



Geotechnical
Environmental and
Water Resources
Engineering

June 18, 2013
Project No. 1322040

Mr. John S. Marchewka, C.G., P.G.
MAI Environmental
1034 Broadway
South Portland, Maine 04106

Dear John:

**Re: Air Sparging and Soil Vapor Extraction Pilot Test Summary
Remediation Design Services
188 Madison Ave, Skowhegan, ME**

GEI Consultants, Inc. (GEI) is pleased to provide this report on Air Sparging and Soil Vapor Extraction (AS/SVE) pilot test results for the Whitten Brook Site, located at 188 Madison Avenue in Skowhegan, Maine (Site). GEI conducted pilot test activities at the Site on May 17 and 18, 2013, for design of a remediation system for gasoline-impacted groundwater. This report also provides a description of the conceptual system design and information which will be needed before the detailed design can be completed. Our work was undertaken in accordance with our proposal to MAI, dated April 30, 2013.

Project Background

The proposed remediation project is located at a former service station, which reportedly operated from the 1930s through 1987. Three underground gasoline tanks ranging in capacity from 4,000 to 6,000 gallons were reportedly removed in 1987. The Site is presently occupied by an automotive repair business and retail consignment shop. Additional Site details were summarized in the hydrogeologic characterization of the site conducted by C.A. White & Associates in 2012, on behalf of the Maine Department of Environmental Protection (DEP).

Scope of Work

We completed the following pilot test work:

1. Evaluated baseline, pre-test subsurface conditions at the Site including ambient vacuum, volatile organic compound (VOC) concentrations in soil vapor, oxygen concentrations in soil vapor and groundwater, and groundwater pressure.
2. Performed SVE tests at two extraction points to evaluate extraction rates, radius of influence (ROI), and VOC concentrations using five soil gas monitoring points and three sub-slab monitoring points.

3. Performed AS tests at one of two injection points, to evaluate injection pressure and flow rate suitable for the Site conditions, and effects of injection on groundwater dissolved oxygen (DO) and pressure and shallow soil gas and sub-slab conditions.
4. Performed combined AS/SVE tests at one injection point and one extraction point, in order to evaluate the proposed injection/extraction well placement and construction.

GEI performed the pilot test procedures using extraction/injection points, monitoring wells, soil gas monitoring points, and sub-slab points installed by MAI between May 13 and May 16, 2013. We measured vacuum/pressure with a Dwyer® digital manometer. For the extraction tests, we measured flow rate with a TSI8324 with Rotating Vane Anemometer. During the injection tests, we measured flow velocity with an in-line, Extech Mini-Thermo-Anemometer. We used a multiRAE Plus and ppbRAE 3000 to measure VOC concentrations in the SVE effluent and monitoring points. Oxygen concentrations in soil gas were measured using a multiRAE Plus. Groundwater DO and pressure were measured during the injection testing using two YSI 600XL/XLM instruments – along with a water level tape in MW1.

One sample of SVE effluent from EP2, collected during combined injection and extraction testing, was submitted to Alpha Analytical of Westborough, MA for testing of air-phase petroleum hydrocarbons (APH) and five chlorinated compounds typically of concern at former gas station sites. Alpha Analytical employed Selected Ion Monitoring (SIM) for the analysis of benzene, 1,3-butadiene, ethylbenzene and naphthalene, and the five chlorinated VOCs, to achieve desired detection limits.

Pilot Test Results

Baseline Conditions

We measured baseline vacuum, VOC concentrations, and oxygen concentrations, at the soil gas monitoring points (SG1 through SG5), the monitoring well (MW1), and the sub-slab locations (SS1 through SS3) (see Fig. 1), prior to the start of extraction testing at EP1 and EP2, on May 17, 2013. The locations displayed no vacuum prior to the test, and VOC concentrations ranged from less than 1 ppm (EP1 and EP2) to about 12 ppm (SS3) in the monitoring points; MW1, which was screened across the water table, had an initial VOC concentration of greater than 100 ppm.

Oxygen concentrations ranged from about 16.8% (SG4) to 20.1% (EP2) in shallow soil gas (about 5 ft deep), and from about 10.9% (SS1) to 20.9% (SS3) beneath the basement slab. We measured baseline water levels and dissolved oxygen concentrations at MW1 and IP1 prior to the start of injection testing at IP2. The depth to water in the wells ranged from about 9.9 ft at IP1 to 11 ft at MW2, and the DO concentration in MW1 was about 1.5 mg/L.

SVE Pilot Test Results

We performed SVE tests at each of the two extraction wells (EP1 and EP2) over the course of several hours on May 17, 2013. We used two 6.0-horsepower, 14-gallon RIDGID® wet-dry vacuums, with variable speed controllers, to apply vacuum at the extraction points. During each extraction test, we measured vacuum at the extraction point, the five soil gas monitoring points, three sub-slab locations, and one monitoring well (MW1). We evaluated VOC and oxygen concentrations at the extraction and monitoring locations to observe potential changes during the test. We measured the flow rate and VOC concentration of the extraction test discharge.

We performed two tests at each point with applied vacuum settings ranging from about 1.5 inches of water column (IWC) to 7.2 IWC, with discharge flow rates ranging from about 32 cubic ft per minute (CFM) to 71 CFM, respectively. Tables 1 and 2 summarize the results of the extraction tests.

At EP1, the minimum applied vacuum (2.4 IWC) produced about 32 CFM discharge and a measured ROI of about 18.4 ft for the exterior monitoring points. The maximum applied vacuum (7.2 IWC) resulted in about 71 CFM and a measured ROI of at least 31.5 ft. The sub-slab points displayed only trace vacuum at SS1 during the maximum vacuum test at EP1. The maximum VOC concentration of the discharge was 1.7 ppm.

At EP2, we adjusted the applied vacuum in order to approximate the minimum and maximum flows produced during the EP1 test. The minimum applied vacuum at EP2 (1.5 IWC) resulted in a flow rate of about 34 CFM, and the maximum vacuum of 3.92 IWC produced a discharge rate of 69 CFM. The maximum VOC concentration of the discharge was 1.2 ppm.

Negative soil vapor pressure was measured at the sub-slab points during the high-vacuum extraction test. The ROI measured from the exterior soil gas points was at least 31.3 ft to the east for both the minimum and maximum applied vacuums at EP2. However, to the north, the measured ROI ranged from only about 18.0 to 21.3 ft, at the minimum and maximum vacuum settings, respectively. A sewer/water utility trench crosses the Site from east to west from Madison Ave to the building, just south of EP1, SG2, and IP1 (see Fig. 1). The trench may have acted to short-circuit the lower applied vacuum at EP2, relative to the tests at EP1, forming a preferential pathway for subsurface air flow (i.e., potentially due to coarser fill relative to Site soils).

AS Injection Pilot Test Results

We performed AS injection tests at one of the two injection points installed at the Site (IP2). We did not perform an injection test at IP1, due to apparent sedimentation in the well above the reported screened interval (approximate depth to bottom = 15.5 ft below ground surface), which limited the use of IP1 for injection or monitoring purposes. We performed injection tests at IP2 over the course of several hours on May 18, 2013. We used one to two 1.8-horsepower, RIDGID®, oil-free air compressors to apply down-hole air injection at IP2. During each injection test, we measured pressure and flow velocity at the injection point. We measured groundwater DO and pressure at MW1 and IP1, and vacuum at the soil gas monitoring points, sub-slab locations, and extraction points. We also evaluated VOC and oxygen concentrations at the extraction and monitoring locations, to observe potential changes during the test. We performed two tests at IP2 with applied pressure settings ranging from about 2.5 pounds per square inch (psi) to 3.0 psi, with resultant flow rates ranging from about 6.9 to 13.4 CFM. Table 3 summarizes the results of the injection tests performed at IP2.

The minimum injection flow rate (6.9 CFM) resulted in a slight increase in DO at MW1, located about 12.5 ft from IP2. The air injection resulted in positive pressures at exterior soil gas monitoring points about 16.5 ft from IP2. The maximum injection flow rate (13.4 CFM) increased DO at MW1 by about 84% and resulted in positive pressures at exterior soil gas monitoring points about 21.3 ft from IP2. The higher injection flow rate also resulted in positive pressures at the sub-slab monitoring locations. We did not observe a significant change in groundwater pressure at MW1 during either injection test.

VOC concentrations observed in ambient air in the basement were greater than 10 ppm after about 2 hours of air injection at the higher rate. After measuring the increased ambient VOC concentration

and completing the second injection test, we ventilated the basement until the ambient VOC concentration rate was similar to the baseline, pre-test reading (less than 1 ppm).

Combined AS/SVE Pilot Test Results

We performed two combined AS-SVE pilot tests, in which we applied injection at IP2 (about 13 CFM) and extraction at EP2 (about 38 to 70 CFM). The lower injection/extraction rate test (38 CFM extraction at EP2) resulted in a measured soil vapor vacuum ROI of about 10 ft, with positive soil vapor pressures measured at two of the monitoring points (Table 4). The lack of soil vapor vacuum measured at MW1 and SG4 indicate that extraction rate may not have been sufficient to counteract and fully capture the effects of the air sparging injection. The higher injection/extraction rate test (70 CFM extraction at EP2) resulted in a measured soil vapor vacuum ROI of about 21 ft, with no positive soil vapor pressures observed at the subsurface monitoring points, and notably, soil vapor vacuum measured in MW1 and SG4.

VOC concentrations in soil vapor monitoring points within the zone of influence increased as a result of the air sparging tests, as high as 57 ppm at SG3 and 81 ppm at SG4. The maximum sustained VOC concentration of the injection/extraction test discharge tests was 410 ppm. During active discharge, a petroleum-like odor was observed in the local vicinity of the discharge point (in the parking lot in front of the automotive repair garage, vacant at the time of testing). No odors were observed beyond the property boundary.

Laboratory Testing of SVE Effluent

The laboratory test results are summarized on Table 5; the laboratory data report is attached hereto. The total reported petroleum hydrocarbon concentration was 5,670 mg/m³. Sample dilution requirements (due to elevated concentrations) resulted in elevated laboratory reporting limits.

Pilot Test Summary and Conclusions

Soil Vapor Extraction

Extraction tests were performed at two locations at applied vacuums of 1.5 to 7.2 IWC. The corresponding extraction rates ranged from 32 to 71 CFM from each point, and measured ROIs of 18.0 to 31.5 ft in soil vapor. Total VOC concentration measured in the test effluent range from 1.2 to 1.7 ppm. These results indicate the Site conditions appear favorable for SVE implementation at reasonable vacuum levels and flow rates, with an extraction point spacing of 20 ft or less.

Air Sparging

Air sparging tests were performed at one injection point at applied pressures of 2.5 and 3.0 psi, and injection flow rates of 6.9 and 13.4 CFM. The ROI based on groundwater DO response was 12.5 ft at the higher pressure and flow rate. Based on these results from the one test location, air sparging appears feasible at the Site using an injection well spacing of 20 ft, and an injection pressure and rate at each injection point of about 3.0 psi and 13 CFM.

Combined SVE/AS

Combined SVE/AS tests were performed at one extraction point and one injection point. The injection rate was about 13 CFM and the extraction rate ranged from 38 to 70 CFM. The higher

injection/extraction rate test resulted in soil vapor vacuum measured in MW1 and SG4 (near the injection point) and a measured soil vapor vacuum ROI of about 21 ft from the extraction point. The results of these tests indicate that with injection and extraction points on 20 foot spacing, an extraction rate approximately 4 to 5 times the injection rate was sufficient to control effects of sparging and control migration of soil vapor to the building.

The maximum sustained VOC concentration of the injection/extraction test discharge tests was 410 ppm measured with the PID, and 5,670 mg/m³ of petroleum hydrocarbons was reported for the effluent sample. Odors were observed near the SV/AS effluent discharge point. This suggests the need for temporary off-gas controls should be evaluated if site-wide air sparging is implemented at full-scale upon system installation, or alternately, a phased or gradual startup to the air sparging. However, we would expect the site-wide VOC concentration of the full-scale system to be less than this preliminary measurement from the most impacted treatment area, and to reduce over time. An estimate of the long-term discharge rate from the full-scale SVE/AS system was beyond the scope of this short-term pilot test.

Conceptual Remedial System Design

The full-scale system will likely include:

- Three to four treatment zones located around the building.
- Each treatment zone will contain 4 to 6 AS injection points and 6 to 8 SVE points.
- Construction of the injection and extraction points will be similar to the pilot test points, with larger, permanent roadboxes/manholes to allow for individual wellhead control valves, sample ports, and monitoring gauges.
- Subsurface header piping to deliver compressed air to, and transfer extracted vapor from, each of the treatment zones to a central equipment shed.
- The treatment shed will contain an air compressor/tank, vacuum blower, discharge stack, off-gas controls (if necessary), and associated instrumentation.
- Assuming the treatment zones cycle through active/inactive periods, with one active zone at any one time, the capacity of the system will be about 100 CFM at 10 psi of compressed air for sparging, and up to 500 CFM at 20 IWC vacuum for soil vapor extraction.

We would be interested in discussing the results of the pilot tests, and some aspects related to the system objectives and operation before completing the design effort, including:

- Expected scale and cost for construction and operation of the proposed system.
- Based on the recent Site information, final locations and extents of the treatment zones.
- Required level of instrumentation and alarm/monitoring.

- Whether temporary off-gas controls may be required.
- Options for different modes of operation to manage potential risks or limit the initial mass discharge rate; evaluate remedial objectives and approaches for contaminant source areas versus downgradient migration areas.

Very truly yours,

GEI CONSULTANTS, INC.



Laurence J. Welch, Jr., P.E.
Project Engineer

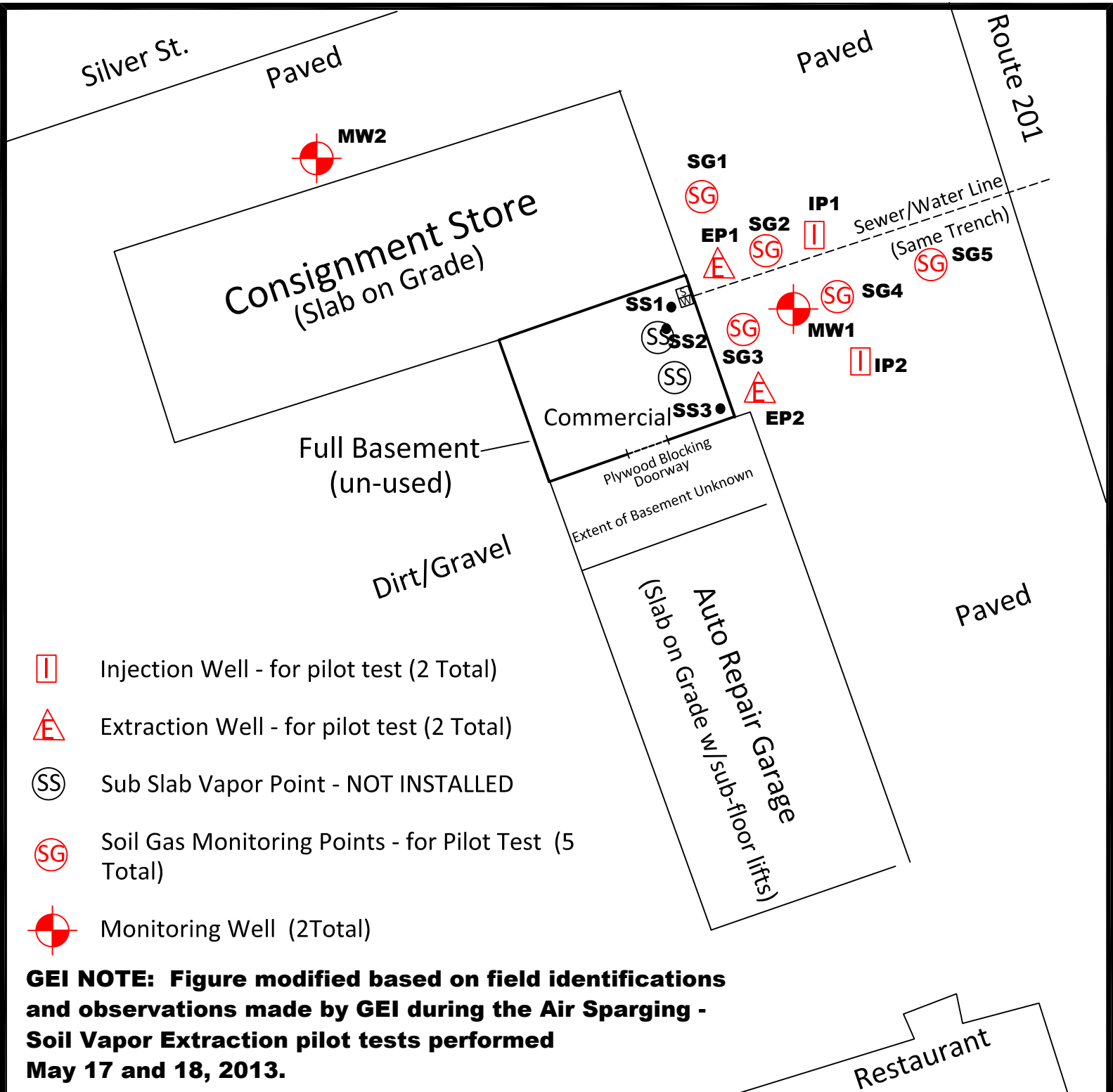







D. Todd Coffin, C.G., P.G.
Senior Project Manager

LJW:DTC/bdp

Attachments:

- Fig. 1. Site Plan
- Table 1. EP1 Extraction Test Summary
- Table 2. EP2 Extraction Test Summary
- Table 3. IP2 Injection Test Summary
- Table 4. Combined IP2 Injection and EP2 Extraction Test Summary
- Table 5. Summary of Laboratory Testing Results – AS/SVE Effluent
- Appendix A – Laboratory Test Data




-  Injection Well - for pilot test (2 Total)
-  Extraction Well - for pilot test (2 Total)
-  Sub Slab Vapor Point - NOT INSTALLED
-  Soil Gas Monitoring Points - for Pilot Test (5 Total)
-  Monitoring Well (2Total)

GEI NOTE: Figure modified based on field identifications and observations made by GEI during the Air Sparging - Soil Vapor Extraction pilot tests performed May 17 and 18, 2013.

FIGURE 1
Site Plan

Whitten Brook Investigation
Skowhegan, ME

 Water/Sewer Line - Same Trench
Water/Sewer Lines enter basement through foundation (wall) at a depth of 4' BGS. Sewer Line is directly above water line.

All Site Features Have Been Approximated based on Site Observations.

SCALE: NTS
DATE: 9/5/12
DWG: A-1049



Table 1. EP1 Extraction Test Summary

AS/SVE Pilot Test and Remediation System Design
 Whitten Brook Site, 188 Madison Ave
 Skowhegan, ME

Extraction Point: EP1
Test Date: May 17, 2013

Monitoring Point	Exterior Monitoring Points									Sub-slab Monitoring Points		
	SG2	SG1	SG3	MW1	IP1	SG4	EP2	IP2	SG5	SS1	SS2	SS3
Distance from EP1 (ft)	7.5	10	10	12.8	15.4	18.4	20.1	25.2	31.5	8	9.5	22.5

Applied Pressure at Extraction Point (IWC)	Discharge, Flow Rate (CFM)	Discharge, Maximum VOC (ppm)	Pressure Influence (IWC)											
			SG2	SG1	SG3	MW1	IP1	SG4	EP2	IP2	SG5	SS1	SS2	SS3
0 (Baseline)	0	0	0.00	0.00	0.00	0.00	NM	0.00	0.00	NM	0.00	0.00	0.00	0.00
-2.4	32.3	1.7	-0.32	-0.19	-0.17	-0.12	NM	-0.08	0.00	NM	0.00	0.00	0.00	0.00
-7.2	71.0	1.6	-0.90	-0.57	-0.44	-0.33	NM	-0.18	-0.09	NM	-0.08	-0.07	0.00	0.00

Notes:

- ft = feet
- IWC = Inches of water column
- CFM = Cubic feet per minute
- VOC = Total Volatile Organic Compounds (measured with ppbRAE 3000)
- ppm = parts per million
- NM = Not measured

Table 2. EP2 Extraction Test Summary

AS/SVE Pilot Test and Remediation System Design
 Whitten Brook Site, 188 Madison Ave
 Skowhegan, ME

Extraction Point: EP2
Test Date: May 17, 2013

Monitoring Point			Exterior Monitoring Points									Sub-slab Monitoring Points		
			SG3	MW1	IP2	SG4	EP1	SG2	IP1	SG1	SG5	SS3	SS2	SS1
Distance from EP2 (ft)			10.0	13.0	16.0	18.0	20.2	21.3	25.0	29.9	31.3	7	21	22

Applied Pressure at Extraction Point (IWC)	Discharge, Flow Rate (CFM)	Discharge, Maximum VOC (ppm)	Pressure Influence (IWC)											
			SG3	MW1	IP2	SG4	EP1	SG2	IP1	SG1	SG5	SS3	SS2	SS1
0 (Baseline)	0	0	0.00	0.00	NM	0.00	0.00	0.00	NM	0.00	0.00	0.00	0.00	0.00
-1.48	34.2	1.2	-0.22	-0.16	NM	-0.14	0.00	0 to -0.05	NM	0.00	-0.08	0.00	0.00	0.00
-3.92	69.0	0.9	-0.49	-0.51	NM	-0.31	-0.06	-0.12	NM	0.00	-0.16	-0.22	-0.15	-0.08

Notes:

ft = feet
 IWC = Inches of water column
 CFM = Cubic feet per minute
 VOC = Total Volatile Organic Compounds (measured with ppbRAE 3000)
 ppm = parts per million
 NM = Not measured

Table 3. IP2 Injection Test Summary

AS/SVE Pilot Test and Remediation System Design
 Whitten Brook Site, 188 Madison Ave
 Skowhegan, ME

Injection Point: IP2

Test Date: May 18, 2013

Monitoring Point	Exterior Monitoring Points										Sub-slab Monitoring Points		
	SG4	MW1	EP2	SG5	SG3	IP1	SG2	EP1	SG1	SS3	SS2	SS1	
Distance from IP2 (ft)	9.2	12.5	16.2	16.5	18.8	19.2	21.3	25.2	33.4	23	31.5	32	

Applied Pressure at Injection Point (psi)	Injection Flow Rate (CFM)	Maximum DO at MW1 (mg/L)	Pressure Influence (IWC)											
			SG4	MW1	EP2	SG5	SG3	IP1	SG2	EP1	SG1	SS3	SS2	SS1
Baseline	0	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5	6.9	1.59	0.12	NM	0.08	0.11	0 to 0.05	NM	0.00	0.00	0.00	0.00	0.00	0.00
3	13.4	2.69	0.26	NM	0.19	0.18	0.11	NM	0.07	0.00	0.00	0 to 0.05	0.07	0.05

Notes:

ft = feet

IWC = Inches of water column

CFM = Cubic feet per minute

VOC = Total Volatile Organic Compounds (measured with ppbRAE 3000)

ppm = parts per million

NM = Not measured

DO = Dissolved oxygen

psi = pounds per square inch

mg/L = milligrams per liter

Table 4. Combined IP2 Injection and EP2 Extraction Test Summary

AS/SVE Pilot Test and Remediation System Design

Whitten Brook Site, 188 Madison Ave

Skowhegan, ME

Injection Point: IP2

Extraction Point: EP2

Test Date: May 18, 2013

Monitoring Point		SG3	MW1	SG4	EP1	SG2	IP1	SG1	SG5	SS3	SS2	SS1
Distance from EP2 (ft)		10.0	13.0	18.0	20.2	21.3	25.0	29.9	31.3	7	21	22
Distance from IP2 (ft)		18.8	12.5	9.2	25.2	21.3	19.2	33.4	16.5	23	31.5	32

Applied Pressure at Injection Point IP2 (psi)	Injection Flow Rate at IP2 (CFM)	Applied Pressure at Extraction Point EP2 (IWC)	Discharge Flow Rate from EP2 (CFM)	Discharge, Maximum VOC from EP2 (ppm)	Pressure Influence (IWC)											
					SG3	MW1	SG4	EP1	SG2	IP1	SG1	SG5	SS3	SS2	SS1	
Baseline	0	Baseline	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.5	12.9	-1.74	38.4	390	-0.11	0.00	0.10	0.00	0.00	0.00	0.00	0.12	0 to -0.07	0.00	0.00	0.00
3	12.7	-3.96	70.0	410	-0.41	-0.27	-0.10	-0.07	-0.08	0.00	0.00	0.00	0.00	-0.14	-0.10	-0.10

Notes:

ft = feet

IWC = Inches of water column

CFM = Cubic feet per minute

VOC = Total Volatile Organic Compounds (measured with multiRAE)

ppm = parts per million

psi = pounds per square inch

NM = Not measured

Table 5. Summary of Laboratory Testing Results - AS/SVE Effluent

AS/SVE Pilot Test and Remediation System Design

Whitten Brook Site, 188 Madison Ave

Skowhegan, ME

Injection Point: IP2**Extraction Point: EP2****Test Date: May 18, 2013**

Sample Location:		EP2
Sample Date:		5/18/2013
Units:		$\mu\text{g}/\text{m}^3$
Analyte	Method	
Volatile Organics in Air	TO-15-SIM	
Tetrachloroethene (PCE)		292
Ethylbenzene		130
Vinyl chloride		<61.1
1,3-Butadiene		<52.9
trans-1,2-Dichloroethene		<94.8
cis-1,2-Dichloroethene		<94.8
Benzene		<383
Trichloroethene (TCE)		<128
Naphthalene		<314
Petroleum Hydrocarbons in Air (APH)	MA APH	
C5-C8 Aliphatics, Adjusted		5,500,000
C9-C12 Aliphatics, Adjusted		170,000
Methyl tert butyl ether (MTBE)		<2,400
Toluene		<2,400
p/m-Xylene		<4,800
o-Xylene		<2,400
Total Xylenes		<7,200
C9-C10 Aromatics Total		<12,000

Notes:

ft = feet

 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

Pilot Test Summary
Whitten Brook Site, 188 Madison Ave
Skowhegan, Maine
June 18, 2013

Appendix A

Laboratory Test Data



ANALYTICAL REPORT

Lab Number:	L1309086
Client:	GEI Consultants 5 Milk Street Portland, ME 04101
ATTN:	Todd Coffin
Phone:	(207) 797-8906
Project Name:	WHITTEN BROOK
Project Number:	1322040
Report Date:	05/29/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1309086-01	EP2	SKOWHEGAN, ME	05/18/13 18:59

Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	YES
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES
A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES
For any questions answered "No", please refer to the case narrative section on the following page(s).		

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on May 14, 2013. The canister certification results are provided as an addendum.

Sample L1309086-01 has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

MCP Related Narratives

Petroleum Hydrocarbons in Air

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

Sample L1309086-01 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 05/29/13

AIR

Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

SAMPLE RESULTS

Lab ID: L1309086-01 D
 Client ID: EP2
 Sample Location: SKOWHEGAN, ME
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15-SIM
 Analytical Date: 05/23/13 10:09
 Analyst: RY

Date Collected: 05/18/13 18:59
 Date Received: 05/21/13
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	ND	23.9	--	ND	61.1	--		1197
1,3-Butadiene	ND	23.9	--	ND	52.9	--		1197
trans-1,2-Dichloroethene	ND	23.9	--	ND	94.8	--		1197
cis-1,2-Dichloroethene	ND	23.9	--	ND	94.8	--		1197
Benzene	ND	120	--	ND	383	--		1197
Trichloroethene	ND	23.9	--	ND	128	--		1197
Tetrachloroethene	43.1	23.9	--	292	162	--		1197
Ethylbenzene	29.9	23.9	--	130	104	--		1197
Naphthalene	ND	59.8	--	ND	314	--		1197

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	122		60-140
bromochloromethane	108		60-140
chlorobenzene-d5	124		60-140



Project Name: WHITTEN BROOK

Lab Number: L1309086

Project Number: 1322040

Report Date: 05/29/13

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 05/22/13 14:41

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG609941-4								
Dichlorodifluoromethane	ND	0.050	--	ND	0.247	--		1
Chloromethane	ND	0.500	--	ND	1.03	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
Acetone	ND	2.00	--	ND	4.75	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	1.00	--	ND	3.47	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.050	--	ND	0.383	--		1
Halothane	ND	0.050	--	ND	0.404	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.020	--	ND	0.072	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: WHITTEN BROOK

Lab Number: L1309086

Project Number: 1322040

Report Date: 05/29/13

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 05/22/13 14:41

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG609941-4								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.020	--	ND	0.092	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	2.46	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1

Project Name: WHITTEN BROOK

Lab Number: L1309086

Project Number: 1322040

Report Date: 05/29/13

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 05/22/13 14:41

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG609941-4								
sec-Butylbenzene	ND	0.500	--	ND	2.74	--		1
p-Isopropyltoluene	ND	0.500	--	ND	2.74	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.500	--	ND	2.74	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: WHITTEN BROOK

Project Number: 1322040

Lab Number: L1309086

Report Date: 05/29/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG609941-3								
Dichlorodifluoromethane	113		-		70-130	-		25
Chloromethane	115		-		70-130	-		25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	110		-		70-130	-		25
Vinyl chloride	109		-		70-130	-		25
1,3-Butadiene	114		-		70-130	-		25
Bromomethane	107		-		70-130	-		25
Chloroethane	105		-		70-130	-		25
Acetone	123		-		70-130	-		25
Trichlorofluoromethane	110		-		70-130	-		25
Acrylonitrile	108		-		70-130	-		25
1,1-Dichloroethene	110		-		70-130	-		25
Methylene chloride	121		-		70-130	-		25
1,1,2-Trichloro-1,2,2-Trifluoroethane	109		-		70-130	-		25
Halothane	111		-		70-130	-		25
trans-1,2-Dichloroethene	96		-		70-130	-		25
1,1-Dichloroethane	105		-		70-130	-		25
Methyl tert butyl ether	93		-		70-130	-		25
2-Butanone	101		-		70-130	-		25
cis-1,2-Dichloroethene	105		-		70-130	-		25
Chloroform	108		-		70-130	-		25
1,2-Dichloroethane	106		-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: WHITTEN BROOK

Lab Number: L1309086

Project Number: 1322040

Report Date: 05/29/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG609941-3								
1,1,1-Trichloroethane	111		-		70-130	-		25
Benzene	104		-		70-130	-		25
Carbon tetrachloride	107		-		70-130	-		25
1,2-Dichloropropane	110		-		70-130	-		25
Bromodichloromethane	105		-		70-130	-		25
1,4-Dioxane	99		-		70-130	-		25
Trichloroethene	105		-		70-130	-		25
cis-1,3-Dichloropropene	107		-		70-130	-		25
4-Methyl-2-pentanone	117		-		70-130	-		25
trans-1,3-Dichloropropene	91		-		70-130	-		25
1,1,2-Trichloroethane	114		-		70-130	-		25
Toluene	95		-		70-130	-		25
Dibromochloromethane	86		-		70-130	-		25
1,2-Dibromoethane	102		-		70-130	-		25
Tetrachloroethene	93		-		70-130	-		25
1,1,1,2-Tetrachloroethane	89		-		70-130	-		25
Chlorobenzene	98		-		70-130	-		25
Ethylbenzene	97		-		70-130	-		25
p/m-Xylene	99		-		70-130	-		25
Bromoform	78		-		70-130	-		25
Styrene	96		-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: WHITTEN BROOK

Project Number: 1322040

Lab Number: L1309086

Report Date: 05/29/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG609941-3								
1,1,2,2-Tetrachloroethane	109		-		70-130	-		25
o-Xylene	100		-		70-130	-		25
Isopropylbenzene	95		-		70-130	-		25
4-Ethyltoluene	86		-		70-130	-		25
1,3,5-Trimethylbenzene	99		-		70-130	-		25
1,2,4-Trimethylbenzene	102		-		70-130	-		25
1,3-Dichlorobenzene	102		-		70-130	-		25
1,4-Dichlorobenzene	101		-		70-130	-		25
sec-Butylbenzene	95		-		70-130	-		25
p-Isopropyltoluene	88		-		70-130	-		25
1,2-Dichlorobenzene	101		-		70-130	-		25
n-Butylbenzene	102		-		70-130	-		25
1,2,4-Trichlorobenzene	111		-		70-130	-		25
Naphthalene	104		-		70-130	-		25
1,2,3-Trichlorobenzene	105		-		70-130	-		25
Hexachlorobutadiene	102		-		70-130	-		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: WHITTEN BROOK

Project Number: 1322040

Lab Number: L1309086

Report Date: 05/29/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG609941-5 QC Sample: L1309019-03 Client ID: DUP Sample						
Vinyl chloride	0.057	0.058	ppbV	2		25
1,3-Butadiene	0.059	0.061	ppbV	3		25
1,2-Dichloroethane	0.033	0.033	ppbV	0		25
Benzene	0.137	0.140	ppbV	2		25
Trichloroethene	0.202	0.207	ppbV	2		25
Tetrachloroethene	0.913	0.948	ppbV	4		25
Ethylbenzene	0.077	0.081	ppbV	5		25
Naphthalene	0.055	0.055	ppbV	0		25

Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

SAMPLE RESULTS

Lab ID: L1309086-01 D
 Client ID: EP2
 Sample Location: SKOWHEGAN, ME
 Matrix: Soil_Vapor
 Analytical Method: 96,APH
 Analytical Date: 05/23/13 10:09
 Analyst: RY

Date Collected: 05/18/13 18:59
 Date Received: 05/21/13
 Field Prep: Not Specified

Quality Control Information

Sample Type:	15 Minute Composite
Sample Container Type:	Canister - 2.7 Liter
Sampling Flow Controller:	Mechanical
Sampling Zone:	Unknown
Sampling Flow Meter RPD of pre & post-sampling calibration check:	<=20%
Were all QA/QC procedures REQUIRED by the method followed?	Yes
Were all performance/acceptance standards for the required procedures achieved?	Yes
Were significant modifications made to the method as specified in Sect 11.1.2?	No

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	2400	--	1200
Methyl tert butyl ether	ND		ug/m3	2400	--	1200
Benzene	ND		ug/m3	2400	--	1200
C5-C8 Aliphatics, Adjusted	5500000		ug/m3	14000	--	1200
Toluene	ND		ug/m3	2400	--	1200
Ethylbenzene	ND		ug/m3	2400	--	1200
p/m-Xylene	ND		ug/m3	4800	--	1200
o-Xylene	ND		ug/m3	2400	--	1200
Naphthalene	ND		ug/m3	2400	--	1200
C9-C12 Aliphatics, Adjusted	170000		ug/m3	17000	--	1200
C9-C10 Aromatics Total	ND		ug/m3	12000	--	1200

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	130		50-200
Bromochloromethane	118		50-200
Chlorobenzene-d5	129		50-200

Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 96,APH
Analytical Date: 05/22/13 14:41
Analyst: RY

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbons in Air - Mansfield Lab for sample(s): 01 Batch: WG609942-4					
1,3-Butadiene	ND		ug/m3	2.0	--
Methyl tert butyl ether	ND		ug/m3	2.0	--
Benzene	ND		ug/m3	2.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/m3	12	--
Toluene	ND		ug/m3	2.0	--
Ethylbenzene	ND		ug/m3	2.0	--
p/m-Xylene	ND		ug/m3	4.0	--
o-Xylene	ND		ug/m3	2.0	--
Naphthalene	ND		ug/m3	2.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/m3	14	--
C9-C10 Aromatics Total	ND		ug/m3	10	--

Lab Control Sample Analysis

Batch Quality Control

Project Name: WHITTEN BROOK

Project Number: 1322040

Lab Number: L1309086

Report Date: 05/29/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Petroleum Hydrocarbons in Air - Mansfield Lab Associated sample(s): 01 Batch: WG609942-3								
1,3-Butadiene	110		-		70-130	-		
Methyl tert butyl ether	95		-		70-130	-		
Benzene	100		-		70-130	-		
C5-C8 Aliphatics, Adjusted	106		-		70-130	-		
Toluene	90		-		70-130	-		
Ethylbenzene	89		-		70-130	-		
p/m-Xylene	89		-		70-130	-		
o-Xylene	91		-		70-130	-		
Naphthalene	100		-		50-150	-		
C9-C12 Aliphatics, Adjusted	106		-		70-130	-		
C9-C10 Aromatics Total	77		-		70-130	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: WHITTEN BROOK

Project Number: 1322040

Lab Number: L1309086

Report Date: 05/29/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbons in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG609942-5 QC Sample: L1309016-01 Client ID: DUP Sample						
1,3-Butadiene	ND	ND	ug/m3	NC		30
Methyl tert butyl ether	ND	ND	ug/m3	NC		30
Benzene	ND	ND	ug/m3	NC		30
C5-C8 Aliphatics, Adjusted	20	22	ug/m3	10		30
Toluene	ND	ND	ug/m3	NC		30
Ethylbenzene	ND	ND	ug/m3	NC		30
p/m-Xylene	ND	ND	ug/m3	NC		30
o-Xylene	ND	ND	ug/m3	NC		30
Naphthalene	ND	ND	ug/m3	NC		30
C9-C12 Aliphatics, Adjusted	140	150	ug/m3	7		30
C9-C10 Aromatics Total	ND	ND	ug/m3	NC		30

Project Name: WHITTEN BROOK

Project Number: 1322040

Serial_No:05291310:57
Lab Number: L1309086

Report Date: 05/29/13

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1309086-01	EP2	0049	#90 SV	05/14/13	88501		-	-	-	Pass	144	146	1
L1309086-01	EP2	138	2.7L Can	05/14/13	88501	L1308008-01	Pass	-28.8	-1.7	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01
 Client ID: CAN 258 SHELF 2
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 05/06/13 17:01
 Analyst: MB

Date Collected: 05/03/13 16:24
 Date Received: 05/04/13
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.200	--	ND	0.361	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.200	--	ND	0.434	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01
 Client ID: CAN 258 SHELF 2
 Sample Location:

Date Collected: 05/03/13 16:24
 Date Received: 05/04/13
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Methylene chloride	ND	1.00	--	ND	3.47	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.590	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.590	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01
 Client ID: CAN 258 SHELF 2
 Sample Location:

Date Collected: 05/03/13 16:24
 Date Received: 05/04/13
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.820	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01
 Client ID: CAN 258 SHELF 2
 Sample Location:

Date Collected: 05/03/13 16:24
 Date Received: 05/04/13
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01 Date Collected: 05/03/13 16:24
 Client ID: CAN 258 SHELF 2 Date Received: 05/04/13
 Sample Location: Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	96		60-140
Bromochloromethane	89		60-140
chlorobenzene-d5	95		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01
 Client ID: CAN 258 SHELF 2
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15-SIM
 Analytical Date: 05/06/13 17:01
 Analyst: MB

Date Collected: 05/03/13 16:24
 Date Received: 05/04/13
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.050	--	ND	0.247	--		1
Chloromethane	ND	0.500	--	ND	1.03	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
Acetone	ND	2.00	--	ND	4.75	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	1.00	--	ND	3.47	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
Halothane	ND	0.050	--	ND	0.404	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.020	--	ND	0.072	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01
 Client ID: CAN 258 SHELF 2
 Sample Location:

Date Collected: 05/03/13 16:24
 Date Received: 05/04/13
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.020	--	ND	0.092	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	2.46	--		1
1,3,5-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.500	--	ND	2.74	--		1
p-Isopropyltoluene	ND	0.500	--	ND	2.74	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.500	--	ND	2.74	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1308008
Report Date: 05/29/13

Air Canister Certification Results

Lab ID: L1308008-01 Date Collected: 05/03/13 16:24
 Client ID: CAN 258 SHELF 2 Date Received: 05/04/13
 Sample Location: Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	98		60-140
bromochloromethane	100		60-140
chlorobenzene-d5	97		60-140

AIR Petro Can Certification

Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1308008**Project Number:** CANISTER QC BAT**Report Date:** 05/29/13**AIR CAN CERTIFICATION RESULTS**

Lab ID: L1308008-01
Client ID: CAN 258 SHELF 2
Sample Location: Not Specified
Matrix: Air
Analytical Method: 96,APH
Analytical Date: 05/06/13 17:01
Analyst: MB

Date Collected: 05/03/13 16:24
Date Received: 05/04/13
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	2.0	--	1
Methyl tert butyl ether	ND		ug/m3	2.0	--	1
Benzene	ND		ug/m3	2.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/m3	12	--	1
Toluene	ND		ug/m3	2.0	--	1
Ethylbenzene	ND		ug/m3	2.0	--	1
p/m-Xylene	ND		ug/m3	4.0	--	1
o-Xylene	ND		ug/m3	2.0	--	1
Naphthalene	ND		ug/m3	2.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	14	--	1
C9-C10 Aromatics Total	ND		ug/m3	10	--	1

Project Name: WHITTEN BROOK**Lab Number:** L1309086**Project Number:** 1322040**Report Date:** 05/29/13**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal**Cooler**

N/A Present/Intact

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1309086-01A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	APH-10(30),TO15-SIM(30)

*Values in parentheses indicate holding time in days

Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported

Report Format: Data Usability Report



Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

Data Qualifiers

due to obvious interference.

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: WHITTEN BROOK
Project Number: 1322040

Lab Number: L1309086
Report Date: 05/29/13

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.
- 96 Method for the Determination of Air-Phase Petroleum Hydrocarbons (APH), MassDEP, December 2009, Revision 1 with QC Requirements & Performance Standards for the Analysis of APH by GC/MS under the Massachusetts Contingency Plan, WSC-CAM-IXA, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certificate/Approval Program Summary

Last revised August 3, 2012 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable). Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Titanium, Vanadium, Zinc, Total Organic Carbon, Corrosivity, TCLP 1311, SPLP 1312. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. NELAP Accredited.

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. NELAP Accredited.

Non-Potable Water (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020A, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C, 8270D.)

Solid & Chemical Materials (Inorganic Parameters: EPA 1311, 3050B, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C, 8270D.)

Biological Tissue (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C, 8270D.)

Air & Emissions (EPA TO-15.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. NELAP Accredited.

Non-Potable Water (Inorganic Parameters: EPA 180.1, 1631E, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B, 3020A, . Organic Parameters: EPA 3510C, 3630C, 3640A, 3660B, 8081B, 8082A, 8270C, 8270D, 8015D.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 1311, 3050B, 3051A, 6020A, 7471B, 9040B, 9045C. Organic Parameters: SW-846 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8015D, 8082A, 8081B.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. NELAP Accredited.

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3020A, SM2320B, SM2540D, 2540G, 4500H-B, EPA 180.1, 1631E, SW-846 7470A, 9040C, 6020A, 9050A. Organic Parameters: SW-846 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D)

Solid & Chemical Materials (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 6020A, 7471B, 7474, 9040B, 9040C, 9045C, 9045D, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8081B, 8082A, 8270C, 8270D, 8015D.)

Atmospheric Organic Parameters (EPA 3C, TO-15, TO-10A, TO-13A-SIM.)

Biological Tissue (Inorganic Parameters: SW-846 6020A. Organic Parameters: SW-846 8270C, 8270D, 3510C, 3570, 3610C, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, 6020A, 1631E, 7470A, 9050A, EPA 180.1, 3020A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 3510C.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 6020A, 7471B, 7474, 9040C, 9045D. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 1311, 3050B, 3580A, 3570, 3051A.)

Air & Emissions (EPA TO-15, TO-10A.)

Pennsylvania Certificate/Lab ID: 68-02089 **NELAP Accredited**

Non-Potable Water (Inorganic Parameters: 1312, 1631E, 180.1, 3020A, 6020A, 7470A, 9040B, 9050A, 2320B, 2540D, 2540G, SM4500H+-B. Organic Parameters: 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D .)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 3051A, 6020A, 7471B, 7474 9040B, 9045C, 9060. Organic Parameters: EPA3050B, 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8270D, 8081B, 8015D, 8082A.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. **NELAP Accredited via NJ-DEP.**

Refer to NJ-DEP Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. **NELAP Accredited.**

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID:460194. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters:EPA 3020A, 6020A, 245.7, 9040B. Organic Parameters: EPA 3510C, 3640A, 3660B, 3665A, 8270C, 8270D, 8082A, 8081B, 8015D.)

Solid & Chemical Materials (Inorganic Parameters: EPA 6020A,7470A,7471B,9040B,9045C,3050B,3051, 9060. Organic Parameters: EPA 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 3570, 8270C, 8270D, 8081B, 8082A, 8015D.)

Washington State Department of Ecology Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 180.1, 1631E.)

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 7474, 9045C, 9050A, 9060. Organic Parameters: EPA 8081, 8082, 8015, 8270.)

U.S. Army Corps of Engineers

Department of Defense, L-A-B Certificate/Lab ID: L2217.01.

Non-Potable Water (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH, 8082A, 8081B, 8015D-SHC, 8015D.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH 8082A, 8081B, 8015D-SHC, 8015D.

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl. **TO-15**: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.



CHAIN OF CUSTODY

AIR ANALYSIS

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
 TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: GEI Consultants
 Address: 5 Milk St
Portland, ME
 Phone: 207-653-4518
 Fax: 207-797-4704
 Email: rperry@geiconsultants.com

Project Information

Project Name: Whitten Brook
 Project Location: Skowhegan, ME
 Project #: 132 2040
 Project Manager: Todd Coffin
 ALPHA Quote #:

Turn-Around Time

Standard RUSH (only confirmed if pre-approved!)

Date Due: _____ Time: _____

Date Rec'd in Lab:

Report Information - Data Deliverables

FAX
 ADEx
 Criteria Checker: Maine DEP
 (Default based on Regulatory Criteria Indicated)
 Other Formats: Maine DEP F
 EMAIL (standard pdf report)
 Additional Deliverables:
Maine DEP EDD
 Report to: (if different than Project Manager)
Randall Perry

ALPHA Job #: L1309086

Billing Information

Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria
Maine DEP	VI/IAT	Residual IATS

Other Project Specific Requirements/Comments: Please send Maine DEP EDD to Randall Perry. Please see attached for list of analytes to be run with TO-15 SIM.

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection					Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	ANALYSIS				Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum						TO-14A by TO-15	TO-15	TO-15 SIM - 54 APH Comp. - 54 APH Comp. - 54 APH Comp. - 54 APH Comp.	FIXED GASES	
<u>1</u>	<u>1322040-EP2</u>	<u>5/18/13</u>	<u>1841</u>	<u>1859</u>	<u>-29.31 in Hg</u>	<u>-2.75 in Hg</u>	<u>SV</u>	<u>RHP</u>	<u>2.7L</u>	<u>138</u>	<u>0049</u>	<u>XX</u>	<u>XX</u>	<u>XX</u>	<u>XX</u>	<u>PID ≈ 400 ppm</u>

***SAMPLE MATRIX CODES**

AA = Ambient Air (Indoor/Outdoor)
 SV = Soil Vapor/Landfill Gas/SVE
 Other = Please Specify

Container Type

CS

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:

Randall Perry

Date/Time

5/20/13 1430
5/21/13

Received By:

UPS
[Signature]

Date/Time:

5/21/13 1010