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Engineering
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Environmental
Planning

Interim Remedial Measures Work Plan
Sub-Slab Depressurization System Installation

BCP Site #C828187

Location:

3750 Monroe Avenue
Pittsford, New York

Prepared for:

3750 Monroe Avenue, LLC
c/o Norry Management Corp.
1465 Monroe Avenue
Rochester, New York 14618

LaBella Project No. 213131

October 2014

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
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Joe Martens
Commissioner

November 5, 2014

Mr. Lewis Norry
3750 Monroe Avenue Associates, LLC
c/o Norry Management Corporation
1465 Monroe Avenue
Rochester, New York 14618

Dear Mr. Norry:

Subject: 3750 Monroe Avenue, Site #C828187
Interim Remedial Measures Work Plan:
Sub-Slab Depressurization System Installation - October 2014
City of Rochester, Monroe County

The New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), collectively referred to as the State, have completed their review of the document entitled *"Interim Remedial Measures Work Plan: Sub-Slab Depressurization System Installation"* (the IRM Work Plan) dated October 2014 for the 3750 Monroe Avenue site located in the Town of Pittsford. In accordance with 6 NYCRR Part 375-1.6, the State has determined that the IRM Work Plan, with modifications, substantially addresses the requirements of the Brownfield Cleanup Agreement. The modifications are outlined as follows:

1. The IRM Work Plan was incomplete because it did not contain all of the information specified in the June 2014 *"Interim Remedial Measure Design Phase Investigation: Sub-Slab Depressurization System"* (the DPI Work Plan) and subsequent modifications. Most importantly, it did not include the preliminary assessment of air emissions from the sub-slab depressurization system required in NYSDEC's letter of July 2, 2014 modifying the DPI Work Plan. This assessment has since been provided and is attached to this letter.

2. **Section 1:** Additional Standards, Criteria and Guidelines (SCGs) that may be applicable to the IRM Work Plan include:
   - The NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives (RPSCOs) for Unrestricted Use and the Protection of Groundwater;
   - Commissioner Policy 51; and
   - TOGS 1.1.1 guidance values for groundwater.

3. **Section 3:** The soil and groundwater sampling elements of the IRM Work Plan are not intended to delineate the nature and extent of contamination at the site. The nature and extent of

contamination associated with the site will be delineated in the upcoming Remedial Investigation.

4. **Section 3:** A minimum vacuum of 0.004 inches of water must be achieved throughout the target area.

5. **Section 3:** Impacted soils containing chlorinated solvents will be managed as a hazardous waste unless a contained-in determination is obtained from NYSDEC.

6. **Section 5.1.1:** In the event of a loss of power, the fans will re-start automatically when power is returned.

7. **Section 5.1.1:** Each depressurization point will be clearly labeled in order to avoid accidental changes to the system that could disrupt its function.

8. **Section 5.1.1:** Once a depressurization system is installed, its operation may compete with the proper venting of other combustion or vented appliances (e.g., furnaces, water heaters, etc.), resulting in the accumulation of exhaust gases in the building and the potential for carbon monoxide poisoning. Therefore, natural draft combustion appliances within the building, if any, will be tested for backdrafting. Backdrafting conditions will be corrected before the depressurization system is placed into full operation. The Final Engineering Report and interim Site Management Plan will document the location of any natural draft combustion appliances within the building and the backdraft test results.

9. **Section 5.1.3:** Any noticeable leaks in the piping or floor slab will be sealed prior to measuring the extent of the pressure field.

10. **Section 5.1.3:** A number of permanent pressure field extension monitoring points will be installed after the temporary points indicate that the entire target area is being effectively depressurized. The exact number and location of permanent points will be approved by NYSDEC.

11. **Section 5.1.4:** The horizontal laterals will be sloped (minimum 1% recommended) so that any water that condenses drains back to the ground.

12. **Section 5.1.4:** While not required, a rain cap (or equivalent) should be considered for the exhaust points. Rain caps, if used, should be installed so as not to increase the potential for extracted subsurface vapors to enter the building.

13. **Section 5.2.1:** The exhaust from the Geoprobe unit will be vented to the outdoor air, or other adequate methods will be used to address carbon monoxide and other emissions from the Geoprobe unit.

14. **Section 5.2.2:** Groundwater samples will be collected from a depth that intercepts the worst case impacts observed during the soil boring based on PID readings and other evidence of impairment (visual, olfactory). If impacts are not observed in one or more borings, wells will be screened just above bedrock (i.e., bottom 5 to 10-ft. of the borehole) or in zones in which worst case impacts were observed in nearby borings.

Based on previous investigations, the apparent top of bedrock is approximately 23 feet below ground surface and the worst case impacts were typically observed at depths of 8 to 12 feet below ground surface with deeper impacts observed in some borings.

15. **Section 5.3.1:** Sub-slab vacuum at the proposed sample location will be measured prior to collecting sub-slab soil vapor samples. The location of the sub-slab soil vapor and indoor air samples will be moved if the sub-slab vacuum is 0.004 inches of water or greater.

16. **Section 5.3.1:** It is incorrect to state that the results from previous indoor air sampling events indicate that mitigation does not need to be completed in other areas of the building.

17. **Section 5.3.1:** The results of the collocated sub-slab soil vapor and indoor air samples will be evaluated and appropriate action taken.

18. **Section 5.3.1:** An IRM Work Plan amendment for modifying or expanding the mitigation system will be submitted within 60 days of the State's determination of any of the following: a) the pressure (vacuum) field is not adequate within the target area; b) mitigation is needed beyond the extent of the current target area; or c) indoor air concentrations continue to exceed SCGs.

19. **Section 5.3.1:** The post-mitigation sub-slab soil vapor and indoor air samples will be collected on a heating season day.

20. **Section 5.3.1:** The sample collection period will be 8 hours, not 6 hours. The flow regulators will be modified accordingly.

21. **Section 5.3.1:** During purging of the sample point, a tracer gas evaluation will also be conducted at 100% (not 10%) of the sample locations to verify the integrity of the sub-slab soil vapor probe seal.

22. **Section 5.3.2:** Upon initial start-up, PID readings and flow measurements will be taken from each vent fan system to evaluate stack emissions. PID readings will be collected daily for the first week (unless NYSDEC approves an alternate frequency) and compared to the Design Phase Investigation PID readings. NYSDEC will be notified immediately if the PID measurements significantly exceed the Design Phase PID measurements. Otherwise, effluent from the two (2) locations with the highest PID readings will be sampled using a 1-liter Summa canister 1 week after start-up as described in the IRM Work Plan.

23. **Section 6:** The IRM Construction Completion Report and Interim Site Management Plan will be submitted within two months of the full start-up of the SSDS. "Full start-up" means that the extent of the pressure field is acceptable, validated indoor air results meet SCGs, and no additional IRM Work Plan amendments have been requested by the State.

24. **Quality Control Program, Section 9:** The reference to ASP 91-1 is outdated. The current version of the ASP will be used.

25. **Quality Control Program, Section 11:** Investigation derived wastes may not be spread out on-site without NYSDEC approval.

With the understanding that the above noted modifications are agreed to, the IRM Work Plan is hereby approved. This approval does not extend to the Health and Safety Plan as the State is not responsible for the health and safety of remediation workers.

If you choose not to accept the State’s modifications, you are required to notify this office within 20 days after receipt of this letter or prior to the start of field activities. In this event, I suggest a meeting be scheduled to discuss your concerns prior to the end of this 20-day period.

Prior to the start of field activities, please attach a copy of this letter and attachments to the IRM Work Plan and distribute as follows:

- Frank Sowers (NYSDEC) – 2 hard copies;
- Bridget Boyd (NYSDOH) – 1 hard copy and 1 electronic copy in pdf format;
- John Frazer (Monroe County Health Department) – 1 electronic copy in pdf format; and
- Document Repositories – 1 hard copy each;

Based on the schedule provided in the IRM Work Plan, installation of the sub-slab depressurization system will begin by **December 8, 2014**. Please notify me at least 7 days in advance of the start of field activities.

This letter represents approval of the first work plan under the Brownfield Cleanup Agreement (BCA) and initiates the monthly Progress Report provision of the BCA. Progress Reports are due by the 10th day of each month with the initial Progress Report due on December 10, 2014. Progress Reports should be submitted as electronic (.pdf) files only.

Thank you for your cooperation in this matter and please contact me at (585) 226-5357 if you have any questions regarding these modifications.

Sincerely,

Frank Sowers

Frank Sowers, P.E.
Environmental Engineer II

Attachment

ec: w/attach.
James Mahoney
Dan Noll
Jennifer Gillen
Bart Putzig
Bridget Boyd
John Frazer
James Pronti

3750 Monroe Avenue
Design Phase Investigation
VOC Monitoring Results

Tenant Area	Monitoring Point	Notes	Exhaust CFM	PID	Estimated TCE Mass[1] Effluent (lbs/hr)	Estimated TCE Mass[1] Effluent (tons/yr)	Estimated TCE Mass[1] Effluent per System assuming 8 vent points (lbs/hr)
Concentrix	C1 (Vent Point)	Initial	25	2.5	0.0013	0.0055	0.0101
		Sustained	25	1	0.0005	0.0022	0.0040
	C1T1	peak reading	n/a	3.9	n/a		
	C1T2	peak reading	n/a	1.7			
	C1T3	peak reading	n/a	10			
	C1T4	peak reading	n/a	2.1			
Volt	V1 (Vent Point)	Initial	35	0.6	0.0004	0.0019	0.0034
		Sustained	35	0.6	0.0004	0.0019	0.0034
	V1T1	peak reading	n/a	3.1	n/a		
	V1T2	peak reading	n/a	1.4			
	V1T3	peak reading	n/a	4.7			
	V1T4	peak reading	n/a	1.2			
Town Court	T1 (Vent Point)	Initial	35	1.5	0.0011	0.0046	0.0085
		Sustained	35	2.2	0.0016	0.0068	0.0124
	T1T1	peak reading	n/a	8.4	n/a		
Vacant Space	Pilot SSDS Test Point	Initial	82	7	0.0116	0.0506	0.0924
		Sustained	82	3.5	0.0058	0.0253	0.0462

Max	***0.0116***	***0.0068***
Est. for 64 Vent Points	***0.7396***	***0.4346***

1 - Mass estimates assume PID readings represent 100 % TCE.
Estimate assumes 1 ppm equates to 5.374 mg/m3 (using standard temperature and pressure).

Interim Remedial Measures Work Plan
Sub-Slab Depressurization System Installation

BCP Site #C828187

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3750 Monroe Avenue, LLC
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1465 Monroe Avenue
Rochester, New York 14618

LaBella Project No. 213131

October 2014

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

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	11/4/2014	
NYS Professional Engineer #	Date	Signature

DANIEL P. NOLL
No. 081996

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Tables, Figures and Appendix

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Appendix

1.0 Introduction & Background

LaBella Associates, P.C. (LaBella) is pleased to submit this Interim Remedial Measures (IRM) Work Plan to conduct remedial activities at 3750 Monroe Avenue, Town of Pittsford, Monroe County, New York, herein after referred to as the "Site." The Site was entered into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) in March 2014 as Site #C828187. A Site Location Map is included as Figure 1. LaBella is submitting this IRM Work Plan on behalf of 3750 Monroe Avenue Associates, LLC (3750 Associates).

1.1 Site Description and Background

The BCP Site boundary is comprised of approximately 9.37 acres. The BCP Site is a portion of the Site Tax Parcel, which is 41.90 acres; however, the BCP Site is 9.37 acres. Figures 1 and 2 attached illustrate the location and surrounding area of the Site. Approximately 6.38 acres of the BCP Site is utilized as a commercial office building and the remainder of the BCP Site is utilized as a parking lot (and associated/adjacent landscaped areas).

The BCP Site is located entirely within the Site Tax Parcel, in the central portion of the Site Tax Parcel. The Site Tax Parcel is bounded by Monroe Avenue to the southwest, a Rochester Gas and Electric (RG&E) transmission line to the northeast, by vacant real property and a developed commercial property southeast, and by several residential properties developed with apartment complexes to the northwest.

The Site Tax Parcel was initially operated by Graflex, Inc. from 1956 until at least 1979 and utilized for industrial purposes, including plating operations and printing. Additional tenants at that time included the Singer Company, Xerox Inc., and General Precision Inc. Historical mapping of the Site indicates the former presence of a "waste disposal testing area" and hazardous waste storage areas on the western side of the Site building (within the BCP Site) prior to the 1980's. Ownership changed several times until purchased by 3750 Monroe Avenue Associates, LLC in 1985. Since that time, 3750 Monroe Avenue Associates, LLC has leased portions of the Site Tax Parcel to various tenants for use including but not limited to the Town of Pittsford Town Court, a printing shop, a senior center, a daycare and various commercial and light industrial operations.

1.2 Previous Investigations

A Phase I ESA was completed by LaBella in May 2012 and the Phase I ESA identified an undated figure of the Site Tax Parcel obtained from the Town Assessor Office that indicates the building uses included (among other things) 'machine shop', 'press room', and 'heat treat' areas. In addition, a review of assessment records obtained from the Town of Pittsford identified the installation of one (1) 2,000-gallon petroleum underground storage tank (UST) at the Site Tax Parcel in 1960. These records included a map which depicted the UST to be located to the west of the Site building.

A Preliminary Phase II ESA of the Site Tax Parcel completed by LaBella in 2012 included conducting a geophysical survey (EM-61 survey), test pitting work and collecting soil and groundwater samples via direct push technology. Additional subsurface testing (soil and groundwater) was completed in the interior portion of the Site in June 2013. Although one anomaly of the size and shape of a UST was identified by the geophysical survey, test pitting activities did not identify any USTs in the pits excavated. However, soil and groundwater samples collected from the BCP Site portion of the Site Tax Parcel identified concentrations of chlorinated volatile organic compounds (VOCs) including trichloroethene (TCE) and its breakdown products as well as some petroleum-related VOCs above the New York State Department of Environmental Conservation (NYSDEC) Part 703 Groundwater Standards.

Indoor air quality sampling was completed by LaBella at the Site in July 2014 and validated results were received in September 2014. Figure 2 depicts the indoor air sample locations and Table 2 summarizes the indoor air quality data for these samples. Additional information associated with this indoor air sampling event is included in Section 4.0. In addition, LaBella completed a Design Phase Investigation (DPI) at the Site in August 2014 to obtain additional data for evaluating and designing a sub-slab depressurization system. This IRM work plan has been developed based on the results of the indoor air quality testing and the DPI.

1.3 Standards, Criteria and Guidelines

This section identifies the Standards, Criteria and Guidelines (SCGs) for the Site. The SCGs identified are used in order to quantify the extent of contamination at the Site that require remedial work based on the cleanup goal. The SCGs to be utilized as part of the implementation of this IRM Work Plan are identified below:

Soil SCGs: The following SCGs for soil were used in developing this IRM Work Plan:

- NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives (RPSCOs) for the Protection of Public Health/Commercial Use;

Groundwater SCGs: The following SCGs for groundwater were used in developing this IRM Work Plan:

- NYSDEC Part 703 Groundwater Standards

Soil Gas SCGs: Currently, no state regulatory (NYSDEC or 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 is utilized for the SCG for soil vapor and indoor air.

Effluent/Discharges from Vent Systems: Air Guide 1 Guidelines for the Control of Toxic Ambient Air Contaminants will be utilized for effluent/discharges from vent systems.

The attached Table 1 presents the complete list of applicable SCGs for this IRM.

2.0 Objective

The primary objective of this IRM is to mitigate chlorinated VOC impacts identified in indoor air samples collected in July 2014. This objective is to be completed via the installation of a sub-slab depressurization system (SSDS) within portions of the Site building. The Site is currently utilized for commercial purposes and is almost fully occupied. As such, the completion of intrusive work such as installation of the SSDS and collection of subsurface samples creates a significant disturbance to the occupants of the building. In an attempt to limit such disturbances, a secondary objective of this IRM is to collect soil and groundwater samples from beneath the Site building during the installation of the SSDS, in several of the same locations at which depressurization points are anticipated to be installed.

The overall objective for the Site is its continued use for commercial purposes.

3.0 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 in the areas of the building identified on Figure 3, thus mitigating soil vapor intrusion issues within these areas of the Site building.
2) Install gauges and alarms associated with the SSDS as well as pressure field extension (PFE) points to monitor the operation of the system.
3) Collect soil and groundwater samples in select locations at which depressurization points associated with the SSDS are planned to be installed. These locations correspond with areas of historic operations and intend to delineate the nature and extent of contaminants at the Site.
4) Containerize, characterize and properly dispose of any solid material (e.g., soil or fill) generated during the IRM. If necessary, impacted materials will be transported to a NYS part 360 permitted landfill for disposal.
5) Containerize, treat (if necessary), and dispose of any liquid materials generated during the IRMs as well as liquid materials found to accumulate within the remedial excavation in any significant quantity.

Impacted soils and liquid materials shall be addressed in accordance with applicable local, state, and federal regulations.

4.0 Indoor Air Quality Study Findings

As required by the NYSDEC, indoor air quality samples were collected from the Site on July 26, 2014 by LaBella. This sampling event included the collection of one (1) outdoor air sample (as a control sample) and nine (9) indoor air samples, including one (1) duplicate sample. This sampling was completed in substantial accordance with the Design Phase Investigation for the SSDS, which was approved by the NYSDEC and NYSDOH in July 2014. This plan included analysis of indoor air samples for a select list of VOCs using USEPA Method TO-15. This list is based on known subsurface impacts at the Site and was selected by the NYSDEC and NYSDOH to help control for potential contributions from existing tenant operations. The list is included in Table 2.

The indoor air sampling locations are depicted on Figure 2. These locations were selected based on the following:

- Known areas of historical operations at the Site at which hazardous substances may have been utilized including wastewater treatment and degreasing (refer to Figure 3);
- Soil and groundwater impacts identified by LaBella's previous Phase II ESAs completed at the Site; and,

- Previous indoor air samples collected in the southern portion of the Site building by CanAm Environmental Safety, Inc. (CanAm). CanAm was retained by Maximus Federal Services, Inc. (Maximus) in August 2013 to conduct indoor air testing in the space leased by Maximus from 3750 Monroe Avenue Associates, LLC. The locations of indoor air samples collected by CanAm are incuded on Figure 2 and the data are summarized in Table 2. The data package obtained from Maximus is included in Appendix 4.

Validation of the data for the indoor air samples collected by LaBella in July 2014 was completed by DataVal, Inc. (DataVal) in September 2014. This validated data as well as data associated with the samples collected by CanAm in August 2013 are summarized in Table 2. As indicated in the table, nine (9) of the ten (10) samples collected by LaBella and three (3) of the five (5) samples collected by CanAm had detections of the select list of targeted VOCs at concentrations above laboratory method detection limits (MDLs). However, only four (4) of these samples had detections of a VOC above the Indoor Air SCGs (refer to Section 1.3). Specifically, trichloroethene was detected above the Indoor Air SCG in the following samples:

- Town Court
- Volt 1
- Volt 2
- Concentrix 2

Additional targeted VOCs were not identified above their respective SCGs.

5.0 Field Activities Plan

5.1 Sub-Slab Depressurization System Installation

5.1.1 System Overview

The SSDS will be installed in substantial 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 140,000-square feet (sq. ft.) of the building. The SSDS is proposed to consist of 48 depressurization points which will be manifolded together horizontally in the building's ceiling to form between approximately 6 and 10 smaller sub-slab systems (or "sub-systems") each consisting of approximately 5-8 depressurization points manifolded into one (1) fan. PFE monitoring points will also be installed in the building floor slab during the installation of the SSDS; however, these points will be sealed subsequent to system installation and confirmation of the radius of influence. Due to the complexity of the building, varying subsurface conditions and tenant spaces, the specific depressurization points which will be tied into each specific system/fan cannot be determined at this time.

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

Many of the depressurization points are anticipated to be installed against columns so that the preexisting column can be utilized to support the vertical piping. Due to the presence of column footings which may extend 2-ft. to 3-ft. horizontally from the center of each column, limited trenching may be necessary to ensure that the depressurization point comes in contact with the sub-slab space and not with the concrete footer, which will prevent air flow. 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 supported by the column. 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. 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 laterals are designed to consist of 4-in. diameter Schedule 40 PVC into which the vertical depressurization points will be manifolded. The laterals are anticipated to link together several depressurization points to create several sub-systems, each with their own fan and will be located within the building's ceiling and/or other overhead utility corridors. Each sub-system will be tied into a vertical riser which will extend through the roof where a fan will be located. Various fans will be utilized depending on the specific vacuum requirements of each sub-system; however, models GBR 76 and/or GBR 89 are currently anticipated to be utilized at the Site. Effluent from the fans 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, alarms will alert the building tenants and owners in the event that the system fails. As part of each alarm system, 0.25-in diameter tubing will be connected and sealed into each vertical riser (i.e., the vertical piping connecting the laterals to the fans).

Tubing will be run from each sub-system to central locations within each mitigated tenant space where alarms will be located for each sub-system. Details associated with the alarms are included in Figure 4. The locations of the alarms cannot be determined at this time as they will depend on the configuration of the sub-systems. The alarms will also be equipped with gauges to measure and display the vacuum reading.

Each 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 wic. When the system is working properly the audible indicated will be silent and the light will be green. Each alarm will be mounted approximately 7-ft. to 12-ft. above the finished floor surface. The alarms will be connected to separate electrical circuits than the fans so that the alarms will activate if power to the fans is interrupted. Signs in the vicinity of the alarms will indicate who to contact should one or more of the alarms sound.

5.2 Soil and Groundwater Sampling

As previously noted, soil and groundwater sampling within the Site building will be completed concurrently with the system installation to limit the number and duration of disturbances to the building occupants. The soil and groundwater sampling procedures to be implemented under this work plan are described below. It should be reiterated that the primary goal of this IRM is to install the SSDS. A summary of the completed soil and groundwater sampling will be included in the RI report while the Construction Completion Report (CCR) for this IRM will include a summary of the SSDS installation.

5.2.1 Soil Sampling and Analysis

As part of the overburden soil investigation, soil-boring data will be collected for the geologic characterization of the Site and to allow further delineation of contamination, horizontally and vertically. This work will be completed in substantial accordance with NYSDEC DER-10 as well as Section 5 and 6 of the QCP included as Appendix 3. To implement the soil borings at the Site the following will be completed;

- A Dig Safely New York stakeout will be conducted at the Site to locate any subsurface utilities in the areas where the subsurface assessment and delineation will take place. In addition, utility drawings provided by the owner will be reviewed to identify any subsurface utilities located within the footprint of the Site building. In the event that utilities appear to represent a subsurface issue, compressed air may be utilized to remove subsurface material up to 4-ft. bgs.
- Borings 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 macrocore sampler, with disposable polyethylene sleeves. Soil cores will be retrieved in 4-ft. sections, and can be easily cut from the polyethylene sleeves for observation and sampling.
- Based on the geology at the Site, each boring implemented at the Site will be advanced until equipment refusal is encountered, although attempts will be made to reach bedrock (estimated to be approximately 23-ft. bgs based on previous borings) in locations where impacts are identified. Previous static water level readings measured at the Site indicate that overburden groundwater depths within the footprint of the building range from approximately 7.03-feet to 7.52-feet in depth. Approximate proposed soil boring locations are depicted on Figure 2. As noted in Section 5.1, these locations may vary slightly based on field conditions and requirements of the SSDS.

- The drilling equipment will be required to be decontaminated prior to use, including an alconox and potable water wash followed by a potable water rinse. In between each boring, decontamination procedures will be repeated. See Section 12 of the QCP for additional details regarding decontamination procedures.
- Soils from the borings will be continuously screened in the field for visible impairment, olfactory indications of impairment, evidence of NAPLs, and/or indication of detectable VOCs with a PID collectively referred to as "evidence of impairment." Field screening (visual & olfactory observation, PID readings, etc.) will be recorded on a soil-boring log (or 'PID Log') and will be included in the Remedial Investigation Report.
- Soil Boring Logs will be completed and include soil description, soil boring number and location, PID readings, etc. Soil Boring Logs will be included in the Remedial Investigation Report (RI). If deemed appropriate based on observed conditions, a soil boring photo log with pictures of select soil profiles from individual soil borings will be included in the RI report.
- Soil generated during soil sampling activities will be containerized in 55-gallon drums, characterized, and disposed of off-Site in accordance with applicable regulations. See Section 11 of the QCP for additional details regarding the management of investigation-derived wastes at the Site.
- Subsequent to boring completion and groundwater sampling (refer to Section 5.2.2 below), the borehole will be backfilled with bentonite clay chips to approximately 1-ft. below the bottom of the concrete floor slab. The clay will be hydrated to seal the borehole and the depressurization point will be installed as described in Section 5.1.
- Soil samples will be immediately stored on ice and subsequently delivered under standard chain of custody (COC) procedures to a New York State Environmental Laboratory Accreditation Program (ELAP) certified laboratory. Laboratory analytical data packages will be provided as Analytical Services Protocol (ASP) Category B deliverable packages. Soil samples will be analyzed for the following parameters:
    - USEPA Target Compound List (TCL) VOCs and up to 30 tentatively identified compounds (TICs) using USEPA Method 8260;
    - USEPA TCL semi-volatile organic compounds (SVOCs) and up to 30 TICs using USEPA Method 8270;
    - USEPA Target Analyte List (TAL) Metals using USEPA Methods 6010/7470/7471;
    - Pesticides using USEPA Method 8081;
    - Polychlorinated biphenyls (PCBs) using USEPA Method 8082; and,
    - Total cyanide using USEPA Method 9012.
- A Data Usability Summary Report (DUSR) will be completed and included in the RI report. The DUSR will include a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

5.2.2 Groundwater Sampling and Analysis

Subsequent to the completion of each borehole, a temporary monitoring well will be installed within the borehole. Each well will be constructed using a 5-ft. to 10-ft. long 0.010-inch slotted PVC well screen finished with a PVC riser to the floor surface. Due to the temporary nature of the wells and the intention to sample eight (8) of the ten (10) wells for VOCs only, a sand pack and bentonite seal will not be utilized in the construction of those eight (8) wells. Pre-packed well screens will be utilized in the remaining two (2) well locations as samples collected from these wells will be attempted to be analyzed for full suite parameters (listed below). The pre-packed well screens are to be utilized in an attempt to limit turbidity in the samples. In the event that enough sample volume to analyze for the full list of parameters is not generated, samples from these two (2) wells will be analyzed for as many of the listed parameters as possible, in the below listed order:

- USEPA TCL VOCs and up to 30 tentatively identified compounds (TICs) using USEPA Method 8260;
- USEPA Target Analyte List (TAL) Metals using USEPA Methods 6010/7470/7471;
- Total cyanide using USEPA Method 9012.
- USEPA TCL semi-volatile organic compounds (SVOCs) and up to 30 TICs using USEPA Method 8270;
- Polychlorinated biphenyls (PCBs) using USEPA Method 8082; and,
- Pesticides using USEPA Method 8081;

After placing each temporary well in each of the selected boreholes, the wells will be developed until dry or until at least 3 well volumes have been removed. Following development, the well will be briefly allowed to recharge so that a groundwater sample can be collected. Development will be completed using either a dedicated polyethylene bailer or a peristaltic pump. Sampling is anticipated to be completed using a peristaltic pump. A turbidity meter will be utilized to measure turbidity immediately prior to sampling each well. Development water will be containerized for future characterization and appropriate disposal (refer to Section 5.3). Subsequent to sampling, the well will be removed and the borehole will be backfilled with bentonite clay, as described in Section 5.2.1.

Groundwater samples will be immediately stored on ice and subsequently delivered under standard COC procedures to a New York State ELAP certified laboratory. Laboratory analytical data packages will be provided as Analytical Services Protocol (ASP) Category B deliverable packages. The groundwater samples will be analyzed for USEPA TCL VOCs using USEPA Method 8260. Due to the temporary nature of the wells and the limited time period during which the samples can be collected as the SSDS installation progresses, the groundwater samples will not be analyzed for other contaminants of concern. However, this groundwater sampling event intended to provide important data to further investigate and delineate the VOC impacts already identified at the Site.

A DUSR will be completed and included in the RI report. The DUSR will include a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

5.3 Post-Startup Air Sampling

5.3.1 Indoor Air and Sub-Slab Sampling

Although indoor air sampling has previously been completed at the Site (refer to Section 4.0), forty-five days after the completion of the SSDS installation and full startup indoor air samples will be collected from the same locations in which previous samples were collected within the mitigation area. Specifically, sample locations Town Court, Volt 1, Volt 2 and Concentrix 2 will be retested. 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, resampling will be completed within 30 days of the receipt of sample results. 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.

During the retesting of those locations, indoor air samples and corresponding sub-slab samples will also be collected in six (6) locations outside of the mitigation area, though within the Site building. This sampling event will be completed to confirm that mitigation does not need to be completed in these areas of the Site building, as indicated by previous indoor air sampling events. The proposed sample locations are included on Figure 5.

The installation and sampling of the sub-slab vapor points will be completed in substantial 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:

- 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 probes will be constructed with inert tubing (e.g., polyethylene stainless steel, nylon, Teflon®, etc.) of the appropriate size (typically 1/8 inch to 1/4inch diameter), and of laboratory or food grade quality.
    - Tubing will not extend further than 2-inches into the sub-slab material
    - The implant will be sealed to the surface with non-VOC-containing and non-shrinking products for temporary installations (e.g., perma-gum grout, melted beeswax, putty, etc.).

- Sub-slab soil vapor samples will be collected in the following manner:
    - After installation of the probes, 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 at least 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., sulfur hexafluoride (SF7),

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 previously discussed in Section 4.0 using USEPA Method TO-15 with a minimum detection limit of with a minimum detection limit of 1 µg/m^3 with 0.25 µg/m^3 for TCE and vinyl chloride.

- 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 0.02 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. All air samples will be analyzed for the same list of VOCs identified on Table 1 as previously selected by the NYSDEC and NYSDOH (refer to Section 4.0). The analyses will be performed by a New York State ELAP certified laboratory using USEPA Method TO-15 with a minimum detection limit of 1 µg/m^3 with 0.25 µg/m^3 for TCE and vinyl chloride. An "ASP-Category B-like" deliverables package will be generated by the laboratory and a DUSR will be completed and included in the RI report.

5.3.2 Sub-Slab Depressurization System Effluent Sampling

Approximately 1-week subsequent to the completion of the SSDS installation and full startup, PID readings will be collected from each vent fan discharge point using a PPBRae. Effluent from the two (2) locations with the highest PID readings will be sampled using a 1-liter Summa canister. These samples will be collected in the following manner:

- The effluent samples will be collected using one (1) liter Summa Canisters®

equipped with pre-calibrated laboratory supplied flow regulators set for a sampling time of four (4) hours. The Summa Canisters® will be certified clean by the laboratory.

- The Summa Canister® will be connected to inert tubing (e.g., polyethylene stainless steel, nylon, Teflon®, etc.) of laboratory or food grade quality. This tubing will be extended approximately 1-ft. into the vent pipe of each of the targeted sub-slab venting locations. Care will be taken so that this tubing will not extend into the fan blades.

Subsequent to sampling, the samples will be sent under standard COC procedures to the laboratory for testing of VOCs using USEPA Method TO-15 with a minimum detection limit of 1 $\mu g/m^3$ with 0.25 $\mu g/m^3$ for TCE and vinyl chloride, respectively. An "ASP-Category B-like" deliverables package will be generated by the laboratory and a DUSR will be completed and included in the RI report.

The results of the effluent sampling will be compared to the short-term (one hour) and annual guideline concentrations (SGCs & AGCs) listed in NYSDEC Division of Air Resources-1 (DAR-1), previously known as Air Guide-1, last updated December 2003 to determine if air scrubbing or another mitigation method is necessary to prevent the discharge of elevated levels of VOCs to the atmosphere. The SGCs and the AGCs for the targeted VOCs are listed in attached Table 1.

In the event that the two (2) "worst-case" discharge points require air scrubbing, additional effluent sampling will be completed using the procedure described above to determine if other discharge locations will also require air scrubbing.

5.4 Health and Safety and Community Air Monitoring

It should be noted that the building contains numerous tenant spaces that are fully utilized. Based on this and the nature of the work, the work will be completed during off-hours (nights and weekends). In general, this will eliminate and/or minimize tenant occupants being within the space during field activities. However, based on some tenant operations still having some staff 24-hrs a day and/or having secure/sensitive documents requiring a representative to be on-site with any visitors, some tenant occupants may be within the building at the time of the work. However, all individuals not directly involved with the planned work will be absent from the room in which the work will occur during work that will expose subsurface materials. In the event a large open room is being worked in, individuals not directly involved with the work will be at least 30 feet from the work zone. Furthermore, all exhaust vents, openings and conduits and discharge points of such shall be evaluated and understood prior to proceeding with any subsurface work. It should also be noted that engineering controls will be utilized as part of the planned work and these include: sealing all penetrations when not in use (e.g., if work must be ceased due to the end of the workday prior to finished point installation), applying a vacuum to the coreholes and venting the sub-slab soil vapor to the exterior, evaluating and confirming the types and extents of vents, conduits, etc. from the work area and securing these as necessary.

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 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 (see Section 5.1) 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.

5.5 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 generated anticipated to be generated during the implementation of this IRM Work Plan include soil from the installation of the SSDS and soil borings and groundwater from development and sampling of the temporary wells. These waste materials will be containerized in 55-gallon drums and stored at the Site for characterization and future disposal.

Additional information regarding Investigation Derived Waste is included in Section 11 of the QCP, included in Appendix 3.

5.6 Quality Assurance/Quality Control Plan

Activities completed at the Site will be managed under LaBella’s Quality Control Program, which is included in Appendix 3. Laboratory QA/QC sampling will include analysis of one (1) trip blank and and one (1) duplicate sample for each matrix type (i.e., soil and groundwater) at a rate of one per 20 samples collected for each parameter group, or one per shipment, whichever is greater. Additionally, one (1) Matrix Spike/Matrix Spike Duplicate (MS/MSD) will be collected and analyzed for each twenty samples collected for each parameter group, or one per shipment, whichever is greater. The MS/MSD will be analyzed for the same parameters as that of the field samples. The samples will be delivered under Chain of Custody procedures to a NYSDOH ELAP-certified laboratory. The laboratory will provide a NYSDEC ASP Category B Deliverables data package for all samples except the TO-15 samples (indoor air, outdoor air, sub-slab soil vapor). For the TO-15 samples, the laboratory will provide a data package using the ASP Category B format. A DUSR will be completed for all ASP-B and ASP-B format laboratory data packages per DER-10. 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), with the exception of information and data related to the soil and groundwater data which will be included in the RI report. The CCR will be completed in accordance with DER-10 Section 5.8.

Implementation of the IRM Work Plan is scheduled to begin within 30 days after NYSDEC approval of this work plan and the standard three-day Dig Safely New York waiting period. The field work is anticipated to require 60 to 90 days to complete subsequent to the approval of the IRM Work Plan and the IRM CCR will be submitted within two (2) months of the full start-up for the SSDS.

Information provided in the IRM CCR will also be summarized in the RI Report, as needed, to document in one report the nature and extent of contamination after the IRM was completed.

The above schedule assumes that an addendum to the IRM Work Plan will not be required. 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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Tables

Table 1A

Commercial Use Soil Cleanup Objectives
6 NYCRR Subpart 375-6 and CP-51 Remedial Program Soil Cleanup Objectives
(All Soil Cleanup Objectives are in mg/kg (ppm)

Contaminant	CAS No.	Commercial	Protection of Groundwater
VOLATILE ORGANIC COMPOUNDS (VOCs)			
1,1,1-Trichloroethane	71-55-6	500 [b]	0.68
1,1-Dichloroethane	75-34-3	240	0.27
1,1-Dichloroethene	75-35-4	500 [b]	0.33
1,2-Dichlorobenzene	95-50-1	500 [b]	1.1
1,2-Dichloroethane	107-06-2	30	0.02 [f]
cis-1,2-Dichloroethene	156-59-2	500 [b]	0.25
trans-1,2-Dichloroethene	156-60-5	500 [b]	0.19
1,3-Dichlorobenzene	541-73-1	280	2.4
1,4-Dichlorobenzene	106-46-7	130	1.8
1,4-Dioxane	123-91-1	130	0.1 [e]
Acetone	67-64-1	500 [b]	0.05
Benzene	71-43-2	44	0.06
Butylbenzene	104-51-8	500 [b]	12
Carbon Tetrachloride	56-23-5	22	0.76
Chlorobenzene	108-90-7	500 [b]	1.1
Chloroform	67-66-3	350	0.37
Ethylbenzene	100-41-4	390	1
Hexachlorobenzene	118-74-1	6	3.2
Methyl Ethyl Ketone (MEK)	78-93-3	500 [b]	0.12
Methyl tert-Butyl Ether (MtBE)	1634-04-4	500 [b]	0.93
Methylene Chloride	75-09-2	500 [b]	0.05
n-Propylbenzene	103-65-1	500 [b]	3.9
sec-Butylbenzene	135-98-8	500 [b]	11
tert-Butylbenzene	98-06-6	500 [b]	5.9
Tetrachloroethene	127-18-4	150	1.3
Toluene	108-88-3	500 [b]	0.7
Trichloroethene	79-01-6	200	0.47
1,2,4-Trimethylbenzene	95-63-6	190	3.6
1,3,5-Trimethylbenzene	108-67-8	190	8.4
Vinyl Chloride	75-01-4	13	0.02
Xylenes (Mixed)	1330-20-7	500 [b]	1.6

Contaminant	CAS No.	Commercial	Protection of Groundwater
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)			
Acenaphthene	83-32-9	500 [b]	98
Acenaphthylene	208-96-8	500 [b]	107
Anthracene	120-12-7	500 [b]	1,000 [c]
Benzo(a)anthracene	56-55-3	5.6	1 [f]
Benzo(a)pyrene	50-32-8	1 [f]	22
Benzo(b)fluoranthene	205-99-2	5.6	1.7
Benzo(g,h,i)perylene	191-24-2	500 [b]	1,000 [c]
Benzo(k)fluoranthene	207-08-9	56	1.7
Chrysene	218-01-9	56	1 [f]
Dibenz(a,h)anthracene	53-70-3	0.56	1,000 [c]
Fluoranthene	206-44-0	500 [b]	1,000 [c]
Fluorene	86-73-7	500 [b]	386
Indeno(1,2,3-cd)pyrene	193-39-5	5.6	8.2
m-Cresol	108-39-4	500 [b]	0.33 [e]
Naphthalene	91-20-3	500 [b]	12
o-Cresol	95-48-7	500 [b]	0.33 [e]
p-Cresol	106-44-5	500 [b]	0.33 [e]
Pentachlorophenol	87-86-5	6.7	0.8 [e]
Phenanthrene	85-01-8	500 [b]	1,000 [c]
Phenol	108-95-2	500 [b]	0.33 [e]
Pyrene	129-00-0	500 [b]	1,000 [c]

Notes:

SCO denotes Soil Cleanup Objectives.

NS denotes Not Specified.

[b] The SCOs for Commercial use were capped at a maximum of 500-mg/kg (ppm).

[d] The SCOs for metals were capped at a maximum of 10,000-mg/kg (ppm).

[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL was used as the SCO.

[f] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for use of the site.

[h] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[i] The SCO is for the sum of Endosulfan I, Endosulfan II, and Endosulfan Sulfate.

[j] The SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts).

Table 1A (Continued)

Commercial Use Soil Cleanup Objectives
6 NYCRR Subpart 375-6 and CP-51 Remedial Program Soil Cleanup Objectives
(All Soil Cleanup Objectives are in mg/kg (ppm)

Contaminant	CAS No.	Commercial	Protection of Groundwater
METALS			
Arsenic	7440-38-2	16 [f]	16 [f]
Barium	7440-39-3	400	820
Beryllium	7440-41-7	590	47
Cadmium	7440-43-9	9.3	7.5
Chromium (Hexavalet)	18540-29-9	400	19
Chromium (Trivalent)	16065-83-1	1,500	NS
Copper	7440-50-8	270	1,720
Total Cyanide		27	40
Lead	7439-92-1	1,000	450
Manganese	7439-96-5	10,000 [d]	2,000 [f]
Total Mercury		2.8 [j]	0.73
Nickel	7440-02-0	310	130
Selenium	7782-49-2	1,500	4 [f]
Silver	7440-22-4	1,500	8.3
Zinc	7440-66-6	10,000 [d]	2,480

Contaminant	CAS No.	Commercial	Protection of Groundwater
PCB & PESTICIDES			
2,4,5-TP Acid (Silvex)	93-72-1	500 [b]	3.8
4,4'-DDE	72-55-9	62	17
4,4'-DDT	50-29-3	47	136
4,4'-DDD	72-54-8	92	14
Aldrin	309-00-2	0.68	0.19
alpha-BHC	319-84-6	3.4	0.02
beta-BHC	319-85-7	3	0.09
Chlordane (alpha)	5103-71-9	24	2.9
delta-BHC	319-86-8	500 [b]	0.25
Dibenzofuran	132-64-9	350	210
Dieldrin	60-57-1	1.4	0.1
Endosulfan I	959-98-8	200 [i]	102
Endosulfan II	33213-65-9	200 [i]	102
Endosulfan Sulfate	1031-07-8	200 [i]	1,000 [c]
Endrin	72-20-8	89	0.06
Heptachlor	76-44-8	15	0.38
Lindane	58-89-9	9.2	0.1
Polychlorinated Biphenyls	1336-36-3	1	3.2

Notes:

SCO denotes Soil Cleanup Objectives.

NS denotes Not Specified.

[b] The SCOs for Commercial use were capped at a maximum of 500-mg/kg (ppm).

[d] The SCOs for metals were capped at a maximum of 10,000-mg/kg (ppm).

[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL was used as the SCO.

[f] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for use of the site.

[h] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[i] The SCO is for the sum of Endosulfan I, Endosulfan II, and Endosulfan Sulfate.

[j] The SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts).

Table 1B
Groundwater Standards and Guidance Values
(All Groundwater Criteria are in ug/L (ppb)

Contaminant	CAS No.	NYSDEC Part 703 Groundwater Standards and TOGS 1.1.1 Guidance Values
VOLATILE ORGANIC COMPOUNDS (VOCs)		
Chloromethane	74-87-3	5
Vinyl chloride	75-01-4	2
1,1-Dichloroethene	75-35-4	5
Acetone	67-64-1	50
Carbon disulfide	75-15-0	60*
Methylene chloride	75-09-2	5
trans-1,2-dichloroethene	156-60-5	5
Methyl tert-butyl ether	1634-04-4	10
1,1-Dichloroethane	75-34-3	5
2-Butanone	78-93-3	50
cis-1,2-dichloroethene	156-59-2	5
Chloroform	67-66-3	7
Chloroethane	75-00-3	5
1,2-Dichloroethane	107-06-2	0.6
Benzene	71-43-2	1
Trichloroethene	79-01-6	5
Toluene	108-88-3	5
1,1,2-Trichloroethane	79-00-5	1
Tetrachloroethene	127-18-4	5
Ethylbenzene	100-41-4	5
Xylenes (mixed)	1330-20-7	5
Bromoform	75-25-2	50*
Isopropylbenzene	98-82-8	5
n-Propylbenzene	103-65-1	5
1,3,5-Trimethylbenzene	108-67-8	5
tert-Butylbenzene	98-06-6	5
1,2,4-Trimethylbenzene	95-63-6	5
sec-Butylbenzene	135-98-8	5
4-Isopropyltoluene	99-87-6	5
n-Butylbenzene	104-51-8	5
1,2-Dichlorobenzene	95-50-1	3
Naphthalene	91-20-3	10

Contaminant	CAS No.	NYSDEC Part 703 Groundwater Standards and TOGS 1.1.1 Guidance Values
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)		
Acenaphthene	83-32-9	20
Acenaphthylene	208-96-8	NA
Anthracene	120-12-7	50
Benzo(a)anthracene	56-55-3	0.002
Benzo(a)pyrene	50-32-8	ND
Benzo(b)fluoranthene	205-99-2	0.002
Benzo(g,h,i)perylene	191-24-2	NA
Benzo(k)fluoranthene	207-08-9	0.002
Chrysene	218-01-9	0.002
Dibenz(a,h)anthracene	53-70-3	NA
Fluoranthene	206-44-0	50
Fluorene	86-73-7	50
Indeno(1,2,3-cd)pyrene	193-39-5	0.002
Naphthalene	91-20-3	10
Phenanthrene	85-01-8	50
Pyrene	129-00-0	50

Notes:

NA denotes Not Available.

* Indicates value is from Division of Water Techinical and Operational Guidance Series (TOGS 1.1.1)

Table 1B (Continued)
Groundwater Standards and Guidance Values
(All Groundwater Criteria are in ug/L (ppb)

Contaminant	CAS No.	NYSDEC Part 703 Groundwater Standards and TOGS 1.1.1 Guidance Values
METALS		
Arsenic	7440-38-2	25
Barium	7440-39-3	1,000
Beryllium	7440-41-7	3
Cadmium	7440-43-9	5
Chromium (Trivalent)	16065-83-1	50
Copper	7440-50-8	200
Total Cyanide	57-12-5	200
Lead	7439-92-1	25
Manganese	7439-96-5	300
Total Mercury	7439-97-6	0.7
Nickel	7440-02-0	100
Selenium	7782-49-2	10
Silver	7440-22-4	50
Zinc	7440-66-6	2,000

Contaminant	CAS No.	NYSDEC Part 703 Groundwater Standards and TOGS 1.1.1 Guidance Values
PCBs & PESTICIDES		
2,4,5-TP Acid (Silvex)	93-72-1	10
4,4'-DDE	72-55-9	0.2
4,4'-DDT	50-29-3	0.2
4,4'-DDD	72-54-8	0.3
Aldrin	309-00-2	50
alpha-BHC	319-84-6	0.01
beta-BHC	319-85-7	0.04
Chlordane (alpha)	5103-71-9	0.05
delta-BHC	319-86-8	0.04
Dibenzofuran	132-64-9	NA
Dieldrin	60-57-1	0.004
Endosulfan I	959-98-8	NA
Endosulfan II	33213-65-9	50
Endosulfan Sulfate	1031-07-8	50
Endrin	72-20-8	50
Heptachlor	76-44-8	0.03
Lindane	58-89-9	0.05
Polychlorinated Biphenyls	1336-36-3	0.09

Notes:

NA denotes Not Available.

* Indicates value is from Division of Water Techinical and Operational Guidance Series (TOGS 1.1.1)

Table 1C

Sub-Slab Vapor, Indoor Air and Effluent Standards, Criteria and Guidelines
Targeted Compounds Displayed
(All Guidelines are in ug/m^3)

Contaminant	CAS No.	USEPA BASE Database - 90th Percentile (1)	Air Guideline Derived by NYSDOH (2)	NYSDOH Sub-Slab Vapor Concentration Decision Matrix (minimum action level)
TARGETED VOLATILE ORGANIC COMPOUNDS (VOCs)				
1,1,1-Trichloroethane	71-55-6	20.6	NL	<100**
1,1-Dichloroethane	75-34-3	9.5	NL	NL
1,1-Dichloroethene	75-35-4	<0.7	NL	<100**
1,2-Dichloroethane	107-06-2	<1.4	NL	NL
Chloroethane	75-00-3	<1.2	NL	NL
cis-1,2-Dichloroethene	156-59-2	3.7	NL	<100**
trans-1,2-Dichloroethene	156-60-5	9.4	NL	NL
Tetrachloroethene	127-18-4	98.9	30*	<100**
Trichloroethene	79-01-6	<1.1	5	<5***
Vinyl Chloride	75-01-4	1.1	NL	<5***

Notes:

(1) USEPA Building Assessment and Survey Evaluation (BASE) Database (90th Percentile). As recommended in Section 3.2.4 of the NYSDOH Guidance (refer to Footnote 2), this

database is referenced for the indoor air sampling results. This database is also referenced to provide initial benchmarks for comparision to data and does not represent standards or

(2) New York State Department of Health (NYSDOH) Air Guideline established in Table 3.1 of the NYSDOH Guidance titled "Evaluating Soil Vapor Intrusion in New York State",

NL denotes Not Listed.

*Air Guideline Values obtained from Table 3.1, NYSDOH, Guidance for Evaluating Soil Vapor Intrusion in the State of New York as updated by September 2013 Fact Sheet for PCE.

**Guidance Value obtained from Soil Vapor/Indoor Air Matrix 2 (minimum action level), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

***Guideline Value obtained from Soil Vapor/Indoor Air Matrix 1 (minimum action level), NYSDOH, Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

Table 2A
Summary Of Detected Volatile Organic Compounds in Indoor Air Samples
Collected by LaBella - July 2014
Results in Micrograms per Cubic Meter (µg/m^3)

3750 Monroe Avenue
Rochester, New York
LaBella Project No. 213131

Parameter	Indoor Air Samples ID / Date									Outdoor Ambient Air	USEPA (2001) (BASE) Database - 90th Percentile (1)	Air Guideline Derived by NYSDOH (2)	OSHA Permissible Exposure Limit (PEL) 8-hour Time-Weighted Average
	Town Court	Maximus	Senior Center	Senior Center (Duplicate)	Volt 1	Volt 2	Concentrix 1	Concentrix 2	Turf Time	Outdoor			
	7/26/2014	7/26/2014	7/26/2014	7/26/2014	7/26/2014	7/26/2014	7/26/2014	7/26/2014	7/26/2014	7/26/2014			
Select Volatile Organic Compounds (VOCs)													
1,1,1-Trichloroethane	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	20.6	NL	NA
1,1-Dichloroethane	< 0.61 UJ	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	9.5	NL	NA
1,1-Dichloroethene	< 0.59 UJ	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.7	NL	NA
1,2-Dichloroethane	0.45 J	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 1.4	NL	NA
Chloroethane	< 0.40 UJ	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 1.2	NL	NA
cis-1,2-Dichloroethene	2.0 J	0.83	< 0.59	< 0.59	1.1	1.4	< 0.59	0.48	< 0.59	< 0.59	3.7	NL	NA
Tetrachloroethylene	2.4 J	< 1.0	0.68	< 1.0	< 1.0	0.75	< 1.0	< 1.0	< 1.0	< 1.0	98.9	30*	678,000
trans-1,2-Dichloroethene	4.6 J	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	< 0.59	9.4	NL	NA
Trichloroethene	**14**	**4.6**	< 0.21	0.70	**18**	**19**	**3.9**	**8.9**	< 0.21	0.97	< 1.1	5	537,000
Vinyl chloride	< 0.10 UJ	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.1	NL	NA

NOTES:

VOC analysis by United States Environmental Protection Agency (USEPA) Method TO-15.

1. USEPA Building Assessment and Survey Evaluation (BASE) Database (90th Percentile). As recommended in Section 3.2.4 of the NYSDOH Guidance (Refer to Footnote "1") this database is referenced for the indoor air sampling results. This database is also referenced to provide initial benchmarks for comparison to the air sampling data and does not represent regulatory standards or compliance values.
2. New York State Department of Health (NYSDOH) Air Guideline established in Table 3.1 of the NYSDOH Guidance titled "Evaluating Soil Vapor Intrusion in the State of New York", October 2006.
3. "Select" VOCs determined based on the DPI Work Plan approved by the NYSDEC and NYSDOH in July 2014.

* = Air Guideline Values obtained from Table 3.1, NYSDOH, Guidance for Evaluating Soil Vapor Intrusion in the State of New York as updated by a September 2013 Fact Sheet for PCE.

Highlighted values are above Air Guideline Derived by NYSDOH in Table 3.1 of NYSDOH Guidance titled "Evaluating Soil Vapor Intrusion in the State of New York", October 2006 (and subsequent updates).

Bold values are above USEPA (2001) BASE Database - 90th Percentile Values.

Italized values are above the Occupational Health and Safety Administration (OSHA) PEL 8-hour time-weighted average (OSHA Part #1910.1000 TABLE Z-2).

< XXX Indicates constituent not detected above the laboratory detection limit shown.

J - Denotes an estimated value based on the data validation.

NL Indicates "not listed".

Table 2B
Summary Of Detected Volatile Organic Compounds in Indoor Air Samples Collected by CanAm Environmental Services - August
Results in Micrograms per Cubic Meter ($\mu g/m^3$)

3750 Monroe Avenue
Rochester, New York
LaBella Project No. 213131

Parameter	Indoor Air Samples ID / Date				Outdoor Ambient Air	USEPA (2001) (BASE) Database - 90th Percentile (1)	Air Guideline Derived by NYSDOH (2)	OSHA Permissible Exposure Limit (PEL) 8-hour Time-Weighted Average
	1	2	3	4	5			
	8/20/2013	8/20/2013	8/20/2013	8/20/2013	8/20/2013			
Select Volatile Organic Compounds (VOCs)								
1,1,1-Trichloroethane	<0.83	<0.83	<0.83	<0.83	<0.83	20.6	NL	NA
1,1-Dichloroethane	<0.62	<0.62	<0.62	<0.62	<0.62	9.5	NL	NA
1,1-Dichloroethene	<0.60	<0.60	<0.60	<0.60	<0.60	< 0.7	NL	NA
1,2-Dichloroethane	<0.62	**3.3**	0.45	<0.62	<0.62	< 1.4	NL	NA
Chloroethane	<0.40	<0.40	<0.40	<0.40	<0.40	< 1.2	NL	NA
cis-1,2-Dichloroethene	<0.60	<0.60	<0.60	<0.60	<0.60	3.7	NL	NA
Tetrachloroethylene	0.83	<1.0	<1.0	<1.0	<1.0	98.9	30*	678,000
trans-1,2-Dichloroethene	<0.60	<0.60	<0.60	<0.60	<0.60	9.4	NL	NA
Trichloroethene	<0.22	0.71	0.60	<0.22	0.60	< 1.1	5	537,000
Vinyl chloride	<0.10	<0.10	<0.10	<0.10	<0.10	1.1	NL	NA

NOTES:

VOC analysis by United States Environmental Protection Agency (USEPA) Method TO-15.

1. USEPA Building Assessment and Survey Evaluation (BASE) Database (90th Percentile). As recommended in Section 3.2.4 of the NYSDOH Guidance (Refer to Footnote "1") this database is referenced for the indoor air sampling results. This database is also referenced to provide initial benchmarks for comparison to the air sampling data and does not represent regulatory standards or compliance values.
2. New York State Department of Health (NYSDOH) Air Guideline established in Table 3.1 of the NYSDOH Guidance titled "Evaluating Soil Vapor Intrusion in the State of New
3. "Select" VOCs determined based on the DPI Work Plan approved by the NYSDEC and NYSDOH in July 2014.

* = Air Guideline Values obtained from Table 3.1, NYSDOH, Guidance for Evaluating Soil Vapor Intrusion in the State of New York as updated by a September 2013 Fact Sheet

Highlighted values are above Air Guideline Derived by NYSDOH in Table 3.1 of NYSDOH Guidance titled "Evaluating Soil Vapor Intrusion in the State of New York", October 2006 (and subsequent updates).

Bold values are above USEPA (2001) BASE Database - 90th Percentile Values.

Italized values are above the Occupational Health and Safety Administration (OSHA) PEL 8-hour time-weighted average (OSHA Part #1910.1000 TABLE Z-2).

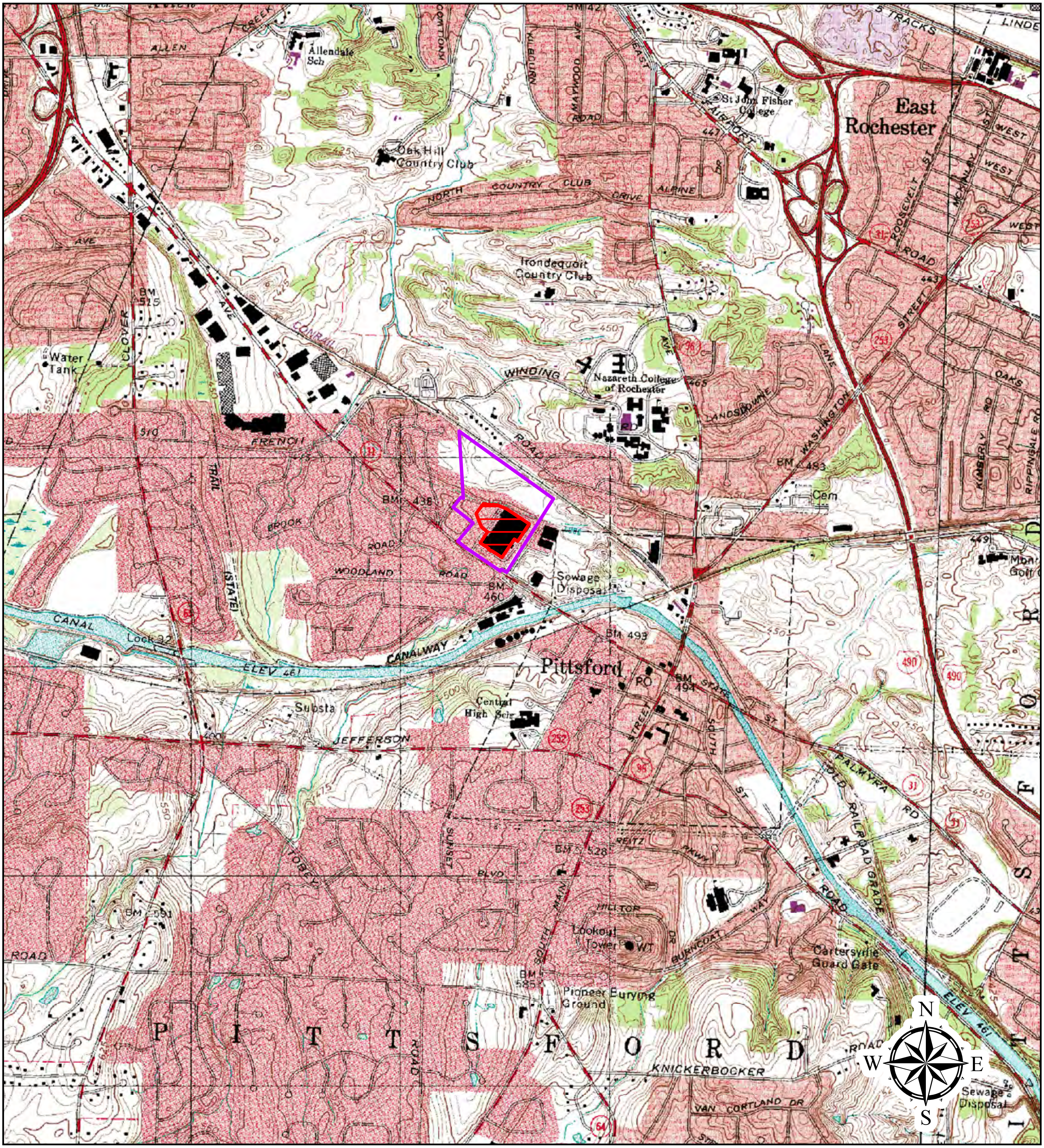
< XXX Indicates constituent not detected above the laboratory detection limit shown.

J - Denotes an estimated value based on the data validation.

NL Indicates "not listed".

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

Figures



![LaBella Associates, D.P.C.]

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

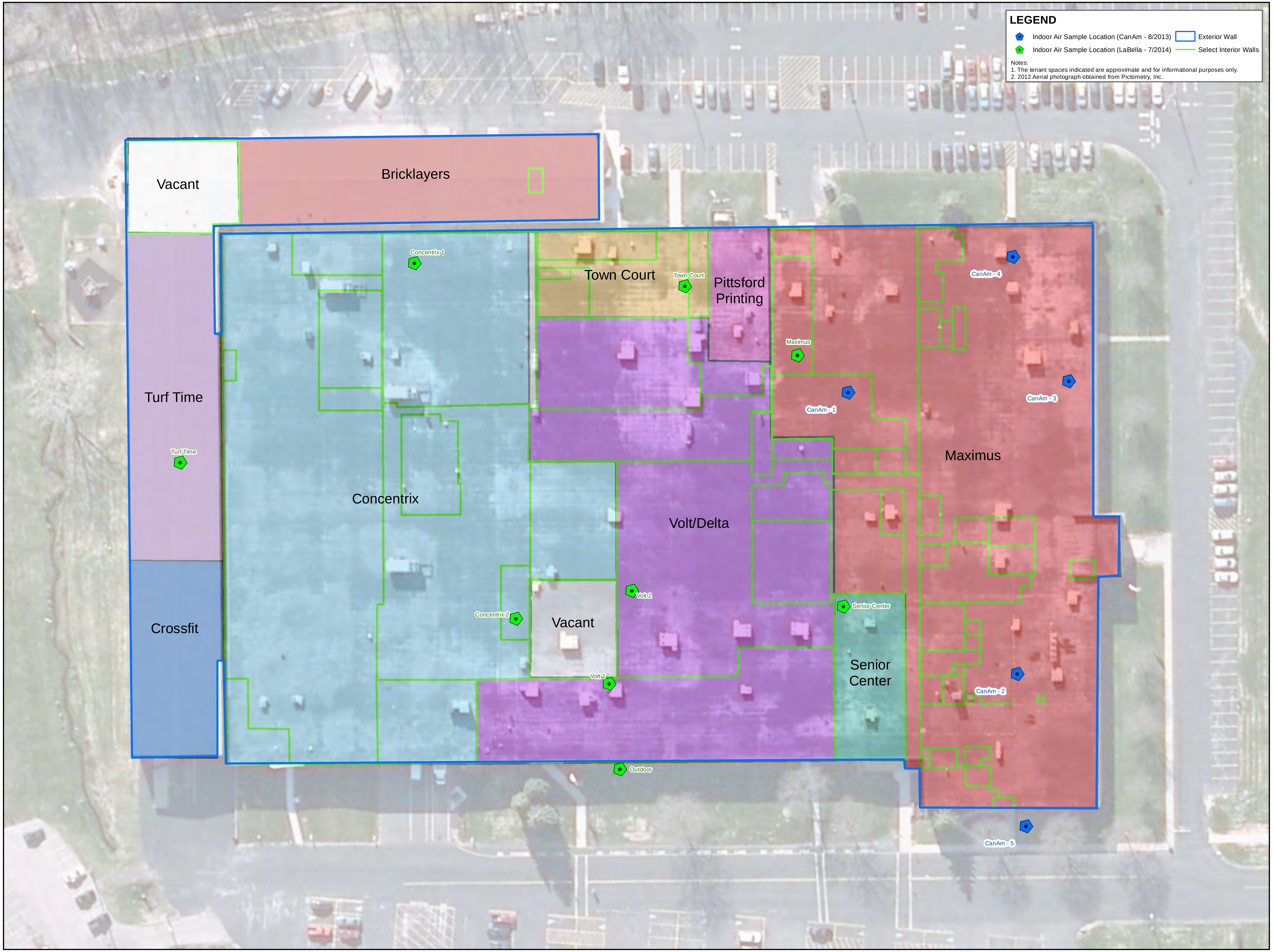
FIGURE 1
SITE LOCATION MAP
Interim Remedial Measure
Work Plan
C828187
3750 Monroe Avenue
Pittsford, New York

Legend

🟥	BCP Boundary
🟪	Site Tax Parcel Boundary

Scale:
1:24,000

Path: J:\Norry Management Corp\213131 - BCP Application 3750 Monroe Ave\Drawings\IRM Work Plan\Figure 1 USGS.mxd



LEGEND

⬟	Indoor Air Sample Location (CanAm - 8/2013)	▭	Exterior Wall
⬟	Indoor Air Sample Location (LaBella - 7/2014)	—	Select Interior Walls

Notes:
1. The tenant spaces indicated are approximate and for informational purposes only.
2. 2012 Aerial photograph obtained from Pictometry, Inc.

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Interim Remedial Work Plan

3750 Monroe Avenue
Pittsford, New York

Completed Indoor Air Quality Sampling

0 80 Ft.

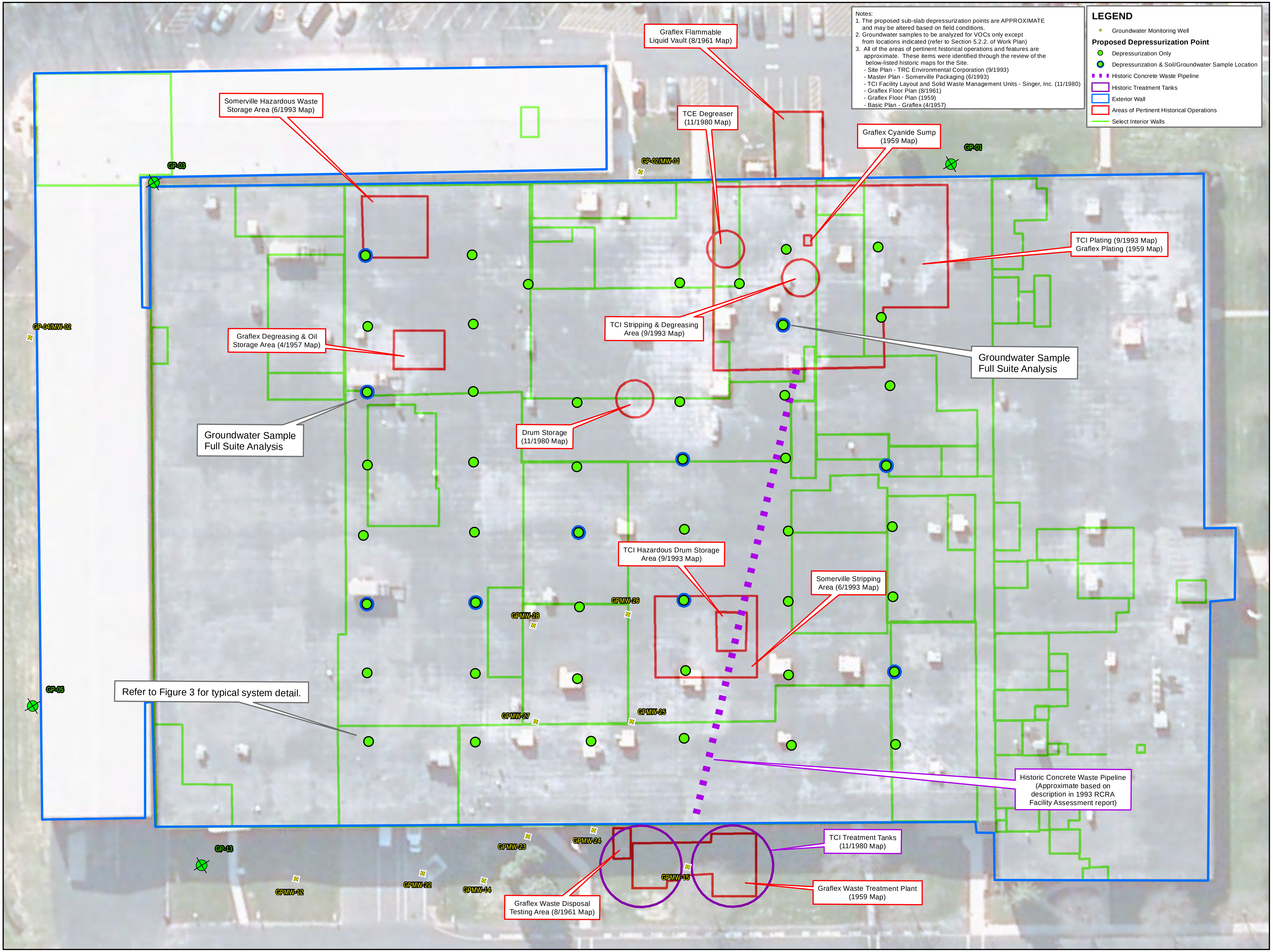
1 inch = 60 feet

Intended to print as 11" x 17".

213131

FIGURE 2

Path: J:\Norry Management Corp\213131 - BCP Application 3750 Monroe Ave\Drawings\IRM Work Plan\Fig 2 - IAQ Sampling.mxd



Notes:
1. The proposed sub-slab depressurization points are APPROXIMATE and may be altered based on field conditions.
2. Groundwater samples to be analyzed for VOCs only except from locations indicated (refer to Section 5.2.2. of Work Plan)
3. All of the areas of pertinent historical operations and features are approximate. These items were identified through the review of the below-listed historic maps for the Site.
   - Site Plan - TRC Environmental Corporation (9/1993)
   - Master Plan - Somerville Packaging (6/1993)
   - TCI Facility Layout and Solid Waste Management Units - Singer, Inc. (11/1980)
   - Graflex Floor Plan (8/1961)
   - Graflex Floor Plan (1959)
   - Basic Plan - Graflex (4/1957)

LEGEND

⌖ Groundwater Monitoring Well

Proposed Depressurization Point

● Depressurization Only
◉ Depressurization & Soil/Groundwater Sample Location
▪ ▪ ▪ Historic Concrete Waste Pipeline
☐ Historic Treatment Tanks
☐ Exterior Wall
☐ Areas of Pertinent Historical Operations
— Select Interior Walls

Path: J:\Norry Management Corp\213131 - BCP Application 3750 Monroe Ave\Drawings\IRM Work Plan\Fig 3 - Proposed SSDS Depressurization Pts - Copy.mxd

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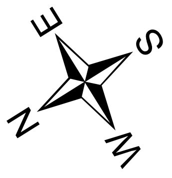
Interim Remedial Work Plan

3750 Monroe Avenue
Pittsford, New York

Interior Layout w/ Proposed Sub Slab Depressurization System



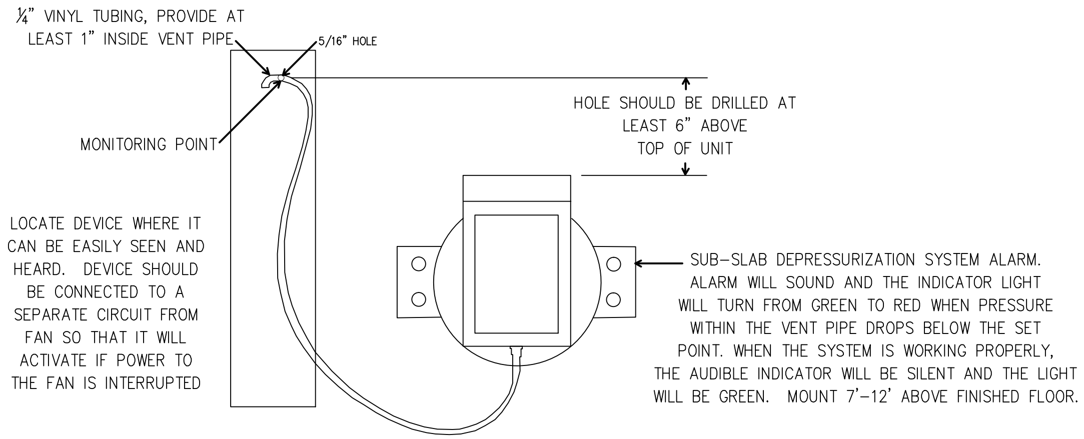
0 50 Ft.

1 inch = 50 feet

Intended to print as 11" x 17".

213131

FIGURE 3

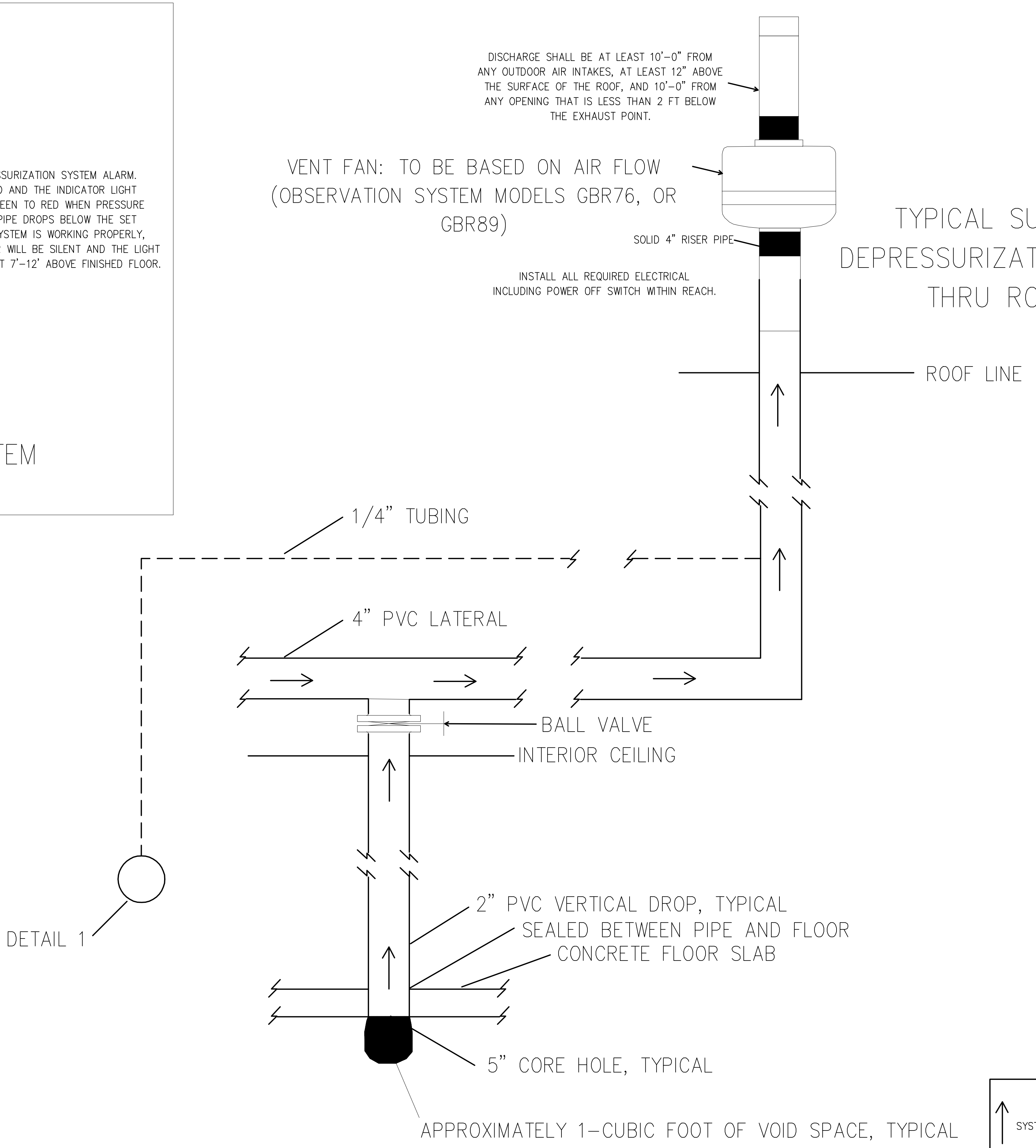


NOTES:

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

DETAIL 1

SUBSLAB DEPRESSURIZATION SYSTEM ALARM DETAIL



TYPICAL SUBLAB DEPRESSURIZATION VENT THRU ROOF

LEGEND

↑ SYSTEM FLOW DIRECTION

DRAWING NOT TO SCALE

SUBSOIL DEPRESSURIZATION SYSTEM PIPING NOTES:

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

J:\Norry Management Corp\213131 - BCP Application 3750 Monroe Ave\Drawings\IRM Work Plan\Fig 4_SSDS Details.dwg

It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

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PROJECT/CLIENT
3750 MONROE AVENUE ASSOCIATES
BCP SITE #C828187

3750 MONROE AVENUE
PITTSFORD, NEW YORK

DRAWING TITLE
SUB-SLAB DEPRESSURIZATION
SYSTEM DETAILS

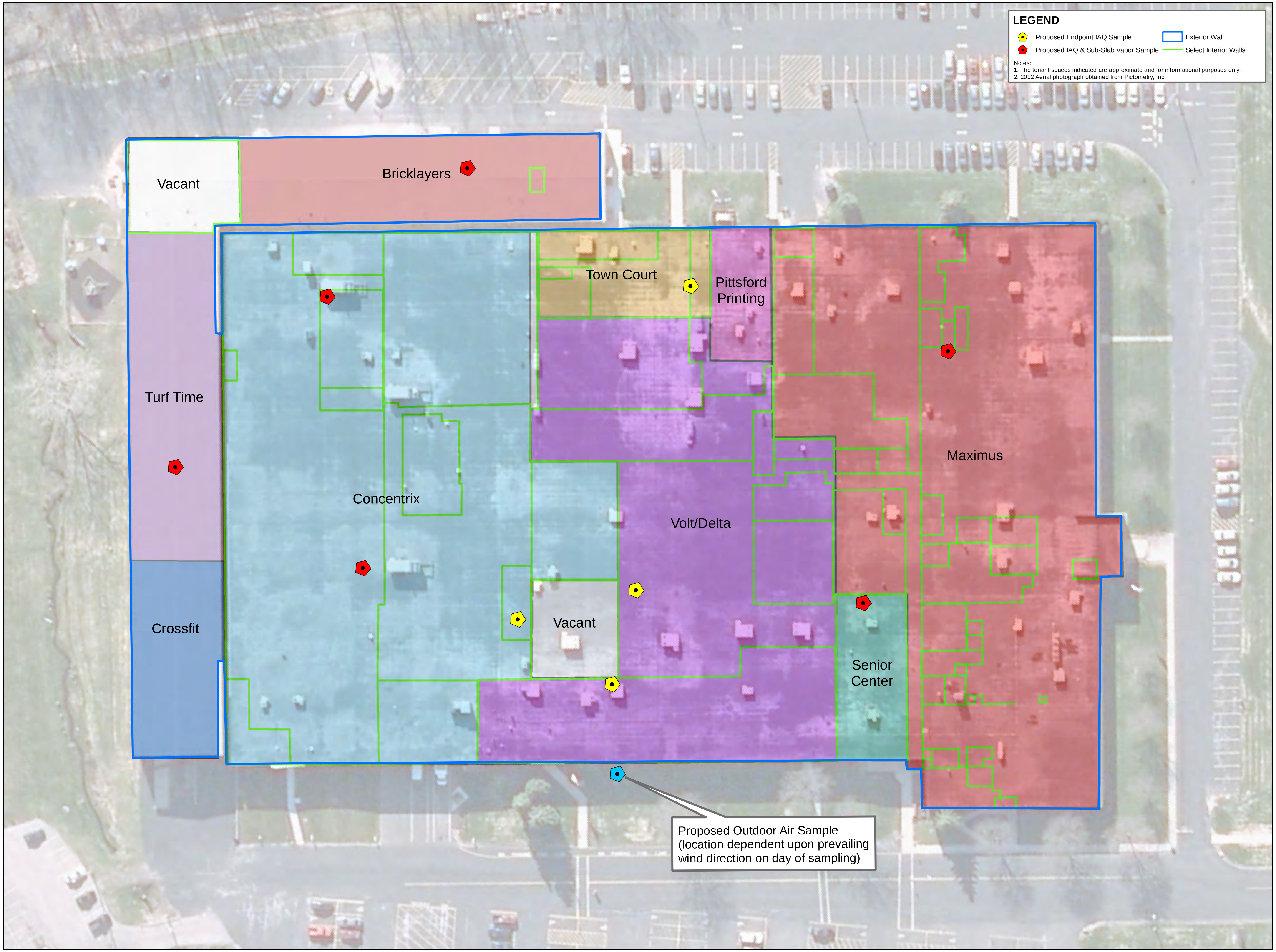
ISSUED FOR
STET

DATE: SEPTEMBER 2014

DESIGNED BY: DPN
DRAWN BY: IPJ
REVIEWED BY: DPN

PROJECT/DRAWING NUMBER
213131

FIGURE 4



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Interim Remedial Work Plan

3750 Monroe Avenue
Pittsford, New York

Proposed Indoor Air
&
Sub-Slab Vapor Sampling

E S N W

0 60 Ft.
1 inch = 60 feet
Intended to print as 11" x 17".

213131

FIGURE 5

Path: J:\Norry Management Corp\213131 - BCP Application 3750 Monroe Ave\Drawings\IRM Work Plan\Fig 5 - Proposed Air Sampling.mxd

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

Appendix 1

Health & Safety Plan

Site Health and Safety Plan

Location:

3750 Monroe Avenue
Pittsford, New York 14534

Prepared For:

3750 Monroe Avenue Associates
c/o Norry Management Corporation
1465 Monroe Avenue
Rochester, New York 14618

LaBella Project No. 213131

June 2014

Site Health and Safety Plan

Location:

3750 Monroe Avenue
Pittsford, New York 14534

Prepared For:

3750 Monroe Avenue Associates
c/o Norry Management Corporation
1465 Monroe Avenue
Rochester, New York 14618

LaBella Project No. 213131

June 2014

Table of Contents

Page

Tables

SITE HEALTH AND SAFETY PLAN

Project Title:	3750 Monroe Avenue Brownfield Cleanup Program
Project Number:	213131
Project Location (Site):	3750 Monroe Avenue, Pittsford, New York 14534
Environmental Director:	Gregory Senecal, CHMM
Project Manager:	Dan Noll, P.E.
Plan Review Date:	June, 6 2014
Plan Approval Date:	June, 6 2014
Plan Approved By:	______________________ Mr. Richard Rote, CIH
Site Safety Supervisor:	Steve Rife
Site Contact:	Kevin Chick
Safety Director:	Rick Rote, CIH
Proposed Date(s) of Field Activities:	To Be Determined
Site Conditions:	9.37 acres; approximately 6.38 of which is utilized as a commercial office building and the remainder of which is utilized as a parking lot
Site Environmental Information Provided By:	☐ Phase I Environmental Site Assessment, 3750 Monroe Avenue, Rochester, New York, prepared by Passero Associates, dated September 2004 ☐ Phase I Environmental Site Assessment, 3750 Monroe Avenue, Rochester, New York, prepared by LaBella Associates, P.C., dated May 2012 ☐ Phase II Environmental Site Assessment, 3750 Monroe Avenue, Rochester, New York, prepared by LaBella Associates, P.C., dated January 2013 ☐ Building Pressurization Assessment, 3750 Monroe Avenue, Pittsford, New York, prepared by LaBella Associates, P.C., dated January 2013 ☐ Limited Interior Subsurface Evaluation, 3750 Monroe Avenue, Pittsford, New York, prepared by LaBella Associates, P.C., dated July 2013

Air Monitoring Provided By:	LaBella Associates, P.C.
Site Control Provided By:	Contractor(s)

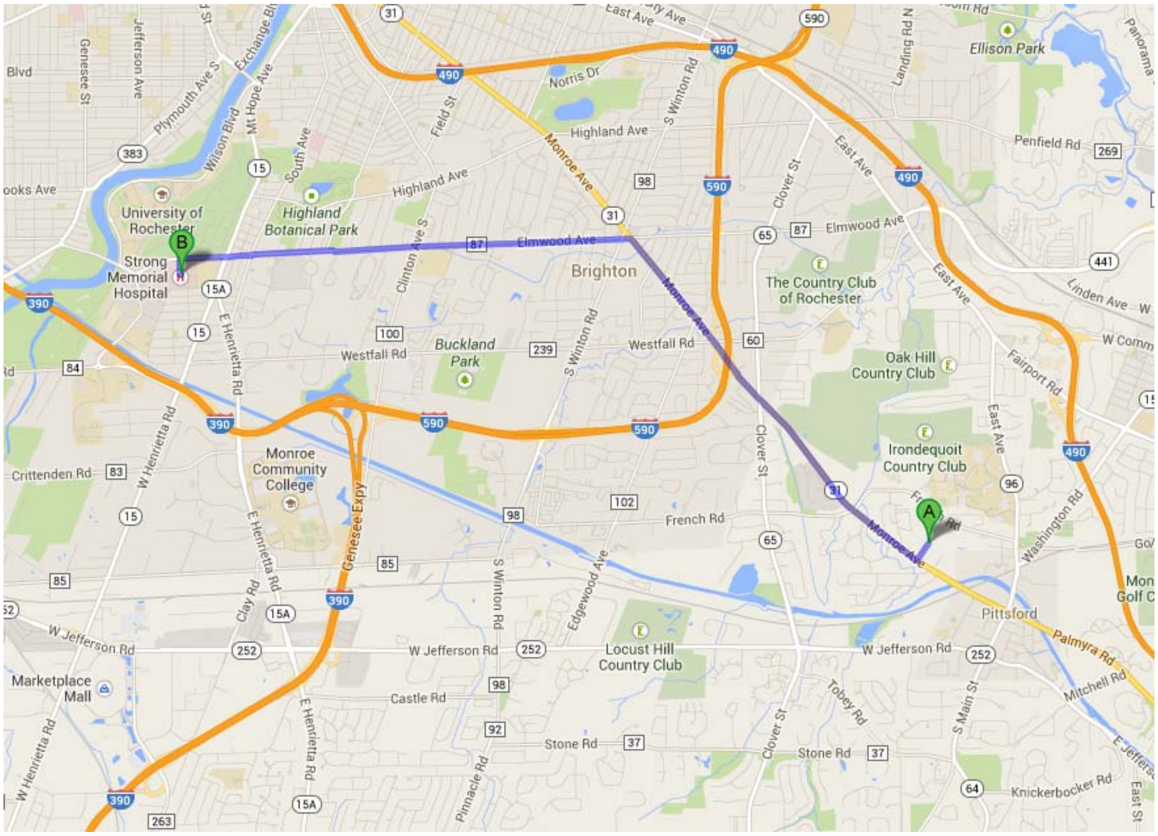
EMERGENCY CONTACTS

	Name	**Phone Number**
Ambulance:	As Per Emergency Service	911
Hospital Emergency:	Strong Memorial Hospital	585-275-2100
Poison Control Center:	Finger Lakes Poison Control	716-275-5151
Police (local, state):	Monroe County Sheriff	911
Fire Department:	Pittsford Fire Department	911
Site Contact:	Kevin Chick	Cell: 585-303-9543
Agency Contact:	NYSDEC – Frank Sowers	585-226-5357
	NYSDOH – Bridget Callahan	518-402-7860
	Finger Lakes Poison Control	1-800-222-1222
	MCDOH – John Frazer	585-274-6904
Environmental Director:	Greg Senecal, CHMM	Direct: 585-295-6243 Cell: 585-752-6480
Project Manager:	Dan Noll, P.E.	Direct: 585-295-6611 Cell: 585-301-8458
Site Safety Supervisor:	Steve Rife	Cell: 585-755-9244
Safety Director	Rick Rote, CIH	Direct: 585-295-6241

MAP AND DIRECTIONS TO THE MEDICAL FACILITY
- STONG MEMORIAL HOSPITAL

Total Est. Time: 15 minutes **Total Est. Distance:** 6.0 miles

1:	Start out going NORTHWEST on MONROE AVE / NY-31 toward BRITTANY LN.	2.9 miles
2:	Turn LEFT onto ELMWOOD AVE	3.0 miles
3:	Turn LEFT onto THOMAS H. JACKSON DR.	0.1 miles
4:	End at **601 Elmwood Ave** Rochester, NY 14642	



1.0 Introduction

The purpose of this Health and Safety Plan (HASP) is to provide guidelines for responding to potential health and safety issues that may be encountered during the Remedial Investigation (RI) at 3750 Monroe Avenue in the Town/Village of Pittsford, Monroe County, New York (Site). 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 other regulatory bodies.

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 excavated soil and fill

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 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. Do not proceed closer than 3 feet to an unsupported or non-sloped excavation side wall.

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 and 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:
Contaminants identified in testing locations at the Site include various chlorinated solvents including but not limited to trichloroethylene (TCE) and methylene chloride and some metals have also been identified. Volatile organic vapors, chlorinated solvents or other chemicals may be encountered during excavation activities at the project work site. Inhalation of high concentrations of volatile organic vapors can cause headache, stupor, drowsiness, confusion and other health effects. Skin contact can cause irritation, chemical burn, or dermatitis. It should also be noted that historic information (waste manifests) from previous Site operations indicated these chemicals being disposed of from the Site: 1,1,1-trochloroethane, ethanol, tetrachloroethene (PCE), isopropyl alcohol, propylene glycol, methyl ether, waste polychlorinated biphenyl-containing (PCBs) transformer oil, waste paint related material (methylene phosphoric acid), potassium hydroxide ethanol, isopropyl alcohol, waste coal tar pitch, naphthalene, and methylene phosphoric acid.

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 require level of protection of Level D 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.*]

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 using a PID and the DustTrak meter.

If sustained PID readings of greater than 25 ppm are recorded in the breathing zone, 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-hour 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, wait at the assigned 'safe area' and 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.

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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
Ethyl Alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA
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
Isopropyl Alcohol	400	200	500	2.0	12.7	2,000	Rubbing alcohol	3	10.10
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
Phosphoric Acid	1	1	3	NA	NA	10,000	NA	NA	NA
Polychlorinated Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium Hydroxide	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	NA	NA	NA
Cadmium	0.2	0.5	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	1	0.5	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.05	0.15	NA	NA	NA	700	NA	NA	NA
Mercury	0.05	0.05	NA	NA	NA	28	NA	NA	NA
Selenium	0.2	0.02	NA	NA	NA	Unknown	NA	NA	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.

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Appendix 2

Community Air Monitoring Plan

APPENDIX 1A

New York State Department of Health
Generic Community Air Monitoring Plan

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 volatile organic compounds (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 NYSDEC/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.

VOC Monitoring, Response Levels, and Actions

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. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 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.

- 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.

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

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

Particulate Monitoring, Response Levels, and Actions

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.

- 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.

- 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.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

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Appendix 3

Quality Control Plan

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

Quality Control (QC) Program

Location:

3750 Monroe Avenue
Pittsford, New York

Prepared For:

3750 Monroe Avenue, LLC
c/o Norry Management Corp.
1465 Monroe Avenue
Rochester, New York 14618

LaBella Project No. 213131

October 2014

Quality Control (QC) Program

Location:

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Pittsford, New York

Prepared For:

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1. Introduction

LaBella's Quality Control (QC) Program is an integral part of its approach to environmental investigations. By maintaining a rigorous QC program, our firm is able to provide accurate and reliable data. QC also provides safe working conditions for all on-site workers.

The Quality Control program contains procedures, which provide for collected data to be properly evaluated, and which document that quality control 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 Quality Control program are compatible with federal, state, and local regulations, as well as, appropriate professional and technical standards.

This QC program has been organized into the following areas:

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

It should be noted that the Interim Remedial Measures (IRM) Work Plan may have project specific details that will differ from the procedures in this QC program. In such cases, the IRM Work Plan should be followed (subsequent to regulatory approval).

2. Quality Control Objectives

The United States Environmental Protection Agency (EPA) has identified five general levels of analytical data quality as being potentially applicable to site investigations conducted under CERCLA. These levels are summarized below:

- **Level I -** Field screening. This level is characterized by the use of portable instruments, which can provide real-time data to assist in the optimization of sampling point locations and for health and safety support. Data can be generated regarding the presence or absence of certain contaminants (especially volatiles) at sampling locations.
- **Level II -** Field analysis. This level is characterized by the use of portable analytical instruments, which can be used on site or in mobile laboratories stationed near a site (close-support labs). Depending upon the types of contaminants, sample matrix, and personnel skills, qualitative and quantitative data can be obtained.
- **Level III -** Laboratory analysis using methods other than the Contract Laboratory Program (CLP) Routine Analytical Services (RAS). This level is used primarily in support of engineering studies using standard EPA-approved procedures. Some procedures may be equivalent to CLP RAS, without the CLP requirements for documentation.
- **Level IV -** CLP Routine Analytical Services. This level is characterized by rigorous QC protocols and documentation and provides qualitative and quantitative analytical data. Some

regions have obtained similar support via their own regional laboratories, university laboratories, or other commercial laboratories.

- **Level V -** Non-standard methods. Analyses, which may require method modification and/or development. CLP Special Analytical Services (SAS) are considered Level V.

Unless stated otherwise, all data will be generated in accordance with Level IV. When CLP methodology is not available, federal and state approved methods will be utilized. Level III will be utilized, as necessary, for non-CLP RAS work which may include ignitability, corrosivity, reactivity, EP toxicity, and other state approved parameters for characterization. Level I will be used throughout the RI for health and safety monitoring activities.

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 and mg/L for aqueous samples, and µg/kg and 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.

2.1. 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.

2.2. Precision

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

2.3. 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.

2.4. 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

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.

2.5. Comparability

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

3. Measurement of Data Quality

3.1. 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 the firm's prepared solutions, the recovery is compared to EPA-developed data or the firm’s historical data as available. 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 analyst or his 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.

3.2. 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 EPA CLP 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 analyst or his 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 9), field duplicate RPDs are assessed as a measure of the total variability of both field sampling and laboratory analysis.

3.3. 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 to the site managers. In planning the field sample collection, the site manager will plan to collect field duplicates from identified critical areas. This procedure should assure 100% completeness for these areas.

3.4. 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. This includes premixing the sample and discarding pebbles from soil samples.

4. QC 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. In such instances, the firm will report reasons for deviations from these detection limits or noncompliance with quality control criteria.

5. 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. All samples will be delivered to the laboratory within 24 to 28 hours of collection.

6. 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.

6.1. Test Borings and Well Installation

6.1.1. Drilling Equipment

Direct Push "Geo-Probe" Soil Borings:

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

Drill Rig Advanced Soil Borings:

The drilling and installation of monitoring wells will be performed using a rotary drill rig which will have sufficient capacity to perform 4 1/2-inch inside diameter (ID) 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." The borehole may be reamed to 5 1/2-inch diameter prior to monitoring well installation as cased hole in the bedrock, or may be left as open hole, with NYSDEC concurrence.

6.1.2. Drilling Techniques

Direct Push "Geo-Probe" Advanced Borings:

Prior to initiating drilling activities, the Geo-probe, macro cores, drive rods, pertinent equipment, well pipe and screens will be steam cleaned or washed with an alconox and water solution followed by a clean water rinse. This cleaning procedure will also be used between each boring. These activities will be performed in a designated on-site decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. The drilling rig and all equipment will be steam cleaned upon completion of the investigation and prior to leaving the site.

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.

It will be the responsibility of the consultant to arrange for the appropriate drilling equipment to be present at the site. Standby time to arrange for additional equipment or a water supply will not be allowed unless caused by unexpected site conditions.

During the drilling, a Photoionization detector (PID) will be used to monitor the gases exiting the hole. Macro-core cuttings will be contained if the PID meter readings are greater than 5 ppm above background or the cuttings show visible evidence of contamination, or as specified in the RI Work Plan.

Drill Rig Advanced Borings:

Prior to initiating drilling activities, the drilling rig, augers, rods, split spoons, pertinent equipment, well pipe and screens will be steam cleaned. This cleaning procedure will also be used between each boring. These activities will be performed in a designated on-site decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. The drilling rig and all equipment will be steam cleaned upon completion of the investigation and prior to leaving the site.

Test borings will be advanced with 4 1/2-inch (ID) hollow stem augers through overburden, and NX-sized diamond core barrels in competent rock, driven by truck-, track-, or trailer-mounted drilling equipment. Alternative methods of drilling or equipment may be allowed or requested for site-specific criteria, but must be approved by the NYSDEC. 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.

It will be the responsibility of the consultant to arrange for the appropriate drilling equipment to be present at the site. Standby time to arrange for additional equipment or a water supply will not be allowed unless caused by unexpected site conditions.

During the drilling, a photoionization detector (PID) will be used to monitor the gases exiting the hole. Auger cuttings will be contained if the PID meter readings are greater than 5 ppm above background or the cuttings show visible evidence of contamination, or as specified in the RI Work Plan.

Where bedrock wells are required, test borings shall be advanced into rock with NX coring tools. Only water from an approved source shall be used in rock coring. The consultant 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. Each core shall be screened with a PID upon extraction to determine proper handling procedure. All core samples shall be retained and stored by the consultant, for review by NYSDEC, in an approved wooden core box for a period of not less than one year.

Bedrock well installation will involve construction of a rock socket. The socket will be drilled into the top of rock at each bedrock well location to allow permanent 3-inch 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.

To construct the rock socket, a core hole will be reamed out to a minimum diameter of 3 7/8-inches and set into the first 5-feet of bedrock. This will allow the placement of permanent 3-inch diameter Polyvinyl chloride (PVC) well casing into the bedrock surface. 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 and will be selected based on the results of the rock coring performed.

While the augers are seated on top of bedrock, a cement grout will be tremied into the bedrock socket. Once sufficient grout has been place, the 3-inch PVC casing will be lowered into the bedrock socket. A PVC plug will be placed in the end of the 3-inch PVC casing, prior to insertion in the borehole, to prevent grout from entering the PVC casing. Once the 3-inch PVC casing is in place, the augers can be removed and the remaining grout should be added. After the grout and 3-inch PVC casing have set up for 24 hours, the remaining amount of bedrock can be NX cored through the 3-inch PVC casing to a depth determined by the RI work plan.

6.1.3. Well Casing (Riser)

Direct Push Geo-Probe Groundwater Monitoring Wells:

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

Drill Rig Advanced Groundwater Monitoring Wells:

The well riser shall consist of 2-inch or 4-inch diameter, threaded flush-joint PVC pipe. All well risers will conform to the requirements of ASTM-D 1785 Schedule 40 pipe, and shall bear markings that will identify the material as that which is specified. All materials used to construct the wells will be NSF/ASTM approved.

6.1.4. Well Screen

Direct Push Geo-Probe Groundwater Monitoring Wells:

Direct Push Geo-Probe advanced groundwater-monitoring wells utilized 1.25-inch diameter well screen. Groundwater-monitoring wells will set to intersect the top of the shallow overburden groundwater table. Each geo-probe advanced well will be equipped with 5 to 10 feet (based on anticipated groundwater level and bedrock depth) of .010 inch slotted PVC screen connected to an appropriate length of PVC riser to complete the well installation.

Drill Rig Advanced Groundwater Monitoring Wells:

Generally, wells will be constructed with 10-foot machine-slotted screens, unless otherwise specified or dictated by field conditions (i.e., screens of less than 10-feet in length may be used, depending on the characteristics of the well). The well screen slot size will be selected based on the filter pack grain size and the ability to hold back 85 percent or more of the filter pack materials. Screen and riser sections shall be joined by flush-threaded coupling to form watertight unions that retain 100% of the strength of the casing. Solvent PVC glue shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated cap or plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well.

All risers and screens shall be set round, plumb, and true to line.

6.1.5. Artificial Sand Pack

Granular backfill will be chemically and texturally clean (as determined using a 10x hand lens), 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 sieve analyses of formation samples. The sand pack will be installed using a tremie pipe and the casing will be equipped with centralizers (wells 15 ft. or deeper only) to minimize the tendency for particle separation and bridging. Prior to casing and screen insertion, a minimum of 1-foot of gravel-pack bedding will be placed in the bottom of the hole. 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.

6.1.6. Bentonite Seal

A minimum 2-foot thick seal of tamped bentonite pellets will be placed directly on top of the sand pack, and care will be taken to avoid bridging. The seal will be measured immediately after placement, without allowance for swelling.

6.1.7. Grout Mixture

Upon completion of the bentonite seal, the well will be grouted with a non-shrinking cement grout (e.g., Volclay^{R}) 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.

6.1.8 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. Upon completion of the well, a suitable lockable cap shall be installed to prevent material from entering the well. The PVC well riser shall be protected by a flush mounted road box set into a concrete pad. A concrete pad, sloped away from the well, shall be constructed around the flush mount road box 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 and equipped with a "vandal-proof" cover, satisfying applicable NYSDEC regulations or recommendations.

6.1.9. Surveying

Coordinates and elevations will be established for each monitoring well and sampling location. 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. USGS benchmarks will be used whenever available. 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.

6.1.10. 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. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake (or bailer stopping point).

Well development will include washing the entire well cap and the interior of the well casing above the water table, using only water from the well itself. As a result of this operation, the well casing will be free of extraneous materials (grout, bentonite, and sand) inside the riser, well cap, and blank casing between top of the well casing and water table. This washing will be conducted before and/or during development; not after development. 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.

The development process will continue until a stabilization of pH, specific conductance, temperature, and clarity (goal of <50 NTUs) of the discharge is achieved or for a maximum of two hours.

After final development of the well, water levels will be recorded and approximately 1 liter of water from the well will be collected in a clear glass jar, labeled and photographed, and submitted as part of the well log. The photograph will be taken to show the relative clarity of the water. Visual identification of the physical characteristics of removed sediments will also be recorded.

7. 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 for stains and monitored with a PID to help determine potential for vertical migration of contaminants. Soil samples will be collected continuously in both the unsaturated soil zone and the saturated zone. Selected wells will be sampled continuously over the entire depth of the well. The sampling device will be decontaminated according to procedures outlined in the Decontamination section of this document. The split-spoon sampler will be driven into the soil using a 140-pound safety hammer and allowed to free-fall 30-inches, in accordance with ASTM-D 1586-84 specifications. The number of blows required to drive the sampler each 6-inches of penetration will be recorded. 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. Samples will be stored in glass jars until they are needed for testing or the project is complete.

All samples will be screened with a PID during collection. The headspace of all samples taken in the field will be screened using USEPA method 3810.

Monitoring well borings will be advanced to maximum design depth below the ground surface, as indicated by the work plan for each site. If hard boulders or bedrock result in auger refusal, rock coring will be used to advance the hole to design depth. If hydrogeologic conditions are favorable for well installation at a depth less than design, the well will be installed at the boring or coring termination depth. In the event that maximum design depth is reached and hydrogeologic conditions are not suitable for well installation, the maximum drilling depth will be revised. Hydrogeologic suitability for well emplacement will be determined by the supervising geologist in consultation with NYSDEC, based on thickness and estimated hydraulic conductivity of the saturated zone encountered. If necessary, the borehole will be advanced to water or abandoned.

Boulders and bedrock encountered during well installation shall be cored by standard diamond-core drilling methods using an "NX" size core barrel. All rock cores recovered will be logged by a geologist, labeled, photographed, and stored in wooden core boxes. The photographs will be submitted as part of the completed boring logs. The cores will be stored by the firm until the project is completed or for at least one year. Drilling logs will be prepared by an experienced geologist or geotechnical engineer, who will be present during all drilling operations. One copy of each field boring and well construction log, including color photographs of the rock core, if encountered, and groundwater data, will be submitted as part of the RI report. 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 and assistant(s);
- 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;
- 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;
- Thickness of each 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;
- Amount of cement used for grouting or sealing;
- Depth and type of well casing;
- Description of well screen (to include depth, length, location, diameter, slot sizes, material, and manufacturer);
- Any sealing-off of water-bearing strata;
- Static water level upon completion of the well and after development;
- Drilling date or dates;
- Construction details of well; and
- An explanation of any variations from the work plan.

8. Hydraulic Conductivity Testing Procedures

If necessary, single-well, rising head tests will be performed in order to determine the in-place hydraulic conductivity of unconsolidated and/or consolidated geologic materials, which occur in the monitoring interval of newly, installed wells. The tests will be performed by a qualified hydrogeologist. These tests involve lowering the water level in the well and measuring the change in head with respect to time as the well is allowed to recover. In wells, which are slow to recover, the water level will be bailed down as described below. The measurements in these wells will be taken manually. Wells, which recover too quickly for this method, will be tested by removing one bailer of water and the recovery measured by means of a pressure transducer system.

The rising head tests for wells with rapid recovery rates will be conducted as follows:

- The static water level in the well to be tested is measured and recorded;
- The pressure transducer is placed in the well to a minimum depth of three feet below the static water level;
- Readings are made using the data logger until three consecutive readings are the same (equilibrium conditions);
- The data logger is then calibrated to read 0.00 feet at static conditions. A pre-cleaned bailer is then lowered into the well and placed just below the water surface.

- Water level measurements are made until the water level returns to static conditions following introduction of the bailer. If static conditions are not reached within 15 minutes following introduction of the bailer, the well will be tested using the procedures described below for slow recovery wells;
- Once static conditions are reestablished, the bailer is rapidly removed from the water column thereby creating an instantaneous decline of the water level in the well. Coincident with the withdrawal of the bailer, automatic logging of the water levels is initiated using the data logger. The primary goal in the recovery test is to "instantaneously" remove a volume of water that will result in a measurable head decline, the recovery of which (to static conditions) can be monitored over time. Such an instantaneous withdrawal results in recovery due to contributions of flow from the surrounding formation. This flow is controlled by its hydraulic conductivity and not by other factors such as storage effects;
- The water level measurements will continue until water levels recover to within a minimum of 10 percent of the original static water level (90 percent recovery), or an elapsed time of one hour. If the well has not recovered to static conditions after one hour at the discretion of the hydrogeologist, the transducer will be removed and the well will be tested at a later date using the procedures described below for slow recovery wells.
- Data stored in the data loggers will be "dumped" to a hard copy printout using a field printer or to a magnetic disk using a portable computer. If field printouts are used, they will be dated and signed by the hydrogeologist.

For wells with slow recovery rates, the following procedures will be used:

- The static water level is measured and recorded;
- The well is bailed by hand until the depth to water appears to stabilize based on the depth of travel of the bailer rope or to the top of the open or screened interval in wells which are screened below the standing water level;
- The bailer is then removed and water level measurements are collected by hand (measuring tape or electronic water level indicator) at a frequency, which will provide approximately 15 to 20 data, points during recovery (to within 10 percent of the total drawdown), if feasible. Water level measurements are recorded on the hydraulic conductivity testing report.
- A pre-cleaned bailer (one for each well) will be used in the rising head testing. All equipment entering the well, such as the transducer and transducer cable, will be cleaned prior to reuse in accordance with the Decontamination section below. All well water and rinse water generated by the tests will be collected in appropriate containers and disposed of in accordance with the Investigation Derived Materials section below.
- The data from both types of rising head tests will be reduces and evaluated.
- The following equation will be used to calculate the in-situ hydraulic conductivity of the formation opposite the interval of the piezometer (Hvorslev, 1951).

$$k = d^{2} \ln \frac{\left[\frac{2mL}{D} \right]}{8L(t_{2} - t_{1})} \ln \frac{H_{1}}{H_{2}}$$

Where:

K = hydraulic conductivity (ft./min.)
d = casing diameter (ft.)
L = intake length (ft.)
D = intake diameter (ft.)
t_1 = time 1 from semilog graph (min.)
t_2 = time 2 from semilog graph (min.)
H_1 = residual head (ft.) corresponding to t_1
H_2 = residual head (ft.) corresponding to t_2
m = square root of the ratio of horizontal to vertical permeability (an estimated value)

9. Groundwater Sampling Procedures

The groundwater in all new and existing monitoring wells will be allowed to stabilize for 7 days following development and permeability testing. Water levels will be measured to within 0.01 foot prior to purging and sampling. A temporary staff gauge or other surface water elevation measuring device will be established on any nearby surface water body, which may significantly influence groundwater movement. The surface elevation of these water bodies will be checked whenever groundwater elevations are measured. Purging and sampling of each well will be accomplished using precleaned dedicated PVC bailers on new polypropylene line. Purging will be less aggressive than development to avoid turbidity problems (e.g., avoid "free-falling" bailers). In general, wells will be purged until the pH, conductivity, temperature, and turbidity of the water being pumped from the well have stabilized. All wells will be purged of at least three well-bore volumes or to dryness.

Groundwater samples will be collected according to the following procedures and in the volumes specified in Table 5-1:

- 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.

All groundwater samples and their accompanying QC samples will be run for volatile organic chemicals using NYSDEC ASP 91-1.

10. Geotechnical Sampling

A grain size analysis will be conducted by sieving for two non-cohesive units, and Atterberg limits for one cohesive unit, (ASTM methods D 4318-84 and D 422-63, respectively) in each borehole. Grain size analysis by hydrometer will be performed on soils where 20 percent of the sample is less than No. 200 sieve size (i.e., silt or clay). Site-specific work plans indicate specific sampling requirements for physical or geotechnical testing.

Remolded permeability samples will be analyzed in accordance with ASTM D-5084.

11. 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 id characterization analytical results indicate the absence of these constituents.

Procedure:

1. Contain all investigation-derived wastes in Department of Transpiration (DOT)-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 or otherwise treated as a non0-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

12. 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, after drilling each monitoring well, and after the completion of all drilling. Special attention will be given to the drilling assembly, augers, and PVC casing and screens.

Drilling decontamination will consist of:

- Steam cleaning;
- Scrubbing with brushes, if soil remains on equipment; and
- Steam rinse.

Split spoons and other non-disposable equipment will be decontaminated between each sampling event. 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 trisodium phosphate or alconox solution;
- Rinsed with deionized water;
- Rinsed with pesticide grade methanol;
- Triple rinsed with deionized water; and
- Allowed to air dry.

13. Sample Containers

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

Table 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 based on verified time of sample receipt at laboratory.

Note: *All sample bottles will be prepared in accordance with USEPA bottle washing procedures. These procedures are incorporated in LaBella Associates Quality Control Procedures Manual, January, 1992*

TABLE 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, Semivolatile Organics, PCBs, and Pesticides	8-oz, glass jar with Teflon-lined cap	Two (2), fill as completely as possible	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 receipt at the laboratory.

Note: All sample bottles will be prepared in accordance with USEPA bottle washing procedures. These procedures are incorporated in LaBella Associates Quality Control Procedures Manual, January, 1992.

TABLE 3

List of Major Instruments for Sampling and Analysis

- MSA 360 0_2 /Explosimeter
- S.E. International Radiation Monitor Model 4C
- Photovac Micro Tip FID or PID
- Organic Vapor Analyzer Foxboro (128)
- Hollige Series 963 Nephlometer (turbidity meter)
- EM-31 Geomics Electromagnetic Induction Device
- pH/Temperature/Conductivity Meter - Portable
- Hewlett Packard (HP) 1000 computer with RTE-6 operating system; and HP 9144 computer with RTE-4 operating system equipped with Aquarius software for control and data acquisition from gas chromatograph/mass spectrometer (GC/MS) systems; combined wiley and National Bureau of Standards (NBS) mass spectral library; and data archiving on magnetic tape
- Viriam 6000 and 37000 gas chromatrographs equipped with flame ionization, electron capture, photoionization and wall detectors as appropriate for various analyses,, and interfaced to Variam DS604 or D5634 data systems for processing data.
- Spectra-Physics Model SP 4100 and SP 4270 and Variam 4270 cam puting integrators
- Perkin Eimer (PE) 3000% and 3030% fully Automated Atomic Absorption Spectrophotometers (AAS) with Furnace Atomizer and background correction system
- PE Plasma II Inductively Coupled Argon Plasma (ICAP) Spectre meter with PE7500 laboratory computer
- Dionex 20001 ion chromatograph with conductivity detector for anion analysis, with integrating recorder

14. Sample Custody

This section describes standard operating procedures for sample identification and chain-of-custody to be utilized for all Phase II 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.

15. 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.

15.1. Field Custody Procedures

- As few persons as possible should handle samples.
- Sample bottles will be obtained precleaned from a source such as I-Chem. 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.
- The site manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

15.2. Sample Tags

Sample tags attached to or affixed around the sample container must be used to properly identify all samples collected in the field. The sample tags 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. 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.

15.3. 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 entered in the "Remarks" section of the chain-of-custody record and traffic reports.
- 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 manage.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bill of lading are retained as part of the permanent documentation.

15.4. Chain-of-Custody Record

The chain-of-custody record must be fully completed in duplicate, using black carbon paper where possible, by the field technician who has been designated by the project manager as 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 in the "Remarks" section of the record.

15.5. 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 and traffic reports, if required. Pertinent information as to shipment, pickup, and courier is entered in the "Remarks" section.

15.6. Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. Sample shipping containers (coolers, cardboard boxes, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. On receipt at the laboratory, the custodian must check (and certify, by completing the package receipt log and LABMIS entries) 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.

16. Documentation

16.1. Sample Identification

All containers of samples collected from the project will be identified using the following format on a label or tag fixed to the sample container (labels are to be covered with Mylar tape):

XX-YY-O/D

XX	This set of initials indicates the specific Phase II 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.

16.2. 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. All daily logs will be kept in a bound waterproof notebook containing numbered pages. 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 daily logs will include a site log and task log.

The site log is the responsibility of the site manager and will include a complete summary of the day's activity at the site.

The **Task Log** will include:

- Name of person making entry (signature).
- Names of team members on-site.
- Levels of personnel protection:
  - Level of protection originally used;
  - Changes in protection, if required; 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.

17. Corrections to Documentation

17.1. 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.

17.2. Sampling Forms

As previously stated, all sample identification tags, 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.

17.3. Photographs

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

- Date, time, location photograph was taken;
- Photographer (signature);
- Weather conditions;
- Description of photograph taken;
- Reasons why photograph was taken;
- Sequential number of the photograph and the film roll number; and
- Camera lens system used.

After the photographs have been developed, the information recorded in the field notebook should be transferred to the back of the photographs

18. 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 samples will be delivered to the laboratory with 24 to 48 hours from the day of collection.

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.

18.1. 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.
- The sample volume level can be marked by placing the top of the label at the appropriate sample height, or with a grease pencil. This procedure will help the laboratory to determine if any leakage occurred during shipment. The label should not cover any bottle preparation QC lot numbers.
- All sample bottles are placed in a plastic bag to minimize the potential for vermiculite contamination.
- 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 in such a way as to ensure that they do not touch one another.
- The environmental samples are to be cooled. The use of "blue ice" or some other artificial icing material is preferred. If necessary, ice may be used, provided that it is placed in plastic bags. Ice is not to be used as a substitute for packing materials.
- 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 and taped to the bottom of the cooler lid. Custody seals are affixed to the sample cooler.

18.2. Shipping Containers

Shipping containers are to be custody-sealed for shipment as appropriate. The container custody seal will consist of filament 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 filament 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.

18.3. Marking and Labeling

- Use abbreviations only where specified.
- The words "This End Up" or "This Side Up" must be clearly printed on the top of the outer package. Upward pointing arrows should be placed on the sides of the package. The words "Laboratory Samples" should also be printed on the top of the package.
- After a sample container has been sealed, two chain-of-custody seals are placed on the container, one on the front and one on the back. The seals are protected from accidental damage by placing strapping tape over then.
- If samples are designated as medium or high hazard, they must be sealed in metal paint cans, placed in the cooler with vermiculite and labeled and placarded in accordance with DOT regulations.
- In addition, the coolers must also be labeled and placarded in accordance with DOT regulations if shipping medium and high hazard samples.

19. 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. Table 7-1 lists the major instruments to be used for sampling and analysis. Brief descriptions of calibration procedures for major field and laboratory instruments follow.

20. Field Instrumentation

20.1. Photovac Micro Tip Flameionizer (FID)

Standard operating procedures for the FID 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.

20.2. 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.

20.3. Organic Vapor Analyzer

Organic vapor analyzers (OVAs) are calibrated and routine maintenance performed every six months when the units are not in use. Calibration is performed and the major system checks are performed prior to the instrument being released for field use.

Calibration of the OVA 128 GC must be performed by a factory-authorized service representative. The instrument is removed from its protective case and the probe is connected to the base unit. After checking for an airtight seal in the sample line (plugging the sample inlet to stop the pump), the hydrogen supply is turned on and the pressure is set to 10 psi. The electronics are turned on and the instrument is allowed to warm up for at least 5 minutes. After warm up, the instrument is zeroed on the "X10" scale using the adjust knob. The flame is then lit and a gas-tight sample bag is filled with a mixture of 100 ppm methane in air. The sample bag is then attached to the probe inlet and the internal pump is allowed to draw in as much sample as is needed. R32 on the control board is adjusted to read 100 ppm on the "X10" scale and then the hydrogen supply is shut down. The pump can now be turned off and the sample bag removed. Using the adjust knob, the meter is set to read 4 ppm on the "X1" scale. Switching back to the "X10" scale the adjust knob is again used to set the meter to 40 ppm. The scale is then set to "X100" and R33 is adjusted until the meter reads 40 ppm on the "X100" scale.

The OVA has a detection limit of 0.1 ppm in methane equivalents and a working range of 0 to 1,000 ppm. During daily field use, system checks are performed which involve calibration and maintenance of the pump systems, gases, and filters. Care is taken to check for and prevent clogging or leaks. Quad rings and the burner chamber are examined on a weekly basis. Routine biannual maintenance includes a thorough cleaning as well as a re-examination of the pump system for leaks and wear. Parts are replaced as necessary. Instrument operation is verified by calibrating and running the OVA for 4 to 6 hours. An instrument specific logbook is maintained with the OVA to document its use and maintenance.

20.4. 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.

To recalibrate conductance, remove the black plug revealing the adjustment potentiometer screw. Add standard solution to cup, discard and refill. Repeat procedure until the digital display indicates the same value twice in a row. Adjust the potentiometer until the digital display indicates the known value of conductance. To increase the digital display reading, turn the adjustment potentiometer screw counter-clockwise (clockwise to decrease).

To standardize the pH electrode and meter, place the pH electrode in the 7.0 buffer bottle. Adjust the "ZERO" potentiometer on the face of the tester so that the digital display indicates 7.00.

Then place the pH electrode in the 4.0 or 10.0 buffer bottle (depending on where you expect the actual measurement to be). Adjust the "SLOPE" potentiometer on the face of the tester so that the digital display indicates the value of the buffer chosen.

Note: There is interaction between the "ZERO" and "SLOPE" adjustments, so the procedure should be repeated several times.

Do not subject the pH electrode to freezing temperatures.

It is good practice to rinse the electrode in distilled water when going from one buffer to another. When not in use the cap should be kept on the electrode. Keeping the cotton in the cap moist will keep the electrode ready to use. Moisten the cotton frequently (once a week, usually).

20.5. 0_2/Explosimeter

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.

20.6. Nephelometer (Turbidity Meter)

The Series 95 nephelometer is calibrated before each use. Allow the instrument to warm up for approximately 2 hours. Using turbidity-free deionized water, zero the meter. Set the scale to 100, fill with a 40 NTU standard (AEPA-1 turbidity standard from Advanced Polymer Systems, Inc.), and insert into the instrument. Adjust the standardize control to give a readout of 200. Re-zero the instrument and repeat these steps with the scale set at 10 and 1 using 4.0 and 0.4 NTU standards, respectively. These standards are prepared by diluting aliquots of the 40 NTU standard.

20.7. S.E. International Radiation Monitor Model 4EC

This radiation monitor detects alpha, beta, gamma, and X-rays. The analog meter is scaled in CPM (counts per minute) or mR/hr (milli-Roentgens per hour), and the X1, X10, X100 switch extends the effective measurement range. This handheld unit is powered by a single 9-volt battery that offers up to 2,000 hours of operation.

21. Internal Quality Control Checks

QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of field equipment. Field-based QC will comprise at least 10% of each data set generated and will consist of standards, replicates, spikes, and blanks. 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 10 samples collected or one per shipment, whichever is greater. Field blanks which consist of trip, routine field, and rinsate blanks 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. All QC data, including split samples, will be documented in the site logbook. QC records will be retained and results reported with sample data.

21.1. Blank Samples

Blank samples are analyzed in order to assess possible contamination from the field and/or laboratory so that corrective measures may be taken, if necessary. Field samples are discussed in the following subsection:

21.2. 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. For the RI/FS, one trip blank will be collected with every batch of water samples for volatile organic analysis. 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.

21.3. 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.

21.4. Quality Control Check Samples

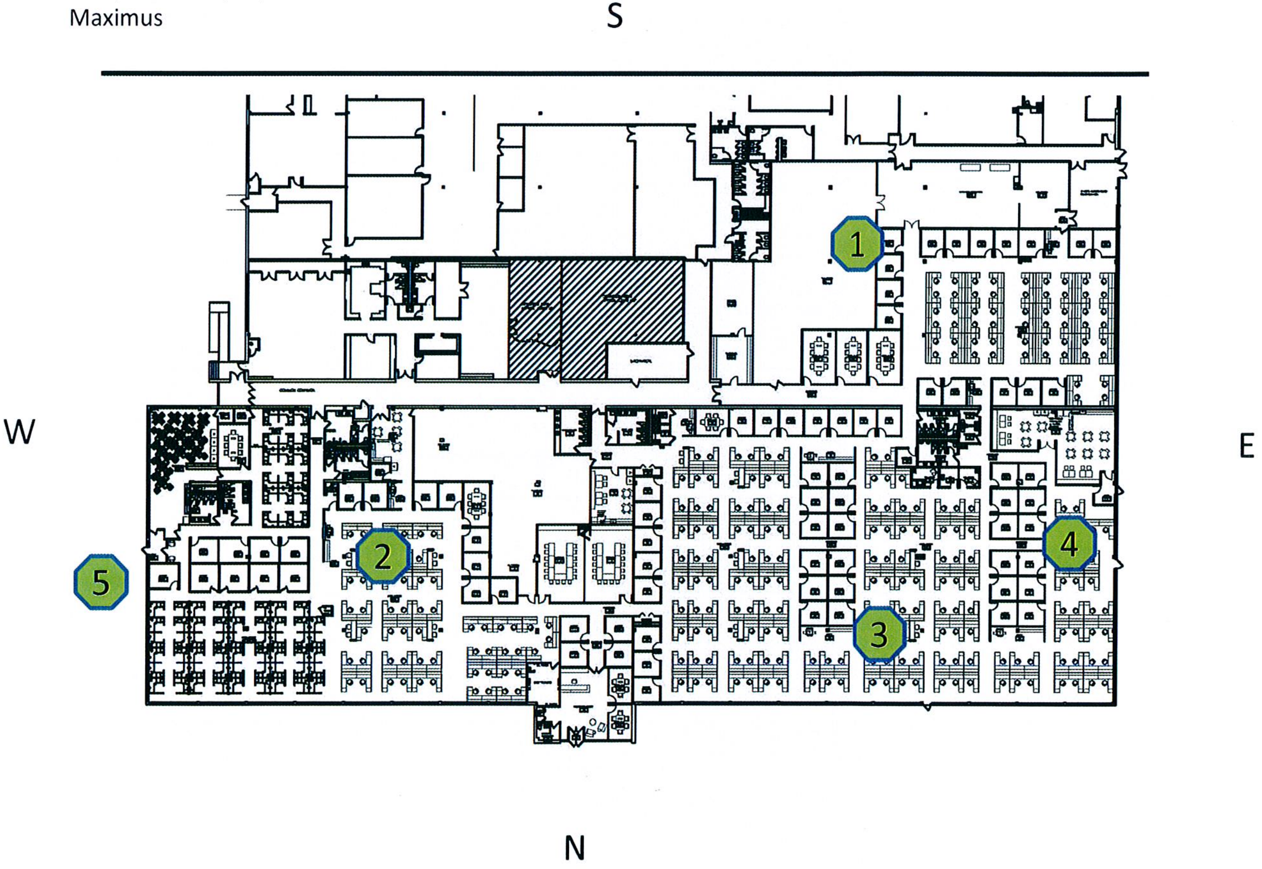
Inorganic and organic control check samples are available from EPA free of charge and are used as a means of evaluating analytical techniques of the analyst. Control check samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized.

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

Appendix 4

CanAm Environmental Services Data Package

Air Sample Location Map
Sample Date: 8/20/13
Maximus



Centek Laboratories

Centek Chain of Custody

143 Midler Park Drive
Syracuse, NY 13206
315-431-9730
www.CentekLabs.com

Vapor Intrusion & IAQ

Site Name: Maxima
Project: TCE Evaluation
PO#: CanSO
Quote # Q- SP/ BO
Other: 3831

Detection Limit
☐ 5ppbv
☒ 1ug/M3
☒ 1ug/M3 +TCE .25

Report Level
☐ Level I
☐ Level II
☐ Cat "B" Like

Turnaround Time:	Check One	Rush TAT Surcharge %	Due Date:
5 Business Days	☒	0%	
4 Business Days	☐	25%	
3 Business Days	☐	50%	
2 Business Days	☐	75%	
Next Day by 5pm	☐	100%	
Next Day by Noon	☐	150%	
Same Day	☐	200%	

Company: CanAm Environmental Safety Inc
Report to: Dr. David Duford, CIH
Address: 42 Main St. Suite 1
City, State, Zip Scottsville, NY 14546
Email: david@CanAmEnv.com
Phone: 585 261 3205

Company:
Check Here If Same: ☑
Invoice to:
Address:
City, State, Zip
Email:
Phone:

Sample ID	Date Sampled	Canister Number	Regulator Number	Analysis Request	Comments	Vacuum Start/Stop
1	8/20/13	416	405	TO 15	930Am / 427 Pm File Room A	730 on - 30 off
2	8/20/13	567	447	TO15	Phase 2	30 on 29.5 off
3	8/20/13	481	342	TO 15	operations/ Case Closure	28.5 9.5 off
4	8/20/13	138	390	TO 15	old Part D	28 21.9
5	8/20/13	239	386	TO 15	outside west side - 957 Am	730 9.5 off

Chain of Custody	Print Name	Signature	Date/Time	Courier: CIRCLE ONE
Sampled by:	David Duford, CIH		8/20/13	[✓ FedEx] UPS Pickup/Dropoff
Relinquished by:				For LAB USE ONLY
Received at Lab by:	Nick Mandarino		8-23-13	Work Order # C1308063

*** By signing Centek Labs Chain of Custody, you are accepting Centek Labs Terms and Conditions listed on the reverse side.

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	1
Lab Order:	C1308063	**Tag Number:**	416.405
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-001A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 12:25:00 AM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	8/28/2013 12:25:00 AM
1,1,2-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 12:25:00 AM
1,1-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 12:25:00 AM
1,1-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 12:25:00 AM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	8/28/2013 12:25:00 AM
1,2,4-Trimethylbenzene	1.2	0.75		ug/m3	1	8/28/2013 12:25:00 AM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	8/28/2013 12:25:00 AM
1,2-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 12:25:00 AM
1,2-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 12:25:00 AM
1,2-Dichloropropane	< 0.70	0.70		ug/m3	1	8/28/2013 12:25:00 AM
1,3,5-Trimethylbenzene	< 0.75	0.75		ug/m3	1	8/28/2013 12:25:00 AM
1,3-butadiene	< 0.34	0.34		ug/m3	1	8/28/2013 12:25:00 AM
1,3-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 12:25:00 AM
1,4-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 12:25:00 AM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	8/28/2013 12:25:00 AM
2,2,4-trimethylpentane	1.0	0.71		ug/m3	1	8/28/2013 12:25:00 AM
4-ethyltoluene	< 0.75	0.75		ug/m3	1	8/28/2013 12:25:00 AM
Acetone	7.2	0.72		ug/m3	1	8/28/2013 12:25:00 AM
Allyl chloride	< 0.48	0.48		ug/m3	1	8/28/2013 12:25:00 AM
Benzene	0.58	0.49		ug/m3	1	8/28/2013 12:25:00 AM
Benzyl chloride	< 0.88	0.88		ug/m3	1	8/28/2013 12:25:00 AM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	8/28/2013 12:25:00 AM
Bromoform	< 1.6	1.6		ug/m3	1	8/28/2013 12:25:00 AM
Bromomethane	< 0.59	0.59		ug/m3	1	8/28/2013 12:25:00 AM
Carbon disulfide	< 0.47	0.47		ug/m3	1	8/28/2013 12:25:00 AM
Carbon tetrachloride	< 0.26	0.26		ug/m3	1	8/28/2013 12:25:00 AM
Chlorobenzene	< 0.70	0.70		ug/m3	1	8/28/2013 12:25:00 AM
Chloroethane	< 0.40	0.40		ug/m3	1	8/28/2013 12:25:00 AM
Chloroform	< 0.74	0.74		ug/m3	1	8/28/2013 12:25:00 AM
Chloromethane	< 0.31	0.31		ug/m3	1	8/28/2013 12:25:00 AM
cis-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 12:25:00 AM
cis-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 12:25:00 AM
Cyclohexane	1.4	0.52		ug/m3	1	8/28/2013 12:25:00 AM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	8/28/2013 12:25:00 AM
Ethyl acetate	< 0.92	0.92		ug/m3	1	8/28/2013 12:25:00 AM
Ethylbenzene	1.1	0.66		ug/m3	1	8/28/2013 12:25:00 AM
Freon 11	7.4	0.86		ug/m3	1	8/28/2013 12:25:00 AM
Freon 113	< 1.2	1.2		ug/m3	1	8/28/2013 12:25:00 AM
Freon 114	< 1.1	1.1		ug/m3	1	8/28/2013 12:25:00 AM

Qualifiers:	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	1
Lab Order:	C1308063	**Tag Number:**	416.405
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-001A	**Matrix:**	AIR

Analyses	**Result**	****Limit**	**Qual**	**Units**	**DF**	**Date Analyzed**
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 12	< 0.75	0.75		ug/m3	1	8/28/2013 12:25:00 AM
Heptane	1.6	0.62		ug/m3	1	8/28/2013 12:25:00 AM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	8/28/2013 12:25:00 AM
Hexane	1.5	0.54		ug/m3	1	8/28/2013 12:25:00 AM
Isopropyl alcohol	8.3	0.37		ug/m3	1	8/28/2013 12:25:00 AM
m&p-Xylene	1.9	1.3		ug/m3	1	8/28/2013 12:25:00 AM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 12:25:00 AM
Methyl Ethyl Ketone	5.3	0.90		ug/m3	1	8/28/2013 12:25:00 AM
Methyl Isobutyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 12:25:00 AM
Methyl tert-butyl ether	< 0.55	0.55		ug/m3	1	8/28/2013 12:25:00 AM
Methylene chloride	< 0.53	0.53		ug/m3	1	8/28/2013 12:25:00 AM
o-Xylene	0.71	0.66		ug/m3	1	8/28/2013 12:25:00 AM
Propylene	< 0.26	0.26		ug/m3	1	8/28/2013 12:25:00 AM
Styrene	< 0.65	0.65		ug/m3	1	8/28/2013 12:25:00 AM
Tetrachloroethylene	0.83	1.0	J	ug/m3	1	8/28/2013 12:25:00 AM
Tetrahydrofuran	0.45	0.45		ug/m3	1	8/28/2013 12:25:00 AM
Toluene	7.4	0.57		ug/m3	1	8/28/2013 12:25:00 AM
trans-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 12:25:00 AM
trans-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 12:25:00 AM
Trichloroethene	< 0.22	0.22		ug/m3	1	8/28/2013 12:25:00 AM
Vinyl acetate	< 0.54	0.54		ug/m3	1	8/28/2013 12:25:00 AM
Vinyl Bromide	< 0.67	0.67		ug/m3	1	8/28/2013 12:25:00 AM
Vinyl chloride	< 0.10	0.10		ug/m3	1	8/28/2013 12:25:00 AM

Qualifiers:				
	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	2
Lab Order:	C1308063	**Tag Number:**	567.447
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-002A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 1:03:00 AM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	8/28/2013 1:03:00 AM
1,1,2-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 1:03:00 AM
1,1-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 1:03:00 AM
1,1-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 1:03:00 AM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	8/28/2013 1:03:00 AM
1,2,4-Trimethylbenzene	2.7	0.75		ug/m3	1	8/28/2013 1:03:00 AM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	8/28/2013 1:03:00 AM
1,2-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 1:03:00 AM
1,2-Dichloroethane	3.3	0.62		ug/m3	1	8/28/2013 1:03:00 AM
1,2-Dichloropropane	< 0.70	0.70		ug/m3	1	8/28/2013 1:03:00 AM
1,3,5-Trimethylbenzene	1.6	0.75		ug/m3	1	8/28/2013 1:03:00 AM
1,3-butadiene	< 0.34	0.34		ug/m3	1	8/28/2013 1:03:00 AM
1,3-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 1:03:00 AM
1,4-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 1:03:00 AM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	8/28/2013 1:03:00 AM
2,2,4-trimethylpentane	< 0.71	0.71		ug/m3	1	8/28/2013 1:03:00 AM
4-ethyltoluene	0.65	0.75	J	ug/m3	1	8/28/2013 1:03:00 AM
Acetone	40	7.2		ug/m3	10	8/30/2013 9:30:00 PM
Allyl chloride	< 0.48	0.48		ug/m3	1	8/28/2013 1:03:00 AM
Benzene	0.71	0.49		ug/m3	1	8/28/2013 1:03:00 AM
Benzyl chloride	< 0.88	0.88		ug/m3	1	8/28/2013 1:03:00 AM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	8/28/2013 1:03:00 AM
Bromoform	< 1.6	1.6		ug/m3	1	8/28/2013 1:03:00 AM
Bromomethane	< 0.59	0.59		ug/m3	1	8/28/2013 1:03:00 AM
Carbon disulfide	0.44	0.47	J	ug/m3	1	8/28/2013 1:03:00 AM
Carbon tetrachloride	0.64	0.26		ug/m3	1	8/28/2013 1:03:00 AM
Chlorobenzene	< 0.70	0.70		ug/m3	1	8/28/2013 1:03:00 AM
Chloroethane	< 0.40	0.40		ug/m3	1	8/28/2013 1:03:00 AM
Chloroform	< 0.74	0.74		ug/m3	1	8/28/2013 1:03:00 AM
Chloromethane	< 0.31	0.31		ug/m3	1	8/28/2013 1:03:00 AM
cis-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 1:03:00 AM
cis-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 1:03:00 AM
Cyclohexane	0.87	0.52		ug/m3	1	8/28/2013 1:03:00 AM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	8/28/2013 1:03:00 AM
Ethyl acetate	5.1	0.92		ug/m3	1	8/28/2013 1:03:00 AM
Ethylbenzene	1.1	0.66		ug/m3	1	8/28/2013 1:03:00 AM
Freon 11	61	8.6		ug/m3	10	8/30/2013 9:30:00 PM
Freon 113	< 1.2	1.2		ug/m3	1	8/28/2013 1:03:00 AM
Freon 114	< 1.1	1.1		ug/m3	1	8/28/2013 1:03:00 AM

Qualifiers:	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	2
Lab Order:	C1308063	**Tag Number:**	567.447
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-002A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 12	2.9	0.75		ug/m3	1	8/28/2013 1:03:00 AM
Heptane	0.71	0.62		ug/m3	1	8/28/2013 1:03:00 AM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	8/28/2013 1:03:00 AM
Hexane	< 0.54	0.54		ug/m3	1	8/28/2013 1:03:00 AM
Isopropyl alcohol	30	3.7		ug/m3	10	8/30/2013 9:30:00 PM
m&p-Xylene	3.8	1.3		ug/m3	1	8/28/2013 1:03:00 AM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 1:03:00 AM
Methyl Ethyl Ketone	10	0.90		ug/m3	1	8/28/2013 1:03:00 AM
Methyl Isobutyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 1:03:00 AM
Methyl tert-butyl ether	< 0.55	0.55		ug/m3	1	8/28/2013 1:03:00 AM
Methylene chloride	1.1	0.53		ug/m3	1	8/28/2013 1:03:00 AM
o-Xylene	1.9	0.66		ug/m3	1	8/28/2013 1:03:00 AM
Propylene	< 0.26	0.26		ug/m3	1	8/28/2013 1:03:00 AM
Styrene	1.3	0.65		ug/m3	1	8/28/2013 1:03:00 AM
Tetrachloroethylene	< 1.0	1.0		ug/m3	1	8/28/2013 1:03:00 AM
Tetrahydrofuran	< 0.45	0.45		ug/m3	1	8/28/2013 1:03:00 AM
Toluene	6.1	0.57		ug/m3	1	8/28/2013 1:03:00 AM
trans-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 1:03:00 AM
trans-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 1:03:00 AM
Trichloroethene	0.71	0.22		ug/m3	1	8/28/2013 1:03:00 AM
Vinyl acetate	< 0.54	0.54		ug/m3	1	8/28/2013 1:03:00 AM
Vinyl Bromide	< 0.67	0.67		ug/m3	1	8/28/2013 1:03:00 AM
Vinyl chloride	< 0.10	0.10		ug/m3	1	8/28/2013 1:03:00 AM

Qualifiers:				
	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	3
Lab Order:	C1308063	**Tag Number:**	481.342
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-003A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 1:40:00 AM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	8/28/2013 1:40:00 AM
1,1,2-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 1:40:00 AM
1,1-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 1:40:00 AM
1,1-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 1:40:00 AM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	8/28/2013 1:40:00 AM
1,2,4-Trimethylbenzene	2.1	0.75		ug/m3	1	8/28/2013 1:40:00 AM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	8/28/2013 1:40:00 AM
1,2-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 1:40:00 AM
1,2-Dichloroethane	0.45	0.62	J	ug/m3	1	8/28/2013 1:40:00 AM
1,2-Dichloropropane	< 0.70	0.70		ug/m3	1	8/28/2013 1:40:00 AM
1,3,5-Trimethylbenzene	1.5	0.75		ug/m3	1	8/28/2013 1:40:00 AM
1,3-butadiene	< 0.34	0.34		ug/m3	1	8/28/2013 1:40:00 AM
1,3-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 1:40:00 AM
1,4-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 1:40:00 AM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	8/28/2013 1:40:00 AM
2,2,4-trimethylpentane	0.76	0.71		ug/m3	1	8/28/2013 1:40:00 AM
4-ethyltoluene	< 0.75	0.75		ug/m3	1	8/28/2013 1:40:00 AM
Acetone	35	7.2		ug/m3	10	8/30/2013 10:05:00 PM
Allyl chloride	< 0.48	0.48		ug/m3	1	8/28/2013 1:40:00 AM
Benzene	1.1	0.49		ug/m3	1	8/28/2013 1:40:00 AM
Benzyl chloride	< 0.88	0.88		ug/m3	1	8/28/2013 1:40:00 AM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	8/28/2013 1:40:00 AM
Bromoform	< 1.6	1.6		ug/m3	1	8/28/2013 1:40:00 AM
Bromomethane	< 0.59	0.59		ug/m3	1	8/28/2013 1:40:00 AM
Carbon disulfide	0.98	0.47		ug/m3	1	8/28/2013 1:40:00 AM
Carbon tetrachloride	0.70	0.26		ug/m3	1	8/28/2013 1:40:00 AM
Chlorobenzene	< 0.70	0.70		ug/m3	1	8/28/2013 1:40:00 AM
Chloroethane	< 0.40	0.40		ug/m3	1	8/28/2013 1:40:00 AM
Chloroform	0.60	0.74	J	ug/m3	1	8/28/2013 1:40:00 AM
Chloromethane	< 0.31	0.31		ug/m3	1	8/28/2013 1:40:00 AM
cis-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 1:40:00 AM
cis-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 1:40:00 AM
Cyclohexane	< 0.52	0.52		ug/m3	1	8/28/2013 1:40:00 AM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	8/28/2013 1:40:00 AM
Ethyl acetate	< 0.92	0.92		ug/m3	1	8/28/2013 1:40:00 AM
Ethylbenzene	1.0	0.66		ug/m3	1	8/28/2013 1:40:00 AM
Freon 11	87	8.6		ug/m3	10	8/30/2013 10:05:00 PM
Freon 113	< 1.2	1.2		ug/m3	1	8/28/2013 1:40:00 AM
Freon 114	< 1.1	1.1		ug/m3	1	8/28/2013 1:40:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	3
Lab Order:	C1308063	**Tag Number:**	481.342
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-003A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 12	2.7	0.75		ug/m3	1	8/28/2013 1:40:00 AM
Heptane	8.9	0.62		ug/m3	1	8/28/2013 1:40:00 AM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	8/28/2013 1:40:00 AM
Hexane	15	0.54		ug/m3	1	8/28/2013 1:40:00 AM
Isopropyl alcohol	51	3.7		ug/m3	10	8/30/2013 10:05:00 PM
m&p-Xylene	3.5	1.3		ug/m3	1	8/28/2013 1:40:00 AM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 1:40:00 AM
Methyl Ethyl Ketone	3.1	0.90		ug/m3	1	8/28/2013 1:40:00 AM
Methyl Isobutyl Ketone	1.8	1.2		ug/m3	1	8/28/2013 1:40:00 AM
Methyl tert-butyl ether	< 0.55	0.55		ug/m3	1	8/28/2013 1:40:00 AM
Methylene chloride	1.4	0.53		ug/m3	1	8/28/2013 1:40:00 AM
o-Xylene	1.9	0.66		ug/m3	1	8/28/2013 1:40:00 AM
Propylene	< 0.26	0.26		ug/m3	1	8/28/2013 1:40:00 AM
Styrene	1.1	0.65		ug/m3	1	8/28/2013 1:40:00 AM
Tetrachloroethylene	< 1.0	1.0		ug/m3	1	8/28/2013 1:40:00 AM
Tetrahydrofuran	< 0.45	0.45		ug/m3	1	8/28/2013 1:40:00 AM
Toluene	4.1	0.57		ug/m3	1	8/28/2013 1:40:00 AM
trans-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 1:40:00 AM
trans-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 1:40:00 AM
Trichloroethene	0.60	0.22		ug/m3	1	8/28/2013 1:40:00 AM
Vinyl acetate	< 0.54	0.54		ug/m3	1	8/28/2013 1:40:00 AM
Vinyl Bromide	< 0.67	0.67		ug/m3	1	8/28/2013 1:40:00 AM
Vinyl chloride	< 0.10	0.10		ug/m3	1	8/28/2013 1:40:00 AM

Qualifiers:				
	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	4
Lab Order:	C1308063	**Tag Number:**	138.390
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-004A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 2:19:00 AM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	8/28/2013 2:19:00 AM
1,1,2-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 2:19:00 AM
1,1-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 2:19:00 AM
1,1-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 2:19:00 AM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	8/28/2013 2:19:00 AM
1,2,4-Trimethylbenzene	1.9	0.75		ug/m3	1	8/28/2013 2:19:00 AM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	8/28/2013 2:19:00 AM
1,2-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 2:19:00 AM
1,2-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 2:19:00 AM
1,2-Dichloropropane	< 0.70	0.70		ug/m3	1	8/28/2013 2:19:00 AM
1,3,5-Trimethylbenzene	0.65	0.75	J	ug/m3	1	8/28/2013 2:19:00 AM
1,3-butadiene	< 0.34	0.34		ug/m3	1	8/28/2013 2:19:00 AM
1,3-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 2:19:00 AM
1,4-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 2:19:00 AM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	8/28/2013 2:19:00 AM
2,2,4-trimethylpentane	1.0	0.71		ug/m3	1	8/28/2013 2:19:00 AM
4-ethyltoluene	< 0.75	0.75		ug/m3	1	8/28/2013 2:19:00 AM
Acetone	11	1.4		ug/m3	2	8/30/2013 10:42:00 PM
Allyl chloride	< 0.48	0.48		ug/m3	1	8/28/2013 2:19:00 AM
Benzene	0.58	0.49		ug/m3	1	8/28/2013 2:19:00 AM
Benzyl chloride	< 0.88	0.88		ug/m3	1	8/28/2013 2:19:00 AM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	8/28/2013 2:19:00 AM
Bromoform	< 1.6	1.6		ug/m3	1	8/28/2013 2:19:00 AM
Bromomethane	< 0.59	0.59		ug/m3	1	8/28/2013 2:19:00 AM
Carbon disulfide	0.79	0.47		ug/m3	1	8/28/2013 2:19:00 AM
Carbon tetrachloride	< 0.26	0.26		ug/m3	1	8/28/2013 2:19:00 AM
Chlorobenzene	< 0.70	0.70		ug/m3	1	8/28/2013 2:19:00 AM
Chloroethane	< 0.40	0.40		ug/m3	1	8/28/2013 2:19:00 AM
Chloroform	< 0.74	0.74		ug/m3	1	8/28/2013 2:19:00 AM
Chloromethane	< 0.31	0.31		ug/m3	1	8/28/2013 2:19:00 AM
cis-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 2:19:00 AM
cis-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 2:19:00 AM
Cyclohexane	< 0.52	0.52		ug/m3	1	8/28/2013 2:19:00 AM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	8/28/2013 2:19:00 AM
Ethyl acetate	< 0.92	0.92		ug/m3	1	8/28/2013 2:19:00 AM
Ethylbenzene	1.1	0.66		ug/m3	1	8/28/2013 2:19:00 AM
Freon 11	19	1.7		ug/m3	2	8/30/2013 10:42:00 PM
Freon 113	< 1.2	1.2		ug/m3	1	8/28/2013 2:19:00 AM
Freon 114	< 1.1	1.1		ug/m3	1	8/28/2013 2:19:00 AM

Qualifiers:	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	4
Lab Order:	C1308063	**Tag Number:**	138.390
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-004A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 12	0.65	0.75	J	ug/m3	1	8/28/2013 2:19:00 AM
Heptane	4.9	0.62		ug/m3	1	8/28/2013 2:19:00 AM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	8/28/2013 2:19:00 AM
Hexane	6.7	0.54		ug/m3	1	8/28/2013 2:19:00 AM
Isopropyl alcohol	14	0.75		ug/m3	2	8/30/2013 10:42:00 PM
m&p-Xylene	2.6	1.3		ug/m3	1	8/28/2013 2:19:00 AM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 2:19:00 AM
Methyl Ethyl Ketone	1.8	0.90		ug/m3	1	8/28/2013 2:19:00 AM
Methyl Isobutyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 2:19:00 AM
Methyl tert-butyl ether	< 0.55	0.55		ug/m3	1	8/28/2013 2:19:00 AM
Methylene chloride	0.60	0.53		ug/m3	1	8/28/2013 2:19:00 AM
o-Xylene	1.2	0.66		ug/m3	1	8/28/2013 2:19:00 AM
Propylene	< 0.26	0.26		ug/m3	1	8/28/2013 2:19:00 AM
Styrene	< 0.65	0.65		ug/m3	1	8/28/2013 2:19:00 AM
Tetrachloroethylene	< 1.0	1.0		ug/m3	1	8/28/2013 2:19:00 AM
Tetrahydrofuran	< 0.45	0.45		ug/m3	1	8/28/2013 2:19:00 AM
Toluene	5.2	0.57		ug/m3	1	8/28/2013 2:19:00 AM
trans-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 2:19:00 AM
trans-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 2:19:00 AM
Trichloroethene	< 0.22	0.22		ug/m3	1	8/28/2013 2:19:00 AM
Vinyl acetate	< 0.54	0.54		ug/m3	1	8/28/2013 2:19:00 AM
Vinyl Bromide	< 0.67	0.67		ug/m3	1	8/28/2013 2:19:00 AM
Vinyl chloride	< 0.10	0.10		ug/m3	1	8/28/2013 2:19:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	5
Lab Order:	C1308063	**Tag Number:**	239.386
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-005A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 2:56:00 AM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	8/28/2013 2:56:00 AM
1,1,2-Trichloroethane	< 0.83	0.83		ug/m3	1	8/28/2013 2:56:00 AM
1,1-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 2:56:00 AM
1,1-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 2:56:00 AM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	8/28/2013 2:56:00 AM
1,2,4-Trimethylbenzene	0.80	0.75		ug/m3	1	8/28/2013 2:56:00 AM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	8/28/2013 2:56:00 AM
1,2-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 2:56:00 AM
1,2-Dichloroethane	< 0.62	0.62		ug/m3	1	8/28/2013 2:56:00 AM
1,2-Dichloropropane	< 0.70	0.70		ug/m3	1	8/28/2013 2:56:00 AM
1,3,5-Trimethylbenzene	< 0.75	0.75		ug/m3	1	8/28/2013 2:56:00 AM
1,3-butadiene	< 0.34	0.34		ug/m3	1	8/28/2013 2:56:00 AM
1,3-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 2:56:00 AM
1,4-Dichlorobenzene	< 0.92	0.92		ug/m3	1	8/28/2013 2:56:00 AM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	8/28/2013 2:56:00 AM
2,2,4-trimethylpentane	< 0.71	0.71		ug/m3	1	8/28/2013 2:56:00 AM
4-ethyltoluene	< 0.75	0.75		ug/m3	1	8/28/2013 2:56:00 AM
Acetone	39	7.2		ug/m3	10	8/30/2013 11:17:00 PM
Allyl chloride	< 0.48	0.48		ug/m3	1	8/28/2013 2:56:00 AM
Benzene	0.58	0.49		ug/m3	1	8/28/2013 2:56:00 AM
Benzyl chloride	< 0.88	0.88		ug/m3	1	8/28/2013 2:56:00 AM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	8/28/2013 2:56:00 AM
Bromoform	< 1.6	1.6		ug/m3	1	8/28/2013 2:56:00 AM
Bromomethane	< 0.59	0.59		ug/m3	1	8/28/2013 2:56:00 AM
Carbon disulfide	0.85	0.47		ug/m3	1	8/28/2013 2:56:00 AM
Carbon tetrachloride	0.70	0.26		ug/m3	1	8/28/2013 2:56:00 AM
Chlorobenzene	< 0.70	0.70		ug/m3	1	8/28/2013 2:56:00 AM
Chloroethane	< 0.40	0.40		ug/m3	1	8/28/2013 2:56:00 AM
Chloroform	< 0.74	0.74		ug/m3	1	8/28/2013 2:56:00 AM
Chloromethane	< 0.31	0.31		ug/m3	1	8/28/2013 2:56:00 AM
cis-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 2:56:00 AM
cis-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 2:56:00 AM
Cyclohexane	< 0.52	0.52		ug/m3	1	8/28/2013 2:56:00 AM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	8/28/2013 2:56:00 AM
Ethyl acetate	< 0.92	0.92		ug/m3	1	8/28/2013 2:56:00 AM
Ethylbenzene	< 0.66	0.66		ug/m3	1	8/28/2013 2:56:00 AM
Freon 11	2.1	0.86		ug/m3	1	8/28/2013 2:56:00 AM
Freon 113	< 1.2	1.2		ug/m3	1	8/28/2013 2:56:00 AM
Freon 114	< 1.1	1.1		ug/m3	1	8/28/2013 2:56:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	5
Lab Order:	C1308063	**Tag Number:**	239.386
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-005A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 12	2.2	0.75		ug/m3	1	8/28/2013 2:56:00 AM
Heptane	4.2	0.62		ug/m3	1	8/28/2013 2:56:00 AM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	8/28/2013 2:56:00 AM
Hexane	4.7	0.54		ug/m3	1	8/28/2013 2:56:00 AM
Isopropyl alcohol	< 0.37	0.37		ug/m3	1	8/28/2013 2:56:00 AM
m&p-Xylene	1.1	1.3	J	ug/m3	1	8/28/2013 2:56:00 AM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 2:56:00 AM
Methyl Ethyl Ketone	2.5	0.90		ug/m3	1	8/28/2013 2:56:00 AM
Methyl Isobutyl Ketone	< 1.2	1.2		ug/m3	1	8/28/2013 2:56:00 AM
Methyl tert-butyl ether	< 0.55	0.55		ug/m3	1	8/28/2013 2:56:00 AM
Methylene chloride	< 0.53	0.53		ug/m3	1	8/28/2013 2:56:00 AM
o-Xylene	0.44	0.66	J	ug/m3	1	8/28/2013 2:56:00 AM
Propylene	< 0.26	0.26		ug/m3	1	8/28/2013 2:56:00 AM
Styrene	< 0.65	0.65		ug/m3	1	8/28/2013 2:56:00 AM
Tetrachloroethylene	< 1.0	1.0		ug/m3	1	8/28/2013 2:56:00 AM
Tetrahydrofuran	< 0.45	0.45		ug/m3	1	8/28/2013 2:56:00 AM
Toluene	3.2	0.57		ug/m3	1	8/28/2013 2:56:00 AM
trans-1,2-Dichloroethene	< 0.60	0.60		ug/m3	1	8/28/2013 2:56:00 AM
trans-1,3-Dichloropropene	< 0.69	0.69		ug/m3	1	8/28/2013 2:56:00 AM
Trichloroethene	0.60	0.22		ug/m3	1	8/28/2013 2:56:00 AM
Vinyl acetate	< 0.54	0.54		ug/m3	1	8/28/2013 2:56:00 AM
Vinyl Bromide	< 0.67	0.67		ug/m3	1	8/28/2013 2:56:00 AM
Vinyl chloride	< 0.10	0.10		ug/m3	1	8/28/2013 2:56:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	1
Lab Order:	C1308063	**Tag Number:**	416.405
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-001A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Lab Vacuum In	-25			"Hg		8/23/2013
Lab Vacuum Out	-30			"Hg		8/23/2013
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,1,2,2-Tetrachloroethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,1,2-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,1-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,1-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,2,4-Trichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,2,4-Trimethylbenzene	0.24	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,2-Dibromoethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,2-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,2-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,2-Dichloropropane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,3,5-Trimethylbenzene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,3-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,4-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
1,4-Dioxane	< 0.30	0.30		ppbV	1	8/28/2013 12:25:00 AM
2,2,4-trimethylpentane	0.22	0.15		ppbV	1	8/28/2013 12:25:00 AM
4-ethyltoluene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Acetone	3.0	0.30		ppbV	1	8/28/2013 12:25:00 AM
Allyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Benzene	0.18	0.15		ppbV	1	8/28/2013 12:25:00 AM
Benzyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Bromodichloromethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Bromoform	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Bromomethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Carbon disulfide	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Carbon tetrachloride	< 0.040	0.040		ppbV	1	8/28/2013 12:25:00 AM
Chlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Chloroethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Chloroform	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Chloromethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
cis-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
cis-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Cyclohexane	0.40	0.15		ppbV	1	8/28/2013 12:25:00 AM
Dibromochloromethane	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Ethyl acetate	< 0.25	0.25		ppbV	1	8/28/2013 12:25:00 AM

Qualifiers:				
	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	1
Lab Order:	C1308063	**Tag Number:**	416.405
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-001A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Ethylbenzene	0.24	0.15		ppbV	1	8/28/2013 12:25:00 AM
Freon 11	1.3	0.15		ppbV	1	8/28/2013 12:25:00 AM
Freon 113	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Freon 114	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Freon 12	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Heptane	0.39	0.15		ppbV	1	8/28/2013 12:25:00 AM
Hexachloro-1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Hexane	0.41	0.15		ppbV	1	8/28/2013 12:25:00 AM
Isopropyl alcohol	3.3	0.15		ppbV	1	8/28/2013 12:25:00 AM
m&p-Xylene	0.44	0.30		ppbV	1	8/28/2013 12:25:00 AM
Methyl Butyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 12:25:00 AM
Methyl Ethyl Ketone	1.8	0.30		ppbV	1	8/28/2013 12:25:00 AM
Methyl Isobutyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 12:25:00 AM
Methyl tert-butyl ether	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Methylene chloride	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
o-Xylene	0.16	0.15		ppbV	1	8/28/2013 12:25:00 AM
Propylene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Styrene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Tetrachloroethylene	0.12	0.15	J	ppbV	1	8/28/2013 12:25:00 AM
Tetrahydrofuran	0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Toluene	1.9	0.15		ppbV	1	8/28/2013 12:25:00 AM
trans-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
trans-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Trichloroethene	< 0.040	0.040		ppbV	1	8/28/2013 12:25:00 AM
Vinyl acetate	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Vinyl Bromide	< 0.15	0.15		ppbV	1	8/28/2013 12:25:00 AM
Vinyl chloride	< 0.040	0.040		ppbV	1	8/28/2013 12:25:00 AM
Surr: Bromofluorobenzene	128	70-130		%REC	1	8/28/2013 12:25:00 AM

Qualifiers:	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	2
Lab Order:	C1308063	**Tag Number:**	567.447
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-002A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Lab Vacuum In	-10			"Hg		8/23/2013
Lab Vacuum Out	-30			"Hg		8/23/2013
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,1,2,2-Tetrachloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,1,2-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,1-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,1-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,2,4-Trichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,2,4-Trimethylbenzene	0.55	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,2-Dibromoethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,2-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,2-Dichloroethane	0.81	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,2-Dichloropropane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,3,5-Trimethylbenzene	0.32	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,3-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,4-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
1,4-Dioxane	< 0.30	0.30		ppbV	1	8/28/2013 1:03:00 AM
2,2,4-trimethylpentane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
4-ethyltoluene	0.13	0.15	J	ppbV	1	8/28/2013 1:03:00 AM
Acetone	17	3.0		ppbV	10	8/30/2013 9:30:00 PM
Allyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Benzene	0.22	0.15		ppbV	1	8/28/2013 1:03:00 AM
Benzyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Bromodichloromethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Bromoform	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Bromomethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Carbon disulfide	0.14	0.15	J	ppbV	1	8/28/2013 1:03:00 AM
Carbon tetrachloride	0.10	0.040		ppbV	1	8/28/2013 1:03:00 AM
Chlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Chloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Chloroform	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Chloromethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
cis-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
cis-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Cyclohexane	0.25	0.15		ppbV	1	8/28/2013 1:03:00 AM
Dibromochloromethane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Ethyl acetate	1.4	0.25		ppbV	1	8/28/2013 1:03:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	2
Lab Order:	C1308063	**Tag Number:**	567.447
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-002A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Ethylbenzene	0.24	0.15		ppbV	1	8/28/2013 1:03:00 AM
Freon 11	11	1.5		ppbV	10	8/30/2013 9:30:00 PM
Freon 113	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Freon 114	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Freon 12	0.58	0.15		ppbV	1	8/28/2013 1:03:00 AM
Heptane	0.17	0.15		ppbV	1	8/28/2013 1:03:00 AM
Hexachloro-1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Hexane	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Isopropyl alcohol	12	1.5		ppbV	10	8/30/2013 9:30:00 PM
m&p-Xylene	0.85	0.30		ppbV	1	8/28/2013 1:03:00 AM
Methyl Butyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 1:03:00 AM
Methyl Ethyl Ketone	3.5	0.30		ppbV	1	8/28/2013 1:03:00 AM
Methyl Isobutyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 1:03:00 AM
Methyl tert-butyl ether	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Methylene chloride	0.31	0.15		ppbV	1	8/28/2013 1:03:00 AM
o-Xylene	0.43	0.15		ppbV	1	8/28/2013 1:03:00 AM
Propylene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Styrene	0.31	0.15		ppbV	1	8/28/2013 1:03:00 AM
Tetrachloroethylene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Tetrahydrofuran	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Toluene	1.6	0.15		ppbV	1	8/28/2013 1:03:00 AM
trans-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
trans-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Trichloroethene	0.13	0.040		ppbV	1	8/28/2013 1:03:00 AM
Vinyl acetate	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Vinyl Bromide	< 0.15	0.15		ppbV	1	8/28/2013 1:03:00 AM
Vinyl chloride	< 0.040	0.040		ppbV	1	8/28/2013 1:03:00 AM
Surr: Bromofluorobenzene	105	70-130		%REC	1	8/28/2013 1:03:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	3
Lab Order:	C1308063	**Tag Number:**	481.342
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-003A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Lab Vacuum In	-10			"Hg		8/23/2013
Lab Vacuum Out	-30			"Hg		8/23/2013
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,1,2,2-Tetrachloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,1,2-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,1-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,1-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,2,4-Trichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,2,4-Trimethylbenzene	0.43	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,2-Dibromoethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,2-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,2-Dichloroethane	0.11	0.15	J	ppbV	1	8/28/2013 1:40:00 AM
1,2-Dichloropropane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,3,5-Trimethylbenzene	0.31	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,3-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,4-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
1,4-Dioxane	< 0.30	0.30		ppbV	1	8/28/2013 1:40:00 AM
2,2,4-trimethylpentane	0.16	0.15		ppbV	1	8/28/2013 1:40:00 AM
4-ethyltoluene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Acetone	14	3.0		ppbV	10	8/30/2013 10:05:00 PM
Allyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Benzene	0.34	0.15		ppbV	1	8/28/2013 1:40:00 AM
Benzyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Bromodichloromethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Bromoform	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Bromomethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Carbon disulfide	0.31	0.15		ppbV	1	8/28/2013 1:40:00 AM
Carbon tetrachloride	0.11	0.040		ppbV	1	8/28/2013 1:40:00 AM
Chlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Chloroethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Chloroform	0.12	0.15	J	ppbV	1	8/28/2013 1:40:00 AM
Chloromethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
cis-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
cis-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Cyclohexane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Dibromochloromethane	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Ethyl acetate	< 0.25	0.25		ppbV	1	8/28/2013 1:40:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	3
Lab Order:	C1308063	**Tag Number:**	481.342
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-003A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Ethylbenzene	0.23	0.15		ppbV	1	8/28/2013 1:40:00 AM
Freon 11	15	1.5		ppbV	10	8/30/2013 10:05:00 PM
Freon 113	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Freon 114	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Freon 12	0.54	0.15		ppbV	1	8/28/2013 1:40:00 AM
Heptane	2.1	0.15		ppbV	1	8/28/2013 1:40:00 AM
Hexachloro-1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Hexane	4.0	0.15		ppbV	1	8/28/2013 1:40:00 AM
Isopropyl alcohol	20	1.5		ppbV	10	8/30/2013 10:05:00 PM
m&p-Xylene	0.80	0.30		ppbV	1	8/28/2013 1:40:00 AM
Methyl Butyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 1:40:00 AM
Methyl Ethyl Ketone	1.0	0.30		ppbV	1	8/28/2013 1:40:00 AM
Methyl Isobutyl Ketone	0.44	0.30		ppbV	1	8/28/2013 1:40:00 AM
Methyl tert-butyl ether	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Methylene chloride	0.39	0.15		ppbV	1	8/28/2013 1:40:00 AM
o-Xylene	0.44	0.15		ppbV	1	8/28/2013 1:40:00 AM
Propylene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Styrene	0.25	0.15		ppbV	1	8/28/2013 1:40:00 AM
Tetrachloroethylene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Tetrahydrofuran	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Toluene	1.1	0.15		ppbV	1	8/28/2013 1:40:00 AM
trans-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
trans-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Trichloroethene	0.11	0.040		ppbV	1	8/28/2013 1:40:00 AM
Vinyl acetate	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Vinyl Bromide	< 0.15	0.15		ppbV	1	8/28/2013 1:40:00 AM
Vinyl chloride	< 0.040	0.040		ppbV	1	8/28/2013 1:40:00 AM
Surr: Bromofluorobenzene	109	70-130		%REC	1	8/28/2013 1:40:00 AM

Qualifiers:				
	**	Reporting Limit	.	Results reported are not blank corrected
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	4
Lab Order:	C1308063	**Tag Number:**	138.390
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-004A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Lab Vacuum In	-10			"Hg		8/23/2013
Lab Vacuum Out	-30			"Hg		8/23/2013
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,1,2,2-Tetrachloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,1,2-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,1-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,1-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,2,4-Trichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,2,4-Trimethylbenzene	0.39	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,2-Dibromoethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,2-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,2-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,2-Dichloropropane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,3,5-Trimethylbenzene	0.13	0.15	J	ppbV	1	8/28/2013 2:19:00 AM
1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,3-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,4-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
1,4-Dioxane	< 0.30	0.30		ppbV	1	8/28/2013 2:19:00 AM
2,2,4-trimethylpentane	0.21	0.15		ppbV	1	8/28/2013 2:19:00 AM
4-ethyltoluene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Acetone	4.5	0.60		ppbV	2	8/30/2013 10:42:00 PM
Allyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Benzene	0.18	0.15		ppbV	1	8/28/2013 2:19:00 AM
Benzyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Bromodichloromethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Bromoform	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Bromomethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Carbon disulfide	0.25	0.15		ppbV	1	8/28/2013 2:19:00 AM
Carbon tetrachloride	< 0.040	0.040		ppbV	1	8/28/2013 2:19:00 AM
Chlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Chloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Chloroform	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Chloromethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
cis-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
cis-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Cyclohexane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Dibromochloromethane	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Ethyl acetate	< 0.25	0.25		ppbV	1	8/28/2013 2:19:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	4
Lab Order:	C1308063	**Tag Number:**	138.390
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-004A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Ethylbenzene	0.26	0.15		ppbV	1	8/28/2013 2:19:00 AM
Freon 11	3.4	0.30		ppbV	2	8/30/2013 10:42:00 PM
Freon 113	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Freon 114	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Freon 12	0.13	0.15	J	ppbV	1	8/28/2013 2:19:00 AM
Heptane	1.2	0.15		ppbV	1	8/28/2013 2:19:00 AM
Hexachloro-1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Hexane	1.9	0.15		ppbV	1	8/28/2013 2:19:00 AM
Isopropyl alcohol	5.6	0.30		ppbV	2	8/30/2013 10:42:00 PM
m&p-Xylene	0.58	0.30		ppbV	1	8/28/2013 2:19:00 AM
Methyl Butyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 2:19:00 AM
Methyl Ethyl Ketone	0.60	0.30		ppbV	1	8/28/2013 2:19:00 AM
Methyl Isobutyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 2:19:00 AM
Methyl tert-butyl ether	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Methylene chloride	0.17	0.15		ppbV	1	8/28/2013 2:19:00 AM
o-Xylene	0.28	0.15		ppbV	1	8/28/2013 2:19:00 AM
Propylene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Styrene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Tetrachloroethylene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Tetrahydrofuran	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Toluene	1.4	0.15		ppbV	1	8/28/2013 2:19:00 AM
trans-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
trans-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Trichloroethene	< 0.040	0.040		ppbV	1	8/28/2013 2:19:00 AM
Vinyl acetate	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Vinyl Bromide	< 0.15	0.15		ppbV	1	8/28/2013 2:19:00 AM
Vinyl chloride	< 0.040	0.040		ppbV	1	8/28/2013 2:19:00 AM
Surr: Bromofluorobenzene	122	70-130		%REC	1	8/28/2013 2:19:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Date: *08-Sep-13*

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	5
Lab Order:	C1308063	**Tag Number:**	239.386
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-005A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Lab Vacuum In	-10			"Hg		8/23/2013
Lab Vacuum Out	-30			"Hg		8/23/2013
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,1,2,2-Tetrachloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,1,2-Trichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,1-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,1-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,2,4-Trichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,2,4-Trimethylbenzene	0.16	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,2-Dibromoethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,2-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,2-Dichloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,2-Dichloropropane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,3,5-Trimethylbenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,3-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,4-Dichlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
1,4-Dioxane	< 0.30	0.30		ppbV	1	8/28/2013 2:56:00 AM
2,2,4-trimethylpentane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
4-ethyltoluene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Acetone	16	3.0		ppbV	10	8/30/2013 11:17:00 PM
Allyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Benzene	0.18	0.15		ppbV	1	8/28/2013 2:56:00 AM
Benzyl chloride	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Bromodichloromethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Bromoform	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Bromomethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Carbon disulfide	0.27	0.15		ppbV	1	8/28/2013 2:56:00 AM
Carbon tetrachloride	0.11	0.040		ppbV	1	8/28/2013 2:56:00 AM
Chlorobenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Chloroethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Chloroform	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Chloromethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
cis-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
cis-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Cyclohexane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Dibromochloromethane	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Ethyl acetate	< 0.25	0.25		ppbV	1	8/28/2013 2:56:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

CLIENT:	CanAm Environmental Safety	**Client Sample ID:**	5
Lab Order:	C1308063	**Tag Number:**	239.386
Project:	MAXIMUS	**Collection Date:**	8/20/2013
Lab ID:	C1308063-005A	**Matrix:**	AIR

Analyses	Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Ethylbenzene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Freon 11	0.37	0.15		ppbV	1	8/28/2013 2:56:00 AM
Freon 113	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Freon 114	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Freon 12	0.44	0.15		ppbV	1	8/28/2013 2:56:00 AM
Heptane	1.0	0.15		ppbV	1	8/28/2013 2:56:00 AM
Hexachloro-1,3-butadiene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Hexane	1.3	0.15		ppbV	1	8/28/2013 2:56:00 AM
Isopropyl alcohol	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
m&p-Xylene	0.25	0.30	J	ppbV	1	8/28/2013 2:56:00 AM
Methyl Butyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 2:56:00 AM
Methyl Ethyl Ketone	0.84	0.30		ppbV	1	8/28/2013 2:56:00 AM
Methyl Isobutyl Ketone	< 0.30	0.30		ppbV	1	8/28/2013 2:56:00 AM
Methyl tert-butyl ether	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Methylene chloride	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
o-Xylene	0.10	0.15	J	ppbV	1	8/28/2013 2:56:00 AM
Propylene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Styrene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Tetrachloroethylene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Tetrahydrofuran	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Toluene	0.83	0.15		ppbV	1	8/28/2013 2:56:00 AM
trans-1,2-Dichloroethene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
trans-1,3-Dichloropropene	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Trichloroethene	0.11	0.040		ppbV	1	8/28/2013 2:56:00 AM
Vinyl acetate	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Vinyl Bromide	< 0.15	0.15		ppbV	1	8/28/2013 2:56:00 AM
Vinyl chloride	< 0.040	0.040		ppbV	1	8/28/2013 2:56:00 AM
Surr: Bromofluorobenzene	104	70-130		%REC	1	8/28/2013 2:56:00 AM

Qualifiers:

**	Reporting Limit	.	Results reported are not blank corrected
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

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proclaims that

David George Duford

having met all requirements of
education, experience and examination, and
ongoing maintenance,
is hereby certified in the

COMPREHENSIVE PRACTICE
of
INDUSTRIAL HYGIENE

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH

Certificate Number	7322 CP
Awarded:	June 25, 1997
Expiration Date:	December 1, 2017

Chair ABIH

Lynn C. O'Donnell
Executive Director ABIH