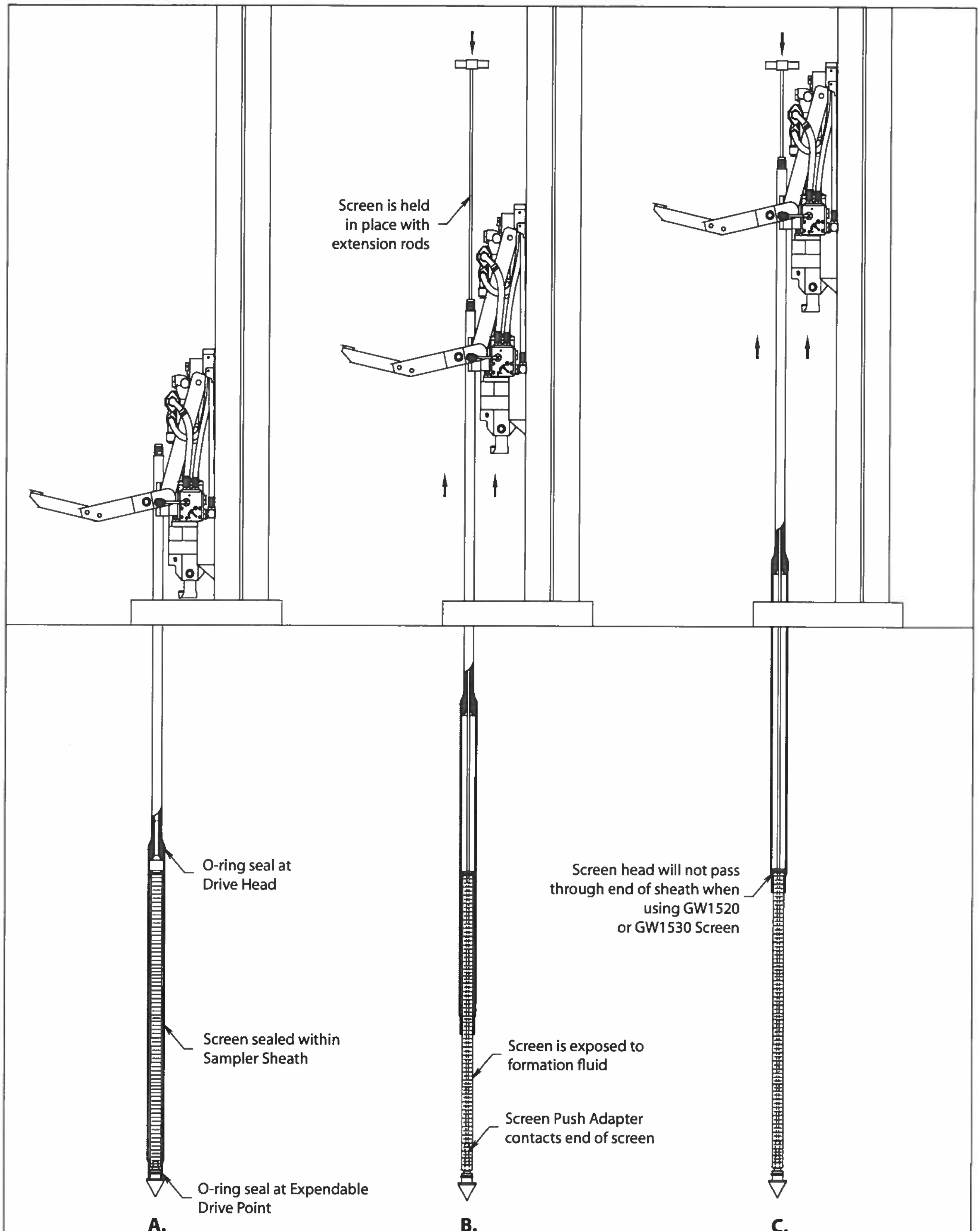


FIGURE 4.3
Screen Deployment for SP16 Sampler

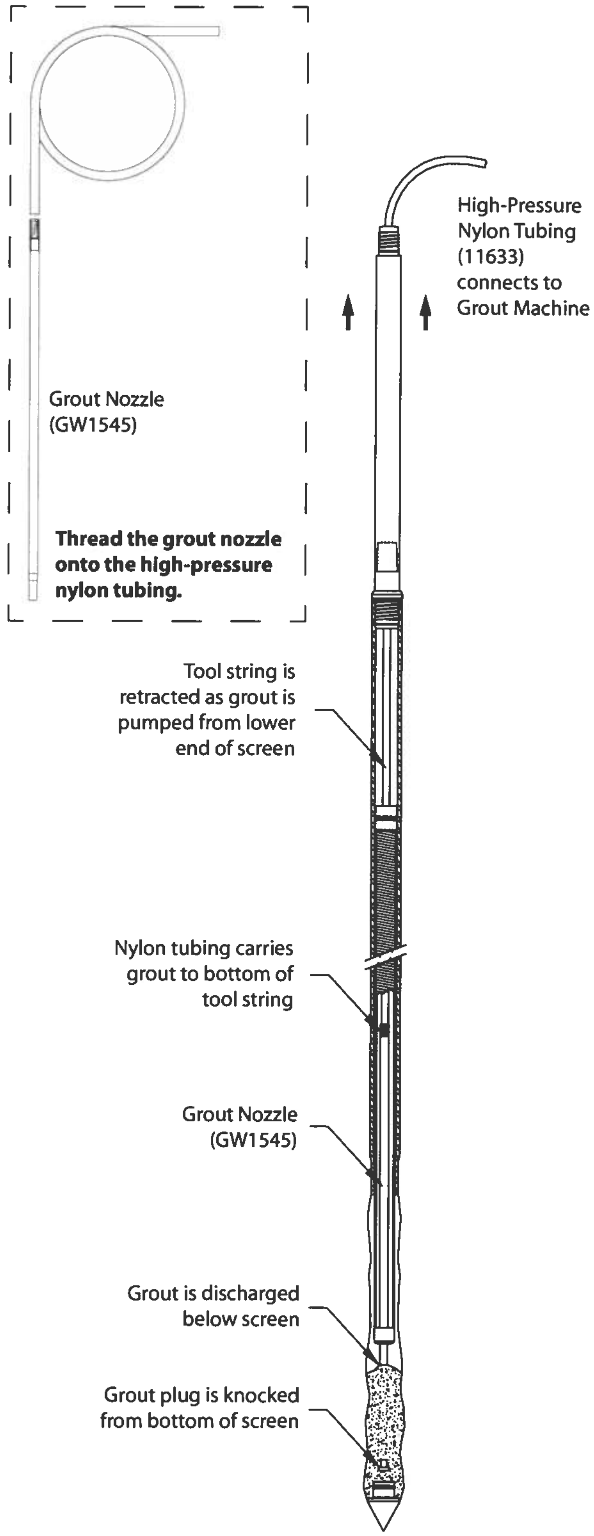


FIGURE 4.4
Grouting the SP16 Sampler With a GW1520 or GW1530 Screen

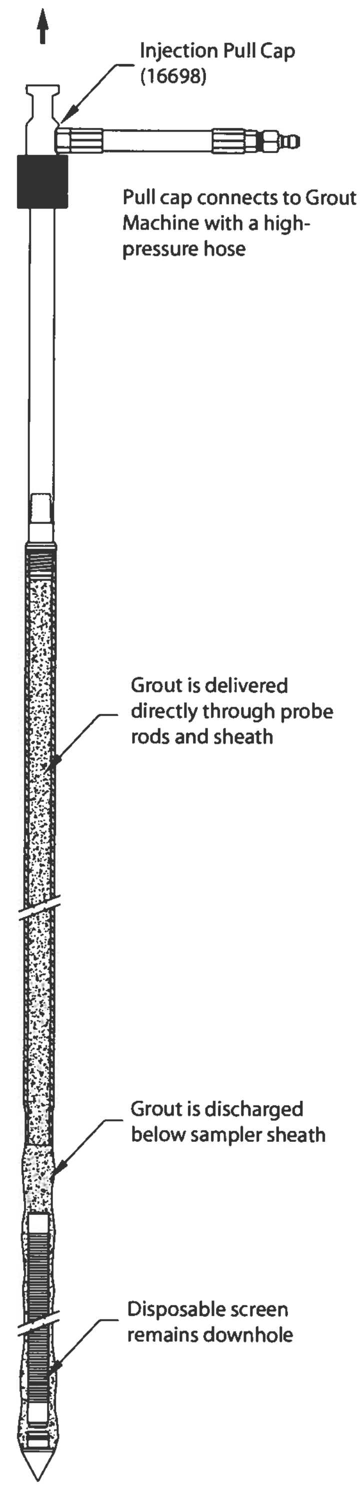


FIGURE 4.5
Grouting the SP16 Sampler With a 16089 Disposable Screen

3. Place a mark on the extension rod even with the top of the probe rod. Apply downward pressure on the extension rods and push the grout plug out of the screen. The mark placed on the extension rod should now be below the top of the probe rod. Remove all extension rods.

   Note: When working with a stainless steel screen, it may be necessary to raise and quickly lower the extension rods to jar the grout plug free. When the plug is successfully removed, a metal-on-metal sensation may be noted as the extension rods are gently "bounced" within the probe rods.

4. A Grout Nozzle (GW1545) is now connected to High-Pressure Nylon Tubing (11633) and inserted down through the probe rods to the bottom of the screen (Fig. 4.4). It may be necessary to pump a small amount of clean water through the tubing during deployment to jet out sediments that settled in the bottom of the screen. Resistance will sometimes be felt as the grout nozzle passes through the drive head. Rotate the tubing while moving it up-and-down to ensure that the nozzle has reached the bottom of the screen and is not hung up on the drive head.

   Note: *All probe rods remain strung on the tubing as the tool string is pulled. Provide extra tubing length to allow sufficient room to lay the rods on the ground as they are removed. An additional 20 feet is generally enough.*

5. Operate the grout pump while pulling the first rod with the rod grip pull system. Coordinate pumping and pulling rates so that grout fills the void left by the sampler. After pulling the first rod, release the rod grip handle, fully lower the hammer, and regrip the tool string. Unthread the top probe and slide it over the tubing placing it on the ground near the end of the tubing.

6. Repeat Step 5 until the sampler is retrieved. Do not bend or kink the tubing when pulling and laying out the probe rods. Sharp bends create weak spots in the tubing which may burst when pumping grout. Remember to operate the grout pump only when pulling the rod string. The probe hole is thus filled with grout from the bottom up as the rods are extracted.

7. Promptly clean all probe rods and sampler parts before the grout sets up and clogs the equipment.

4.8 Abandonment Grouting for the 16089 Disposable Screen

ASTM D 5299 requirements can also be met for the SP16 samplers when using the 16089 disposable screen. Because the screen remains downhole after sampling, the operator may choose either to deliver grout to the bottom of the tool string with nylon tubing or pump grout directly through the probe rods using an Injection Pull Cap (16698). A GS500 or GS1000 Grout Machine is needed to pump grout into the open probe hole as the sampler is withdrawn. The following procedure is presented as an example only and should be modified to satisfy local abandonment grouting regulations.

1. Maneuver the probe assembly into position for pulling with the rod grip puller.

2. Thread the screen push adapter onto an extension rod. Insert the adapter and extension rod inside the probe rod string. Add extension rods until the adapter contacts the bottom of the screen. Attach the handle to the top extension rod.

3. The disposable screen must be extended at least 46 inches (1168 mm) to clear the bottom of the sampler sheath. Considering the length of screen deployed in Section 4.7, determine the remaining distance required to fully extend the screen from the sheath. Mark this distance on the top extension rod.

4. Pull the tool string up to the mark on the top extension rod while holding the disposable screen in place.

   The screen is now fully deployed and the sampler is ready for abandonment grouting. Apply grout to the bottom of the tool string during retrieval using either flexible tubing (as described in Section 4.7) or an injection pull cap (Fig. 4.5). This section continues with a description of grouting with a pull cap.

5. Remove the rod grip handle and maneuver the probe assembly directly over the tool string. Thread an Injection Pull Cap (16698) onto the top probe rod and close the hammer pull latch over the top of the pull cap.

6. Connect the pull cap to a Geoprobe® grout machine using a high-pressure grout hose.

7. Operate the pump to fill the entire tool string with grout. When a sufficient volume has been pumped to fill the tool string, begin pulling the rods and sampler while continuing to operate the grout pump. Considering the known pump volume and sampler cross-section, time tooling withdrawal to slightly "overpump" grout into the subsurface. This will ensure that all voids are filled during sampler retrieval.

   The grouting process can lubricate the probe hole sufficiently to cause the tool string to slide back downhole when disconnected from the pull cap. Prevent this by withdrawing the tool string with the rod grip puller while maintaining a connection to the grout machine with the pull cap.

4.9 Retrieving the Screen Point 16 Sampler

If grouting is not required, the Screen Point 16 Sampler can be retrieved by pulling the probe rods as with most other Geoprobe® applications. The Rod Grip Pull System should be used for this process as it allows the operator to remove rods without completely releasing the tool string. This avoids having the probe rods fall back downhole when released during the pulling procedure. A standard Pull Cap (15164) may still be used if preferred. Refer to the Owner's Manual for your Geoprobe® direct push machine for specific instructions on pulling the tool string.

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Appendix A
ALTERNATIVE PARTS

The following parts are available to meet unique soil conditions. See section 3.0 for a complete listing of the common tool configurations for the Geoprobe® Screen Point 16 Groundwater Sampler.

SP16 Sampler Parts and Accessories	**Part Number**
SP16 Drive Head, 0.625-inch bore, 1.5-inch rods	15188
Expendable Drive Points, aluminum, 1.625-inch OD (Pkg. of 25)	GW1555ALK
Expendable Drive Points, steel, 1.75-inch OD (Pkg. of 25)	17066K
Screen, PVC, 10-Slot	GW1530
Screen, Disposable, PVC, 10-Slot	16089

Groundwater Purging and Sampling Accessories	**Part Number**
Polyethylene Tubing, 0.25-inch OD, 500 ft.	TB17L
Polyethylene Tubing, 0.5-inch OD, 500 ft.	TB37L
Polyethylene Tubing, 0.625-inch OD, 50 ft.	TB50L
Check Valve Assembly, 0.25-inch OD Tubing	GW4240
Check Valve Assembly, 0.5-inch OD Tubing	GW4220
Check Valve Assembly, 0.625-inch OD Tubing	GW4230
Water Level Meter, 0.375-inch OD Probe, 100-ft. cable	GW2001
Water Level Meter, 0.438-inch OD Probe, 200-ft. cable	GW2002
Water Level Meter, 0.375-inch OD Probe, 200-ft. cable	GW2003
Water Level Meter, 0.438-inch OD Probe, 30-m cable	GW2005
Water Level Meter, 0.438-inch OD Probe, 60-m cable	GW2007
Water Level Meter, 0.375-inch OD Probe, 60-m cable	GE2008

Grouting Accessories	**Part Number**
Grout Machine, auxiliary-powered	GS500

Probe Rods, Extension Rods, and Accessories	**Part Number**
Probe Rod, 1.5-inch x 1-meter	17899
Probe Rod, 1.5-inch x 48-inch	13359
Drive Cap, 1.5-inch rods (for GH40 Series Hammer)	15590
Rod Grip Pull Handle, 1.5-inch Probe Rods (for GH40 Series Hammer)	GH1555
Extension Rod, 48-inch	AT671
Extension Rod, 1-meter	AT675

Equipment and tool specifications, including weights, dimensions, materials, and operating specifications included in this brochure are subject to change without notice. Where specifications are critical to your application, please consult Geoprobe Systems®.

Geoprobe Systems®

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Attachment 5

Chemtech USEPA Method TO-15 Compound Reporting List

CHEMTECH

Method	Matrix	CAS #	Compound Name	ppbv MDL	LOD ppbv	LOQ ppbv	LOD ug/m3	LOQ ug/m3
TO-15	Air	71-55-6	1,1,1-Trichloroethane	0.04	0.25	0.5	0.11	0.22
TO-15	Air	79-34-5	1,1,2,2-Tetrachloroethane	0.10	0.25	0.5	0.34	0.69
TO-15	Air	79-00-5	1,1,2-Trichloroethane	0.08	0.25	0.5	0.27	0.54
TO-15	Air	76-13-1	1,1,2-Trichlorotrifluoroethane	0.04	0.25	0.5	0.38	0.76
TO-15	Air	75-34-3	1,1-Dichloroethane	0.04	0.25	0.5	0.20	0.40
TO-15	Air	75-35-4	1,1-Dichloroethene	0.05	0.25	0.5	0.20	0.40
TO-15	Air	120-82-1	1,2,4-Trichlorobenzene	0.04	0.25	0.5	0.37	0.74
TO-15	Air	95-63-6	1,2,4-Trimethylbenzene	0.10	0.25	0.5	0.25	0.49
TO-15	Air	106-93-4	1,2-Dibromoethane	0.07	0.25	0.5	0.38	0.77
TO-15	Air	95-50-1	1,2-Dichlorobenzene	0.07	0.25	0.5	0.30	0.60
TO-15	Air	107-06-2	1,2-Dichloroethane	0.07	0.25	0.5	0.20	0.40
TO-15	Air	78-87-5	1,2-Dichloropropane	0.06	0.25	0.5	0.23	0.46
TO-15	Air	108-67-8	1,3,5-Trimethylbenzene	0.09	0.25	0.5	0.25	0.49
TO-15	Air	106-99-0	1,3-Butadiene	0.09	0.25	0.5	0.11	0.22
TO-15	Air	541-73-1	1,3-Dichlorobenzene	0.08	0.25	0.5	0.30	0.60
TO-15	Air	106-46-7	1,4-Dichlorobenzene	0.06	0.25	0.5	0.30	0.60
TO-15	Air	123-91-1	1,4-Dioxane	0.09	0.25	0.5	0.18	0.36
TO-15	Air	540-84-1	2,2,4-Trimethylpentane	0.04	0.25	0.5	0.23	0.47
TO-15	Air	78-93-3	2-Butanone	0.10	0.25	0.5	0.15	0.29
TO-15	Air	95-49-8	2-Chlorotoluene	0.10	0.25	0.5	0.26	0.52
TO-15	Air	591-78-6	2-Hexanone	0.08	0.25	0.5	0.20	0.41
TO-15	Air	622-96-8	4-Ethyltoluene	0.08	0.25	0.5	0.25	0.49
TO-15	Air	108-10-1	4-Methyl-2-Pentanone	0.06	0.25	0.5	0.20	0.41
TO-15	Air	67-64-1	Acetone	0.10	0.25	0.5	0.12	0.24
TO-15	Air	107-05-1	Allyl Chloride	0.05	0.25	0.5	0.16	0.31
TO-15	Air	71-43-2	Benzene	0.04	0.25	0.5	0.16	0.32
TO-15	Air	100-44-7	Benzyl Chloride	0.06	0.25	0.5	0.29	0.58
TO-15	Air	75-27-4	Bromodichloromethane	0.05	0.25	0.5	0.34	0.67
TO-15	Air	593-60-2	Bromoethene	0.03	0.25	0.5	0.22	0.44
TO-15	Air	75-25-2	Bromoform	0.05	0.25	0.5	0.52	1.03
TO-15	Air	74-83-9	Bromomethane	0.03	0.25	0.5	0.19	0.39

TO-15	Air	75-15-0	Carbon Disulfide	0.05	0.25	0.5	0.16	0.31
TO-15	Air	56-23-5	Carbon Tetrachloride	0.04	0.25	0.5	0.13	0.25
TO-15	Air	108-90-7	Chlorobenzene	0.09	0.25	0.5	0.23	0.46
TO-15	Air	75-00-3	Chloroethane	0.07	0.25	0.5	0.13	0.27
TO-15	Air	67-66-3	Chloroform	0.02	0.25	0.5	0.24	0.49
TO-15	Air	74-87-3	Chloromethane	0.06	0.25	0.5	0.10	0.20
TO-15	Air	156-59-2	cis-1,2-Dichloroethene	0.06	0.25	0.5	0.20	0.40
TO-15	Air	10061-01-5	cis-1,3-Dichloropropene	0.06	0.25	0.5	0.23	0.45
TO-15	Air	110-82-7	Cyclohexane	0.08	0.25	0.5	0.17	0.34
TO-15	Air	124-48-1	Dibromochloromethane	0.05	0.25	0.5	0.43	0.85
TO-15	Air	75-71-8	Dichlorodifluoromethane	0.04	0.25	0.5	0.25	0.49
TO-15	Air	76-14-2	Dichlorotetrafluoroethane	0.04	0.25	0.5	0.35	0.70
TO-15	Air	64-17-5	Ethanol	0.10	0.25	0.5	0.09	0.19
TO-15	Air	141-78-6	Ethyl Acetate	0.06	0.25	0.5	0.18	0.36
TO-15	Air	100-41-4	Ethyl Benzene	0.08	0.25	0.5	0.22	0.43
TO-15	Air	142-82-5	Heptane	0.06	0.25	0.5	0.20	0.41
TO-15	Air	87-68-3	Hexachloro-1,3-Butadiene	0.08	0.25	0.5	0.53	1.07
TO-15	Air	110-54-3	Hexane	0.04	0.25	0.5	0.18	0.35
TO-15	Air	67-63-0	Isopropyl Alcohol	0.10	0.25	0.5	0.12	0.25
TO-15	Air	136777-61-2	m/p-Xylene	0.10	0.25	0.5	0.22	0.43
TO-15	Air	80-62-6	Methyl methacrylate	0.10	0.25	0.5	0.20	0.41
TO-15	Air	1634-04-4	Methyl tert-Butyl Ether	0.05	0.25	0.5	0.18	0.36
TO-15	Air	75-09-2	Methylene Chloride	0.05	0.25	0.5	0.17	0.35
TO-15	Air	95-47-6	o-Xylene	0.07	0.25	0.5	0.22	0.43
TO-15	Air	115-07-1	Propene	0.10	0.25	0.5	0.09	0.17
TO-15	Air	100-42-5	Styrene	0.07	0.25	0.5	0.21	0.43
TO-15	Air	10061-02-6	t-1,3-Dichloropropene	0.07	0.25	0.5	0.23	0.45
TO-15	Air	27975-78-6	tert-butyl alcohol	0.10	0.25	0.5	0.15	0.30
TO-15	Air	127-18-4	Tetrachloroethene	0.03	0.25	0.5	0.10	0.20
TO-15	Air	109-99-9	Tetrahydrofuran	0.08	0.25	0.5	0.15	0.29
TO-15	Air	108-88-3	Toluene	0.05	0.25	0.5	0.19	0.38
TO-15	Air	156-60-5	trans-1,2-Dichloroethene	0.06	0.25	0.5	0.20	0.40
TO-15	Air	79-01-6	Trichloroethene	0.04	0.25	0.5	0.11	0.21
TO-15	Air	75-69-4	Trichlorofluoromethane	0.04	0.25	0.5	0.28	0.56

TO-15	Air	108-05-4	Vinyl Acetate	0.10	0.25	0.5	0.18	0.35
TO-15	Air	75-01-4	Vinyl Chloride	0.07	0.25	0.5	0.09	0.18

Attachment 6

Recommended Containers, Preservation Techniques, and Holding Times for CLP/ASP Analyses

APPENDIX D

Water Sampling and Holding Time Information

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Total Coliform	-----	9221D	0.008% $Na_2S_2O_3$ if residual chlorine present 0.3 mL/125 mL 15% EDTA if > 0.01 mg/L heavy metals	Sterile P or G	30 Hrs. for Drinking Water 6 Hrs. for Waste Water	125 mL
Fecal Coliform	-----	9222B or D	0.008% $Na_2S_2O_3$ if residual chlorine present 0.3 mL/125 mL 15% EDTA if > 0.01 mg/L heavy metals	Sterile P or G	30 Hrs. for Drinking Water 6 Hrs. for Waste Water	125 mL
Escherichia Coli	-----	9222B	0.008% $Na_2S_2O_3$ if residual chlorine present 0.3 mL/125 mL 15% EDTA if > 0.01 mg/L heavy metals	Sterile P or G	30 Hrs. for Drinking Water 6 Hrs. for Waste Water	125 mL
Fecal Streptococci	-----	9230C	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present	Sterile P or G	30 Hrs. for Drinking Water 6 Hrs. for Waste Water	125 mL
Heterotrophic Plate Count	-----	9215B	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present	Sterile P or G	30 Hrs. for Drinking Water 6 Hrs. for Waste Water	125 mL
Pseudomanas Aeruginosa	-----	9213E	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present	Sterile P or G	30 Hrs. for Drinking Water 6 Hrs. for Waste Water	125 mL
Turbidity	180.1	2130B	Cool, 4 deg C	P or G	48 Hrs	100 mL
Nitrate (Chlorinated)	353.2	4500-NO_3 F	Cool, 4 deg C	P or G	48 Hrs	250 mL
Nitrite	-----	4500-NO_3 D	Cool, 4 deg C	P or G	48 Hrs	100 mL
Nitrate (Non-chlorinated)	353.2	4500-NO3 F	H_2SO_4 to pH<2	P or G	14 Days	250 mL

Fluoride	300	4500 F-B,C S	None	P or G	28 Days	300 mL
Cyanide	335.4	4500-CN C&E	Cool, 4 deg C NaOH pH>12	P or G	14 Days	500 mL
Nitrate	300	------	Cool, 4 deg C	P or G	48 Hrs	100 mL
Sulfate	300	4500-SO_4	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
Total Organic Halides		5320B	1N H2SO4 to pH<2	P or G	28 Days	50 mL
Calcium	-----	3120B	HNO_3 to pH<2	P or G	6 Months	100 mL
Calcium-Hardness	200.7	3111B	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 D 4110	None	P or G	28 Days	100 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	-----	2510B	Cool, 4 deg C	P or G	28 Days	100 mL
Silica	200.7	-----	Cool, 4 deg C	P only	7 Days	50 mL
Carbamates	531.1	-----	Cool, 4 deg C 0.08% $Na_2S_2O_3$ if residual chlorine present	G, screw cap Teflon faced silicone septum	14 Days	100 mL mL
Ortho Phosphate	300	4500 P-E	Cool, 4 deg C	P or G	48 Hrs	50 mL
Chloridne, Residual Disinfectant	-----	4500Cl-G	None	P or G	Analyze Immediately	200 mL
pH, Hydrogen ion	-----	4500-H-B	None	P or G	Analyze Immediately	25 mL
Temperature	-----	2550B	None	P or G	Analyze Immediately	1000 mL
Volatiles (Regulated)	524.2	-----	Cool, 4 deg C HCl to pH<2	G, screw cap Teflon faced silicone septum	14 Days	60-120 mL
Semivolatile Organic Compounds (Unregulated)	525.2	-----	If residual chlorine is present, add 40 to 50 mg Sodium Thiosulfate. If not chlorinated, add 6N HCl to pH<2 Cool, 4 deg C	G, amber	7 Days for extraction, 30 after extraction	1Liter
Acidity as $CaCO_3$	305.1	2310B	Cool, 4 deg C	P or G	14 Days	100 mL
Alkalinity as $CaCO_3$	310.1	2320B	Cool, 4 deg C	P or G	14 Days	100 mL
Ammonia	350.2, 350.3	4500-NH3 B,E	Cool, 4 deg C, H_2SO_4 to pH<2	P or G	28 Days	400 mL
Biochemical	405.1	-----	Cool, 4 deg C	P or G	48 Hrs.	1000 mL

Oxygen Demand						
Carbonaceous BOD	-----	5210B	Cool, 4 deg C	P or G	48 Hrs.	1000 mL
Cyanide	335.2	9010B, 9012A, 9014	Cool 4 deg C, 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	335.1	9010B, 9012A, 9014	Cool 4 deg C, 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	Cool, 4 deg C No Headspace	P or G	7 Days	8 oz.
Total Hardness	130.2 , 200.7	-----	HNO_3 to pH<2 H_2SO_4 to pH<2	P or G	6 Months	100 mL
Total Kjeldahl Nitrogen	351.3	-----	H_2SO_4 to pH<2	P or G	28 Days	500 mL
Nitrate	300, 353.2	-----	Cool 4 deg c	P or G	48 Hrs.	100 mL
Total Recoverable Oil & Grease	413.1,166 4A	-----	Cool 4 deg C, HCL or H_2SO_4 to pH<2	G	Petroleum Based 3 Days Non-Petroleum Based 24 hours	1000 mL
Organic Nitrogen	351.1	-----	Cool 4 deg C, H_2SO_4 to pH<2	G	28 Days	500 mL
Orthophosphate	365.2	-----	Filter immediately, Cool 4 deg C	P or G	48 Hrs.	50 mL
Phenols	420.1	-----	Cool 4 deg C, H_2SO_4 to pH<2	G	28 Days	500 mL
Total Phosphorus	365.2	-----	Cool 4 deg C, H_2SO_4 to pH<2	G	28 Days	50 mL
Total-Residue (TS)	160.3	-----	Cool, 4 deg C	P or G	7 Days	100 mL
Residue-filtered (TDS)	160.1	-----	Cool, 4 deg C	P or G	7 Days	100 mL
Residue-non-filtered (TSS)	160.2	-----	Cool, 4 deg C	P or G	7 Days	100 mL
Residue-Settleable (SS)	160.5	-----	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	-----	Cool, 4 deg C	P or G	28 Days	100 mL
Sulfate	375.4	-----	Cool, 4 deg C	P or G	28 Days	50ml

Sulfide	376.1	-----	Cool 4 deg C, add zinc plus NaOH to pH>9	P or G	7 Days	50 mL
Surfactants (MBAS)	425.1	-----	Cool, 4 deg C	P or G	48 Hrs.	250 mL
Sulfite (SO3)	377.1	-----	None Required	G, Bottle and Top	analyze immediately	50 mL
Temperature	170.1	-----	None Required	G, Bottle and Top	analyze immediately	1000 mL
Metals	200.7	-----	HNO_3 to pH<2	P	6 Months	100 mL
Mercury	-----	7470A	Cool, 4 deg C	P or G	28 Days	8 oz.
Purgeable Halocarbons	601	8021B	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present	G, Vial screw cap with center hole Teflon-faced silicone septum	14 Days	40 mL
Aromatic Hydrocarbons	602	8021B	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	14 Days	40 mL
Organochlorine Pesticides/PCB	608	8081A,8082	Cool, 4 deg C 0.008% $Na_2S_2O_3$ if residual chlorine present If aldrin is to be determined bind to pH 5-9.	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	1000 mL
Volatile Organics	624	8260B	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
Semivolatile Organics	625	8270C	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
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)	------	8330	Cool, 4 deg C	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after	1000mL

					extraction	
HPLC (Explosive)	------	8310	Cool, 4 deg C	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	1000mL
Radiological	-----	-----	HNO_3 to pH<2	P or G	6 Months	100 mL
Dioxin	-----	8280A	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

Container Key: P = Plastic
G =Glass

Soil/Hazardous Waste Sampling and Holding Time Information

Parameter	EPA Method	Standard Method and/or SW 846 Method	Preservation	Container	Holding Time	Minimum Volume
Total Coliform	-----	9131	Cool, 4 deg C	Sterile P or G	6 Hrs	4 oz.
Total Coliform	-----	9132	Cool, 4 deg C	Sterile P or G	6 Hrs	4 oz.
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	Analyze Immediat ely	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	4 oz.
TCLP Metals, Semivolatiles, Pesticides, and Herbicides	-----	1311	Cool, 4 deg C	G	14 Days	16 oz
PH	-----	9040B	Cool, 4 deg C	P	Analyze Immediatel y	4 oz.
Temperature	-----	2550	-----	P	Analyze Immediatel y	4 oz.
Metals	-----	6010B	Cool, 4 deg C	P or G	6 Months	8 oz.
Mercury	245.1	7471A	Cool, 4 deg C	P or G	28 Days	8 oz.
Organochlorine Pesticides	-----	8081A	Cool, 4 deg C	P or G	14 Days	8 oz.
PCB's	-----	8082	Cool, 4 deg C	P or G	14 Days	8 oz.
HPLC (PAH)	------	8310	Cool, 4 deg C	G, Amber Teflon-lined screw cap	7 days until extraction 40 days after extraction	8oz.
Chlorinated Herbicides	-----	8151A	Cool, 4 deg C	G, wide mouth, teflon liner	14 Days	8 oz.

Volatile Organics	-----	8260B	Cool, 4 deg C Check individual state regulations for proper preservative. NJ requires Methanol, PA requires encore samplers and NY is cool 4 deg C.	G, wide mouth, teflon liner	14 Days	4 oz.
Volatile Organics	-----	8021	Cool, 4 deg C Check individual state regulations for proper preservative. NJ requires Methanol, PA requires encore samplers and NY is cool 4 deg C.	G, wide mouth, teflon liner	14 Days	4 oz.
Semivolatile Organics	-----	8270C	Cool, 4 deg C	Amber Glass	14 Days	8 oz.
Total Cyanide	-----	9013	Cool, 4 deg C	P or G	14 Days	8 oz.
Amenable Cyanide	-----	9213	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 top of sample with 2N Zinc Acetate until moistened	P or G	7 Days	8 oz.
Sulfides	-----	9215	Cool, 4 deg C	P or G	7 Days	8 oz.
Sulfate	-----	9035, 9036, 9038	Cool, 4 deg C	P or G	28 Days	8 oz.
pH, Soil and Waste	-----	9045A	Cool, 4 deg C	G	Analyze Immediately	8 oz.
Phenol	-----	9065, 9066, 9067	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	-----	9095A	Cool, 4 deg C	P or G	-----	8 oz.
Nitrate	-----	9210	Cool, 4 deg C	P or G	48 Hrs	8 oz.
Bromide	-----	9211	Cool, 4 deg C	P or G	28 Days	8 oz.
Chloride	-----	9212, 9056, 9253	None	P or G	28 Days	8 oz.
Fluoride	-----	9214	None	P	28 Days	8 oz.
Cation-Exchange Capacity	-----	9080, 9081	None	P	-----	8 oz.
DRO	-----	8015B	Cool, 4 deg C	Amber Glass	14 Days	8 oz.

GRO	-----	8015B	Cool, 4 deg C Check individual state regulations for proper preservative. NJ requires Methanol, PA requires encore samplers and NY is 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.
Radiological	-----	-----	Cool, 4 deg C	G	6 Months	8 oz.
Dioxin	-----	8280A	Cool, 4 deg C	G	14 Days	8 oz.

CLP Sampling and Holding Time Information

Parameter	EPA Method	Preservation	Container	Holding Time	Minimum Volume
METALS (aqueous)	ILM04.1	HNO_3 to pH<2, Cool 4deg C	P	180 Days from VTSR	1000ml
CYANIDE (aqueous)	ILM04.1	NaOH to pH>12, Cool 4deg C	P	12 Days from VTSR	1000ml
MERCURY (aqueous)	ILM04.1	HNO_3 to pH<2, Cool 4deg C	P	26 Days from VTSR	1000ml
VOLATILE ORGANICS (aqueous)	OLM04.2	HCL pH < 2, Cool 4deg C	G	10 Days from VTSR with preservative, 7 Days from VTSR without preservative	40ml
SEMI-VOLATILE ORGANICS (aqueous)	OMLO4.2	Cool 4deg C	G	5 Days from VTSR for extraction 40 Days after extraction	1000ml
PESTICIDES (aqueous)	OLM04.2	Na2S203, Cool 4deg C	G	5 Days from VTSR for extraction 14 Days after extraction	1000ml
PCBs (aqueous)	OLM04.2	Na2S203, Cool 4deg C	G	5 Days from VTSR for extraction 14 Days after extraction	1000ml
METALS (solid/soils)	ILM04.1	Cool 4deg C	G	180 Days from VTSR	8 oz
*CYANIDE	ILM04.1	Cool 4deg C	G	12 Days from VTSR	8 oz
MERCURY (solid/soils)	ILM04.1	Cool 4deg C	G	26 Days from VTSR	8 oz
VOLATILE ORGANICS (solid/soils)	OLM04.2	Cool 4deg C	G	10 Days from VTSR	4 oz
SEMI-VOLATILE ORGANICS (solid/soils)	OLM04.2	Cool 4deg C	G	10 Days from VTSR for extraction 40 Days after extraction	8 oz
PESTICIDES (solid/soils)	OLM04.2	Cool 4deg C	G	10 Days from VTSR for extraction 40 Days after extraction	8 oz
PCBs (solid/soils)	OLM04.2	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)

Attachment 7

Paradigm List of Halogenated VOCs and Associated Detection Limits to be Reported for Near Real-Time Samples

PARADIGM
ENVIRONMENTAL SERVICES, INC
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client:

Client Job Site:

Lab Project Number:
Lab Sample Number:

Client Job Number:
Field Location:
Field ID Number:
Sample Type: Soil

Date Sampled:
Date Received:
Date Analyzed:

Compound	Results in ug / Kg	Compound	Results in ug / Kg
Bromodichloromethane	< 10.0	1,1-Dichloroethene	< 10.0
Bromoform	< 25.0	cis-1,2-Dichloroethene	< 10.0
Bromomethane	< 10.0	trans-1,2-Dichloroethene	< 10.0
Carbon Tetrachloride	< 10.0	1,2-Dichloropropane	< 10.0
Chlorobenzene	< 10.0	cis-1,3-Dichloropropene	< 10.0
Chloroethane	< 10.0	trans-1,3-Dichloropropene	< 10.0
2-Chloroethyl vinyl Ether	< 50.0	Methylene chloride	< 25.0
Chloroform	< 10.0	1,1,2,2-Tetrachloroethane	< 10.0
Chloromethane	< 10.0	Tetrachloroethene	< 10.0
Dibromochloromethane	< 10.0	1,1,1-Trichloroethane	< 10.0
1,2-Dichlorobenzene	< 10.0	1,1,2-Trichloroethane	< 10.0
1,3-Dichlorobenzene	< 10.0	Trichloroethene	< 10.0
1,4-Dichlorobenzene	< 10.0	Trichlorofluoromethane	< 10.0
1,1-Dichloroethane	< 10.0	Vinyl chloride	< 10.0
1,2-Dichloroethane	< 10.0		

ELAP Number 10958 Method: EPA 8260B Data File: V82403.D

Comments: ug / Kg = microgram per Kilogram

Signature: ______________________________

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

VOC HAL (Non-Aqueous)

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client:

Client Job Site:

Lab Project Number:

Lab Sample Number:

Client Job Number:

Field Location:

Date Sampled:

Field ID Number:

Date Received:

Sample Type: Water

Date Analyzed:

Compound	Results in ug / L	Compound	Results in ug / L
Bromodichloromethane	< 2.00	1,1-Dichloroethene	< 2.00
Bromoform	< 5.00	cis-1,2-Dichloroethene	< 2.00
Bromomethane	< 2.00	trans-1,2-Dichloroethene	< 2.00
Carbon Tetrachloride	< 2.00	1,2-Dichloropropane	< 2.00
Chlorobenzene	< 2.00	cis-1,3-Dichloropropene	< 2.00
Chloroethane	< 2.00	trans-1,3-Dichloropropene	< 2.00
2-Chloroethyl vinyl Ether	< 10.0	Methylene chloride	< 5.00
Chloroform	< 2.00	1,1,2,2-Tetrachloroethane	< 2.00
Chloromethane	< 2.00	Tetrachloroethene	< 2.00
Dibromochloromethane	< 2.00	1,1,1-Trichloroethane	< 2.00
1,2-Dichlorobenzene	< 2.00	1,1,2-Trichloroethane	< 2.00
1,3-Dichlorobenzene	< 2.00	Trichloroethene	< 2.00
1,4-Dichlorobenzene	< 2.00	Trichlorofluoromethane	< 2.00
1,1-Dichloroethane	< 2.00	Vinyl chloride	< 2.00
1,2-Dichloroethane	< 2.00		

ELAP Number 10958 Method: EPA 8260B Data File: V82403.D

Comments: ug / L = microgram per Liter

Signature:

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

TABLE 4-1

RECOMMENDED SAMPLE CONTAINERS, PRESERVATION TECHNIQUES, AND HOLDING TIMES[a]

(Note: Footnotes are located on the last page of the table.)

VOLATILE ORGANICS

Sample Matrix	Container	Preservative[1]	Holding Time[1]
Concentrated waste samples	Method 5035: See the method. Method 5021: See the method. Methods 5031 and 5032: See the methods. Use PTFE-lined lids for all procedures.	Cool to ≤6 °C.	14 days
Aqueous samples with no residual chlorine present	Methods 5030, 5031, and 5032: 2 x 40-mL vials with PTFE-lined septum caps	Cool to ≤6 °C and adjust pH to less than 2 with H_2SO_4, HCl, or solid $NaHSO_4$	14 days
		If carbonaceous materials are present, or if MTBE and other fuel oxygenate ethers are present and a high temperature sample preparative method is to be used, do not acid preserve the samples.	*7 days*
		If vinyl chloride, styrene, or 2-chloroethyl vinyl ether are analytes of interest, collect a second set of samples without acid preservatives and analyze as soon as possible.	*7 days*

VOLATILE ORGANICS (continued)

Sample Matrix	Container	Preservative[1]	Holding Time[1]
Aqueous samples WITH residual chlorine present	Methods 5030, 5031, and 5032: 2 x 40-mL vials with PTFE-lined septum caps	Collect sample in a 125-mL container which has been pre-preserved with 4 drops of 10% sodium thiosulfate solution. Gently swirl to mix sample and transfer to a 40-mL VOA vial. Cool to ≤6 °C and adjust pH to less than 2 with H_2SO_4, HCl, or solid $NaHSO_4$.	14 days
		If carbonaceous materials are present, or if MTBE and other fuel oxygenate ethers are present and a high temperature sample preparative method is to be used, do not acid preserve the samples.	*7 days*
		If vinyl chloride, styrene, or 2-chloroethyl vinyl ether are analytes of interest, collect a second set of samples without acid preservatives and analyze as soon as possible.	*7 days*
Acrolein and acrylonitrile in aqueous samples	Methods 5030, 5031, and 5032: 2 x 40-mL vials with PTFE-lined septum caps	Adjust to pH 4-5. Cool to ≤6 °C. *These compounds are highly reactive and should be analyzed as soon as possible.*	7days
Solid samples (e.g. soils, sediments, sludges, ash)	Method 5035: See the method. Method 5021: See the method. Methods 5031 and 5032: See the methods.	See the individual methods.	14 days
		If vinyl chloride, styrene, or 2-chloroethyl vinyl ether are analytes of interest, collect a second set of samples without acid preservatives and analyze as soon as possible.	7 days

TABLE 4-1 (Continued)

SEMIVOLATILE ORGANICS/ORGANOCHLORINE PESTICIDES AND HERBICIDES

Sample Matrix	Container	Preservative[1]	Holding Time[1]
Concentrated waste samples	125-mL wide-mouth glass with PTFE-lined lid	None	Samples extracted within 14 days and extracts analyzed within 40 days following extraction.
Aqueous samples with no residual chlorine present	4 x 1-L amber glass container with PTFE-lined lid, or other size, as appropriate, to allow use of entire sample for analysis.	Cool to $\leq$6 °C.	Samples extracted within 7 days and extracts analyzed within 40 days following extraction.

TABLE 4-1 (Continued)

SEMIVOLATILE ORGANICS/ORGANOCHLORINE PESTICIDES AND HERBICIDES (continued)

Sample Matrix	Container	Preservative[1]	Holding Time[2]
Aqueous samples WITH residual chlorine present	4 x 1-L amber glass container with PTFE-lined lid, or other size, as appropriate, to allow use of entire sample for analysis.	Add 3-mL 10% sodium thiosulfate solution per gallon (or 0.008%). Addition of sodium thiosulfate solution to sample container may be performed in the laboratory prior to field use. Cool to ≤6 °C.	Samples extracted within 7 days and extracts analyzed within 40 days following extraction.
Solid samples (e.g. soils, sediments, sludges, ash)	250-mL wide-mouth glass container with PTFE-lined lid	Cool to ≤6 °C.	Samples extracted within 14 days and extracts analyzed within 40 days following extraction.

POLYCHLORINATED BIPHENYLS, POLYCHLORINATED DIBENZO-*p*-DIOXINS, AND POLYCHLORINATED DIBENZOFURANS

Sample Matrix	Container	Preservative[1]	Holding Time[2]
Concentrated waste samples	125-mL wide-mouth glass with PTFE-lined lid	None	None
Aqueous samples with no residual chlorine present	4 x 1-L amber glass container with PTFE-lined lid, or other size, as appropriate, to allow use of entire sample for analysis.	Cool to ≤6 °C.	None

TABLE 4-1 (Continued)

POLYCHLORINATED BIPHENYLS, POLYCHLORINATED DIBENZO-*p*-DIOXINS, AND POLYCHLORINATED DIBENZOFURANS (continued)			
Sample Matrix	Container	Preservative[1]	Holding Time[2]
Aqueous samples WITH residual chlorine present	4 x 1-L amber glass container with PTFE-lined lid, or other size, as appropriate, to allow use of entire sample for analysis.	Add 3-mL 10% sodium thiosulfate solution per gallon (or 0.008%). Addition of sodium thiosulfate solution to sample container may be performed in the laboratory prior to field use. Cool to ≤6 °C	None
Solid samples (e.g. soils, sediments, sludges, ash)	250-mL wide-mouth glass container with PTFE-lined lid.	Cool to ≤6 °C.	None

[a] The information presented in this table does not represent EPA requirements, but rather it is intended solely as guidance. Selection of containers, preservation techniques and applicable holding times should be based on the stated project-specific data quality objectives.

[1] The exact sample, extract, and standard storage temperature should be based on project-specific requirements and/or manufacturer's recommendations for commercially available standards. Furthermore, alternative storage temperatures may be appropriate based on demonstrated analyte stability in a given matrix, provided the stated data quality objectives for a project-specific application are still attainable.

[2] A longer holding time may be appropriate if it can be demonstrated that the reported analyte concentrations are not adversely affected from preservation, storage and analyses performed outside the recommended holding times.

Attachment 8

Resume of Maxine Wright-Walters
from Environmental Data Validation Inc.

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

APPENDIX C
(Refer to CD)

Test Boring/Well Logs and Laboratory Data Summary Tables from Previous 2006 Phase II ESA

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-1
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 14 ft.
Method Used: Geoprobe
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		N/A				Approx. 4" concrete sidewalk		
4	1	N/A	1-4'	1'	0	Dark Brown, Silt and gravel., dry, stiff.	Fill	Poor
6		N/A						
8	2	N/A	4-8'	4'	0	Dark Brown, Silt and clay to 5.5' Brown fine Sand some silt, damp, dense, slight gas odor @ 4'	ML/SM	Poor
10		N/A						
11	3	N/A	8-11'	3'	0	Brown fine Sand some silt, damp to moist @ 10', tr. gravel @ 10', dense	SM	Poor
13	4	N/A	11-13'	2'	0	Brown v. fine Sand trace silt and gravel, wet @ 12'	SP	Good
14	5	N/A	13-14'	1'	0	Same as above, wet.	SP	Good
						Total Depth 14'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-2
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 13.5 ft.
Method Used: Geoprobe
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		N/A				Approx. 4" concrete sidewalk		
4	1	N/A	.5-4'	2'	0	Brown, Silt and cinders, brick fill, followed by Black, Silt and clay, possible staining, then Brown, Silt, damp.	Fill	Poor
6								
8	2	N/A	4-8'	4'	0	Brown, Silt little sand, to 5', Brown, med.-fine Sand and silt, tr. gravel, stiff, damp.	ML/SM	Poor
11	3	N/A	8-11'	2.5'	0	Brown, fine Sand little to some silt, gravel, moist to wet, stiff.	SM	Poor
12	4	N/A	11-12'	1	0	Brown, fine-med. Sand, little silt, wet.	SM	Good
13.5	5	N/A	12-13.5'	1.5'	0	Gray/brown, fine to coarse Sand, little silt, gravel. Damp, dense.	SM	Good
						Total Depth 13.5'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-2A
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project Andrews Street
Location Rochester
Date Drilled 6/10/06
Drilling Co.: Nothnagle Drilling
Total Depth 4 ft.
Method Used: Geoprobe
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							Fill	
4	1	N/A	0-4 ft.	3 ft.	0	0-1' asphalt and crushed stone, Fill Gray brown Silt to 2.5 ft., Dark Brwn Silt and brick to 3.5 ft. Brown Silt and Sand.	ML	Poor

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-3
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/18/06
Total Depth: 13.5 ft.
Inspector: P. von Schondorf
Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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. 3" asphalt		
4	1	N/A	.5-4'	3.5'	0	.4-1.5' crushed stone 1.5-4', Brown, Silt and sand, slight black staining in soil, dry. damp.	Fill	Poor
8	2	N/A	4-8'	4'	0	Brown, Silt some sand, damp, stiff.	ML	Poor
11	3	N/A	8-11'	3'	0	Brown, med. to fn. Sand some silt, gravel, moist to wet, stiff.	SM	Good
13	4	N/A	11-13'	2'	0	Brown, med. to fn. Sand some silt, moist-wet, @12' Gray-brown, Silt, wet, possible sheen.	SM/ML	Good-Poor
15	5	N/A	13-15'	2'	0	Gray-brown, fn-med. Sand, wet to 14.5' Sand, gravel, silt, moist, dense. Total Depth 15'	SP-SM	Good-Poor

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-4
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/18/06
Total Depth: 17 ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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. 3" asphalt		
4	1	N/A	.4-4'	3.5'	0	.4-1' crushed stone 1-4', Building debris, stone, brick, dry.	Fill	Good
8	2	N/A	4-8'	4'	0	Brown, Sand and silt, mixed with Red-brown soil, possible fill, dry to damp.	SM/ML	Poor
11	3	N/A	8-11'	3'	0	Brown, Sand and silt, little gravel, damp and moist (in sandy seems), damp.	SM	Good
12	4	N/A	11-12'	1'	0	Brown v. fine Sand little silt, gravel, damp-moist.	SM	Good
13	5	N/A	12-13'	1'	0	Same as above.	SM	Good
14	6	N/A	13-14'	1'	0	Brown, Silt some v. fine sand and gravel, damp, dense.	ML	Poor
15	7	N/A	14-15'	1'	0	Brown, fine Sand little silt and gravel damp, dense.	SM	Good
17	8	N/A	15-17'	2'	0	Brown, Fine - med. Sand little-some silt and gravel, damp, dense.	SM/ML	Poor
						Total Depth 17'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-5
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/18/06
Total Depth: 20 ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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		
4	1	N/A	.3-4'	3.5'	0	Road base stone, @3.5' Black, Silt and gravel, damp, dense.	Fill/ML	Good
8	2	N/A	4-8'	4'	0	Brown, Silt little sand with fine to large gravel, sandy seams wet.	ML	Poor
11	3	N/A	8-11'	3'	0	Brown Sand and silt to 10' Med. - fine Sand little silt and gravel, damp-wet.	SM	Good
13	5	N/A	11-13'	2'	0	Brown very fine Sand little silt and gravel, dry to damp.	ML	Poor
15	7	N/A	13-15'	2'	0	Brown med-fine Sand little silt and large gravel, wet to moist, dense.	SM	Good
16.5	8	N/A	15-16.5'	1.5'	0	Same as above.	SM	Good
18	9	N/A	16.5-18'	1.5'	0	Gray-brown, very fine Sand little silt, tr. large gravel, dry-damp.	SM	Good
20	10	N/A	18-20'	2'	0	Gray-brown, very fine Sand little silt and gravel, dry, dense.	SM	Good
						Total Depth 20'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-6
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/18/06
Total Depth: 15 ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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. 3" Asphalt		
4	1	N/A	.4-4'	3.5'	0	.4-2' Gravel, 2-3' Black cinders and soil, slight septic odor, 3-4' Brown, Silt little sand, moist.	Fill/ML	Good
8	2	N/A	4-8'	4'	0	Brown, Silt and sand and fine gravel, dry-damp.	ML	Poor
11	3	N/A	8-11'	3'	0	Same as above.	ML	Poor
13	4	N/A	11-13'	2'	0	Brown, v. fine Sand little gravel, dense, wet.	SP	Good
15	5	N/A	13-15'	2'	0	Brown med. - fine Sand little silt,moist dense. Total Depth 15'	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-7
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 8 ft.
Method Used: Geoprobe
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
						Approx. 3" asphalt		
2								
4	1	N/A	.4-4'	3.5'	0	.3-1.5' crushed stone 1.5-4', Black, Silt, possible staining slight odor, dry.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Brown, Silt and v. fine sand, varved or seams with sand, dry. Total Depth 8'	ML	Poor

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-8
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 15 ft.
Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	3.5'	0	Fill, Black, Silt, cinder, rubble (ceramic) @3.5' Gray-brown Silt with black steaks (staining?), damp.	Fill/ML	Poor
8	2	N/A	4-8'	2'	0	Brown, Silt little clay, moist, slightly plastic, increasing sand with depth to sand and silt, with fine gravel, moist	ML/SM	Poor
11	3	N/A	8-11'	3'	0	Brown, Silt little sand and fine gravel, moist, sandy seams wet, dense.	ML	Poor
13	4	N/A	11-13'	2'	0	Brown, Silt trace gravel, dense, dry	ML	Poor
15	5	N/A	13-15'	1'	0	Same as above.	ML	Poor
						Total Dept 15'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

LOG OF BORING

BORING #: B-8A
Page 1 of 1
Permit #: NA
Job #:

Project: Andrews Street
Location: Rochester
Date Drilled: 6/10/06
Drilling Co.: Nothnagle Drilling
Total Depth: 4 ft.
Method Used: Geoprobe
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							Fill	
						0-1' concrete and crushed stone, Fill		
4	1	N/A	0-4 ft.	2 ft.	0.4	Black Silt some clay, moist, slight plastic. No odor	ML	Poor

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LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-9
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 13 ft.
Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	3.5'	0	Fill, Black, Silt and cinder to 1.5', Brown Silt little gravel, moist.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Brown, Silt, damp, loose.	ML	Poor
11	3	N/A	8-11'	3'	0	Brown, Silt little sand and fine gravel, moist, sandy seams wet, dense.	ML	Poor
13	4	N/A	11-13'	2'	0	Brown, Silt some gravel, dense, dry	ML	Poor
						Total Dept 13'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-10
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 15.5 ft.
Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	3.5'	2	Fill, Black Silt, cinders mixed. Damp, Moderate odor of petroleum.	Fill/ML	Poor
8	2	N/A	4-8'	2'	0	Brown Silt little clay, sand and gravel, moist, dense.	ML	Poor
11	3	N/A	8-11'	3'	0	Brown, Silt little clay, damp.	ML	Poor
12	4	N/A	11-12'	1'	0	Brown, Silt trace gravel, damp, dense.	ML	Poor
15.5	5	N/A	12-15.5'	3.5'	0	Brown gray silt some sand and gravel, dry, dense.	ML	Poor
						Total Dept 15.5'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-11
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/18/06
Total Depth: 16'
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	3.5'	0	Fill, Silt and brick to 2', Brown Silt little sand, dry, stiff.	Fill/ML	Poor
8	2	N/A	4-8'	1'	0	Brown Silt little clay, brick, soft, damp. Possible cavings.	ML	Poor
12	3	N/A	8-12'	4'	0	Brown, med.-fine Sand little silt, wet.	SM	Good
14	4	N/A	12-14'	2'	0	Brown very fine Sand little-trace silt wet.		
16	5	N/A	14-16'	2'	0	Brown-gray, fine Sand little fine gravel and silt, dense, damp.	ML	Poor
						Total Depth 16'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

LOG OF BORING

BORING #: B-12
Page 1 of 1
Permit #: NA
Job #:

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 16'
Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	3.5'	0	Fill, Brick, stone, cinder, dry, loose.	Fill/GM	Good
8	2	N/A	4-8'	4'	0	Stone to 4.5', Brown, very fine Sand little silt, c. sand and fine gravel, dry.	GM/SP	Poor
12	3	N/A	8-12'	4'	0	Brown very fine Sand little-trace silt and large gravel, dry to wet in gravel.	SP	Good
14	4	N/A	12-14'	2'	0	Brown very fine Sand little silt, dry dense.	SM	Poor
15	5	N/A	14-15'	1'	0	Gray-brown fine-med Sand little silt and gravel, dense, dry.	SM	Poor
						Total Depth 15'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-13
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth: 14'
Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	2'	0	Fill, Stone to 2', Brown-dark brown Silt, little clay, dry, loose-soft.	Fill/ML	Poor
8	2	N/A	4-8'	1'	0	Brown, Silt some sand, little gravel rock fragments, dry, loose.	ML	Poor
11	3	N/A	8-11'	3'	0	Brown Silt and very fine sand little coarse sand-fine gravel, moist.	ML	Poor
12	4	N/A	11-12'	1'	0	Brown Silt and very fine sand, dry.	ML	Poor
13	5	N/A	12-13'	1'	0	Brown Silt and sand, little gravel, dry.	ML	Poor
14	6	N/A	13-14'	1'	0	Gray-brown Sand and silt, rock frag, dense, dry.	SM	Poor
15	5	N/A	14-15'	1'	0	Gray-brown fine-med Sand little silt	SM	Poor
						Total Depth 14'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-14
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/18/06
Total Depth: 11'
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	2'	15	Fill, Cinder, stone, asphalt to 2' Silt and cinder, petrol. Odor.	Fill/ML	Poor
8	2	N/A	4-8'	1.5'	0	Brown, Silt some clay little sand moist, petroleum odor.	ML	Poor
11	3	N/A	8-11'	3'	0	Brown Sand and gravel, wet, no odor. Refusal. Total Depth 11'	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-15
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street | Location: Rochester
Date Drilled: 5/18/06 | Drilling Co.: Nothnagle Drilling
Total Depth: 11' | Method Used: Geoprobe
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
						Approx. 4" Concrete		
4	1	N/A	.3-4'	4'	28	0.4 to 1' Stone, 1'-4' Brown-black Silt and cinder, petrol. odor.	Fill/ML	Poor
8	2	N/A	4-8'	4'	2	Brown, Silt with slight odor, 5-6' Brown Silt some sand grade to little silt.	ML/SM	Poor
11	3	N/A	8-11'	3'	0	Same as above to 9.5', Brown very fine Sand little silt, dry. Total Depth 11'	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-15A
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 6/10/06
Drilling Co.: Nothnagle Drilling
Total Depth: 4 ft.
Method Used: Geoprobe
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							Fill	
4	1	N/A	0-4 ft.	4 ft.	0	0-1' concrete and crushed stone, Fill Brown sand and silt to 3.5 ft. Black stain, petroleum odor.	ML	Poor

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-16
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project Andrews Street
Location Rochester
Date Drilled 5/18/06
Drilling Co.: Nothnagle Drilling
Total Depth 17'
Method Used: Geoprobe
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
4	1	N/A	.3-4'	3'	0	Fill, concrete, stone, cinder, asphalt	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Brown, Silt and sand @ 7' dark brown stained, slight odor, moist.	ML/SM	Poor
11	3	N/A	8-11'	3'	0	Gray-brown, Sand some silt @ 10' stain and slight odor.	SM	Good
13	4	N/A	11-13'	2'	0	Same as above, slight odor.	SM	Good
15	5	N/A	13-15'	2'	0	Gray-brown, Sand some gravel, silt tight, dry-damp.	SP	Good
17	6	N/A	15-17'	2'	0	Same as above, wet in sand, dense.	SP	Good
						Total Depth 17'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-17
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project Andrews Street
Date Drilled 5/19/06
Total Depth 14'
Inspector P. von Schondorf

Location Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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
4	1	N/A	.3-4'	3'	291	Fill, Black ash, cinder, soil @1.5' brown silt, mixed with fill, moist.	Fill/ML	Poor
8	2	N/A	4-8'	3'	10	Brown, Clay fill, grading to silt little sand and clay, slight plastics, moist.	CL	Poor
12	3	N/A	8-12'	4'	0	Brown Silt little sand with lenses fine sand trace silt, moist.	ML	Poor
14	4	N/A	12-14'	2'	0	Brown very fine Sand little silt, damp.	SM	Good
						Total Depth 14'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-17A
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 6/10/06
Total Depth: 4 ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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							Fill	
4	1	N/A	0-4 ft.	4 ft.	155	Cinder fill, grading to Silt and clay fill, @3.9 ft. Brown clay, slight plastic.	CL	Poor

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-17B
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 6/10/06
Total Depth: 16 ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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					150			
4	1	N/A	0-4 ft.	4 ft.	50	Cinder fill grading to cinder, silt and clay. Soft.	CL	Poor
6					3			
8	2	N/A	4-8 ft.	4 ft.	3	Brown-Orange Clay and silt to 5 ft. grading to Sand some silt, occ grvl 3 PPM @ 8'	SM	Good
10						Same as above to 8.5 ft.		
11	3	N/A	8-11 ft.	3 ft.	3	Brown fine Sand some-little silt, moist.	SM	Good
13.5	4	N/A	11-13.5 ft.	2 ft.	0	Brown very fine Sand, little silt, wet.	SM	Good
15	5	N/A	13.5-15 ft.	1.5 ft.	0	Brown very fine Sand, little silt, wet. Sampler refusal.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-17C
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 6/10/06
Total Depth: 16 ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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								
4	1	N/A	0-4 ft.	4 ft.	0	Cinder fill grading to Cinder, Silt and clay. Soft. Staining, no odor.	CL	Poor
6								
8	2	N/A	4-8 ft.	4 ft.	0	Brown-Orange Clay and silt to 5 ft. grading to Sand some silt, occ grvl damp.	SM	Good
10								
11	3	N/A	8-11 ft.	3 ft.	0	Brown fine Sand some-little silt, moist. @10.9 ft. Silt and sand, wet.	ML	Good
12								
13	4	N/A	11-13 ft.	2 ft.	0	Brown very fine Sand, little silt, wet. Staining. @12.5 ft. Sand, grvl, silt, dense.	SM	Good
15	5	N/A	13.5-15 ft.	1.5 ft.	0	Brown Sand, silt, gravel @14 ft. Large gravel and sand.	SM	Good
16	6		15-16 ft.	1 ft.	0	Same as above. Refusal @ 16 ft.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-17D
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 6/10/06
Total Depth: 15 ft.
Inspector: P. von Schondorf
Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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								
4	1	N/A	0-4 ft.	4 ft.	.5	Cinder fill grading to Cinder, Silt and clay. Soft. Staining, no odor.	CL	Poor
6								
8	2	N/A	4-8 ft.	4 ft.	0	Brown-Orange Clay and silt to 7 ft. grading to Gravel and fine sand. damp.	GP	Good
10								
11	3	N/A	8-11 ft.	3 ft.	1.5	Brown fine Sand some-little silt, grvl, moist. @10 ft. 1.5 PPM.	SM	Good
12								
14								
15	5	N/A	11-15 ft.	4 ft.	0	Brown Sand little silt, wet @12 ft. @14 ft. Sand little silt and gravel. dry.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-17E
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 6/10/06
Total Depth: 14 ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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								
4	1	N/A	0-4 ft.	4 ft.	.5	Cinder fill grading to Cinder and sand to 2 ft. , Silt and clay. Soft. Staining. No odor.	ML	Poor
6							CL	
8	2	N/A	4-8 ft.	4 ft.	0	Brown-Orange Clay to 6 ft. grading to Silt and sand to 7 ft. , Sand little silt damp.	ML/SM	Good
10								
11	3	N/A	8-11 ft.	3 ft.	0	Brown fine Sand some-little silt, grvl, moist. Stiff.	SM	Good
12								
14	4	N/A	11-14 ft.	3 ft.	0	Same as above to 12 ft., 12-14 ft. fine Sand little silt, wet.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-17F
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project Andrews Street
Date Drilled 6/10/06
Total Depth 8 ft.
Inspector P. von Schondorf

Location Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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								
4	1	N/A	0-4 ft.	4 ft.	5	Cinder fill grading to Cinder and sand to 2 ft. , Silt and clay. Soft. Staining. No odor.	ML	Poor
6							CL	
8	2	N/A	4-8 ft.	4 ft.	0	Brown Clay to 4.5 ft. grading to Sand little silt grading to fine Sand and gravel.	ML/SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-18
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project Andrews Street
Date Drilled 5/19/06
Total Depth 13.5'
Inspector P. von Schondorf

Location Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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
4	1	N/A	0-4'	3'	0	Asphalt 3", cinder, ash and brick fill.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Brown, fine Sand little silt and fine gravel, dry, dense.	SM	Good
11	3	N/A	8-11'	3'	0	Same as above.	SM	Good
13.5	4	N/A	13.5	2.5'	0	Brown, fine Sand little-some silt, moist to wet in sand, refusal 13.5'	SM	Good
						Total Depth 13.5'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-19
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/19/06
Drilling Co.: Nothnagle Drilling
Total Depth: 9'
Method Used: Geoprobe
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
4	1	N/A	0-4'	3'	0	Building debris fill, brick, stone, dark brown Silt, loose, damp.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Brown Silt and stone, loose, wet, petroleum odor @5', collapsing.	ML/GM	Good
9	3	N/A	8-9'	1'	0	Stone, hole collapse to 4'.	ML/GM	Good
						Total Depth 9'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-20
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project Andrews Street | Location Rochester
Date Drilled 5/19/06 | Drilling Co.: Nothnagle Drilling
Total Depth 13.5' | Method Used: Geoprobe
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
4	1	N/A	0-4'	3'	0	Asphalt to 3", stone, cinders, brown layered soil, loose, damp.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Red-brown very fine Sand little silt, and gravel, damp.	SM	Good
11	3	N/A	8-11'	3'	0	Brown fine Sand some silt and fine gravel, grading to fine sand and silt. @ 10' moist-wet.	SM	Good
13.5	4	N/A	11-13.5	2'	0	Brown very fine Sand, fine gravel, dense, damp.	SP/GP	Good
						Total Depth 13.5'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-21
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/19/06
Drilling Co.: Nothnagle Drilling
Total Depth: 12.5'
Method Used: Geoprobe
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
4	1	N/A	0-4'	4'	0	Asphalt to 3", stone, cinders, coal to 3.5', Brown Silt, moist.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Brown very fine Sand little silt and gravel, moist, dense.	SM	Good
10	3	N/A	8-10'	2'	0	Brown Silt, v. Fine Sand to 9', Red-br fine Sand and gravel, dense, moist.	SM/SP	Good
11	4	N/A	10-11'	1'	0	Brown-red gravel and fine sand, dry.	GP/GM	Good
12.5	5	N/A	11-12.5'	1.5'	0	Gray brown Sand and gravel, little silt, dense, dry.	SP/GP	Good
						Total Depth 12.5'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-22
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/19/06
Drilling Co.: Nothnagle Drilling
Total Depth: 9'
Method Used: Geoprobe
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
						4" Concrete		
4	1	N/A	0.3-4'	2'	0	Brown Silt, stone, brick, cinders, damp, loose.	Fill/ML	Poor
8	2	N/A	4-8'	4'	0	Fill to 4.5', Brown Silt-very fine sand and gravel grading to very fine Sand trace gravel, dry.	ML/GM	Good
9	3	N/A	8-9'	1'	0	Brown-gray very fine Sand, slight odor, collapse to 6'.	SM	Good
						Total Depth 9'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-23
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/19/06
Total Depth: 8.5'
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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
4	1	N/A	0-4'	3'	0	Brown Silt, stone fill, damp, loose.	Fill/ML	Poor
8	2	N/A	4-8'	4'	0	Brown Silt little sand, lg. gravel, dry.	ML/GM	Poor
8.5	3	N/A	8-8.5'	0.5'	0	Same as above, refusal on rock? or old foundation.	ML/GM	Poor
						Total Depth 8.5'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-24
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street | Location: Rochester
Date Drilled: 5/19/06 | Drilling Co.: Nothnagle Drilling
Total Depth: 14' | Method Used: Geoprobe
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
4	1	N/A	0-4'	3'	0	Asphalt to 3", stone, cinders, brown Silt and sand, little fine gravel.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Fill to 5', Brown fine Sand little silt gravel, dry.	SM	Good
11	3	N/A	8-11'	3'	0	Brown fine Sand little silt, gravel, moist, loose.	SM	Good
14	4	N/A	11-14'	3'	0	Brown fine Sand little silt, gravel, wet-dry at bottom, dense.	SM/GM	Good
						Total Depth 14'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

LOG OF BORING

BORING #: B-25
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Permit #: NA
Job #:

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 11'
Method Used: Geoprobe
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
4	1	N/A	0-4'	3'	0	Asphalt to 3", stone to 2', brown Silt and sand, dry with moist intervals.	Fill/ML	Poor
8	2	N/A	4-8'	3'	0	Brown Silt @5' Wood piece, Silt little clay, damp.	ML	Poor
11	3	N/A	8-11'	3'	0	Brown Silt some sand changing to very fine sand little silt, moist.	ML/SM	Good
						Total Depth 11'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-26
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 8'
Method Used: Geoprobe
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
4	1	N/A	0-4'	3'	0	Asphalt to 3", stone to 1.5', brown Silt and large gravel grading to Silt and sand.	ML	Poor
8	2	N/A	4-8'	3'	0	Brown Silt @5' Sand and gravel , clay, damp to dry.	ML	Poor
						Total Depth 8'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-27
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street | Location: Rochester
Date Drilled: 5/19/06 | Drilling Co.: Nothnagle Drilling
Total Depth: 13.5' | Method Used: Geoprobe
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
4	1	N/A	0.3-4'	3'	0	0.3' concrete Brick, cinders and silt to 2.5', black stain @2', 2.5-4' brown sand some silt, no odors.	ML/SM	Poor
8	2	N/A	4-8'	3'	0	Brown Silt some sand grading to sand little silt, dry.	ML/SM	Poor-good
	3	N/A	8-10'	2'	0	Brown Sand, little silt.	SM	Good
12	4	N/A	10-12'	2'	0	Same as above, moist.	SM	Good
13	5	N/A	12-13'	1'	0	Same as above, moist.	SM	Good
13.5	6	N/A	13-13.5'	.5'	0	Brown Sand, little silt, dense, damp.	SM	Good
						Total Depth 13.5'		

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Environmental Engineers & Scientists

BORING #: B-28
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/19/06
Drilling Co.: Nothnagle Drilling
Total Depth: 13'
Method Used: Geoprobe
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
						0.3' concrete		
4	1	N/A	0.3-4'	3'	0	Fill, gravel, cinders, glass, silt.	ML	Poor
8	2	N/A	4-8'	3'	0	Fill, gravel, cinders, brick, silt.	ML/GM	Poor-good
9	3	N/A	8-9'	1'	0	Same as above, stain at 9'.	ML/GM	Poor-good
11	4	N/A	9-11'	2'	0	Brown Silt some sand, gravel, damp.	ML/SM	Poor-good
12	5	N/A	11-12'	1'	0	Same as above.	ML/SM	Poor-good
13	6	N/A	12-13'	1'	0	Brown fine Sand, some silt, gravel.	SM	Good
						Total Depth 13'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-29
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/19/06
Drilling Co.: Nothnagle Drilling
Total Depth: 13'
Method Used: Geoprobe
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
						0.3' concrete		
4	1	N/A	0.3-4'	3'	0	Dark Brown Silt little clay changing to brown silt little clay, moist.	ML	Poor
8	2	N/A	4-8'	3'	0	Brown Silt, very fine sand little gravel, damp.	ML/SM	Poor-good
10	3	N/A	8-10'	2'	0	Brown fine Sand, moist to damp, stiff.	SP	Good
12	4	N/A	10-12'	2'	0	Brown fine Sand little to some fine gravel, dry, stiff.	SP/GP	Good
13	5	N/A	12-13'	1'	0	Brown Sand and gravel, little silt, dry.	SP/GP	Good
						Total Depth 13'		

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Environmental Engineers & Scientists

BORING #: B-30
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 14'
Method Used: Geoprobe
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
						0.3' concrete		
4	1	N/A	0.3-4'	2'	0	Dark brown and black, Silt and stone.	ML/GM	Good
8	2	N/A	4-8'	3'	0	Brown large gravel, very fine sand, little silt, dry.	GP/GM	Good
11	3	N/A	8-11'	3'	0	Brown fine Sand some silt, gravel grading to gray-brown sand and silt.	SM	Good
12.5	4	N/A	11-12.5'	1.5'	0	Brown Silt, some-little sand and gravel.	ML/GM	Poor
14	5	N/A	12.5-14'	1.5'	0	Same as above.	ML/GM	Poor
						Total Depth 14'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-31
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 14'
Method Used: Geoprobe
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
4	1	N/A	0-4'	1'	0	Brown Silt and gravel, fill.	ML/GM	Good
8	2	N/A	4-8'	2.5'	0	Brown Sand little silt trace gravel, dry.	SM	Good
11	3	N/A	8-11'	2'	0	Brown Sand little gravel, wet.	SM	Good
13	4	N/A	11-13'	2'	0	Brown Sand some gravel, wet.	SP/GP	Good
14	5	N/A	12.5-14'	1'	0	Gray brown Sand and gravel, wet, slight petroleum odor.	SP/GP	Good
						Total Depth 14'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-32
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 16'
Method Used: Geoprobe
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
4	1	N/A	0-4'	4'	1280	Brown silt and stone, solvent odor	ML/GM	Good
8	2	N/A	4-8'	3'	1700	Brown Sand little silt trace gravel, dry.	SM	Good
11	3	N/A	8-11'	3'	2000	Brown Sand some silt, wet.	SM	Good
13	4	N/A	11-13'	2'	1200	Same as above.	SM	Good
14	5	N/A	13-14'	1'	250	Same as above.	SM	Good
16	6	N/A	14-16'	1'	1500	Gray-brown Silt very fine sand, wet.	ML/SM	Poor
						Total Depth 16'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-32A
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street | Location: Rochester
Date Drilled: 6/10/06 | Drilling Co.: Nothnagle Drilling
Total Depth: 18 ft. | Method Used: Geoprobe
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						0-1 ft. Concrete and crushed stone.		
4	1	N/A	0-4 ft.	2 ft.	0	Brown Silt, coal particles to 3.9 ft. Brown Silt with black streaks, damp, stiff.	Fill	Poor
6								
8	2	N/A	4-8 ft.	4 ft.	0	Brown Silt and sand, occ gravel, @ 6 ft. Gray Sand.	ML SP	Poor Good
					3.5	@ 9 ft. moist with VOCs		
10								
12	3	N/A	8-10 ft.	4 ft.	10	Brown Sand some silt, occ gravel damp to moist.	SM	Good
14	4	N/A	10-12 ft.	2 ft.	36	Brown fine Sand some silt.	SM	Good
16								
18	5	N/A	12-14 ft.	4 ft.	155	Brown Sand some silt, occ gravel till like, moist.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-32B
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 6/10/06
Total Depth: 16.5 ft.
Inspector: P. von Schondorf
Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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						0-1 ft. Concrete and crushed stone.		
4	1	N/A	0-4 ft.	3 ft.	0.5	Dark brown, fine Sand. @1.4 ft. dark brown Silt little clay.	Fill	Poor
6						Brown Clay, slightly plastic to 6 ft.	CL	Poor
						Brown Silt, some clay to 7 ft.	ML	Poor
8	2	N/A	4-8 ft.	4 ft.	0	Brown Sand some silt, stiff.	SM	Good
10								
12	3	N/A	8-12 ft.	3.5 ft.	0	Brown Sand to 11 ft. Silt to 11.5 ft. Brown Sand some silt to 12 ft. stiff moist.	SM	Good
14	4	N/A	12-14 ft.	2 ft.	0	Brown fine Sand some-little silt.	SM	Good
16						Brown gray Sand some silt, till,		
16.5	5	N/A	14-16.5 ft.	2.5 ft.	0	dry to moist. Sampler refusal.	SM	Good

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-32C
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 6/10/06
Drilling Co.: Nothnagle Drilling
Total Depth: 16.5 ft.
Method Used: Geoprobe
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						0-1 ft. Concrete and crushed stone.		
4	1	N/A	0-4 ft.	3 ft.	0	Fill, Silt, brick, and cinders to 2.5 ft. Dark brown Silt little sand, dry, stiff, possible fill	Fill	Poor
6								
8	2	N/A	4-8 ft.	4 ft.	0	Brown Silt and clay, occ gravel, rock frag @ 7 ft. fine Sand, stiff.	ML SM	Good
10								
12	3	N/A	8-12 ft.	4 ft.	0	Brown Clay some silt to 9 ft. varved silt and fine sand.	CL/SM	Poor/Good
14	4	N/A	12-14 ft.	2 ft.	0	Brown fine Sand some-little silt, grvl	SM	Good
16 16.5	5	N/A	14-16.5 ft.	2.5 ft.	0	Brown gray Sand some silt,grvl dry to moist. Sampler refusal.	SM	Good

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Environmental Engineers & Scientists

BORING #: B-33
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 15'
Method Used: Geoprobe
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
4	1	N/A	0-4'	4'	0	Brown silt some sand fill, trace fine gravel.	ML/SM	Good
8	2	N/A	4-8'	3'	0	Brown Silt little sand and clay, slight plastic, damp.	ML/CL	Poor
11	3	N/A	8-11'	3'	0	Brown Silt little sand trace gravel, wet.	ML/SM	Poor
13	4	N/A	11-13'	2'	0	Brown very fine Sand some silt, wet	SM/ML	Good
15	5	N/A	13-15'	2'	0	Brown Sand some silt, gravel, dry.	SM/ML	Poor
						Total Depth 15'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-34
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/22/06
Total Depth: 15'
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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
4	1	N/A	0-4'	4'	0	Brown silt some sand fill, trace fine gravel.	ML/SM	Good
8	2	N/A	4-8'	3'	0	Brown Silt little sand and clay, slight plastic, damp.	ML/CL	Poor
11	3	N/A	8-11'	3'	50	Brown Silt little sand trace gravel, wet.	ML/SM	Poor
13	4	N/A	11-13'	2'	128	Brown very fine Sand some silt, wet	SM/ML	Good
15	5	N/A	13-15'	2'	8	Brown Sand some silt, gravel, dry.	SM/ML	Poor
						Total Depth 15'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-35
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Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 5/22/06
Total Depth: 18'
Inspector: P. von Schondorf
Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: Geoprobe
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
						4" Concrete		
4	1	N/A	0.3-4'	2.5'	0	Brown black, cinders, Silt and clay.	ML	Poor
8	2	N/A	4-8'	3'	0	Brown Silt and clay little-trace sand. @7' very fine sand some silt, moist.	ML/CL	Poor
11	3	N/A	8-11'	3'	0	Brown very fine Sand some silt, moist.	SM/ML	Good-poor
13	4	N/A	11-13'	3'	0	Brown fine Sand some silt, lenses sand trace silt, moist to wet.	SM/ML	Good-poor
15	5	N/A	13-15'	3'	0	Brown Sand some silt and large gravel, dry.	SM/ML	Good-poor
17	6	N/A	15-17'	2'	0	Gray brown sand and silt, some gravel, red sandstone fragments	SM/ML	Good-poor
18	7	N/A	17-18'	1'	4	Same as above.	SM/ML	Good-poor
						Total Depth 18'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-36
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Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 15.5'
Method Used: Geoprobe
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
4	1	N/A	0.3-4'	3'	0	4" Concrete Brown black, cinders, ash, stone to 4' silt in tip.	ML/SP	Poor-good
8	2	N/A	4-8'	4'	0	Gray-Brown-Orange Silt little-trace clay @ 6' Silt some fine sand and gravel, damp.	ML/CL SM	Poor Good
11	3	N/A	8-11'	3'	0	Brown Sand some-little silt and large gravel, moist.	SM	Good
13	4	N/A	11-13'	3'	0	Brown very fine Sand little silt, large gravel, dry.	SM	Good
15.5	5	N/A	13-15.5'	2.5'	0	Same as above wit large gravel, occ. Clay seam.	SM	Good
						Total Depth 15.5		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: B-37
Page 1 of 1
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 5/22/06
Drilling Co.: Nothnagle Drilling
Total Depth: 13'
Method Used: Geoprobe
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
4	1	N/A	0.3-4'	3'	0	4" Concrete Brown black, cinders, ash, stone to 4' silt in tip.	ML/SP	Poor-good
8	2	N/A	4-8'	4'	0	Gray-Brown-Orange Silt little-trace clay @ 6' Silt some fine sand and gravel, damp.	ML/CL SM	Poor Good
11	3	N/A	8-11'	3'	0	Brown Sand some-little silt and large gravel, moist.	SM	Good
13	4	N/A	11-13'	3'	0	Brown very fine Sand little silt, large gravel, dry.	SM	Good
						Total Depth 13'		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: MW-1
Page 1 of 2
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Location: Rochester
Date Drilled: 6/10/06
Drilling Co.: Nothnagle Drilling
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 ENVIRONMENTAL,INC

Environmental Engineers & Scientists

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
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

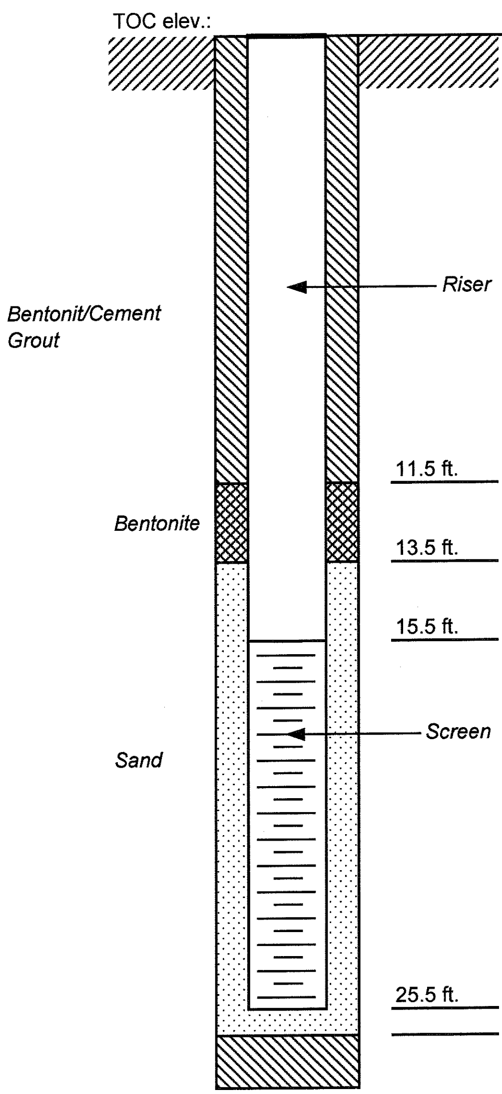
WELL CONSTRUCTION SUMMARY

Project: Andrews St.

Location: Rochester

Well No.: MW-1
Permit No.: NA

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:	12-Jul-06	7/12/2006

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

BORING #: MW-2

Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street
Date Drilled: 6/10/06
Total Depth: 27 Ft.
Inspector: P. von Schondorf

Location: Rochester
Drilling Co.: Nothnagle Drilling
Method Used: CME-55 Hollow Stem Augers w/ Macro Core
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. 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 ENVIRONMENTAL,INC

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								

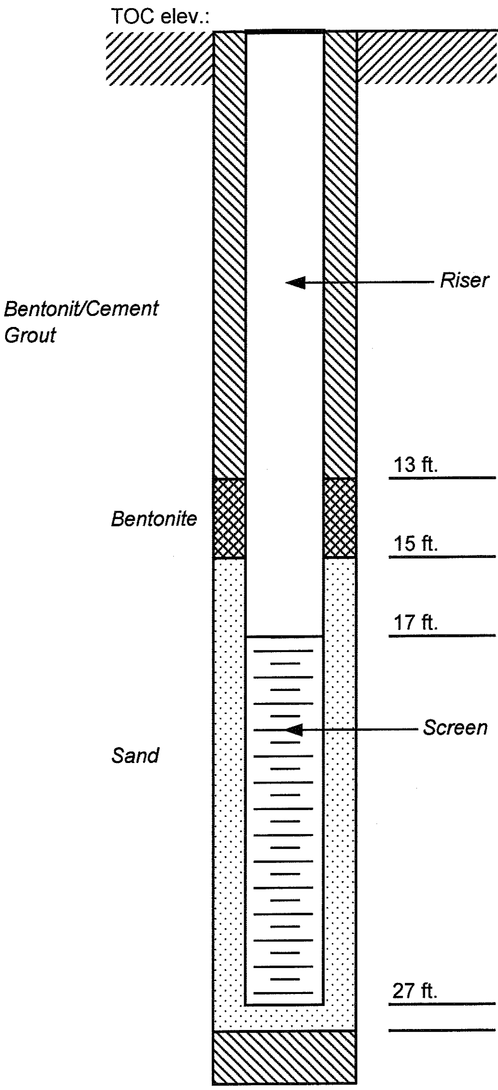
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Andrews St. | Location: Rochester | Well No.: MW-2
Permit No.: NA

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: 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

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: MW-3
Page 1 of 2
Permit #: NA
Job #:

LOG OF BORING

Project: Andrews Street | Location: Rochester
Date Drilled: 6/10/06 | Drilling Co.: Nothnagle Drilling
Total Depth: 30 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
						Approx. 2" asphalt and 10" stone		
2								
4	1	N/A	0-4'	4'	.5	Black cinders to 1.5', 1.5' -4' Brown silt and clay occ. Sand, grvl, moist.	Fill CL SP	Poor Poor Good
6								
8	2	N/A	4-8'	4'	.5	Brown clay and silt to 4.2' Brown fine Sand, occ. Grvl, tr-little silt.	SP	Good
11	3	N/A	8-11'	3'	0	Same as above. Stain @ 9'. Inc. grvl wet at 11'.	SP	Good
13	4	N/A	11-13'	2'	0	Same as above occ. Silt layers.	SP/ML	Good/Poor
16	5	N/A	13-16'	3'	0	Brown gray fine Sand, occ. Grvl, tr. silt, dry, dense.	SP	Good/Poor
18	6	N/A	17-18'	1'	0	Brn gray, fine Sand, silt, grvl, dense.	SM	Good
20	7	N/A	20-21.2	1.2'	0	Brn gray, fine Sand, grvl, tr silt, dense, dry-damp.	SP	Good

LEADER ENVIRONMENTAL,INC

Environmental Engineers & Scientists

BORING #: MW-3
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								
27	8	N/A	25-27	2	0	Brown, Sand and clay layers, wet.	SM	Good/Poor
28								
30						Auger 30 ft. Terminate hole.		
32								
34								
36								
38								
40								
42								
44								
46								

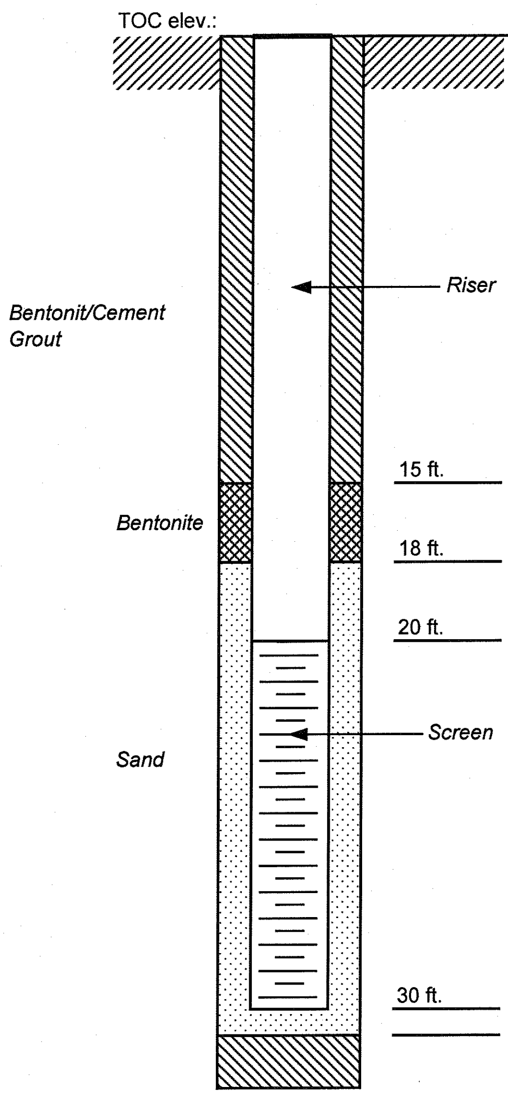
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Andrews St. Location: Rochester Well No.: MW-3
Permit No.: NA

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:	30 ft.	Depth To Water:	11.3 ft.
Supervisor Geologist:	P.von Schondorf		

WELL DESIGN

Casing Material:	PVC	Diameter:	2 in.
Screen Size:	PVC	Diameter:	2 in.
Slot Size:	0.01	Setting:	20 to 30 ft.
Backfill		Setting:	
Filter Material:	Sand	Setting:	18 to 40 ft.
Seals Material:	Bentonite	Setting:	15 to 18 ft.
Sand Cap		Setting:	
Grout:	Bentonite/Cement	Setting:	0.5 to 15 ft.
Surface Casing Material:	Roadbox	Setting:	

TIME LOG

	Started	Completed
Drilling:	12-Jul-06	12-Jul-06
Installation:	12-Jul-06	12-Jul-06
Development:	13-Jul-06	13-Jul-06

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	11.9		
Pumping Depth To Water:			
Pumping Rate:		Spec. Capacity:	
Volume Pumped:	20 gallons		

TABLE 2
Summary of Soil Sample Data
Andrews Street Project
City of Rochester

Sample Id.	TAGM 4046/STARS	B-2	B-2A	B-6	B-8	B-8A	B-10	B-14	B-15	B-15A	B-17	B-17A	B-17B	B-17E	B-17F	B-22	B-32	B-32A	B-32B	B-34	MW-2	MW-3
Depth	Recommend Soil Cleanup Objectives	2.5 ft.	2.5 ft.	3.5 ft.	1.5 ft.	1.5 ft.	2.5 ft.	6 ft.	4 ft.	4 ft.	1 ft.	1 ft.	7 ft.	3 ft.	4 ft.	8.5 ft.	8 ft.	18 ft.	16 ft.	9 ft.	4 ft.	3.9 ft.
units	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Acetone	**200**	ND	120	ND	ND	ND	ND	ND	180	ND	ND	ND	ND	81	ND	ND	ND	ND	ND	ND	43	ND
Benzene	**60/14**	ND	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	**300**	ND	29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butlybenzene	**100**	ND	ND	ND	ND	ND	ND	ND	ND	1300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	**300**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.8	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachoroethane	**1,400**	1120	140	53.2	721	55	322	217	961	ND	**3,560,000**	**270,000**	18	**21,000**	**13,000**	ND	**12,300**	**18,000**	**4,400**	191	100	**5200**
Trichloroethene	**700**	43.5	ND	ND	16	ND	ND	ND	ND	ND	ND	ND	ND	**1,300**	ND	ND	ND	ND	ND	ND	12	ND
sec-Butylbenzene	**100**	ND	ND	ND	ND	ND	11.6	ND	73.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	**100**	ND	ND	ND	ND	ND	ND	83.1	28.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	**100**	ND	ND	ND	ND	ND	ND	ND	18.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	**100**	ND	ND	ND	ND	ND	23.1	123	181	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	**13,000/200**	ND	ND	ND	ND	ND	88.2	**909**	ND	**860**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	**133**	**1,910**	**160**	**3,100**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	**101**	**556**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Volatiles	**<10,000**	1,163.5	301.0	53.2	737.0	55.0	678.9	3,798.1	1,602.2	6,260.0	**3,560,000.0**	**270,000.0**	18.0	**22,387.8**	**13,000.0**	0.0	**12,300.0**	**18,000.0**	4,400.0	191.0	155.0	5,200.0
PCB 1016	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA
PCB 1221	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA
PCB 1232	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA
PCB 1242	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA
PCB 1248	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA
PCB 1254	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA
PCB 1260	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA

TABLE 4
Summary of Groundwater Results
Andrews Street Project
City of Rochester

Sample Id.	NYSDEC TOGs 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations ug/L	MW-1	MW-2	MW-3
Depth		15-25 ft.	17-27.5 ft.	20-30 ft.
units		ug/L	ug/L	ug/L
Acetone	50	ND	ND	ND
Benzene	1	ND	ND	ND
2-Butanone	50	ND	ND	ND
n-Butlybenzene	5	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	11	ND
Tetrachoroethane	5	70,000	420	1,000
Trichloroethene	5	ND	26	ND
sec-Butylbenzene	5	ND	ND	ND
n-Propylbenzene	5	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND
p-Isopropyltoluene	5	ND	ND	ND
Naphthalene	10	ND	ND	ND
1,2,4-Trimethylbenzene	5	ND	ND	ND
1,3,5-Trimethylbenzene	5	ND	ND	ND

APPENDIX D
(Refer to CD)

Sample Log (Table 1) and Laboratory Data Summary Tables
for Soil Samples (Table 5 through 8) from
Previous 2010/2011 At-Grade and Sub-Grade Demolition Work

Table 1

At-Grade and Sub-Grade Demolition Report
300, 304-308, 320 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Sample Log

Lab Sample Number	Sample ID	Collection Date	Collection Time	Composite or Grab	PID Reading (PPM)	Depth (ft bgs)	Relative Elevation	Adjusted Depth (ft bgs) (1)	Matrix	MS/MSD Collected	Collection Rational	Analytical Test Parameters
001	Basement Water	8/25/2010	16:05	Comp.	NA	NA	Below Grade	12	Water	No	320 Andrews St M.C. Pure Waters Sewer Use Permit	VOCs and SVOCs
002	HM-1	10/19/2010	11:35	Grab	3.3 (2)	4	At-Grade	4	Concrete	No	304 - 308 Andrews St Evaluate Bollard Footer Bottom Surface	TCL VOCs + TICs
003	HM-2	10/19/2010	11:40	Grab	3.3 (2)	0-0.5	At-Grade	0-0.5	Concrete	No	304 - 308 Andrews St Evaluate Bollard Footer Top Surface	TCL VOCs + TICs
004	S-1	10/19/2010	12:00	Grab	11.4	2	At-Grade	2.0	Soil	Yes	304 - 308 Andrews St Evaluate the soil at the midpoint of Bollard Void	Full Suite
005	HM-3	11/19/2010	10:00	Grab	15.6	NA	At-Grade	0.5	Concrete	No	25 Evans St Waste Evaluation	TCL VOCs + TICs (3)
006	HM-4	11/19/2010	10:40	Grab	21.3	NA	At-Grade	0.5	Concrete	No	25 Evans St Waste Evaluation	TCL VOCs + TICs (3)
007	HM-5	11/19/2010	11:00	Grab	19.6	NA	At-Grade	0.5	Concrete	No	25 Evans St Waste Evaluation	TCL VOCs + TICs (3)
008	HM-6	11/19/2010	11:40	Grab	12.9	NA	At-Grade	0.5	Concrete	No	25 Evans St Waste Evaluation	TCL VOCs + TICs (3)
009	HM-7	11/19/2010	12:10	Grab	0.9	NA	At-Grade	0.5	Concrete	No	25 Evans St Waste Evaluation	TCL VOCs + TICs (3)
010	HM-8	11/19/2010	12:30	Grab	2.2	NA	At-Grade	0.5	Concrete	Yes	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs (3)
011	HM-9	11/19/2010	12:45	Grab	4.3	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs (3)
012	HM-10	11/19/2010	13:10	Grab	3	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs (3); TCLP VOCs
013	HM-11	11/19/2010	13:30	Grab	1.6	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs (3)
014	HM-12	11/19/2010	13:40	Grab	1.7	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs (3)
015	HM-16	11/19/2010	14:30	Grab	24.2	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs (3)
016	FB111910	11/19/2010	11:30	Grab	NA	NA	NA	NA	Water	No	Field Blank - Equipment Rinsate Sample	TCL VOCs + TICs
017	S-2	11/16/2010	12:29	Grab	0	0-0.5	Below Grade	8-8.5	Soil	No	304-308 Andrews St Confirmatory Clean Sample	Full Suite

Table 1

At-Grade and Sub-Grade Demolition Report
300, 304-308, 320 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Sample Log

Lab Sample Number	Sample ID	Collection Date	Collection Time	Composite or Grab	PID Reading (PPM)	Depth (ft bgs)	Relative Elevation	Adjusted Depth (ft bgs) (1)	Matrix	MS/MSD Collected	Collection Rational	Analytical Test Parameters
	S-3	11/16/2010	12:32	Grab	0	6	Below Grade	6	Soil	No	Waste Evaluation of STR-2A and STR-2B 304-308 Andrews St	Not Analyzed
018	S-4	11/16/2010	12:44	Grab	0	0-0.5	Below Grade	8	Soil	No	300 Andrews St Confirmatory Clean Sample	Full Suite
	STR-1	11/16/2010	14:30	Grab	0	NA	Below Grade	8	Soil	No	304-308 Andrews St Waste Evaluation of Ash/Soot Like Material found in STR-1	Not Analyzed
019	S-5	11/16/2010	15:00	Grab	0	2-3	Below Grade	10	Soil	Yes	304-308 Andrews St STR-1 Soil Sample from immediately below Structure	Full Suite
	S-6	11/17/2010	12:45	Grab	0	0-0.5	At-Grade	0.5-1	Soil	No	300 Andrews St Confirmatory Clean Sample	Not Analyzed
020	S-7	11/17/2010	12:50	Grab	0	0-0.5	Below Grade	4.5-5	Soil	No	300 Andrews St Confirmatory Clean Sample	Full Suite
	S-8	11/17/2010	14:45	Grab	0	0-0.5	At-Grade	0.5-1	Soil	No	304-308 Andrews St Confirmatory Clean Sample	Not Analyzed
021	S-9	11/18/2010	9:45	Grab	0	1.0	Above-Grade	1.5 (3)	Soil	Yes	300 Andrews St Confirmatory Clean Sample	Full Suite and TCLP Lead
022	HM-13	11/19/2010	13:50	Grab	7.6	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs
023	HM-14	11/19/2010	14:00	Grab	2.3	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs
024	HM-15	11/19/2010	14:20	Grab	1.1	NA	At-Grade	0.5	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs
025	HM-17	12/1/2010	7:30	Grab	0	0.5-1.0	Below Grade	9.5-10	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs
026	HM-18	12/1/2010	7:45	Grab	0.1	3	Below Grade	3.0	Concrete	No	304-308 Andrews St Waste Evaluation	TCL VOCs + TICs
027	HM-19	12/6/2010	13:15	Grab	0.7	3	Below Grade	3.0	Concrete	No	304-308 Andrews St STR-4 Waste Evaluation	TCLP PCE
028	STR-1	12/6/2010	12:30	Grab	7.9	NA	Below Grade	8	Soil	No	304-308 Andrews St STR-1 Waste Evaluation	TCLP Metals and pH
029	S-10	12/6/2010	11:00	Grab	3.9	0.5-1	Below Grade	8.5-9	Soil	Yes	304-308 Andrews St Confirmatory Clean Sample	Full Suite
030	Excavation Water	12/8/2010	15:25	Grab	NA	NA	Below Grade	8	Water	No	304-308 Andrews St M.C. Pure Waters Sewer Use Permit	RCRA Metals, SVOCs, VOCs
031	HM-20	1/10/2011	11:30	Grab	0	0.25"-0.75"	At-Grade	0.25"-0.75"	Concrete	No	304-308 Andrews St Conceptual Model	TCL VOCs

Table 1

At-Grade and Sub-Grade Demolition Report
300, 304-308, 320 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Sample Log

Lab Sample Number	Sample ID	Collection Date	Collection Time	Composite or Grab	PID Reading (PPM)	Depth (ft bgs)	Relative Elevation	Adjusted Depth (ft bgs) (1)	Matrix	MS/MSD Collected	Collection Rational	Analytical Test Parameters
032	HM-21	1/10/2011	12:06	Grab	0	0.25"-0.75"	At-Grade	0.25"-0.75"	Concrete	No	304-308 Andrews St Conceptual Model	TCL VOCs
033	S-11	1/18/2011	10:25	Grab	1.1	3	Below Grade	14	Soil	Yes	320 Andrews St Confirmatory Clean	Full Suite
	S-12	1/18/2011	11:15	Grab	0.4	4.5	Below Grade	15.5	Soil	No	320 Andrews St Confirmatory Clean	Not Analyzed
034	S-13	1/18/2011	11:25	Grab	0.4	3	Below Grade	14	Soil	No	320 Andrews St Confirmatory Clean	Full Suite
035	S-14	1/18/2011	12:00	Grab	1.3	3	Below Grade	14	Soil	No	320 Andrews St Confirmatory Clean	Full Suite
	S-15	1/18/2011	12:16	Grab	0.9	4.5	Below Grade	15.5	Soil	No	320 Andrews St Confirmatory Clean	Not Analyzed
	S-16	1/18/2011	13:40	Grab	0	4.5	Below Grade	15.5	Soil	No	320 Andrews St Confirmatory Clean	Not Analyzed
036	S-17	1/18/2011	14:15	Grab	208	3	Below Grade	14	Soil	Yes	320 Andrews St Confirmatory Clean	Full Suite
037	HM-22	1/19/2011	9:45	Grab	0.5	0-0.75	At-Grade	0-0.75	Concrete	No	304-308 Andrews St Waste Characterization	PCBs and TCLP Metals
	HM-23	1/19/2011	10:00	Grab	4.8	0-0.75	At-Grade	0-0.75	Concrete	No	304-308 Andrews St Waste Characterization	Not Analyzed
	S-18	1/24/2011	10:35	Grab	104	2.0	At-Grade	2.0	Soil	No	25 Evans St Trench Drain Evaluation	Not Analyzed
	S-19	1/24/2011	10:30	Grab	47.8	2.0	At-Grade	2.0	Soil	Yes	25 Evans St Trench Drain Evaluation	Not Analyzed
	S-20	1/24/2011	10:45	Grab	40.7	2.0	At-Grade	2.0	Soil	No	25 Evans St Trench Drain Evaluation	Not Analyzed
	S-21	1/24/2011	10:50	Grab	25.2	2.0	At-Grade	2.0	Soil	No	25 Evans St Trench Drain Evaluation	Not Analyzed
	S-22	1/24/2011	11:45	Grab	10	2.0	At-Grade	2.0	Soil	No	25 Evans St Trench Drain Evaluation	Not Analyzed
	S-23	1/24/2011	12:00	Grab	0	0.5	At-Grade	1.0	Soil	No	25 Evans St Confirmatory Clean	Not Analyzed
038	Vehicle Service Pit	1/24/2011	13:00	Grab	0	1.0	At-Grade	1.5	Water	No	25 Evans St M.C. Pure Waters Sewer Use Permit	VOCs, SVOCs, RCRA Metals, pH
039	S-24	1/24/2011	14:30	Grab	20	2.0	At-Grade	2.0	Soil	No	25 Evans St Confirmatory Clean	Full Suite
	S-25	1/25/2011	10:40	Grab	3.8	3.0	At-Grade	3.0	Soil	No	25 Evans St Trench Drain Evaluation - test pit	Not Analyzed
040	S-26	1/25/2011	11:00	Grab	104	2.0	At-Grade	2.0	Soil	No	25 Evans St Trench Drain Evaluation - test pit	Full Suite

Table 1

At-Grade and Sub-Grade Demolition Report
300, 304-308, 320 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Sample Log

Lab Sample Number	Sample ID	Collection Date	Collection Time	Composite or Grab	PID Reading (PPM)	Depth (ft bgs)	Relative Elevation	Adjusted Depth (ft bgs) (1)	Matrix	MS/MSD Collected	Collection Rational	Analytical Test Parameters
	S-27	1/25/2011	11:15	Grab	13.6	4.0	At-Grade	4.0	Soil	No	25 Evans St Trench Drain Evaluation - test pit	Not Analyzed
041	S-28	1/25/2011	11:30	Grab	26.7	1.5	At-Grade	1.5	Soil	No	25 Evans St Trench Drain Evaluation - test pit	Full Suite
042	S-29	1/25/2011	11:25	Grab	188	3.5	At-Grade	3.5	Soil	Yes	25 Evans St Trench Drain Evaluation - test pit	Full Suite
043	S-30	1/26/2011	10:15	Grab	0	6.5	At-Grade	1.0	Soil	No	25 Evans St Well/Sump-1 Evaluation	Full Suite
044 (4)	HM-24	1/27/2011	11:30	Grab	40.9	2.0	At-Grade	2.0	Concrete	No	25 Evans St Trench Drain Characterization	TCLP VOCs, TCLP Metals, pH
	HM-25	1/27/2011	11:45	Grab	42.7	2.0	At-Grade	2.0	Concrete	No	25 Evans St Trench Drain Characterization	
	HM-26	1/27/2011	12:00	Grab	1	NA	At-Grade	2.0	Concrete	No	25 Evans St Trench Drain Characterization	
045	S-31	1/31/2011	14:00	Grab	1.1	0.5	At-Grade	1.0	Soil	No	304-308 Andrews St - Adjacent to a 2-inch diameter metal pipe immediately below building slab	Full Suite
	S-32	1/31/2011	14:20	Grab	0.8	0.5	At-Grade	1.0	Soil	No	304-308 Andrews St - Spatial coverage	Not Analyzed
	S-33	1/31/2011	14:40	Grab	0	0.5	At-Grade	1.0	Soil	No	304-308 Andrews St - Spatial coverage	Not Analyzed
046	S-34	1/31/2011	15:30	Grab	0	2.5	At-Grade	2.5	Soil	Yes	304-308 Andrews St - Black fill material containing coal, cinders, glass brick etc.	Full Suite
	S-35	2/7/2011	14:55	Grab	0	0-0.5	At-Grade	0.5-1.0	Soil	No	320 Andrews St - Silty sand with gravel (fill) beneath floor slab location	Not Analyzed
	S-36	2/7/2011	15:05	Grab	0	0-0.5	At-Grade	0.5-1.0	Soil	No	320 Andrews St - Silty sand with gravel (fill) beneath floor slab location	Not Analyzed
	S-37	2/7/2011	12:05	Grab	0	0.5	At-Grade	4	Soil	Yes	320 Andrews St - Silty sand with gravel (fill) beneath pier/footer location	Not Analyzed
	S-38	2/7/2011	13:30	Grab	0	0.5	At-Grade	4	Soil	No	320 Andrews St - Silty sand with gravel (fill) beneath pier/footer location	Not Analyzed
	S-39	2/8/2011	10:27	Grab	0	4	At-Grade	4	Soil	No	320 Andrews St - Brown silty sand with gravel (fill) beneath pier/footer location	Not Analyzed
	S-40	2/8/2011	10:45	Grab	0	4	At-Grade	4	Soil	No	320 Andrews St - Brown silty sand with gravel (fill) beneath pier/footer location	Not Analyzed

Table 1

At-Grade and Sub-Grade Demolition Report
300, 304-308, 320 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Sample Log

Lab Sample Number	Sample ID	Collection Date	Collection Time	Composite or Grab	PID Reading (PPM)	Depth (ft bgs)	Relative Elevation	Adjusted Depth (ft bgs) [(1)]	Matrix	MS/MSD Collected	Collection Rational	Analytical Test Parameters
	S-41	2/8/2011	14:55	Grab	1.1	4	At-Grade	4	Soil	No	320 Andrews St - Brown silty sand with gravel (fill) beneath pier/footer location	Not Analyzed
	S-42	2/9/2011	9:00	Grab	3.8	4	At-Grade	4	Soil	No	320 Andrews St - Silty sand with gravel (fill) beneath pier/footer location	Not Analyzed
047	S-43	2/9/2011	9:40	Grab	4.2	4	At-Grade	4	Soil	No	320 Andrews St - Brown silty sand with gravel, some black staining or black sand (fill) beneath pier/footer location	Full Suite
	S-44	2/9/2011	10:35	Grab	0.7	4	At-Grade	4	Soil	No	320 Andrews St - Brown silty sand with gravel (fill) beneath pier/footer location	Not Analyzed
	S-45	2/9/2011	11:45	Grab	0	4	At-Grade	4	Soil	No	320 Andrews St - Brown silty sand with gravel (fill) beneath pier/footer location	Not Analyzed
	S-46	2/10/2011	13:00	Grab	3.5	2	At-Grade	2	Soil	No	320 Andrews St - Black loose and hard fill (suspect roofing material) in footer location	Not Analyzed
	S-47	2/10/2011	8:40	Grab	0.3	2.5	At-Grade	2.5	Soil	No	320 Andrews St - Black stained 6" sandy silt, some gravel (fill) layer in footer location	Not Analyzed
048	S-48	2/17/2011	9:50	Grab	1.2	0.5	At-Grade	1.0	Soil	Yes	320 Andrews St - Brown silty sand, some gravel beneath concrete pavement	Full Suite
	S-49	2/17/2011	10:00	Grab	0.6	0.5	At-Grade	1.0	Soil	Yes	320 Andrews St - Brown silty sand, some gravel beneath concrete pavement	Not Analyzed
	S-50	2/17/2011	10:10	Grab	0.3	0.5	At-Grade	1.0	Soil	Yes	320 Andrews St - Brown silty sand, some gravel beneath concrete pavement	Not Analyzed
	S-51	2/17/2011	12:15	Grab	1.2	0.5	At-Grade	1.0	Soil	No	304-308 Andrews St - Brown sandy silt, some clay, trace gravel, coal and asphalt beneath asphalt pavement	Not Analyzed
	S-52	5/5/2011	9:20	Grab	0	5.5	Below -Grade	5.5	Soil	No	25 Evans Street Vehicle Service Pit - Brown sandy silt some gravel, trace organics and brick (fill)	Not Analyzed
	S-53	5/5/2011	9:30	Grab	0	5.0	Below-Grade	5.0	Soil	No	25 Evans Street Vehicle Service Pit - Brown sandy silt some gravel, trace organics and brick (fill)	Not Analyzed
	S-54	5/5/2011	11:20	Grab	0	4.0	Below-Grade	4.0	Soil	No	25 Evans Street Vehicle Service Pit - Brown sandy silt some gravel, trace organics and brick (fill)	Not Analyzed

Table 1

At-Grade and Sub-Grade Demolition Report
300, 304-308, 320 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Sample Log

Lab Sample Number	Sample ID	Collection Date	Collection Time	Composite or Grab	PID Reading (PPM)	Depth (ft bgs)	Relative Elevation	Adjusted Depth (ft bgs) (1)	Matrix	MS/MSD Collected	Collection Rational	Analytical Test Parameters
	S-55	5/5/2011	11:15	Grab	0	4.0	Below-Grade	4.0	Soil	No	25 Evans Street Vehicle Service Pit - Brown sandy silt some gravel, trace organics and brick (fill)	Not Analyzed
	S-56	5/5/2011	11:10	Grab	0.3	4.0	Below-Grade	4.0	Soil	No	25 Evans Street Vehicle Service Pit - Brown sandy silt some gravel, trace organics and brick (fill)	Not Analyzed
	S-57	5/5/2011	11:00	Grab	1.2	4.0	Below-Grade	4.0	Soil	No	25 Evans Street Vehicle Service Pit - Brown sandy silt some gravel, trace organics and brick (fill)	Not Analyzed
	S-58	5/5/2011	11:40	Grab	0	0.5	Below-Grade	4.5	Soil	Yes	25 Evans Stret Vehicle Service Pit - Brown silty SAND some gravel	Not Analyzed
049	S-59	5/5/2011	11:50	Grab	0.9	0.5	Below-Grade	4.5	Soil	Yes	25 Evans Street Vehicle Service Pit - Brown silty SAND some gravel	Full Suite
050	HM-27	5/5/2011	15:00	Grab	2.7	NA	Below-Grade	NA	Concrete	No	25 Evans Street Vehicle Service Pit concrete sample	TCLP Metals, TCL VOCs, PCBs

Notes
(1) Approximate depth of sample as referenced to the sidewalk adjacent to Andrews Street with assumed datum of 0.00 feet.
(2) Sample PID reading was ambient air screening result; headspace measurement not available.
(3) Slab and soil sample were at a higher elevation than the Andrews Street sidewalk reference point
(4) 3:1 composite sample created using HM-24, HM-25, HM-26 and designated 044/HM-24, HM-25, HM-26 (0-25")
NA = Not Applicable
Ft = Feet
bgs = below ground surface
Full Suite = TCL VOCs + TICs (8260); TCL SVOCS + TICs (8270); TAL Metals (6010/7471); Cyanide (9012); PCBs (8082) and Pesticides (8081)
TCL = Target Compound List
TAL = Target Analyte List
PCB = Polychlorinated Biphenyl (8082)
MS/MSD = Matrix Spike/Matrix Spike Duplicate
PID Reading = Photoionization Detector Reading in parts per million (ppm) on headspace sample unless footnoted with (2) above
VOC - Volatile Organic Compound (8260 or 624)
SVOC = Semi-Volatile Organic Compound (8270 or 625)
TIC = Tentatively Identified Compound
RCRA = Resource Conservation and Recovery Act
TCLP = Toxicity Characteristic Leaching Procedure

Table 5

At-Grade and Sub-Grade Demolition Report
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 Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological	G Protection of Groundwater	004 S-1 (2') (10/19/10)	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)
Acetone	0.05	100	100	500	1,000	2.2	0.05	U	U	U	U	U	U	U
Benzene	0.06	2.9	4.8	44	89	70	0.06	U	U	U	U	U	U	U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Ethylbenzene	1	30	41	390	780	NA	1	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Methylene chloride	0.05	51	100	500	1,000	12	0.05	U	U	U	U	0.0018 J	U	U
Tetrachloroethene	1.3	5.5	19	150	300	2	1.3	**1.9** D **AG**	U	U	U	U	U	0.0027 J
Toluene	0.7	100	100	500	1,000	36	0.7	U	U	U	U	U	U	U
Trichloroethene	0.47	10	21	200	400	2	0.47	U	U	U	U	U	U	U
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	U	U	0.0035 J	U	U	U	U
Xylene (mixed)	0.26	100	100	500	1,000	0.26	1.6	0.0026 J	U	U	U	U	U	U
Total VOCs								1.9026	U	0.0035	U	0.0018	U	0.0027
Total TICs (1)								0.0013	U	U	U	U	U	U
Total VOCs and TICs (1)								1.9039	U	0.0035	U	U	U	0.0027

Notes

U = Not Detected
NA = Not Available
VOC = Volatile Organic Compound
TIC = Tentatively Identified Compound
A = Exceeds Unrestricted Use SCO
B = Exceeds Residential Use SCO
C = Exceeds Restricted Residential Use SCO
D = Exceeds Commercial Use SCO
E = Exceeds Industrial Use SCO
F = Exceeds Protection of Ecological Resources SCO
G = Exceeds Protection of Groundwater SCO

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

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

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

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.

Table 5

At-Grade and Sub-Grade Demolition Report
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 Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological	G Protection of Groundwat	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)	040 S-26 (2') (1/25/11)	041 S-28 (1.5') (1/25/11)
Acetone	0.05	100	100	500	1,000	2.2	0.05	U	U	U	U	U	U	0.028 J
Benzene	0.06	2.9	4.8	44	89	70	0.06	U	U	U	U	U	**0.089** J AG	U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	0.0034 J
Ethylbenzene	1	30	41	390	780	NA	1	U	U	U	U	U	0.25 J	0.021
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	0.011
Methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	0.26 J	U
Methylene chloride	0.05	51	100	500	1,000	12	0.05	U	U	U	U	0.0055 J	U	0.0033 J
Tetrachloroethene	1.3	5.5	19	150	300	2	1.3	U	U	U	U	U	U	U
Toluene	0.7	100	100	500	1,000	36	0.7	U	U	U	U	U	0.21 J	0.0019 NJ
Trichloroethene	0.47	10	21	200	400	2	0.47	U	U	U	U	U	U	U
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	100	500	1,000	0.26	1.6	U	U	U	U	U	**1.05** NJ AF	0.068
Total VOCs								U	U	U	U	0.0055	1.859	0.1366
Total TICs (1)								U	U	U	0.493	0.296	32.42	3.508
Total VOCs and TICs (1)								U	U	U	0.493	0.3015	34.279	3.6446

Notes

U = Not Detected
NA = Not Available
VOC = Volatile Organic Compound
TIC = Tentatively Identified Compound
A = Exceeds Unrestricted Use SCO
B = Exceeds Residential Use SCO
C = Exceeds Restricted Residential Use SCO
D = Exceeds Commercial Use SCO
E = Exceeds Industrial Use SCO
F = Exceeds Protection of Ecological Resources SCO
G = Exceeds Protection of Groundwater SCO

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

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

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

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.

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.

Table 5

At-Grade and Sub-Grade Demolition Report
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 Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological	G Protection of Groundwater	042 S-29 (3.5') (1/25/11)	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)	048 S-48 (0.5') (2/17/11)	049 S-59 (4.5') (5/5/11)
Acetone	0.05	100	100	500	1,000	2.2	0.05	U	U	U	U	U	U	U
Benzene	0.06	2.9	4.8	44	89	70	0.06	U	U	U	U	U	U	U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Ethylbenzene	1	30	41	390	780	NA	1	U	U	U	U	U	U	U
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Methylene chloride	0.05	51	100	500	1,000	12	0.05	U	0.0023 J	U	0.0021 J	U	0.0024 J	U
Tetrachloroethene	1.3	5.5	19	150	300	2	1.3	U	U	0.0069	0.026	U	0.0029 J	U
Toluene	0.7	100	100	500	1,000	36	0.7	U	U	U	0.0012 J	U	U	U
Trichloroethene	0.47	10	21	200	400	2	0.47	U	U	U	U	U	U	U
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U	U
Xylene (mixed)	0.26	100	100	500	1,000	0.26	1.6	U	U	U	0.0042 J	U	U	U
Total VOCs								0	0.0023	0.0069	0.0335	U	0.0053	U
Total TICs (1)								32.64	U	U	0.0022	U	U	U
Total VOCs and TICs (1)								32.64	0.0023	0.0069	0.0357	U	0.0053	0

Notes

U = Not Detected
NA = Not Available
VOC = Volatile Organic Compound
TIC = Tentatively Identified Compound

A = Exceeds Unrestricted Use SCO
B = Exceeds Residential Use SCO
C = Exceeds Restricted Residential Use SCO
D = Exceeds Commercial Use SCO
E = Exceeds Industrial Use SCO
F = Exceeds Protection of Ecological Resources SCO
G = Exceeds Protection of Groundwater SCO

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

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

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

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.

Table 6

At-Grade and Sub-Grade Demolition Report
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	CAS Number	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	004 S-1 (2') (10/19/10)	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)	
2-Methylnaphthalene	91-57-6	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	0.19 J	
Acenaphthene	83-32-9	20	100	100	500	1,000	20	98	U	U	U	U	0.21 J	
Acenapthylene	208-96-8	100	100	100	500	1,000	NA	107	U	U	U	U	U	
Anthracene	120-12-7	100	100	100	500	1,000	NA	1,000	U	0.13 J	U	U	0.35 J	
Benz(a)anthracene	56-55-3	1	1	1	5.6	11	NA	1	0.1 J	0.31 J	0.072 J	U	0.98	
Benzo(a)pyrene	50-32-8	1	1	1	1	1.1	2.6	22	0.098 J	0.22 J	0.055 J	U	0.87	
Benzo(b)fluoranthene	205-99-2	1	1	1	5.6	11	NA	1.7	0.14 J	0.32 J	0.083 J	U	1.2	ABC
Benzo(g,h,i)perylene	191-24-2	100	100	100	500	1,000	NA	1,000	0.064 J	0.13 J	U	U	0.55	
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9	56	110	NA	1.7	U	0.11 J	U	U	0.39	
1,1-Biphenyl	92-52-4	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NA	NA	NA	NA	NA	NA	U	0.053 J	U	U	U	
Carbazole	86-74-8	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	0.22 J	
Chrysene	218-01-9	1	1	3.9	56	110	NA	1	0.1 J	0.29 J	0.065 J	U	1.1	ABG
Dibenz(a,h)anthracene	53-70-3	0.33	0.33	0.33	0.56	1.1	NA	1,000	U	U	U	U	0.11 J	
Dibenzofuran	132-64-9	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	0.13 J	
Dimethylphthalate	131-11-3	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	
Fluoranthene	206-44-0	100	100	100	500	1,000	NA	1,000	0.2 J	0.64	0.16 J	U	2.1	
Fluorene	86-73-7	30	100	100	500	1,000	30	386	U	U	U	U	0.19 J	
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5	5.6	11	NA	8.2	0.065 J	0.13 J	U	U	0.5	
Naphthalene	91-20-3	12	100	100	500	1,000	NA	12	U	U	U	U	0.44	
Phenanthrene	85-01-8	100	100	100	500	1,000	NA	1,000	0.15 J	0.49	0.14 J	U	1.7	
Phenol	108-95-2	0.33	100	100	500	1,000	30	0.33	U	U	0.048 J	U	0.049 J	
Pyrene	129-00-0	100	100	100	500	1,000	NA	1000	0.17 J	0.52	0.12 J	U	1.7	
Total SVOCs									1.087	3.343	0.743	0	12.979	
Total TICs (1)									1.25	1.191	0.11	0.19	3.591	
Total SVOCs and TICs (1)									2.337	4.534	0.853	0.19	16.57	

Notes

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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.

SVOC = Semi-Volatile Organic Compound

TIC = Tentatively Identified Compound

NA = Not Available

Table 6

At-Grade and Sub-Grade Demolition Report
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	CAS Number	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	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)
2-Methylnaphthalene	91-57-6	NA	NA	NA	NA	NA	NA	NA	U		U	U	U	U
Acenaphthene	83-32-9	20	100	100	500	1,000	20	98	U		U	U	U	U
Acenapthylene	208-96-8	100	100	100	500	1,000	NA	107	0.27 J		U	U	U	U
Anthracene	120-12-7	100	100	100	500	1,000	NA	1,000	0.22 J		0.12 J	U	U	U
Benz(a)anthracene	56-55-3	1	1	1	5.6	11	NA	1	**1.5** J	**ABCG**	0.31 J	U	0.072 J	U
Benzo(a)pyrene	50-32-8	1	1	1	1	1.1	2.6	22	**1.8** J	**ABCDE**	0.25 J	U	0.053 J	U
Benzo(b)fluoranthene	205-99-2	1	1	1	5.6	11	NA	1.7	**2.3** J	**ABCG**	0.32 J	U	0.079 J	U
Benzo(g,h,i)perylene	191-24-2	100	100	100	500	1,000	NA	1,000	1.3 J		0.15 J	U	U	U
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9	56	110	NA	1.7	**0.86**	**A**	0.15 J	U	U	U
1,1-Biphenyl	92-52-4	NA	NA	NA	NA	NA	NA	NA	U		U	U	U	U
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NA	NA	NA	NA	NA	NA	0.085 NJ		U	U	0.065 J	U
Carbazole	86-74-8	NA	NA	NA	NA	NA	NA	NA	0.28 J		U	U	U	U
Chrysene	218-01-9	1	1	3.9	56	110	NA	1	**1.8** J	**ABG**	0.29 J	U	0.067 J	U
Dibenz(a,h)anthracene	53-70-3	0.33	0.33	0.33	0.56	1.1	NA	1,000	0.29 J		U	U	U	U
Dibenzofuran	132-64-9	NA	NA	NA	NA	NA	NA	NA	0.054 J		U	U	U	U
Dimethylphthalate	131-11-3	NA	NA	NA	NA	NA	NA	NA	U		U	U	U	U
Fluoranthene	206-44-0	100	100	100	500	1,000	NA	1,000	3.1 DJ		0.67	U	0.15 J	U
Fluorene	86-73-7	30	100	100	500	1,000	30	386	U		U	U	U	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5	5.6	11	NA	8.2	**1.2**	**ABC**	0.14 J	U	U	U
Naphthalene	91-20-3	12	100	100	500	1,000	NA	12	U		U	U	U	U
Phenanthrene	85-01-8	100	100	100	500	1,000	NA	1,000	1.4 J		0.45	U	0.099 J	U
Phenol	108-95-2	0.33	100	100	500	1,000	30	0.33	0.061 J		U	U	U	0.052 NJ
Pyrene	129-00-0	100	100	100	500	1,000	NA	1000	2.9 J		0.58	U	0.12 J	U
Total SVOCs									19.42		3.43	0	0.705	0.052
Total TICs (1)									6.55		0.29	0.21	0.86	0.17
Total SVOCs and TICs (1)									25.97		3.72	0.21	1.565	0.222

Notes

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

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

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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.

SVOC = Semi-Volatile Organic Compound

TIC = Tentatively Identified Compound

NA = Not Available

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.

Table 6

At-Grade and Sub-Grade Demolition Report
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	CAS Number	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	036 S-17 (3') (1/18/11)	039 S-24 (2') (1/24/11)		040 S-26 (2') (1/25/11)		041 S-28 (1.5') (1/25/11)		042 S-29 (3.5') (1/25/11)
2-Methylnaphthalene	91-57-6	NA	NA	NA	NA	NA	NA	NA	0.062 J	U J		19 DJ		0.9 J		1.8 J
Acenaphthene	83-32-9	20	100	100	500	1,000	20	98	0.24 J	0.86 J		0.78 J		1.5 J		0.081 J
Acenapthylene	208-96-8	100	100	100	500	1,000	NA	107	U	0.89 J		U		U		U
Anthracene	120-12-7	100	100	100	500	1,000	NA	1,000	0.31 J	3.6 J		0.98 J		4.7		0.055 J
Benz(a)anthracene	56-55-3	1	1	1	5.6	11	NA	1	0.62	12	ABCDEG	2.1	ABCG	5.7	ABCDG	U
Benzo(a)pyrene	50-32-8	1	1	1	1	1.1	2.6	22	0.44	10	ABCDEF	1.6 J	ABCDE	4.6	ABCDEF	U
Benzo(b)fluoranthene	205-99-2	1	1	1	5.6	11	NA	1.7	0.67	13	ABCDEG	2.3	ABCG	6	ABCDG	U
Benzo(g,h,i)perylene	191-24-2	100	100	100	500	1,000	NA	1,000	0.23 J	6.9		1 J		2.9		U
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9	56	110	NA	1.7	0.21 J	4.2 J	ABCG	0.76 J		2 J	ABG	U
1,1-Biphenyl	92-52-4	NA	NA	NA	NA	NA	NA	NA	U	U		1.4 J		U		0.21 J
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NA	NA	NA	NA	NA	NA	U	U		U		U		U
Carbazole	86-74-8	NA	NA	NA	NA	NA	NA	NA	0.23 J	1.8 J		0.47 J		2.7		U
Chrysene	218-01-9	1	1	3.9	56	110	NA	1	0.58	10	ABCG	1.9 J	ABG	5.2	ABCG	U
Dibenz(a,h)anthracene	53-70-3	0.33	0.33	0.33	0.56	1.1	NA	1,000	0.066 J	1.8 J	ABCDE	0.27 J		0.61 J	ABCD	U
Dibenzofuran	132-64-9	NA	NA	NA	NA	NA	NA	NA	0.14 J	0.93 J		0.88 J		1.3 J		0.094 J
Dimethylphthalate	131-11-3	NA	NA	NA	NA	NA	NA	NA	U	U		U		U		U
Fluoranthene	206-44-0	100	100	100	500	1,000	NA	1,000	1.4	28		5		16		U
Fluorene	86-73-7	30	100	100	500	1,000	30	386	0.22 J	1.3 J		1.6 J		2.1 J		0.17 J
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5	5.6	11	NA	8.2	0.26 J	6.6	ABCD	0.96 J	ABC	2.7	ABC	U
Naphthalene	91-20-3	12	100	100	500	1,000	NA	12	0.1 J	U		4		1.5 J		0.56
Phenanthrene	85-01-8	100	100	100	500	1,000	NA	1,000	1.2	19		7.4		17		0.37 J
Phenol	108-95-2	0.33	100	100	500	1,000	30	0.33	0.067 J	U		U		U		U
Pyrene	129-00-0	100	100	100	500	1,000	NA	1000	1.2	22		4.7		12		0.053 J
Total SVOCs									8.245	142.88		57.1		89.41		3.393
Total TICs (1)									1.548	34.72		280.4		35.3		39.204
Total SVOCs and TICs (1)									187.393	177.6		337.5		124.71		42.597

Notes

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

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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.

SVOC = Semi-Volatile Organic Compound

TIC = Tentatively Identified Compound

NA = Not Available

Table 6

At-Grade and Sub-Grade Demolition Report
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	CAS Number	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	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)	048 S-48 (0.5') (2/17/11)	049 S-59 (4.5') (5/5/11)
2-Methylnaphthalene	91-57-6	NA	NA	NA	NA	NA	NA	NA	U J	U	1 J	U	U	U
Acenaphthene	83-32-9	20	100	100	500	1,000	20	98	U	U	3	U	U	U
Acenapthylene	208-96-8	100	100	100	500	1,000	NA	107	U	0.055 J	1.2 J	U	U	U
Anthracene	120-12-7	100	100	100	500	1,000	NA	1,000	U	U	9	U	0.05 J	U
Benz(a)anthracene	56-55-3	1	1	1	5.6	11	NA	1	U	0.11 J	**26** D **ABCDEG**	0.12 J	0.11 J	U
Benzo(a)pyrene	50-32-8	1	1	1	1	1.1	2.6	22	U	0.15 J	**20** D **ABCDEF**	0.1 J	0.1 J	U
Benzo(b)fluoranthene	205-99-2	1	1	1	5.6	11	NA	1.7	U	0.21 J	**28** D **ABCDEG**	0.16 J	0.12 J	U
Benzo(g,h,i)perylene	191-24-2	100	100	100	500	1,000	NA	1,000	U	0.15 J	12	0.086 J	0.059 J	U
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9	56	110	NA	1.7	U	0.065 J	**8.3** **ABCG**	0.057 J	0.068 J	U
1,1-Biphenyl	92-52-4	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	U	U
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NA	NA	NA	NA	NA	NA	U	0.12 J	U	U	U	U
Carbazole	86-74-8	NA	NA	NA	NA	NA	NA	NA	U	U	4.4	U	U	U
Chrysene	218-01-9	1	1	3.9	56	110	NA	1	U	0.13 J	**27** D **ABCG**	0.15 J	0.11 J	U
Dibenz(a,h)anthracene	53-70-3	0.33	0.33	0.33	0.56	1.1	NA	1,000	U	U	**3.2** **ABCDE**	U	U	U
Dibenzofuran	132-64-9	NA	NA	NA	NA	NA	NA	NA	U	U	1.9 J	U	U	U
Dimethylphthalate	131-11-3	NA	NA	NA	NA	NA	NA	NA	U	U	U	U J	U	0.79 B
Fluoranthene	206-44-0	100	100	100	500	1,000	NA	1,000	U	0.17 J	53 D	0.27 J	0.22 J	U
Fluorene	86-73-7	30	100	100	500	1,000	30	386	U	0.13 J	3.6	U	U	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5	5.6	11	NA	8.2	U	U	**11** **ABCDG**	0.066 J	0.049 J	U
Naphthalene	91-20-3	12	100	100	500	1,000	NA	12	U	U	1.4 J	U	U	U
Phenanthrene	85-01-8	100	100	100	500	1,000	NA	1,000	U	0.096 J	49 D	0.14 J	0.16 J	U
Phenol	108-95-2	0.33	100	100	500	1,000	30	0.33	0.077 J	U	U	U	U	U
Pyrene	129-00-0	100	100	100	500	1,000	NA	1000	U	0.15 J	48 D	0.28 J	0.18 J	U
Total SVOCs									0.077	1.536	311	1.429	1.226	0.79
Total TICs (1)									U	2.11	123.1	0.25	1.926	0.12
Total SVOCs and TICs (1)									0.077	3.646	434.1	1.679	3.152	0.91

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

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Table 7

At-Grade and Sub-Grade Demolition Report
300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected Metals and Cyanide in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	004 S-1 (2') (10/19/10)	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)
Aluminum	NA	NA	NA	NA	NA	NA	NA	6210	1830	3340	1610	4040	4740	5780
Antimony	NA	NA	NA	NA	NA	NA	NA	U	U	U	U	0.907 J	U	U
Arsenic	13	16	16	16	16	13	16	4.74	3.68	1.75	0.923 J	**13.8** **AF**	6.85	2.63
Barium	350	350	400	400	10,000	433	820	103	21.3	57	18.6	93.4	244	105
Beryllium	7.2	14	72	590	2,700	10	47	0.51	0.098 J	0.186 J	0.111 J	0.376	0.439	0.55
Cadmium	2.5	2.5	4.3	9.3	60	4	7.5	U	U	0.122 J	U	0.722	0.562	U
Calcium	NA	NA	NA	NA	NA	NA	NA	12900	25500	53700	23500	48400	33000	15500
Chromium	30	36	180	1,500	6,800	41	NA	10.5	3.28	4.85	3.59	7.94	12.3	9.74
Cobalt	NA	NA	NA	NA	NA	NA	NA	4.88	1.99	2.74	1.84	4.47	4.23	3.87
Copper	50	270	270	270	10,000	50	1,720	12.7 J	5.42	6.25	3.12	39.7	23.1	13.4
Iron	NA	NA	NA	NA	NA	NA	NA	17500 J	5600	7210	5730	16100	11300	12900
Lead	63	400	400	1,000	3,900	63	450	47.8 J	8.6	**77.6** **AF**	1.77	**230** **AF**	**1390** **ABCDFG**	48.3
Magnesium	NA	NA	NA	NA	NA	NA	NA	4390	6120	9370	6650	9870	8100	4340
Manganese	1600	2,000	2,000	10,000	10,000	1600	2,000	791 J	199	299	186	326	385	543
Total Mercury	0.18	0.81	0.81	2.8	5.7	0.18	0.73	0.088	0.089 NJ	0.022 NJ	U NJ	0.092 NJ	**0.54** NJ **AF**	0.052 J
Nickel	30	140	310	310	10,000	30	130	9.42	4.1	5.33	3.46	11.2	8.57	7.3
Potassium	NA	NA	NA	NA	NA	NA	NA	735	376	627	274	686	840	770
Selenium	3.9	36	180	1,500	6,800	3.9	4	1.68	1.07 J	1.09	0.758 J	2.14	1.95	1.45
Silver	2	36	180	1,500	6,800	2	8.3	0.45 J	U	U	U	0.414	0.695	0.43 J
Sodium	NA	NA	NA	NA	NA	NA	NA	350 *J	394 *J	393 *J	402 *J	461 *J	528 *J	811 N*J
Vanadium	NA	NA	NA	NA	NA	NA	NA	19	6.62	9.02	7.5	13.9	13.8	15.2
Zinc	109	2200	10,000	10,000	10,000	109	2,480	49.4 J	24.2	47.9	14.9	**245** **AF**	**255** **AF**	57.9
Total Cyanide	27	27	27	27	10,000	NA	40	0.089 J	U	U	U	U	U	U

Notes

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NA = Not Available

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F = Exceeds Protection of Ecological Resources SCO

G = Exceeds Protection of Groundwater SCO

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

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

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* = 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.

Table 7

At-Grade and Sub-Grade Demolition Report
300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected Metals and Cyanide in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	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)		040 S-26 (2') (1/25/11)	
Aluminum	NA	NA	NA	NA	NA	NA	NA	1290	1210	1620	2320		4580		4240	
Antimony	NA	NA	NA	NA	NA	NA	NA	U	U	U	0.636 J		1.12 J		0.619 J	
Arsenic	13	16	16	16	16	13	16	1.03	1.15	0.875	1.4		17.5	ABCDEFG	24.1	ABCDEFG
Barium	350	350	400	400	10,000	433	820	17.7	13.9	18.4	40.7		1020	ABCDFG	477	ABCDF
Beryllium	7.2	14	72	590	2,700	10	47	0.091 J	0.083 J	0.087 J	0.148 J		0.498		0.387	
Cadmium	2.5	2.5	4.3	9.3	60	4	7.5	0.068 J	0.072 J	0.077 J	0.224 J		1.78		1.27	
Calcium	NA	NA	NA	NA	NA	NA	NA	21000 J	20200 J	22100 J	23600 J		31500		29100	
Chromium	30	36	180	1,500	6,800	41	NA	2.22	2.18	2.84	4.63		21.6		12.1	
Cobalt	NA	NA	NA	NA	NA	NA	NA	1.39	1.46	1.71	2.72		5.08		4.02	
Copper	50	270	270	270	10,000	50	1,720	3.75	4.05	4.56	10.4		109	AF	49.3	
Iron	NA	NA	NA	NA	NA	NA	NA	4120 J	4020 J	5100 J	7780 J		15400		12200	
Lead	63	400	400	1,000	3,900	63	450	2.47	1.51	1.55	4.22		1030	ABCDFG	1110	ABCDFG
Magnesium	NA	NA	NA	NA	NA	NA	NA	4970 J	4480 J	5400 J	5770 J		8470		8260	
Manganese	1600	2,000	2,000	10,000	10,000	1600	2,000	144 J	167 J	199 J	307 J		349		316	
Total Mercury	0.18	0.81	0.81	2.8	5.7	0.18	0.73	U J	U J	U J	0.028 J		9 D	ABCDEFG	0.614 D	AF
Nickel	30	140	310	310	10,000	30	130	2.88	2.84	3.46	6.07		13.6		10.3	
Potassium	NA	NA	NA	NA	NA	NA	NA	228	191	222	349		797		618	
Selenium	3.9	36	180	1,500	6,800	3.9	4	0.706	0.681 J	0.891	0.61 J		3.75		3.46	
Silver	2	36	180	1,500	6,800	2	8.3	U	U	0.184 J	0.248 J		3.04	AF	0.775	
Sodium	NA	NA	NA	NA	NA	NA	NA	106 J	157 J	141 J	207 J		397 J		342 J	
Vanadium	NA	NA	NA	NA	NA	NA	NA	4.48	4.4	5.75	6.63		13.5		13	
Zinc	109	2200	10,000	10,000	10,000	109	2,480	9.91 J	10.9 J	10.5 J	198 J	AF	681 J	AF	636 J	AF
Total Cyanide	27	27	27	27	10,000	NA	40	U	U	U	U J		0.849		0.085 J	

Notes

U = Not Detected

NA = Not Available

A = Exceeds Unrestricted Use SCO

B = Exceeds Residential Use SCO

C = Exceeds Restricted Residential Use SCO

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G = Exceeds Protection of Groundwater SCO

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.

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

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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Table 7

At-Grade and Sub-Grade Demolition Report
300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected Metals and Cyanide in mg/kg or ppm

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	041 S-28 (1.5') (1/25/11)	042 S-29 (3.5') (1/25/11)	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)	048 S-48 (0.5') (2/17/11)	049 S-59 (4.5') (5/5/11)
Aluminum	NA	NA	NA	NA	NA	NA	NA	5400	5420	4510	3140	2220	3800	5570	5930
Antimony	NA	NA	NA	NA	NA	NA	NA	2.04 J	U	U	1.55 J	U	U	U	U
Arsenic	13	16	16	16	16	13	16	**26.8 ABCDEFG**	3.79	2.88	4.44	12.3	3.17	3.8	3.67
Barium	350	350	400	400	10,000	433	820	168	51.9	37.3	72.7 J	52 J	46.8 J	31.7	51.1
Beryllium	7.2	14	72	590	2,700	10	47	0.588	0.462	0.324	0.24 J	0.314 J	0.28 J	0.42	0.426
Cadmium	2.5	2.5	4.3	9.3	60	4	7.5	**7.86 ABCFG**	0.293 J	0.226 J	0.899	1.28	U	U	U
Calcium	NA	NA	NA	NA	NA	NA	NA	54400	2090	4060	52200	80300	64300	63800	3000
Chromium	30	36	180	1,500	6,800	41	NA	26.4	8.42	7.96	5.34	6.15	5.19	7.28	10.7
Cobalt	NA	NA	NA	NA	NA	NA	NA	7.9	5.36	3.84	3.36	2.04	3.1	4.69	4.33
Copper	50	270	270	270	10,000	50	1,720	**99 AF**	9.16	7.74	24	**191 AF**	14.6	19.5 J	5.09
Iron	NA	NA	NA	NA	NA	NA	NA	46100	14000	11300	8510	6850	8460	13600	15400
Lead	63	400	400	1,000	3,900	63	450	**293 AF**	15.4	21.4	**150 AF**	**181 AF**	**310 AF**	20.4	12.5
Magnesium	NA	NA	NA	NA	NA	NA	NA	14700	1130	2150	14300	12500	15700	27200	2350
Manganese	1600	2,000	2,000	10,000	10,000	1600	2,000	433	366	208	481	160	302	669	269
Total Mercury	0.18	0.81	0.81	2.8	5.7	0.18	0.73	**0.355 AF**	0.111	0.102	0.095	0.133	**0.181** J **AF**	0.03	0.028
Nickel	30	140	310	310	10,000	30	130	24	8.2	8.24	6.33	7.01	7.03	9.67	9.31
Potassium	NA	NA	NA	NA	NA	NA	NA	925	1210	744	519	281	657	975	1170
Selenium	3.9	36	180	1,500	6,800	3.9	4	**4.47 AFG**	1.85	1.79	1.32	2.12	0.74 J	1.98	1.53
Silver	2	36	180	1,500	6,800	2	8.3	1.79	0.455 J	0.464	U	0.313 J	U	U	U
Sodium	NA	NA	NA	NA	NA	NA	NA	661 J	546 J	225 J	250 J	230 J	828 J	219 *	142
Vanadium	NA	NA	NA	NA	NA	NA	NA	15.5	15.7	11.7	8.12	9.32	9.9	14.7	16.7
Zinc	109	2200	10,000	10,000	10,000	109	2,480	**484** J **AF**	27.9 J	30.4 J	79.5	**439 AF**	94.9	76.1 J	42.8
Total Cyanide	27	27	27	27	10,000	NA	40	0.566 J	U	U	0.623	U	U	U	U

Notes

U = Not Detected

NA = Not Available

A = Exceeds Unrestricted Use SCO

B = Exceeds Residential Use SCO

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G = Exceeds Protection of Groundwater SCO

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.

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Table 8

At-Grade and Sub-Grade Demolition Report
300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

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

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	004 S-1 (2') (10/19/10)	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)
Pesticides								U	U	U	U	U	U	U
4,4'-DDT	0.0033	1.7	7.9	47	94	0.0033	136	U	U J	U J	U J	U J	U J	U
PCBs [1]	0.1	1	1	1	25	1	3.2	U	U	U	U	U	U	U

Notes

U = Not Detected

PCBs = Polychlorinated Biphenyls

NA = Not Available

A = Exceeds Unrestricted Use SCO

C = Exceeds Restricted Residential Use SCO

D = Exceeds Commercial Use SCO

E = Exceeds Industrial Use SCO

G = Exceeds Protection of Groundwater SCO

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.

(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.

Table 8

At-Grade and Sub-Grade Demolition Report
300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

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

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological Resources	G Protection of Groundwater	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)	040 S-26 (2') (1/25/11)	041 S-28 (1.5') (1/25/11)
Pesticides								U	U	U	U	U	U	U
4,4'-DDT	0.0033	1.7	7.9	47	94	0.0033	136	U	U	U	U	U	U	U
PCBs (1)	0.1	1	1	1	25	1	3.2	0.0077 J	0.033	U	0.042 P	U	U	U

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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.

Table 8

At-Grade and Sub-Grade Demolition Report
300,304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

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

Soil and Fill Samples

Contaminant	A Unrestricted Use	B Residential Use	C Restricted Residential Use	D Restricted Commercial Use	E Restricted Industrial Use	F Protection of Ecological	G Protection of Groundwater	042 S-29 (3.5') (1/25/11)	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)	048 S-48 (0.5') (2/17/11)	049 S-59 (4.5') (5/5/11)
Pesticides								U	U	U	U R	U	U R	U
4,4'-DDT	0.0033	1.7	7.9	47	94	0.0033	136	U	U	0.0098 J AF	U R	U	U R	U
PCBs (1)	0.1	1	1	1	25	1	3.2	U	U	U	U	U	1.8 DJ ABCDF	U

Notes

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(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

APPENDIX E
(Refer to CD)

Anticipated RI/RAA Schedule

Remedial Investigation/Remedial Alternatives Analysis (RI/RAA)
300, 304-308, 320 Andrews Street and 25 Evans Street
City of Rochester, NY

ID	Task Name	Start	Finish
1	**Authorization to Proceed**	**Sat 1/1/11**	**Sat 1/1/11**
2	Site and Project Preparation	Sat 1/1/11	Fri 5/13/11
3	**Prepare RI Work Plan**	**Sat 1/1/11**	**Fri 7/22/11**
4	Prepare Draft RI Work Plan	Sat 1/1/11	Fri 5/13/11
5	Agency Reviews	Sat 5/14/11	Wed 8/3/11
6	Revise RI Work Plan	Thu 8/4/11	Thu 8/11/11
7	Agency Reviews	Fri 8/12/11	Fri 8/19/11
8	Finalize RI Work Plans	Fri 8/19/11	Fri 8/19/11
9	Citizen Participation Fact Sheet	Mon 8/1/11	Fri 8/12/11
10	**Site Investigation**	**Mon 8/22/11**	**Fri 4/27/12**
11	Utility Survey	Mon 8/22/11	Fri 8/26/11
12	Geophysical Survey	Mon 8/22/11	Tue 8/23/11
13	Test Pits	Wed 8/31/11	Wed 8/31/11
14	Soil Analysis	Thu 9/1/11	Thu 9/22/11
15	MIP/Soil Borings	Mon 10/3/11	Fri 10/7/11
16	Soil Analysis	Wed 10/5/11	Fri 10/28/11
17	Soil Borings/Monitoring Wells	Mon 10/31/...	Fri 11/11/11
18	Soil Analysis	Tue 10/4/11	Fri 12/2/11
19	Develop and Survey Wells	Mon 11/7/11	Tue 11/15/11
20	Groundwater Sampling 1st Round	Wed 11/30/11	Tue 12/6/11
21	Groundwater Analysis	Thu 12/1/11	Tue 12/27/11
22	Groundwater Sampling 2nd Round	Mon 4/2/12	Fri 4/6/12
23	Groundwater Analysis	Sat 4/7/12	Fri 4/27/12
24	Waste Characterization	Tue 1/3/12	Tue 1/3/12
25	Waste Analysis	Tue 1/3/12	Sat 1/14/12
26	**Interim Remedial Measures**	**Tue 1/11/11**	**Sat 3/17/12**
27	Draft IRM Work Plan	Tue 1/11/11	Fri 11/18/11
28	Agency Review	Sat 11/19/11	Tue 1/17/12
29	Revise IRM Work Plan	Wed 1/18/12	Tue 1/24/12
30	Agency Review	Wed 1/25/12	Tue 1/31/12
31	Finalize IRM Work Plan	Wed 2/1/12	Thu 2/2/12
32	Partial Building Demolition	Tue 2/7/12	Wed 2/8/12
33	Contaminated Soil Removal	Thu 2/9/12	Sat 2/25/12
34	Soil Analysis	Fri 2/10/12	Sat 3/17/12
35	**RI/RAA Report Preparation**	**Fri 7/1/11**	**Fri 8/31/12**
36	Prepare Draft RI/RA Report	Fri 7/1/11	Fri 5/25/12
37	Agency Reviews	Sat 5/26/12	Tue 7/24/12
38	Revise RI/RAA Report	Wed 7/25/12	Tue 8/14/12
39	Agency Review	Wed 8/15/12	Fri 8/24/12
40	Finalize RI/RAA Report	Sat 8/25/12	Wed 8/29/12
41	Citizen Participation Meeting	Fri 8/31/12	Fri 8/31/12

Project: edited schedule 080911
Date: Tue 8/9/11