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

Soil Gas Sampling Work Plan
NYSDEC Site #828159A

Location:

691 and 705 Saint Paul Street
Rochester, New York

Prepared for:

Bausch & Lomb
1400 North Goodman Street
Rochester, New York 14609

LaBella Project No. 2170436

January 30, 2017

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
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February 28, 2017

Frank Chiappone
Bausch & Lomb
1400 North Goodman Street
Rochester, NY 14609

Dear Mr. Chiappone:

Subject: **690 St. Paul Street Off-Site, Site #C828159A**
Soil Gas Sampling Work Plan
January 30, 2017
691 and 705 Saint Paul Street
City of Rochester, Monroe County

The New York State Departments of Environmental Conservation and Health, collectively referred to as the Departments, have completed their review of the document entitled "*Soil Gas Sampling Work Plan"* (the Work Plan) dated January 30, 2017 for the 690 Saint Paul Street site located in the City of Rochester. In accordance with 6 NYCRR Part 375-1.6, the Departments have determined that the Work Plan, with modifications and clarifications, substantially addresses the requirements of the Order-on-Consent. The modifications are outlined as follows:

1. Section 2: The objective of this phase of the investigation is to provide the Departments with sufficient information for the Departments to determine if soil vapor intrusion sampling is needed in either building. The Departments anticipate requiring soil vapor intrusion sampling in both buildings. Additionally, the results are not expected to provide any information with respect to the sub-basement level of 691 Saint Paul.

2. Section 2: The sample results will not be used to evaluate risk to human health. Similarly the term "elevated levels" has no meaning as there are no comparison values for soil vapor sample results.

3. Section 4.1 B: The sample points in the Work Plan are "soil vapor" points not "soil vapor intrusion" points. A "soil vapor intrusion" point consists of all of the following samples collected at the same time: a sub-slab soil vapor sample; an indoor air sample collected from the same location; and an outdoor air sample. The Departments will determine if soil vapor intrusion sampling is needed in either building.

4. Section 4.1 C: The soil vapor sample points will be the deeper of a) 5 feet below ground surface or b) the depth of the bottom of the building slab.

5. Section 7: Preliminary results will be sent to the Departments upon receipt.

6. If the Departments determine that soil vapor intrusion sampling is needed, Bausch & Lomb will make a good faith effort to complete the sampling during the current heating season.

With the understanding that the above noted modifications are agreed to, the Work Plan is hereby approved.

The Departments understand that field activities are scheduled to start on Wednesday March 1, 2017. Please notify me if there are any changes to the schedule.

Thank you for your continued cooperation in this matter and please contact me at 585-226-5357 if you have questions.

Sincerely,

Frank Sowers

Frank Sowers, P.E.
Environmental Engineer 2

ec:
Dan Noll
Bridget Boyd
Dennis Harkawick
John Frazer
Bernette Schilling
Jennifer Gillen
Wade Silkworth
Amy Butler

Table of Contents

Figures

Appendices

1.0 INTRODUCTION

LaBella Associates, D.P.C. ("LaBella") is pleased to submit this Soil Gas Sampling Work Plan (Work Plan) on behalf of Bausch & Lomb (B&L) as part of the investigation activities for New State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site #C828159A located at 691 and 705 Saint Paul Street, City of Rochester, Monroe County, New York, herein after referred to as the "Site". A Site Location Map is included as Figure 1.

B&L intends to implement a soil gas and analysis study for the Site, which is across from the 690 Saint Paul Street NYSDEC BCP Site #C828159A. The objective of the Work Plan is to assess soil gas for contaminants in the Right-of-Way (ROW) to the east of the 691 and 705 Saint Paul Street properties that may have migrated from two chlorinated solvent plumes associated with the 690 Saint Paul Street NYSDEC BCP site.

1.1 Site Description

The Site is located directly across the NYSDEC BCP site #C828159 known as 690 Saint Paul Street. The 691 Saint Paul Street property is presently used as commercial office space by Monroe County Social Services Department and the 705 Saint Paul Street property is presently used as manufacturing by Richardson Gratings. Each property is improved with one building as outlined in Table 1.1 below.

TABLE 1.1

	691 Saint Paul Street	705 Saint Paul Street
Acreage of Site	2.94	0.82
Approximate Building Footprint (square feet)	30,630	10,627
Foundation Type	Basement	Unknown
Construction Date	1920	1930
Current Use	Commercial office space	Manufacturing

The location of each property is shown on Figure 2.

1.2 Environmental Summary of NYSDEC 690 Saint Paul Street BCP Site #C828159

The 690 Saint Paul Street BCP site was developed prior to 1875 and was utilized primarily for residential purposes prior to approximately the 1920s. Based on the review of historical mapping and local street directories, the BCP site was primarily utilized for industrial purposes by Bausch & Lomb, Inc., formerly known as Bausch & Lomb Optical Company ("B&L") from sometime around 1920 until it was abandoned by the company in the late 1960s. The property was developed for industrial use by B&L to manufacture lenses and other products. From the early 1970s until 2000, the BCP site was used predominantly for light commercial and storage applications. Occupants and/or owners of the Site have included various individual residences, B&L, Thomas Edison Technical and Industrial High School, Geva Theater storage, and various manufacturing and industrial tenants.

Prior uses of the BCP site appeared to have led to site contamination include underground storage tanks (USTs) that may have leaked. These tanks appear to have contained chlorinated solvents including trichloroethene (TCE) and petroleum products including gasoline and fuel oil. In 2002, a 500-gallon UST was removed from the site and contaminated soil was encountered. In 2008, a Phase II Environmental Site Assessment (ESA) was performed to evaluate subsurface soil and groundwater. The Phase II ESA identified an area of petroleum contaminated soil. The investigation was followed by the excavation of approximately 1,650 cubic yards of petroleum impacted soil and a previously undocumented UST. TCE was identified in confirmation samples in soil and ground and thus the 690 Saint Paul Street site was entered into the BCP. A Remedial Investigation (RI) conducted through the BCP identified eight (8) Areas of Concern that related to elevated concentrations of metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons, petroleum products, and/or chlorinated solvents. The areas of concern related to this Work Plan are two groundwater chlorinated solvent plumes that were identified to have migrated off the BCP site to the west and toward the Site as shown on Figure 2.

1.3 Work Plan Organization

The scope of work for the soil gas sampling activities in this Work Plan has been organized into the following sections:

- Section 2.0 Objective and Scope
- Section 3.0 Summary of Local Subsurface Geologic Conditions
- Section 4.0 Soil Gas Sampling Work Plan
- Section 5.0 Quality Control Plan
- Section 6.0 Health and Safety and Community Air Monitoring Plan
- Section 7.0 Schedule and Reporting

2.0 OBJECTIVE AND RATIONALE

The purpose of the this investigation is to determine whether volatile organic compounds (VOCs) are present in the subsurface gas at elevated levels within the 691 and 705 Saint Paul Street ROW. Soil gas sampling provides a means of detecting VOC contamination in the subsurface, and may identify the extent and movement of contaminants from the chlorinated solvent plumes at the BCP site.

Humans can be potentially exposed to contaminated soil vapor in indoor air, when contaminated vapors are present in the area directly next to or under a building. Soil gas sampling is a method used to gather data to assess potential vapor intrusion to indoor air and evaluate the resulting risk to human health. If sufficient VOC contamination is detected, additional sampling may be warranted subsequent to the investigation.

3.0 SUMMARY OF LOCAL SUBSURFACE GEOLOGIC CONDITIONS

This section relies upon information obtained from the 690 Saint Paul Street NYSDEC BCP site environmental investigations. The overburden material ranges in depth up to approximately 12 feet (ft) below the ground surface (bgs) and consists primarily of glacial till. Fill material is anticipated to overly the till and may consist of sand, gravel, cinders, and ash.

The Decew Dolomite underlies the overburden material. The Decew Dolomite is the uppermost formation of the Clinton Group and consists of variably bedded, dark-gray to olive-gray, argillaceous to sandy, fine-grained dolomite that contains shaly partings and interbeds, as well as frequent pits and vugs. The thickness of this unit is generally 8 to 12 ft.

The Rochester Shale underlies the Decew Dolomite, and is a relatively uniform dark- to medium-gray, pale- and platy-weathering, highly calcareous to dolomitic mudstone. It contains abundant thin interbeds of medium gray, pale-buff weathering, laminated calcisiltites. Its thickness in Western New York is generally 58 to 65 ft.

The overburden groundwater table at the BCP site ranged from 4 to 9 ft bgs in the southern portion of the site and 8 to 10 ft bgs in the northern portion of the site. The overburden groundwater and flows generally to the west-southwest.

The shallow bedrock water-bearing interval was identified as the uppermost bedrock down to depths of approximately 20 ft bgs. This interval is the uppermost water-bearing unit within the bedrock, and no low permeability horizon separates this zone from the overburden. Groundwater flow direction is generally to the west, and water elevations in the overburden and bedrock wells suggest a downward flow direction.

4.0 SOIL GAS SAMPLING WORK PLAN

Soil gas sampling will be completed in accordance with New York State Department of Health (NYSDOH) *Guidance for Evaluating Soil Vapor Intrusion in New York State* (October 2006). A description of the soil gas probe installation and sampling procedures are provided below.

4.1 Soil Gas Probe Installation

The following procedures will be conducted to install the soil gas probes:

A. A *Dig Safely New York* stakeout will be initiated at the Site to locate subsurface utilities in the areas where the soil gas point installation will take place.

B. Soil vapor intrusion points will be installed at a total of four (4) locations. Specifically, the following installation locations are planned as shown on Figure 2:

- two (2) locations completed adjacent to 705 Saint Paul Street which is downgradient from the northern 690 Saint Paul Street chlorinated solvent groundwater plume; and,

- two (2) locations completed adjacent to 691 Saint Paul Street which is downgradient of the southern 690 Saint Paul Street chlorinated solvent groundwater plume.

The locations of the samples are shown on Figure 2 and may be moved due to the presence of underground utilities or other obstructions.

C. Soil gas collection points will be installed using direct-push technology. A porous, inert backfill material (e.g., glass beads or coarse sand) will be used to create a sampling zone of 1 to 2 ft in length. The soil gas sampling points will be constructed of inert tubing (e.g., polyethylene, stainless steel, or Teflon®) of the appropriate size (typically 1/8 inch to 1/4 inch diameter) and of laboratory or food grade quality to the surface. The soil vapor probes will be sealed above the sampling zone with a minimum 1 ft of bentonite slurry. In addition, the sampling zone will be a minimum of 5 ft bgs in order to minimize outdoor air infiltration. Soil gas points may be installed at depths less than 5 feet depending equipment refusal or the presence of groundwater. The remainder of the borehole will be backfilled with clean material. Soil gas sampling points will be finished with protective casings that are grouted in place to minimize infiltration of water or outdoor air and to prevent damage to the soil gas point.

D. Subsequent to installation, the probes will be allowed to equilibrate at a minimum of 24 hours prior to purging and sampling. Initially, one to three probe volumes (i.e., the volume of the sample probe and tube/riser pipe) will be purged in order to ensure that the samples collected are representative of soil gas conditions. The flow rate during purging will not exceed 0.2 liters per minute (L/min) to minimize outdoor air infiltration.

E. During purging of the sample point, a tracer gas evaluation will be conducted to verify the integrity of the soil gas probe seal. Helium will be used as the tracer gas. An enclosure will be constructed around the soil gas sampling point (e.g., plastic bag, plastic bucket, etc.) and sealed to the sample point casing or surrounding concrete. 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 the tracer gas in at least percentage increments). In the event that the tracer gas is detected at a concentration of 10% or greater, the sample point will be resealed and retested prior to sampling.

4.2 Soil Gas Sampling and Analysis

The following procedures will be conducted to collect soil samples:

A. Soil gas samples will be collected over the same general time period and in the same manner at all locations to minimize possible discrepancies. Soil gas samples will be collected using 1 Liter Summa Canisters® equipped with flow control regulators. The regulators will be calibrated by the laboratory for a sampling time of approximately 8 hours. The Summa Canister will be connected to the soil gas sampling point via inert tubing (e.g., polyethylene, stainless steel, or Teflon®).

B. In addition to the soil gas samples, one exterior ambient air sample will also be collected from the apparent upwind location. The ambient air sample will be collected from about 3 to 4 ft above the ground using a Summa Canister over the same approximate sampling period.

C. Subsequent to completing soil gas sampling, the samples will be sent under chain of custody control to a NYSDOH Environmental Laboratory Approval Program certified laboratory for testing. The samples will be tested for a specific list of VOCs using United States Environmental Protection Agency Method TO-15. This list is warranted based on the known contaminants of concern emanating from the 690 Saint Paul Street BCP site and the extensive amount of testing documenting the contaminants of concern. Targeted VOCs and their associated laboratory detection limits include:

Targeted VOCs	Laboratory Detection Limit ($\mu g/m^3$)
TCE	0.25
cis-1,2-dichloroethene	1.0
trans-1,2-dichloroethene	1.0
vinyl chloride	0.25
1,1-Dichloroethene	1.0
chloroethane	1.0

$\mu g/m^3$ denotes micrograms per cubic meter

5.0 QUALITY CONTROL PLAN

Activities completed at the Site will be managed under LaBella's Quality Control Program, which is included in Appendix A. Soil gas sampling will include the collection of a sample duplicate and a matrix spike/matrix spike duplicate (MS/MSD) as part of the quality assurance/quality control plan. In addition, a NYSDEC Analytical Services Protocol (ASP) Category B data deliverable will be generated by the laboratory and a data usability summary report (DUSR) will be developed for the Category B deliverable. 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 HEALTH AND SAFETY AND COMMUNITY AIR MONITORING PLAN

A site-specific Health and Safety Plan (HASP) has been prepared for the field work described in this Work Plan. This HASP is included in Appendix B. All LaBella personnel will be required to follow the procedures in the HASP. Subcontractors, will have access to a copy of the HASP, however, they are responsible to provide their own safety procedures and monitoring for their own personnel.

Community air monitoring will be conducted in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP). A copy of the NYSDEC Generic CAMP is included in Appendix C and will be followed during all applicable field work activities.

7.0 SCHEDULE AND REPORTING

7.1 Schedule

An estimated schedule is provided in Table 7.1 below, and is based on the date the Soil Gas Work Plan is approved by the NYSDEC.

TABLE 7.1
Anticipated Schedule

Task	Duration
Install Soil Gas Points and Collect Soil Gas Samples	2 weeks
Analysis of Soil Gas Samples	1.5 weeks
Data Usability Summary Report	1.5 weeks
Soil Gas Sampling Report	1.5 weeks
Estimated Duration:	6.5 weeks

7.2 Reporting

A final report will be prepared presenting the results of the investigation. The report will include field documentation and observations, and summary tables for the analytical data obtained from the soil gas samples during the investigation. Supporting documentation will include soil gas point installation logs, laboratory reports and chains of custody, the DUSR, figure showing sampling locations, and community air monitoring logs. In addition, and electronic data deliverable will be provided subsequent to the validation of the data.

Based on the investigation findings, recommendations will be made, as appropriate for any additional further assessment of potential soil gas issues, if any.

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FIGURES

Legend

691 and 705 St. Paul Street

NOTE: Property boundary is approximate.
1971 topographic Map obtained from the United States Geological Survey (USGS).

I:\Barzotti Woodworking, Inc\213211 - 1445 Jefferson Rd, Phase II, ESA\Drawings\Figure2.mxd

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SITE LOCATION MAP

SOIL GAS SAMPLING WORK PLAN

BROWNFIELD CLEANUP PROGRAM SITE #C828159A

691 AND 705 SAINT PAUL ST ROCHESTER, NEW YORK

CLIENT: BAUSCH & LOMB

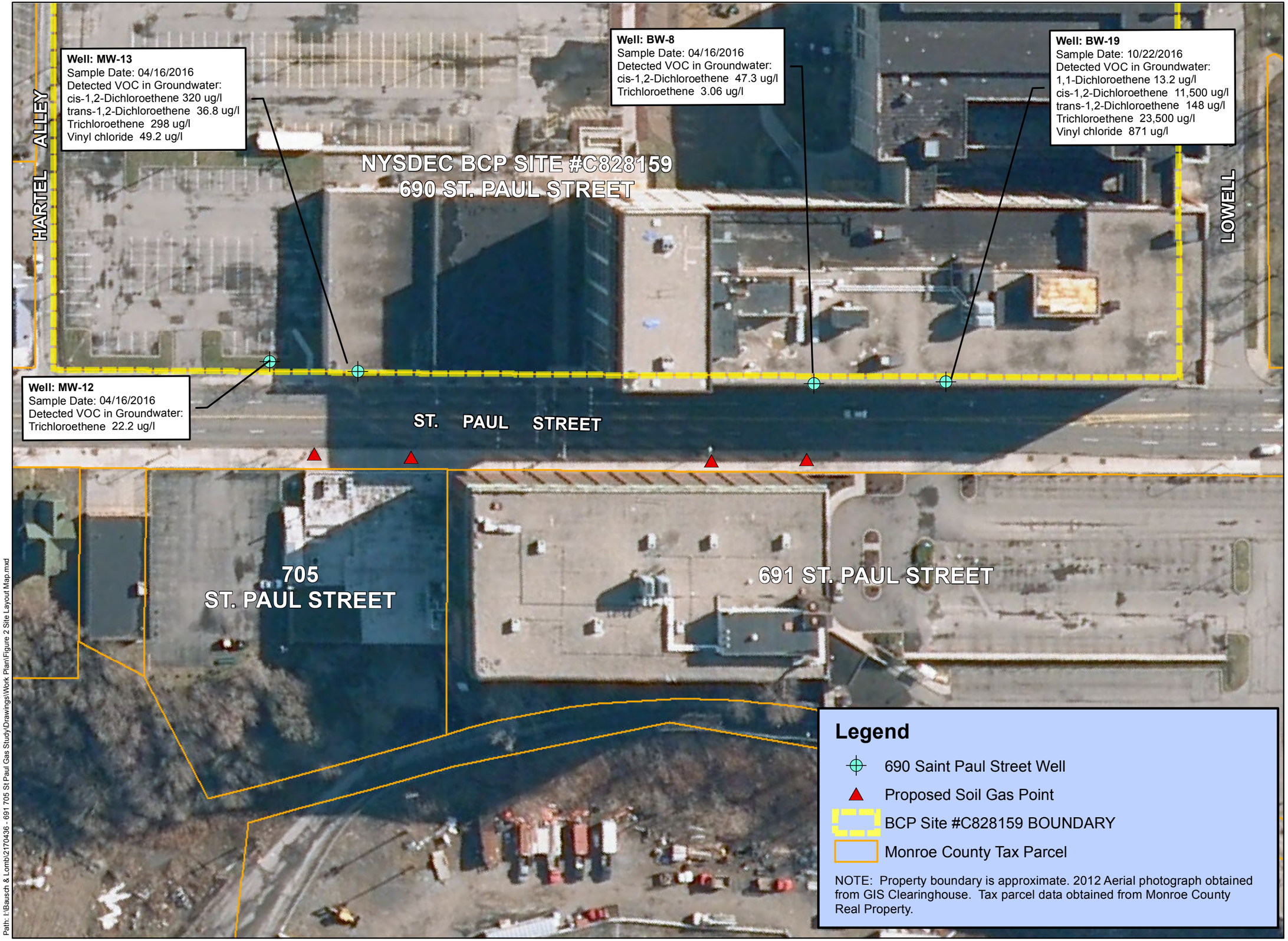
N
W E
S

250 0 1,000

1 inch = 1,000 feet

2170346

FIGURE 1



Path: I:\Bausch & Lomb\2170436 - 691 705 St Paul Gas Study\Drawings\Work Plan\Figure 2 Site Layout Map.mxd

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PROPOSED SOIL GAS POINT INSTALLATION LOCATIONS

SOIL GAS SAMPLING WORK PLAN

BROWNFIELD CLEANUP PROGRAM #C828159A

691 AND 705 SAINT PAUL ST ROCHESTER, NEW YORK

CLIENT: BAUSCH & LOMB

N E S W

0 15 30 60 Feet

1 inch = 60 feet

2170436

FIGURE 2

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

APPENDIX A

QUALITY CONTROL PLAN

LABELLA Associates, D.P.C.
Engineering
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Quality Control Plan (QCP)
NYSDEC Site #828159A

Location:

691 and 705 Saint Paul Street
Rochester, New York

Prepared for:

Bausch & Lomb
1400 North Goodman Street
Rochester, New York 14609

LaBella Project No. 2170436

January 30, 2017

Table of Contents

TABLE OF CONTENTS

Continued

1.0 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 Soil Gas Sampling Work Plan (SGS) Work Plan may have project specific details that will differ from the procedures in this QC program. In such cases, the SGS Work Plan should be followed (subsequent to regulatory approval).

2.0 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 SGS 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.

3.0 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.

4.0 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.

5.0 INSTALLATION PROCEDURES

5.1 Soil Gas Points

Soil gas points will be installed using a Geoprobe® or similar direct-push sampling system. Prior to the installation work an underground utility stakeout will be initiated at the Site to locate subsurface utilities in the areas where the subsurface investigation will take place.

A porous, inert backfill material (e.g., glass beads or coarse sand) will be used to create a sampling zone of 1 to 2 feet in length. The soil gas sampling points will be constructed of inert tubing (e.g., polyethylene, stainless steel, or Teflon®) of the appropriate size (typically 1/8 inch to 1/4 inch diameter) and of laboratory or food grade quality to the surface. The soil vapor probes will be sealed above the sampling zone with a minimum 1 foot bentonite slurry. In addition, the sampling zone will be a minimum of 5 feet below the ground surface in order to minimize outdoor air infiltration. Soil gas points may be installed at depths less than 5 feet depending equipment refusal or the presence of groundwater. The remainder of the borehole will be backfilled with clean material. Soil gas sampling points will be finished with protective casings that are grouted in place to minimize infiltration of water or outdoor air and to prevent damage to the soil gas point.

6.0 SAMPLING PROCEDURES

6.1 Soil Gas Sampling

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, Update V, dated August 2015 and New York State Department of Health's *Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006*.

After the installation of the sampling probes, the probes will be allowed to equilibrate for a minimum of 24 hours prior to purging and sampling. One to three probe volumes (i.e., the volume of the sample probe and tube/riser pipe) will then be purged in order to ensure that the samples collected are representative of soil gas conditions. The flow rate during purging will not exceed 0.2 liters per minute (L/min) to minimize outdoor air infiltration.

During purging of the sample point, a tracer gas evaluation will be conducted to verify the integrity of the soil gas probe seal. Helium will be used as the tracer gas. An enclosure will be constructed around the soil gas sampling point (e.g., plastic bag, plastic bucket, etc.) and sealed to the sample point casing or surrounding concrete. 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 the tracer gas in at least percentage increments). In the event that the tracer gas is detected at a concentration of 10% or greater, the sample point will be resealed and retested prior to sampling.

To obtain representative samples and to minimize possible discrepancies, soil vapor samples should be collected in the following manner at all locations:

- The protective brass plug from each canister will be removed and the pre-calibrated flow controller will be connected to the canister. The canister will be connected to the soil gas sampling probe via inert tubing (e.g., polyethylene, stainless steel, or Teflon®).
- The identification numbers for the canisters and flow controllers will be recorded along with the. initial canister pressures on the vacuum gauge. Canisters with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling.
- The flow controller valve will be completely opened and the time that the valve was opened (beginning of sampling) will be recorded.
- Sample collection will be stopped after the scheduled duration of sample collection (approximately 8 hours) and care will be taken to make sure that the canister still has a minimum amount of vacuum remaining. If there is no vacuum remaining, the sample will be rejected and should be collected again in a new canister.
- The final vacuum pressure will be recorded and the flow controller valve will be closed completely. The date and time sample collection was stopped will be recorded.
- The flow controller from the canister will be removed and the protective brass plugs will be replaced.
- Labels/tags (sample name, time/date of sampling, etc.) will be attached to the canisters as directed by the laboratory and placed in the packaging provided by the laboratory.
- The information required for each sample will be entered on the chain of custody form. Copies of the chain-of-custody form will be included in the shipping packaging, as directed by the laboratory. The field manager will retain a copy of the chain of custody for the project file.
- The samples will be shipped to the laboratory within one business day of sample collection via overnight delivery.
- In addition to the soil gas samples, one exterior ambient air sample will also be collected from the apparent upwind location. The ambient air sample will be collected from about 3 to 4 ft above the ground using a Summa Canister over the same approximate sampling period.

In some cases, weather conditions may present certain limitations on soil vapor sampling. When soil vapor samples are collected, the following actions will be taken to document local conditions during sampling that may influence interpretation of the results:

- Weather conditions (e.g., precipitation and outdoor temperature) should be noted for the past 24 to 48 hours; and
- Any pertinent observations should be recorded, such as odors and readings from field instrumentation.

7.0 SURVEYING

Coordinates and elevations will be established for each soil gas sampling point. 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.

8.0 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. The sampling device will be decontaminated according to procedures outlined in the Decontamination section of this document. Recovered soil 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.

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.

9.0 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;
- 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

10.0 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.

11.0 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
Soil Gas Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Maximum Holding Time
Volatile Organics via USEPA Method TO-15	Summa Canister, 6 Liter	One (1), fill as regulator allows	Keep away from sunlight	30 days

* Holding time is based on the times from verified time of sample receipt at the laboratory.

12.0 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.

13.0 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.

13.1 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.

13.2 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.

13.3 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.

13.4 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.

13.5 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.

13.6 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.

14.0 DOCUMENTATION

14.1 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.

14.2 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.

15.0 CORRECTIONS TO DOCUMENTATION

15.1 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.

15.2 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.

15.3 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

16.0 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.

16.1 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.

16.2 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.

16.3 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.

17.0 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.

18.0 FIELD INSTRUMENTATION

18.1 Photovac/MiniRae Photoionization Detector (PID)

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

18.2 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.

18.3 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:

18.4 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 SGS, 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.

18.5 Field Duplicates

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

18.6 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.

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

APPENDIX B

HEALTH AND SAFETY PLAN

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

Site Health and Safety Plan

Location:

691 and 705 Saint Paul Street
Rochester, New York 14605

Prepared For:

Bausch & Lomb
1400 N. Goodman Street
Rochester, New York 14609

LaBella Project No. 2170436

January 2017

Site Health and Safety Plan

Location:

691 and 705 Saint Paul Street
Rochester, New York 14605

Prepared For:

Bausch & Lomb
1400 N. Goodman Street
Rochester, New York 14609

LaBella Project No. 2170436

January 2017

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

Table of Contents

Page

SITE HEALTH AND SAFETY PLAN

Project Title:	691 and 705 Saint Paul Street Soil Gas Study
Project Number:	2170436
Project Location (Site):	691 and 705 Saint Paul Street, Rochester, New York 14605-1742
Environmental Director:	Gregory Senecal, CHMM
Project Manager:	Dan Noll, P.E.
Plan Review Date:	_____
Plan Approval Date:	_____
Plan Approved By:	_____ Mr. Richard Rote, CIH
Site Safety Supervisor:	Ben Stracuzzi
Site Contact:	To Be Determined
Safety Director:	Rick Rote, CIH
Proposed Date(s) of Field Activities:	To Be Determined
Site Conditions:	Slightly sloping, encompassing approximately 3.74 acres
Site Environmental Information Provided By:	Interim SMP for 690 St. Paul (NYSDEC Site Code #: C828159) prepared by LaBella Associates, D.P.C., dated March 2013
Air Monitoring Provided By:	LaBella Associates, D.P.C.
Site Control Provided By:	Contractor(s)

EMERGENCY CONTACTS

	Name	Phone Number
Ambulance:	As Per Emergency Service	911
Hospital Emergency:	Rochester General Hospital	585-922-4000
Poison Control Center:	Finger Lakes Poison Control	585-273-4621
Police (local, state):	Monroe County Sheriff	911
Fire Department:	Rochester Fire Department	911
Site Contact:	Frank Chiappone	
Agency Contact:	NYSDEC – Frank Sowers, P.E. NYSDOH – Justin Deming Finger Lakes Poison Control MCDOH – Jeff Kosmala	585-226-5357 518-402-7860 1-800-222-1222 585-753-5904
Environmental Director:	Greg Senecal, CHMM	Direct: 585-295-6243 Cell: 585-752-6480 Home: 585-323-2142
Project Manager:	Dan Noll, P.E.	Direct: 585-295-6611 Cell: 585-301-8458
Site Safety Supervisor:	Ben Stracuzzi	Direct: 585-295-6694 Cell: 607-240-9699
Safety Director	Rick Rote, CIH	Direct: 704-941-2123

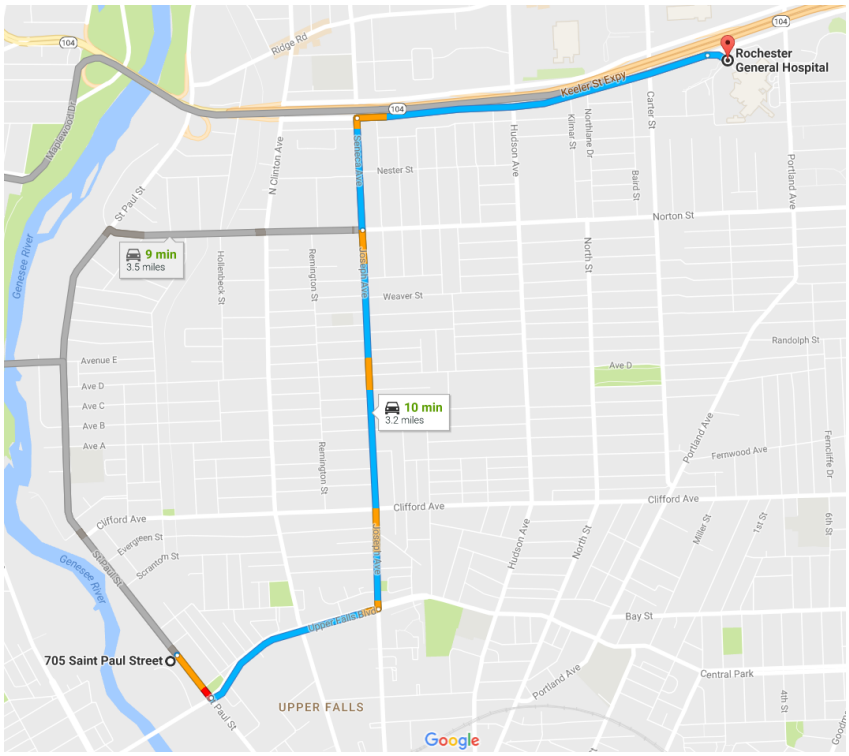
MAP AND DIRECTIONS TO THE MEDICAL FACILITY - ROCHESTER GENERAL HOSPITAL

Total Time: 10 minutes
Total Distance: 3.20 miles

Start: 691 Saint Paul St, Rochester, NY 14605-1742

START	1: Start out going SOUTHEAST on ST PAUL ST toward LOWELL ST.	0.1 mi
	2: Turn LEFT onto UPPER FALLS BLVD.	0.6 mi
	3: Turn LEFT onto JOSEPH AVE.	1.1 mi
	4: JOSEPH AVE becomes SENECA AVE.	0.3 mi
	5: Turn RIGHT onto RT-104.	1.2 mi
	6: Turn RIGHT onto PORTLAND AVE/CR-114.	0.2 mi
END	7: End at 1425 Portland Ave Rochester, NY 14621-3001	

End: 1425 Portland Ave, Rochester, NY 14621-3001



1.0 Introduction

The purpose of this Health and Safety Plan (HASP) it to provide guidelines for responding to potential health and safety issues that may be encountered during the Soil Gas Point Installation activities at the Site located at 691 and 705 Saint Paul Street in the City of Rochester, Monroe County, New York. This HASP only reflects the policies of LaBella Associates D.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 were developed in general accordance with 29 CFR 1910 and 29 CFR 1926 and do not replace or supersede any regulatory requirements of the USEPA, NYSDEC, OSHA or and other regulatory body.

2.0 Responsibilities

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

3.0 Activities Covered

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

- Management of environmental investigation and remediation activities
- Environmental Monitoring
- Collection of samples
- Management of 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. However, a minimum requirement for work area designation and control will consist of:

- Drilling (Geoprobe/Rotary) – Orange cones to establish at least a 10-foot by 10-foot work area
- Test Pitting – Orange cones and orange temporary fencing to establish at least 10-feet of distance between test pit and fencing.

5.0 Potential Health and Safety Hazards

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

5.1 Hazards Due to Heavy Machinery

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

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

5.2 Excavation Hazards

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

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

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

Personnel should exercise caution near all excavations at the site as it is expected that excavation sidewalls will be unstable. All excavations will be backfilled by the end of each day. Additionally, no test pit will be left unattended during the day.

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

5.3 Cuts, Punctures and Other Injuries

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

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

5.4 Injury Due to Exposure of Chemical Hazards

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

Protective Action:
The presence of organic vapors may be detected by their odor and by monitoring instrumentation. Approved employees will not work in environments where hazardous concentrations of organic vapors are present. Air monitoring (refer to Section 9.0 and to the Modified CAMP in Appendix 7) 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 is 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.

5.6 Potential Exposure to Asbestos

Potential Hazards:
During ground intrusive activities (e.g., test pitting or drilling) soil containing asbestos may be encountered. Asbestos is friable when dry and can be inhaled when exposed to air.

Protective Action:
The presence of asbestos can be identified through visual observation of a white magnesium silicate material. If encountered, work should be halted and a sample of the suspected asbestos should be collected and placed in a plastic sealable bag. This sample should be sent to the asbestos laboratory at LaBella Associates for analysis.

5.7 Potential Exposure to Thorium^{232}

Potential Hazards:
During ground intrusive activities (e.g., test pitting or drilling) soil containing ^{232}Thorium may be encountered. ^{232}Thorium is a radioactive substance and poses an exposure risk to humans once encountered.

Protective Action:
Each ground intrusive testing location will be pre-screened with a Bicron Micro-Rem Radiation Monitor to evaluate for radiation prior to initiating the ground intrusive activities. The measurement will be compared to background levels (collected as specified in the RI Work Plan). In the event that any measurement greater than 2-times the background level are observed then the NYSDEC and LaBella's Safety Director (Rick Rote) will be notified immediately. Ground intrusive work will not proceed unless approved by NYSDEC and/or revised monitoring/health and safety plans are developed and approved by NYSDEC.

In addition to the pre-screening of ground intrusive locations, during the collection of soil from each sampling location, a Ludlum 2241 Radiation Meter with 44-9 Pancake Probe will also be used to screen all soils obtained. The Ludlum measurements will also be as compared to the background level of radiation and should the level of radiation on the soil sample screening exceed 2-times the Site background level, then work should be halted NYSDEC and the LaBella's Safety Director shall be notified immediately (see page ii Emergency Contacts) to evaluate appropriate actions and ground intrusive work will not proceed unless approved by NYSDEC and/or revised monitoring/health and safety plans are developed and approved by NYSDEC.

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 identified in this HASP is only intended to monitor air for workers involved with the RI. Please refer to the Site Specific CAMP for further details on air monitoring at the Site required for protection of the Site occupants and neighboring properties.

The Air Monitor will utilize a photoionization Detector (PID) to screen the ambient air in the work areas for total Volatile Organic Compounds (VOCs), a DustTrak tm Model 8520 aerosol monitor or equivalent for measuring particulates. [*Note: Radiation monitoring requirements are identified in 5.7 above.*] Air monitoring of the work areas will be performed at least every 15 minutes or more often using a PID, and the DustTrak meter.

If sustained PID readings of greater than 10 ppm are recorded in the breathing zone, then either personnel are to leave the work area until satisfactory readings are obtained or approved personnel may re-enter the work areas wearing at a minimum a ½ face respirator with organic vapor cartridges for an 8-hour duration (i.e., upgrade to Level C PPE). Organic vapor cartridges are to be changed after each 8-hours of use or more frequently, if necessary. If PID readings are sustained, in the work area, at levels above 10 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 dust concentrations exceed the upwind concentration by 150 $\mu g/m^3$ (0.15 mg/m^3) consistently for a 10 minute period within the work area or at the downwind location, then LaBella personnel may not re-enter the work area until dust concentrations in the work area decrease below 150 $\mu g/m^3$ (0.15 mg/m^3), which may be accomplished by the construction manager implementing dust control or suppression measures.

10.0 Emergency Action Plan

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

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

11.0 Medical Surveillance

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

12.0 Employee Training

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

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

Table 1
Exposure Limits and Recognition Qualities

Compound	PEL-TWA (ppm)(b)(d)	TLV-TWA (ppm)(c)(d)	STEL	LEL (%)(e)	UEL (%)(f)	IDLH (ppm)(g)(d)	Odor	Odor Threshold (ppm)	Ionization Potential	^{232}Thorium Action Level
Acetone	750	500	NA	2.15	13.2	20,000	Sweet	4.58	9.69	NA
Anthracene	0.2	0.2	NA	NA	NA	NA	Faint aromatic	NA	NA	NA
Benzene	1	0.5	5	1.3	7.9	3000	Pleasant	8.65	9.24	NA
Benzo (a) pyrene (coal tar pitch volatiles)	0.2	0.1	NA	NA	NA	700	NA	NA	NA	NA
Benzo (a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (b) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (k) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	10.88	NA
Carbon Disulfide	20	1	NA	1.3	50	500	Odorless or strong garlic type	0.096	10.07	NA
Chlorobenzene	75	10	NA	1.3	9.6	2,400	Faint almond	0.741	9.07	NA
Chloroform	50	2	NA	NA	NA	1,000	ethereal odor	11.7	11.42	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethylene	200	200	NA	9.7	12.8	400	Acrid	NA	9.65	NA
1,2-Dichlorobenzene	50	25	NA	2.2	9.2		Pleasant		9.07	NA
Ethylbenzene	100	100	NA	1	6.7	2,000	Ether	2.3	8.76	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	50	NA	12	23	5,000	Chloroform-like	10.2	11.35	NA
Naphthalene	10, Skin	10	NA	0.9	5.9	250	Moth Balls	0.3	8.12	NA
n-propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethane	NA	NA	NA	NA	NA	NA	Sweet	NA	NA	NA
Toluene	100	100	NA	0.9	9.5	2,000	Sweet	2.1	8.82	NA
Trichloroethylene	100	50	NA	8	12.5	1,000	Chloroform	1.36	9.45	NA
1,2,4-Trimethylbenzene	NA	25	NA	0.9	6.4	NA	Distinct	2.4	NA	NA
1,3,5-Trimethylbenzene	NA	25	NA	NA	NA	NA	Distinct	2.4	NA	NA
Vinyl Chloride	1	1	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (o,m,p)	100	100	NA	1	7	1,000	Sweet	1.1	8.56	NA
Metals										
Arsenic	0.01	0.2	NA	NA	NA	100, Ca	Almond	NA	NA	NA
Cadmium	0.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	1	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.05	0.15	NA	NA	NA	700	NA	NA	NA	NA
Mercury	0.05	0.05	NA	NA	NA	28	Odorless	NA	NA	NA
Selenium	0.2	0.02	NA	NA	NA	Unknown	NA	NA	NA	NA
Other										
Asbestos	0.1 (f/cc)	NA	1.0 (f/cc)	NA	NA	NA	NA	NA	NA	NA
^{232}Thorium	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,400 µrem/hour or 5,000 mrem/year

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

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

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

APPENDIX C

COMMUNITY AIR MONITORING PLAN

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

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

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

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

Community Air Monitoring Plan

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

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

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

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

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

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

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

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

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.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

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

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