LABELLA Associates, D.P.C.
Engineering
Architecture
Environmental
Planning

Interim Remedial Measures Work Plan
NYSDEC BCP Site No. C828182

Location:
Eldre Corporation
1500 Jefferson Road & 55 Hofstra Road
Town of Henrietta
Monroe County, New York

Prepared for:
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LaBella Project No. 212721

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CERTIFICATIONS

I, DANIEL NOLL certify that I am currently a NYS registered professional engineer and that this Interim Remedial Measure Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

081996	9/28/16	
NYS Professional Engineer #	Date	Signature

1.0 Introduction & Background

LaBella Associates, D.P.C. (LaBella) is pleased to submit this Interim Remedial Measures (IRM) Work Plan to install a sub-slab depressurization system (SSDS) at the Eldre Corporation Site located at 1500 Jefferson Road and 55 Hofstra Road, located in the Town of Henrietta, Monroe County, New York ("the Site"), New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site #C828182.

1.1 Site Description and History

The Site consists of four (4) contiguous tax parcels totaling approximately 6.72 acres, as summarized in the following table (refer to Figure 1).

<table>
<tr><th>Parcel Address (collectively the "Site")</th><th>Section No.</th><th>Block No.</th><th>Lot No.</th><th>Acreage</th></tr>
<tr><td>1500 Jefferson Road, Henrietta, NY 14623</td><td rowspan="4">162.08</td><td rowspan="4">1</td><td>27.11</td><td>1.82</td></tr>
<tr><td>1500 Jefferson Road, Henrietta, NY 14623</td><td>27.12</td><td>0.14</td></tr>
<tr><td>1500 Jefferson Road, Henrietta, NY 14623</td><td>27.21</td><td>1.46</td></tr>
<tr><td>55 Hofstra Road, Henrietta, NY 14623</td><td>24</td><td>3.30</td></tr>
</table>

The 1500 Jefferson Road parcels are improved with a ±97,250 square foot, split-level building that is primarily utilized for industrial/manufacturing purposes, with office space in the southern portion and manufacturing areas in northern portion of the building. This main manufacturing building (i.e., the "1500 Jefferson Road building") is comprised of four (4) separate additions. The 1500 Jefferson Road building has a concrete slab-on-grade foundation, with the exception of the southern portion of the structure, which has a basement underneath the office space. Asphalt-paved parking lots and driveways are located north, south, and east of the 1500 Jefferson Road building. There is limited vegetative cover on the 1500 Jefferson Road parcels, with the exception of a small grassy area on the southwestern portion of the parcels and some small landscaped areas near Jefferson Road.

The 55 Hofstra Road parcel is improved with a ±6,860 square foot garage building with overhead bay doors, and asphalt-paved parking lots and driveways surround this structure. This smaller building is not routinely occupied but used as maintenance and storage building for the Site. There are some vegetated drainage swales on the southwestern portion of the 55 Hofstra Road parcel, as well as along its western and northern property lines. In addition, there is approximately 0.6 acres of vegetated area on the eastern portion of the 55 Hofstra Road parcel.

The Site is currently zoned for commercial (55 Hofstra Road parcel) and industrial uses (1500 Jefferson Parcels) and is located in an urban area of the Town of Henrietta.

The parcels comprising the Site are owned and operated by Mersen USA Rochester-NY, Corp., formerly known as Eldre Corporation. It is understood that current manufacturing activities at the Site produce electrical components (i.e., bus bars), which require a sheet metal fabrication operation that involves the use of chemicals during the plating process.

All of the properties immediately adjacent to the Site are industrial and commercial. The closest residential zoned property is approximately 0.3 miles to the east of the Site. The nearest agricultural use is approximately 1.25 miles to the north of the Site.

The properties bordering the Site are summarized in the following table.

Direction From Site	Owner	Address	Property Usage
North	3131 Winton Road Assoc., LLC	3131 Winton Road	Wegmans Distribution Center
Northwest	Harris Communications	100 Hofstra Road	Undeveloped Land
South	1555 Jefferson Road, LLC	1555 Jefferson Road	Manufacturing
Southwest	Sugar Creek Stores, Inc.	1477 Jefferson Road	Retail Gasoline Station
East	Plaza at Win-Jef, LLC	1-37 Hofstra Road	Retail Plaza
East	Bowl A Roll, Inc.	1560 Jefferson Road	Bowling Alley, Commercial Retail
East	Atlantic Refining & Marketing Corp	1540 Jefferson Road	Retail Gasoline Station
East	1530 Jefferson Road, LLC	1530 Jefferson Road	NYSDOT Regional Headquarters
West	Harris Corporation (Formerly Xerox)	1400 Jefferson Road	Industrial*

* Parcel is in the State Superfund Program and is listed as a Class 4 Inactive Hazardous Waste Disposal Site (Site #828069). The impacts at the Site include chlorinated solvents (PCE, TCE, 1,1,1-TCA, 1,1-DCE, 1,1-DCA, Methylene Chloride and Vinyl Chloride).

Based upon review of previous environmental documents, the Site was utilized as farmland until the 1950s, when the Site was first developed by Fannon Metal Industries. According to historical records, the property appears to have been shared with P&F Metal and Finishing during the late 1960s. There appears to be no readily available historical information regarding whether the former occupants of Site used hazardous chemicals or generated hazardous waste. Review of an aerial photograph of the Site dated 1970 identifies an apparent retention pond in the northwestern portion of the 1500 Jefferson Road Parcel with a potential drainage feature from the building to the pond area. These features also are present in aerial photographs dated 1961 and 1976. Eldre Corporation owned and occupied the Site beginning in approximately 1974. In November 2012, Eldre Corporation was sold, but the company has continued to own the Site. Earlier this year, Eldre Corporation changed its name to Mersen USA Rochester-NY, Corp (f/k/a Eldre Corporation)[1].

1.2 Standards, Criteria and Guidelines

[1] A Change of Use form and BCA Amendment have been submitted to NYSDEC so as to conform the Brownfields Cleanup Agreement to this change in name of the corporate entity.

This section identifies the Standards, Criteria and Guidelines (SCGs) for this IRM Work Plan. Refer to the RI report or Remedial Action Work Plan for applicable soil and groundwater SCGs. .

Soil Gas and Vapor SCGs

Currently, no state regulatory (NYSDEC or New York State Department of Health (NYSDOH)) guidance values exist for soil gas.

Sub-Slab Soil Vapor and Indoor Air SCGs: The NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006 (including the USEPA Building Assessment and Survey Evaluation (BASE) Database (90th Percentile), in Appendix C of the NYSDOH document) is utilized for the SCG for soil vapor and indoor air.

2.0 Summary of Remedial Investigation

2.1 Remedial Investigation Fieldwork

The BCP RI fieldwork included advancing soil borings, installing temporary overburden groundwater monitoring wells, constructing permanent shallow and deep overburden groundwater monitoring wells at the Site, as well as collecting surface soil samples from the Site. RI groundwater sampling was conducted during several distinct events. The first round of groundwater sampling was conducted in May, 2014 and a second round of groundwater sampling was conducted in September, 2014. The following table indicates the total number of samples collected and analyzed during previous investigations.

Sampled Media	Sample Quantities
Surface Soil Samples	4
Test Boring Soil Samples	77
Open Borehole Groundwater Samples	4
Permanent/Finished Monitoring Well Groundwater Samples	16
Temporary/Removed Monitoring Well Groundwater Samples	16

Note that the above table includes seventeen (17) test boring soil samples collected during a RAA Investigation. Although most soil and groundwater samples were submitted for analysis of volatile organic compounds (VOCs) only, select soil and groundwater samples collected during the RI were submitted for analysis of the following "full suite" laboratory parameters which include:

- United States Environmental Protection Agency (USEPA) Target Compound List (TCL) VOCs and tentatively identified compounds (TICs)
- USEPA TCL semi-volatile organic compounds (SVOCs) and TICs
- Target Analyte List (TAL) Metals and Cyanide

- Polychlorinated biphenyls (PCBs)
- Pesticides

2.2 Remedial Investigation Findings

The RI evaluated three Areas of Concern (AOC) at the Site. RI findings relating to VOCs in soil and groundwater relevant to this IRM Work Plan are summarized below. Refer to the RI Report for a more detailed description of the findings of the investigation.

Soil

The highest concentrations of CVOCs in soil identified during the RI are located proximate SB-226 and between depths of 12 feet to approximately 15 feet bgs. These impacts have not migrated any significant distance. This is based on numerous soil samples in and around the identified source area. Specifically, the highest CVOC concentration detected during the RI was in sample SB-226 (12'-13' and 15'), but samples collected laterally from within 10 feet to 15 feet and at similar depth intervals and from samples above and below this interval were significantly lower. Samples SB-216 (12'-13'), SB-217 (12'-12.5'), SB-224 (8'-10' & 15'), SB-225 (7'-8' & 16'), and SB-228 (11'-12') had detected CVOC concentrations that were orders of magnitude lower than the concentrations detected in sample SB-226 (12'-13'). It should also be noted that SB-236 advanced during the Remedial Alternatives Analysis Investigation identified a higher concentration of TCE than SB-226. SB-236 is located approximately 5 ft. south of SB-226. The highest concentration in SB-236 for TCE was a sampled at 14 ft. bgs which is consistent with the worst case interval in SB-226. Soil samples from each soil boring advanced during the Remedial Alternatives Analysis Investigation were collected at various depths ranging from 12 to 31 ft bgs to vertically define CVOC impacts. The limited migration of impacts within the soil matrix may be due to fine grained soils (clays and silts) which tend to retard. However, TCE concentrations identified are greater than 1% of the solubility of TCE (1,100 mg/L) and thus Dense Non-Aqueous Phase Liquid (DNAPL) is likely to be present in this area (although not observed directly).

May 2014 Groundwater Sampling Results

The highest concentration of trichloroethene (TCE) (114 ppm) was reported in the groundwater sample collected from SB-225/MW-29. This temporary well was located in close proximity (±9 feet) to SB-216/MW-20, the TCE-impacted well installed inside the northern portion of the 1500 Jefferson Road building. TCE was also reported at elevated concentrations (i.e., above the NYSDEC Part 703 Groundwater Standard) in the three other wells installed in this interior area of the Site (SB-223/MW-27, SB-224/MW-28, and SB-226/MW-30).

TCE was also reported at concentrations above the NYSDEC Part 703 Groundwater Standard in permanent well SB-230A/MW-33 (installed in the soil boring near the western property boundary that was observed to contain a seam of gravel) and in temporary well SB-232/MW-35 (installed near the northeastern corner of the 1500 Jefferson Road building, to the east of the loading dock's concrete pad). The groundwater sample collected from temporary well SB-232/MW-35 was also reported to contain tetrachloroethene (PCE) and methyl tert-butyl ether (MTBE) at concentrations of 90.3 and 85.2 ppb, respectively, above NYSDEC Part 703 Groundwater Standards.

Cis-1,2-dichloroethene was reported at concentrations above the NYSDEC Part 703 Groundwater Standard in interior wells SB-223/MW-27, SB-224/MW-28, and SB-226/MW-30, as well as exterior wells SB-230A/MW-33 and SB-232/MW-35. Trans-1,2-Dichloroethene was also reported at a concentration slightly above the NYSDEC Part 703 Groundwater Standard in the groundwater sample collected from exterior permanent well SB-230A/MW-33.

Vinyl chloride, another TCE degradation product, was reported at a concentration slightly above the NYSDEC Part 703 Groundwater Standard (25.3 ppb) in interior well SB-224/MW-28.

No CVOCs were detected above laboratory detection limits in the groundwater sample collected from deep overburden well SB-233/MW-36.

September 2014 Groundwater Sampling Results

Most of the laboratory analytical results associated with the September 2014 Second Round of Groundwater Sampling are comparable to results obtained from prior rounds of groundwater sampling. The following exceptions should be noted:

- A reduction in the reported concentration of TCE in groundwater collected from interior well SB-222/MW-20, from 114 ppm in January 2014 to 25 ppm in September 2014;
- A reduction in the reported concentration of TCE in groundwater collected from interior well SB-216/MW-26, from 21.6 ppb in January 2014 to 3.7 ppb (i.e., below the NYSDEC Part 703 Groundwater Standard for TCE) in September 2014;
- A reduction in the reported concentration of TCE in groundwater collected from exterior well 230A/MW-33, from 87.3 ppb in May 2014 to 10 ppb (i.e., only slightly above the NYSDEC Part 703 Groundwater Standard for TCE) in September 2014; and
- An increase in the reported concentration of TCE in groundwater collected from exterior deep well SB-233/MW-36, from “non-detect” in June 2014 to 6.1 ppb (i.e., slightly above the NYSDEC Part 703 Groundwater Standard for TCE) in September 2014.

On-Site Exposure Assessment:

Based on the results of the RI, a completed on-site exposure pathway does not exist for SVOCs, metals, pesticides and PCBs for the current or planned use of the Site as long as any subsurface disturbances are properly managed. In respect to VOCs, due to the continued use of TCE at the facility until January 2015 (when the RI was being finalized), the RI did not evaluate potential on-site exposures to VOCs. However, based on the known concentrations of VOCs in soil and groundwater beneath the northern portion of the building, preventive mitigation for a portion of the building appears warranted. In addition, measures to protect site workers and the public will be in place through the development of a Site Management Plan (SMP).

3.0 Objective

The primary objective of this IRM is to mitigate CVOC impacts in soil vapor that have the potential to migrate into the 1500 Jefferson Road Building. This objective will be completed via the installation of a sub-slab depressurization system (SSDS) within the northern portion of the 1500 Jefferson Road Building. Specifically, the SSDS is designed to mitigate soil vapors within and in proximity to documented impacts. A pilot test was conducted to evaluate the sub-slab air communication for selection of the placement and number of suction points, and fan size. Post-startup testing would be completed to confirm the limits of the SSDS are adequate. If the post-startup testing indicates that the area being mitigated needs to be expanded, another sub-system with a separate fan may be installed.

4.0 Summary of the Remedial Goals

The Remedial Goals for this IRM Work Plan are as follows:

1) Install a SSDS to create negative sub-slab pressure beneath the northern portion of the 1500 Jefferson Road Building, thus mitigating potential soil vapor intrusion (SVI) issues.
2) Install gauges and alarms associated with the SSDS as well as pressure field extension (PFE) points to confirm the influence and monitor the operation of the system.
3) Conduct SVI testing within the 1500 Jefferson Road Building outside the area of influence to confirm the extent of the SSDS is adequate to mitigate SVI.

It should be noted that TCE was utilized in the facility for approximately 35 years and ceased in January 2015. Incidental/ deminimis spillage of TCE during routing use may be a source of TCE to indoor air; however, this IRM is designed to address SVI. In accordance with the *Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006, a product inventory will be completed to document and characterize any chemicals or products that could be potential sources for indoor air contamination. The product inventory will be completed throughout the 1500 Jefferson Road building during collection of the sub-slab and indoor air samples.

5.0 Field Activities Plan

5.1 Sub-Slab Depressurization System Installation

Due to the presence of VOCs in soil and groundwater beneath the northern portion of the 1500 Jefferson Road building, a SSDS will be installed to mitigate soil vapors that may enter the building through the floor slab. The SSDS will redirect soil vapors from beneath the floor slab to above the roof line, thus eliminating the potential for SVI. The proposed extent of the SSDS is shown on Figure 3. The extent of mitigation is based on the soil and groundwater data collected as part of the RI and is intended to provide influence over areas with TCE concentrations in soil and/or groundwater. Note that SVI testing will be completed in portions of the building not proposed for mitigation, to evaluate the need for mitigation in those areas.

5.1.1 System Overview

The SSDS infrastructure will be installed in accordance with the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006 (and associated amendments). The majority of the system will be constructed of Schedule 40 polyvinyl chloride (PVC) piping and fittings which shall conform to ASTM D3034. The SSDS is designed to influence approximately 12,000-square feet (sq. ft.) of the northern portion of the main building as shown on Figure 3. Specifically, this is intended to address sub-slab soil vapors emanating from RAOC #1 and RAOC #2. It should be noted that the actual limits of the system influence may vary from that shown on Figure 3; however, this will be confirmed with pressure field extension (PFE) testing. The SSDS will consist of approximately four (4) depressurization points which will be manifolded together horizontally in the building's ceiling to form one (1) system or potentially two (2) sub-slab systems (or "sub-systems"), in the event that influence is not obtained throughout the area being mitigated with a single fan. Each sub-system will be operated by a separate fan. The PFE monitoring points will be utilized for a temporary assessment of pressure field; however, these points will be sealed subsequent to system installation and confirmation of the radius of influence.

In addition, although the approximate locations of the depressurization points are depicted on Figure 3, these locations may vary slightly based on building conditions, owner requirements and vacuum requirements. SSDS details are included on Figure 2 and described below.

5.1.2 Depressurization Points

Each depressurization point is designed to consist of a vertical 2-in. diameter Schedule 40 PVC pipe which will be manifolded into a horizontal 3 or 4-in. diameter Schedule 40 PVC pipe (a lateral) located in the building's ceiling. The depressurization point will be installed by coring a 5-in. diameter hole in the concrete floor slab. Approximately one (1) cubic ft. of void space will be created directly under the cored area by removing material beneath the slab through the corehole. This material will be containerized for future characterization and appropriate disposal. The 2-in. diameter PVC pipe will then be lowered into the corehole so the bottom of the pipe is flush with the bottom of the floor slab. At that point, the PVC will be sealed into the concrete floor slab using urethane caulk and backer rod to ensure that a vacuum is created during system operation.

The depressurization points are anticipated to be installed away from columns and along interior walls to the extent practicable. Some limited trenching may be completed to support the depressurization point installation. Such trenching will be completed by removing a small rectangle of the concrete floor just wide enough to insert a horizontal 2-in. diameter PVC pipe to connect the sub-slab space to the vertical riser. Any material removed as part of the trenching will be containerized for future characterization.

5.1.3 Pressure Field Extension Monitoring Points

Numerous PFE monitoring points are anticipated to be created during the installation of the SSDS to confirm the creation of a pressure differential, sub-slab to ambient air pressure. The exact locations of the monitoring points cannot be determined at this time as their placement is dependent on field conditions and the location of the sub-systems; however, the conceptual locations are shown on Figure 3. Each PFE point will consist of a 0.5-in. to 1-in. diameter hole in the floor slab through which a manometer can be utilized to measure the pressure differential between the indoor space and the sub-slab space. Subsequent to system installation and confirmation that there is adequate "capture", the PFE points will be permanently sealed with urethane caulk and backer rod to prevent any of these points from compromising the vacuum created by the SSDS and to prevent sub-slab vapor from entering indoor air through these points.

5.1.4 Laterals and Fans

The lateral will consist of 3-in. and 4-in. diameter Schedule 40 PVC into which the vertical depressurization points will be manifolded. The lateral is anticipated to link together all depressurization points to create one sub-system, with its own fan and will be located within the building's ceiling and/or other overhead utility corridors. The lateral for the sub-system will be tied into a vertical riser which will extend through the roof where a fan will be located. The fan is anticipated to be a GBR 76; however, an alternate fan size may be considered depending on the PFE testing, air flow measurements and vacuum observed at the time of start-up. Effluent from the fan shall be discharged at least 10-ft. away from any air intakes, at least 12-in. above the surface of the roof and at least 10-ft. from any opening that is less than 2-ft. below the exhaust point.

5.1.5 System Gauges and Alarms

Once the system is operating properly and effectively, an alarm will alert the occupants proximate the SSDS in the event that the system fails. The alarm system will consist of 0.25-in diameter tubing connected and sealed into the vertical riser (i.e., the vertical piping connecting the lateral to the fan). Tubing will be run from the sub-system to a location that will be agreed upon between the NYSDEC and building owner. It should be noted that the alarm will be placed in relative proximity to the system. Details associated with the alarms are included in Figure 2. The alarm will also be equipped with gauges to measure and display the vacuum reading of the vertical riser to confirm the system is running and to confirm the influence is similar to the initial system readings.

The alarm will sound and the indicator light will turn from green to red when pressure within the vertical riser drops below the set point, which is anticipated to be 0.25 inches of water column ("WC). When the system is working properly the audible indicator will be silent and the light will be green. The alarm will be mounted approximately 7-ft. to 12-ft. above the finished floor surface. The alarm will be connected to a separate electrical circuit than the fan so that the alarm will activate if power to the fan is interrupted. A sign in the vicinity of the alarm will indicate who to contact should the alarm sound.

5.2 Post-Startup Air Sampling

5.2.1 Indoor Air Sampling

SVI testing will be completed at the Site outside the area of influence of the SSDS, forty-five days after the completion of the SSDS installation and full startup. SVI testing will be conducted during the heating season. Indoor air samples will be collected from the locations identified on Figure 3. One (1) outdoor air sample will also be collected as part of this sampling event. Pending results, these samples will act as "endpoint" samples to confirm "the effectiveness of remedial measures" per the NYSDOH Guidance. In the event that one or more of these samples show targeted VOCs at levels above the appropriate SCGs, re-sampling will be completed within 30 days of the receipt of sample results or the SSDS system will be extended to obtain influence in the areas of failure. If similar results occur, changes to the mitigation system will be made and subsequent sampling will be completed until VOC concentrations in indoor air are below the SCGs or the SSDS is shown to be effective at obtaining influence over the area of proposed mitigation. It should be noted that TCE was utilized at the facility for over 35 years and there may be off-gassing from building materials where incidental spills occurred on concrete or other porous materials that may impact indoor air. The potential impact of this is unknown and may need to be a considered when assessing SVI testing results. A product inventory will be completed in accordance with the *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006.

The installation and sampling of the sub-slab vapor points will be completed in accordance with the procedures provided in the *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006. The applicable procedures to be implemented as part of this investigation are summarized below (refer to Figure 3 for approximate locations):

- Sub-slab vapor probe installations will be temporary. A vacuum will not be used to remove drilling debris from the sampling port. Sub-slab implants or probes will be constructed in the same manner at all sampling locations to minimize possible discrepancies. The following procedures will be utilized:
  - Temporary sampling points will be installed by drilling a 5/8-in. diameter corehole through the floor slab.
  - A vapor pin, consisting of a 5/8-in. diameter silicone tube and barbed fitting will be installed into the corehole.
  - Tubing will connect a Summa® canister with a pre-set regulator to the barbed fitting for sub-slab soil vapor collection.

- Sub-slab soil vapor samples will be collected in the following manner:
  - After installation of the vapor pins, one (1) to three (3) volumes (i.e., the volume of the sample probe and tube) will be purged prior to collecting the samples to ensure samples collected are representative.
  - Flow rates for purging will not exceed 0.2 liters per minute to minimize the ambient air infiltration during sampling.
  - During purging of the sample point, a tracer gas evaluation will also be conducted at a minimum of 10% of the sample locations to verify the integrity of the sub-slab soil vapor probe seal. An appropriate tracer gas will be used (e.g., helium, etc.). An enclosure will be constructed around the soil gas sampling point (e.g., plastic bag, plastic bucket, etc.) and sealed around the sample point casing. Subsequently, the enclosure will be enriched with the tracer gas. The purged soil gas will then be tested for the tracer gas by an appropriate meter (i.e., a meter capable of measuring the concentration of 10% or greater).
  - Sub-slab vapor samples will be collected over the same general time period and in the same manner at all locations to minimize possible discrepancies. Sub-slab vapor samples will be collected using one (1) liter Summa Canisters® equipped with pre-calibrated laboratory supplied flow regulators set for a sampling time of six (6) hours. The Summa Canisters® will be certified clean by the laboratory. The Summa Canister® will be connected to the sub-slab soil vapor sampling point via inert tubing (e.g., polyethylene, stainless steel, or Teflon®).
  - Subsequent to completing the sub-slab soil vapor sampling, the samples will be sent under chain of custody control to the laboratory for testing. The samples will be tested for the list of targeted VOCs using USEPA Method TO-15 with a minimum detection limit of 0.25 $\mu g/m^3$ for TCE and vinyl chloride, and 1 $\mu g/m^3$ for all other compounds.

- Indoor air and outdoor air samples will be collected concurrent with the sub-slab soil vapor samples in the following manner:
  - Indoor air and outdoor air samples will be collected over the same general time period and in the same manner at all locations to minimize possible discrepancies. Indoor air and outdoor air samples will be collected using one (1) Liter Summa Canisters® equipped with pre-calibrated laboratory supplied flow regulators set for a flow rate of 0.003 L/minute. The regulators will be calibrated by the laboratory for a sampling time of six (6) hours. The Summa Canisters® will be certified clean by the laboratory.
  - Indoor air samples will be collected from a height of approximately three (3)-feet above the floor surface.
  - Outdoor air samples will be collected near the air intake for the building or at an upwind location approximately three (3) feet above the ground surface.

Subsequent to completing the sub-slab, indoor and outdoor air sampling, the samples will be sent under standard COC procedures to the laboratory for testing. Based on the use of chemicals at the Site and the potential for non-target VOCs to be present, all sub-slab vapor, indoor and outdoor air samples will be analyzed for the following list of VOCs:

Compound	Anticipated Detection Limit (µg/m^3)
Tetrachloroethene	1.0
Trichloroethene	0.25
cis-1,2-Dichloroethene	1.0
trans-1,2-Dichloroethene	1.0
Vinyl Chloride	0.25
1,1,1-Trichloroethane	1.0
1,1-Dichloroethane	1.0
1,1-Dichloroethene	1.0
Chloroethane	1.0
Chloromethane	1.0

The analyses will be performed by a New York State ELAP certified laboratory using USEPA Method TO-15 with a minimum detection limit of 0.25 µg/m^3 for TCE and vinyl chloride, and 1 µg/m^3 for all other compounds. An "ASP-Category B-like" deliverables package will be generated by the laboratory and a Data Usability Summary Report (DUSR) will be completed and included in the FER.

5.3 Health and Safety and Community Air Monitoring

LaBella's Health and Safety Plan (HASP) for this project is included as Appendix 1.

The NYSDOH Generic Community Air Monitoring Plan (CAMP) and Fugitive Dust and Particulate Monitoring will be utilized for subsurface intrusive work portions of this IRM and is included as Appendix 2. Based on the nature of the work some modifications/clarifications are warranted for the CAMP monitoring. These are provided below:

- All work will be completed within the building and thus upwind/downwind monitoring will be modified. Specifically, a background reading for VOCs and fugitive dust will be established at each work area prior to conducting any subsurface penetrations and then monitoring will be conducted within the work zone (approximate 5-ft. radius area around floor penetration). The action levels will be applied to the edge of the work zone.
- Subsequent to completing work and sealing the floor penetrations a reading for VOCs will be recorded to confirm background levels have been established.
- Fugitive dust monitoring will be completed in accordance with the NYSDOH Guidance and as noted above; however, it should be noted that coring of the concrete floor will likely create some minimal dust for a short duration and wet techniques will be employed to minimize this issue.

5.4 Housekeeping and Investigation Derived Waste

Good housekeeping practices will be followed to prevent leaving contaminated material on the floor surface (e.g., precautions will be taken to prevent impacts to the ground surface due to material spilled during soil sampling, etc.). Any material that does spill on to the floor surface will be promptly picked up and placed in an appropriate location and the floor surface will be cleaned.

Waste materials anticipated to be generated during the implementation of this IRM Work Plan include soils from the installation of the SSDS. These waste materials will be containerized in 55-gallon drums and stored at the Site for characterization and future disposal.

5.5 Quality Assurance Project Plan

Activities completed at the Site will be managed under LaBella's Quality Control Plan (QCP), which is included in Appendix 3. For the TO-15 samples, the laboratory will provide a data package using the ASP Category B format and DUSRs will be completed The DUSRs will include the laboratory data summary pages showing corrections made by the data validator and each page will be initialed by the data validator. The laboratory data summary pages will be included even if no changes were made.

6.0 IRM Schedule and Reporting – Deliverables

The information and laboratory analytical data obtained during the IRM will be included in an IRM Construction Completion Report (CCR). The CCR will be completed in accordance with DER-10 Section 5.8.

Implementation of the IRM Work Plan is scheduled to begin within 14 days after NYSDEC approval of this Work Plan. The field work is anticipated to require 30 to 60 days to complete subsequent to the approval of the IRM Work Plan and provision of access by the owner. The IRM CCR will be submitted within 90 days of the full start-up for the SSDS. If an IRM Work Plan addendum is required, it will be submitted as the need is identified and it will include a revised schedule.

In addition to the IRM CCR, all data will also be submitted in the NYSDEC-approved EDD format. Moreover, the data will be submitted on a continuous basis immediately after data validation occurs, but in no event more than 90 days after the data has been submitted to the remedial party or its consultant(s).

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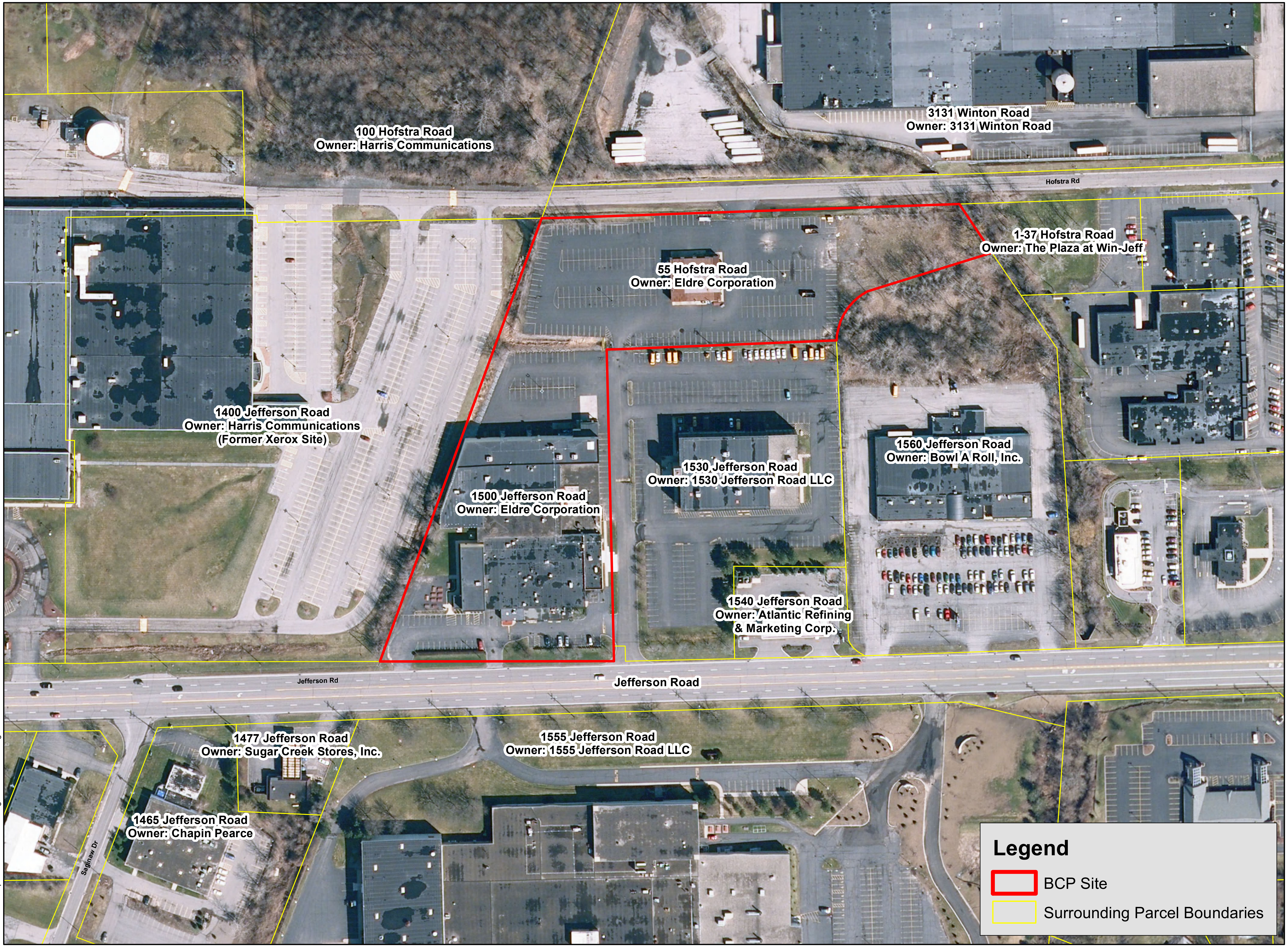
Figures



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INTERIM REMEDIAL MEASURES WORK PLAN
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BCP SITE C828182

1500 JEFFERSON ROAD
AND 55 HOFSTRA ROAD

Brownfield Cleanup Program
Site and Surrounding Parcels

N
W E
S

0 75 150 Feet

1 inch = 150 feet

212721

FIGURE 1

Path: I:\Eldre Corporation\212721\Drawings\IRMWP SSDS\Figure 1.mxd

Notes:

1. Parcel boundaries are approximate and obtained from Monroe County Real Property data.
2. LaBella sample locations surveyed by licensed surveyor, NAVD 88 datum.
3. Concentrations result from the sum of all detected volatile organic compounds and tentatively identified compounds from groundwater sampling events from September 2014.
4. Concentrations in ug/L or parts per billion (ppb).
5. Contours were developed using Surfer version 8 kriging method.
6. Groundwater data from previous sampling events of the following locations was used in developing this model: MW-04, MW-07, MW-08, MW-09, MW-10, SB-207, SB-209, SB-211, SB-214/MW-18, SB-217/MW-24, SB-218/MW-21, SB-219/MW-22, SB-221/MW-25, SB-224/MW-28, SB-225/MW-29, SB-226/MW-30, SB-228/MW-31, SB-229/MW-32, SB-231/MW-34, SB-232/MW-35
7. Monitoring well MW-36 excluded from the model due to monitoring a different depth interval.
8. Concentrations for less than 1 ppm VOCs in groundwater are not shown due to anomalous modeling contours for these lower concentrations.
9. Locations of SSDS risers and piping are for conceptual reference; actual locations may vary based on access and field tests of radius of influence.

FIGURE 3

212721

DRAWING TITLE

Building Areas Proposd for Sub-Slab Mitigation and SVI Sampling

ISSUED FOR: DRAFT

DATE: 7/25/2016

DESINGED BY: DPN
DRAWN BY: AA
REVIEWED BY: DPN

Intended to print as 11" x 17".

PROJECT / CLIENT

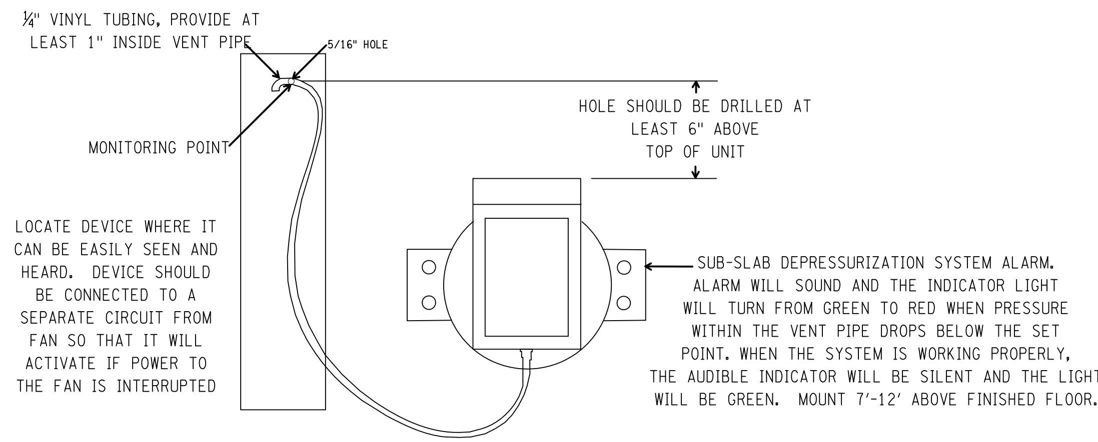
INTERIM REMEDIAL MEASURES WORK PLAN
ELDRE CORPORATION
BCP SITE C828182

1500 JEFFERSON ROAD AND 55 HOFSTRA ROAD

LABELLA Associates, D.P.C.

300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585)454-3066
www.labellapc.com

Document Path: I:\Eldre Corporation\212721\Drawings\IRMWP SSDS\Figure 3.mxd

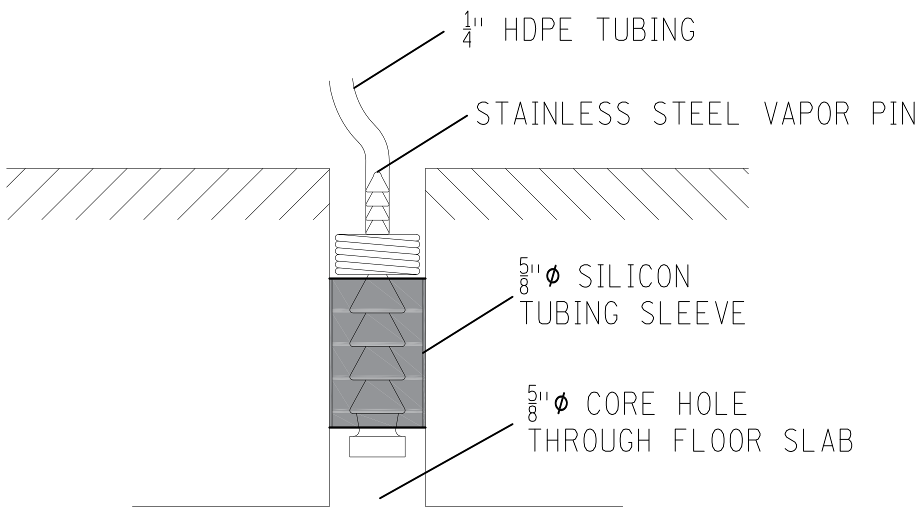


NOTES:

1. PRESSURE SET POINT: -0.25 INCHES WC.
2. PROVIDE ALARM COMPANY LABEL AND CONTACT INFORMATION.

DETAIL 1

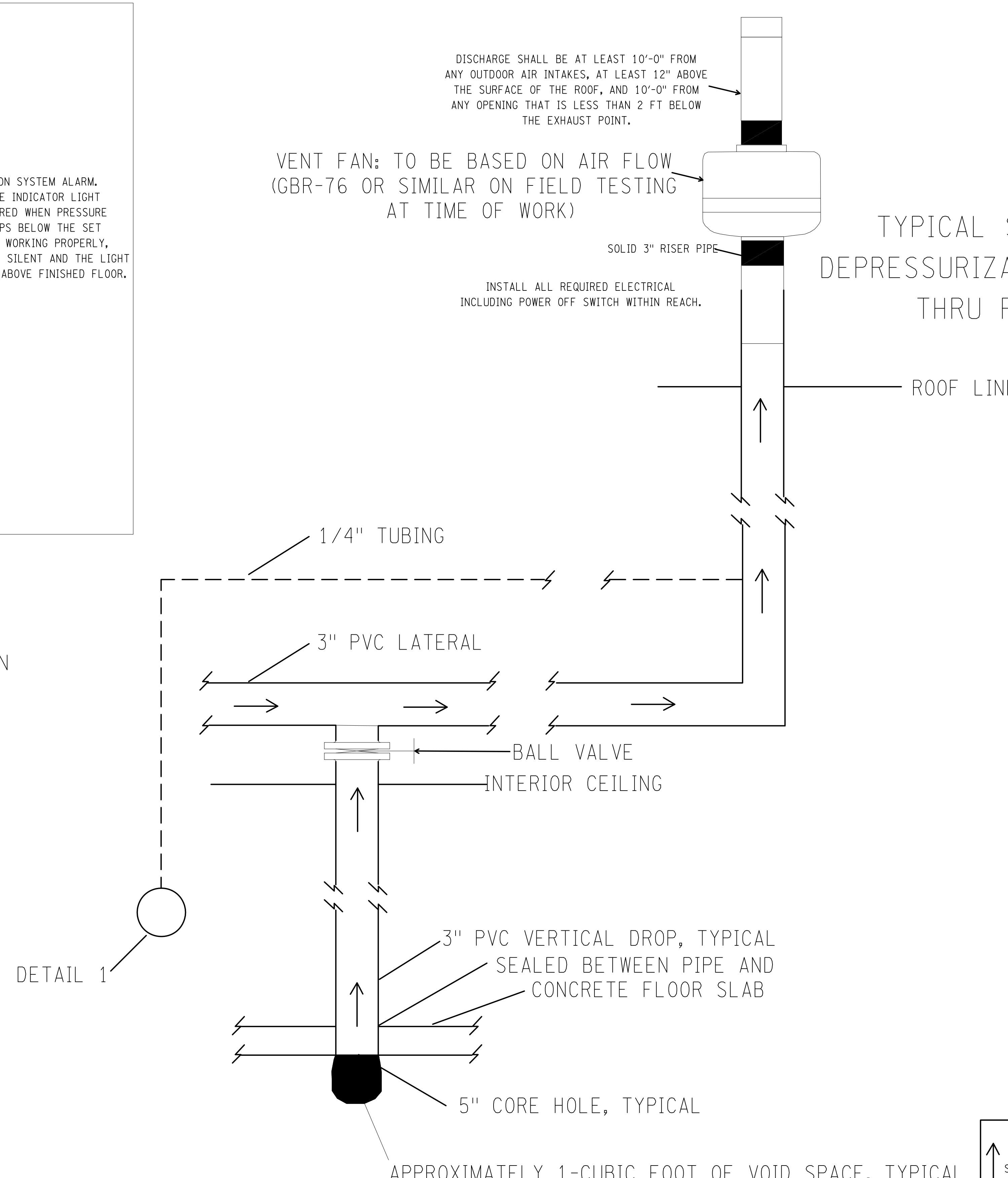
SUBSLAB DEPRESSURIZATION SYSTEM ALARM DETAIL



DETAIL 2

SUB-SLAB SOIL VAPOR SAMPLING POINT DETAIL

TYPICAL SUBLAB DEPRESSURIZATION VENT THRU ROOF



LEGEND

↑ SYSTEM FLOW DIRECTION

DRAWING NOT TO SCALE

SUB-SLAB DEPRESSURIZATION SYSTEM PIPING NOTES:

A. POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS SHALL CONFORM TO ASTM D3034.

J:\YARO ENTERPRISE INC\208723 BCP 300 COMMERCE\DRAWINGS\Fig 2_SSDS Details.DWG

STATE OF NEW YORK · DANIEL P. NOLL · No. 081996 · LICENSED PROFESSIONAL ENGINEER

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PROJECT/CLIENT

ELDRE CORPORATION
BCP SITE #C828182

1500 JEFFERSON RD & 55 HOFSTRA RD
HENRIETTA, NEW YORK

DRAWING TITLE

SUB-SLAB DEPRESSURIZATION SYSTEM DETAILS

ISSUED FOR: STET

DESIGNED BY: DPN
DRAWN BY: DRP
REVIEWED BY: DPN

DATE: JULY 2016

PROJECT/DRAWING NUMBER

212721

FIGURE 2

LaBella Associates, D.P.C.
300 State Street
Rochester, New York 14614

Appendix 1

Health & Safety Plan

LABELLA
Associates, P.C.

Engineering
Architecture
Environmental
Planning

Site Health and Safety Plan

Location:

Eldre Corporation
1500 Jefferson Road & 55 Hofstra Road
Henrietta, New York

Prepared for:

Eldre Corporation
1500 Jefferson Road
Henrietta, New York 14623

LaBella Project No. 211670

February 17, 2012

Relationships. Resources. Results.

Site Health and Safety Plan

Location:

Eldre Corporation
1500 Jefferson Road & 55 Hofstra Road
Henrietta, New York

Prepared for:

Eldre Corporation
1500 Jefferson Road
Henrietta, New York 14623

LaBella Project No. 211670

February 17, 2012

LaBella Associates, P.C.
300 State Street
Rochester, New York 14614

Table of Contents

Page

SITE HEALTH AND SAFETY PLAN

Project Title:	Eldre Corporation, Brownfield Cleanup Program
Project Number:	211670
Project Location (Site):	1500 Jefferson Road & 55 Hofstra Road, Henrietta, New York 14623
Environmental Director:	Gregory R. Senecal, CHMM
Project Manager:	Dan P. Noll, P.E.
Plan Review Date:	February 2012
Plan Approval Date:	February 2012
Plan Updated:	
Plan Approved By:	Richard K. Rote, CIH
Site Safety Supervisor:	Michael F. Pelychaty
Site Contact:	Lee Moss (Eldre Corporation)
Safety Director:	Richard K. Rote, CIH
Proposed Date(s) of Field Activities:	To Be Determined
Site Conditions:	Sloping downward from south to north
Site Environmental Information Provided By:	Phase I ESA and Phase II ESA by LaBella Associates
Air Monitoring Provided By:	LaBella Associates, P.C.
Site Control Provided By:	Contractor(s)

EMERGENCY CONTACTS

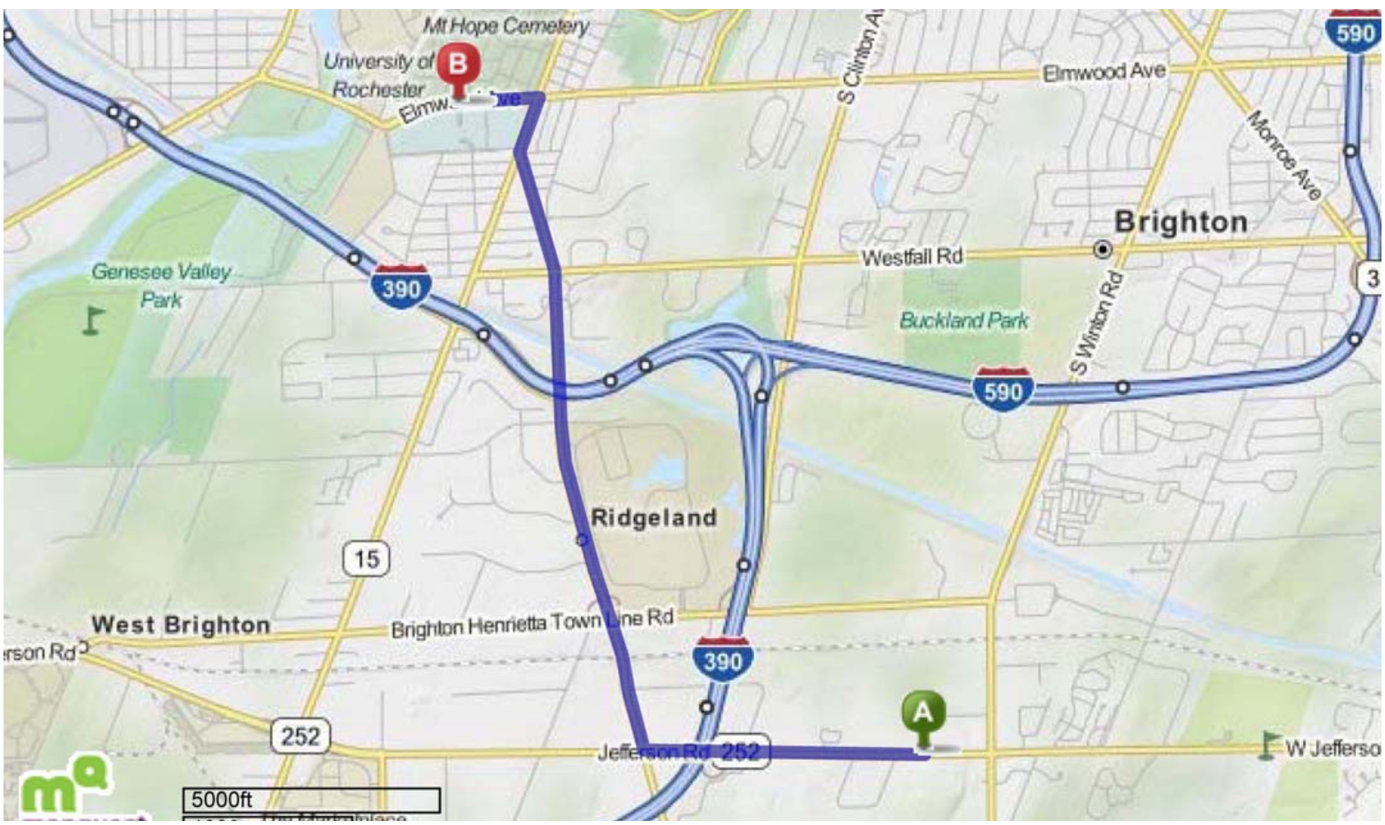
	Name	Phone Number
Ambulance:	As Per Emergency Service	911
Hospital Emergency:	Strong Memorial Hospital	585-275-2100
Poison Control Center:	Finger Lakes Poison Control	585-275-3232
Police (local, state):	Monroe County Sheriff	911
Fire Department:	Henrietta Fire Department	911
Site Contacts:	Lee Moss (Eldre Corporation)	585-427-7280
Agency Contact:	NYSDEC – Bart Putzig NYSDOH – TBD Finger Lakes Poison Control MCDOH – TBD	585-226-5349 TBD 1-800-222-1222 TBD
Environmental Director:	Gregory R. Senecal, CHMM	Direct: 585-295-6243 Cell: 585-752-6480
Project Manager:	Dan P. Noll, P.E.	Direct: 585-295-6611 Cell: 585-301-8458
Site Safety Supervisor:	Michael F. Pelychaty	Direct: 585-295-6253 Cell: 585-451-6225
Safety Director	Richard K. Rote, CIH	Direct: 585-295-6241

MAP AND DIRECTIONS TO THE MEDICAL FACILITY
- STRONG MEMORIAL HOSPITAL -

1500 Jefferson Rd, Rochester, NY 14623-3110

1. Start out going **west** on **Jefferson Rd / RT-252** toward **Saginaw Dr**. Map	**1.1 Mi** *1.1 Mi Total*
2. Turn **right** onto **E Henrietta Rd / RT-15A**. Map *E Henrietta Rd is 0.3 miles past Ridgeland Rd* *Malcho's Mobil is on the corner* *If you are on Jefferson Rd and reach Clay Rd you've gone about 0.4 miles too far*	**2.4 Mi** *3.6 Mi Total*
3. Turn **slight right** onto **Mt Hope Ave / RT-15**. Map *Mt Hope Ave is just past Rosemount St* *South Presbyterian Church is on the right*	**0.2 Mi** *3.8 Mi Total*
4. Turn **left** onto **Elmwood Ave**. Map *If you reach Cook St you've gone a little too far*	**0.3 Mi** *4.1 Mi Total*
5. Make a **U-turn** at **Thomas H Jackson Dr** onto **Elmwood Ave**. Map *If you reach Kendrick Rd you've gone about 0.3 miles too far*	**0.01 Mi** *4.1 Mi Total*
6. **601 ELMWOOD AVE** is on the **right**. Map *If you reach East Dr you've gone about 0.1 miles too far*	

Strong Memorial Hospital
601 Elmwood Ave, Rochester, NY 14642
(585) 275-2100



1.0 Introduction

The purpose of this Health and Safety Plan (HASP) it to provide guidelines for responding to potential health and safety issues that may be encountered during the Remedial Investigation (RI) at 1500 Jefferson Road and 55 Hofstra Road, Henrietta, Monroe County, New York. This HASP only reflects the policies of LaBella Associates P.C. The requirements of this HASP are applicable to all approved LaBella personnel at the work site. This document's project specifications and the Community Air Monitoring Plan (CAMP) are to be consulted for guidance in preventing and quickly abating any threat to human safety or the environment. The provisions of the HASP do not replace or supersede any regulatory requirements of the USEPA, NYSDEC, OSHA or any other regulatory body.

2.0 Responsibilities

This HASP presents guidelines to minimize the risk of injury to project personnel, and to provide rapid response in the event of injury. The HASP is applicable only to activities of approved LaBella personnel and their authorized visitors. The Project Manager shall implement the provisions of this HASP for the duration of the project. It is the responsibility of LaBella employees to follow the requirements of this HASP, and all applicable company safety procedures.

3.0 Activities Covered

The activities covered under this HASP are limited to the following:

- Management of environmental investigation and remediation activities
- Environmental Monitoring
- Collection of samples
- Management of study derived waste.

4.0 Work Area Access and Site Control

The contractor(s) will have primary responsibility for work area access and site control.

5.0 Potential Health and Safety Hazards

This section lists some potential health and safety hazards that project personnel may encounter at the project site and some actions to be implemented by approved personnel to control and reduce the associated risk to health and safety. This is not intended to be a complete listing of any and all potential health and safety hazards. New or different hazards may be encountered as site environmental and site work conditions change. The suggested actions to be taken under this plan are not to be substituted for good judgment on the part of project personnel. At all times, the Site Safety Officer has responsibility for site safety and his or her instructions must be followed.

5.1 Hazards Due to Heavy Machinery

Potential Hazard:
Heavy machinery including trucks, excavators, backhoes, etc will be in operation at the site. The presence of such equipment presents the danger of being struck or crushed. Use caution when working near heavy machinery.

Protective Action:
Make sure that operators are aware of your activities, and heed operator's instructions and warnings. Wear bright colored clothing and walk safe distances from heavy equipment. A hard hat, safety glasses and steel toe shoes are required.

5.2 Excavation Hazards

Potential Hazard:
Excavations and trenches can collapse, causing injury or death. Edges of excavations can be unstable and collapse. Toxic and asphyxiant gases can accumulate in confined spaces and trenches. Excavations that require working within the excavation will require air monitoring in the breathing zone (refer to Section 9.0).

Excavations left open create a fall hazard which can cause injury or death.

Protective Action:
Personnel must receive approval from the Project Manager to enter an excavation for any reason. Subsequently, approved personnel are to receive authorization for entry from the Site Safety Officer. Approved personnel are not to enter excavations over 4 feet in depth unless excavations are adequately sloped. Additional personal protective equipment may be required based on the air monitoring.

Personnel should exercise caution near all excavations at the site as it is expected that excavation sidewalls will be unstable.

Fencing and/or barriers accompanied by "no trespassing" signs should be placed around all excavations when left open for any period of time when work is not being conducted.

5.3 Cuts, Punctures and Other Injuries

Potential Hazard:
In any excavation or construction work site there is the potential for the presence of sharp or jagged edges on rock, metal materials, and other sharp objects. Serious cuts and punctures can result in loss of blood and infection.

Protective Action:
The Project Manager is responsible for making First Aid supplies available at the work site to treat minor injuries. The Site Safety Officer is responsible for arranging the transportation of authorized on-site personnel to medical facilities when First Aid treatment in not sufficient. Do not move seriously injured workers. All injuries requiring treatment are to be reported to the Project Manager. Serious injuries are to be reported immediately to the Site Safety Officer

5.4 Injury Due to Exposure of Chemical Hazards

Potential Hazards:
Volatile organic vapors from petroleum products, chlorinated solvents or other chemicals may be encountered during ground intrusive activities at the project work site. Inhalation of high concentrations of organic vapors can cause headache, stupor, drowsiness, confusion and other health effects. Skin contact can cause irritation, chemical burn, or dermatitis.

Protective Action:
The presence of organic vapors may be detected by their odor and by monitoring instrumentation. Approved employees will not work in environments where hazardous concentrations of organic vapors are present. Air monitoring (refer to Section 9.0) of the work area will be performed at least every 60 minutes or more often using a Photoionization Detector (PID). Personnel are to leave the work area whenever PID measurements of ambient air exceed 25 ppm consistently for a 5 minute period. In the event that sustained total volatile organic compound (VOC) readings of 25 ppm are encountered personnel should upgrade personal protective equipment to Level C (refer to Section 8.0) and an Exclusion Zone should be established around the work area to limit and monitor access to this area (refer to Section 6.0).

5.5 Injuries Due to Extreme Hot or Cold Weather Conditions

Potential Hazards:
Extreme hot weather conditions can cause heat exhaustion, heat stress and heat stroke or extreme cold weather conditions can cause hypothermia.

Protective Action:
Precaution measures should be taken such as dress appropriately for the weather conditions and drink plenty of fluid. If personnel should suffer from any of the above conditions, proper techniques should be taken to cool down or heat up the body and taken to the nearest hospital if needed.

6.0 Work Zones

In the event that conditions warrant establishing various work zones (i.e., based on hazards - Section 5.4), the following work zones should be established:

Exclusion Zone (EZ):
The EZ will be established in the immediate vicinity and adjacent downwind direction of site activities that elevate breathing zone VOC concentrations to unacceptable levels based on field screening. These site activities include contaminated soil excavation and soil sampling activities. If access to the site is required to accommodate non-project related personnel then an EZ will be established by constructing a barrier around the work area (yellow caution tape and/or construction fencing). The EZ barrier shall encompass the work area and any equipment staging/soil staging areas necessary to perform the associated work. The contractor(s) will be responsible for establishing the EZ and limiting access to approved personnel. Depending on the condition for establishing the EZ, access to the EZ may require adequate PPE (e.g., Level C).

Contaminant Reduction Zone (CRZ):
The CRZ will be the area where personnel entering the EZ will don proper PPE prior to entering the EZ and the area where PPE may be removed. The CRZ will also be the area where decontamination of equipment and personnel will be conducted as necessary.

7.0 Decontamination Procedures

Upon leaving the work area, approved personnel shall decontaminate footwear as needed. Under normal work conditions, detailed personal decontamination procedures will not be necessary. Work clothing may become contaminated in the event of an unexpected splash or spill or contact with a contaminated substance. Minor splashes on clothing and footwear can be rinsed with clean water. Heavily contaminated clothing should be removed if it cannot be rinsed with water. Personnel assigned to this project should be prepared with a change of clothing whenever on site.

Personnel will use the contractor's disposal container for disposal of PPE.

8.0 Personal Protective Equipment

Generally, site conditions at this work site will require Level D protection or modified Level D. However, air monitoring will be conducted to determine if up-grading to Level C PPE is required (refer to Section 9.0). Descriptions of the typical safety equipment associated with Level D and Level C are provided below:

Level D:
Hard hat, safety glasses, rubber nitrile sampling gloves, steel toe construction grade boots, etc.

Level C:
Level D PPE and full or ½-face respirator and tyvek suit (if necessary). [*Note: Organic vapor cartridges are to be changed after each 8-hours of use or more frequently(refer to manufacturer specifications for proper use).*]

9.0 Air Monitoring

According to 29 CFR 1910.120(h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection required for personnel working onsite. Air monitoring will consist at a minimum of the procedure listed below. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

The Air Monitor will utilize a photoionization Detector (PID) to screen the ambient air in the work areas (excavation, soil staging, and soil grading areas) for total Volatile Organic Compounds (VOCs) and a DustTrak tm Model 8520 aerosol monitor or equivalent for measuring particulates. Work area ambient air will generally be monitored in the work area and downwind of the work area. Air monitoring of the work areas and downwind of the work areas will be performed at least every 60 minutes or more often using a PID and the DustTrak meter. In addition, the Community Air Monitoring Plan (CAMP) will also be followed (refer to Appendix 3 of the RI Work Plan).

If sustained PID readings of greater than 25 ppm are recorded in the breathing zone then either personnel are to leave the work area until satisfactory readings are obtained or approved personnel may re-enter the work areas wearing at a minimum a ½ face respirator with organic vapor cartridges for an 8-hour duration (i.e., upgrade to Level C PPE). Organic vapor cartridges are to be changed after each 8-hours of use or more frequently, if necessary. If PID readings are sustained, in the work area, at levels above 50 ppm for a 5 minute average, work will be stopped immediately until safe levels of VOCs are encountered or additional PPE will be required (i.e., Level B).

If downwind PID measurements reach or exceed 25 ppm consistently for a 5 minute period downwind of the work area, PID readings will be taken within the buildings (if occupied) on Site to ensure that the vapors are not penetrating any occupied building and effecting the personnel working within. If the PID measurements reach or exceed 25 ppm within the nearby buildings, the personnel should be evacuated via a route in which they would not encounter the work area. The building should then be ventilated until the PID measurements within the building are at or below background levels.

10.0 Emergency Action Plan

In the event of an emergency, employees are to turn off and shut down all powered equipment and leave the work areas immediately. Employees are to walk or drive out of the Site as quickly as possible and wait at the assigned 'safe area'. Follow the instructions of the Site Safety Officer.

Employees are not authorized or trained to provide rescue and medical efforts. Rescue and medical efforts will be provided by local authorities.

11.0 Medical Surveillance

Medical surveillance will be provided to all employees who are injured due to overexposure from an emergency incident involving hazardous substances at this site.

12.0 Employee Training

Personnel who are not familiar with this site plan will receive training on its entire content and organization before working at the Site.

Individuals involved with the remedial investigation must be 40-hour OSHA HAZWOPER trained with current 8-hour refresher certification.

Table 1
Exposure Limits and Recognition Qualities

Compound	**PEL-TWA (ppm)(b)(d)**	**TLV-TWA (ppm)(c)(d)**	**STEL (ppm)(b)**	**LEL (%)(e)**	**UEL (%)(f)**	**IDLH (ppm)(g)(d)**	**Odor**	**Odor Threshold (ppm)**	**Ionization Potential**
Acetone	750	500	NA	2.15	13.2	20,000	Sweet	4.58	9.69
Anthracene	.2	.2	NA	NA	NA	NA	Faint aromatic	NA	NA
Benzene	1	0.5	5	1.3	7.9	3000	Pleasant	8.65	9.24
Benzo (a) pyrene (coal tar pitch volatiles)	0.2	0.1	NA	NA	NA	700	NA	NA	NA
Benzo (a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (b) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (k) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	10.88
Carbon Disulfide	20	1	NA	1.3	50	500	Odorless or strong garlic type	.096	10.07
Chlorobenzene	75	10	NA	1.3	9.6	2,400	Faint almond	0.741	9.07
Chloroform	50	2	NA	NA	NA	1,000	ethereal odor	11.7	11.42
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethylene	200	200	NA	9.7	12.8	400	Acrid	NA	9.65
1,2-Dichlorobenzene	50	25	NA	2.2	9.2		Pleasant		9.07
Ethylbenzene	100	100	NA	1.0	6.7	2,000	Ether	2.3	8.76
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	50	NA	12	23	5,000	Chloroform-like	10.2	11.35
Naphthalene	10, Skin	10	NA	0.9	5.9	250	Moth Balls	0.3	8.12
n-propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethane	NA	NA	NA	NA	NA	NA	Sweet	NA	NA
Toluene	100	100	NA	0.9	9.5	2,000	Sweet	2.1	8.82
Trichloroethylene	100	50	NA	8	12.5	1,000	Chloroform	1.36	9.45
1,2,4-Trimethylbenzene	NA	25	NA	0.9	6.4	NA	Distinct	2.4	NA
1,3,5-Trimethylbenzene	NA	25	NA	NA	NA	NA	Distinct	2.4	NA
Vinyl Chloride	1	1	NA	NA	NA	NA	NA	NA	NA
Xylenes (o,m,p)	100	100	NA	1	7	1,000	Sweet	1.1	8.56
Metals									
Arsenic	0.01	0.2	NA	NA	NA	100, Ca	Almond		NA
Cadmium	0.2	0.5	NA	NA	NA				NA
Chromium	1	0.5	NA	NA	NA				NA
Lead	0.05	0.15	NA	NA	NA	700			NA
Mercury	0.05	0.05	NA	NA	NA	28	Odorless		NA
Selenium	0.2	0.02	NA	NA	NA	Unknown			NA

(a) Skin = Skin Absorption
(b) OSHA-PEL Permissible Exposure Limit (flame weighted average, 8-hour): NIOSH Guide, June 1990
(c) ACGIH – 8 hour time weighted average from Threshold Limit Values and Biological Exposure Indices for 2003.
(d) Metal compounds in mg/m3
(e) Lower Exposure Limit (%)
(f) Upper Exposure Limit (%)
(g) Immediately Dangerous to Life or Health Level: NIOSH Guide, June 1990.

Notes:
1. All values are given in parts per million (PPM) unless otherwise indicated.
2. Ca = Possible Human Carcinogen, no IDLH information.

LaBella Associates, D.P.C.
300 State Street
Rochester, New York 14614

Appendix 2

Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. 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 investigative and remedial work activities. 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.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

<u>VOC Monitoring, Response Levels, and Actions</u>

Volatile organic compounds (VOCs) must 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, particularly if wind direction changes. 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.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. 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 of 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.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

<u>Particulate Monitoring, Response Levels, and Actions</u>

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion 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 all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/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 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/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 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

LaBella Associates, D.P.C.
300 State Street
Rochester, New York 14614

Appendix 3

Quality Control Plan

Quality Control Plan

Location:

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Monroe County, New York

Prepared For:

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LaBella Project No. 212721

June 2016

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1. Introduction

The Quality Control Plan (QCP) contains procedures which provide for collected data to be properly evaluated, and document that quality control (QC) procedures have been followed in the collection of samples. The quality control program represents the methodology and measurement procedures used in collecting quality field data. This methodology includes the proper use of equipment, documentation of sample collection, and sample handling practices.

Procedures used in the firm's QCP are compatible with federal, state, and local regulations, as well as, appropriate professional and technical standards.

This QCP has been organized into the following areas:

- Quality Control Objectives and Checks
- Field Equipment, Handling, and Calibration
- Sampling Techniques
- Sample Handling and Packaging

It should be noted that project-related documents may have project specific details that will differ from the procedures in this QCP. In such cases, the project-related documents should be followed (subsequent to regulatory approval).

The NYSDEC DER-10 identifies two data deliverables for laboratory data:

a) DEC Analytical Services Protocol Category A Data Deliverables:

1. A Category A Data Deliverable as described in the most current DEC Analytical Services Protocol (ASP) includes:

   i. a Sample Delivery Group Narrative;
   ii. contract Lab Sample Information sheets;
   iii. DEC Data Package Summary Forms;
   iv. chain-of-custody forms; and
   v. test analysis results (including tentatively identified organic compounds for analysis of volatile and semi-volatile organic compounds)

2. For a DEC Category A Data Deliverable, a data applicability report may be requested, in which case it will be prepared, to the extent possible, in accordance with the DUSR guidance detailed below.

b) DEC Analytical Services Protocol Category B Data Deliverables

1. A Category B Data Deliverable includes the information provided for the Category A Data Deliverable, identified in subdivision (a) above, plus related QA/QC information and documentation consisting of:

   i. Calibration standards;
   ii. Surrogate recoveries
   iii. Blank results

iv. Spike recoveries
v. Duplicate recoveries
vi. Confirmation (lab check/QC) samples
vii. Internal standard area and retention time summary;
viii. Chromatograms
ix. Raw data files; and
x. Other specific information as described in the most current DEC ASP.

2. A DEC Category B Data Deliverable is required for the development of a Data Usability Summary Report (DUSR).

All measurements will be made to provide that analytical results are representative of the media and conditions measured. Unless otherwise specified, all data will be calculated and reported in units consistent with other organizations reporting similar data to allow comparability of data bases among organizations. Data will be reported in µg/L or mg/L for aqueous samples, and µg/kg or mg/kg (dry weight) for soils, or otherwise as applicable.

The characteristics of major importance for the assessment of generated data are accuracy, precision, completeness, representativeness, and comparability. Application of these characteristics to specific projects is addressed later in this document. The characteristics are defined below.

1.1. Accuracy

Accuracy is the degree of agreement of a measurement or average of measurements with an accepted reference or "true" value and is a measure of bias in the system.

1.2. Precision

Precision is the degree of mutual agreement among individual measurements of a given parameter.

1.3. Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions.

1.4. Comparability

Comparability expresses the confidence with which one data set can be compared to another. The data sets may be inter- or intra- laboratory.

1.5. Representativeness

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition

2. Measurement of Data Quality

2.1. Accuracy

Accuracy of a particular analysis is measured by assessing its performance with "known" samples. These "knowns" take the form of EPA standard reference materials, or laboratory prepared solutions of target analytes spiked into a pure water or sample matrix. In the case of GC or GC/MS analyses, solutions of surrogate compounds, which can be spiked into every sample and are designed to mimic the behavior of target analytes without interfering with their determination, are used.

In each case the recovery of the analyte is measured as a percentage, correcting for analytes known to be present in the original sample if necessary, as in the case of a matrix spike analysis. For EPA supplied known solutions, this recovery is compared to the published data that accompany the solution. For surrogate compounds, recoveries are compared to EPA CLP acceptable recovery tables.

If recoveries do not meet required criteria, then the analytical data for the batch (or, in the case of surrogate compounds, for the individual sample) are considered potentially inaccurate. The laboratory technician or their supervisor must initiate an investigation of the cause of the problem and take corrective action. This can include recalibration of the instrument, reanalysis of the QC sample, reanalysis of the samples in the batch, or flagging the data as suspect if the problems cannot be resolved. For highly contaminated samples, recovery of the matrix spike may depend on sample homogeneity. As a rule, analyses are not corrected for recovery of matrix spike or surrogate compounds.

2.2. Precision

Precision of a particular analysis is measured by assessing its performance with duplicate or replicate samples. Duplicate samples are pairs of samples taken in the field and transported to the laboratory as distinct samples. Their identity as duplicates is sometimes not known to ASC and usually not known to bench analysts, so their usefulness for monitoring analytical precision at bench level is limited. For most purposes, precision is determined by the analysis of replicate pairs (i.e., two samples prepared at the laboratory from one original sample). Often in replicate analysis the sample chosen for replication does not contain target analytes so that quantitation of precision is impossible. For ASP analyses, replicate pairs of spiked samples, known as matrix spike/matrix spike duplicate samples, are used for precision studies. This has the advantage that two real positive values for a target analyte can be compared.

Precision is calculated in terms of Relative Percent Difference (RPD).

- Where X_1 and X_2 represent the individual values found for the target analyte in the two replicate analyses or in the matrix spike/matrix spike duplicate analyses.
- RPDs must be compared to the method RPD for the analysis. The laboratory technician or their supervisor must investigate the cause of RPDs outside stated acceptance limits. This may include a visual inspection of the sample for non homogeneity, analysis of check samples, etc. Follow-up action may include sample reanalysis or flagging of the data as suspect if problems cannot be resolved.
- During the data review and validation process (see Section 19), field duplicate RPDs are assessed as a measure of the total variability of both field sampling and laboratory analysis.

2.3. Completeness

Completeness for each parameter is calculated as follows:

- The firm's target value for completeness for all parameters is 100%. A completeness value of 95% will be considered acceptable. Incomplete results will be reported in the DUSRs (see section 19).

2.4. Representativeness

The characteristic of representativeness is not quantifiable. Subjective factors to be taken into account are as follows:

- The degree of homogeneity of a site;
- The degree of homogeneity of a sample taken from one point in a site; and,
- The available information on which a sampling plan is based.

To maximize representativeness of results, sampling techniques and sample locations will be carefully chosen so that they provide laboratory samples representative of the site and the specific area. Within the laboratory, precautions are taken to extract from the sample bottle an aliquot representative of the whole sample.

3. Quality Control Targets

Target values for detection limit, percent spike recovery and percent "true" value of known check standards, and RPD of duplicates/replicates are included in the QCP, Analytical Procedures. Note that tabulated values are not always attainable. Instances may arise where high sample concentrations, non homogeneity of samples, or matrix interferences preclude achievement of target detection limits or other quality control criteria.

4. Sampling Procedures

This section describes the sampling procedures to be utilized for each environmental medium that will be collected and analyzed in accordance with appropriate state and federal requirements. All procedures described are consistent with EPA sampling procedures as described in SW-846, third edition, September 1986 and any subsequent updates. All samples will be delivered to the laboratory within 24 to 48 hours of collection.

5. Soil & Groundwater Investigation

The groundwater sampling plan outlined in this subsection has been prepared in general accordance with RCRA Groundwater Monitoring Technical Enforcement Guidance Document 9950.1 (September 1986), Office of Solid Waste and Emergency Response.

Prior to drilling, all drill sites will be cleared with appropriate utility companies to avoid potential accidents relating to underground utilities.

5.1. Test Borings and Well Installation

5.1.1. Drilling Equipment

Direct Push "Geo-Probe" Soil Borings:

Soil borings and monitoring wells will be advanced with a Geoprobe direct push sampling system. The use of direct push technology allows for rapid sampling, observation, and characterization of relatively shallow overburden soils. The Geoprobe utilizes a four-foot macro-core sampler, with disposable polyethylene sleeves. Soil cores will be retrieved in four-foot or five-foot sections, and can be easily cut from the polyethylene sleeves for observation and sampling. The macro-core sampler will be decontaminated between borings using an alconox and water solution.

Drill Rig Advanced Soil Borings:

The drilling and installation of monitoring wells will be performed using a direct push rig as described above or rotary drill rig depending on project conditions. The rotary drill rig will have sufficient capacity to perform hollow-stem auger drilling in the overburden, retrieve split-spoon samples, and perform necessary rock coring to provide a minimum 3-inch diameter core, known in the industry as "NX."

Prior to initiating drilling activities, the Geo-probe, macro cores, drive rods, and other pertinent equipment will be steam cleaned or washed with an alconox and water solution followed by a potable water rinse. This cleaning procedure will also be used between each boring. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided.

5.1.2. Drilling Techniques

Direct Push “Geo-Probe” Advanced Borings:

Test borings will be advanced with 2-inch direct push macro-cores through overburden soils. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

Drill Rig Advanced Borings:

Test borings will be advanced with appropriately sized hollow stem augers based on the project objectives driven by truck-, track-, or trailer-mounted drilling equipment. Alternative methods of drilling or equipment may be allowed or requested for site-specific criteria. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative. One sample from each drilling water source may be analyzed for full TCL.

Bedrock Wells:

Where bedrock wells are required, test borings may be advanced into rock with NX or HQ coring tools. Only water from an approved source shall be used in rock coring. An environmental monitor shall monitor and record the petrology, core recovery, fractures, rate of advance, water levels, and water lost or produced in each test boring. The Rock Quality Determination (RQD) value shall be calculated for each 5-foot core retrieved. All core samples shall be retained and stored in wooden core boxes for a period of not less than one year.

Bedrock well installation may involve construction of a rock socket. If utilized, the socket will be drilled into the top of rock at each bedrock well location to allow a permanent casing to be grouted securely in place prior to completion of the well. The purpose for this is to provide a seal at the overburden/bedrock interface and into the upper bedrock surface, to prevent the entrance of overburden water into the bedrock.

When a rock socket is constructed, a core hole will be reamed out to the diameter needed for the well planned and set into bedrock. The depth to rock will depend on the competency of the rock and project objectives. The method selected may be percussion or rotary drilling at the option of the subcontractor. The method and equipment selected must be capable of penetrating the bedrock at each well location to a depth required by the work plan.

A cement grout will be tremied into the bedrock socket. Once sufficient grout has been place, the casing will be lowered into the bedrock socket. Once the casing is in place, the augers can be removed and the remaining grout should be added. After the grout and casing have set up for a minimum of 24 hours, the remaining amount of bedrock can be cored through the casing to the depth required for the project objective.

5.1.3. Well Casing (Riser)

Direct Push Geo-Probe Groundwater Monitoring Wells:

Direct Push Geo-Probe advanced groundwater-monitoring wells shall utilize 1.25-inch threaded flush joint PVC pipe.

Drill Rig Advanced Groundwater Monitoring Wells:

The well riser shall consist of 2-inch or greater, threaded flush-joint PVC or stainless steel pipe. All well risers will conform to the requirements of ASTM-D 1785 Schedule 40 pipe. All materials used to construct the wells will be NSF/ASTM approved.

5.1.4. Well Screen

Direct Push Geo-Probe Groundwater Monitoring Wells:

Direct Push Geoprobe advanced groundwater-monitoring wells will utilize 1.25-inch diameter well screen. Groundwater-monitoring wells will be set to intersect the monitoring elevation of the project objective. Each geo-probe advanced well will be equipped with an appropriate length (based on anticipated groundwater level, bedrock depth, and project objectives) of .010 inch slotted PVC screen connected to an appropriate length of PVC riser to complete the well installation. For Sites with non-aqueous phase liquid (NAPL) concerns, 0.02-inch slotted pipe may be used.

Drill Rig Advanced Groundwater Monitoring Wells:

Drill rig advanced groundwater monitoring wells will utilize 2-inch or greater diameter well screen. Groundwater-monitoring wells will be set to intersect the monitoring elevation of the project objective. Each well will be equipped with an appropriate length (based on anticipated groundwater level, bedrock depth, and project objectives) of .010 inch slotted PVC screen connected to an appropriate length of PVC riser to complete the well installation. For Sites with non-aqueous phase liquid (NAPL) concerns, 0.02-inch slotted pipe may be used. The bottom of the screen shall be sealed with a cap or plug.

5.1.5. Artificial Sand Pack

Granular backfill will be chemically and texturally clean, inert, siliceous, and of appropriate grain size for the screen slot size and the host environment. Sand pack grain size will be selected based on subsurface conditions and well screen size. The well screen and casing will be installed, and the sand pack placed around the screen and casing to a depth extending at least 25 percent of the screen length above the top of the screen.

5.1.6. Bentonite Seal

A minimum 1-foot thick seal of bentonite pellets will be placed directly on top of the sand pack, and care will be taken to avoid bridging.

5.1.7. Grout Mixture

Upon completion of the bentonite seal, the well will be grouted with a non-shrinking cement grout mix to be placed from the top of the bentonite seal to the ground surface. The cement grout shall consist of a mixture of Portland cement (ASTM C 150) and water, in the proportion of not more than 7 gallons of clean water per bag of cement (1 cubic foot or 94 pounds). Additionally, 3% by weight of bentonite powder shall be added, if permitted.

5.1.8 Surface Protection

At all times during the progress of the work, precautions shall be used to prevent tampering with or the entrance of foreign material into the well. Based upon project objectives and the anticipated duration for the use of the well, wells may be completed with a suitable lockable cap to prevent material from entering the well. Permanent wells will generally be protected by a flush mounted road box or stick-up casing set into a concrete pad. A concrete pad, sloped away from the well, shall be constructed around the flush mount road box or stick-up casing at ground level.

Any well that is to be temporarily removed from service or left incomplete due to delay in construction shall be capped with a watertight cap.

5.1.9. Surveying

Coordinates and elevations will be established for each monitoring well and sampling location, if possible. Elevations to the closest 0.01 foot shall be used for the survey. These elevations shall be referenced to a regional, local, or project-specific datum. The location, identification, coordinates, and elevations of the wells will be plotted on maps with a scale large enough to show their location with reference to other structures at each site.

5.1.10. Well Development

After completion of the well, but not sooner than 24 hours after grouting is completed, development will be accomplished using pumping, bailing, or surge blocking. No dispersing agents, acids, disinfectants, or other additives will be used during development or introduced into the well at any other time.

Development water will be either properly contained and treated as waste until the results of chemical analysis of samples are obtained or discharged on site as determined by the site-specific work plans and/or consultation with the NYSDEC representatives on site.

6. Geologic Logging and Sampling

At each investigative location, the boring will be advanced through overburden using either a drill rig and hollow-stem auger or direct push technology; soils will be visually inspected and monitored with a PID to help determine potential for vertical migration of contaminants. Soil samples will be collected as specified in the project specific plan. Soil samples will be screened in the field for volatile organic vapors using a PID, classified in accordance with Unified Soil Classification System (USCS) specifications, and logged.

Drilling logs will be prepared by a Qualified Environmental Professional who will be present during all drilling operations. The RQD value shall be calculated for each 5-foot section. Information provided in the logs shall include, but not be limited to, the following:

- Date, test hole identification, and project identification;
- Name of individual developing the log;
- Name of driller;
- Drill, make and model, auger size;
- Identification of alternative drilling methods used and justification thereof (e.g., rotary drilling with a specific bit type to remove material from within the hollow stem augers);
- Standard penetration test (ASTM D-1586) blow counts, if collected;
- Field diagram of each monitoring well installed with the depth to bottom of screen, top of screen, and pack, bentonite seal, etc.;
- Reference elevation for all depth measurements;
- Depth of each change of stratum;
- Identification of the material of which each stratum is composed, according to the USCS system or standard rock nomenclature, as appropriate;
- Depth interval from which each sample was taken;
- Depth at which hole diameters (bit sizes) change;
- Depth at which groundwater is encountered;
- Depth to static water level and changes in static water level with well depth;
- Total depth of completed well;
- Depth or location of any loss of tools or equipment;
- Location of any fractures, joints, faults, cavities, or weathered zones;
- Depth of any grouting or sealing;
- Nominal hole diameters;
- Depth and type of well casing;
- Description of well screen (to include depth, length, location, diameter, slot sizes, material);
- Any sealing-off of water-bearing strata;
- Static water level before and after development;
- Drilling date or dates;
- Construction details of well; and
- An explanation of any variations from the work plan.

7. Groundwater Sampling Procedures

The groundwater in all new monitoring wells will be allowed to stabilize for 7 days following development. Water levels will be measured to within 0.01 foot prior to purging and sampling. Sampling of each well will be accomplished in one of two ways.

Active Sampling:

Purging will be completed prior to active sampling. In general, wells will be purged until the pH, conductivity, temperature, and turbidity of the water being pumped from the well have stabilized. Groundwater samples will be collected via active methods (i.e., purging) according to the following procedures and in the volumes specified in Table 11-1:

- Water clarity will be quantified during sampling with a turbidity meter;
- When transferring water from the bailer or pump line to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;

- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

Passive Sampling:

Groundwater samples that are collected via passive methods (i.e., no-purge) will be collected according to the following procedures and in the volumes specified in Table 11-1:

- Samples will be collected via passive diffusion bag (PDB) samplers. PDB samplers are made of low-density polyethylene plastic tubing (typically 4 mil), filled with laboratory grade (ASTM Type II) deionized water and sealed at both ends.
- PDB samplers will only be used to collect groundwater samples which will be analyzed for VOCs and in general only for chlorinated VOCs.
- PDB samplers will be deployed by hanging in the well at the middle of the well screen unless a low water table, need to deploy multiple samplers or the targeting of a specific depth interval is identified. The PDB samplers will be deployed at least 14 days prior to sampling.
- The PDB samplers will be deployed using a Teflon® coated string or synthetic rope.
- When transferring water from the PDB to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

8. Management of Investigative-Derived Waste

Purpose:

The purposes of these guidelines are to ensure the proper holding, storage, transportation, and disposal of materials that may contain hazardous wastes. Investigation-derived waste (IDW) included the following:

- Drill cuttings, discarded soil samples, drilling mud solids, and used sample containers;
- Well development and purge waters and discarded groundwater samples;
- Decontamination waters and associated solids;
- Soiled disposable personal protective equipment (PPE);
- Used disposable sampling equipment;
- Used plastic sheeting and aluminum foil;
- Other equipment or materials that either contain or have been in contact with potentially-impacted environmental media.
- Because these materials may contain regulated chemical constituents, they must be managed as a solid waste. This management may be terminated if characterization analytical results indicate the absence of these constituents.

Procedure:

1. Contain all investigation-derived wastes in New York State Department of Transportation (NYSDOT)-approved 55-gallon drums, roll-off boxes, or other containers suitable for the wastes.

2. Contain wastes from separate borings or wells in separate containers (i.e. do not combine wastes from several borings/wells in a single container, unless it is a container used specifically for transfer purposes, or unless specific permission to do so has been provided by the LaBella Project Manager. Unused samples from surface sample locations within a given area may be combined.

3. To the extent practicable, separate solids from drilling muds, decontamination waters, and similar liquids. Place solids within separate containers.

4. Transfer all waste containers to a staging area. Access to this area will be controlled. Waste containers must be transferred to the staging area as soon as practicable after the generating activity is complete.

5. Pending transfer, all containers will be covered and secured when not immediately attended,

6. Label all containers with regard to contents, origin, and date of generation. Use indelible ink for all labeling.

7. Collect samples for waste characterization purposes, use boring/well sample analytical data for characterization.

8. For wastes determined to be hazardous in character, be aware on accumulation time limitations. Coordinate the disposal of these wastes with the Owner and NYSDEC.

9. Dispose of investigation-derived wastes as follows;

    - Soil, water, and other environmental media for which analysis does not detect organic constituents, and for which inorganic constituents are at levels consistent with background, may be spread on-site (pending NYSDEC approval) or otherwise treated as a non-waste material.
    - Soils, water, and other environmental media in which organic compounds are detected or metals are present above background will be disposed as industrial waste. Alternate disposition must be consistent with applicable State and Federal laws.
    - Personal protective equipment, disposable bailers, and similar equipment may be disposed as municipal waste, unless waste characterization results mandate disposal as industrial wastes

9. Decontamination

Sampling methods and equipment have been chosen to minimize decontamination requirements and to prevent the possibility of cross-contamination. Decontamination of equipment will be performed between discrete sampling locations. Equipment used to collect samples between composite sample locations will not require decontamination between collection of samples. All drilling equipment will be decontaminated prior to drilling, between each boring or monitoring well, and after the completion of all drilling. Special attention will be given to the drilling assembly, augers, etc.

Drilling decontamination will consist of:

- Steam cleaning or alconox wash;
- Scrubbing with brushes, if soil remains on equipment; and
- Steam rinse or potable water rinse.

Split spoons and other non-disposable equipment will be decontaminated between each sampling location. The sampler will be cleaned prior to each use, by one of the following procedures:

- Initially cleaned of all foreign matter;
- Sanitized with a steam cleaner;

OR

- Initially cleaned of all foreign matter;
- Scrubbed with brushes in alconox solution;
- Triple rinsed with potable water; and
- Allowed to air dry.

10. Sample Containers

The volumes and containers required for the sampling activities are included in pre-washed sample containers will be ordered directly from a laboratory or firm, which prepares the containers in accordance with EPA bottle washing procedures.

Table 10-1
Water Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Maximum Holding Time
Volatile Organics	40-ml glass vial with Teflon-backed septum	Two (2); fill completely, no air space	Cool to 4° C (ice in cooler), Hydrochloric acid to pH <2	7 days
Semivolatile Organics	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Pesticides	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
PCBs	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Metals	500-ml polyethylene	One (1); fill completely	Cool to 4° C (Nitric acid to pH <2	6 months

* Holding time is starts at the time of sample collection.

Note: All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

TABLE 10-2
Soil Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Maximum Holding Time
Volatile Organics	**40 mL preserved glass vials	**Three (3), fill with dedicated laboratory-provided syringe	Cool to 4° C (ice in cooler)	7 days
Volatile Organics, Semivolatile Organics, PCBs, and Pesticides	8-oz, glass jar with Teflon-lined cap	Two (2), fill as completely as possible (i.e., zero headspace)	Cool to 4° C (ice in cooler)	7 days
RCRA Characterization	8-oz. glass jar with Teflon-lined cap	One (1); fill completely	Cool to 4° C (ice in cooler)	Must be extracted within 10 days; analyzed with 30 days

* Holding time is based on the times from verified time of sample collection.
** Preservative and number of containers are laboratory-specific.

Note: All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

11. Sample Custody

This section describes standard operating procedures for sample identification and chain-of-custody to be utilized for all field activities. The purpose of these procedures is to ensure that the quality of the samples is maintained during their collection, transportation, and storage through analysis. All chain-of-custody requirements comply with standard operating procedures indicated in EPA sample handling protocol.

Sample identification documents must be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include:

- Field notebooks,
- Sample label,
- Custody seals, and
- Chain-of-custody records.

12. Chain-of-Custody

The primary objective of the chain-of-custody procedures is to provide an accurate written or computerized record that can be used to trace the possession and handling of a sample from collection to completion of all required analyses. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secured area that is restricted to authorized personnel.

12.1. Field Custody Procedures

- As few persons as possible should handle samples.
- Sample bottles will be obtained from approved laboratories. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- The sample collector is personally responsible for the care and custody of samples collected until they are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the notebook.

12.2. Sample Labels

Sample labels attached to or affixed around the sample container must be used to properly identify all samples collected in the field. The sample labels are to be placed on the bottles so as not to obscure any QC lot numbers on the bottles; sample information must be printed in a legible manner using waterproof ink (e.g., Sharpie). Field identification must be sufficient to enable cross-reference with the logbook. For chain-of-custody purposes, all QC samples are subject to exactly the same custodial procedures and documentation as "real" samples.

12.3. Transfer of Custody and Shipment

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the chain-of-custody record. This record documents sample custody transfer.
- Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are documented on the chain-of-custody record.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment. The other copies are distributed appropriately to the site manager.

12.4. Chain-of-Custody Record

The chain-of-custody record must be fully completed. Black carbon paper should be used where possible; however, copies of chain-of-custody prior to shipment are acceptable. The field technician is responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints on the chain of custody.

12.5. Laboratory Custody Procedures

A designated sample custodian accepts custody of the shipped samples and verifies that the sample identification number matches that on the chain-of-custody record if required.

12.6. Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. Sample shipping containers (coolers, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. Tape placed entirely around the cooler lid is also acceptable. On receipt at the laboratory, the custodian must check (and certify, by completing the package receipt log) that seals on boxes and bottles are intact. Strapping tape should be placed over the seals to ensure that seals are not accidentally broken during shipment.

13. Documentation

13.1. Sample Identification

All containers of samples collected from a project will be identified by a unique identification number and placed on the sample label fixed to the sample container. An example identification system is below for reference:

XX-YY-O/D

- XX This set of initials indicates the specific sampling project
- YY These initials identify the sample location. Actual sample locations will be recorded in the task log.
- O/D An "O" designates an original sample; "D" identifies it as a duplicate.

Each sample will be labeled, chemically preserved, if required and sealed immediately after collection. To minimize handling of sample containers, labels will be filled out prior to sample collection. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers and protected with Mylar tape. The sample label will give the following information:

- Name of sampler,
- Date and time of collection,
- Sample number,
- Analysis required,
- pH, and
- Preservation.

13.2. Daily Logs

Daily logs and data forms are necessary to provide sufficient data and observations to enable participants to reconstruct event that occurred during the project and to refresh the memory of the field personnel if called upon to give testimony during legal proceedings. If possible, all daily logs will be kept in a bound waterproof notebook containing numbered pages or on a separate sheet. All entries will be made in waterproof ink, dated, and signed. No pages will be removed for any reason. Corrections will be made according to the procedures given at the end of this section.

The logs will include:

- Name of person making entry (signature).
- Names of team members on-site.
- Change in level of personal protection, and reasons for changes.
- Time spent collecting samples.
- Documentation on samples taken, including:
  - Sampling location and depth station numbers;
  - Sampling date and time, sampling personnel;
  - Type of sample (grab, composite, etc.); and
  - Sample matrix.
- On-site measurement data.
- Field observations and remarks.
- Weather conditions, wind direction, etc.
- Unusual circumstances or difficulties.
- Initials of person recording the information.

14. Corrections to Documentation

14.1. Notebook

As with any data logbooks, no pages will be removed for any reason. If corrections are necessary, these must be made by drawing a single line through the original entry (so that the original entry can still be read) and writing the corrected entry alongside. The correction must be initialed and dated. Most corrected errors will require a footnote explaining the correction.

14.2. Sampling Forms

As previously stated, all sample identification labels, chain-of-custody records, and other forms must be written in waterproof ink. None of these documents are to be destroyed or thrown away, even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made on a document assigned to one individual, that individual may make corrections simply by crossing a line through the error and entering the corrected information. The incorrect information should not be obliterated. Any subsequent error discovered on a document should be corrected by the person who made the entry. All corrections must be initialed and dated.

14.3. Photographs

Photographs will be taken as directed by the site manager or as required in the project plan. Documentation of a photograph is crucial to its validity as a representation of an existing situation. The following information will be noted in the photograph log:

- Date, time, location photograph was taken;
- Weather conditions; and
- Description of photograph taken.

All photos will be stored electronically and select photos will be included in photo logs as part of the final reporting for the project.

15. Sample Handling, Packaging, and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample, but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulation, 49 CFR 171 through 177.

All chain-of-custody requirements must comply with standard operating procedures in the EPA sample handling protocol. All sample control and chain-of-custody procedures applicable to the Consultant are presented in the Field Personnel Chain-of-Custody Documentation and Quality Control Procedures Manual, January 1992.

15.1. Sample Packaging

Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- Shipping coolers must be partially filled with packing materials and ice when required, to prevent the bottles from moving during shipment.
- The sample bottles must be placed in the cooler with packaging material (e.g., plastic bubble wrap) in such a way as to ensure that they do not touch one another.
- The environmental samples are to be cooled as required by the analytical method.
- Any remaining space in the cooler should be filled with inert packing material. Under no circumstances should material such as sawdust, sand, etc., be used.
- A duplicate custody record and traffic reports, if required must be placed in a plastic bag on top of the packed cooler or taped to the bottom of the cooler lid. Custody seals are affixed to the sample cooler.

15.2. Shipping Containers

Shipping containers are to be custody-sealed for shipment as appropriate. The container custody seal will consist of tape wrapped around the package at least twice and custody seals affixed in such a way that access to the container can be gained only by cutting the tape and breaking a seal.

Field personnel will make arrangements for transportation of samples to the lab. When custody is relinquished to a shipper, field personnel will telephone the lab custodian to inform him of the expected time of arrival of the sample shipment and to advise him of any time constraints on sample analysis. The lab must be notified as early in the week as possible, and in no case later than 3 p.m. (EST) on Thursday, regarding samples intended for Saturday delivery.

16. Calibration Procedures and Frequency

All instruments and equipment used during sampling and analysis will be operated, calibrated, and maintained according to the manufacturer's guidelines and recommendations as well as criteria set forth in the applicable analytical methodology references. Operation, calibration, and maintenance will be performed by personnel properly trained in these procedures. Documentation of all routine and special maintenance and calibration information will be maintained in an appropriate logbook or reference file, and will be available on request. Section 18 lists the major instruments to be used for sampling and analysis. Brief descriptions of calibration procedures for major field and laboratory instruments follow.

17. Field Instrumentation

17.1. Photovac/MiniRae Photoionization Detector (PID)

Standard operating procedures for the PID require that routine maintenance and calibration be performed every six months. Field calibration will be performed on a daily basis. The packages used for calibration are non-toxic analyzed gas mixtures available in pressurized containers. All calibration procedures will follow the manufacturer recommendations.

17.2. Conductance, Temperature, and pH Tester

Temperature and conductance instruments are factory calibrated. Temperature accuracy can be checked against an NBS certified thermometer prior to field use if necessary. Conductance accuracy may be checked with a solution of known conductance and recalibration can be instituted, if necessary.

17.3. 0_2/Explosimeter

The specific meter used at the time of work shall be calibrated in accordance with manufacturer recommendations. The model 260 O_2/ Explosimeter is described below.

The primary maintenance item of the Model 260 is the rechargeable 2.4 volt (V) nickel cadmium battery. The battery is recharged by removing the screw cap covering receptacle and connecting one end of the charging cable to the instrument and the other end to a 115V AC outlet.

The battery can also be recharged using a 12V DC source. An accessory battery charging cable is available, one end of which plugs into the Model 260 while the other end is fitted with an automobile cigarette lighter plug.

Recommended charging time is 16 hours.

Before the calibration of the combustible gas indicator can be checked, the Model 260 must be in operating condition. Calibration check-adjustment is made as follows:

1. Attach the flow control to the recommended calibration gas tank.
2. Connect the adapter-hose to the flow control.
3. Open flow control valve.
4. Connect the adapter-hose fitting to the inlet of the instrument; after about 15 seconds the LEL meter pointer should be stable and within the range specified on the calibration sheet accompanying the calibration equipment. If the meter pointer is not in the correct range, stop the flow; remove the right hand side cover. Turn on the flow and adjust the "S" control with a small screwdriver to obtain a reading as specified on the calibration sheet.
5. Disconnect the adapter-hose fitting from the instrument.
6. Close the flow control valve.
7. Remove the adapter-hose from the flow control.
8. Remove the flow control from the calibration gas tank.
9. Replace the side cover on the Model 260.

CAUTION: Calibration gas tank contents are under pressure. Use no oil, grease, or flammable solvents on the flow control or the calibration gas tank. Do not store calibration gas tank near heat or fire or in rooms used for habitation. Do not throw in fire, incinerate, or puncture. Keep out of reach of children. It is illegal and hazardous to refill this tank. Do not attach the calibration gas tank to any other apparatus than described above. Do not attach any gas tank other than MSA calibration tanks to the regulator.

17.4. Nephelometer (Turbidity Meter)

LaMotte 2020WE Turbidity Meter is calibrated before each use. The default units are set to NTU and the default calibration curve is formazin. A 0 NTU Standard (Code 1480) is included with the meter. To calibrate, rinse a clean tube three times with the blank. Fill the tube to the fill line with the blank. Insert the tube into the chamber, close the lid, and select “scan blank”.

TABLE 17-4
List of Major Instruments
for Sampling and Analysis

- MSA 360 0_2 /Explosimeter
- Geotech Geopump II AC/DC Peristaltic Pump
- QED MP50 Controller and QED Sample Pro MicroPurge Bladder Pimp
- Horiba U-53 Multi-Parameter Water Quality Meter
- LaMotte 2020WE Turbidity Meter
- EM-31 Geomics Electromagnetic Induction Device
- Mini Rae Photoionization Detectors (3,000, ppbRAE, etc.)

18. Laboratory Quality Controls

QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of field equipment. Field duplicates and field blanks will be analyzed by the laboratory as samples and will not necessarily be identified to the laboratory as duplicates or blanks. For each matrix, field duplicates will be provided at a rate of one per 20 samples collected or one per shipment, whichever is greater. Field blanks which consist of trip blank and field and will be provided at a rate of one per 20 samples collected for each parameter group, or one per shipment, whichever is greater.

Calculations will be performed for recoveries and standard deviations along with review of retention times, response factors, chromatograms, calibration, tuning, and all other QC information generated. QC records will be retained and results reported with sample data and utilized by the Data Validator.

18.1. Field Blanks

Various types of blanks are used to check the cleanliness of field handling methods. The following types of blanks may be used: the trip blank, the routine field blank, and the field equipment blank. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination. Field staff may add blanks if field circumstances are such that they consider normal procedures are not sufficient to prevent or control sample contamination, or at the direction of the project manager. Rigorous documentation of all blanks in the site logbooks is mandatory.

- **Routine Field Blanks** or bottle blanks are blank samples prepared in the field to access ambient field conditions. They will be prepared by filling empty sample containers with deionized water and any necessary preservatives. They will be handled like a sample and shipped to the laboratory for analysis.
- **Trip Blanks** are similar to routine field blanks with the exception that they are **not** exposed to field conditions. Their analytical results give the overall level of contamination from everything except ambient field conditions. Trip blanks are typically collected with every batch of water samples for volatile organic analysis. If utilized, each trip blank will be prepared by filling a 40-ml vial with deionized water prior to the sampling trip, transported to the site, handled like a sample, and returned to the laboratory for analysis without being opened in the field.
- **Field Equipment Blanks** are blank samples (sometimes called transfer blanks or rinsate blanks) designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use, and that cleaning procedures between samples are sufficient to minimize cross contamination. If a sampling team is familiar with a particular site, they may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment.

18.2. Field Duplicates

Field duplicate samples consist of a set of two samples collected independently at a sampling location during a single sampling event. In some instances the field duplicate can be a blind duplicate, i.e., indistinguishable from other analytical samples so that personnel performing the analyses are not able to determine which samples are field duplicates. Field duplicates are designed to assess the consistency of the overall sampling and analytical system.

18.3. Representativeness

Careful choice and use of appropriate methods in the field will ensure that samples are representative. This is relatively easy with water or air samples since these components are homogeneously dispersed. In soil and sediment, contaminants are unlikely to be evenly distributed, and thus it is important for the sampler and analyst to exercise good judgment when removing a sample.

NYSDEC DER-10 DUSR requirements are as follows:

a) Background. The Data Usability Summary Report (DUSR) provides a thorough evaluation of analytical data with the primary objective to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use.

   1. The development of the DUSR must be carried out by an experienced environmental scientists, such as the project Quality Assurance Officer, who is fully capable of conducting a full data validation. The DUSR is developed from:

      i. A DEC ASP Category B Data Deliverable; or
      ii. The *USEPA Contract Laboratory Program National Functional Data Validation Standard Operating Procedures for Data Evaluation and Validation.*

   2. The DUSR and the data deliverables package will be reviewed by DER staff. If full third party data validation is found to be necessary (e.g. pending litigation) this can be carried out at a later data on the same data package used for the development of the DUSR.

b) Personnel Requirements. The person preparing the DUSR must be pre-approved by DER. The person must submit their qualifications to DER documenting experience in analysis and data validation. Data validator qualifications are available on DEC's website identified in the table of contents.

c) Preparation of a DUSR. The DUSR is developed by reviewing and evaluating the analytical data package. In order for the DUSR to be acceptable, during the course of this review the following questions applicable to the analysis being reviewed must be answered in the affirmative.

      1. Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?
      2. Have all holding times been met?
      3. Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?
      4. Have all of the data been generated using established and agreed upon analytical protocols?
      5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?
      6. Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?
      7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheets from the data package been attached to the DUSR?

d) Documenting the validation process in the DUSR. Once the data package has been reviewed and the above questions asked and answered the DUSR proceeds to describe the samples and the analytical parameters, including data deficiencies, analytical protocol deviations and quality control problems are identified and their effect on the data is discussed.