WHERE BUSINESS AND THE ENVIRONMENT CONVERGE

INITIAL SITE INVESTIGATION
FORMER SALDI RESIDENCE
75 LATHROP COURT
WILLIAMSTOWN, VERMONT

Prepared for:
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***Project No*. 08-221850.00**
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TABLE OF CONTENTS

EXECUTIVE SUMMARY……i
1.0 INTRODUCTION 1
1.1 SITE DESCRIPTION AND PHYSICAL SETTING 1
1.2 SITE HISTORY 1
1.3 OBJECTIVES AND SCOPE OF WORK 2
1.4 CONCEPTUAL SITE MODEL 2
2.0 INVESTIGATIVE PROCEDURES AND RESULTS 3
2.1 SOIL BORING / MONITORING WELL INSTALLATION 3
2.2 SOIL-SCREENING RESULTS 4
2.3 GROUNDWATER CHARACTERISTICS 4
2.4 SAMPLING AND ANALYSIS 5
3.0 SENSITIVE RECEPTOR SURVEY AND RISK ASSESSMENT 6
3.1 SENSITIVE RECEPTOR SURVEY 6
3.2 RISK ASSESSMENT 6
4.0 CONCLUSIONS 8
5.0 RECOMMENDATIONS 10
6.0 LIMITATIONS 11

FIGURES

Figure 1 Site Location Map
Figure 2 Site Plan
Figure 3 Presumed Groundwater Flow Direction Map
Figure 4 Contaminant Concentration Map

TABLES

Table 1 Groundwater Elevation Calculations
Table 2 Groundwater Laboratory Analytical Results
Table 3 Soil Laboratory Analytical Results

APPENDICES

Appendix A Soil Boring Logs / Monitoring Well Construction Diagrams
Appendix B Photodocumentation
Appendix C Laboratory Analytical Reports

EXECUTIVE SUMMARY

Environmental Compliance Services, Inc. (ECS) has conducted an initial site investigation (ISI) at the former Saldi residence, located at 75 Lathrop Court in Williamstown, Vermont (hereafter referred to as the "site"). Petroleum contamination was discovered during the removal of one 500-gallon fuel oil underground storage tank (UST) on 24 April 2014 by ECS. On 19 August 2014, ECS attempted to further define the extent of petroleum contamination by supervising the advancement of eight soil borings (SB-A, SB-B, SB-C, SB-D, SB-E, SB-F, SB-G, and SB-H), installing four monitoring wells (MW-1, MW-2, MW-3, and MW-4), and evaluating potential threats to nearby sensitive receptors. ECS's findings related to this work are summarized as follows:

- On 8 August 2014, a water sample was collected from a basement sump, located approximately 20 feet west of an existing heating oil above ground storage tank (AST) located in the southeast corner of the basement. Volatile organic compounds (VOCs) were not detected above laboratory reporting limits in this sample, which indicates that shallow groundwater beneath this section of the building has not been impacted by the heating oil release.

- During the advancement of soil borings on 19 August 2014, the highest photoionization detector (PID) reading of 90 parts per million (ppm) was recorded in a soil sample collected five feet below ground surface (bgs) within the former UST grave (soil boring SB-C/MW-2). No LNAPL was observed. Refusal was met at approximately 7.75 feet bgs where a PID reading of 0.5 ppm was observed. No evidence of fuel oil contamination was observed in up gradient well MW-1, cross gradient well SB-6, and down gradient soil borings SB-D/MW-3, SB-E/MW-4, and SB-F, indicating that the contamination had not migrated very far from the former UST location.

- ECS personnel collected soil samples for laboratory analysis based on field screening results. Samples SB-B 4-6' and SB-C 5-6' were collected within the former UST excavation. Sample SB-4 was collected approximately 4-6 feet bgs and SB-C was collected 5-6 feet bgs down gradient of where the tank was previously located The samples were submitted for analysis via EPA Method 8021B for the Vermont short list of petroleum-related VOCs and total petroleum hydrocarbon diesel range organics (TPH DRO) by EPA Method 8015. VOCs were detected at concentrations below the Vermont Residential Soil Screening Values (SSVs) in SB-B 4-6' and SB-C 5-6'. TPH DRO was detected at concentrations above the Vermont Residential SSV's in both samples.

- On 25 August 2014, ECS returned to the site to collect groundwater samples from monitoring wells MW-1, MW-2, MW-3, and MW-4. ECS personnel were unable to collect a sample from MW-3 and MW-4 due to an absence of groundwater in the wells; however, no field evidence of contamination was observed (i.e., PID, visual or olfactory) from these borings. Samples from MW-1 and MW-2 were submitted for analysis via EPA Method 8021B for the Vermont short list of petroleum-related VOCs. Depth to groundwater in these monitoring wells ranged from 6.02 to 6.05 feet bgs. No LNAPL was detected in either MW-1 or MW-2.

- Groundwater flow direction could not be calculated during the 25 August 2014 sampling event with only two groundwater elevation points, but it is presumed to flow to the south towards a tributary of Steven's Branch and a small wetland area (Figure 3).

- No petroleum-related VOCs were detected at concentrations above the Vermont Groundwater Enforcement Standards (VGESs) in the two samples collected on 25 August 2014.

EXECUTIVE SUMMARY

- The limits of soil contamination in the vicinity of the former UST excavation has been further defined with the advancement of up gradient soil boring SB-A, cross gradient boring SB-G, and down gradient soil borings SB-D, SB-E, and SB-F, which did not reveal any visual or olfactory evidence of fuel oil contamination during this investigation (PID readings recorded at 0.0 ppm). Contamination appears to be located primarily in a sand and gravel layer above a dense glacial till and has not migrated very far from the former UST area.

- Soil headspace readings recorded above the VT DEC contaminated soil threshold levels for fuel oil were observed in samples collected from soil borings SB-B and SB-C/MW-2, located in the source area and SB-H, located in close proximity to the former UST excavation and fill pipe.

- Sensitive receptors include the soil and groundwater in the vicinity of the former UST, underground utilities, indoor air quality, and a tributary of Steven's Branch and small wetland area located southeast and down gradient of the property. Based on groundwater measurements obtained on 25August 2014 and topography, presumed groundwater flow direction is to the south.

Based on the conclusions stated above, it is the opinion of ECS that the site does not meet the requirements for a Sites Management Activity Complete (SMAC) designation at this time. ECS recommends the following options for consideration:

1. Excavate the contamination. It appears as though the contamination is localized in the area of the former UST and consists of less than 15 cubic yards. This amount of soil can be cost effectively removed, which would allow the property to receive a SMAC without a land record notice.

Or

2. Do not remove the contamination and place a land record notice on the property, which would document that a relatively small amount of contamination remains in the ground. The property and surrounding area is served by municipal water connections; therefore the risk to drinking water is low. The contaminated soil is several feet below ground; and therefore, risk for dermal contact is low.

Or

3. Conduct quarterly groundwater monitoring to confirm no VGES exceedances. Submit samples for laboratory analysis for VOCs by EPA Method 8021B. The next groundwater monitoring event should be scheduled for November 2014. If no VGES are exceeded then issue a SMAC with a land record notice to identify that contaminated soil remains on the property.

4. Prepare a report to include water-quality analytical results, figures showing groundwater flow direction and contaminant distribution, relevant tables, time-series graphs, laboratory reports, and recommendations for further action.

1.0 INTRODUCTION

This report details the results of an initial site investigation (ISI) performed by Environmental Compliance Services (ECS) at the former Saldi residence, located at 75 Lathrop Court in Williamstown, Vermont (Figure 1). The ISI was performed following the discovery of petroleum contamination during the removal of one 500-gallon fuel oil underground storage tank (UST) on 24 April 2014 by ECS. On 19 August 2014, ECS attempted to further define the extent of petroleum contamination by supervising the advancement of eight soil borings (SB-A, SB-B, SB-C, SB-D, SB-E, SB-F, SB-G, and SB-H), four of which were completed as monitoring wells (MW-1, MW-2, MW-3, and MW-4). ECS also evaluated potential threats to nearby sensitive receptors. Work was conducted in accordance with the ECS work plan and cost estimate dated 9 May 2014, with approval from Mr. Ashley Desmond of the Vermont Department of Environmental Conservation (VT DEC) provided on 21 May 2014.

1.1 SITE DESCRIPTION AND PHYSICAL SETTING

The site consists of a residence located at 75 Lathrop Court in Williamstown, Vermont. The 0.40 acre property is connected to a municipal water and sewer system. The former fuel oil UST was located on the southeast corner of the residence. Adjacent properties to the north and west are residential, and to the east consists of vacant land and a cemetery. Bordering property to the south is residential with a tributary of Steven's Branch and a small wetland area located to the southeast and down gradient of the property (Figure 2).

According to the Vermont Agency of Natural Resources Internet Mapping Site of Private Wells, there are approximately 22 private water supply wells located with a ½-mile of the site. The closest well is identified as being approximately 225 feet north of the former UST location.

1.2 SITE HISTORY

On 24 April 2014, ECS supervised the removal of one 500-gallon fuel oil UST located on the southeast corner of the residence. ECS personnel documented that the overall condition of the tank was poor with rust and several small holes on the tank bottom. Olfactory and visual evidence of fuel oil contamination was observed in the vicinity of the UST. Soil headspace readings obtained with a portable photoionization detector (PID) ranged from 0.0 to 241 parts per million (ppm). Contaminated soil was backfilled into the UST excavation area pursuant to Vermont Department of Environmental Conservation (VT DEC) guidance documents. Light non-aqueous phase liquid (LNAPL) was observed on the water table at approximately 4.5 feet below ground surface (bgs). LNAPL was removed with absorbent pads, leaving a visible sheen on the water table at the time of the UST decommissioning.

The basement of the residence was inspected and screened with a PID along the southeast wall, where an active heating oil above ground storage tank (AST) with piping is located. Groundwater infiltration was observed in several locations in the stone foundation. The PID readings in the gaps of the foundation and ambient air in the basement were all recorded at 0.0 ppm. No petroleum-related odors were observed in the basement during the screening. Nearby sensitive receptors were identified as soil and groundwater in the vicinity of the former UST location, underground utilities located east and south of the property, indoor air quality, and a tributary of Steven's Branch and a and small wetland area located southeast and down gradient of the property.

1.3 OBJECTIVES AND SCOPE OF WORK

The objectives of this initial site investigation were to:

- Evaluate the degree and extent of petroleum contamination in soil and groundwater on the property in the vicinity of the former UST location;
- Qualitatively assess the risks to environmental and public health via relevant sensitive receptors and potential contaminant migration pathways; and,
- Identify appropriate monitoring and/or remedial actions based on the site conditions.

To accomplish these objectives, ECS has:

- Supervised the advancement of eight soil borings (SB-A, SB-B, SB-C, SB-D, SB-E, SB-F, SB-G, and SB-H) and subsequent installation of four groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4);
- Screened subsurface soils from soil borings for the possible presence of VOCs using a PID;
- Collected a soil sample from soil boring SB-B, located within the former UST excavation area and soil boring SB-C/MW-2, located on the south end of the former UST source area;
- Collected groundwater samples from MW-1 and MW-2, and a water sample from the basement sump located approximately 20 feet west of an active heating oil AST in the southeast corner of the basement;
- Identified sensitive receptors in the area, and assessed the risk posed by the contamination to these potential receptors; and,
- Prepared this summary report, which details the work performed, qualitatively assesses risks, provides conclusions, and offers recommendations for further action.

1.4 CONCEPTUAL SITE MODEL

Fuel oil contamination was initially encountered during a UST tank closure assessment performed by ECS in April 2014. Contamination was determined to have resulted from the overall poor condition of the UST, which possessed rust and small holes on the tank bottom. Fuel oil contamination was observed in the soil at concentrations above the VT DEC threshold of 10 ppm within the UST source area. LNAPL was discovered on the groundwater at a depth of approximately 4.5 bgs in the vicinity of the UST source area.

2.0 INVESTIGATIVE PROCEDURES AND RESULTS

2.1 SOIL BORING / MONITORING WELL INSTALLATION

On 19 August 2014, ECS supervised the advancement of eight soil borings (SB-A, SB-B, SB-C, SB-D, SB-E, SB-F, SB-G, and SB-H) and subsequent installation of four monitoring wells (MW-1, MW-2, MW-3, and MW-4) to characterize contaminant and hydrogeologic conditions at the site (Figure 2).

During drilling activities, groundwater was encountered between three to four feet bgs. Native soils generally consisted of fine sand with glacial till and some gravel.

Monitoring well MW-1 (SB-A) was installed north and up gradient of the former UST location. Soil boring SB-B was advanced within the former UST excavation area. Refusal was encountered at approximately 10 feet during the advancement of SB-B. Monitoring well MW-2 /SB-C was advanced on the south end of the former UST source area. Refusal was encountered at approximately 7.75 feet during the advancement of MW-2 /SB-C. Monitoring well MW-3/SB-D was advanced south and down gradient of the former UST location. Monitoring well MW-4/SB-E was advanced southeast and down gradient of the former UST location. Soil boring SB-F was advanced southwest and cross gradient of the former UST location. Soil boring SB-G was advanced east of the former UST location between the UST and underground power line. Soil boring SB-H was advanced near the southeast corner of the residence in close proximity to the former UST location and fill pipe. All borings and monitoring well locations are depicted on Figure 2.

Soil borings were advanced using direct push drilling methods subcontracted through ENPRO Services of Vermont, Inc. of Burlington, Vermont (ENPRO). Soil samples were collected from soil borings using continuous split spoon drilling methods. Drilling and sampling equipment was decontaminated during use, as appropriate.

The monitoring wells were constructed with one-inch diameter polyvinyl chloride (PVC) casing and factory-slotted 0.010-inch slot screen. The screen sections were set approximately 5 feet above and below the presumed groundwater level. Sections of solid PVC riser were added to bring the tops of the well casings to approximately 0.5 feet bgs. Clean silica #1 filter sand was placed in the borehole annulus around each well approximately two feet above the slotted interval. A granular bentonite seal, approximately one to two-foot thick, was set above the sand pack and the remainder of the annular space was backfilled with native material.

Monitoring well casings were fitted with a watertight compression cap and secured with a flush-mounted steel roadbox. Each monitoring well was developed using a peristaltic pump and dedicated tubing after installation was complete. All purge water was discharged to the ground surface in the vicinity of each well.

On 25 August 2014, monitoring wells were surveyed relative to existing site features, with an azimuth accuracy of ± 1.0 feet and an elevation accuracy of ± 0.01 feet. Monitoring well construction details are included on the soil boring and well construction logs in Appendix A. Photo documentation is presented in Appendix B.

2.2 SOIL-SCREENING RESULTS

During the advancement of soil borings on 19 August 2014, soil headspace PID readings ranged from 0.0 to 90 ppm. The highest soil headspace PID reading of 90 ppm was recorded in a soil sample at approximately five feet bgs in soil boring SB-C/MW-2, located on the south end of the former UST source area. Refusal was met at approximately 7.75 feet bgs with a PID reading of 0.5 ppm. The second highest PID reading was recorded in a soil sample collected at approximately four feet bgs in soil boring SB-B, located within the backfill of the former UST excavation (Figure 2).

Soil contamination appears to be the highest between four and eight feet bgs within the former UST source area. Elevated PID readings were detected above the VT DEC threshold of 10 ppm in soil borings SB-B and SB-C/MW-2, located in the source area and SB-H, located in close proximity to the former UST excavation and fill pipe. Contaminant concentrations under the foundation, if present are not known.

ECS personnel submitted a soil sample from soil boring SB-B, located within the former UST excavation area. The sample was collected at approximately four feet bgs, which correlates to the base of the former UST. An additional soil sample was collected at approximately five feet bgs from SB-C/MW-2, located on the south end of the former UST excavation area. The samples were submitted for analysis via EPA Method 8021B for the Vermont short list of petroleum-related VOCs and TPH DRO by EPA Method 8015. VOCs were detected at concentrations below the Vermont Residential Soil Screening Values (SSVs) in SB-B and SB-C/MW-2. TPH DRO was detected at concentrations above the Vermont Residential SSVs in SB-B and SB-C/MW-2.

ECS personnel screened soil samples from discrete intervals in each soil boring for the possible presence of VOCs using an IonScience Tiger portable PID. The PID was calibrated in the field with an isobutylene standard gas to a benzene reference. Soil samples were placed into a polyethylene bag, which was then sealed, agitated, and allowed to equilibrate. The PID probe was inserted into the headspace, and the highest reading was recorded. PID screening results are included on the boring logs in Appendix A.

2.3 GROUNDWATER CHARACTERISTICS

Based on the topography and limited hydrogeologic data, the groundwater at the site appears to flow generally to the south (Figure 3). The average horizontal hydraulic gradient is approximately 3.5 percent between MW-1 and MW-2.

Water levels were measured in the monitoring wells on 25 August 2014 to calculate groundwater flow direction. Light non-aqueous phase liquid (LNAPL) was not detected in the monitoring wells. Depths to groundwater in the on-site monitoring wells ranged from 6.02 feet (MW-1) to 6.05 feet (MW-2) below top-of-casing. Due to the seasonal low precipitation, measurable groundwater was not present on MW-3 or MW-4 on 25 August 2014.

Static water-table elevations were computed for each monitoring well by subtracting the measured depth-to-water readings from the surveyed top-of-casing elevations, which are relative to an arbitrary site datum of 100.00 feet. Water-level measurements and elevation calculations are presented in Table 1. A presumed groundwater flow direction map was prepared using these data (Figure 3).

2.4 SAMPLING AND ANALYSIS

On 8 August 2014, ECS personnel collected a water sample from a sump located in the basement of the residence. On 25 August 2014, ECS returned to the site to collect groundwater samples from monitoring wells MW-1, MW-2, MW-3, and MW-4.

VOCs were not detected above laboratory reporting limits in the samples collected from the basement sump and MW-1. No petroleum-related VOCs were detected at concentrations above the Vermont groundwater enforcement standards (VGESs) in the sample collected from MW-2.

Prior to groundwater sample collection, monitoring wells MW-1 and MW-2 were purged and sampled with a disposable bailer and drop line in accordance with ECS standard protocols. Purge water was discharged directly to the ground in the vicinity of each well. ECS personnel were unable to collect a sample from MW-3 and MW-4 due to seasonal absence of groundwater in the monitoring wells.

All samples were transported under chain-of-custody in an ice-filled cooler to Spectrum Analytical, Inc. of Agawam, Massachusetts. The trip blank and duplicate samples were collected for quality assurance/quality control (QA/QC) purposes. Analytical results of the duplicate sample, collected from MW-1, were below reporting limits. Petroleum-related compounds were not detected in the trip blank. Groundwater analytical results are summarized in Table 2 and illustrated in Figure 4. Soil analytical results are summarized in Table 3. Laboratory analytical reports are presented in Appendix C.

3.0 SENSITIVE RECEPTOR SURVEY AND RISK ASSESSMENT

3.1 SENSITIVE RECEPTOR SURVEY

ECS conducted a survey to identify sensitive receptors in the vicinity of the residence that could potentially be impacted by contamination associated with the site. The following sensitive receptors were identified in the vicinity of the property.

- The soil and groundwater in the former UST excavation area;
- a tributary of Steven's Branch located approximately 100 feet southeast from the former UST;
- a small wetland area located approximately 50 feet southeast from the former UST;
- Underground electric, water, and sewer lines;
- Indoor air quality.

3.2 RISK ASSESSMENT

ECS qualitatively assessed the risks that the residual soil and dissolved-phase subsurface contamination poses to the receptors identified above. In general, human exposure to petroleum-related contamination is possible through inhalation, ingestion, or direct contact while impacts to environmental receptors are due either to a direct release or contaminant migration through one receptor to another or along a preferential pathway.

- Soil and Groundwater in the vicinity of the former UST- The former UST area is located on the southeast corner of the residence. VOCs were detected below the Vermont Residential SSVs is soil samples collected from SB-C/MW-2, located on the south end of the former UST location and SB-B, located within the former UST excavation. TPH DRO was detected at concentrations above the Vermont Residential SSVs in SB-B and SB-C/MW-2. VOCs were detected below VGESs in the groundwater sample collected from MW-1 and MW-2. Access to impacted soils and groundwater in this area is limited and the risk to human exposure by direct contact is low.

- Surface Water (Tributary of Steven's Branch) – A tributary of Steven's Branch is located approximately 330 feet southeast and down gradient of the former UST location. PID readings were recorded at background concentrations in down gradient soil borings SB-D, SB-E, and SB-F. The risk to surface water appears to be low as there was no evidence of contamination in down gradient soil borings based on visual, olfactory or PID soil headspace screening.

- Surface Water (Wetland Area) – A small wetland area is located approximately 75 feet southeast and down gradient of the former UST location. The risk to surface water and vegetation appears to be low as there was no evidence of contamination in down gradient soil borings based on visual, olfactory or PID soil headspace screening.

- Private Utilities – Private utilities in the vicinity of the former UST excavation include an underground electric service line, municipal water service line, and municipal sewer service line. On 8 August 2014, personnel from Vermont Underground Locators verified the location of the underground utilities prior to drilling activities. Underground utilities can serve as preferential pathways for contaminant migration. Due to the proximity of private utility lines to the former UST area, migration of contaminants through preferential pathways is low.

- Indoor Air Quality – The close proximity of residence to soil boring SB-H with elevated soil PID headspace readings between zero to eight feet, along with groundwater infiltration in the stone foundation, suggests a potential vapor intrusion risk at the residence. However, because of the general low PID reading and the fact that no oil sheen was noted on the groundwater, vapor intrusion potential is likely low. The ambient airspace inside the basement of the residence was screened with a PID on 8 August 2014 at background concentrations. The basement is constructed of concrete and cross gradient of the release; therefore, a moderate risk exists.

4.0 CONCLUSIONS

Based on the results of the site investigation described above, ECS concludes the following:

- On 8 August 2014, a water sample was collected from a basement sump, located approximately 20 feet west of an existing heating oil above ground storage tank (AST) located in the southeast corner of the basement. Volatile organic compounds (VOCs) were not detected above laboratory reporting limits in this sample, which indicates that shallow groundwater beneath this section of the building has not been impacted by the heating oil release.

- During the advancement of soil borings on 19 August 2014, the highest photoionization detector (PID) reading of 90 parts per million (ppm) was recorded in a soil sample collected five feet below ground surface (bgs) within the former UST grave (soil boring SB-C/MW-2). No LNAPL was observed. Refusal was met at approximately 7.75 feet bgs where a PID reading of 0.5 ppm was observed. No evidence of fuel oil contamination was observed in up gradient well MW-1, cross gradient well SB-6, and down gradient soil borings SB-D/MW-3, SB-E/MW-4, and SB-F, indicating that the contamination had not migrated very far from the former UST location.

- ECS personnel collected soil samples for laboratory analysis based on field screening results. Samples SB-B 4-6' and SB-C 5-6' were collected within the former UST excavation. Sample SB-4 was collected approximately 4-6 feet bgs and SB-C was collected 5-6 feet bgs down gradient of where the tank was previously located The samples were submitted for analysis via EPA Method 8021B for the Vermont short list of petroleum-related VOCs and total petroleum hydrocarbon diesel range organics (TPH DRO) by EPA Method 8015. VOCs were detected at concentrations below the Vermont Residential Soil Screening Values (SSVs) in SB-B 4-6' and SB-C 5-6'. TPH DRO was detected at concentrations above the Vermont Residential SSV's in both samples.

- On 25 August 2014, ECS returned to the site to collect groundwater samples from monitoring wells MW-1, MW-2, MW-3, and MW-4. ECS personnel were unable to collect a sample from MW-3 and MW-4 due to an absence of groundwater in the wells; however, no field evidence of contamination was observed (i.e., PID, visual or olfactory) from these borings. Samples from MW-1 and MW-2 were submitted for analysis via EPA Method 8021B for the Vermont short list of petroleum-related VOCs. Depth to groundwater in these monitoring wells ranged from 6.02 to 6.05 feet bgs. No LNAPL was detected in either MW-1 or MW-2.

- Groundwater flow direction could not be calculated during the 25 August 2014 sampling event with only two groundwater elevation points, but it is presumed to flow to the south towards a tributary of Steven's Branch and a small wetland area (Figure 3).

- No petroleum-related VOCs were detected at concentrations above the Vermont Groundwater Enforcement Standards (VGESs) in the two samples collected on 25 August 2014.

- The limits of soil contamination in the vicinity of the former UST excavation has been further defined with the advancement of up gradient soil boring SB-A, cross gradient boring SB-G, and down gradient soil borings SB-D, SB-E, and SB-F, which did not reveal any visual or olfactory evidence of fuel oil contamination during this investigation (PID readings recorded at 0.0 ppm). Contamination appears to be located primarily in a sand and gravel layer above a dense glacial till and has not migrated very far from the former UST area.

- Soil headspace readings recorded above the VT DEC contaminated soil threshold levels for fuel oil were observed in samples collected from soil borings SB-B and SB-C/MW-2, located in the source area and SB-H, located in close proximity to the former UST excavation and fill pipe.

- Sensitive receptors include the soil and groundwater in the vicinity of the former UST, underground utilities, indoor air quality, and a tributary of Steven's Branch and small wetland area located southeast and down gradient of the property. Based on groundwater measurements obtained on 25August 2014 and topography, presumed groundwater flow direction is to the south.

5.0 RECOMMENDATIONS

Based on the conclusions stated above, it is the opinion of ECS that the site does not meet the requirements for a Sites Management Activity Complete (SMAC) designation at this time. ECS recommends the following options for consideration:

1. Excavate the contamination. It appears as though the contamination is localized in the area of the former UST and consists of less than 15 cubic yards. This amount of soil can be cost effectively removed, which would allow the property to receive a SMAC without a land record notice.

Or

2. Do not remove the contamination and place a land record notice on the property, which would document that a relatively small amount of contamination remains in the ground. The property and surrounding area is served by municipal water connections; therefore the risk to drinking water is low. The contaminated soil is several feet below ground; and therefore, risk for dermal contact is low.

Or

3. Conduct quarterly groundwater monitoring to confirm no VGES exceedances. Submit samples for laboratory analysis for VOCs by EPA Method 8021B. The next groundwater monitoring event should be scheduled for November 2014. If no VGES are exceeded then issue a SMAC with a land record notice to identify that contaminated soil remains on the property.

4. Prepare a report to include water-quality analytical results, figures showing groundwater flow direction and contaminant distribution, relevant tables, time-series graphs, laboratory reports, and recommendations for further action.

6.0 LIMITATIONS

This ISI was prepared exclusively for Ms. Saldi and was undertaken to assess specific environmental conditions previously identified on the subject property as presented in the UST Closure Assessment prepared by ECS. Analytical assessment and testing locations were selected in accordance with generally accepted engineering and environmental assessment practices based on findings and conclusions outlined in the report. No other warranty, express or implied, is provided with respect to any location not assessed, tested or analyzed. Absolute assurance that any and all possible contamination at the site has been identified cannot be provided.

The report conclusions are based, in part, on information provided by the client, the client's agents, or third parties, including state or local officials. ECS assumes no responsibility for the accuracy and completeness of this information.

Where visual observations are included in the report, they represent conditions at the time of the investigation, and may not be indicative of past or future conditions. Any additional information that becomes available concerning the project site should be provided to ECS so that our conclusions and recommendations can be reviewed and modified, if necessary.

FIGURES

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Saldi -75 Lathrop Court, Williamstown, VT
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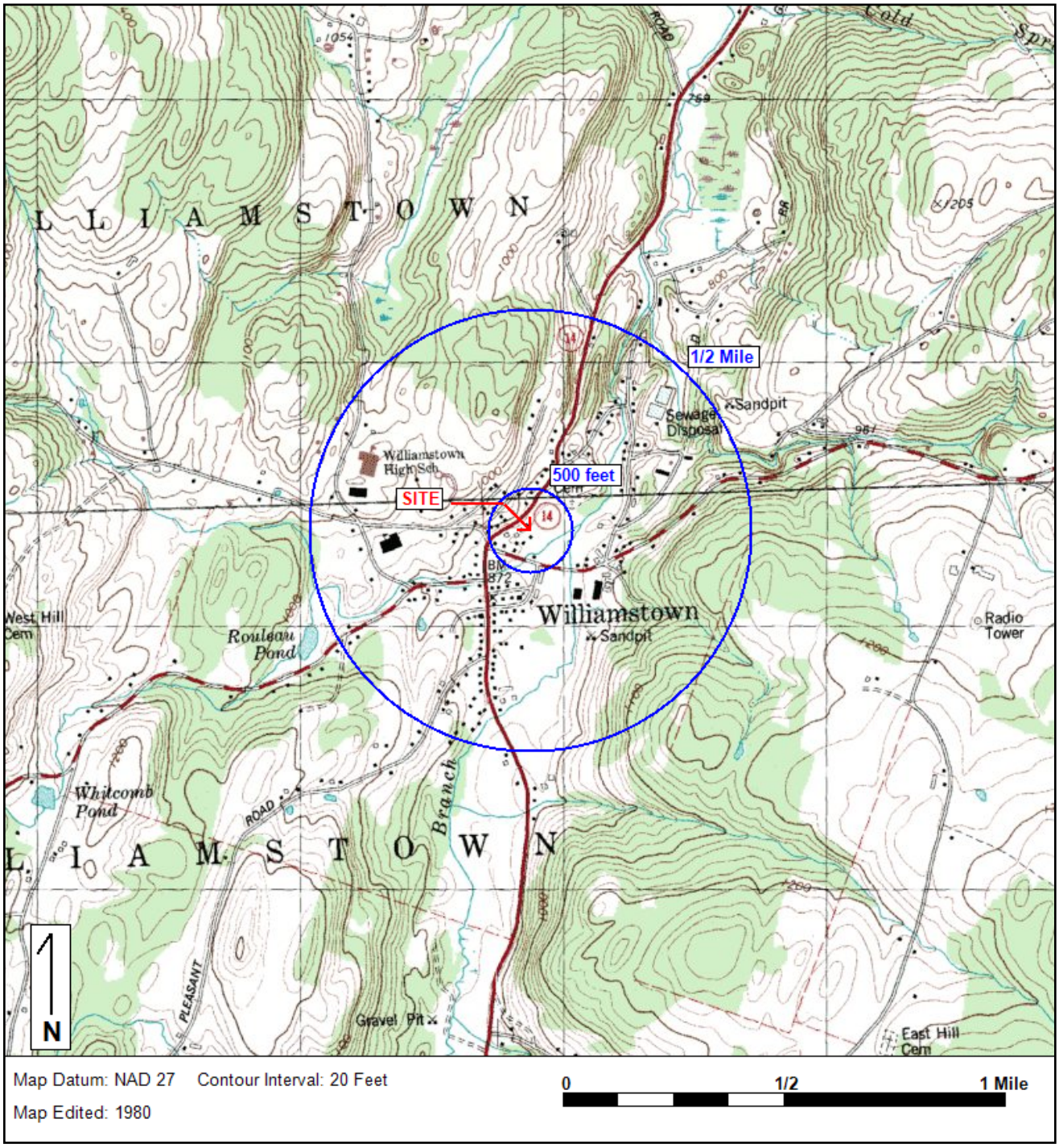
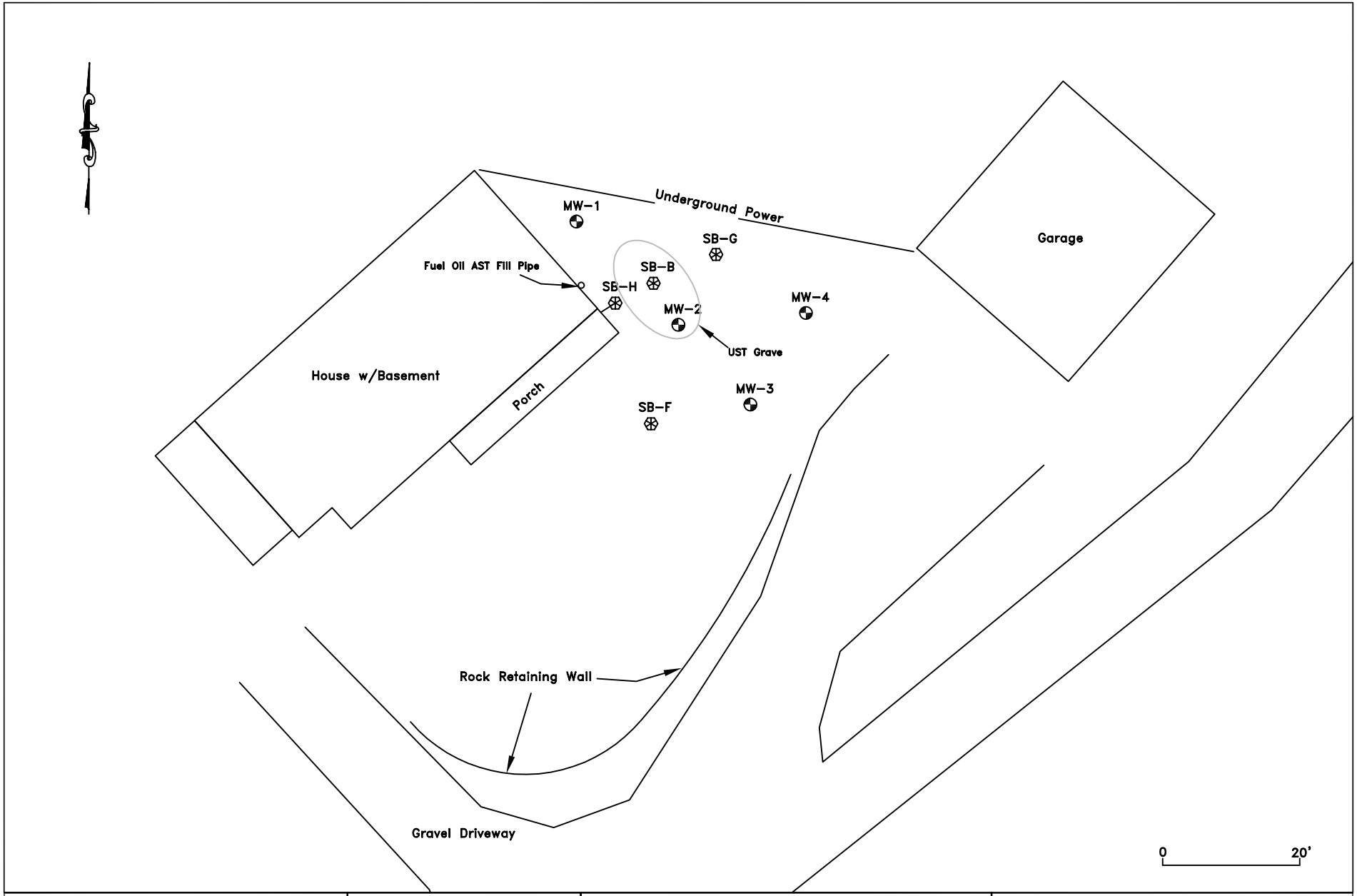
Figure 1: SITE LOCUS



Base Map: U.S. Geological Survey; Quadrangle Location: Brookfield, VT

Lat/Lon: 44 7' 26.4" NORTH, 72 32' 20.4" WEST - UTM Coordinates: 18 696899 EAST / 4888590.4 NORTH

Generated By: Carol Farrington



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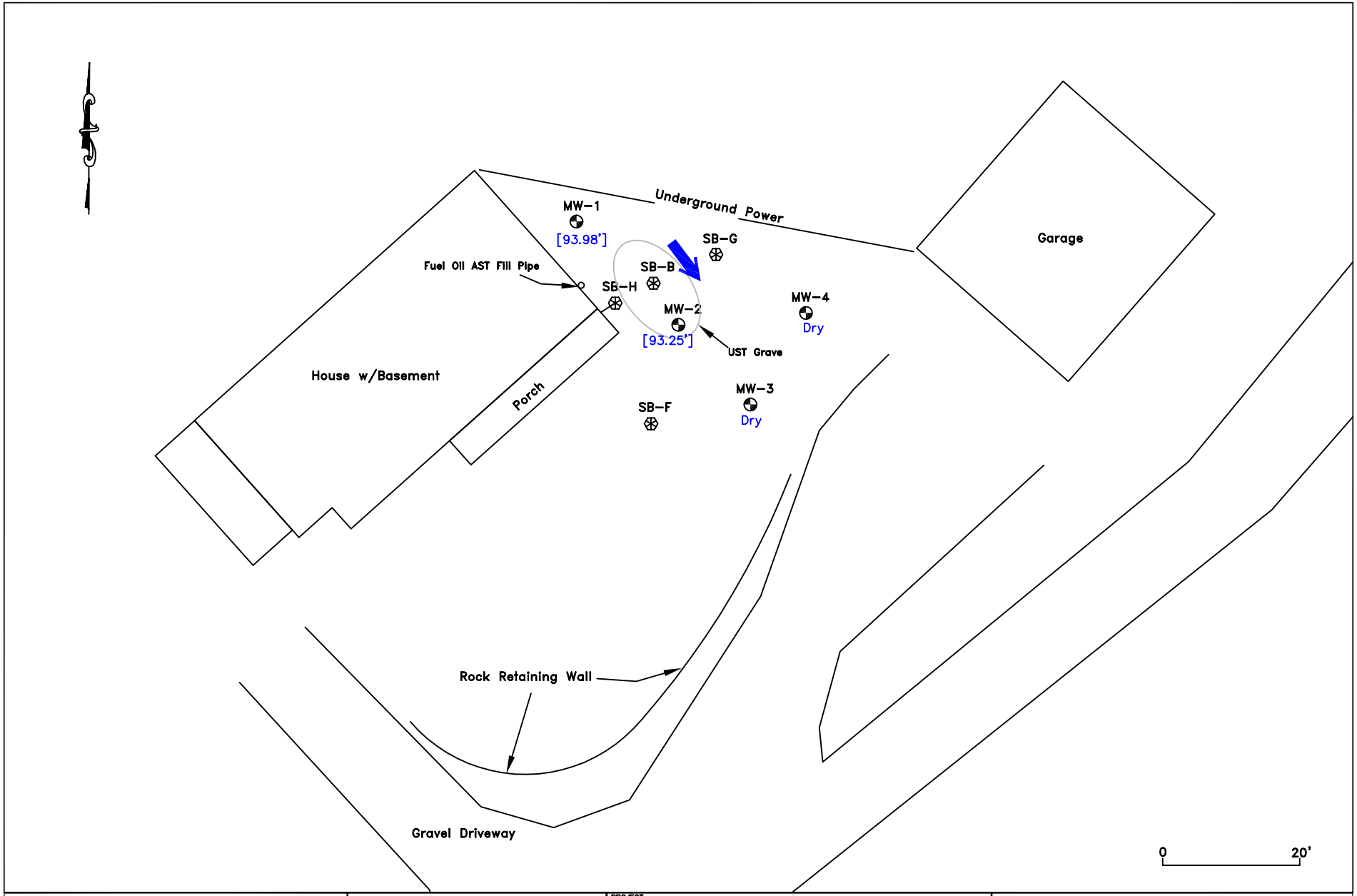
LEGEND

PROJECT:
75 Lathrop Ct.
Williamstown, VT

TITLE:
Site Plan

COMPUTER CADFILE : BOX/08-221850/DWG

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
AC	ZC	EE	EE
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1"=20'	8/27/14	08-221850.00	2



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LEGEND

[93.98'] Groundwater Elevation

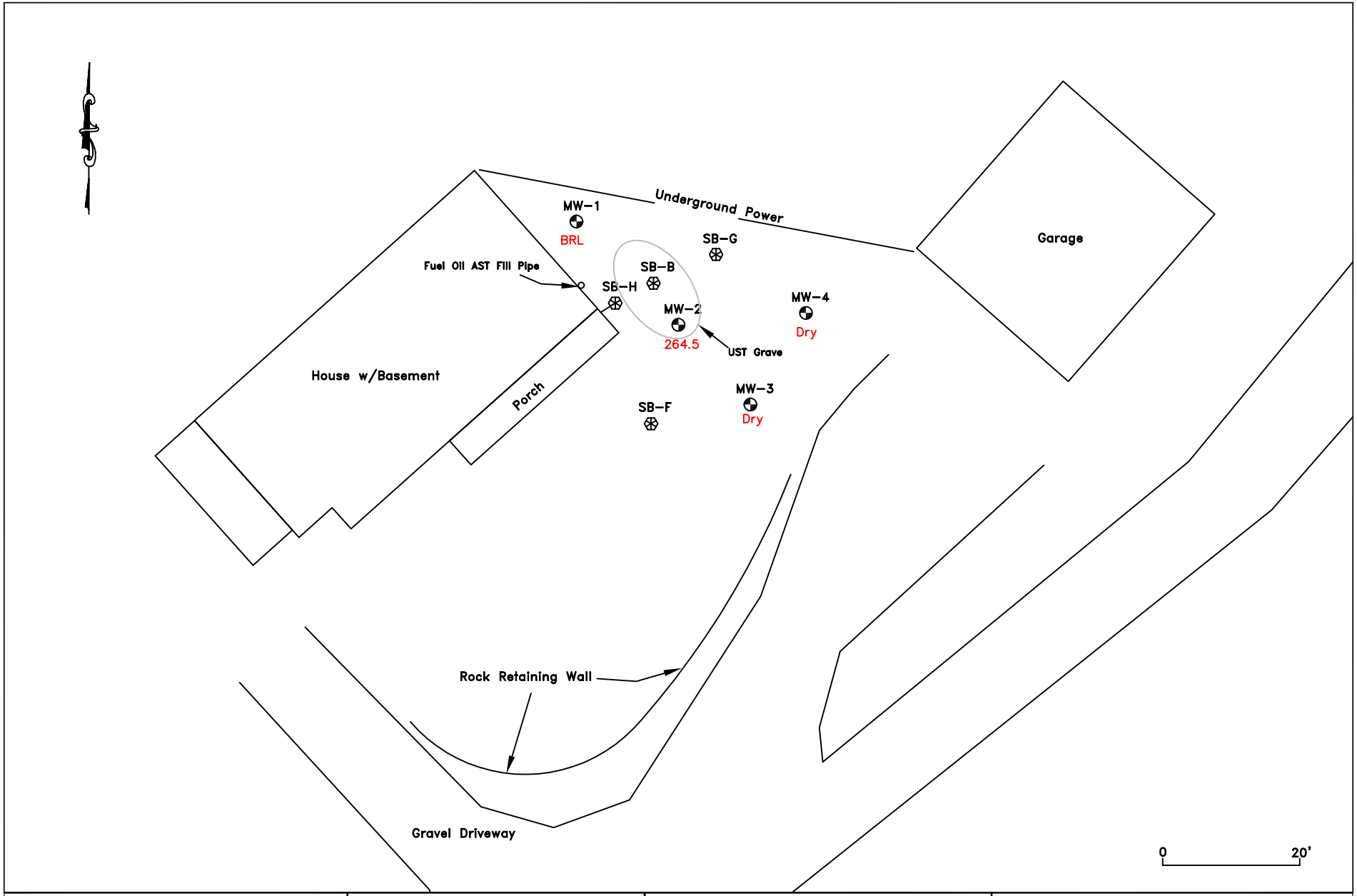
Groundwater Flow Direction

PROJECT:
75 Lathrop Ct.
Williamstown, VT

TITLE:
Presumed Groundwater Flow Direction Map
Sampling Date: 8/25/14

COMPUTER CADFILE : BOX/08-221850/DWG

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
AC	ZC	KP	KP
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1"=20'	9/18/14	08-221850.00	3



ecs
1 Elm Street, Suite 3 * Waterbury, VT 05676
Phone: 802-241-4131 Fax: 802-244-6694
www.ecsconsult.com

LEGEND	
264.5	Total VOCs (Volitile Organic Compounds)
BRL	Below Reporting Limits

PROJECT: 75 Lathrop Ct. Williamstown, VT

TITLE: Contaminant Concentration Map
Sampling Date: 8/25/14

COMPUTER CADFILE : BOX/08-221850/DWG

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
AC	ZC	KP	KP
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1"=20'	9/18/14	08-221850.00	4

TABLES

TABLE 1.
GROUNDWATER ELEVATION CALCULATIONS

Former Saldi Residence
Williamstown, VT

Monitoring Date: 25 August 2014

Well ID	Top of Casing Elevation	Depth to Water	Groundwater Elevation
MW-1	100.00	6.02	93.98
MW-2	99.30	6.05	93.25

Table 2.
Groundwater Laboratory Analytical Results

Former Saldi Residence
Williamstown, VT

Well ID	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	MTBE	Total TMB	Naphthalene	EDB	1,2-DCA	Total VOCs
MW-1	08/25/14	BRL<1.0	BRL<1.0	BRL<1.0	BRL<3.0	BRL	BRL<1.0	BRL<2.0	BRL<1.0	BRL<0.5	BRL<1.0	BRL
MW-2	08/25/14	**4.5**	BRL<1.0	**16.0**	**103.5**	**124**	BRL<1.0	**130.8**	**9.7**	BRL<0.5	BRL<1.0	**264.5**
Basement Sump	08/08/14	BRL<1.0	BRL<1.0	BRL<1.0	BRL<3.0	BRL	BRL<1.0	BRL<2.0	BRL<1.0	BRL<0.5	BRL<1.0	BRL
Duplicate (MW-1)	08/25/14	BRL<1.0	BRL<1.0	BRL<1.0	BRL<3.0	BRL	BRL<1.0	BRL<2.0	BRL<1.0	BRL<0.5	BRL<1.0	BRL
% difference	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	08/25/14	BRL<1.0	BRL<1.0	BRL<1.0	BRL<3.0	BRL	BRL<1.0	BRL<2.0	BRL<1.0	BRL<0.5	BRL<1.0	BRL
VGES	***-***	***5***	***1,000***	***700***	***10,000***	***--***	***40***	***350***	***20***	***0.05***	***5***	***--***

Notes:
All samples were collected by Environmental Compliance Services, Inc. (ECS) and analyzed by Spectrum Analytical, Inc.
Results given in micrograms per liter (µg/L)
BTEX - A sum of benzene, toluene, ethylbenzene, and total xylenes
MTBE - Methyl tert-butyl ether
TMB - Trimethylbenzene
EDB- 1,2-Dibromoethane
1,2-DCA- 1,2-Dichloroethane
VOCs- volatile organic compounds
BRL - Below Reporting Limit
VGES - Vermont Groundwater Enforcement Standards

Table 3.
Soil Laboratory Analytical Results
Former Saldi Residence
Sampling Date: 19 August 2014

Soil Boring ID	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Total Xylenes	MTBE	1,2,4-TMB	1,3,5-TMB	Naphthalene	Total VOCs	TPH (mg/kg)
SB-B 4-6'	<62.5	<62.5	<62.5	<125	<62.5	<187.5	<62.5	**593**	**278**	<62.5	**871**	**230**
SB-C 5-6'	<137	<137	**847**	**2,020**	**1,520**	**3,540**	<137	**12,200**	**3,850**	**1,560**	**25,537**	**1,460**
VDH Value	*6,240*	--	--	--	--	--	--	--	--	*1,070,000*	--	--
Vermont Residential SSV	*1,100*	*5,000,000*	*5,400*	*590,000*	*690,000*	*630,000*	*43,000*	*62,000*	*780,000*	*3,600*	--	*200*
Vermont Industrial SSV	*5,400*	*45,000,000*	*27,000*	*2,500,000*	*3,000,000*	*2,700,000*	*220,000*	*260,000*	*10,000,000*	*18,000*	--	*1,000*

Notes:

All samples were collected by Environmental Compliance Services, Inc. (ECS) and analyzed by Spectrum Analytical, Inc.

All results in micrograms per kilogram except TPH in mg/kg

BTEX - A sum of benzene, toluene, ethylbenzene, and total xylenes

MTBE - methyl tert-butyl ether

TMB- trimethylbenzene

VOCs - volatile organic compounds, 8021B list

VDH Value - Vermont Department of Health Guidance for Known Carcinogens

TPH - total petroleum hydrocarbons

Vermont SSV - Soil Screening Values, equivalent to EPA Regional Screening Levels for Residential and Industrial Soils (May 2014 update), except TPH guidance which is Vermont-specific (IRCPP 2012)

Shaded area denotes an exceedance of the Vermont SSV

APPENDIX A

SOIL BORING LOGS/ WELL CONSTRUCTION DIAGRAMS

ecs
1 Elm St, Suite 3 (802) 241-4131
Waterbury, Vermont 05676 (802) 244-6894 - fax

BORING / WELL IDENTIFICATION: SB-A / MW-1

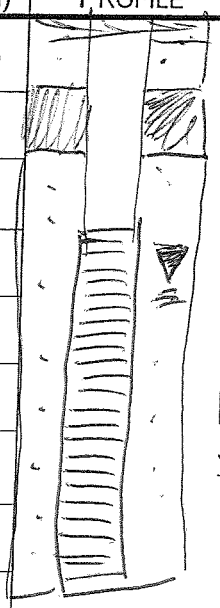
Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01
ECS Representative:	Beth Erickson
Drilling Company:	ENPRO
Sampling Method:	Direct Push
Reference Point (RP):	Ground Surface
Elevation of RP:	Not measured

Well Depth:	8'	Boring Depth:	8'
Depth to Water (during drilling):	~ 3-4'		
Screen Diameter:	1"	Depth:	3-8'
Screen Type/Size:	PVC sch. 40 10 slot		
Riser Diameter:		Depth:	0-3'
Riser Type/Size:	PVC sch. 40		
Remarks:	Upgradient of former UST		

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)
0	0-4'	3'	fine dk brown sand some angular gravel (either fill material or till?)	0.0
1				
2			wet @ 3' bgs	
3			no odors, no staining	
4	4-8'	2.5	dk brown wet glacial till (sand, silt, angular gravel) no odors, no staining	0.0
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

End of Sampling = 8 feet
Well set @ 8 feet

Well Profile



Legend: Concrete; Native Material; Bentonite; Filter Sand; Riser; Screen; Water Level

Proportions Used	
AND	33-50%
SOME	20-33%
LITTLE	10-20%
TRACE	0-10%

Blow Count (Cohesive Soils)	
<2	VERY SOFT
2-4	SOFT
4-8	MEDIUM STIFF
8-15	STIFF
15-30	VERY STIFF

Blow Count (Granular Soils)	
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE

Notes:
PID used: Tiger Lab Science

ecs

1 Elm St, Suite 3 (802) 241-4131
Waterbury, Vermont 05676 (802) 244-6894 - fax

BORING / WELL IDENTIFICATION: SB-B

Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01
ECS Representative:	Beth Erickson
Drilling Company:	ENPRO
Sampling Method:	Direct Push
Reference Point (RP):	Ground Surface
Elevation of RP:	Not measured

Well Depth:	—	Boring Depth:	10' refusal
Depth to Water (during drilling):	2-4' ?		
Screen Diameter:	—	Depth:	—
Screen Type/Size:	—		
Riser Diameter:	—	Depth:	—
Riser Type/Size:	—		
Remarks:	Source area w/highest PID readings during UST removal (location "7")		

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)
0	0-4'	1.5	(UST backfill - not well compacted) Dry loamy dk brown fill	0.0
1			material over wet	
2			dk brown glacial till No odors, no staining.	0.0
3			(v. little recovery)	
4	4-8	2'	wet Sand and gravel w/ petroleum odor, possible sheen (Backfill material?)	30.3
5			above wet sandy glacial till w/ petroleum odor	3.0
6				
7				
8	8-10	2'	wet sandy glacial till 8' =	0.2
9	refusal		10' =	0.0
10			refusal @10' on boulder or bedrock - crushed	
11			metamorphic rock @ tip	
12				
13				
14				
15				
16				
17			End of Sampling 10' refusal feet Well set @ feet	

Well Profile

Legend: Concrete; Native Material; Bentonite; Filter Sand; Riser; Screen; Water Level

Proportions Used	
AND	33-50%
SOME	20-33%
LITTLE	10-20%
TRACE	0-10%

Blow Count (Cohesive Soils)	
<2	Very Soft
2-4	Soft
4-8	Medium Stiff
8-15	Stiff
15-30	Very Stiff

Blow Count (Granular Soils)	
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
>50	Very Dense

Notes:

PID used: Ion Sci Tiger

ecs
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Waterbury, Vermont 05676 (802) 244-6894 - fax

BORING / WELL IDENTIFICATION: SB-C/MW-2

Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01
ECS Representative:	Beth Erickson
Drilling Company:	ENPRO
Sampling Method:	Direct Push
Reference Point (RP):	Ground Surface
Elevation of RP:	Not measured

Well Depth:	7.75'	Boring Depth:	7.75 refusal
Depth to Water (during drilling):	~ 3-4'		
Screen Diameter:	1"	Depth:	2.75-7.75
Screen Type/Size:	PVC sch 40 10 slot		
Riser Diameter:	1"	Depth:	0-2.75
Riser Type/Size:	PVC sch 40		
Remarks:	South end of source area UST (presumed downgrad. end of UST)		

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)	Well Profile	Legend
0	0-4'	3'	loamy sand + wood fill beneath grass above	0.0		Concrete
1			dk brown sandy glacial till as in other borings			Native Material
2			wet @ 3-4' Bgs no odors, no staining	0.0		Bentonite
3						Filter Sand
4	4-		4-5' - ~~fine~~ as above, wet	2.5		Riser
5			5-6' - angular gravel layer wet, petrol. odor	90.0		Screen
6			6-7.75' - dense wet glacial till	0.5		Water Level
7			refusal @ 7.75'			
8						
9						
10						
11						
12						
13						
14						
15						
16						
17			End of Sampling = feet Well set @ feet			

Proportions used		Blow count (cohesive soils)		Blow count (granular soils)		Notes:
AND	33-50%	<2	Very soft	0-4	Very loose	
SOME	20-33%	2-4	Soft	4-10	Loose	PID used:
LITTLE	10-20%	4-8	Medium stiff	10-30	Medium dense	
TRACE	0-10%	8-15	Stiff	30-50	Dense	

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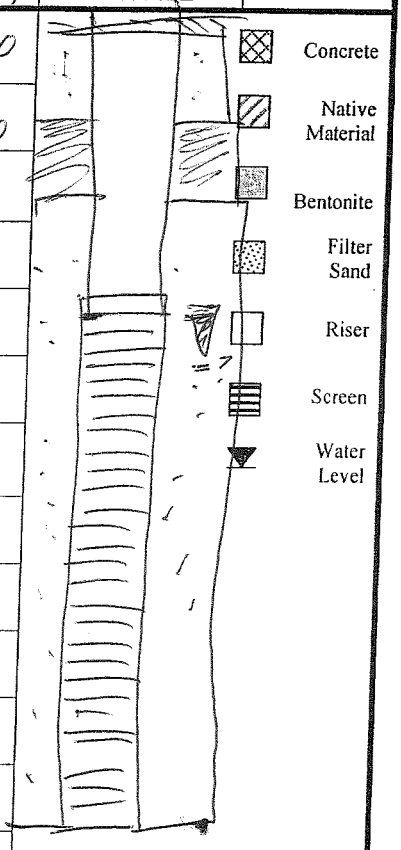
BORING / WELL IDENTIFICATION: SB-D/MW-3

Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01
ECS Representative:	Beth Erickson
Drilling Company:	ENPRO
Sampling Method:	Direct Push
Reference Point (RP):	Ground Surface
Elevation of RP:	Not measured

Well Depth:	12'	Boring Depth:	12'
Depth to Water (during drilling):	~4+		
Screen Diameter:	1"	Depth:	4-12'
Screen Type/Size:	PVC sch 40 10-slot		
Riser Diameter:	1"	Depth:	0-4'
Riser Type/Size:	PVC sch 40		
Remarks:	Downgradient, south of source likely downgrad direction		

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)
0	0-4'	2'	grass above sand and gravel (moist), thin	0.0
1			layer of crushed metamorphic rock @ ~3' Moist	0.0
2				
3				
4	4-8'	3.5'	4-7 dense moist to wet glacial till, no odors, no staining	0.0
5				
6			7-8 wet med. sand, no odors, no staining	0.0
7				
8	8-12'	3'	8-9' wet med sand as above	0.0
9			9-12' v. wet dense glacial till, thin layer of	0.0
10			crushed gravel @ 10-10.5'	0.0
11			(no odors, no staining)	
12				
13				
14				
15				
16				
17			End of Sampling = 12' feet Well set @ 12' feet	

Well Profile / Legend



Proportions used	
AND	33-50%
SOME	20-33%
LITTLE	10-20%
TRACE	0-10%

Blow count (cohesive soils)	
<2	VERY SOFT
2-4	SOFT
4-8	MEDIUM STIFF
8-15	STIFF

Blow count (granular soils)	
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE

Notes:

PID used: Ion Sci Tiger

ecs

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Waterbury, Vermont 05676 (802) 244-6894 - fax

BORING / WELL IDENTIFICATION: SB-E/MW-4

Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01
ECS Representative:	Beth Erickson
Drilling Company:	ENPRO
Sampling Method:	Direct Push
Reference Point (RP):	Ground Surface
Elevation of RP:	Not measured

Well Depth:	8'	Boring Depth:	8'
Depth to Water (during drilling):	~4'		
Screen Diameter:	1"	Depth:	3-8'
Screen Type/Size:	PVC sch 40 10-slot		
Riser Diameter:	1"	Depth:	0-3'
Riser Type/Size:	PVC sch 40		
Remarks:	Southeast of source, possibly downgradient/crossgradient		

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)
0	0-4'	3.5'	dry to moist glacial till beneath grass as in other borings, no odors, no staining	0.0
1				
2				
3				
4	4-8'	4'	4-5 med. wet sand	0.0
5			5-8' wet dense glacial till, increasing sand content w/ depth. No odors, no staining	0.0
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17			End of Sampling = 8 feet Well set @ 8 feet	

Well Profile

Legend: Concrete; Native Material; Bentonite; Filter Sand; Riser; Screen; Water Level

Proportions used	
AND	33-50%
SOME	20-33%
LITTLE	10-20%
TRACE	0-10%

Blow count (cohesive soils)	
<2	VERY SOFT
2-4	SOFT
4-8	MEDIUM STIFF
8-15	STIFF
15-30	VERY STIFF

Blow count (granular soils)	
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

Notes:
PID used: Tiger. Ion. C.

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Waterbury, Vermont 05676 (802) 244-6894 - fax

BORING / WELL IDENTIFICATION: SB-F

Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01

Well Depth:	—	Boring Depth:	8'	ECS Representative:	Beth Erickson
Depth to Water (during drilling):	~4'			Drilling Company:	ENPRO
Screen Diameter:	—	Depth:	—		
Screen Type/Size:	—			Sampling Method:	Direct Push
Riser Diameter:	—	Depth:	—	Reference Point (RP):	Ground Surface
Riser Type/Size:	—			Elevation of RP:	Not measured
Remarks:	SW of source area, likely crossgradient, in front of steps to bldg				

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)	Well Profile	Legend
0	0-4'	3.5	dense glacial till, moist	0.0		Concrete; Native Material; Bentonite; Filter Sand; Riser; Screen; Water Level
1						
2						
3						
4	4-8'	3.75'	dense glacial till as above, wet.	0.0		
5			4.5-5 thin layer of crushed gravel, no odor, no staining, wet	0.0		
6						
7			7.5-7.75 layer of coarse sand, wet, no odor no staining	0.0		
8						
9						
10						
11						
12						
13						
14						
15						
16						
17			End of Sampling = 8' feet Well set @ feet			

Proportions used		Blow count (cohesive soils)		Blow count (granular soils)	
and	33-50%	<2	very soft	0-4	very loose
some	20-33%	2-4	soft	4-10	loose
little	10-20%	4-8	medium stiff	10-30	medium dense
trace	0-10%	8-15	stiff	30-50	dense
		15-30	very stiff	>50	very dense

Notes:
PID used: Tiger Ian Sii

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Waterbury, Vermont 05676 (802) 244-6894 - fax

BORING / WELL IDENTIFICATION: SB-G

Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01
ECS Representative:	Beth Erickson
Drilling Company:	ENPRO
Sampling Method:	Direct Push
Reference Point (RP):	Ground Surface
Elevation of RP:	Not measured

Well Depth:	—	Boring Depth:	8'
Depth to Water (during drilling):	4'		
Screen Diameter:	—	Depth:	—
Screen Type/Size:	—		
Riser Diameter:	—	Depth:	—
Riser Type/Size:	—		
Remarks:	East of source area between source + electricline		

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)	Well Profile	Legend
0	0-4	2'	moist dense glacial till, few thin sand lenses. No odors, no staining	0.0		Concrete; Native Material; Bentonite; Filter Sand; Riser; Screen; Water Level
1						
2						
3						
4	4-8	3'	v. dense wet glacial till thin sand layer 7-7.1' v. wet. no odors, no staining	0.0		
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17			End of Sampling = 8 feet; Well set @ — feet			

Proportions used	
AND	33-50%
SOME	20-33%
LITTLE	10-20%
TRACE	0-10%

Blow count (cohesive soils)	
<2	Very soft
2-4	Soft
4-8	Medium stiff
8-15	Stiff

Blow count (granular soils)	
0-4	Very loose
4-10	Loose
10-30	Medium dense
30-50	Dense

Notes:
PID used: Ian Sci Tiger

ECS
1 Elm St, Suite 3 (802) 241-4131
Waterbury, Vermont 05676 (802) 244-6894 - fax

BORING / WELL IDENTIFICATION: SB-H

Site Name:	75 Lathrop Ct
Site Location:	Williamstown VT
Installation Date:	8/19/14
Job Number:	08-221850.01
Well Depth:	—
Boring Depth:	12
ECS Representative:	Beth Erickson
Depth to Water (during drilling):	3-4?
Drilling Company:	ENPRO
Screen Diameter:	—
Depth:	—
Screen Type/Size:	—
Sampling Method:	Direct Push
Riser Diameter:	—
Depth:	—
Reference Point (RP):	Ground Surface
Riser Type/Size:	—
Elevation of RP:	Not measured
Remarks:	at corner of house, western edge of source area (see if basement impacted)

Depth (in feet)	Sample Depth	Recovery (ft)	Sample Description and Notes	PID (ppm)	Well Profile	Legend
0	0-4	3'	glacial till beneath sand (fill layer), moist to wet 0-2	0.0		Concrete
1			2-4	15.0		Native Material
2						Bentonite
3						Filter Sand
4	4-8'	2.5'	4-8 v. dense wet glacial till, slight petrol. odor 4-5'	9.0		Riser
5			5-7'			Screen
6						Water Level
7			tip =	1.0		
8	8-12	3'	v. dense wet glacial till, as above, few thin layers of gravel or sand 8-9'	0.5		
9			9-12	0.0		
10						
11						
12						
13						
14						
15						
16						
17			End of Sampling = 12 feet Well set @ — feet			

Proportions Used		Blow Count (Cohesive Soils)		Blow Count (Granular Soils)	
AND	33-50%	<2	Very Soft	0-4	Very Loose
SOME	20-33%	2-4	Soft	4-10	Loose
LITTLE	10-20%	4-8	Medium Stiff	10-30	Medium Dense
TRACE	0-10%	8-15	Stiff	30-50	Dense
		15-30	Very Stiff	>50	Very Dense
		>30	Hard		

Notes:
PID used: Ion Sci. Tiger

APPENDIX B

PHOTODOCUMENTATION

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

Client Name:	**Site Location:**	**ECS Project #:**
Ms. Saldi	*75Lathrop Court* *Williamstown, Vermont*	*08-221850.00*

Photograph #1

Description:
View of residence facing north

Photograph #2

Description:
UST excavation area on southeast corner of residence

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

Client Name: *Ms. Saldi*	**Site Location:** *75Lathrop Court Williamstown, Vermont*	**ECS Project #:** *08-221850.00*

Photograph #3

Description:
UST in tank grave

Photograph #4

Description:
UST abatement in tank grave

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

Client Name: *Ms. Saldi*	**Site Location:** *75Lathrop Court Williamstown, Vermont*	**ECS Project #:** *08-221850.00*

Photograph #5

Description:
LNAPL discovered below the UST with absorbent padding

Photograph #6

Description:
Rust and holes discovered on the UST tank bottom

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

Client Name: *Ms. Saldi*	**Site Location:** *75Lathrop Court Williamstown, Vermont*	**ECS Project #:** *08-221850.00*

Photograph #7

Description:
UST removal

Photograph #8

Description:
Monitoring well installation

PHOTOGRAPHIC LOG

Environmental Compliance Services, Inc.
1 Elm St., Suite 3
Waterbury, Vermont 05676

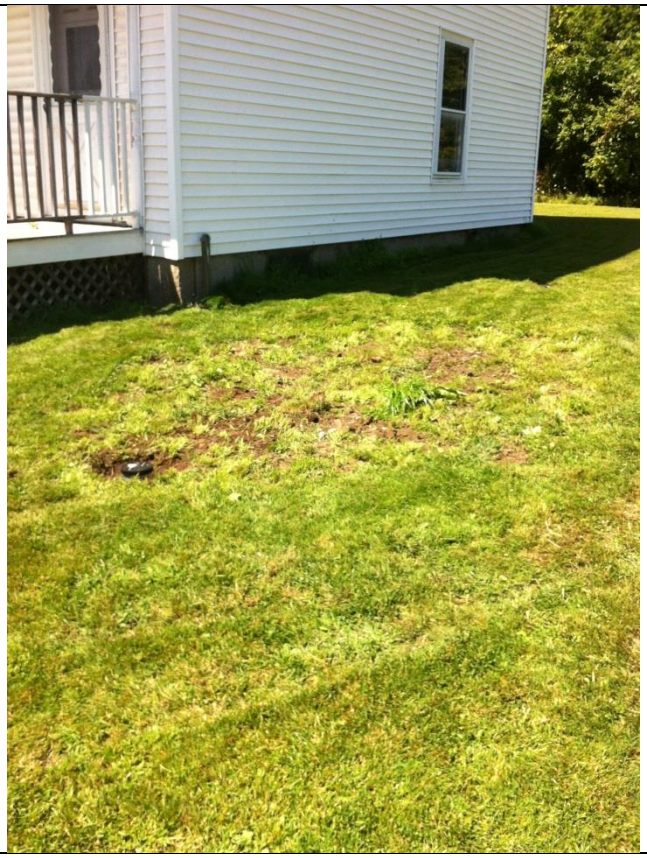
Client Name:	**Site Location:**	**ECS Project #:**
Ms. Saldi	*75Lathrop Court* *Williamstown, Vermont*	*08-221850.00*

Photograph #9

Description:
Monitoring wells MW-1, MW-2, and MW-3

Photograph #10

Description:
View of monitoring well MW-2



APPENDIX C

LABORATORY ANALYTICAL REPORTS

Report Date:
22-Aug-14 09:52

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

Environmental Compliance Services
1 Elm St. Suite 3
Waterbury, VT 05676
Attn: Elizabeth Erickson

Project: 75 Lathrop Ct. - Williamstown, VT
Project #: 08-221850.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB94493-01	Sump	Ground Water	08-Aug-14 12:30	12-Aug-14 10:30

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 8 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, NJ-MA012, PA-68-04426 and FL-E87936).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

The samples were received 2.1 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8260C

Calibration:

1407029

Analyte quantified by quadratic equation type calibration.

Naphthalene

This affected the following samples:

1419193-BLK1
1419193-BS1
1419193-BSD1
1419193-MS1
1419193-MSD1
1419395-BLK1
1419395-BS1
1419395-BSD1
S407903-ICV1
S409217-CCV1
S409332-CCV1
Sump

Samples:

S409332-CCV1

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

Naphthalene (-20.2%)

This affected the following samples:

1419395-BLK1
1419395-BS1
1419395-BSD1
Sump

SB94493-01 *Sump*

Sample data reported for QC purposes only.

Sample Acceptance Check Form

Client:	Environmental Compliance Services - Waterbury, VT
Project:	75 Lathrop Ct. - Williamstown, VT / 08-221850.01
Work Order:	SB94493
Sample(s) received on:	8/12/2014
Received by:	Vickie Knowles

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
1. Were custody seals present?	☑	☐	☐
2. Were custody seals intact?	☑	☐	☐
3. Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
4. Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
5. Were samples refrigerated upon transfer to laboratory representative?	☐	☑	☐
6. Were sample containers received intact?	☑	☐	☐
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
8. Were samples accompanied by a Chain of Custody document?	☑	☐	☐
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
10. Did sample container labels agree with Chain of Custody document?	☑	☐	☐
11. Were samples received within method-specific holding times?	☑	☐	☐

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Sump	08-221850.01	Ground Water	08-Aug-14 12:30	12-Aug-14
SB94493-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by GC/MS			QCR										
Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	< 50.0	D	µg/l	50.0	15.8	50	SW846 8260C	15-Aug-14	15-Aug-14	JEG	1419193	
106-93-4	1,2-Dibromoethane (EDB)	< 25.0	D	µg/l	25.0	16.0	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 50.0	D	µg/l	50.0	15.2	50	"	"	"	"	"	
100-41-4	Ethylbenzene	< 50.0	D	µg/l	50.0	20.8	50	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 50.0	D	µg/l	50.0	18.4	50	"	"	"	"	"	
91-20-3	Naphthalene	< 50.0	D	µg/l	50.0	26.8	50	"	"	"	"	"	
108-88-3	Toluene	< 50.0	D	µg/l	50.0	14.1	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 50.0	D	µg/l	50.0	16.6	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 50.0	D	µg/l	50.0	19.6	50	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 100	D	µg/l	100	20.8	50	"	"	"	"	"	
95-47-6	o-Xylene	< 50.0	D	µg/l	50.0	17.8	50	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*91*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*100*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*102*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*103*			*70-130 %*			"	"	"	"	"	
Re-analysis of Volatile Organic Compounds by GC/MS													
Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	19-Aug-14	19-Aug-14	GMA	1419395	
106-93-4	1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5	0.3	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.5	1	"	"	"	"	"	
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.0		µg/l	2.0	0.4	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*92*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*101*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*104*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*105*			*70-130 %*			"	"	"	"	"	

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1419193 - SW846 5030 Water MS										
Blank (1419193-BLK1)					Prepared & Analyzed: 15-Aug-14					
Benzene	< 1.0		µg/l	1.0						
1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5						
1,2-Dichloroethane	< 1.0		µg/l	1.0						
Ethylbenzene	< 1.0		µg/l	1.0						
Methyl tert-butyl ether	< 1.0		µg/l	1.0						
Naphthalene	< 1.0		µg/l	1.0						
Toluene	< 1.0		µg/l	1.0						
1,2,4-Trimethylbenzene	< 1.0		µg/l	1.0						
1,3,5-Trimethylbenzene	< 1.0		µg/l	1.0						
m,p-Xylene	< 2.0		µg/l	2.0						
o-Xylene	< 1.0		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	*45.9*		µg/l		*50.0*		*92*	*70-130*		
Surrogate: Toluene-d8	*50.0*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.6*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: Dibromofluoromethane	*50.4*		µg/l		*50.0*		*101*	*70-130*		
LCS (1419193-BS1)					Prepared & Analyzed: 15-Aug-14					
Benzene	**20.0**		µg/l		20.0		100	70-130		
1,2-Dibromoethane (EDB)	**21.5**		µg/l		20.0		108	70-130		
1,2-Dichloroethane	**20.0**		µg/l		20.0		100	70-130		
Ethylbenzene	**20.2**		µg/l		20.0		101	70-130		
Methyl tert-butyl ether	**18.1**		µg/l		20.0		91	70-130		
Naphthalene	**17.1**		µg/l		20.0		86	70-130		
Toluene	**19.9**		µg/l		20.0		100	70-130		
1,2,4-Trimethylbenzene	**21.6**		µg/l		20.0		108	70-130		
1,3,5-Trimethylbenzene	**20.9**		µg/l		20.0		105	70-130		
m,p-Xylene	**20.8**		µg/l		20.0		104	70-130		
o-Xylene	**22.0**		µg/l		20.0		110	70-130		
Surrogate: 4-Bromofluorobenzene	*51.7*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: Toluene-d8	*49.9*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*49.5*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: Dibromofluoromethane	*51.2*		µg/l		*50.0*		*102*	*70-130*		
LCS Dup (1419193-BSD1)					Prepared & Analyzed: 15-Aug-14					
Benzene	**19.5**		µg/l		20.0		98	70-130	3	20
1,2-Dibromoethane (EDB)	**20.3**		µg/l		20.0		102	70-130	6	20
1,2-Dichloroethane	**19.0**		µg/l		20.0		95	70-130	5	20
Ethylbenzene	**19.8**		µg/l		20.0		99	70-130	2	20
Methyl tert-butyl ether	**17.5**		µg/l		20.0		88	70-130	4	20
Naphthalene	**16.5**		µg/l		20.0		83	70-130	3	20
Toluene	**19.2**		µg/l		20.0		96	70-130	4	20
1,2,4-Trimethylbenzene	**20.8**		µg/l		20.0		104	70-130	4	20
1,3,5-Trimethylbenzene	**20.6**		µg/l		20.0		103	70-130	1	20
m,p-Xylene	**20.2**		µg/l		20.0		101	70-130	3	20
o-Xylene	**21.4**		µg/l		20.0		107	70-130	3	20
Surrogate: 4-Bromofluorobenzene	*50.8*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8	*49.3*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*49.3*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: Dibromofluoromethane	*50.5*		µg/l		*50.0*		*101*	*70-130*		
Matrix Spike (1419193-MS1)			**Source: SB94493-01**		Prepared & Analyzed: 15-Aug-14					
Benzene	**18.6**	D	µg/l		20.0	BRL	93	70-130		
1,2-Dibromoethane (EDB)	**19.2**	D	µg/l		20.0	BRL	96	70-130		

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1419193 - SW846 5030 Water MS										
Matrix Spike (1419193-MS1)			**Source: SB94493-01**		Prepared & Analyzed: 15-Aug-14					
1,2-Dichloroethane	**18.2**	D	µg/l		20.0	BRL	91	70-130		
Ethylbenzene	**19.2**	D	µg/l		20.0	BRL	96	70-130		
Methyl tert-butyl ether	**16.4**	D	µg/l		20.0	BRL	82	70-130		
Naphthalene	**16.2**	D	µg/l		20.0	0.6	78	70-130		
Toluene	**18.7**	D	µg/l		20.0	BRL	93	70-130		
1,2,4-Trimethylbenzene	**20.5**	D	µg/l		20.0	BRL	102	70-130		
1,3,5-Trimethylbenzene	**20.3**	D	µg/l		20.0	BRL	101	70-130		
m,p-Xylene	**20.0**	D	µg/l		20.0	BRL	100	70-130		
o-Xylene	**21.0**	D	µg/l		20.0	BRL	105	70-130		
Surrogate: 4-Bromofluorobenzene	*50.2*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: Toluene-d8	*49.7*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*49.4*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: Dibromofluoromethane	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Matrix Spike Dup (1419193-MSD1)			**Source: SB94493-01**		Prepared & Analyzed: 15-Aug-14					
Benzene	**18.2**	D	µg/l		20.0	BRL	91	70-130	2	20
1,2-Dibromoethane (EDB)	**19.2**	D	µg/l		20.0	BRL	96	70-130	0.4	20
1,2-Dichloroethane	**18.0**	D	µg/l		20.0	BRL	90	70-130	1	20
Ethylbenzene	**19.0**	D	µg/l		20.0	BRL	95	70-130	1	20
Methyl tert-butyl ether	**16.8**	D	µg/l		20.0	BRL	84	70-130	3	20
Naphthalene	**16.0**	D	µg/l		20.0	0.6	77	70-130	2	20
Toluene	**18.4**	D	µg/l		20.0	BRL	92	70-130	2	20
1,2,4-Trimethylbenzene	**20.2**	D	µg/l		20.0	BRL	101	70-130	2	20
1,3,5-Trimethylbenzene	**20.2**	D	µg/l		20.0	BRL	101	70-130	0.3	20
m,p-Xylene	**19.7**	D	µg/l		20.0	BRL	99	70-130	1	20
o-Xylene	**21.0**	D	µg/l		20.0	BRL	105	70-130	0.05	20
Surrogate: 4-Bromofluorobenzene	*50.4*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: Toluene-d8	*49.3*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*48.7*		µg/l		*50.0*		*97*	*70-130*		
Surrogate: Dibromofluoromethane	*50.5*		µg/l		*50.0*		*101*	*70-130*		
Batch 1419395 - SW846 5030 Water MS										
Blank (1419395-BLK1)					Prepared & Analyzed: 19-Aug-14					
Benzene	< 1.0		µg/l	1.0						
1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5						
1,2-Dichloroethane	< 1.0		µg/l	1.0						
Ethylbenzene	< 1.0		µg/l	1.0						
Methyl tert-butyl ether	< 1.0		µg/l	1.0						
Naphthalene	< 1.0		µg/l	1.0						
Toluene	< 1.0		µg/l	1.0						
1,2,4-Trimethylbenzene	< 1.0		µg/l	1.0						
1,3,5-Trimethylbenzene	< 1.0		µg/l	1.0						
m,p-Xylene	< 2.0		µg/l	2.0						
o-Xylene	< 1.0		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	*46.4*		µg/l		*50.0*		*93*	*70-130*		
Surrogate: Toluene-d8	*50.8*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*50.7*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: Dibromofluoromethane	*50.4*		µg/l		*50.0*		*101*	*70-130*		
LCS (1419395-BS1)					Prepared & Analyzed: 19-Aug-14					
Benzene	**20.1**		µg/l		20.0		101	70-130		
1,2-Dibromoethane (EDB)	**21.1**		µg/l		20.0		106	70-130		
1,2-Dichloroethane	**19.7**		µg/l		20.0		99	70-130		

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1419395 - SW846 5030 Water MS										
LCS (1419395-BS1)					Prepared & Analyzed: 19-Aug-14					
Ethylbenzene	**20.4**		µg/l		20.0		102	70-130		
Methyl tert-butyl ether	**18.7**		µg/l		20.0		94	70-130		
Naphthalene	**16.2**		µg/l		20.0		81	70-130		
Toluene	**19.8**		µg/l		20.0		99	70-130		
1,2,4-Trimethylbenzene	**21.5**		µg/l		20.0		107	70-130		
1,3,5-Trimethylbenzene	**21.0**		µg/l		20.0		105	70-130		
m,p-Xylene	**20.9**		µg/l		20.0		104	70-130		
o-Xylene	**22.2**		µg/l		20.0		111	70-130		
Surrogate: 4-Bromofluorobenzene	*50.9*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8	*49.8*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*48.6*		µg/l		*50.0*		*97*	*70-130*		
Surrogate: Dibromofluoromethane	*49.8*		µg/l		*50.0*		*100*	*70-130*		
LCS Dup (1419395-BSD1)					Prepared & Analyzed: 19-Aug-14					
Benzene	**18.8**		µg/l		20.0		94	70-130	7	20
1,2-Dibromoethane (EDB)	**20.2**		µg/l		20.0		101	70-130	5	20
1,2-Dichloroethane	**19.1**		µg/l		20.0		96	70-130	3	20
Ethylbenzene	**19.3**		µg/l		20.0		96	70-130	6	20
Methyl tert-butyl ether	**18.6**		µg/l		20.0		93	70-130	0.4	20
Naphthalene	**15.8**		µg/l		20.0		79	70-130	3	20
Toluene	**18.5**		µg/l		20.0		93	70-130	7	20
1,2,4-Trimethylbenzene	**19.9**		µg/l		20.0		100	70-130	8	20
1,3,5-Trimethylbenzene	**19.9**		µg/l		20.0		100	70-130	6	20
m,p-Xylene	**20.3**		µg/l		20.0		101	70-130	3	20
o-Xylene	**20.9**		µg/l		20.0		104	70-130	6	20
Surrogate: 4-Bromofluorobenzene	*50.4*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: Toluene-d8	*49.8*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*48.1*		µg/l		*50.0*		*96*	*70-130*		
Surrogate: Dibromofluoromethane	*50.4*		µg/l		*50.0*		*101*	*70-130*		

Notes and Definitions

D	Data reported from a dilution
QCR	Sample data reported for QC purposes only.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:

SB 94493 01C

SPECTRUM ANALYTICAL, INC
Featuring:
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☑ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS
1 Elm St Suite 3
Waterbury VT

Telephone #: 802-241-4131
Project Mgr. Beth Erickson

Invoice To:

P.O. No.: _____ RQN: Special

Project No.: 08-221850.01
Site Name: 75 Lathrop Ct.
Location: Williamstown State: VT
Sampler(s): Beth Erickson

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= _____ 12= _____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

List preservative code below: 2

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report: Yes ☐ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☑ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: 8260 B VT
94493-01	Sump	8/8/14	1230	Gr	GW	3				✓

8-12-14 IR 01
8/12/14 UK

Relinquished by:	Received by:	Date:	Time:	Temp°C
Elizabeth Cox	Beth Cornell	8/8/14	1330	
Beth Cornell	[illegible]	8/11/14	17:00	
[illegible]	[illegible]	8/12/14	1030	

☐ EDD Format _____
☑ E-mail to eerickson@ecsconsult.com

Condition upon receipt:
☐ Ambient ☑ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Aug. 12. 2014 4:28PM No. 7954 P. 2

From: (802) 241-4131
Amy Beth Connell
ECS
1 Elm St.
Suite 3
Waterbury, VT 05676

Origin ID: MVLA

FedEx Express

J142014061903uv

Ship Date: 11AUG14
ActWgt: 33.0 LB
CAD: 103826659/INET3550

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (413) 789-9018 BILL RECIPIENT

Laboratory
Spectrum Analytical
11 ALMGREN DR

AGAWAM, MA 01001

TUE - 12 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7708 0792 1960

EB EHTA

01001
MA-US
BDL

522G1/ECF2/8A09

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
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Report Date:
28-Aug-14 11:15

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

Environmental Compliance Services
1 Elm St. Suite 3
Waterbury, VT 05676
Attn: Elizabeth Erickson

Project: 75 Lathrop Ct. - Williamstown, VT
Project #: 08-221850.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB95126-01	SB-B 4-6'	Soil	19-Aug-14 09:45	21-Aug-14 10:32
SB95126-02	SB-C 5-6'	Soil	19-Aug-14 10:00	21-Aug-14 10:32

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 8 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, NJ-MA012, PA-68-04426 and FL-E87936).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

The samples were received 5.1 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

All VOC soils samples submitted and analyzed in methanol will have a minimum dilution factor of 50. This is the minimum amount of solvent allowed on the instrumentation without causing interference. Soils are run on a manual load instrument. 100ug of sample (MEOH) is spiked into 5ml DI water along with the surrogate and added directly onto the instrument. Additional dilution factors may be required to keep analyte concentration within instrument calibration range.

Method SW846 5035A is designed to use on samples containing low levels of VOCs, ranging from 0.5 to 200 ug/Kg. Target analytes that are less responsive to purge and trap may be present at concentrations over 200ug/Kg but may not be reportable in the methanol preserved vial (SW846 5030). This is the result of the inherent dilution factor required for the methanol preservation.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8260C

Calibration:

1407062

Analyte quantified by quadratic equation type calibration.

Naphthalene

This affected the following samples:

S408374-ICV1

Samples:

SB95126-02 *SB-C 5-6'*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Sample Acceptance Check Form

Client:	Environmental Compliance Services - Waterbury, VT
Project:	75 Lathrop Ct. - Williamstown, VT / 08-221850.01
Work Order:	SB95126
Sample(s) received on:	8/21/2014
Received by:	Jessica Hoffman

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
1. Were custody seals present?	☑	☐	☐
2. Were custody seals intact?	☑	☐	☐
3. Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
4. Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
5. Were samples refrigerated upon transfer to laboratory representative?	☐	☑	☐
6. Were sample containers received intact?	☑	☐	☐
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
8. Were samples accompanied by a Chain of Custody document?	☑	☐	☐
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
10. Did sample container labels agree with Chain of Custody document?	☑	☐	☐
11. Were samples received within method-specific holding times?	☑	☐	☐

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SB-B 4-6'	08-221850.01	Soil	19-Aug-14 09:45	21-Aug-14
SB95126-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by GC/MS													
Prepared by method SW846 5035A Soil (high level)						Initial weight: 17.32 g							
71-43-2	Benzene	< 62.5	D	µg/kg dry	62.5	22.5	50	SW846 8260C	26-Aug-14	26-Aug-14	SJB	1419982	
106-93-4	1,2-Dibromoethane (EDB)	< 62.5	D	µg/kg dry	62.5	14.2	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 62.5	D	µg/kg dry	62.5	31.8	50	"	"	"	"	"	
100-41-4	Ethylbenzene	< 62.5	D	µg/kg dry	62.5	20.9	50	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 62.5	D	µg/kg dry	62.5	32.9	50	"	"	"	"	"	
91-20-3	Naphthalene	< 62.5	D	µg/kg dry	62.5	42.4	50	"	"	"	"	"	
108-88-3	Toluene	< 62.5	D	µg/kg dry	62.5	26.2	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	**593**	D	µg/kg dry	62.5	38.3	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	**278**	D	µg/kg dry	62.5	37.4	50	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 125	D	µg/kg dry	125	35.9	50	"	"	"	"	"	
95-47-6	o-Xylene	< 62.5	D	µg/kg dry	62.5	39.5	50	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*105*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*102*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*109*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*97*			*70-130 %*			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
Diesel Range Organics													
Prepared by method SW846 3550C													
68476-30-2	Fuel Oil #2	**230**		mg/kg dry	31.8	17.5	1	8015DM	26-Aug-14	26-Aug-14	SEP	1419978	
68476-31-3	Fuel Oil #4	< 31.8		mg/kg dry	31.8	3.2	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	< 31.8		mg/kg dry	31.8	19.3	1	"	"	"	"	"	
M09800000	Motor Oil	< 31.8		mg/kg dry	31.8	15.3	1	"	"	"	"	"	
J00100000	Aviation Fuel	< 31.8		mg/kg dry	31.8	7.9	1	"	"	"	"	"	
	Unidentified	< 31.8		mg/kg dry	31.8	7.9	1	"	"	"	"	"	
	Other Oil	< 31.8		mg/kg dry	31.8	3.2	1	"	"	"	"	"	
	Diesel Range Organics (DRO) C10-C28	**230**		mg/kg dry	31.8	15.4	1	"	"	"	"	"	X
Surrogate recoveries:													
3386-33-2	*1-Chlorooctadecane*	*82*			*40-140 %*			"	"	"	"	"	
General Chemistry Parameters													
	% Solids	**83.0**		%			1	SM2540 G Mod.	25-Aug-14	25-Aug-14	DT	1419958	

This laboratory report is not valid without an authorized signature on the cover page.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SB-C 5-6'	08-221850.01	Soil	19-Aug-14 10:00	21-Aug-14
SB95126-02				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by GC/MS			GS1										
Prepared by method SW846 5035A Soil (high level)							Initial weight: 16.15 g						
71-43-2	Benzene	< 137	D	µg/kg dry	137	49.2	100	SW846 8260C	26-Aug-14	26-Aug-14	SJB	1419982	
106-93-4	1,2-Dibromoethane (EDB)	< 137	D	µg/kg dry	137	31.0	100	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 137	D	µg/kg dry	137	69.5	100	"	"	"	"	"	
100-41-4	Ethylbenzene	**847**	D	µg/kg dry	137	45.8	100	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 137	D	µg/kg dry	137	72.0	100	"	"	"	"	"	
91-20-3	Naphthalene	**1,560**	D	µg/kg dry	137	92.7	100	"	"	"	"	"	
108-88-3	Toluene	< 137	D	µg/kg dry	137	57.4	100	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	**12,200**	D	µg/kg dry	137	83.7	100	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	**3,850**	D	µg/kg dry	137	81.8	100	"	"	"	"	"	
179601-23-1	m,p-Xylene	**2,020**	D	µg/kg dry	273	78.5	100	"	"	"	"	"	
95-47-6	o-Xylene	**1,520**	D	µg/kg dry	137	86.3	100	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*107*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*100*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*106*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*94*			*70-130 %*			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
Diesel Range Organics													
Prepared by method SW846 3550C													
68476-30-2	Fuel Oil #2	**1,460**		mg/kg dry	32.3	17.7	1	8015DM	26-Aug-14	26-Aug-14	SEP	1419978	
68476-31-3	Fuel Oil #4	< 32.3		mg/kg dry	32.3	3.2	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	< 32.3		mg/kg dry	32.3	19.6	1	"	"	"	"	"	
M09800000	Motor Oil	< 32.3		mg/kg dry	32.3	15.5	1	"	"	"	"	"	
J00100000	Aviation Fuel	< 32.3		mg/kg dry	32.3	8.1	1	"	"	"	"	"	
	Unidentified	< 32.3		mg/kg dry	32.3	8.1	1	"	"	"	"	"	
	Other Oil	< 32.3		mg/kg dry	32.3	3.2	1	"	"	"	"	"	
	Diesel Range Organics (DRO) C10-C28	**1,460**		mg/kg dry	32.3	15.7	1	"	"	"	"	"	X
Surrogate recoveries:													
3386-33-2	*1-Chlorooctadecane*	*75*			*40-140 %*			"	"	"	"	"	
General Chemistry Parameters													
	% Solids	**81.5**		%			1	SM2540 G Mod.	25-Aug-14	25-Aug-14	DT	1419958	

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1419982 - SW846 5035A Soil (high level)										
Blank (1419982-BLK1)					Prepared & Analyzed: 26-Aug-14					
Benzene	< 50.0	D	µg/kg wet	50.0						
1,2-Dibromoethane (EDB)	< 50.0	D	µg/kg wet	50.0						
1,2-Dichloroethane	< 50.0	D	µg/kg wet	50.0						
Ethylbenzene	< 50.0	D	µg/kg wet	50.0						
Methyl tert-butyl ether	< 50.0	D	µg/kg wet	50.0						
Naphthalene	< 50.0	D	µg/kg wet	50.0						
Toluene	< 50.0	D	µg/kg wet	50.0						
1,2,4-Trimethylbenzene	< 50.0	D	µg/kg wet	50.0						
1,3,5-Trimethylbenzene	< 50.0	D	µg/kg wet	50.0						
m,p-Xylene	< 100	D	µg/kg wet	100						
o-Xylene	< 50.0	D	µg/kg wet	50.0						
Surrogate: 4-Bromofluorobenzene	*30.2*		µg/kg wet		*30.0*		*101*	*70-130*		
Surrogate: Toluene-d8	*30.2*		µg/kg wet		*30.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*34.3*		µg/kg wet		*30.0*		*114*	*70-130*		
Surrogate: Dibromofluoromethane	*32.0*		µg/kg wet		*30.0*		*107*	*70-130*		
LCS (1419982-BS1)					Prepared & Analyzed: 26-Aug-14					
Benzene	**16.1**	D	µg/kg wet		20.0		80	70-130		
1,2-Dibromoethane (EDB)	**17.0**	D	µg/kg wet		20.0		85	70-130		
1,2-Dichloroethane	**17.9**	D	µg/kg wet		20.0		90	70-130		
Ethylbenzene	**15.8**	D	µg/kg wet		20.0		79	70-130		
Methyl tert-butyl ether	**16.3**	D	µg/kg wet		20.0		81	70-130		
Naphthalene	**16.3**	D	µg/kg wet		20.0		81	70-130		
Toluene	**16.3**	D	µg/kg wet		20.0		82	70-130		
1,2,4-Trimethylbenzene	**16.5**	D	µg/kg wet		20.0		83	70-130		
1,3,5-Trimethylbenzene	**16.2**	D	µg/kg wet		20.0		81	70-130		
m,p-Xylene	**15.8**	D	µg/kg wet		20.0		79	70-130		
o-Xylene	**15.3**	D	µg/kg wet		20.0		76	70-130		
Surrogate: 4-Bromofluorobenzene	*31.8*		µg/kg wet		*30.0*		*106*	*70-130*		
Surrogate: Toluene-d8	*30.4*		µg/kg wet		*30.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*35.0*		µg/kg wet		*30.0*		*117*	*70-130*		
Surrogate: Dibromofluoromethane	*35.5*		µg/kg wet		*30.0*		*118*	*70-130*		
LCS Dup (1419982-BSD1)					Prepared & Analyzed: 26-Aug-14					
Benzene	**15.9**	D	µg/kg wet		20.0		80	70-130	0.8	30
1,2-Dibromoethane (EDB)	**17.5**	D	µg/kg wet		20.0		88	70-130	3	30
1,2-Dichloroethane	**18.0**	D	µg/kg wet		20.0		90	70-130	0.7	30
Ethylbenzene	**15.0**	D	µg/kg wet		20.0		75	70-130	6	30
Methyl tert-butyl ether	**16.8**	D	µg/kg wet		20.0		84	70-130	3	30
Naphthalene	**16.0**	D	µg/kg wet		20.0		80	70-130	2	30
Toluene	**15.8**	D	µg/kg wet		20.0		79	70-130	3	30
1,2,4-Trimethylbenzene	**15.9**	D	µg/kg wet		20.0		79	70-130	4	30
1,3,5-Trimethylbenzene	**15.7**	D	µg/kg wet		20.0		78	70-130	3	30
m,p-Xylene	**15.2**	D	µg/kg wet		20.0		76	70-130	4	30
o-Xylene	**15.0**	D	µg/kg wet		20.0		75	70-130	2	30
Surrogate: 4-Bromofluorobenzene	*30.8*		µg/kg wet		*30.0*		*103*	*70-130*		
Surrogate: Toluene-d8	*30.1*		µg/kg wet		*30.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*35.3*		µg/kg wet		*30.0*		*118*	*70-130*		
Surrogate: Dibromofluoromethane	*34.7*		µg/kg wet		*30.0*		*116*	*70-130*		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1419978 - SW846 3550C										
Blank (1419978-BLK1)						Prepared & Analyzed: 26-Aug-14				
Fuel Oil #2	< 26.3		mg/kg wet	26.3						
Fuel Oil #4	< 26.3		mg/kg wet	26.3						
Fuel Oil #6	< 26.3		mg/kg wet	26.3						
Motor Oil	< 26.3		mg/kg wet	26.3						
Aviation Fuel	< 26.3		mg/kg wet	26.3						
Unidentified	< 26.3		mg/kg wet	26.3						
Other Oil	< 26.3		mg/kg wet	26.3						
Diesel Range Organics (DRO) C10-C28	< 26.3		mg/kg wet	26.3						
Surrogate: 1-Chlorooctadecane	*2.65*		mg/kg wet		*3.29*		*81*	*40-140*		
LCS (1419978-BS2)						Prepared & Analyzed: 26-Aug-14				
Fuel Oil #2	**572**		mg/kg wet	26.4	662		86	40-140		
Surrogate: 1-Chlorooctadecane	*2.28*		mg/kg wet		*3.31*		*69*	*40-140*		
LCS Dup (1419978-BSD2)						Prepared & Analyzed: 26-Aug-14				
Fuel Oil #2	**557**		mg/kg wet	26.4	661		84	40-140	3	200
Surrogate: 1-Chlorooctadecane	*2.27*		mg/kg wet		*3.31*		*69*	*40-140*		
Duplicate (1419978-DUP2)			**Source: SB95126-01**			Prepared & Analyzed: 26-Aug-14				
Fuel Oil #2	**191**		mg/kg dry	31.7		230			18	50
Fuel Oil #4	< 31.7		mg/kg dry	31.7		BRL				50
Fuel Oil #6	< 31.7		mg/kg dry	31.7		BRL				50
Motor Oil	< 31.7		mg/kg dry	31.7		BRL				50
Aviation Fuel	< 31.7		mg/kg dry	31.7		BRL				50
Unidentified	< 31.7		mg/kg dry	31.7		BRL				50
Other Oil	< 31.7		mg/kg dry	31.7		BRL				50
Diesel Range Organics (DRO) C10-C28	**191**		mg/kg dry	31.7		230			18	50
Surrogate: 1-Chlorooctadecane	*2.98*		mg/kg dry		*3.98*		*75*	*40-140*		
Matrix Spike (1419978-MS2)			**Source: SB95126-02**			Prepared & Analyzed: 26-Aug-14				
Diesel Range Organics (DRO) C10-C28	**2570**		mg/kg dry	32.5	815	1460	136	40-140		
Surrogate: 1-Chlorooctadecane	*2.97*		mg/kg dry		*4.08*		*73*	*40-140*		
Matrix Spike Dup (1419978-MSD2)			**Source: SB95126-02**			Prepared & Analyzed: 26-Aug-14				
Diesel Range Organics (DRO) C10-C28	**2580**		mg/kg dry	32.3	810	1460	138	40-140	1	200
Surrogate: 1-Chlorooctadecane	*3.00*		mg/kg dry		*4.05*		*74*	*40-140*		

Notes and Definitions

D	Data reported from a dilution
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

Gasoline - includes regular, unleaded, premium, etc.
Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
Fuel Oil #4 - includes #4 fuel oil
Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
Motor Oil - includes virgin and waste automobile oil
Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
Aviation Fuel - includes kerosene, Jet A and JP-4
Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as Calculated as.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
Nicole Leja
Rebecca Merz

SB 95126.01

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- [x] Standard TAT - 7 to 10 business days
- [ ] Rush TAT - Date Needed:

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 60 days unless otherwise instructed.

Report To: ECS Waterbury VT
Telephone #: 802 241 4131
Project Mgr: Beth Erickson

Invoice To:
P.O No.:
Quote/RQN: Special

Project No: 08-221850.01
Site Name: 75 Lathrop Court
Location: Williamstown State: VT
Sampler(s): Beth Erickson

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Dinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= X2= X3=

G= Grab C=Compsite

List Preservative Code below: 7 –

QA/QC Reporting Notes:
* additional charges may appply

MA DEP MCP CAM Report? [ ] Yes [ ] No
CT DPH RCP Report? [ ] Yes [ ] No
[x] Standard [ ] No QC [ ] DQA*
[ ] ASP A* [ ] ASP B*
[ ] NJ Reduced* [ ] NJ Full*
[ ] Tier II* [ ] Tier IV*
[ ] Other:
State-specific reporting standards:

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	8021B VT	TPH DRO	Check if chlorinated
95126-01	SB-B 4-6'	8/19/14	945	G	SO	1	1			✓	✓	☐
02	SB-C 5-6'	↓	1000	↓	↓	1	1			✓	✓	☐
												☐
												☐
												☐
												☐
												☐
												☐
												☐
												☐

Relinquished by:	Received by:	Date:	Time:	Temp °C
Elizabeth K Cl	Cy Beth Connell	8/19/14	1400	Observed 5.1
Cy Beth Connell	Fedex	8/20/14	17:00	Correction Factor 0
fedex	JCH	8/21/14	1032	Corrected 5.1
				IR ID # 01

[ ] EDD format:
[x] E-mail to: eerickson@ecsconsult.com

Condition upon receipt: Custody Seals: [ ] Present [ ] Intact [ ] Broken
[ ] Ambient [x] Iced [ ] Refrigerated [ ] DI VOA Frozen [ ] Soil Jar Frozen

Report Date:
03-Sep-14 09:31

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

Environmental Compliance Services
1 Elm St. Suite 3
Waterbury, VT 05676
Attn: Elizabeth Erickson

Project: 75 Lathrop Ct. - Williamstown, VT
Project #: 08-221850.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB95338-01	MW-1	Ground Water	25-Aug-14 11:07	27-Aug-14 10:45
SB95338-02	MW-2	Ground Water	25-Aug-14 10:53	27-Aug-14 10:45
SB95338-03	Duplicate	Ground Water	25-Aug-14 00:00	27-Aug-14 10:45
SB95338-04	Trip Blank	Aqueous	25-Aug-14 00:00	27-Aug-14 10:45

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 9 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, NJ-MA012, PA-68-04426 and FL-E87936).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

The samples were received 2.3 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8260C

Calibration:

1408047

Analyte quantified by quadratic equation type calibration.

Naphthalene

This affected the following samples:

1420387-BLK1
1420387-BS1
1420387-BSD1
Duplicate
MW-1
MW-2
S409307-ICV1
S409779-CCV1
Trip Blank

Sample Acceptance Check Form

Client:	Environmental Compliance Services - Waterbury, VT
Project:	75 Lathrop Ct. - Williamstown, VT / 08-221850.01
Work Order:	SB95338
Sample(s) received on:	8/27/2014
Received by:	Jessica Hoffman

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
1. Were custody seals present?	☑	☐	☐
2. Were custody seals intact?	☑	☐	☐
3. Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
4. Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
5. Were samples refrigerated upon transfer to laboratory representative?	☐	☑	☐
6. Were sample containers received intact?	☑	☐	☐
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
8. Were samples accompanied by a Chain of Custody document?	☑	☐	☐
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
10. Did sample container labels agree with Chain of Custody document?	☑	☐	☐
11. Were samples received within method-specific holding times?	☑	☐	☐

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
MW-1 SB95338-01	08-221850.01	Ground Water	25-Aug-14 11:07	27-Aug-14

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Volatile Organic Compounds													
Volatile Organic Compounds by GC/MS													
Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	29-Aug-14	29-Aug-14	NAA	1420387	
106-93-4	1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5	0.3	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.5	1	"	"	"	"	"	
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.0		µg/l	2.0	0.4	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*95*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*89*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*110*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*107*			*70-130 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
MW-2 SB95338-02	08-221850.01	Ground Water	25-Aug-14 10:53	27-Aug-14

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Volatile Organic Compounds													
Volatile Organic Compounds by GC/MS													
Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	**4.5**		µg/l	1.0	0.3	1	SW846 8260C	29-Aug-14	29-Aug-14	NAA	1420387	
106-93-4	1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5	0.3	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
100-41-4	Ethylbenzene	**16.0**		µg/l	1.0	0.4	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
91-20-3	Naphthalene	**9.7**		µg/l	1.0	0.5	1	"	"	"	"	"	
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	**81.5**		µg/l	1.0	0.3	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	**49.3**		µg/l	1.0	0.4	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	**40.1**		µg/l	2.0	0.4	1	"	"	"	"	"	
95-47-6	o-Xylene	**63.4**		µg/l	1.0	0.4	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*105*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*90*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*109*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*107*			*70-130 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Duplicate	08-221850.01	Ground Water	25-Aug-14 00:00	27-Aug-14
SB95338-03				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Volatile Organic Compounds													
Volatile Organic Compounds by GC/MS													
Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	29-Aug-14	29-Aug-14	NAA	1420387	
106-93-4	1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5	0.3	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.5	1	"	"	"	"	"	
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.0		µg/l	2.0	0.4	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*96*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*87*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*104*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*109*			*70-130 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Trip Blank SB95338-04	08-221850.01	Aqueous	25-Aug-14 00:00	27-Aug-14

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Volatile Organic Compounds													
Volatile Organic Compounds by GC/MS													
Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	29-Aug-14	29-Aug-14	NAA	1420387	
106-93-4	1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5	0.3	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.5	1	"	"	"	"	"	
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.0		µg/l	2.0	0.4	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*96*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*88*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*106*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*106*			*70-130 %*			"	"	"	"	"	

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1420387 - SW846 5030 Water MS										
Blank (1420387-BLK1)					Prepared & Analyzed: 29-Aug-14					
Benzene	< 1.0		µg/l	1.0						
1,2-Dibromoethane (EDB)	< 0.5		µg/l	0.5						
1,2-Dichloroethane	< 1.0		µg/l	1.0						
Ethylbenzene	< 1.0		µg/l	1.0						
Methyl tert-butyl ether	< 1.0		µg/l	1.0						
Naphthalene	< 1.0		µg/l	1.0						
Toluene	< 1.0		µg/l	1.0						
1,2,4-Trimethylbenzene	< 1.0		µg/l	1.0						
1,3,5-Trimethylbenzene	< 1.0		µg/l	1.0						
m,p-Xylene	< 2.0		µg/l	2.0						
o-Xylene	< 1.0		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	*45.9*		µg/l		*50.0*		*92*	*70-130*		
Surrogate: Toluene-d8	*44.3*		µg/l		*50.0*		*89*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*53.4*		µg/l		*50.0*		*107*	*70-130*		
Surrogate: Dibromofluoromethane	*52.9*		µg/l		*50.0*		*106*	*70-130*		
LCS (1420387-BS1)					Prepared & Analyzed: 29-Aug-14					
Benzene	**20.6**		µg/l		20.0		103	70-130		
1,2-Dibromoethane (EDB)	**20.6**		µg/l		20.0		103	70-130		
1,2-Dichloroethane	**21.3**		µg/l		20.0		107	70-130		
Ethylbenzene	**22.7**		µg/l		20.0		113	70-130		
Methyl tert-butyl ether	**18.2**		µg/l		20.0		91	70-130		
Naphthalene	**19.8**		µg/l		20.0		99	70-130		
Toluene	**19.3**		µg/l		20.0		97	70-130		
1,2,4-Trimethylbenzene	**20.5**		µg/l		20.0		103	70-130		
1,3,5-Trimethylbenzene	**21.4**		µg/l		20.0		107	70-130		
m,p-Xylene	**21.8**		µg/l		20.0		109	70-130		
o-Xylene	**23.5**		µg/l		20.0		118	70-130		
Surrogate: 4-Bromofluorobenzene	*54.2*		µg/l		*50.0*		*108*	*70-130*		
Surrogate: Toluene-d8	*45.1*		µg/l		*50.0*		*90*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*52.7*		µg/l		*50.0*		*105*	*70-130*		
Surrogate: Dibromofluoromethane	*52.5*		µg/l		*50.0*		*105*	*70-130*		
LCS Dup (1420387-BSD1)					Prepared & Analyzed: 29-Aug-14					
Benzene	**20.4**		µg/l		20.0		102	70-130	0.6	20
1,2-Dibromoethane (EDB)	**20.6**		µg/l		20.0		103	70-130	0.1	20
1,2-Dichloroethane	**21.4**		µg/l		20.0		107	70-130	0.2	20
Ethylbenzene	**22.5**		µg/l		20.0		112	70-130	0.8	20
Methyl tert-butyl ether	**18.4**		µg/l		20.0		92	70-130	1	20
Naphthalene	**18.9**		µg/l		20.0		95	70-130	5	20
Toluene	**18.7**		µg/l		20.0		94	70-130	3	20
1,2,4-Trimethylbenzene	**20.1**		µg/l		20.0		101	70-130	2	20
1,3,5-Trimethylbenzene	**20.7**		µg/l		20.0		103	70-130	3	20
m,p-Xylene	**21.6**		µg/l		20.0		108	70-130	1	20
o-Xylene	**23.3**		µg/l		20.0		116	70-130	1	20
Surrogate: 4-Bromofluorobenzene	*54.4*		µg/l		*50.0*		*109*	*70-130*		
Surrogate: Toluene-d8	*44.2*		µg/l		*50.0*		*88*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*52.8*		µg/l		*50.0*		*106*	*70-130*		
Surrogate: Dibromofluoromethane	*52.7*		µg/l		*50.0*		*105*	*70-130*		

Notes and Definitions

dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
Nicole Leja

SB95338JG1

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling: KP
- ☑ Standard TAT - 7 to 10 business days
- ☑ Rush TAT - Date Needed: 9-3-14
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS
1 ELM STREET SUITE 3
WATERBURY, VT 05676

Telephone #: 802-241-4131
Project Mgr. BETH ERICKSON

Invoice To:

P.O. No.: RQN: SPECIAL

Project No.: 08-221850.01
Site Name: 75 LATHROP COURT
Location: WILLIAMSTOWN State: VT
Sampler(s): ZC, KP

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10=H_3PO_4 11= 12=

List preservative code below: 2

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= X2= X3=

G=Grab C=Composite

MA DEP MCP CAM Report: Yes☐ No☐
CT DPH RCP Report: Yes☐ No☐

QA/QC Reporting Level
☑ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		8021B VT							
SB95338-01	MW-1	8-25-14	11:07	GW KP	GW	3					X							
02	MW-2		10:53	GW	GW	3												
03	DUPLICATE		—	GW	GW	3												
04	TRIP BLANK		—	—	—	1												

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	8-25-14	15:00	23
[signature]	[signature]	8/26/14	17:00	0
[signature]	[signature]	8/27/14	1045	23
				4

☐ EDD Format
☑ E-mail to KP eerickson@ecsconsult.com

Condition upon receipt: Custody Seals: ☑ Present ☑ Intact ☐ Broken
☐ Ambient ☑ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

From: (802) 241-4131
Amy Beth Connell
ECS
1 Elm St.
Suite 3
Waterbury, VT 05676

Origin ID: MVLA

FedEx Express

J142014061903uv

Ship Date: 26AUG14
ActWgt: 10.0 LB
CAD: 103826659/INET3550

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (413) 789-9018

BILL RECIPIENT

Laboratory
Spectrum Analytical
11 ALMGREN DR

AGAWAM, MA 01001

WED - 27 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7709 5171 1270**

EB EHTA

01001
MA-US
BDL

522G1/ECF2/8AC9

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx w ill not be responsible for any claim in excess of $100 per package, w hether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage w hether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jew elry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed w ithin strict time limits, see current FedEx Service Guide.