SITE SPECIFIC FIELD ACTIVITY PLAN for the REMEDIAL INVESTIGATION/ FEASIBILITY STUDY at Barthelmes Manufacturing Site

Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
(Site Code #828122)
(WA # D006130-24)

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Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation
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I, Nancy Garry P.E., certify that I am currently a professional engineer as defined in 6 NYCRR Part 375 and that this Work Plan was prepared in accordance with all applicable statues 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

The goal of this New York State Department of Environmental Conservation (NYSDEC) Work Assignment (WA) is to conduct a Remedial Investigation/ Feasibility Study (RI/FS) at the Barthelmes Manufacturing Site in the City of Rochester, Monroe County, New York. The Scope of Work (SOW) of the RI/FS provided in Section 2.0 of this document was developed based on previous investigations in the years 2001 and 2006 and due to onsite groundwater monitoring wells being contaminated with Tricholorethylene (TCE) and several degredation products. The site was classified in June 2010 as an inactive State Hazardous Waste Disposal Site requiring off-site delineation. The SOW outlines all the necessary tasks that will be required to fill in data gaps to complete the Remedial Investigation, to determine the extent that historic site activities have impacted soil, sediments, surface water, and groundwater in the area and to determine the extent, if any, of the remediation that would be required to address the impacted media.

1.1 PURPOSE AND OBJECTIVES

The purpose of this Engineering Services Standby Contract WA is to conduct a RI/FS to characterize on-site media potentially impacted by historic activities. The primary objectives of the RI/FS's SOW are to:

- Investigate the identified areas of concern (AOCs) associated with the site (see Section 1.4) and determine if they have resulted in surface or subsurface contamination and evaluate the extent of the contamination, if any.

- Determine if applicable standards, criteria, and guidance contained in NYSDEC DER-10 and set forth for the site are contravened.

- Define the vertical and horizontal extent of contaminated soil, sediment, soil vapor, surface water, and groundwater, if any.

- Establish a baseline for any remedial work that will be necessary to address impacted media.

- Evaluate Remedial Alternatives.

1.2 SITE DESCRIPTION AND BACKGROUND INFORMATION

The Barthelemes Manufacturing site is located at 15 Cairn Street, Rochester, New York. A Remedial Investigation/ Feasibility Study (RI/FS) is required to identify onsite sources of potentially contaminated areas due to the detection of TCE (Trichloroethylene) and other chlorinated solvents in onsite soil and groundwater in the early 2000's at the Barthelmes Manufacturing Site in the City of Rochester, Monroe County.

The RI/FS will be investigating potential sources of contamination in the area of the Barthelmes Manufacturing site. There are additional areas of the building which have not been characterized that may have also contributed to site contamination. Previous overburden and overburden/bedrock investigations in the area have documented chlorinated solvent groundwater contamination. In addition, previous soil investigations have identified Volatile Organic Compound (VOC), Semi-Volatile Organic Compounds (SVOCs), and metals contamination in onsite soil and discharge pond. Therefore this RI/FS is focused on the finding the source of chlorinated solvent contamination in soil and the overburden and bedrock aquifers, as well as determining the nature and extent of soil, surface water, and sediment contamination in and around the discharge pond.

1.3 SITE HYDROGEOLOGY AND GEOLOGY

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, the USGS, and information obtained from the earlier site investigations, soil underlying the site is comprised mainly of sand and gravel with some fill material. The overburden thickness ranges from approximately 20 to 25 feet, these overburden soils are underlain by the bedrock formation known as the Lockport Dolomite. The Lockport Dolomite is highly fractured in its uppermost 10-50 feet. This upper fracture network, comprised primarily of horizontal bedding planes and vertical joint fractures, likely forms the primary groundwater flow zone at the site. Beneath this upper fracture zone, the bedrock generally becomes less fractured and less permeable.

1.4 AREAS OF CONCERN

According to previous environmental reports and limited available historic site records, several AOCs were identified that will require further characterization. The following is a list of the identified AOCs. Additional AOCs may be identified during the course of implementing the RI/FS.

- Barthelmes Manufacturing Site Building: The Barthelmes Manufacturing Site Building was constructed in the early 1900's and was originally part of the larger American Fruit Products Company. Barthlemes Manufacturing Company has reportedly operated onsite since the 1920's and has conducted sheet metal working operations. A fire in 1988 reportedly burned down the southwest portion of the building, where a TCE vapor degreaser was located. It is suspected that the TCE vapor degreaser was flooded when the fire was extinguished and represents the primary source of contamination. Site Characterization activities in 2001 and 2006 showed elevated

concentrations of TCE and degredation products in soil and groundwater.

- Onsite Discharge Pond: An onsite wastewater discharge pond is located to the west of the site building along the railroad right-of-way. Several (at least 3) pipe runs extend from within the building to this pond. Site Characterization activities in 2001 and 2006 show elevated levels of metals.

- Drum Storage Area: An exterior former drums storage area is located within a fenced-in area at the southeast corner of the building. Site Characterization activities in 2001 and 2006 show elevated levels of TCE, degredation products, SVOC's, and metals in soil and TCE, degredation products, and metals in groundwater.

- Floor Drains/Subsurface Pits: Located throughout the interior and exterior of the onsite building are several floor drains, trench drains, and subsurface collection pits that may have acted as contaminant migration pathways during historical operations. In addition, TCE-contaminated water generated when the 1988 fire was extinguished may have also entered the drains and pits.

2.0 SCOPE OF WORK

The purpose of the Barthelmes Manufacturing Site Remedial Investigation/ Feasibility Study (RI/FS) work assignment (RI/FSWA) is to implement all the necessary tasks that will be required to determine the nature and extent of contamination, to determine if historic site activities have impacted soil, sediment, soil gas, surface water, and groundwater at the site. The scope of work of the RI/FS will be sufficient for HRP and the NYSDEC to evaluate remedial alternatives and ultimately select a final remedy.

The approach to the RI/FS for the Barthelmes Manufacturing Site is to further investigate the identified AOCs that are presented in Section 1.4. Provided below is a discussion of the scope of work to be performed for the RI/FSWA. The investigation will include a field activity plan development tasks and a report task.

2.1 FIELD ACTIVITY PLAN DEVELOPMENT – TASK 1

As part of the scope of work, the following field activity plans will be prepared: A project specific Field Activity Plan (FAP), site specific Heath and Safety Plan (HASP), and site-specific Quality Assurance Project Plan (QAPP). HRP's generic FAP, HASP, and QAPP are on file with the NYSDEC and have been approved. These field activity plans are described below.

2.1.1 Field Activity Plan

The RI/FS Field Activity Plan will be prepared for use in performing the Remedial Investigation. The FAP will identify the components of the Remedial Investigation and a description of the tasks to be performed. The tasks that are to be performed are outlined below, including the specific methods or procedures that will be used to conduct the Remedial

Investigation. The project schedule will be included as part of this plan. A project budget has been approved by the NYSDEC. This budget provides details, on a task by task basis, of labor, expenses and subcontractor costs necessary to complete the project.

2.1.2 Health and Safety Plan

A site-specific Health and Safety Plan (HASP) will be developed before the start of on-site work. The site specific HASP will provide guidance to maximize health and safety of on-site workers during various RIFS tasks including soil and sediment sampling, installation of wells, surveying and other field related activities. The generic HASP approved by the NYSDEC has guidelines for health and safety supervision, air monitoring, medical monitoring, personal protective equipment, site controls, safe work practices and decontamination, etc. In addition, a Community Air Monitoring Program (CAMP), which includes real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter and surrounding community of the work area will be conducted. Monitoring activities will consist of a combination of continuous and periodic monitoring, which will be performed dependent upon the type of activity being conducted at the site, as discussed below. A copy of the CAMP is located in Appendix A.

2.1.3 Quality Assurance Project Plan

A site-specific Quality Assurance Project Plan (QAPP) will be developed and approved by the NYSDEC prior to commencement of fieldwork. Deviations from the protocols specified in the QAPP will be subject to the NYSDEC approval.

All laboratory analytical work will be performed by a NYSDOH Environmental Laboratory Approval Program (ELAP) approved laboratory certified in all categories of Contract Laboratory Protocol (CLP)

and Solid and Hazardous Waste analytical testing. A Data Usability Summary Report will be included in the RI Report for each round of analytical work. Category B deliverables will be retained in the project files and available for full data validation by a qualified independent third party. The QAPP is included in Appendix B.

2.2 REMEDIAL INVESTIGATION - TASK 2

The Remedial Investigation (RI/FS) task will include the components described below. The RI/FS will consist of sampling of the subsurface soil, surface water, groundwater, soil vapor and sediment. The RI/FS consists of several work elements and will be conducted over various areas of the site. The field investigation tasks for the Barthelmes site are listed below in order for which they will be completed:

1. Initial groundwater sampling
2. Underground Utility Clearance, GPR, and line tracing
3. Subsurface Soil Sampling
4. Ground Water Characterization (well installation)
5. Surface Water and Sediment Sampling
6. Off-site Soil Vapor Investigation
7. Site Survey
8. Analytical Data Quality Evaluation
9. Disposal of Derived Waste (task to be started after field work in #5 is completed)

In addition to the field investigation tasks, an environmental database search will also be run on the subject area. This will be done to determine if any historical and current spills, listed State and Federal sites, RCRA generators, dry cleaners, leaking underground storage tanks, and registered above and under ground storage tanks are listed on several State and Federal databases for the site area. The environmental database search will also have data pertaining to geology, radon, and water wells in the area, wetlands, and flood plains.

2.2.1 Initial Groundwater Sampling

Prior to the implementation of this RI/FS, groundwater samples were collected from fourteen existing monitoring wells and one former production well. One surface water sample was also collected from the pond located along the west-side of the site. The purpose of the preliminary groundwater and surface water sampling was to evaluate existing groundwater conditions since the most recent sampling was conducted in 2006. The water level data, well diameter, and depth were used to calculate the volume of water in each well, and three volumes of water were removed by bailer. The wells were then sampled following USEPA low-flow techniques or with disposable bailers. Groundwater was monitored in the field for pH, temperature, conductivity, dissolved oxygen, turbidity, and oxidation-reduction potential. All sampling equipment was decontaminated between sampling locations or disposed of after a one-time use. The field data was recorded on field logs. Each collected water sample was sent to an NYSDOH ELAP and NYSDEC approved laboratory and analyzed for VOCs (Volatile Organic Compounds) via analytical method 8260B, TAL Metals using USEPA Method 6010B and Hexavalent Chromium using EPA Method 7196A. A summary of the samples collected and their respective analysis is presented in the QAPP.

2.2.1.2 Ground Water data submission to DEC

HRP will provide the NYSDEC copies of the raw laboratory data as soon as HRP receives it from the lab, which is typically two weeks. HRP will compile the raw data into tables and then send the draft tables to the NYSDEC. The laboratory will send the finished data to the data validator to complete a data usability summary report (DUSR). Once HRP receives the data validation report it will be sent to the NYSDEC. It typically takes two weeks after the lab data is given to HRP for the lab to gather all the NYSDEC Category B data back up information and send it to the data validator. Then it

can take up to two weeks for the data validator to produce a DUSR for HRP.

HRP will also provide a final groundwater sampling letter report to the NYSDEC after the data is validated. This report will include a short summary of the work and the resulting data.

2.2.2 Underground Utility Clearance/ GPR/ Line tracing

Prior to implementing any intrusive activities, a utility clearance will be conducted. The drilling contractor, or HRP, will request utility mark outs through NYS Code Rule 753/Dig Safe System. The dig safe system is limited to public right-of ways and will only identify utilities entering private property. If necessary, the upper five feet at all boring locations will be cleared of any underground utilities by non-mechanical means, such as a hand auger. In addition, a Ground Penetrating Radar (GPR) contractor, Lu Engineers, will be retained to conduct line tracing and GPR services. A Schonstedt, Inc. pipe locator will be used to energize and locate accessible buried metallic piping. It is assumed a majority of the piping can be located this way. If significant data gaps remain that cannot be assessed otherwise, a GPR survey will be used as a follow-up approach. The primary purpose of the line tracing is to confirm the building interior sump and subsurface piping connections. These subsurface sumps and piping may represent a source of contamination and/or a preferential contaminant migration pathway and therefore are considered an important aspect of this RI/FS.

In addition, a GPR survey will be conducted around the immediate perimeter of the building to determine the presence or absence of buried underground storage tanks (USTs).

2.2.3 Subsurface Soil Sampling

In an effort to assess the the nature of subsurface soil and groundwater underlying the site and surrounding area, a total of up to fifty (50) test borings will be advanced near identified areas of concern and in areas not previously characterized. HRP will initially install twenty to twenty-five (20-25) borings and then a second round of twenty to twenty-five (20-25) borings based on the analytical results of the initial round. The soil borings will be install in primarily paved areas or areas covered with impervious surfaces. Proposed sampling locations, of the initial borings, are depicted in Figure 3.

Borings will be advanced using a track-mounted Geoprobe direct-push rig and 3.25 inch diameter macrocores to approximately 25 feet bg. Soil and groundwater sampling will be initiated at the outset of the water table, at approximately 8-10 feet below grade. Borings that are advanced beneath the concrete floor of the building will be cored with a diamond bit concrete coring machine. The floor will be repaired once the soil boring is complete. In addition, test pit/trenches will be excavated at ten (10) locations as shown on Figure 4. The test pits/trenches will be installed in primarily grassy areas of the site. Soil sampling will occur above the water table for field screening, geologic logging and general visual observations. In addition, soil and groundwater samples will be collected from the interval with the highest field screening indicators (staining, odors, PID reading), or if no field readings are present soil samples will be collected at the invert of the nearest area of concern (piping, sump, etc.). The soil borings and test pits will be completed in two to three mobilizations to allow for evaluation of data prior to delineating any exceedences detected.

Samples will be collected in the appropriate containers and will be preserved on ice in coolers. Soil samples will be sent to a NYSDOH ELAP and NYSDEC approved laboratory for analysis. All soil samples will be

submitted for analysis of volatile organic compounds (VOCs) via EPA Method 8260B and TAL Metals via EPA Method 6010B.

Should field screening indicate the presence of contamination, it is anticipated that drill cuttings will be containerized in 55-gallon drums for proper disposal. Otherwise, drill cutting will be returned to the originating borehole. All sampling equipment will be appropriately decontaminated between sampling locations.

2.2.4 Potential Soil Vapor Intrusion

In an effort to assess if onsite contamination has affected surrounding properties, HRP may conduct a limited offsite soil vapor intrusion (SVI) investigation within the buildings of the surrounding properties. Locations will vary depending on soil and groundwater data collected as part of this RI/ FS. For this off-site SVI investigation, up to three (3) off-site locations will be identified for temporary (one-time use) sub-slab, indoor air, and ambient air sampling locations. These proposed locations will coincide with analytical groundwater data that indicates there is potential for soil vapor intrusion to occur. The SVI sampling will be completed in accordance with the New York State Department of Health's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006.

An indoor ambient air sample will be collected simultaneously as the sub-slab soil vapor samples. Soil vapor, indoor, and ambient air samples will be collected in laboratory provided Summa canisters, and analyzed using USEPA Method TO-15. The VI samples will be setup during an initial visit, allowed to collect the air samples during a 24 hour period, and then collected at the conclusion of the 24 hour period. Upon collection, the samples will be sent to the laboratory for analysis. The QAPP in Appendix B includes the list of analytes along with the minimum reporting limits for the TO-15 laboratory analyses.

During the soil vapor sampling event, field notes will be taken and written in a "rite in the rain" field note book dedicated to this project. Specific data for the soil vapor sampling will be logged on HRP's "Field soil vapor sampling form". Field notes will include weather conditions, odors or reading from field instruments (PID), sketch of the area (including streets, sampling locations, and compass orientation); noted possible uses of VOCs at neighboring commercial and industrial buildings. Per the NYSDOH guidance, a product inventory will be included as part of the SVI program.

2.2.5 Ground Water Characterization

For the purpose of evaluating groundwater quality and to obtain flow information, a total of up to twenty (20) groundwater monitoring wells are proposed for installation as part of the RI/FS. Four of these wells are to be bedrock wells and up to sixteen are to be over burden wells. The wells are to be installed utilizing a hollow strem auger drilling rig. The wells will be positioned in order to determine if TCE has impacted the overburden and bedrock aquifers. Based on an assumed southwesterly overburden groundwater flow direction, the proposed locations of each well are presented on Figure 2. These proposed locations may vary slightly based on the results from the initial groundwater sampling results.

2.2.5.1 Overburden Well Installation

Up to thirteen (13) overburden monitoring wells will be advanced outside the building footprint using a hollow-stem auger drill rig and 4.25 inch diameter auger flights to approximately 25 feet bg. In addition, three (3) overburden monitoring wells will be installed with hollow-stem augers utilizing the track-mounted Geoprobe inside the building footprint. Soil cores will be screened for organic

vapors using a PID and any evidence of contamination will be noted. Each core will be geologically logged by the field geologist in accordance with the Unified Soil Classification System. Monitoring wells are to be constructed of 2" diameter PVC solid well pipe riser and a fifteen foot PVC slotted screen that will be positioned to intercept the water table and descend into the water table. The wells will be finished with a flush mounted protective cover. Equipment will be appropriately decontaminated between sampling locations.

Based on well location and filed observations, soil cuttings will be spread on the ground surface near the boring or containerized. However, if impacts are observed, the contaminated soils will be segregated from non-impacted media and handled as described in Section 2.2.10.

After the wells are installed they will be developed and sampled using the techniques outlined above in section 2.2.1. Additional wells may be required based on the initial round of sampling results.

2.2.5.2 Bedrock Well Installation

The bedrock wells will be installed after the evaluation of overburden flow direction and groundwater data. A hollow stem auger will be advanced through the overburden, and a roller bit may be used to advance a casing socket into competent bedrock (based on field observations). Soils will be collected with a split spoon sampler at 2 foot intervals or at each change of lithology, for descriptive characterization, screening for volatiles, and possible analytic sampling. A 4-inch diameter steel casing will be installed and the annualar space grouted with concrete with ten (10) percent bentonite. The grout and the concrete will be allowed to set for 24

hours before proceeding with air rotary drilling 10-20 feet into competent bedrock. The well will be secured with a locking cap and finished with a flush mounted protective cover. Equipment will be decontaminated between sampling locations at the decontamination pad constructed for the field activities.

Based on well location and filed observations, soil cuttings will be spread on the ground surface near the boring or containerized. However, if impacts are observed, the contaminated soils will be segregated from non-impacted media and handled as described in Section 2.2.10.

After the wells are installed they will be developed and sampled using the techniques outlined above in section 2.2.1.

2.2.5.3 Groundwater Sampling

Each monitoring well will be developed in order to establish a connection between the well screen and the surrounding aquifer and to ensure a representative groundwater sample. Monitoring wells will be developed using dedicated tubing and a peristaltic pump. During development, the wells will be pumped until the discharge water is relatively free of sediment and a minimum of six well volumes of water have been removed. Depth to water measurements will be collected to the nearest 0.01 foot from the surveyed points identified on the well risers. Water levels will be measured using an interface probe capable of detecting a separate phase liquid. Until deemed unnecessary, in addition to measuring the water level, the wells will be checked for both light and dense non-aqueous phase liquids (LNAPLs and DNAPLs) using the interface probe. Groundwater samples will be collected from each

monitoring well in accordance with USEPA Low Flow purge and sample guidelines

Of the 20 installed wells, three wells will have groundwater samples collected and analyzed for the Full Target Compound List (TCL) for VOCs, SVOCs, Metals, PCBs, and Pesticides. The other 17 wells will have groundwater samples analyzed for VOCs and Metals only. It is assumed two rounds of water samples will be collected. Based on analytical results from initial round, additional samples may be analyzed for metals or other compounds. All samples will be sent to an NYSDOH ELAP and NYSDEC approved laboratory. A summary of the samples to be collected and their respective analysis is presented in the QAPP.

It is anticipated that purge water generated during the development and sampling of the monitoring wells will not require off-site disposal and will be discharged to the land surface in the vicinity of the well. Containerization of the purge water will be required if non-aqueous phase liquids (NAPL) are observed in the groundwater or if heavy chemical odors are detected.

2.2.6 Subsurface Soil Sampling

In an effort to further assess subsurface soil quality throughout the site area, a total of up to twenty (20) soil samples will be collected during the installation of the overburden and bedrock wells. The depth of the soil samples will be collected directly above the water table or at an interval that is impacted, based on physical observations, olfactory senses, or elevated PID readings.

Of the 20 soil samples, three will be analyzed for the Full Target Compound List (TCL) for VOCs, SVOCs, Metals, PCBs, and Pesticides and seven will be analyzed for VOCs and Metals. The remainder of the soil

samples will be analyzed for VOCs only. All samples will be sent to an NYSDOH ELAP and NYSDEC approved laboratory. A summary of the sampling analyses is provided in the QAPP and the proposed sampling locations are depicted on Figures 2 and 3.

2.2.7 Surface Water and Sediment Sampling

In an effort to assess possible disposal to an onsite discharge pond, four (4) bedload sediment samples and two (2) surface water samples will be collected for laboratory ananysis from the pond. The samples will be collected from mid-pond or at the periphery of the pond. The sediment samples will be collected using a stainless steel hand auger, dredge sampler, or appropriate disposable equipment.

The two surface water samples and two of the sediment samples, will be submitted to the labatory for the Full Target Compound List (TCL) analysis for VOCs, SVOCs, Metals, PCBs, and Pesticides. The other two sediment samples will be analyzed for VOC's and Metals. All samples will be sent to an NYSDOH ELAP and NYSDEC approved laboratory. A summary of sediment samples to be collected and their respective analysis is presented in the QAPP and the proposed sampling locations are depicted on Figure 5.

2.2.8 Survey

At the completion of the fieldwork, a site survey will be conducted in order to properly locate all sampling points such as soil borings, monitoring wells, soil vapor, sediment, and surface water sample locations. The field survey shall include establishing project horizontal and vertical control. Horizontal coordinate values will be based on New York State Plane Coordinates NAD 83. Vertical coordinate (elevations) values will be referenced to NAVD88. Real Time Kinematic (RTK) GPS

procedures utilizing New York State Department of Transportation CORS will be used to establish survey control stations on site. It has been assumed that two horizontal control stations (baseline stations) and two vertical control stations (benchmarks) will be established on site. Survey and mapping units of measure will be English (feet).

The field survey will establish the horizontal & vertical location of all sampling points such as soil borings, monitoring wells, soil vapor, sediment, and surface water sample locations. Survey location of the ground, outer casing and the top of the interior casing of monitoring wells will be established. Field survey of sampling points will be completed using conventional angle and distance measurements with total station.

2.2.9 Analytical Data Quality Evaluation

A site specific QAPP and this field activities plan will be provided which will detail the data quality objectives and analytical requirements. All quality assurance protocols will be provided in the generic QAPP.

During the final field activity plan review period, the site specific QAPP and FAP will be reviewed and modified according to NYSDEC requirements and comments. Once the plans are finalized, deviations, if required, from protocols specified in the plans will be approved in advance by NYSDEC. As required, the selected analytical laboratory will maintain NYSDOH ELAP certification in all categories of CLP and Solid and Hazardous Waste analytical testing for the duration of the project.

The selected laboratory will supply all required data deliverables (USEPA CLP and NYSDEC ASP deliverable format) to enable the data to be validated. The analytical data will also be transferred electronically from the laboratory to the validators to minimize the chances of errors in transcribing the data. Upon receipt of the sample data, the validation contractor will quantitatively and qualitatively validate the laboratory

data. The validation of the analytical data will be performed according to the protocols and QC requirements of the analytical methods, the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Review (February 1994), the USEPA Region II CLP Data Review SOP, and the reviewer's professional judgment.

2.2.10 Disposal of Derived Waste

Derived waste (DW) that is generated from the subsurface characterization, monitoring well installation and the development of monitoring wells will be handled in accordance with NYSDEC DER-10. HRP will be responsible for supplying the equipment and materials necessary for the proper handling and storage of the DW, such as DOT-approved 55-gallon drums, roll-off containers and/or holding tanks. All containers will be labeled and stored properly.

Soil shall be handled and disposed of in a manner that does not pose a threat to health and the environment. If off-site disposal of the derived waste is required, it will be disposed of or treated according to applicable local, state and federal regulations. Any soils from the site characterization may be disposed within the direct push hole provided the hole will not be used for the installation of a monitoring well (cuttings may be used to backfill holes resulting from soil sampling), the direct push hole did not penetrate an aquitard nor an aquiclude, and the backfilling the hole with cuttings will not create a significant path for vertical movement of contaminants. Soil additives (bentonite) may be added to the cuttings to reduce permeability. Six (6) inches of cohesive, compacted soil should be placed over the area of the boring.

Material that is visually stained, creates high PID measurements, or exhibits strong odors shall be sampled and analyzed to ensure chemical compatibility with other cuttings before placing the materials in a common storage/disposal area. Additionally, cuttings which are

stored/disposed on-site in bulk (not in containers) shall be monitored for volatile emissions and for fugitive dust emissions. Monitoring instruments available at the site as determined by the site-specific Health and Safety Plan (HASP) may generally be sufficient. If any action level specified in the HASP is exceeded, corrective actions such as interim cover, placement in containers, etc., shall be implemented promptly.

It is anticipated that purge water generated during the development of the monitoring wells will not require off-site disposal and will be discharged to the land surface in the vicinity of the well. Containerization of the purge water will be required if non-aqueous phase liquids (NAPL) are observed in the groundwater or if heavy chemical odors are detected. HRP will be responsible for the handling and disposal of any contaminated purge water.

2.3 REMEDIAL INVESTIGATION/ FEASIBILITY STUDY REPORT – TASK 3

A Remedial Investigation/ Feasibility Study (RI/FS) Report will be prepared as part of this work assignment following completion of the field activities. The RI/FS Report will provide a description of the field activities, present data collected during field characterization, present a physical description of the site including geology and hydrogeology, and provide an analysis and interpretation of the available data in the context of existing site conditions. The report will include tabulated laboratory analytical results, site maps and a discussion of contaminant concentrations, including a comparison to NYSDEC Standards, Criteria and Guidelines (SCGs).

The RI/FS Report prepared as part of this assignment will also provide a data validation/usability evaluation, identification and location of contaminants, assessment of potential contaminant migration pathways,

impact on human and environmental receptors, conclusions regarding the significance of the findings. The RI/FS scope of work will be sufficient for the NYSDEC to determine the overall nature and extent of contamination originating from this site, as well as assist in determining a site remedy.

3.0 PROJECT MANAGEMENT

HRP has the responsibility of the overall management of this project and will respond to NYSDEC requests.

3.1 PROJECT SCHEDULE AND KEY MILESTONES/REPORTS

The project schedule for this work assignment is outlined below. Key milestones are identified to monitor work progress. The following milestones will be applicable for this project:

Milestone 1: **Budget Submission**

Milestone 2: **RIFSWA Field Activity Plan Development**

Milestone 3: **Budget Approval**- 2 Weeks After #1

Milestone 4: **NYSDEC Review of All Site Specific Plans**

Milestone 5: **Initial Groundwater Monitoring Well Sampling**

Milestone 6: **Utility Clearence, GPR Survey**- 2 Weeks After #5

Milestone 7: **Advance Soil Borings**- 2 Weeks After #5

Milestone 8A: **Installation of Overburden Wells**- 2 Weeks After #7

Milestone 8B: **Installation of Bedrock Wells and Surface Water and Sediment Sampling**- 2 Weeks After #7

Milestone 9: **Well Development/Sampling of Installed Wells**- 1 Week After #8B

Milestone 10: **Receive Results of Soil and GW Sampling**- 2 Weeks After #9

Milestone 11: **PSV Sampling** - 2 Weeks After #10

Milestone 12: **Site Survey**- 1 Week After #11

Milestone 13: **Removal of Any Site Derived Waste**- 1 Week After #12

Milestone 14: **Ensure Data Validation is Complete-** 4 Weeks After #10

Milestone 15: **Submission of EDD-** 3-4 Weeks After #14

Milestone 16: **RIFSWA Report-** 3-4 Weeks After #14

3.2 PROJECT BUDGET

An estimated project budget has been submitted to the NYSDEC. This budget provides details, on a task by task basis, of labor, expenses, and subcontractor costs necessary to complete the project.

3.3 PROJECT PERSONNEL

A list of the project personnel of the prime consultant and subcontractors responsible for performance of the site investigation has been submitted to the NYSDEC for approval. Primary project staffs are listed below:

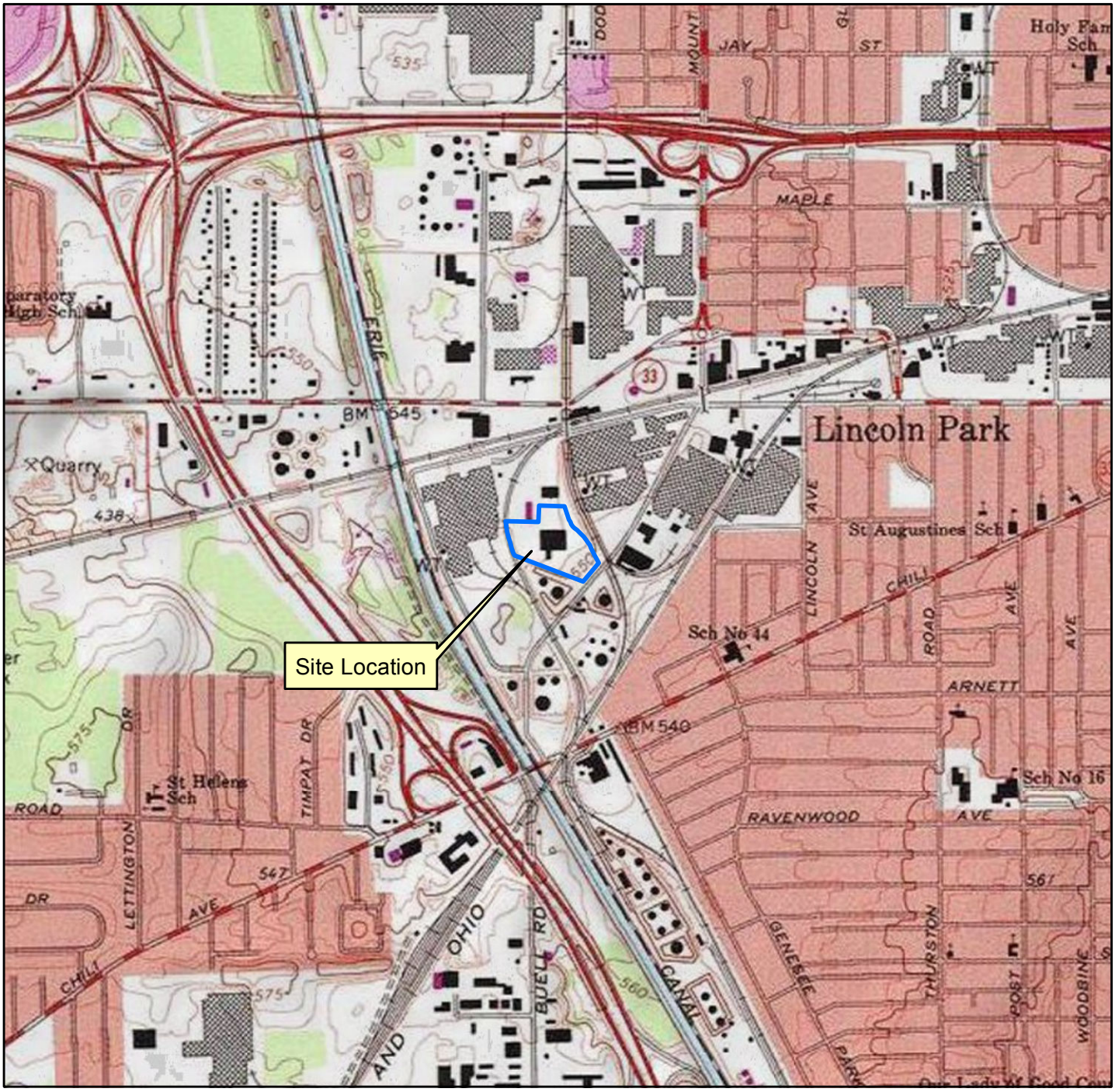
Personnel	***Company***	***Title for this Work Assignment***	***Responsibility***
Nancy Garry, P.E. (Project Manager) Cailyn Locci (Project Manager)	HRP Engineering, P.C. (Prime Consultant)	Project Manager	Overall management of the work assignment oversee the investigation and feasibility study, reviewing the RI Report and FS report
Lyman Tinc, P.E. (Senior Project Engineer)	HRP Engineering, P.C.	Office Health & Safety manager	Approval of HASP and responsible for overall health and safety issues with the work assignment
Zoe Belcher, LG, RPB (Project Manager)	HRP Engineering, P.C.	Corporate QA/QC	Responsible for QA/QC on the work assignment
Pat Rodman (Senior Project Geologist) James Charter (Project Scientist) Mark Wright (Project Scientist)	HRP Engineering, P.C.	Field manager and health & safety officer	Responsible for the on-site sampling and investigative tasks, completing the feasibility study, writing the RI Report and FS report

Subcontractors for this project will include:

- Geoprobe – SJB.;
- Drilling – Nothnagle Drilling, Inc.;
- Line Tracing/ Geophysical Survey – Lu Engineers;
- Surveying; Shumaker Engineering, P.C.;
- Laboratory – Test America;
- Soil Vapor Laboratory – Colombia Analytical Services

- Data Validation - Nancy Potak; and
- Company to dispose of any derived waste (not yet selected).

FIGURES



Path: S:\Data\NNEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\BARTHELMES - 15 CAIRN STREET, ROCHESTER\NEW9624P2\GIS\Site Location.mxd

Figure 1
Site Location Map
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Scale 1" = 2,000'

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Path: S:\Data\NNEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\BARTHELMES - 15 CAIRN STREET, ROCHESTER\NEW9624P2\GIS\Proposed Groundwater M

N

Legend

- Existing Monitoring Well Locations
- Proposed Bedrock Monitoring Well
- Proposed Overburden Monitoring Well
- Approximate Pond
- Approximate Property

0 75 150 300 450 600 750 Feet

1 inch = 150 feet

Figure 2
Proposed Groundwater Monitoring Well Locations
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York
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Scale 1" = 150'

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N

Legend

- Proposed Soil Borings
- Approximate Pond
- Approximate Property

0 75 150 300 450 600 750 Feet

1 inch = 150 feet

Figure 3
Proposed Soil Boring Location Map
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Scale 1" = 150'

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N

Legend

- Proposed Test Pits
- Approximate Pond
- Approximate Property

0 75 150 300 450 600 750 Feet

1 inch = 150 feet

Figure 4
Proposed Test Pit
Location Map
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Scale 1" = 150'

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Path: S:\Data\NNEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\BARTHELMES - 15 CAIRN STREET, ROCHESTER\NEW9624P2\GIS\Proposed Test Pits.mxd

Path: S:\Data\N\NEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\BARTHELMES - 15 CAIRN STREET, ROCHESTER\NEW9624P2\GIS\Proposed Soil Vapor, Sediment and Surface Water.mxd

N

Legend

- Proposed Surface Water Sample
- Proposed Sediment Sample
- Approximate Pond
- Approximate Property

0 75 150 300 450 600 750 Feet

1 inch = 150 feet

Figure 5
Proposed Sediment and Surface Water Sample Location Map
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Scale 1" = 150'

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APPENDIX A

Community Air Monitoring Program

COMMUNITY AIR MONITORING PROGRAMS

1.0 MONITORING

Real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter and surrounding community of the work area may be necessary. Monitoring activities will consist of a combination of continuous and periodic monitoring, which will be performed dependent upon the type of activity being conducted at the site, as discussed below.

1.1 Continuous Air Monitoring

Continuous monitoring for VOCs and particulates may be required for all ground intrusive activities associated with the site. Ground intrusive activities include soil/waste excavation and handling, installation of test pits, soil borings, and groundwater monitoring wells.

VOCs should be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using a MiniRAE 2000 or equivalent, which is appropriate to measure the types of contaminants known or suspected to be present at the site. The MiniRAE 2000 shall be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The MiniRAE 2000 is capable of calculating 15-minute running average concentrations, which will be compared to the levels specified in Section 12.2.

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work area at temporary particulate monitoring stations. The particulate monitoring will be performed using a Thermo MIE pDR-4000 DataRam or equivalent. The Thermo MIE pDR-4000 DataRam is a 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 for comparison to the airborne particulate action level. The Thermo MIE pDR is equipped with an audible alarm to indicate exceedance of the action level. In addition to using the Thermo MIE pDR-4000 DataRam, fugitive dust migration will be visually assessed during all work activities. If particulate concentrations are recorded at higher or equivalent concentrations at the upwind station during site characterization activities then continuous air monitoring will be discontinued, as approved by NYSDEC representative.

1.2 Periodic (As-Needed) Air Monitoring

Periodic or as-needed air monitoring for VOCs may be required during non-intrusive activities associated with the site-specific Work Plan. Non-intrusive activities are anticipated to include the collection of soil and sediment samples, the collection of groundwater samples from existing monitoring wells, and the collection of indoor air

and soil vapor samples. Periodic air monitoring during sample collection will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location.

2.0 ACTION LEVELS AND RESPONSE

This subsection identifies the action levels and corresponding responses for concentrations of VOCs and particulates detected during the field activities associated with a site.

2.1 Volatile Organic Compounds

If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring will continue. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will 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 will be stopped, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 ft downwind of the work zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less (but in no case less than 20 ft), 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 will be shutdown.

All 15-minute readings will be recorded and be available for NYSDEC and New York State Department of Health (NYSDOH) personnel to review. Instantaneous readings (if any) used for decision purposes will also be recorded.

2.2 Particulates

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 will be employed. Work will 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, the downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work will be

stopped and a re-evaluation of activities initiated. Work will 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.

Similar to the VOC readings, all particulate readings will be recorded and be available for NYSDEC and NYSDOH personnel to review.

APPENDIX B

Quality Assurance Project Plan

SITE SPECIFIC QUALITY ASSURANCE PROJECT PLAN
FOR
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
REMEDIAL INVESTIGATION/ FEASABILITY STUDY

Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
(Site Code #828122)
(WA #D006130-24)

August 2011

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7017

Prepared by:
HRP Engineering P.C.
1 Fairchild Square Suite 110
Clifton Park, NY 12065

SITE SPECIFIC QUALITY ASSURANCE PROJECT PLAN

for

Barthelmes Manufacturing Site
15 Cairn Street, Rochester, NY
D006130-24

CERTIFICATION

This site specific Quality Assurance Project Plan (QAPP) has been prepared under the supervision of, and has been reviewed by, HRP's Quality Assurance Officer.

Zoé A. Belcher, L.G., LEP
HRP Quality Assurance Officer

"I Zoe A Belcher certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Work Plan was prepared in accordance with all applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER 10)."

HRP ENGINEERING, P.C.

SITE SPECIFIC QUALITY ASSURANCE PROJECT PLAN FOR:

PROJECT:	**Remedial Investigation / Feasibility Study**
ADDRESS:	**Barthelmes Manufacturing Site**
	15 Cairn Street
	Rochester, New York
DEC SITE ID:	**# 828122**
	NYSDEC Standby Contract, D006130-24
HRP JOB#:	**NEW9624.P2**

PURPOSE

This site specific Quality Assurance Project Plan (QAPP) has been prepared as a companion document to accompany the generic QAPP for the standby subcontract issued to HRP Engineering, P.C. (HRP) by the New York State Department of Environmental Conservation (NYSDEC) under Standby Contract No. D006130. The principal purpose of this document is to specify quality assurance/quality control (QA/QC) procedures for the collection, analysis, and evaluation of data that will be legally and scientifically defensible. Details regarding the site specific scope of work are documented in the FAP.

QUALITY ASSURANCE PROJECT PLAN OBJECTIVES

The generic QAPP provides general information and references standard operating procedures (SOPs) applicable to the analytical sampling program detailed in the site-specific work assignment contained in the addendum to the generic Health and Safety Plan for the above referenced site. This information includes definitions and generic goals for data quality and required types and quantities of QA/QC samples. The procedures address field documentation; sample handling, custody, and shipping; instrument calibration and maintenance; auditing; data reduction, validation, and reporting; corrective action requirements; and QA reporting specific to the analyses performed by the laboratories under subcontract to HRP.

PROJECT ORGANIZATION AND RESPONSIBILITIES

The work assignment will be managed through an organized effort of scientific and engineering personnel and technical resources. These efforts will employ pre-approved field procedures, sampling techniques, and analytical methods to accomplish the project objectives. Effective program organization will accommodate these requirements while maintaining a manageable degree of control over these activities.

OVERALL PROJECT ORGANIZATION

The project-specific organizational and management plan is detailed in the site-specific Health and Safety Plan.

The following tables in this QAPP lists the sample containers, preservation, and holding time requirements for the parameters specific to this site. These tables will be referenced by field personnel.

TABLE 1
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIME REQUIREMENTS

Barthelmes Manufacturing Site, 15 Cairn Street, Rochester, NY (D006130-24)

					Containers per Sample			Preservation Requirements			
Parameter	Matrix	Number of Samples (including Field QC)	Preparation Method	Analytical Method*	No.	Size	Type	Temp.	Light Sensitive	Chemical	Maximum Holding Time
SOIL											
VOCs by GC/MS	Soil/Sediment	Refer to site specific FAP	5035A	SW-846 Method 8260B	3 vials, 1 jar	40 ml vials and size jar	Clear glass vials clear glass jar	2-6º C	No	MeOH/sodium bisulfate/deionizer water/freezing upreserved	14 days
SVOCs by GC/MS	Soil/Sediment	Refer to site specific FAP	3546	SW-846 Method 8270C	1	8 oz	amber glass jar	2-6º C	Yes	NA	14 days
TAL Metals (except Hg) by ICP	Soil/Sediment	Refer to site specific FAP	3050B	SW-846 Method 6010B	1	8 oz	clear glass jar	NA	No	NA	6 months
Mercury (Hg) by CV	Soil/Sediment	Refer to site specific FAP	7471A	SW-846 Method 7471A	1	8 oz	clear glass jar	NA	No	NA	28 days
Total Cyanide	Soil/Sediment	Refer to site specific FAP	9012	SW-846 Method 9012	1	8 oz	plastic bottle	2-6º C	No	NA	14 days
PCBs by GC	Soil/Sediment	Refer to site specific FAP	3546	SW-846 Method 8082	1	8 oz	clear glass jar	2-6º C	No	NA	14 days
Chlorinated Pesticides by GC	Soil/Sediment	Refer to site specific FAP	3546	SW-846 Method 8081A	1	8 oz	clear glass jar	2-6º C	No	NA	14 days
GROUNDWATER											
VOCs by GC/MS	Aqueous	Refer to site specific FAP	5035	SW-846 Method 8260B	2	40 ml	glass vial	2-6º C	No	HCL	14 days
SVOCs by GC/MS	Aqueous	Refer to site specific FAP	3510C	SW-846 Method 8270C	2	1 liter	amber bottle	2-6º C	Yes	NA	7 days
TAL Metals (except Hg)by ICP	Aqueous	Refer to site specific FAP	3005A	SW-846 Method 6010B	1	500 ml	plastic bottle	NA	No	Nitric Acid	6 months
Hexavalent Chromium	Aqueous	Refer to site specific FAP	7196A	SW-846 Method 7196A	1	500 ml	plastic bottle	NA	No	NA	24 hours
Mercury (Hg) by CV	Aqueous	Refer to site specific FAP	7470	SW-846 Method 7470A	1	250 ml	plastic bottle	NA	No	Nitric Acid	28 days
Total Cyanide	Aqueous	Refer to site specific FAP	9012	SW-846 Method 9012A	1	250 ml	plastic bottle	2-6º C	No	NaOH	14 days
PCBs by GC	Aqueous	Refer to site specific FAP	3510C	SW-846 Method 8082	2	liter	clear glass bottle	2-6º C	No	NA	7 days
Chlorinated Pesticides by GC	Aqueous	Refer to site specific FAP	3510C	SW-846 Method 8081	2	liters	clear glass bottle	2-6º C	No	NA	7 days

Acronym List:

GC: Gas Chromatography
ICP: Inductively Coupled Plasma
HCL: Hydrochloric Acid
MeOH: Methanol
CV: Cold Vapor
VOCs: Volatile Organic Compounds
SVOCs: Semi-Volatile Organic Compounds
TAL: Target Analyte List
PCBs: Polychlorinated Biphenyls
MS: Mass Spectroscopy
ml: Milliliter
C; Celsius
NaOH: Sodium hydroxide
Hg: Mercury

Table 2: CAS Rochester TO-15 Reporting Limits

ALL values are prior to canister pressurization dilution factor.

MDL data study ID 1952 LAB QAP DATA

8/2010 study spec 12415 ver 12 6/13/2011

50	Analyte	CAS Number	MDL ug/m3	MRL ug/m3	
x	1,1,1-Trichloroethane (TCA)	71-55-6	0.037	0.60	
x	1,1,2,2-Tetrachloroethane	79-34-5	0.032	0.15	
x	1,1,2-Trichloroethane	79-00-5	0.035	0.60	
x	1,1,2-Trichlorotrifluoroethane (CFC 113)	76-13-1	0.039	0.17	
x	1,1-Dichloroethane (1,1-DCA)	75-34-3	0.017	0.45	
x	1,1-Dichloroethene (1,1-DCE)	75-35-4	0.011	0.44	
x	1,2,4-Trichlorobenzene	120-82-1	0.027	1.60	**c**
x	1,2,4-Trimethylbenzene	95-63-6	0.009	1.08	
x	1,2-Dibromoethane	106-93-4	0.034	0.17	
x	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	76-14-2	0.023	1.54	
x	1,2-Dichlorobenzene	95-50-1	0.023	1.32	
x	1,2-Dichloroethane	107-06-2	0.023	0.45	
x	1,2-Dichloropropane	78-87-5	0.018	0.51	
x	1,3,5-Trimethylbenzene	108-67-8	0.01	1.08	
x	1,3-Dichlorobenzene	541-73-1	0.025	1.32	
x	1,4-Dichlorobenzene	106-46-7	0.018	1.32	
x	1,4-Dioxane	123-91-1	0.041	4.00	**a c**
x	2-Butanone (MEK)	78-93-3	0.021	0.65	
x	4-Methyl-2-pentanone	108-10-1	0.01	0.90	
x	Benzene	71-43-2	0.01	0.35	
x	Benzyl Chloride	100-44-7	0.016	2.846	
x	Bromodichloromethane	75-27-4	0.043	0.15	
x	Bromoform	75-25-2	0.05	1.14	
x	Bromomethane	74-83-9	0.032	0.43	
x	Carbon Tetrachloride	56-23-5	0.03	0.07	
x	Chlorobenzene	108-90-7	0.023	0.51	
x	Chloroethane	75-00-3	0.023	0.58	
x	Chloroform	67-66-3	0.027	0.54	
x	Chloromethane	74-87-3	0.01	0.45	
x	Cyclohexane	110-82-7	0.012	0.76	
x	Dibromochloromethane	124-48-1	0.037	0.19	
x	Dichlorodifluoromethane (CFC 12)	75-71-8	0.018	1.09	
x	Dichloromethane	75-09-2	0.019	0.38	
x	Ethanol	64-17-5	0.024	2.1	**a c**
x	Ethylbenzene	100-41-4	0.011	0.95	
x	Hexachlorobutadiene	87-68-3	0.037	2.345	**c**
x	Methyl tert-Butyl Ether	1634-04-4	0.006	0.79	
x	Styrene	100-42-5	0.009	0.94	
x	Tetrachloroethene (PCE)	127-18-4	0.028	0.08	
x	Toluene	108-88-3	0.009	0.41	
x	Trichloroethene (TCE)	79-01-6	0.024	0.06	
x	Trichlorofluoromethane (CFC 11)	75-69-4	0.022	0.62	
x	Vinyl Chloride	75-01-4	0.014	0.06	
x	cis-1,2-Dichloroethene	156-59-2	0.018	0.44	
x	cis-1,3-Dichloropropene	10061-01-5	0.014	1.00	
x	m,p-Xylenes	179601-23-1	0.018	1.91	
x	n-Hexane	110-54-3	0.009	0.78	
x	o-Xylene	95-47-6	0.007	0.95	
x	trans-1,2-Dichloroethene	156-60-5	0.012	0.44	
x	trans-1,3-Dichloropropene	10061-02-6	0.013	0.50	

Notes

a compound not active in spec set, MRL will need to be entered

b compound MRL needs to be adjusted in spec set.

c compound routinely fails QC criteria