C.P. Dudley Store/Lamb Residence
2915/2910 U.S. Route 2
East Montpelier, Vermont

VTDEC #87-0011
KAS #402190703/410040071

CORRECTIVE ACTION PLAN

Revised Date:
March 15, 2021

Prepared for:

C.P. Dudley Store/Durward Lamb
2915/2910 U.S. Route 2
East Montpelier, Vermont 05651

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Certification

This Corrective Action Plan for the C.P. Dudley Store and Lamb Residence located in East Montpelier, Vermont, State of Vermont Department of Environmental Conservation Site #87-0011, has been prepared and reviewed by the following personnel.

We certify under penalty of perjury that this document has been reviewed by environmental professionals and that all content contained within this deliverable is to the best of our knowledge true and accurate.

Prepared By:

Sam Driver
Project Scientist, EP

Reviewed By:

Jeremy Roberts, P.G.
Environmental Program Manager

Executive Summary

This Corrective Action Plan (CAP) has been prepared by KAS Inc. (KAS), on behalf of the C.P Dudley Store and Mr. Durward Lamb address environmental and human health risks from the presence of petroleum impacted groundwater, soil, soil gas and indoor air at 2915 U.S. Route 2 and 2910 U.S. Route 2, respectively, in East Montpelier, Vermont ("Site"). This CAP has been prepared in accordance with the Vermont Department of Environmental Conservation (VTDEC) *Investigation and Remediation of Contaminated Properties Rule* (I-Rule). An I-Rule CAP Checklist is provided in Appendix F.

Petroleum impacts were likely observed in association with a gasoline underground storage tank (UST) and its associated piping components removed from the C.P Dudley's Store, likely during the year of 1987 given the hazardous waste number assigned. However, given the lack of available data this cannot be confirmed. To the best of KAS' knowledge, in 1994, a site investigation was conducted on the C.P. Dudley Store property and Lamb Residence to define the degree and extent of petroleum impacts. This investigation included the installation of five monitoring wells to saturated depths and moderate to high levels of petroleum impacts were recorded in several monitoring wells. In the fall of 1997, an interception trench was constructed along the foundation wall of the Lamb Residence in an effort to prevent subsurface petroleum impacts from impacting the residence as well as the nearby Winooski River. Monitoring of the interception trench has been conducted by KAS since its operation in 1997. During several occasions, in 2018, water had accumulated in the basement of the Lamb Residence which reportedly had a petroleum odor. During these events, the small amount of water was removed and properly disposed and hydraulic cement was poured in the areas of concern to prevent future issues. In July 2018, KAS oversaw the inspection of the interception trench and several failures and breaks were observed throughout the piping network. In spring 2018, Dubois & King, Inc. (D&K) conducted a pre-characterization investigation on behalf of the Town of East Montpelier, VT for a proposed pedestrian safety improvement project. Results of that investigation indicated moderate levels of residual petroleum impacts remain present beneath U.S. Route 2 and the Lamb Residence. In May 2019, in preparation for completing a CAP in fall 2020, KAS conducted a soil delineation event in an effort to assess the current subsurface soil impacts on the C.P. Dudley Store property and Lamb Residence. Data collected during that event, indicated a noticeable amount of residual impacts remain in the vicinity of the former gasoline pump island located on the C.P. Dudley property and beneath the Lamb Residence. As a result, it was determined that corrective action would be required to mitigate the impact of gasoline to sensitive receptors. KAS prepared an Evaluation of Corrective Action Alternatives (ECAA) Report for the Site (Appendix D), which evaluated three corrective action alternatives:

- Alternative #1: Activated carbon injection;
- Alternative #2: Soil excavation; and
- Alternative #3: Combined injection/excavation

Based on a review of the alternatives, Alternative 3: combined activated carbon injection using BOS 200™ and soil excavation was determined to be the most feasible technology to achieve remediation at the Site. The objective of the corrective action is to:

1) Reduce toxicity of soil, groundwater, soil gas and indoor air impacted by the gasoline release to meet regulatory standards for each media type;
2) Reduce the potential of dissolved-phase plume migration off-site; and,
3) Mitigate exposure to Site users from vapor intrusion of VOCs within the building of the Lamb Residence.

1.0 Introduction and Objective

This Corrective Action Plan (CAP) has been prepared by KAS Inc. (KAS), on behalf of the C.P Dudley Store and Mr. Durward Lamb to address environmental and human health risks from the presence of petroleum impacted groundwater, soil, soil gas and indoor air at 2915 U.S. Route 2 and 2910 U.S. Route 2, respectively, in East Montpelier, Vermont ("Site"). This CAP has been prepared in accordance with the Vermont Department of Environmental Conservation (VTDEC) *Investigation and Remediation of Contaminated Properties Rule* (I-Rule). An I-Rule CAP Checklist is provided in Appendix F. The property owners contact information are outlined below:

C.P. Dudley Store

Owner	Mailing Address	Contact Name	Phone	Email Address
Biron A & P Life Estate (C.P. Dudley Store)	2915 US-2 E. Montpelier, VT	Angela Biron	802-223-2792	cpdudleystore@gmail.com

Lamb Residence

Owner	Mailing Address	Contact Name	Phone	Email Address
Mr. and Mrs. Lamb (Lamb Residence)	2910 US-2 E. Montpelier, VT	Durward Lamb	802-223-5807	Not Available

The objective of the corrective action is to:

1. Reduce toxicity of soil, groundwater, soil gas and indoor air impacted by the gasoline release to meet regulatory standards for each media type;
2. Reduce the potential of dissolved-phase plume migration off-site; and,
3. Mitigate exposure to Site users from vapor intrusion of VOCs within the building of the Lamb Residence.

2.0 Site History and Updated Conceptual Site Model

2.1 Site History

Petroleum impacts were likely observed in association with a gasoline underground storage tank (UST) and its associated piping components removed from the C.P Dudley's Store, likely during the year of 1987 given the hazardous waste number assigned. However, given the lack of available data this cannot be confirmed. To the best of KAS' knowledge, in 1994, a site investigation was conducted on the C.P. Dudley Store property and Lamb Residence to define the degree and extent of petroleum impacts. This investigation included the installation of five monitoring wells to saturated depths and moderate to high levels of petroleum impacts were recorded in several monitoring wells. Following the 1994 investigation it does not appear any environmental investigation work has been conducted. In the fall of 1997, an interception trench was constructed along the foundation wall of the Lamb Residence in an effort to prevent subsurface petroleum impacts from impacting the residence as well as the nearby Winooski River. Monitoring of the interception trench has been conducted by KAS since its operation in 1997. During several occasions, in 2018, water had accumulated in the basement of the Lamb Residence which reportedly had a petroleum odor. During these events, the small amount of water was removed and properly disposed and hydraulic cement

was poured in the areas of concern to prevent future issues. In July 2018, KAS oversaw the inspection of the interception trench and several failures and breaks were observed throughout the piping network. In spring 2018, Dubois & King, Inc. (D&K) conducted a pre-characterization investigation on behalf of the Town of East Montpelier, VT for a proposed pedestrian safety improvement project. Results of that investigation indicated moderate levels of residual petroleum impacts remain present beneath U.S. Route 2 and the Lamb Residence. In May 2019, in preparation for completing a CAP in fall 2020, KAS conducted a soil delineation event in an effort to assess the current subsurface soil impacts on the C.P. Dudley Store property and Lamb Residence. Data collected during that event, indicated a noticeable amount of residual impacts remain in the vicinity of the former gasoline pump island located on the C.P. Dudley property and beneath the Lamb Residence. As a result, it was determined that corrective action would be required to mitigate the impact of gasoline to sensitive receptors. KAS prepared an Evaluation of Corrective Action Alternatives (ECAA) Report for the Site (Appendix D) which evaluated three corrective action alternatives:

1. Activated carbon injection using the BOS 200 system® from AST Environmental, Inc. (AST);
2. Soil excavation; and,
3. Combined injection/excavation.

Each remedial alternative was assessed based on the criteria outlined in the I-Rule § 35-503 Evaluation of Corrective Action Alternatives. Criteria included compliance with legal requirements, overall protection of human health and the environment, long-term effectiveness, the degree to which alternatives reduce toxicity, mobility, or volume of contaminants, short-term effectiveness, implementability, costs, and community acceptance.

Based on a review of the alternatives, KAS considers a combined **soil excavation and the activated carbon injection** to be the most cost-effective alternative to achieve remediation at the Site. The soil excavation would be conducted on the C.P. Dudley Store and would target source area impacts. In contrast, the activated carbon injection would be conducted on the Lamb Residence and would immobilize petroleum hydrocarbons reducing the continued migration of the dissolved-phase plume towards the residence. The BOS 200 product also includes beneficial microorganisms and nutrients to promote bioremediation, which eventually would reduce the volume of petroleum hydrocarbons left in the subsurface.

Previous reports documenting the Site history and previous investigative/monitoring work conducted at the Site are on file at the VTDEC in Montpelier, Vermont.

2.2 Updated Conceptual Site Model

The Site contains of two parcels (#10071 and #10593) totaling 3.94 acres, which are owned by two separate parties (Biron Anthony & Pamela E Life Estate and Mr. Durward Lamb) (Tax Map, Appendix A). These parcels are separated by U.S. Route 2. The Site is in a mixed residential/commercial portion in the Town of East Montpelier, Vermont. The Site in the immediate vicinity of the source area is covered by paved parking, gravel and one building (C.P. Dudley Store). A portion of the store does contain a basement. A second building, Lamb Residence, is located downgradient from the source area and is covered by grass and gravel. The Lamb Residence does contain a basement.

The coordinates of the presumed source area are approximately 44°16'14.17"N and 72°29'14.04"W and at an elevation of approximately 700 feet above sea level. Topography of the Site is generally flat throughout with noticeable slope to the south and toward the Winooski River, which is located approximately 850 feet south of the Site. The Site is bound to the north by an agriculture field, to

the west by a post office, to the east by a vacant building followed by Quaker Road and to the south by the East Montpelier Fire Department.

Stormwater generated from the Site drains to catch basins along U.S. Route 2 on the east and south, which reportedly discharge into the Winooski River. The C.P. Dudley store is served by a private well located to north of the building and private sewer to the east of the building. The Lamb Residence is served by a private water company, Crystal Springs, Inc. of Montpelier, VT which runs along U.S. Route 2 and connects to the Lamb Residence from the north and directly within the core of impacts. The Lamb Residence is also served by a private sewer system (leachfield) located to the south of the residence. An underground electrical line, which services the remediation system, is located to the northwest of the building and extends to the south. Electrical service is provided by overhead lines. An interception trench located to the north and east along the basement wall of the Lamb Residence is in operation to prevent subsurface discharge of dissolved-phase petroleum impacts into the nearby Winooski River as well as to prevent the surfacing of petroleum impacted groundwater onto the Lamb Property. All known utilities are included on the Site Map, Appendix A. No other subsurface infrastructure is known to be present beneath the Site.

According to surficial geologic mapping by the Vermont Geological Survey, native unconsolidated soils beneath the Site are glaciofluvial deposit consisting of silty sand and containing lake bottom sediments. Soils encountered in soil borings advanced at the Site have been described as poorly graded sand and silty sand with varying amounts of gravel. Previous investigation to determine the groundwater flow and gradient have been conducted at and in the vicinity of the Site; however, that data is not available at this time. Based on site topography and general characteristics at and in the vicinity of the Site, groundwater is believed to flow toward the southeast and toward the Winooski River.

Bedrock beneath the Site is mapped as the Connecticut Valley Trough belt of the Waits River Formation, which consist primarily of with interment beds of quartz phyllite according to the *Centennial Geologic Map of Vermont*[1]. To date, bedrock has not been encountered during past investigations. Even though depth to bedrock is unknown, in general PID readings have been observed to decrease with depth at the Site and may make the nature of bedrock less relevant to the current study.

Petroleum impacts were likely observed in association with a gasoline UST and its associated piping components removed from the C.P Dudley's Store, likely during the year of 1987 given the hazardous waste number assigned; however, given the lack of available data this cannot be confirmed. To the best of KAS' knowledge, petroleum impacts in the vicinity of the Site were first documented in 1994 following the completion of a Site investigation. Besides noting impacts were encountered during the 1994 investigation, no additional information regarding monitoring well placement and levels of impacts are available. In 2019, KAS conducted a soil delineation event and elevated VOC concentrations were recorded at shallow depths at approximately 2 feet below grade directly downgradient of the former pump island located on the C.P. Dudley Store. It is KAS' opinion the presumed source area could be related to a failure in the piping system at and in the vicinity of the former gasoline pump island given that the typical buried depth of the piping system is approximately 2 feet bg. There is no evidence that other on-site factors are responsible for or have contributed to the petroleum impacts identified to date.

Gasoline is a colorless petroleum-derived flammable liquid, which consists mostly of organic compounds obtained by the fractional distillation of petroleum, enhanced with a variety of additives. The specific gravity of gasoline is 0.739 making it lighter than water. In 1990, the United States made amendments to the Clean Air Act in which lead was banned from gasoline. The compound

[1] Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, Vermont Geological Survey

methyl tertiary-butyl ether (MTBE) began being added to gasoline in 1979 mostly to replace lead as an octane enhancer but to also provide an oxygenate to raise the octane number. As of 2007, 25 states had issued a partial or complete ban of the use of MTBE in gasoline with Vermont adopting a complete ban in May 2005[2]. This ban has resulted in ethanol replacing MTBE for oxygenating gasoline nationwide. The intermittent presence of MTBE in groundwater beneath the Site indicates a release of gasoline occurred in 1979 or later since this is the year MTBE began being added to gasoline.

One distinct source area has been identified at the Site; a release beneath the former gasoline pump located on the C.P. Dudley Store. Available data suggests the release at the Site occurred at a shallow depth of approximately 2 feet bsg beneath the gasoline pump island. Saturated soils have been encountered beneath the Site at depths ranging from 12 to 14 feet bsg downgradient to the source area, meaning any previous release of gasoline to the subsurface occurred within the vadose zone. From the point of leakage, the fate and transport of gasoline beneath the Site likely occurred through the following mechanisms: 1) the vertical and/or horizontal migration of gasoline via gravity through the unsaturated zone, 2) the adsorption of free phase gasoline to soil, 3) the volatilization and migration of petroleum constituents through diffusion in the unsaturated zone, particularly through any coarser materials such as sands and gravels, 4) the biodegradation of gasoline constituents through native subsurface bacteria.

Three phases of petroleum contamination are present in the subsurface at the Site. These phases are; dissolved-phase, adsorbed-phase, and vapor-phase. Contaminant mass totals for these phases have not been estimated to date. Mobile NAPL has not been measured at the Site.

Laboratory data from subsurface investigations indicate impacts continue to be present, specifically in the vicinity of MW-6, which is located on the property of the Lamb Residence. Dissolved-phase VOCs have been detected above VGES approximately 90 feet down-gradient of the former gasoline pump island. The interception trench constructed around the foundation of the Lamb Residence did provide a temporary solution in mitigating the horizontal migration of impacts within the groundwater table; however, it has been established the interception trench is no longer providing an effective means of mitigation and has surpassed its life expectancy. Current data suggests the plume core is not adequately characterized by the current monitoring well network and impacts are likely migrating beyond the Lamb Residence and further south.

3.0 Public Notice

Below is a list of persons to receive notice under section 35-607(b)(1). The Town of East Montpelier Parcel Map is included in Appendix A.

Table 1. List of Persons to Receive Public Notice

Direction / Description	Parcel Number / Address	Property Owner Contact Information
North / Residential	10-060.000 / 115 Quaker Road East Montpellier, VT 05651	Biron Anthony & Pamela E Life Estate P.O. Box 126 East Montpellier, VT 05651
Northeast / Residential	06-003.000/ 75 Quaker Road East Montpellier, VT 05651	Ernest, JR & Brenda Searle-Spratt P.O. Box 126 East Montpellier, VT 05651

[2] EPA, 2007

East / Residential	06-001.000 / 25 Quaker Road East Montpellier, VT 05651	Hemingway Milton B P.O. Box 123 East Montpellier, VT 05651
East / Residential	10-062.000 / 2930 US RTE 2 East Montpellier, VT 05651	Robert & Debra Morey P.O. Box 156 East Montpellier, VT 05651
Southeast / Residential	10-065.000 / 3000 US RTE 2 East Montpellier, VT 05651	VTRANS 1 National Life Drive Montpellier, VT 05633
South / Commercial	10-066.100/ 54 Village Acres East Montpellier, VT 05651	Town of East Montpelier PO Box 157 East Montpellier, VT 05651
Southwest / Residential	10-058.000/ 2892 US RTE 2 East Montpellier, VT 05651	Jason & Jennifer Rowell 1699 Dugar Brook Road East Calais, Vermont 05650
West / Commercial	10-059.000/ 2893 US RTE 2 East Montpellier, VT 05651	Harper Properties, LLC. PO Box 162 East Montpellier, VT 05651
Northwest / Residential	10-054.100/ 2839 US RTE 2 East Montpellier, VT 05651	Ty & Nancy Rolland PO Box 88 East Montpellier, VT 05651

Notes:

- Information obtained from:
    - 1) Town of East Montpelier, Town Clerk
    - 2) VTANR Natural Resource Atlas https://anrmaps.vermont.gov/websites/anra5/

4.0 Performance Standards

KAS has evaluated the effectiveness, ease of implementation, and cost of several remedial alternatives in the context of an ECAA, which was submitted to the VTDEC under separate cover. The selected and proposed remediation as detailed in Section 7.0 Remedial Implementation Plan, includes the following components:

- Prior to carbon injection activities at the Site, KAS will complete groundwater sampling from existing monitoring wells (MW-U1, MW-1, MW-2, MW-6 and MW-7), soil gas sampling from SG20-01 and SG20-02 and indoor air sampling to establish baseline conditions immediately prior to corrective action activities;
- KAS will complete the injection of BOS 200® in one designated area on the Lamb Residence property;
- Post injection, KAS will check monitoring wells MW-1, MW-2, MW-6 and MW-7 for the presence of BOS 200®. If present, KAS will surge these monitoring wells to redevelop them and a new monitoring well will be installed next to the old wells. During groundwater monitoring events both the old well and new well will be sampled;
- Post injection, KAS will complete groundwater monitoring 1 month after injection, then quarterly groundwater monitoring events for one year;
- Post injection, KAS will complete soil gas sampling and indoor air sampling;
- Excavation, transport, and disposal of petroleum impacted soils on the C.P. Dudley Store; and,
- Confirmatory soil and groundwater sampling following soil excavation activities.

4.1 Applicable Environmental Media Standards

The VTDEC has established groundwater, soil, indoor air and vapor intrusion standards for contaminant concentrations that have the potential to adversely affect human health or the environment. The contaminants of concern for the Site, and the basis for corrective actions, are summarized in the following table and compared to applicable screening values:

Table 2: Contaminants of Concern in Indoor Air, Soil Gas, Soil and Groundwater Compared to Applicable Standards

Contaminant	Media	Indoor Air Standards (IAS)	
		Resident (ug/m3)	Non-Resident (ug/m3)
Carbon Tetrachloride	Indoor Air	0.17	1.36
Benzene	Indoor Air	0.13	1.05
Ethylbenzene	Indoor Air	0.40	3.27
Naphthalene	Indoor Air	0.262	.262
		Vapor Intrusion Standards (VIS) - Sub-slab Soil Gas	
		Resident (ug/m3)	Industrial (ug/m3)
Benzene	Soil Gas	4.3	35
Naphthalene	Soil Gas	1.0	8.0
		Vermont Soil Standards (VSS)	
		Resident (mg/kg)	Non-Resident (mg/kg)
Benzene	Soil	0.70	4.2
Ethylbenzene	Soil	3.7	22
Xylenes	Soil	252	257
1,3,5-Trimethylbenzene	Soil	144	177
1,2,4-Trimethylbenzene	Soil		
1,2,3-Trimethylbenzene	Soil		
Naphthalene	Soil	2.7	16
		Groundwater Standards	
		VGES (ug/L)	VIS -G (R) (ug/L)
Benzene	Groundwater	5	0.92
1,3,5-trimethylbenzene	Groundwater	23	330
1,2,4-trimethylbenzene	Groundwater		470
1,2,3- trimethylbenzene	Groundwater		790
Naphthalene	Groundwater	0.5	4

The Site is zoned in a mixed commercial and residential area and could be used as a residential property in the future. Therefore, the "resident" soil and soil gas standards apply to the Site.

Data collected to date indicate that moderate to high levels of petroleum impacted indoor air, soil gas, soil and groundwater soil are present beneath the Site, at levels above VTDEC soil standards. Groundwater and soil gas analytical results have also been reported to be above VTDEC standards. Historical contaminant data is included in Appendix C.

To date, data suggests that Carbon Tetrachloride is not likely associated with the release of petroleum. However, because the compound has been detected above standards since sampling began it will be included within media standards.

4.2 Compliance Points

The compliance points will be the existing monitoring well network at the Site which includes five monitoring wells (MW-U1, MW-1, MW-2, MW-6 and MW-7), two soil gas points (SG20-01 an SB20-02), indoor air from within the Lamb Residence and a soil sample collected from the soil excavation area.

Groundwater samples will be collected from specific monitoring wells prior to the carbon injection and soil excavation event, and quarterly following the injection event for one year in order to monitor the effect of the injection event on the dissolved phase plume. At the end of the quarterly sampling for one year, KAS will evaluate all the sampling data and recommend a future sampling frequency as appropriate.

A soil sample will be collected from the soil remaining in the ground at the Site from the excavation area. Portions of the sidewalls will not be accessible due to the installation of steel sheeting. It is anticipated that soil will be excavated to a depth ranging between, 12 to 15 feet bsg and a soil sample will be collected from the base of the excavation. Additionally, soil gas points, SG20-01 and SG20-02, will be used as soil gas compliance points as well as indoor air samples from within the Lamb Residence. These data points will be sampled post injection to monitor the effect of the injection and soil excavation event on groundwater, soil, soil gas intrusion and indoor air.

4.3 Exposure Pathways

The table below provides a summary of exposure pathways and potential sensitive receptors. All exposure pathways for the Site have been determined to be incomplete.

Table 3. Summary of Exposure Pathways and Potential Sensitive Receptors

Exposure Pathway / Sensitive Receptor	Pathway Complete or Incomplete	Supporting Documentation
Direct human contact to soil or groundwater	Deemed Incomplete	Impacted soils beneath the Site have been identified at 1-2 ft bg; however, the impacted soil is below asphalt.
Soil to groundwater (drinking water)	Deemed Incomplete	No public water wells are known to exist within the network of wells. Five drinking wells are located within a 1,000-ft radius of the Site. The closet private well serves the C.P. Dudley Store from the north. Due to the

		distance of these wells from the source area it is not believed they are at risk of impacts.
Inhalation of soil vapor	Complete	Soil gas and indoor air testing reported several petroleum related compounds in exceedance of their standards to the Lamb Residence. Due to these results, vapor intrusion into the Lamb Residence is presumed to be occurring.
Soil to surface water	Deemed Incomplete	No evidence of surface water impacts has been noted.
Groundwater to surface water	Deemed Incomplete	The interception trench currently active is discharging treated groundwater to the Winooski River under General Discharge Permit No. 3-4025. Quality control data relative to the efficiency of the water treatment system is being monitored by KAS on a bi-weekly sampling basis. The Winooski River is not considered to be at risk of subsurface petroleum impacts from the Site at this time.
Groundwater or vapor migration to utility corridors	Unknown	During periods of an elevated water table and because the private water line servicing the Lamb Residence lies directly within the core of the plume, there may be a preferential pathway for impacted groundwater to travel away from the source area. Additional investigation of utility corridors is needed to determine if this pathway is complete. It is unknown if vapor intrusion through utility corridors is occurring.

4.4 Contaminant Mass

AST Environmental, Inc. (AST) is a multi-disciplinary environmental remediation and contracting company based out of Midway, Kentucky. AST is affiliated with Remediation Products, Inc. (RPI) who produces the BOS 200® product. AST calculated contaminant mass loadings for the injection areas based on total petroleum hydrocarbon (TPH) values in soil identified during the supplemental investigation, which was calculated from benzene concentrations in groundwater data. The loadings were used to develop the final injection design which is discussed further in Section 7.0. The contaminant mass calculated for the injection area is presented below. Refer to the Injection Layout Map presented in Appendix A for injection area locations.

Injection Area A: 1,298 lbs. TPH (Total contaminant mass to be treated)

It is estimated, soil excavation would likely target an area of 400 square feet, to a depth of 2 to 15 fbg depending on where the clean material is observed. This will result in up to approximately 230 cubic yards of soil being generated for disposal.

4.5 CAP Completion Standards

Once the carbon injection is complete, the following performance standards will be used to confirm the effectiveness of the injection.

1. Collection of groundwater samples from each site monitoring well (MWU-1, MW-1, MW-2, MW-6 and MW-7) to be analyzed for VOCs via 8206C. The groundwater analytical data will be compared to the VGES;

2. Collection of indoor air and soil gas samples will be analyzed for VOCs via EPA Method TO15 or equivalent. The soil gas analytical results will be compared to the vapor intrusion standards (VIS) for soil gas listed in Appendix A - §35-APX-A2 Vapor Intrusion Standards of the I-Rule. The indoor air analytical results will be compared to the indoor air standards (AIS) listed in Appendix A - §35-APX-A2. Vapor Intrusion Standards of the I-Rule; and,

3. Because the compound, Carbon Tetrachloride, is not associated with the release of petroleum from the Site, this compound will not be used to confirm the effectiveness of the injection.

AST estimates the Site will achieve the remedial objectives 12-18 months post-injection. The monitoring frequency will be evaluated after the 13-month post-injection period and the Site will be evaluated for closure based on the criteria set forth in Subchapter 10 Site Closure §35-1001, subsection b of the I-Rule.

Once soil excavation at the Site is complete, the following performance standards will be used to confirm the effectiveness of the soil excavation.

1. Collection of soil samples from the bottom of the excavation to be screened for VOCs with a PID. Confirming the effectiveness of soil excavation laterally is not feasible given the installation of steel sheeting. All soils should be below 20 parts per million by volume (ppmv), have no observed odor, and no visible staining. The standard of 20 ppmv was chosen based on the action level used to trigger further investigation work at Sites with gasoline contamination outlined in the Underground Storage Tank Closure and Site Assessment Requirements document dated June 2010. An updated standard for soil excavation limits was not provided in the I-Rule (July 2019) for gasoline contaminated sites, only for heating fuel contaminated sites; and,

2. The collection of a soil sample from the bottom of the excavation to confirm grossly impacted soil has been removed from the Site. Soil samples will be analyzed for VOCs via EPA Method 8260C.

5.0 Permits

The following permits are likely needed to accomplish the remedial work only as described in Section 7.0 Remedial Implementation Plan. These are identified below along with an applicable contact names and telephone numbers of the permit issuing entities.

- VTRANS State Highway Access and Work Permit (Permit #3-1111); and,

- General Discharge Permit 3-9004.

No other permits are anticipated to be needed at this time.

State Underground Injection Control (UIC) Permit: In accordance with the VTDEC Drinking Water and Groundwater Protection Division 'Environmental Protection Rules, Chapter 11, Underground Injection Control Regulations' effective October 29, 2014, a UIC permit is not required if the injection is being performed as part of an approved corrective action plan (§11.303(a)(1)).

6.0 Proposed Contractors

Estimates have been obtained from contractors and subcontractors to implement the work described in Section 7.0. Depending upon contractor availability, the following is a list of contractors:

Table 4. List of Proposed Contractors

AST Environmental (BOS 200® Injection)	Contact: Bill Brab Midway, Kentucky	(859) 849-4900
VT Underground Locators (Utility Locator)	Contact: Mark Day Williston, Vermont	(802)-863-7113
J.P. SiCard, Inc. (Soil Excavation and Transportation)	Contact: George Carpenter Barton, Vermont	(802) -525-9506
Endyne, Inc. (Laboratory)	Contact: Eileen Toomey Williston, Vermont	(802) 879-4333 ext. 300
Contest Analytical Laboratory (Laboratory)	Contact: Jim Georgantas East Longmeadow, Massachusetts	(413) 525-2332
East Montpelier Fire Department (Water)	Contact: Ty Rolland East Montpelier, VT	(802) -225-6247
Casella Waste Systems, Inc. (Soil Disposal)	Contact: Ann Santell Rutland, Vermont	(802) 779-0226
NRC & U.S. Ecology (Waste Disposal)	Contact: Britney Blair Williston, Vermont	(802) 488-3902

7.0 Remedial Implementation Plan

Active remediation at the Site has been deemed warranted due to significant adsorbed phase subsurface contamination acting as a continued source to the dissolved-phase contamination, off-site migration of the dissolved-phase plume, indoor air impacts to the Lamb Residence and the overall long-time frame natural attenuation would take to reach remedial objectives.

Petroleum impacted groundwater, soil, soil gas and indoor air are present in the subsurface of the Site. Petroleum compounds measured above the resident soil standards in soil samples collected near the source will continue to act as a source for the dissolved-phase plume.

Based on a review of remedial alternatives, soil excavation and carbon injection were deemed the most feasible technologies to achieve remediation at the Site. Soil excavation within the source area would physically remove petroleum hydrocarbons from the Site which would reduce the continued migration of the dissolved-phase plume further off-site. The carbon injection would immobilize petroleum hydrocarbons via adsorption which would reduce the migration of the dissolved-phase plume towards the Lamb Residence. Additionally, the BOS 200® product also includes beneficial microorganisms and nutrients to promote biodegradation of petroleum hydrocarbons which will eventually reduce the volume of petroleum hydrocarbons left in the subsurface.

7.1 Baseline Monitoring

Prior to the initiation of remedial activities at the Site, KAS will collect groundwater samples from the existing monitoring well network (MW-U1, MW-1, MW-2, MW-6 and MW-7) at the Site to establish baseline groundwater conditions immediately prior to corrective action activities. If NAPL is present in a monitoring well, KAS will remove the NAPL to the extent feasible and then purge three well volumes prior to collecting groundwater samples in accordance with KAS protocol #011 Monitoring Well Sampling with Bailers. All purge water will be placed in a 55-gallon drum if NAPL is present. Samples will be collected in properly preserved containers, stored on ice and submitted to a certified laboratory under proper chain of custody procedures in accordance with KAS Protocol #006 Sample Containerization, Preservation and Handling. The samples will be analyzed for VOCs via EPA Method 8260C and petroleum related VOCs.

In addition, KAS will collect indoor air samples from within the Lamb Residence and soil gas samples from SG20-01 and SG20-02 installed near the foundation wall of the Lamb Residence. The collection of the soil gas samples will be collected during a 6-hour period, while, the collection of the indoor air samples will be completed in accordance to the Vapor Intrusion Guidance (VIG) dated March 24, 2020, which includes a prebuilding assessment and the collection of samples over a 24-hr period. All air samples will be analyzed for VOCs via EPA Method TO-15 or equivalent.

7.2 Injection Design

The BOS 200® carbon injection in-situ remedial approach for the Site was designed by AST, Inc. in partnership with KAS. BOS 200® is a proprietary blend of powdered/granulated carbon, calcium, gypsum, nitrate, phosphate, and ammonia. The product is injected into the subsurface as a slurry (mixed with water and a facultative blend of microbes) and traps petroleum contaminants via carbon adsorption. Once contamination is adsorbed onto BOS 200® particles, treatment occurs via biological degradation as the product incorporates both aerobic and anaerobic biological processes.

Injection techniques are determined based on-site conditions. Given the soil type and contaminant mass present in the subsurface, the injection design will encompass 1) top down distribution rather than bottom up, 2) high pressure injection rather than low pressure to ensure localized soil lifting and propagation of the product from the injection tip, 3) adjusted horizontal and vertical injection spacing rather than an even distribution. The design focuses on the treatment of groundwater within the injection area (Injection Layout Map, Appendix A) located north of the Lamb Residence. The design for the area was based on soil and groundwater data collected during the ECAA as part of the remedial site characterization. The specific design for the area is described below (Table 5).

Table 5. Activated Carbon Injection Design for Site

	A
Treatment Area (ft^2)	1,725
Injection Points	48
Number of Injection Intervals per Point	4.0

Total Number of Injection Intervals	192
BOS 200® Loading (lb./ft^3)	0.166
Bacteria Concentrate (gallons)	10
Water Needed (gallons)	2,880

Prior to the injection event, a private utility locator will be used to locate and mark out buried utilities beneath the Site. The injections will be performed using a track-mounted Geoprobe™ (Model 7822DT) drill rig that will be provided by AST. The injection activities will be conducted by AST under the direct supervision of a KAS scientist. All injection materials, except water, will be provided by AST. The injections will require a water service capable of producing at least 25 gallons per minute. The East Montpelier Fire Department has given KAS permission to obtain water from one of their holding tanks for use during injection activities. The supplied water will be pumped into a 4,000-gallon frac tank that will be delivered to the property of the Fire Department. AST will connect a hose to the 4,000-gallon frank tank and fill up their vessel, as needed, that will supply water to the injection equipment. Electrical power needed for the equipment will be supplied by a generator provided by AST. No waste streams are anticipated as a result of the injection activities. All drill cuttings, if generated, will be placed back at the point of origin. If contaminated drill cuttings are encountered and unable to be placed back into the borehole, KAS will place the soil in a 55-gallon drum for off-site disposal. All injection point locations will be sealed to match the existing surface condition following completion of injection activities.

The injection activities are anticipated to take place over a 3-day period starting on May 13, 2021 and daytime hours (7am – 6pm). KAS will make every effort to minimize disruption to the on-site user operation and flow of traffic.

Post injection, KAS will check monitoring wells (MW-1, MW-2, MW-6, MW-7) for the presence of BOS 200®. If present, KAS will surge the monitoring well to redevelop it and a new monitoring well will be installed next to the old well. The new wells will be installed using a track-mounted Geoprobe™ drill rig. During groundwater monitoring events both the old well and new well will be sampled.

7.3 Post Remedial Sampling

Following corrective action activities, to monitor contamination levels over time, track potential migration of the dissolved-phase plume, and to document the effectiveness of the corrective action, KAS will collect groundwater samples from four monitoring wells (MW-1, MW-2, MW-6 and MW-7) one month following the completion of corrective action activities and on a quarterly basis thereafter over a 12-month period. Groundwater samples will be collected, regardless of the presence of NAPL. If NAPL is present, KAS will remove the NAPL to the extent feasible and then purge three well volumes prior to collection the groundwater samples. Samples will be collected in properly preserved containers, stored on ice, and submitted to a certified laboratory for analysis of VOCs via EPA Method 8260C.

KAS will collect soil gas samples from SG20-01 and SG20-02, respectively, as well as an outside ambient air sample for QA/QC purposes. Samples will be collected in 6-liter summa canisters with lab calibrated 6-hour flow controllers. Following sample collection, each canister will be packaged and delivered to a certified laboratory under proper chain of custody procedures. The indoor air samples and soil gas samples will be analyzed for VOCs via EPA Method TO-15.

KAS will also collect two indoor air samples (basement and first floor) from within the Lamb Residence as well an outside ambient sample QA/QC purposes. Samples will be collected in 6-liter summa canisters with lab calibrated 24-hour flow controllers. Following sample collection, each canister will be packaged and delivered to a certified laboratory under proper chain of custody procedures. The indoor air samples and soil gas samples will be analyzed for VOCs via EPA Method TO-15.

7.4 Waste Characterization Soil Sampling

Prior to the commencement of waste characterization sampling, KAS will update the site-specific health and safety plan to comply with Vermont Occupational Safety and Health Administration (VOSHA) guidelines. This task will also address locating underground utilities that may be present, through DIGSAFE, local public works officials, property owners and a private underground locating company (VT Underground Locator).

Three composite waste characterization samples will be collected from the excavation area. Three soil borings will be advanced in the excavation area using a track-mounted Geoprobe™ drill rig. The soils will be logged by a KAS scientist, who will use a PID to screen the soils for the presence of VOCs during drilling. Soil samples will be collected continuously from the entire length of each borehole.

The soil samples will be submitted for the following analysis per the receiving facility's requirements (Casella, Inc.):

- Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics (GRO) via EPA Method 8015;
- TPH – Diesel Range Organics (DRO) via EPA Method 8015;
- Full list of VOCs via EPA Method 8260C;
- Ignitability; and,
- Total RCRA 8 Metals via various methods;
    - If any of the total metal concentrations exceed the 20x rule, TCLP will need to be run on that specific metal.

7.5 Soil Excavation and Soil Management Plan

Soil excavation and off-site disposal of contaminated soil at an approved treatment, storage, or disposal facility will physically remove contaminated soil and effectively mitigate direct exposure risks associated with the Site. Contaminated soil for the purpose of this CAP is defined as soils that have visible staining, observed petroleum odor, and/or measured PID reading greater than 20.0 ppmv within the area of excavation. While some soils near the surface of the excavation area have been measured to be below 20.0 ppmv, these soils will be used, when necessary, as backfill. If soils cannot, be used as backfill, due to VTRANS specification for compaction, they will be disposed of.

The area of soil excavation is located on the southern side of the C.D. Dudley Store and includes the former gasoline dispenser area (removed in 1996). The excavation is noticeably limited due to Site features such as the C.P. Dudley Store, current gasoline pump islands, overhead electrical lines and U.S. Route 2. In order to maintain the integrity of U.S. Route 2 and Site safety, steel sheeting will be installed along each side of the excavation area to a depth of 30 ft bsg. The steel sheeting will be installed with the use of a crane or excavator (depending on availability and site safety measures). The steel sheeting will be connected continuously to make a 20x20 square box. Necessary equipment will be lowered within the area as needed (pumps, compactor, hoses, etc.) via crane or excavate. The steel sheeting installed along the most southern edge will be installed up to the white line of U.S. Route 2. Jersey barriers may be needed for additional safety measures (this will be at the discretion of the site contractor). Soil excavation will begin in the vicinity of soil boring SB19-15 and extend outward to the extent possible. Detailed field notes will be compiled by the overseeing scientist which will include notes on each sample location, PID reading, depth and soil type. The soil excavation area is included in Appendix A.

With these stipulations, KAS will assume the soil excavation area is approximately (20ft x 20 ft) 400 square feet, to a depth of 2 to 15 fbg depending on where "clean" material is encountered. Based on these measurements, approximately 230 cubic yards of soil needs to be disposed of. At an estimated soil density of 1.5 tons per cubic yard, the estimated disposal tonnage is 345 tons. Due to limited space on Site, excavated contaminated soil will be "live-loaded" into tri-axle dump trailers provided by the site contractor who will be a certified VT hazardous waste hauler. Provided that the soils meet the facility's permit requirements, soils will be transported by contractor and disposed of as daily cover at Casella's landfill located in Coventry, Vermont. No impacted soils will be stockpiled on Site. The soil excavation activities are anticipated to take place over a 5-day period starting in late May or early June (following injection). KAS will make every effort to minimize disruption to the on-site user operation and flow of traffic.

If required, the excavation will be backfilled with clean suitable compacted fill and properly compacted in 8-inch lifts to 95% proctor with 12-inches of crushed gravel subbase per VTRANS specification 704.05. The parking surface will be replaced in-kind with pavement upon completion.

7.6 Dewatering and Water Treatment

Due to the groundwater, it is anticipated that dewatering will be required during excavation to expose impacted soils on the C.P. Dudley Store. Therefore, use of a 21,000-gallon frac tank is required for temporary groundwater storage. Groundwater from the excavation area will be pumped into the frac tank and then treated using granulated activated carbon (GAC) drums and then discharged to the nearest catch basin. Approval to extend a protected discharge pipe (to transport impacted water) from excavation area and over U.S. Route 2 to an already approved wastewater discharge permit (#3-4025) located on the East Montpelier Fire Department property was not granted by VTRANS. Therefore, a new discharge permit will be required for dewatering activities during soil removal.

7.7 Post Excavation Soil

Following soil excavation and prior to backfilling, one confirmatory soil sample will be collected from the bottom of the excavation to ensure grossly contaminated soils were removed from the Site. Since soils will be removed up to the steel sheeting, no soil samples will be collected from the sidewalls of the excavation. The soil sample will be analyzed for VOCs via EPA Method 8260C.

8.0 Implementation Schedule

Work may begin on this project following the property owners and VTDEC approval, and the required public comment period. Implementation of the CAP will be based on weather conditions at the Site, specifically the ground must be thawed for injections. CAP activities will be conducted in approximately 3 months and will be dependent on AST's availability. Time to complete the above tasks assumes fair weather and good access; frozen ground or unfavorable weather conditions could lengthen the time periods. A timeline for the project is included in Appendix H.

After the completion of CAP activities, KAS will prepare a completion report which will document the injection and soil removal activities, soil gas sampling, indoor air sampling, and the first groundwater monitoring event conducted one-month post completion of CAP.

9.0 Corrective Action Operation and Maintenance Plan

9.1 Soil Excavation Maintenance Plan

Once the contaminated soil is removed from the Site, there is no on-going maintenance. The groundwater monitoring well network will remain in place to monitor dissolved VOC concentrations in the groundwater. The removal of grossly impacted soil will eliminate grossly impacted source area soils for the dissolved-phase plume beneath the Site and groundwater concentrations should decrease. Once groundwater concentrations are below VGES, the monitoring wells can be properly closed.

9.2 Injection Maintenance Plan

Once carbon injections are complete there is no maintenance for the injection points themselves. Maintenance may be required for the existing monitoring well network if the carbon slurry migrates into an existing well. If this does occur, the monitoring well can still be used to collect groundwater samples following the removal of the carbon slurry and redevelopment of the well. However, KAS will install a replacement monitoring well next to the existing monitoring well in order to assess how carbon in the sand pack effects sampling results. The monitoring well network will be maintained until the Site has met the criteria to be eligible for Sites Management Activity Complete (SMAC) designation.

10.0 Institutional Control Plan

Institutional controls are intended to help minimize potential future human exposure to residual contamination. Upon receipt of the SMAC designation, the designation and supporting documentation will be filed in the municipal land records in the Town of East Montpelier, Vermont. Within one week of recording, a copy of the stamped designation and supporting documents will be provided to the VTDEC, including the book and page number of where the documents were recorded.

11.0 Long Term Monitoring Plan

Long-term monitoring will consist of collecting groundwater samples from the monitoring well network one month following the completion of the CAP and then quarterly for a 12-month period as outlined in Section 7.7 Site Groundwater Monitoring.

After completion of CAP activities, KAS will prepare a completion report which will document the injection and soil removal activities, indoor air sampling, soil gas sampling, and the first groundwater

monitoring event conducted one-month post completion of the CAP. KAS will prepare and submit brief quarterly summary reports following each quarterly sampling event and a detailed annual groundwater monitoring report after one year of sampling where the data will be evaluated. The sampling and reporting frequency will be reevaluated after the 13-month post injection period.

12.0 Redevelopment and Reuse Plan

There are currently no redevelopment plans for the Site.

13.0 Quality Assurance and Quality Control Plan

The following is a list of KAS standard operating procedures (SOPs) for the technologies being proposed in the CAP.

Protocol #	Title
001	Soil Screening Headspace Measurement
003	Use and Maintenance of Electronic Interface Probes and Water Level Indicators
004	Soil Borings
005	Soil Sampling
006	Sample Containerization, Preservation, and Handling
011	Monitoring Well Sampling with Bailers
017	Indoor Air Sampling Procedures for VOCs by EPA Method TO-15
028	Soil Gas Sampling Procedures for VOCs by EPA Method TO-15
034	Use and maintenance of MiniRAE Lite Photoionization Detector

To ensure the validity and accuracy of the data quality assurance/quality control measures will be taken. Specifically, for each groundwater sampling event a trip blank and duplicate samples will be delivered under proper chain of custody procedures to a certified laboratory. Indoor air and soil gas samples will be delivered to Contest Laboratories of East Longmeadow, Massachusetts under proper chain of custody procedures. Additionally, the PID will be properly calibrated prior to each use following KAS protocol #034.

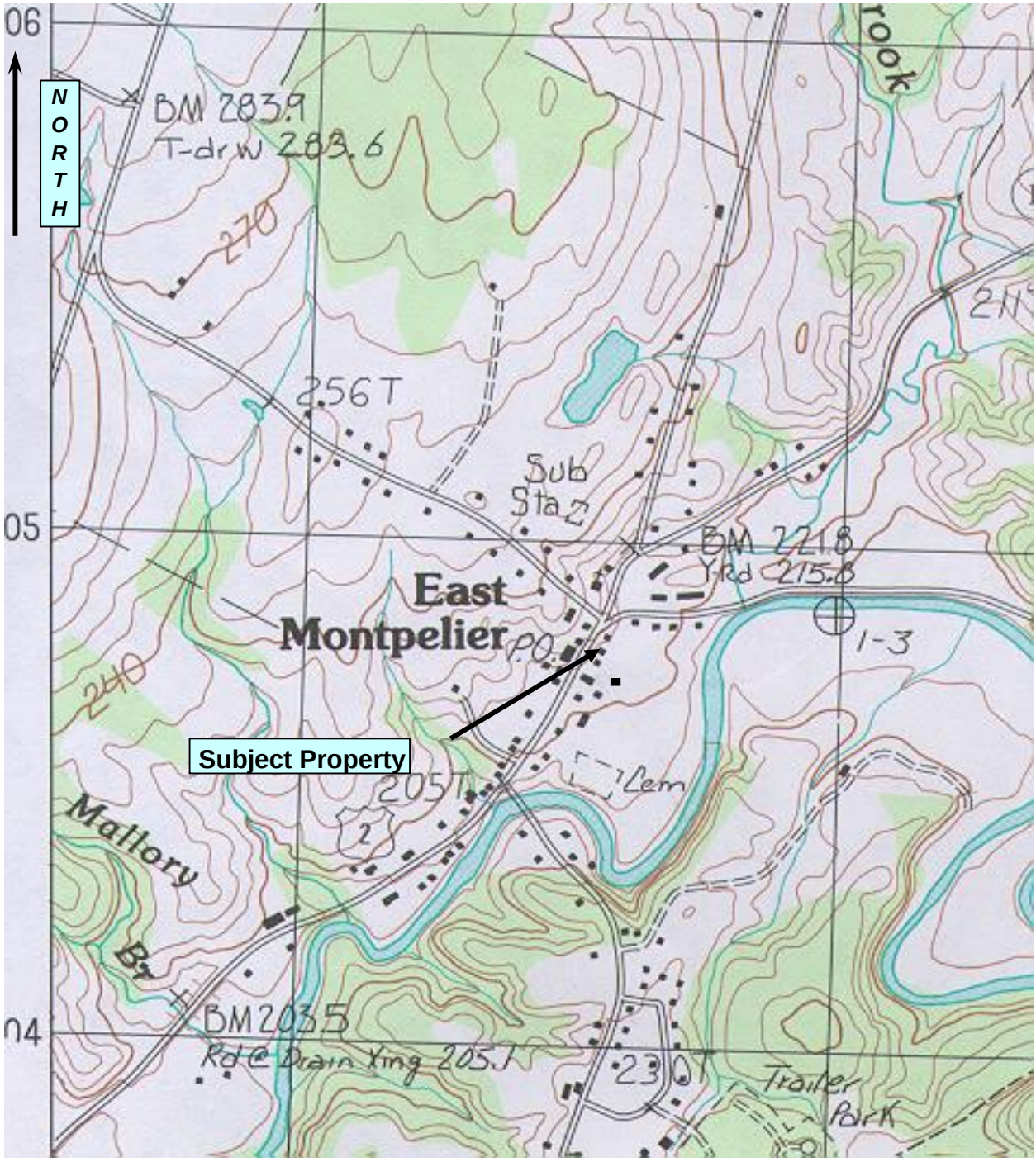
14.0 Cost Estimate

KAS has prepared a cost estimate for the corrective actions specified herein, activated carbon injection, soil removal, groundwater monitoring, soil gas sampling, indoor air monitoring, and subsequent CAP completion report. The estimated costs are representative of the remedial design elements, as described within this CAP, that are necessary to mitigate exposure to Site contaminants.

KAS used past project experience to estimate the cost of the proposed remedies. The estimated cost to implement the corrective action as described within this CAP is approximately $201,734. A detailed cost estimate is provided in Appendix G.

Appendix A

1) Site Location Map
2) Site Vicinity Map
3) Site Map
4) Town of East Monpelier Tax Map
5) Groundwater: Total VOC Distribution Map
6) Cross Section Location Map
7) Cross Sections A-A' and B-B'
8) Carbon Injection Area Layout
9) Soil Excavation Area



KAS #

Source: *USGS Mapping Plainfield Quadrangle 1986*

kas environmental science & engineering

Lamb Residence
East Montpelier, Vermont

Site Location Map
USGS Mapping

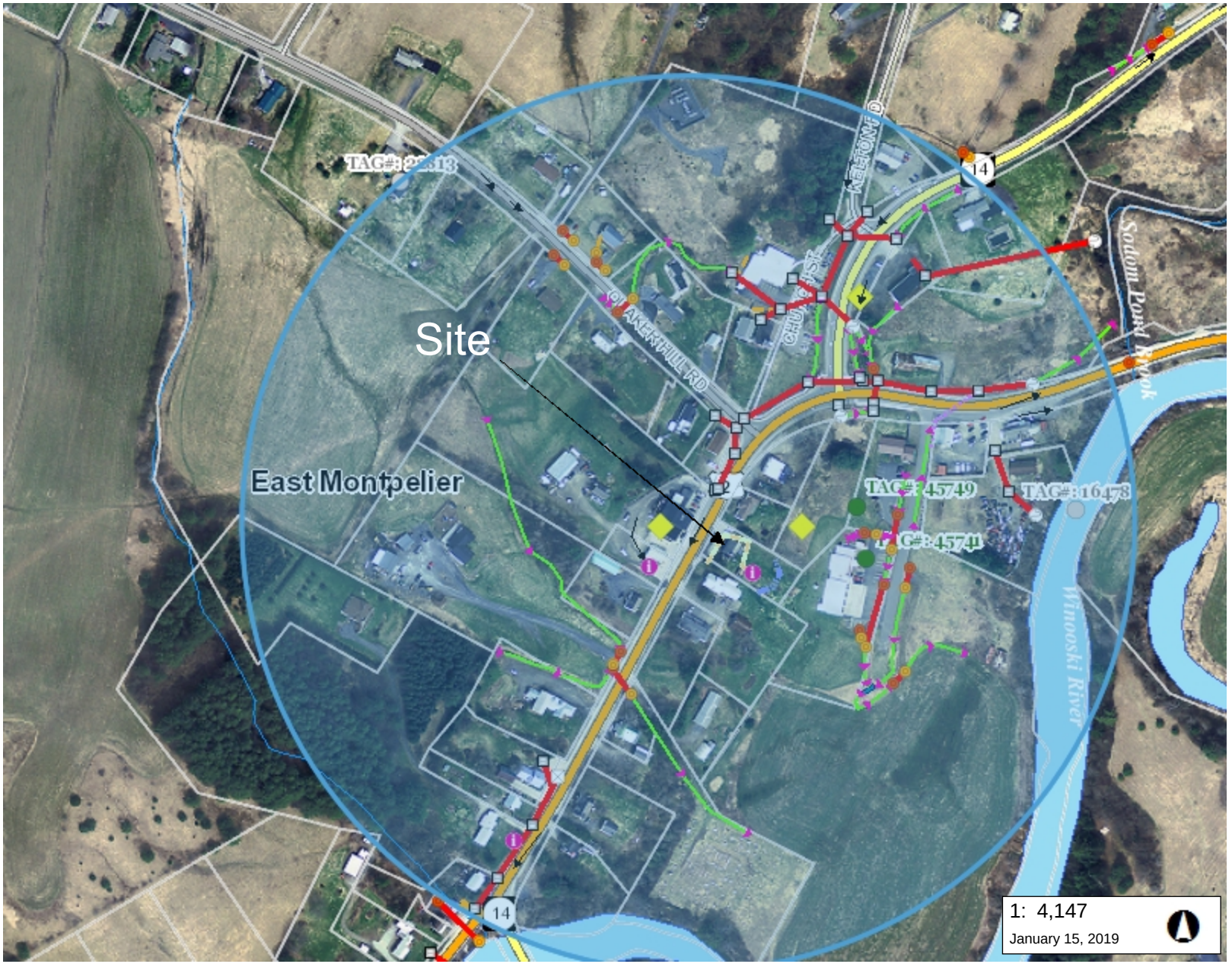
Date: 01/15/19	Drawing No. 0	Scale: 1:24,000	By: SD

VERMONT

Site Vicinity Map

Vermont Agency of Natural Resources

vermont.gov



1: 4,147

January 15, 2019

LEGEND

Wetland - VSWI

- Class 1 Wetland
- Class 2 Wetland
- Buffer

Existing stormwater point

- <all other values>
- Pipe Cross (not connected)
- Catchbasin
- Dry Well
- Drop Inlet
- Grate/Curb Inlet
- Yard drain
- Junction Box
- Stormwater Manhole
- Outfall
- Culvert inlet
- Culvert outlet
- Pond outlet structure
- Treatment feature (see notes)
- Retrofit
- Unknown Point
- Information Point

Existing stormwater line

- Storm line
- Storm line (old Sanitary line)
- Tunnel (storm)
- Swale

NOTES

Lamb Residence
2910 U.S. Route 2
East Montpelier, VT; SMS#87-0011

211.0 0 106.00 211.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 346 Ft. 1cm = 41 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

THIS MAP IS FOR ASSESSMENT PURPOSES ONLY. IT IS NOT VALID FOR LEGAL DESCRIPTION OR CONVEYANCE.

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LEGEND

SURVEYED AREA	Ac
CALCULATED AREA	AcC
DEED/SURVEY DIMENSION	100'
SCALED DIMENSION	100'S
BLOCK LIMIT/BLOCK NUMBER	02
LEASED LAND LIMITS	
SUBDIVISION LOT NO.	2
TOWN HIGHWAY NUMBER	(6)
MATCH LINE	M.L.
RIGHT OF WAY	R/W
COMMON OWNERSHIP	OR
LOT & DIVISION	68⁴

SCALE – 1 : 2500

METERS 100 0 100 200

FEET 200 0 200 400 600

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TOWN OF

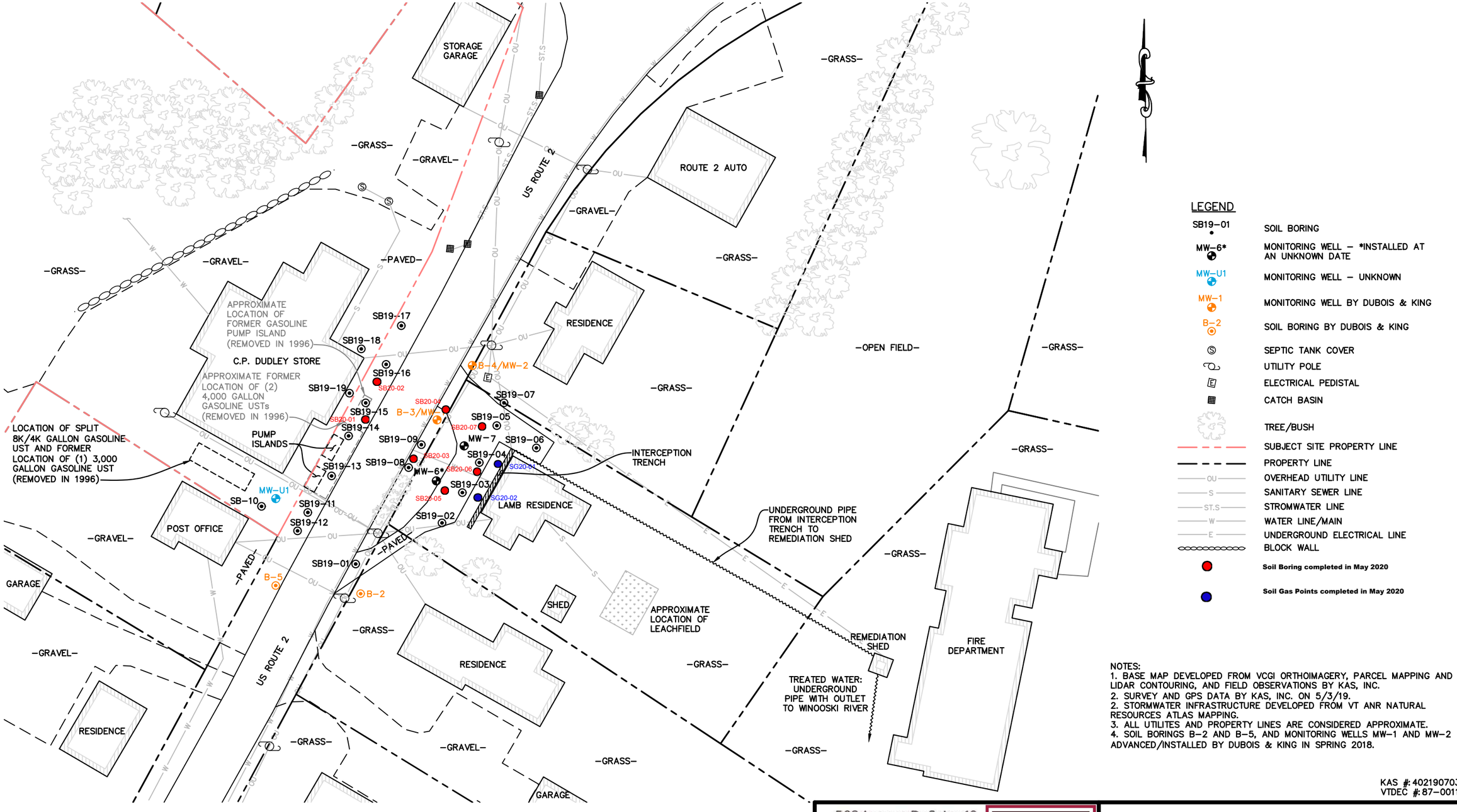
EAST MONTPELIER

VERMONT

MAP INDEX

LOCAL MAP NO. 21

STATE MAP NO. 152196



NOTES:
1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY, PARCEL MAPPING AND LIDAR CONTOURING, AND FIELD OBSERVATIONS BY KAS, INC.
2. SURVEY AND GPS DATA BY KAS, INC. ON 5/3/19.
2. STORMWATER INFRASTRUCTURE DEVELOPED FROM VT ANR NATURAL RESOURCES ATLAS MAPPING.
3. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.
4. SOIL BORINGS B-2 AND B-5, AND MONITORING WELLS MW-1 AND MW-2 ADVANCED/INSTALLED BY DUBOIS & KING IN SPRING 2018.

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VTDEC #: 87-0011

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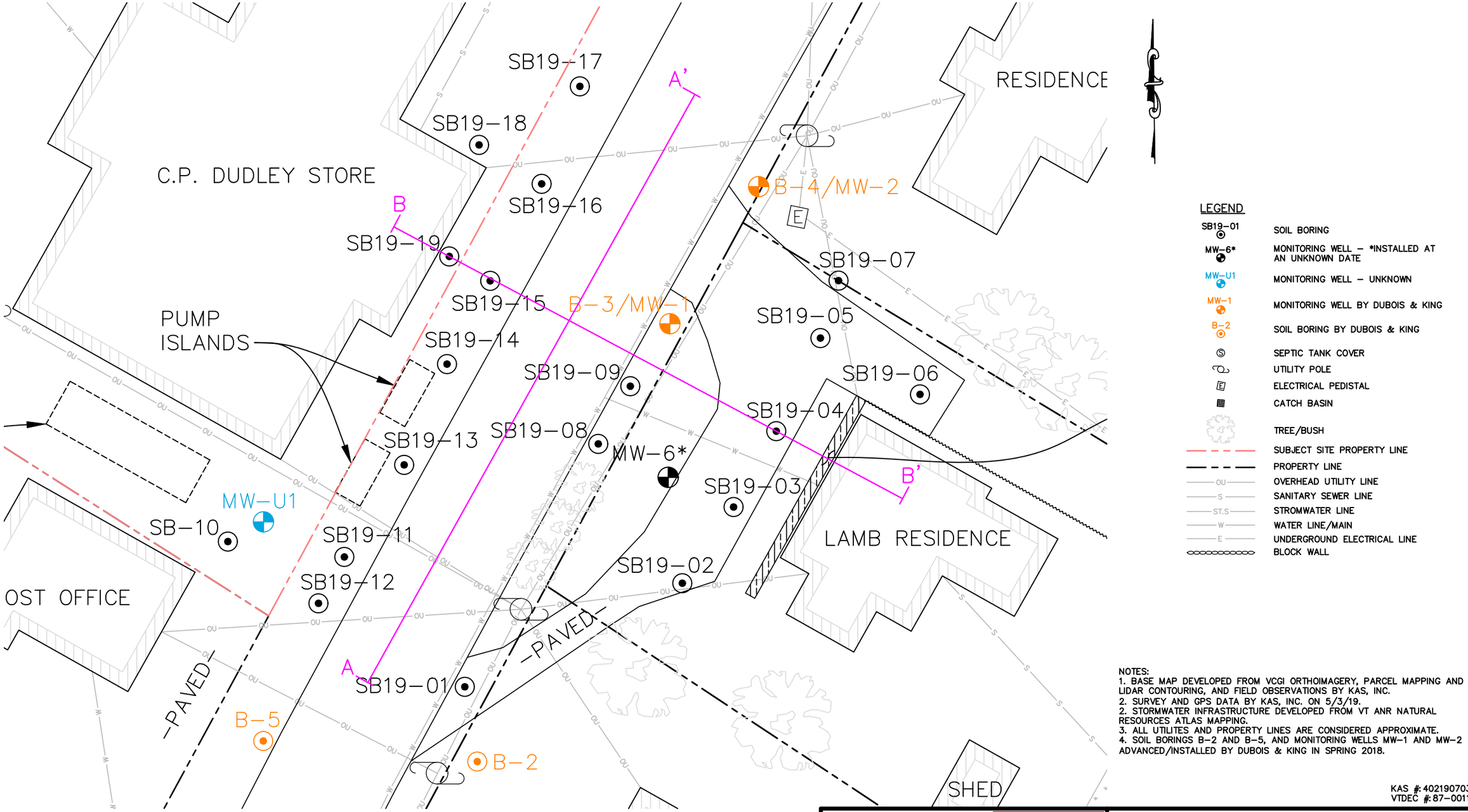
EAST MONTPELIER, VERMONT

Site Map

DATE: 7/19/19	DWG. #: 1	SCALE: 1"=50'	DRN.: TB	APP.: SD



LEGEND

SB19–01	SOIL BORING
MW–6*	MONITORING WELL – *INSTALLED AT AN UNKNOWN DATE
MW–U1	MONITORING WELL – UNKNOWN
MW–1	MONITORING WELL BY DUBOIS & KING
B–2	SOIL BORING BY DUBOIS & KING
S	SEPTIC TANK COVER
	UTILITY POLE
E	ELECTRICAL PEDISTAL
	CATCH BASIN
	TREE/BUSH
	SUBJECT SITE PROPERTY LINE
	PROPERTY LINE
OU	OVERHEAD UTILITY LINE
S	SANITARY SEWER LINE
ST.S	STROMWATER LINE
W	WATER LINE/MAIN
E	UNDERGROUND ELECTRICAL LINE
	BLOCK WALL

NOTES:
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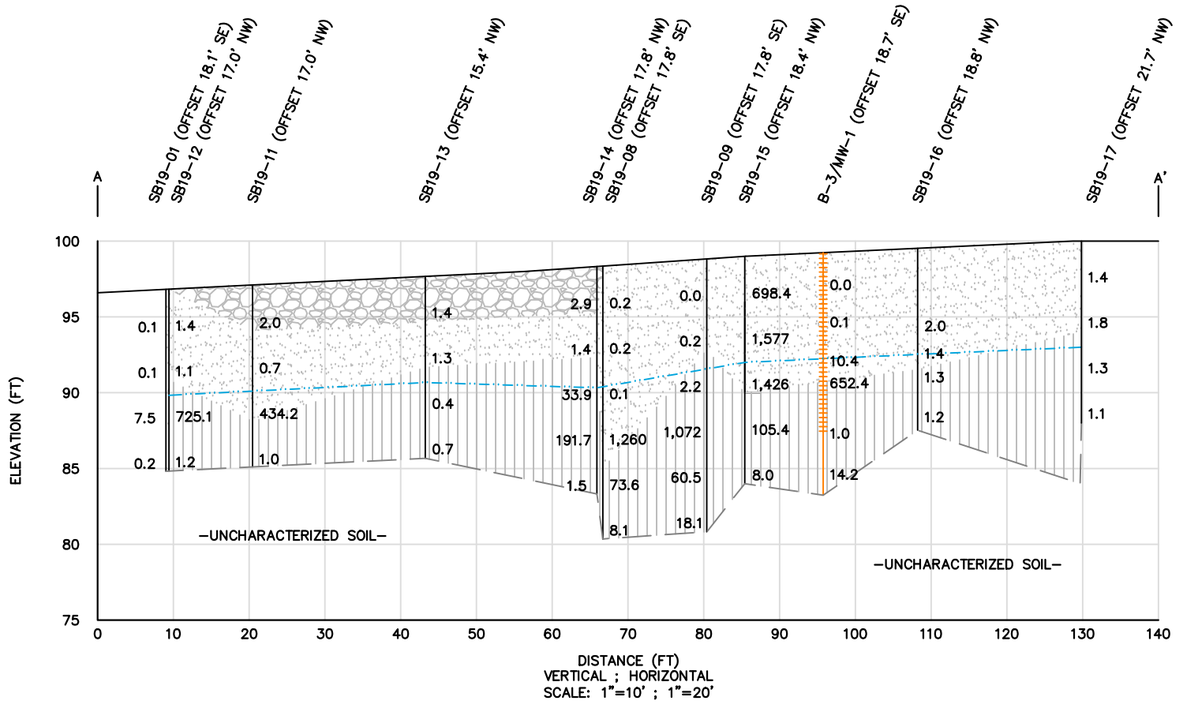
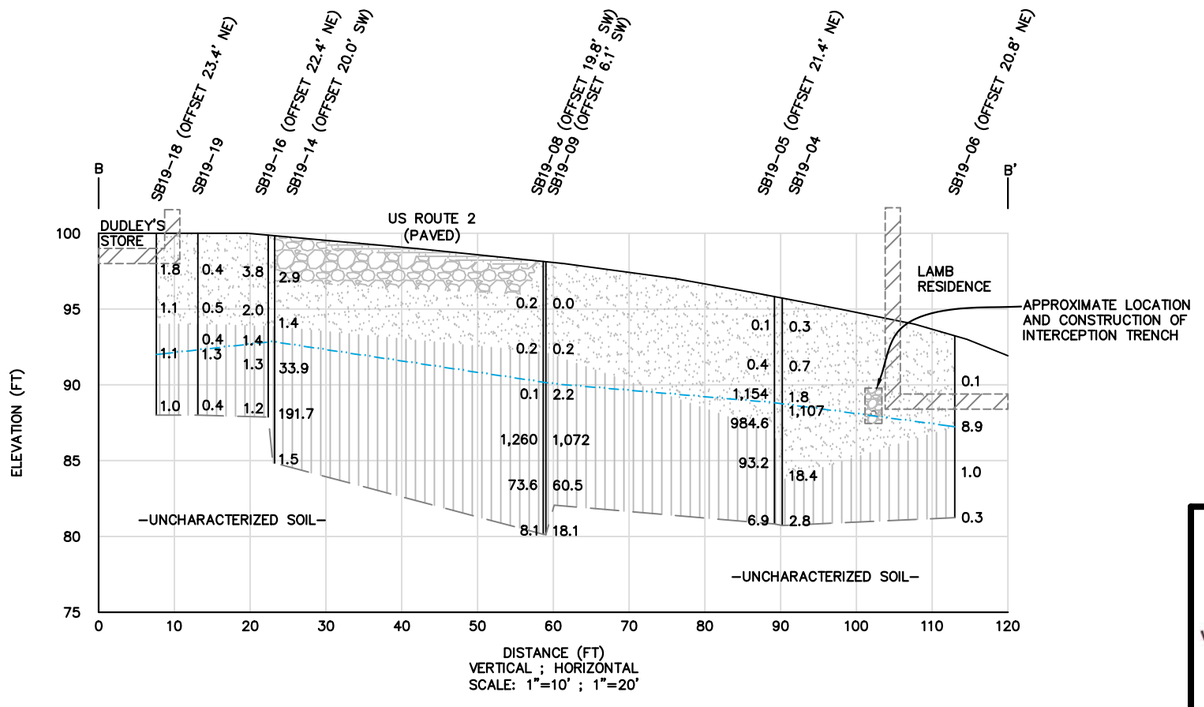
EAST MONTPELIER, VERMONT

CROSS SECTION LOCATION MAP

DATE: 6/24/19	DWG. #: 3	SCALE: 1"=20'	DRN.: TB	APP.: SD





LEGEND

SB19-01 — 7.5 — SOIL BORING WITH PID READING AT THE TIME OF DRILLING (ppmv)

B-3/MW-1 — 652.4 — MONITORING WELL BY DUBOIS & KING WITH PID READING AT THE TIME OF DRILLING (ppmv):
TRACK LINE = MONITORING WELL
SOLID LINE = BORING ADVANCEMENT

APPROXIMATE GROUNDWATER LEVEL AT TIME OF DRILLING – 4/11/19 & 4/12/19

GP = SANDY GRAVEL

SP/SW = SAND AND SILTY SAND

ML = SILT

ASPHALT

GRAPHIC SCALE
10' 0 5' 10' 20'
1 INCH = 10 FEET

GRAPHIC SCALE
20' 0 10' 20' 40'
1 INCH = 20 FEET

NOTES:
1. MW DATA PROVIDED BY DUBOIS & KING "MONITORING WELL/SOIL BORING LOG" DATED 4/25/18.
2. BORING DATA PROVIDED BY KAS, INC. "BORING LOG" DATED 4/11/19.
3. ELEVATION SET TO ARBITRARY DATUM 100.0'.
4. EXISTING GROUND ELEVATION BASED ON VCGI LIDAR DATA.

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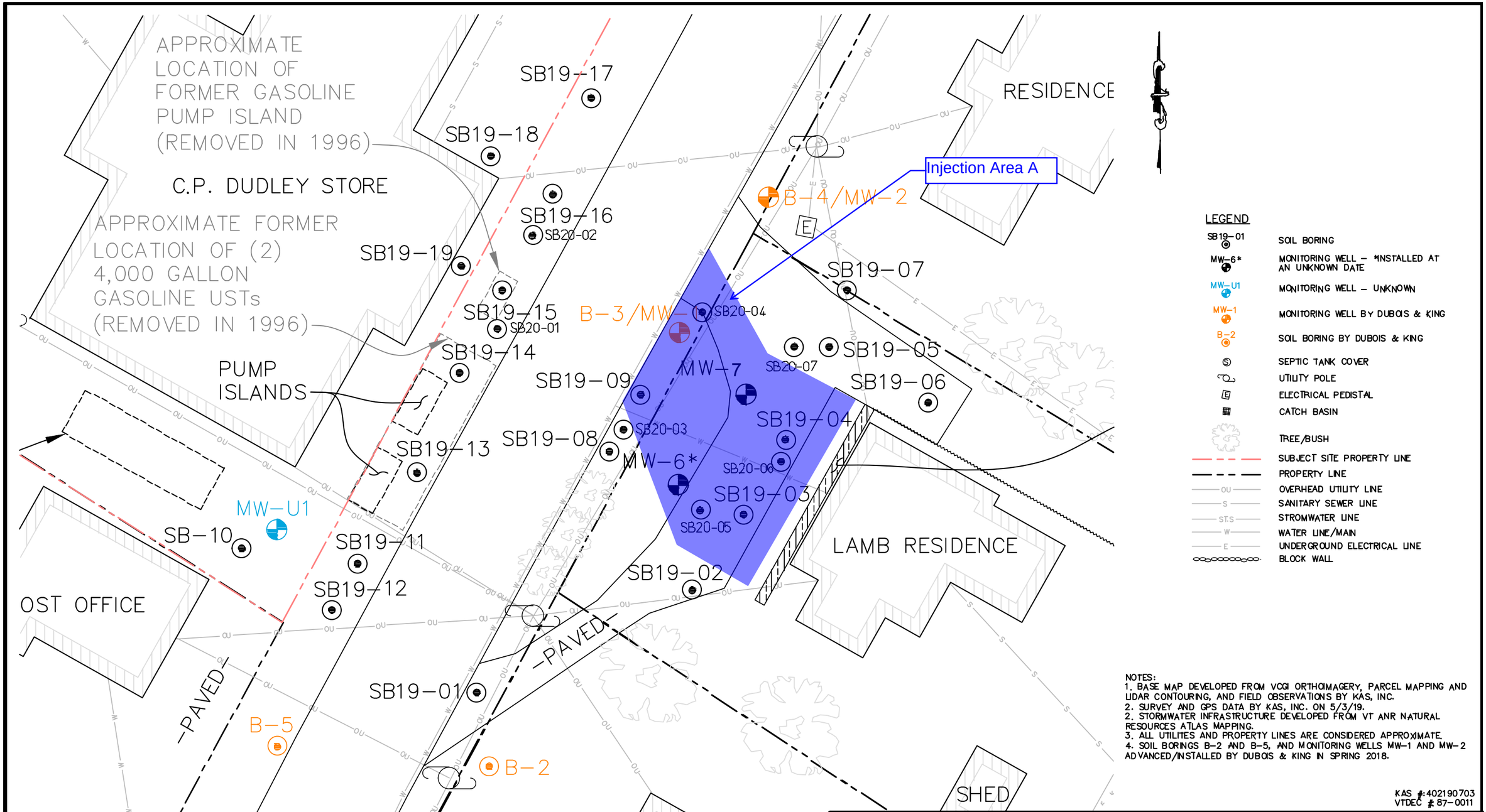
CROSS SECTION DETAILS

DATE: 6/25/19	DWG. #: 4	SCALE: AS NOTED	DRN.: TB	APP.: SD



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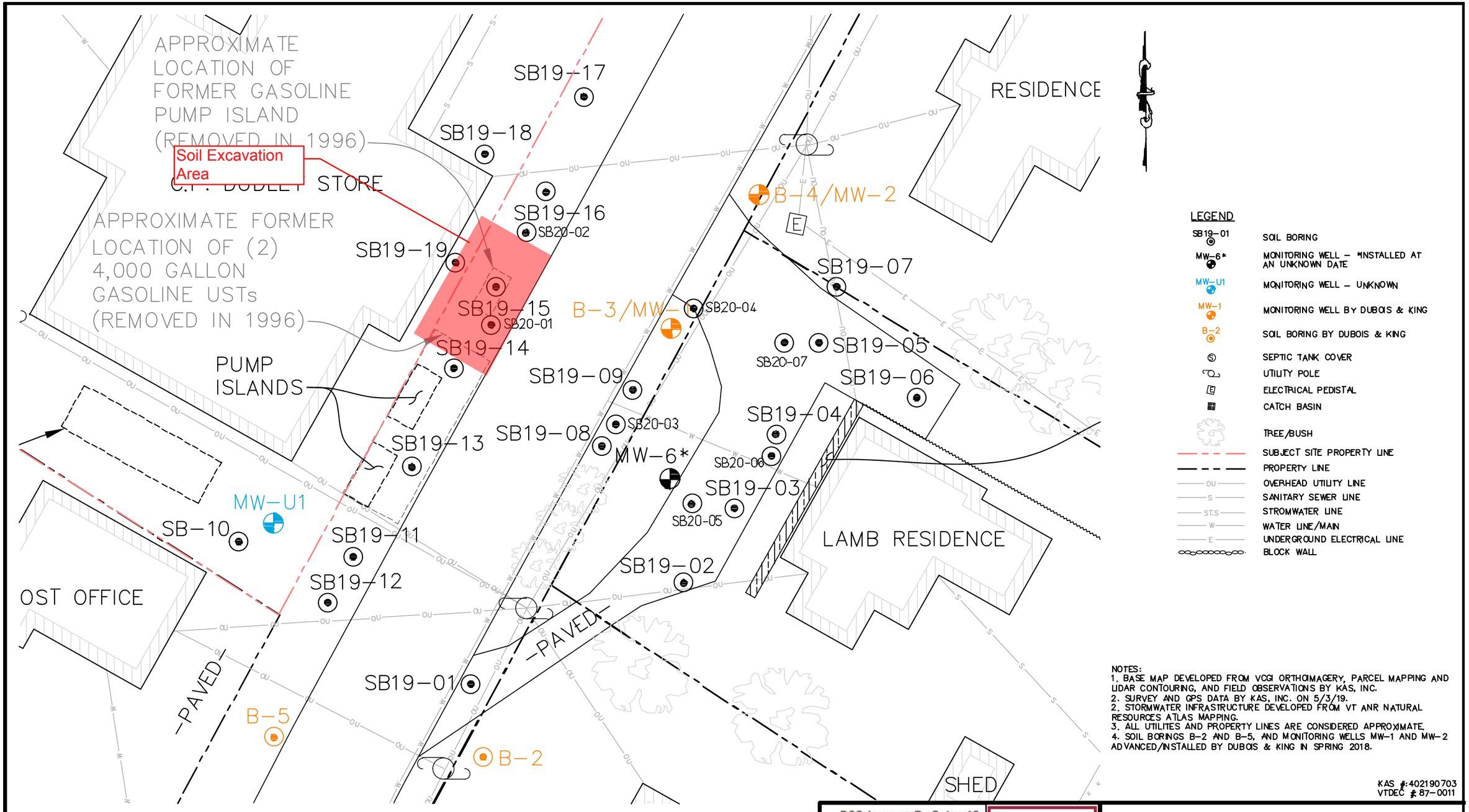
Carbon Injection Layout Area

DATE: 07/21/20	DWG. #: 1	SCALE: 1"=20'	DRN.: TB	APP.: SD



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Soil Excavation Area

DATE: 07/21/20	DWG. #: 1	SCALE: 1"=20'	DRN.: TB	APP.: SD

Appendix B

Historical Water Level Data

9/2/2020

Well I.D.	Date of Installation	Well Depth (ft)	Well Diameter	Well Screen Interval (ft)	Top of Casing Elevation	Depth To Product btoc	Depth To Water btoc	Product Thickness	Specific Gravity Of Product	Water Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	4/25/2018	14.54	1"	15-2'	102.32	-	10.01	-	-	-	92.31	-
MW-2	4/25/2018	14.39	1"	15-2'	102.82	-	10.54	-	-	-	92.28	-
MW-6	N/A	13.45	2"	N/A	100.00	-	7.63	-	-	-	92.37	-
MW-7	N/A	14.45	2"	N/A	99.52	-	7.22	-	-	-	92.30	-

HISTORIC WATER TABLE ELEVATIONS

Well I.D.	*Measurement Date:* 9/2/2020											
MW-1	92.31											
MW-2	92.28											
MW-6	92.37											
MW-7	92.30											

Notes:
N/A - Not Available
All values reported in feet.
NM= Not Measured

Appendix C

Historical Contaminant Data

MW-1

Sample Date / *Method* / PARAMETER	1/9/2020 8260C	5/19/2020* 8260B				VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<0.5	ND<0.5				5	0.92	7.4
Toluene	ND<1.0	**0.56**				1,000	-	-
Ethylbenzene	ND<1.0	ND<0.5				700	2.2	18
Xylenes, Total	ND<2.0	**1.16**				10,000	-	-
Total BTEX	ND	**1.72**				-	-	-
MTBE	ND<2.0	ND<0.5				11	-	-
n-Propylbenzene	ND<1.0	-				-	-	-
1,2,4-Trimethylbenzene	ND<1.0	**0.89**				23	330	1,200
1,3,5-Trimethylbenzene	ND<1.0	-					470	1,700
1,2,3-Trimethylbenzene	ND<1.0	-					-	-
Naphthalene	ND<0.5	**2.37**				0.5	4	28
Isobutyrate	-	**0.55**				-	-	-
Chloride	-	**189**				4,000	-	-
Nitrate	-	**1.30**				1,000	-	-
Sulfate	-	**30.1**				-	-	-
Carbon Dioxide	-	**38.8**				-	-	-
Total Targeted VOCs	ND	**264.73**				-	-	-
TVPH	-	ND<0.5				-	-	-

MW-2

Sample Date / *Method* / PARAMETER	1/9/2020 8260C					VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<0.5					5	0.92	7.4
Toluene	ND<1.0					1,000	-	-
Ethylbenzene	ND<1.0					700	2.2	18
Xylenes, Total	ND<2.0					10,000	-	-
Total BTEX	ND					-	-	-
MTBE	ND<2.0					11	-	-
n-Propylbenzene	ND<1.0					-	-	-
1,2,4-Trimethylbenzene	ND<1.0					23	330	1,200
1,3,5-Trimethylbenzene	ND<1.0						470	1,700
1,2,3-Trimethylbenzene	ND<1.0						-	-
Naphthalene	ND<0.5					0.5	4	28
Total Targeted VOCs	ND					-	-	-

5/19/20* - GW samples collected for AST
All Values Reported in ug/L
VGES - Vermont Groundwater Enforcement Standard (December 16, 2016 updated July 6, 2019)
VIS - Vapor Intrusion Standards (July 6, 2019)
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed VGES in place at time of sampling

MW-U1

Sample Date / *Method* / PARAMETER	1/9/2020 8260C					VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<0.5					5	0.92	7.4
Toluene	ND<1.0					1,000	-	-
Ethylbenzene	ND<1.0					700	2.2	18
Xylenes, Total	ND<2.0					10,000	-	-
Total BTEX	ND					-	-	-
MTBE	ND<2.0					11	-	-
n-Propylbenzene	ND<1.0					-	-	-
1,2,4-Trimethylbenzene	ND<1.0					23	330	1,200
1,3,5-Trimethylbenzene	ND<1.0						470	1,700
1,2,3-Trimethylbenzene	ND<1.0						-	-
Naphthalene	ND<0.5					0.5	4	28
Total Targeted VOCs	ND					-	-	-

MW-6

Sample Date / *Method* / PARAMETER	1/9/2020 8260C	5/19/20* 8260B				VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<25.0	ND<0.5				5	0.92	7.4
Toluene	ND<50.0	**0.92**				1,000	-	-
Ethylbenzene	ND<50.0	**7.99**				700	2.2	18
Xylenes, Total	**59.0**	**35.47**				10,000	-	-
Total BTEX	**59.0**	**44.38**				-	-	-
MTBE	ND<100	ND<0.5				11	-	-
n-Propylbenzene	**289.**	-				-	-	-
1,2,4-Trimethylbenzene	**1,210.**	**282**				23	330	1,200
1,3,5-Trimethylbenzene	**463.**	-					470	1,700
1,2,3-Trimethylbenzene	**142.**	-					-	-
Naphthalene	ND<25.0	**5.13**				0.5	4	28
Chloride	-	**352**				4,000	-	-
Nitrate	-	**1.38**				1,000	-	-
Sulfate	-	**16.5**				-	-	-
Methane	-	**25.1**				-	-	-
Carbon Dioxide	-	**54.6**				-	-	-
Total Targeted VOCs	**2,104.**	**781.09**				-	-	-
TVPH	-	**5.05**				-	-	-

MW-7

Sample Date / *Method* / PARAMETER	9/2/2020 8021B					VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	**40.7**					5	0.92	7.4
Toluene	**39.4**					1,000	-	-
Ethylbenzene	**151**					700	2.2	18
Xylenes, Total	**326**					10,000	-	-
Total BTEX	**557.1**					-	-	-
MTBE	ND<20.0					11	-	-
1,2,4-Trimethylbenzene	**913**					23	330	1,200
1,3,5-Trimethylbenzene	**103**						470	1,700
1,2,3-Trimethylbenzene	**160**						-	-
Naphthalene	**62.4**					0.5	4	28
Total Targeted VOCs	**1,796.**					-	-	-

5/19/20* - GW samples collected for AST
All Values Reported in ug/L
VGES - Vermont Groundwater Enforcement Standard (December 16, 2016 updated July 6, 2019)
VIS - Vapor Intrusion Standards (July 6, 2019)
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed VGES in place at time of sampling

Soil Quality Summary

C.P.Dudley's Store and Lamb Residence
East Montpelier, Vermont

Soil Sample	*SB19-02*	*SB19-03*	*SB19-04*	*SB19-05*	*SB19-07*	*SB19-08*	VSS	VSS
Sample Depth (ft.)	*8-9'*	*8-9'*	*7-8'*	*7-8'*	*8-9'*	*11-12'*	Resident	Non- Resident
PID reading (ppmv)	*25.4*	*358.4*	*1,107*	*1,154*	*507.9*	*1,260*	Soil	Soil
Sample Date	*4/11/19*	*4/11/19*	*4/11/19*	*4/11/19*	*4/11/19*	*4/11/19*		
VOCs by Method 8260C (mg/kg)								
Benzene	ND<0.129	ND<0.121	ND<0.225	ND<0.234	ND<0.103	ND<0.102	0.7	4.2
Toluene	0.527	0.771	5.01	4.69	1.78	0.401	706	798
Ethylbenzene	0.151	0.243	31	20.1	1.13	0.331	3.7	22
Xylenes (total)	0.75	1.41	143	47	5.76	1.48	252	257
MTBE	ND<0.258	ND<0.242	ND<0.450	ND<0.468	ND<0.206	ND<0.204	649	4464
1,3,5-trimethylbenzene	ND<0.258	ND<0.242	22	147	0.872	0.82	144	177
1,2,4-trimethylbenzene	ND<0.258	ND<0.242	207	457	3.56	2.67		
Naphthalene	ND<0.258	ND<0.242	14.7	10	0.479	ND<0.204	2.7	16
Total Reported VOCs	1.43	2.42	423	686	13.6	5.7		

Soil Sample	*SB19-09*	*SB19-11*	*SB19-12*	*SB19-14*	*SB19-15*	*B-3/MW-1**	VSS	VSS
Sample Depth (ft.)	*11-12'*	*8-9'*	*8-9'*	*11-12'*	*5-6'*	*8-12'*	Resident	Non- Resident
PID reading (ppmv)	*1,072*	*434.2*	*725.1*	*191.7*	*1,577*	*652.4*	Soil	Soil
Sample Date	*4/11/19*	*4/12/19*	*4/12/19*	*4/12/19*	*4/12/19*	*4/25/18*		
VOCs by Method 8260C (mg/kg)								
Benzene	3.1	ND<0.110	ND<0.102	ND<0.099	ND<0.437	-	0.7	4.2
Toluene	132	0.599	0.691	0.782	7.5	-	706	798
Ethylbenzene	124	0.19	0.409	0.383	11.1	ND<0.019	3.7	22
Xylenes (total)	595	1.17	2.58	2.23	83.9	ND<0.019	252	257
MTBE	ND<0.848	ND<0.220	ND<0.204	ND<0.198	ND<0.874	-	649	4464
1,3,5-trimethylbenzene	86	ND<0.220	0.285	0.286	29.8	0.443	144	177
1,2,4-trimethylbenzene	291	ND<0.220	0.852	0.499	110	1.43		
Naphthalene	41.5	ND<0.220	ND<0.204	ND<0.198	26.8	ND<0.013	2.7	16
Total Reported VOCs	1,272.6	1.96	4.8	4.2	269	1.9		

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

*B3 collected in April 2018 by Dubois & King, Inc.

."-" indicates compound not analyzed for

IRULE= Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

Vermont Soil Standards (VSS) from Appendix A of the IRULE

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Reported concentrations exceed IRULE VSS for a resident

SB20-01

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.05	ND<0.05	ND<0.05	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.05	ND<0.05	ND<0.05	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.05	ND<0.05	ND<0.05	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	0.656	1.02	0.0601	0.00137	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	133	176	4.53	0.0179	0.0025	0.00487	0.00440	706
Ethylbenzene	ND<0.0005	87.4	132	3.19	0.0291	0.00069	0.00175	0.00088	3.7
m/p-Xylene	0.0006	515	918	22.7	0.1565	0.01147	0.01573	0.01093	252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	199	350	9.83	0.0523	0.00467	0.00918	0.00647	144
Naphthalene	ND<0.0005	26.5	47.6	1.36	0.00335	0.00065	0.00067	0.00087	2.7
TVPH	ND<0.5	4,050	6,920	176	1.47	ND<0.5	ND<0.5	ND<0.5	-

SB20-02

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	ND<0.0005	ND<0.0005	0.00106	0.00089	0.00104	0.00068	0.00310	706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	0.00065	ND<0.0005	ND<0.0005	ND<0.0005	0.00110	3.7
m/p-Xylene	ND<0.0005	ND<0.0005	ND<0.0005	0.003	0.00232	0.00229	0.0021	0.00661	252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	0.00216	0.00186	0.00165	0.00140	0.00503	144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00054	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-

SB20-03

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	0.00054	ND<0.0005	ND<0.0005	0.00051	0.00110	0.00088	ND<0.0005	706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	3.7
m/p-Xylene	ND<0.0005	0.0021	0.00071	ND<0.0005	0.0016	0.00228	0.00090	ND<0.0005	252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	0.00180	0.00092	ND<0.0005	0.00064	0.00222	0.00109	ND<0.0005	144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00121	0.00055	ND<0.0005	ND<0.0005	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	66.3	9.56	ND<0.5	ND<0.5	-

All Values Reported in mg/kg
VSS - Vermont Soil Standards (July 2019)
NT - Not Tested
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed Residential VSS

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SB20-04

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	0.00442	0.00094	ND<0.0005	0.0368	ND<0.0005	0.00089	0.00054	706
Ethylbenzene	ND<0.0005	0.00463	0.00060	ND<0.0005	0.0423	ND<0.0005	0.00067	0.00203	3.7
m/p-Xylene	0.00090	0.02779	0.00239	ND<0.0005	0.2178	ND<0.0005	0.00368	0.00469	252
o-Xylene									
1,2,4-Trimethylbenzene	0.00114	0.00836	0.00102	ND<0.0005	0.48	0.00107	0.00255	0.00185	144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.0304	0.00069	ND<0.0005	ND<0.0005	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	768	13.6	ND<0.5	ND<0.5	-

SB20-05

Sample Date	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.0246	ND<0.0005	0.00069	ND<0.0005	0.70
Toluene	0.00134	0.00051	ND<0.0005	ND<0.0005	0.0939	ND<0.0005	0.00085	ND<0.0005	706
Ethylbenzene	0.00088	ND<0.0005	ND<0.0005	ND<0.0005	0.0271	ND<0.0005	0.00559	ND<0.0005	3.7
m/p-Xylene	0.00489	0.00216	0.00150	0.00084	0.2751	ND<0.0005	0.00357	0.00064	252
o-Xylene									
1,2,4-Trimethylbenzene	0.00252	0.00114	ND<0.0005	0.00067	21.5	ND<0.0005	0.0259	ND<0.0005	144
Naphthalene	0.00092	ND<0.0005	ND<0.0005	0.00065	0.710	ND<0.0005	0.00126	ND<0.0005	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	7.45	974	2.18	3.16	ND<0.5	-

SB20-06

Sample Date	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020			Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	12.0	15.0			VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B			
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.70
Toluene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.0805	ND<0.0005			706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.186	ND<0.0005			3.7
m/p-Xylene	0.00065	0.00056	ND<0.0005	ND<0.0005	8.05	0.00223			252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	22	0.00902			144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	1.16	0.00194			2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	814	64.9			-

SB20-07

Sample Date	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020			Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0			VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B			
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.70
Toluene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00083	ND<0.0005			3.7
m/p-Xylene	ND<0.0005	0.00064	ND<0.0005	ND<0.0005	0.00139	0.00061			252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00120	0.00060			144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	3.26	11.9	1.55			-

All Values Reported in mg/kg
VSS - Vermont Soil Standards (July 2019)
NT - Not Tested
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed Residential VSS

INDOOR AIR QUALITY SUMMARY

Basement

Sample Date / *Method* / *PARAMETER*	1/9/2020 VOCs SIMS	6/18/2020 VOCs SIMS		VTDEC I-Rule Indoor Air Standards (IAS)	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	2.8	ND<0.17		-	-
Freon 22	1.2	-		-	-
Chloromethane	2.0	ND<0.14		-	-
n-Butane	7.5	-		-	-
Trichlorfluoromethane (Freon 11)	1.3	ND<0.78		-	-
Freon TF	0.58	-		-	-
Acetone	42	55		-	-
Ethyl Acetate	-	8.5			
Isopropanol	-	13			
Isopropyl alcohol	4.5	-		-	-
Carbon Disulfide	ND<1.6	ND<1.1			
Methylene Chloride	7.3	23		60.34	817.6
Styrene	ND<0.85	0.43			
tert-Butyl alcohol	0.40	-		-	-
n-Hexane	1.0	ND<4.9		-	-
Methyl Ethyl Ketone	2.6	-		-	-
Chloroform	0.26	ND<0.034		0.04	0.36
Tetrahydrofuran	0.48	ND<0.10		-	-
Cyclohexane	0.44	ND<0.12		-	-
Carbon tetrachloride	0.38	0.52		0.17	1.36
2,2,4-Trimethylpentane	0.80	-		-	-
Benzene	0.89	0.42		0.13	1.05
n-Heptane	3.1	3.0		-	-
1,4-Dioxane	0.42	ND<1.3			
Toulene	5.5	15		-	-
Ethylbenzene	0.49	0.62		0.40	3.27
m,p-Xylene	1.6	2.1		-	-
o-Xylene	0.69	0.76		-	-
Xylene (total)	2.3	2.86		-	-
1,3,5-Trimethylbenzene	0.27	ND<0.17		60	210.24
1,2,4-Trimethylbenzene	0.74	0.60			
4-Isopropyltoluene	0.30	-		-	-
Naphthalene	ND<2.6	1.5		0.262	0.262

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Indoor Air Standards (IAS)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

INDOOR AIR QUALITY SUMMARY

First Floor

Sample Date / *Method* / *PARAMETER*	1/9/2020 VOCs SIMS	6/18/2020 VOCs SIMS		VTDEC I-Rule Indoor Air Standards (IAS)	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	3.0	2.5		-	-
Freon 22	1.3	-		-	-
Chloromethane	1.6	ND<0.14		-	-
n-Butane	4.0	-		-	-
Trichlorfluoromethane (Freon 11)	1.5	ND<1.1		-	-
Freon TF	0.64	-		-	-
Acetone	25	49		-	-
Isopropyl alcohol	3.7	-		-	-
Carbon Disulfide	1.1	ND<1.1			
Methylene Chloride	3.2	7.5		60.34	817.6
tert-Butyl alcohol	0.51	-		-	-
n-Hexane	ND<0.70	ND<4.9		-	-
Methyl Ethyl Ketone	4.0	-		-	-
Chloroform	0.41	ND<0.034		0.04	0.36
Tetrahydrofuran	ND<15.0	ND<0.10		-	-
Cyclohexane	0.20	ND<0.12		-	-
Carbon tetrachloride	0.56	0.43		0.17	1.36
2,2,4-Trimethylpentane	0.31	-		-	-
Benzene	0.73	0.32		0.13	1.05
n-Heptane	1.4	0.71		-	-
1,4-Dioxane	ND<18.0	ND<1.3			
Toulene	1.5	4.0		-	-
Ethylbenzene	ND<0.87	0.52		0.40	3.27
m,p-Xylene	ND<2.2	1.7		-	-
o-Xylene	ND<0.87	0.68		-	-
Xylene (total)	ND<3.0	2.38		-	-
1,3,5-Trimethylbenzene	ND<0.98	ND<0.17		60	210.24
1,2,4-Trimethylbenzene	ND<0.98	0.43			
4-Isopropyltoluene	ND<1.1	-		-	-
Naphthalene	ND<2.6	0.41		0.262	0.262

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Indoor Air Standards (IAS)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

SOIL GAS QUALITY SUMMARY

SG20-01

Sample Date / *Method* / *PARAMETER*	6/18/2020 VOCs SIMS			VTDEC I-Rule Vapor Intrusion Standards Sub-Slab Soil Gas	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	ND<0.49			-	-
Chloromethane	ND<0.41			-	-
Trichlorfluoromethane (Freon 11)	ND<2.2			-	-
Acetone	19			-	-
Methylene Chloride	ND<3.5			2,000	27,000
Carbon tetrachloride	ND<0.63			5.7	45
Tetrachloroethylene	1.7			21	170
Benzene	8.9			4.3	35
n-Heptane	ND<0.41			-	-
Ethanol	ND<7.5			-	-
Toluene	4.0			-	-
Ethylbenzene	0.84			13	110
m,p-Xylene	3.4			-	-
o-Xylene	2.60			-	-
1,3,5-Trimethylbenzene	0.87			2,000	7,000.00
1,2,4-Trimethylbenzene	2.9				
Naphthalene	1.0			1.0	8.0

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Vapor Intrusion Standards (Sub-Slab Soil Gas)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

SOIL GAS QUALITY SUMMARY

SG20-02

Sample Date / *Method* / *PARAMETER*	6/18/2020 VOCs SIMS			VTDEC I-Rule Vapor Intrusion Standards Sub-Slab Soil Gas	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	ND<0.49			-	-
Chloromethane	ND<0.41			-	-
Trichlorfluoromethane (Freon 11)	ND<0.40			-	-
Acetone	12			-	-
Methylene Chloride	ND<1.0			2,000	27,000
Carbon tetrachloride	ND<1.0			5.7	45
Tetrachloroethylene	1.9			21	170
Benzene	2.1			4.3	35
n-Heptane	ND<1.0			-	-
Ethanol	220			-	-
Toluene	3.8			-	-
Ethylbenzene	0.76			13	110
m,p-Xylene	3.2			-	-
o-Xylene	1.4			-	-
1,3,5-Trimethylbenzene	0.66			2,000	7,000.00
1,2,4-Trimethylbenzene	2.4				
Naphthalene	0.89			1.0	8.0

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Vapor Intrusion Standards (Sub-Slab Soil Gas)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

AIR QUALITY SUMMARY

Ambient/Background

Sample Date / *Method* / *PARAMETER*	1/9/2020 VOCs SIMS	6/18/2020 VOCs SIMS		VTDEC I-Rule Indoor Air Standards (IAS)	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	0.59	2.4		-	-
Freon 22	ND<1.8	-		-	-
Chloromethane	0.30	1.1		-	-
n-Butane	0.28	-		-	-
Trichlorfluoromethane (Freon 11)	ND<1.1	1.3		-	-
Freon TF	ND<1.5	-		-	-
Acetone	6.2	15		-	-
Isopropyl alcohol	1.4	-		-	-
Carbon Disulfide	ND<1.6	ND<1.1			
Methylene Chloride	ND<1.7	2.7		60.34	817.6
tert-Butyl alcohol	ND<15.0	-		-	-
n-Hexane	ND<0.70	ND<4.9		-	-
Methyl Ethyl Ketone	1.2	-		-	-
Chloroform	ND<0.98			0.04	0.36
Tetrahydrofuran	ND<15.0			-	-
Cyclohexane	ND<0.69			-	-
Carbon tetrachloride	ND<0.22	0.47		0.17	1.36
2,2,4-Trimethylpentane	ND<0.93			-	-
Benzene	ND<0.64	0.29		0.13	1.05
n-Heptane	ND<0.82	0.64		-	-
Ethanol	-	18		-	-
1,4-Dioxane	ND<18.0	ND<1.3			
Toulene	ND<0.75	2.9		-	-
Ethylbenzene	ND<0.87	0.43		0.40	3.27
m,p-Xylene	ND<2.2	1.6		-	-
o-Xylene	ND<0.87	0.75		-	-
Xylene (total)	ND<3.0	2.35		-	-
1,3,5-Trimethylbenzene	ND<0.98	0.17		60	210.24
1,2,4-Trimethylbenzene	ND<0.98	0.55			
4-Isopropyltoluene	ND<1.1	-		-	-
Naphthalene	ND<2.6	ND<0.18		0.262	0.262

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Indoor Air Standards (IAS)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

Appendix D

Evaluation of Corrective Action Alternatives Report

C.P. Dudley Store/Lamb Residence
2915/2910 U.S. Route 2
East Montpelier, Vermont

SMS Site #87-0011
KAS #402190703/410040071

EVALUATION OF CORRECTIVE ACTION ALTERNATIVES

September 30, 2020

Prepared for:

C.P. Dudley Store/Lamb Residence
2915/2910 U.S. Route 2
East Montpelier, Vermont 05651

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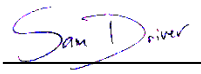
Appendices

Certification

This Evaluation of Corrective Action Alternatives (ECAA) for the C.P. Dudley Store and Lamb Residence located in East Montpelier, Vermont, State of Vermont Department of Environmental Conservation Site #87-0011, has been prepared and reviewed by the following personnel.

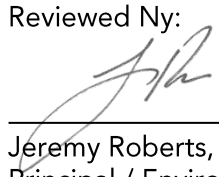
Prepared By:



Sam Driver
Project Scientist, EP

I certify under penalty of perjury that I am an environmental professional and that all content contained within this deliverable is to the best of my knowledge true and accurate.

Reviewed Ny:



Jeremy Roberts, P.G.
Principal / Environmental Program Manager

Executive Summary

This Evaluation of Corrective Action Alternatives (ECAA) has been prepared by KAS Inc. (KAS), for the C.P Dudley Store and Lamb Residence, located at 2915 U.S. Route 2 and 2910 U.S. Route 2, respectively, in East Montpelier, Vermont ("Site"). The ECAA was completed to facilitate the preparation of a Corrective Action Plan (CAP) to addresses environmental and human health risks associated with the presence of impacted subsurface media beneath the Site. Three remedial alternatives were considered for the Site including:

1. Activated carbon injection using the BOS 200 system® from AST Environmental, Inc. (AST);
2. Soil excavation; and,
3. Combined injection/excavation

The objective of remedial action at this Site is to reduce dissolved-phase volatile organic compounds (VOCs) to levels below Vermont Groundwater Enforcement Standards (VGES) within 10 years and reduce potential impacts to indoor air within the Lamb Residence.

To evaluate the current status of the dissolved-phase plume, site characterization work was performed in April 2019 and 2020 with high resolution soil and groundwater sampling. The results of these events are included in this report.

Activated carbon injection and soil excavation was assessed based on the criteria outlined in the I-Rule § 35-503 Evaluation of Corrective Action Alternatives. Criteria included compliance with legal requirements, overall protection of human health and the environment, long-term effectiveness, the degree to which alternatives reduce toxicity, mobility, or volume of contaminants, short-term effectiveness, ease of implementation, costs, and community acceptance.

KAS considers a combined approach of activated carbon injection and soil excavation, to be the most cost-effective remedial approach which will meet the objectives for corrective action, reduce off Site impacts and expedite declines in dissolved phase VOC levels toward VGDES. It is anticipated soil excavation activities will be complete by November 2020 the carbon injection event will be implemented in spring 2021. KAS recommends preparing a Corrective Action Plan (CAP) for implementation of activated carbon injection and soil excavation.

1.0 Introduction and Background

This Evaluation of Corrective Action Alternatives (ECAA) has been prepared KAS Inc. (KAS), for the C.P Dudley Store and Lamb Residence, located at 2915 U.S. Route 2 and 2910 U.S. Route 2, respectively, in East Montpelier, Vermont ("Site"). A Site Location Map and a Site Vicinity Map are included in Appendix A. This document was prepared according to current Vermont Department of Environmental Conservation (VT DEC) requirements as presented in the Investigation and Remediation of Contaminated Properties Rule (I-Rule) dated July 6, 2019. All work was conducted in accordance with the ECAA Work Plan and Cost Estimate approved by Mr. Mathew Becker of the VT DEC in an email dated April 21, 2020.

The property owners contact information are outlined below:

C.P. Dudley Store

Owner	Mailing Address	Contact Name	Phone	Email Address
C.P. Dudley Store	2915 US-2 E. Montpelier, VT	Angela Biron	802-223-2792	cpdudleystore@gmail.com

Lamb Residence

Owner	Mailing Address	Contact Name	Phone	Email Address
Mr. Durward Lamb	2910 US-2 E. Montpelier, VT	Durward Lamb	802-223-5807	Not Available

Petroleum impacts were likely observed in association with a gasoline underground storage tank (UST) and its associated piping components removed from the C.P Dudley's Store, likely during the year of 1987 given the hazardous waste number assigned; however, given the lack of available data this cannot be confirmed. To the best of KAS' knowledge, in 1994, a site investigation was conducted on the C.P. Dudley Store property and Lamb Residence to define the degree and extent of petroleum impacts. This investigation included the installation of five monitoring wells to saturated depths and moderate to high levels of petroleum impacts were recorded in several monitoring wells. Following the 1994 investigation it does not appear any environmental investigation work has been conducted. In the fall of 1997, an interception trench was constructed along the foundation wall of the Lamb Residence in an effort to prevent subsurface petroleum impacts from impacting the residence as well as the nearby Winooski River. Monitoring of the interception trench has been conducted by KAS since its operation in 1997. During several occasions, in 2018, water had accumulated in the basement of the Lamb Residence which reportedly had a petroleum odor. During these events, the small amount of water was removed and properly disposed and hydraulic cement was poured in the areas of concern to prevent future issues. In July 2018, KAS oversaw the inspection of the interception trench and several failures and breaks were observed throughout the piping network. In spring 2018, Dubois & King, Inc. (D&K) conducted a pre-characterization investigation on behalf of the Town of East Montpelier, VT for a proposed pedestrian safety improvement project. Results of that investigation indicated moderate levels of residual petroleum impacts remain present beneath U.S. Route 2 and the Lamb Residence. In May 2019, in preparation for completing a Corrective Action Plan (CAP) in fall 2020, KAS conducted a soil delineation event in an effort to assess the current subsurface soil impacts on the C.P. Dudley Store property and Lamb Residence. Data collected during that event, indicated a noticeable amount of residual impacts remain in the vicinity of the former gasoline pump island located on the C.P. Dudley property and beneath the Lamb Residence. Therefore, an ECAA was determined necessary.

Previous reports documenting the Site history and previous investigative, remediation, and monitoring work conducted at the Site are on file at the VTDEC in Montpelier, Vermont.

2.0 Site Characterization Work

2.1 April 2019 Site Characterization Event

In April 2019, KAS performed a soil delineation event to evaluate potential soil removal activities in conjunction with the Town's sidewalk project. On April 11 and 12, 2019, KAS oversaw the advancement of nineteen soil borings (SB19-01 through SB19-19) in the vicinity of the Site. Results of the soil screening indicated Volatile Organic Compounds (VOC) levels greater than 20.0 parts per million by volume (ppmv) as measured with the photoionization detector (PID) at eleven of the nineteen boring locations. Visual and olfactory evidence of petroleum impacts were also observed in samples collected from several of the soil borings and PID screening values ranged from 0.1 to 1,577 ppmv. In most cases the highest PID readings were recorded at the groundwater interface. The soils encountered in the borings consisted mostly of course gravel with sand and silt and clay at deeper depths. The depth of the soil borings ranged from 12.0 to 18.0 ft below surface grade (bsg). Soil cross sections are included (see Appendix A) and provide a more detailed representation of the stratigraphy in the vicinity of the Site. The soil borings were advanced in the locations depicted on the Site Map (see Appendix A). Detailed boring logs can be found in Appendix B.

As approved, if elevated PID readings (>20.0 ppmv) were encountered in any of the soil borings, a confirmatory soil sample was collected from the interval exhibiting the highest PID reading and submitted for laboratory analysis of VOCs via EPA Method 8021B. Between April 11 and 12, 2019 a soil sample was collected from eleven of the nineteen soil borings (SB19-02 through SB19-05, SB19-07 through SB19-09, SB19-11, SB19-12, SB19-14 and SB19-15). Soil samples were chilled and delivered under proper chain-of-custody procedures to Endyne, Inc. of Williston, Vermont. Soil analytical results are summarized and compared to Vermont Soil Standards (VSS) for a resident in Appendix D.

Based on the data collected during the investigation, VOCs in excess of VSS were reported in the soil samples collected from SB19-04, SB19-05, SB19-09 and SB19-15 ranging in depths from 5.0 to 12.0 ft bsg. Several petroleum related VOCs were detected but below VSS in the remaining soil samples collected. The laboratory report and chain-of-custody form is presented in Appendix F.

2.2 2020 Site Characterization Events

2.2.1 January 2020

On January 9, 2020, depth-to-liquid measurements were collected from four monitoring wells (MW-1, MW-2, MW-U1 and MW-6) using a Geotech™ interface probe (IP). The depth to groundwater ranged from 7.01 feet below top of casing (btoc) in MW-6 to 9.32 feet btoc in MW-2. These monitoring wells have not been accessed for several years and until recently, were not known to exist. Therefore, no elevation data relative to a datum have been established for these wells. However, based on site topography and general characteristics at and in the vicinity of the Site, groundwater is believed to flow toward the southeast and toward the Winooski River. Liquid level monitoring data is presented in Appendix C. No non-aqueous phase liquid (NAPL) was observed in any of monitoring wells on January 9, 2020.

Groundwater samples were collected from the four monitoring wells: MW-1, MW-2, MW-U1 and MW-6. The groundwater samples were collected and stored on ice in the field, and submitted to

Endyne, Inc. of Williston, Vermont under proper chain-of-custody procedures. The groundwater samples were analyzed for the major petroleum VOCs per EPA Method 8260C. These results along with the historical groundwater quality data are tabulated and graphed in Appendix D and compared with the applicable VGES in July 2019. The laboratory report is presented in Appendix F.

Based on the results of the January 9, 2020 groundwater sampling event, dissolved-phase VOC concentrations in excess of VGES were reported in one of the four wells sampled: MW-6. The location of monitoring well MW-6 is located downgradient to the presumed source area (former pump island).

Two indoor air samples from the Lamb Residence (Basement and First Floor), as well as one ambient air sample (Outside) were collected for VOCs via EPA Method TO-15 on January 9, 2020. The samples were submitted for analysis of VOCs via EPA Method TO-15 under proper chain of custody procedures to Eurofins Test America of Burlington, Vermont. Detected compounds are presented for reference in this summary table along with VTDEC I-Rule Indoor Air Standard (IAS) for a resident. Based on the data collected, at least three VOCs were reported above the residential IAS in the indoor air samples collected from the basement and first floor. Several compounds were detected but below their IAS from the outdoor sample. A summary of the tabulated results is included in Appendix E, and the laboratory's analytical report is included in Appendix F.

2.2.2 May 2020

In May 2020, KAS performed high resolution site characterization of soil and groundwater to further delineate the vertical and horizontal extent of the dissolved-phase and adsorbed petroleum plume. The sampling was requested by AST to inform the design of the activated carbon injection remedial approach, but this data was also beneficial in assisting the evaluation of soil removal. On April 19 and 20, 2020, KAS advanced seven soil borings (SB20-01 through SB20-07) to a depth of 16 feet below grade (fbg) on Site (Site Map with Boring Locations, Appendix A). Soils consisted of well-graded sands with silt and gravel at shallow depths with silt and clay to the maximum depth of advancement at 16 fbg. Two soil borings were advanced to a depth of 6 fbg for the installation of two soil gas points (SG20-01 and SB20-02). Detailed boring logs can be found in Appendix B.

Soil from the borings was continuously screened with a PID during drilling. PID readings ranged from 0.0 to 826 ppmv. The maximum PID reading of 826 ppmv was measured from 2-4 fbg in SB20-01, located at the edge of US Route 2 and close proximity of the former gasoline pump island. In general, petroleum odors and moderate PID readings were encountered from 2-10 fbg in most areas and decreased at deeper depths where the saturated clay layer began. All seven borings were continuously sampled at discrete depths and samples were analyzed by RPI Group with method 8260B for VOCs.

Soil samples were analyzed by the RPI Group via EPA Method 8260B. The RPI Group laboratory report can be found in Appendix F. One (SB20-01) of the seven soil borings analyzed contained VOC levels exceeding residential VSS. At SB20-01, the 4 to 6 fbg sample contained ethylbenzene, total xylene, 1,2,4-Trimethylbenzene, and naphthalene in exceedance of their residential VSS. Benzene was also in exceedance at SB20-01; however, at the 6 fbg sample interval. Although VOCs were detected above laboratory limits in other borings and depths, none of those samples exceeded VSS. Soil quality data are compared to standards in Appendix D. The laboratory report is presented in Appendix F.

On May 19, 2020 groundwater samples were collected from MW-1 and MW-6 and analyzed by RPI Group for 8260B as well as anions using EPA M300.1 Ion Chromatography. Total VOC levels ranged from 264 to 781 ug/L. The highest VOC levels were reported at MW-6 which is located downgradient to the presumed source area. At least one compound was in exceedance of the VGES

from both of these wells. Groundwater quality data is compared to standards in Appendix D. The laboratory report is presented in Appendix F.

2.2.3 June 2020

On June 18, 2020 two indoor air samples were collected from the Lamb Residence (Basement and First Floor), two soil gas samples (SG20-01 and SG20-02) and an ambient (Outdoor) sample were collected for VOCs via EPA Method TO-15 SIMS. The samples will be collected under proper chain of custody procedures to Contest Analytical Laboratory of East Longmeadow, MA. For the indoor air samples and ambient, concertation levels were referenced to the VTDEC I-Rule IAS for a resident. In contrast, the soil gas samples were reference to the VTDEC I-Rule Sub-Slab Soil Gas Standard (SGS).

Based on the data collected, Benzene, Ethylbenzene and Naphthalene were reported above IAS and in the basement and first floor sample. This is the second consecutive round of sampling that Benzene and Ethylbenzene were reported above IAS standards in the Basement sample. This is the second consecutive round of sampling that Benzene was reported above IAS standards in the First-Floor sample and the first time for Naphthalene. The compounds Benzene and Naphthalene were reported above SGS at soil gas point SG20-01, while no compounds were reported above SGS at soil gas point SG20-02. Air quality data is compared to standards in Appendix E. The laboratory report is presented in Appendix F. Prior to the June 2020 indoor air sampling event, KAS conducted a survey of the building and inventory materials within the basement and first floor. All potential contaminant of concern (paint, dry cleaning cloths, arsenal cans,) were removed prior to sampling.

2.2.4 September 2020

A former monitoring well, MW-7, was found during recent site development work. On September 2, 2020 KAS inspected the well and found it to be in working condition; however, without a road box. During the site visit, KAS collected depth to water measurements from monitoring wells MW-1, MW-2, MW-6 and MW-7 using a Geotech interface probe (IP). The depth to water in each well was subtracted from the top of casing elevation to obtain the relative water table elevation. Groundwater level data is recorded in Appendix C. No measurable NAPL was detected or observed in the wells gauged during the September 2020 site visit. Depth to groundwater ranged from 7.22 to 10.54 feet below grade in MW-7 and MW-2, respectively. A groundwater sample was collected from MW-7 on this date. Several petroleum related compounds were in excess of VGES reported at MW-7.

Groundwater elevation data is displayed on the Groundwater Elevation Map included in Appendix A. Based on site topography and general characteristics at and in the vicinity of the Site, groundwater is believed to flow toward the southeast and toward the Winooski River. Additional monitoring is needed to confirm the groundwater flow.

2.3 Dissolved-Phase Plume Distribution

Reported concentrations of total targeted VOCs per Method 8260C-B were plotted on the Site Map to create the Groundwater VOC Distribution Map in Appendix A. For illustration purposes, the distribution map was created using the highest VOC concentrations at each well during the 2020 year. The highest concentration of VOCs reported during 2020 were at MW-6 and MW-7, which is on the Lamb Residence and is significantly downgradient to the approximate location of the former pump island (presumed source area). The plume and likely extends further to the southwest and toward the Lamb Residence.

2.4 Site Characterization Conclusions

The following specific observations were made based on the 2020 site characterization work performed at the C.P. Dudley Store and Lamb Residence;

- Groundwater flow is anticipated to the southeast and toward the Winooski River;
- Petroleum impacts were observed in Site soils during high resolution soil sampling with, strong odors, and high PID readings;
- Contaminated soils were largely sand and gravel to a depth of 2 to 10 fbg depending on the area, underlain by clean clay;
- Several soil borings analyzed with method 8260B contained VOC levels with specific contaminants that exceeded residential VSS;
- At least one compound continues to be in exceedance of residential IAS within the Basement and First Floor of the Lamb Residence. Several compounds were in exceedance of SGS at SG20-01;
- Of the five wells sampled in 2020, three monitoring wells (MW-1, MW-6 and MW-7) contained several compounds in exceedance of their VGES;
- The highest concentration of VOCs reported during 2020 were at MW-6 and MW-7, which is on the Lamb Residence and is significantly downgradient to the approximate location of the former pump island (presumed source area);
- No receptors in the vicinity of the Site, other than soil, groundwater, and the indoor air within the Lamb Residence have been identified as being at current risk of impact from subsurface dissolved petroleum concentrations; and,
- Since presumed discovery of Site contamination in 1987, past remediation efforts and long-term monitoring of natural attenuation processes have not proven effective in lowering concentrations which persist above VGES.

3.0 Remedial Alternatives Considered

The following cleanup alternatives were considered for the Site:

- Alternative #1: Activated carbon injection; and,
- Alternative #2: Soil excavation; and
- Alternative #3: Combined injection/excavation

Alternative #1: Activated Carbon Injection

This remedial approach entails the application of BOS 200® in-situ carbon injection. The BOS 200® carbon injection design was created for the Site by AST in partnership with KAS. BOS 200® is a proprietary blend of powdered/granulated carbon, calcium, gypsum (sulfate source), nitrate, phosphate and ammonia. The product is injected into the subsurface as a slurry (mixed with water and a facultative blend of microbes) and traps petroleum contaminants via carbon adsorption. Once contamination is adsorbed onto BOS 200® particles, treatment occurs via biological degradation as the product incorporates both aerobic and anaerobic biological processes. The injection is performed by AST as a 3-day event. The injection area, as illustrated in the AST proposal, extends from U.S. Route 2 to the interception trench on the Lamb Residence. As illustrated in the AST proposal, Over Excavation (OE) is requested on the C.P. Dudley area given shallow soil impacts and elevated degree of impacts. In contrast, the proposal area for activated carbon would be on the

Lamb Residence as displayed as "Injection Area – A." No injection is to be performed on the C.P. Dudley property. The AST proposal/preliminary design plan is included in Appendix G.

Cost Estimate: The estimated cost to implement this alternative is $73,274. A breakdown of costs is provided in Appendix F. Annual costs associated with this alternative include groundwater monitoring to gauge the ongoing effectiveness of remediation. AST recommends performing progress groundwater sampling events at intervals of one-month post-injection, then quarterly for one year following, for a total of 5 separate events. Samples would be analyzed by AST at no cost.

Advantages: AST is responsible for performing injections with their own staff and equipment. The injection is performed as one event.

Disadvantages: Newer technology cannot absolutely guarantee reduction in VOC levels below VGES. Wells within approximately 10 feet of injection points will have to be replaced for monitoring.

Alternative #2: Soil Excavation

This alternative would entail excavation and off-Site disposal of the contaminant source mass on the C.P. Dudley store. No soil removal activities will occur on the Lamb Residence until the effectiveness of the activated carbon injection has been evaluated.

Using data generated by the April 2019 soil delineation event and May 2020 high resolution sampling event, KAS estimated excavation would likely target an area of 400 square feet, to a depth of 2 to 12 fbg depending on where the clean, silt and clay layer begin. This will result in up to 200 cubic yards of soil being generated for disposal. The excavation is noticeably limited due to limited soil impacts, site features, and close proximity of U.S. Route 2. Soil excavation will occur in the vicinity of soil boring SB19-15 and extend outward (see appendix G for soil removal area). KAS will also set criteria for clean soil to be backfilled if the PID reading is less than 50 ppmv. With these stipulations, KAS will assume 200 cubic yards of contaminated soil to be excavated and disposed of off-Site.

Soil excavation will be performed by a Site contractor under the oversight of KAS. It is assumed that dewatering efforts with groundwater treatment may be needed to achieve the excavation depth. Due to the close proximity of U.S. Route 2 to the impacted area, the contractor will need to provide sheeting in an effort to maintain the integrity of U.S. Route 2 and prevent from collapsing.

Cost Estimate: The estimated cost to implement this alternative is $105,904 and may be higher if a greater area of contamination is discovered than was previously characterized. A breakdown of costs is provided in Appendix F.

Advantages: This alternative acts as a one-time solution to remove the source area of impacts. The technology is proven and reliable.

Disadvantages: Contaminated soil will remain under U.S Route 2 and around areas inaccessible. Some gasoline dispenser pumps will have to be temporarily shut down to access soil.

Alternative #3: Combined Injection/Excvation

This alternative would be a combined activated carbon injection and soil excavation event. As described above, each alternative has been considered. Both alternatives will be conducted separately but evaluated as one alternative.

Cost Estimate: The estimated cost to implement this alternative is $168,394. A breakdown of costs is provided in Appendix F.

4.0 Weighing of Feasibility Parameters

Each remedial alternative was assessed based on the criteria outlined in the I-Rule § 35-503 Evaluation of Corrective Action Alternatives. Criteria included compliance with legal requirements, overall protection of human health and the environment, long-term effectiveness, the degree to which alternatives reduce toxicity, mobility, or volume of contaminants, short-term effectiveness, implementability, costs, and community acceptance. A summary table evaluating each remedial alternative for the criteria above is presented on the next page (Table 1).

Table 1: Evaluation Summary of Corrective Action Alternatives

Criteria	Alternative #1 - Activated Carbon Injection		Alternative #2 - Soil Excavation		Alternative #3 - Combined Injection/Excavation	
Compliance with legal requirements	3	Federal, state, and local permits can be obtained	3	Federal, state, and local permits can be obtained	3	Federal, state, and local permits can be obtained
Overall protection of human health and the environment	3	Excellent - Human health is protected by mitigating exposure risks	3	Excellent - Human health is protected by removing contaminated soil.	3	Excellent - Human health is protected by mitigating exposure risks and removing contaminated soil.
Long term effectiveness	2	Long term monitoring is required to evaluate effectiveness of remediation and migration of treatment slurry toward the Lamb Residence.	3	Removing the source area provides a one-time solution that does not require maintenance. Long term monitoring significantly reduced.	3	Removing the source area provides a one-time solution that does not require maintenance. Long term monitoring is required to evaluated effectiveness of slurry toward the Lamb Residence.
Reducing toxicity, mobility, or volume through treatment	1.5	Monitoring is needed to evaluate effectiveness of treatment; however, some reduction in toxicity, mobility, or volume is anticipated. A significant volume of contamination would remain inaccessible underneath US Route 2.	2	Volume, toxicity, and mobility of the source would be greatly decreased. However, a significant volume of contamination would remain inaccessible underneath US Route 2.	2	Volume, toxicity, and mobility of the source would be greatly decreased. However, a significant volume of contamination would remain inaccessible underneath US Route 2.
Short-term effectiveness	3	VOC levels in groundwater are expected to decrease significantly after the first injection of materials.	2	Once contaminated soil is removed from the subsurface, an immediate decrease in VOC levels is expected.	3	VOC levels in groundwater are expected to decrease significantly.
Implementability	3	AST will be responsible for performing the one, 3-day injection. KAS will largely be responsible for coordination and monitoring progress.	2	The location of the excavation is not ideal (although possible) as it is up against the road U.S. Route 2.	3	AST will be responsible for performing the one, 3-day injection and soil excavation will be up against U.S. Route 2.
Costs	3	Estimated total implementation cost of $73,274.	2	Estimated implementation cost of $105,904	3	Combined Cost of $168,394.
Environmental impact and sustainability	2	Energy will be used to inject slurry into the subsurface. Samples will have to be shipped by air to the privately contracted laboratory for analysis.	2	Petroleum-powered equipment will be necessary to excavate and transport the soil.	2	Equipment will be needed for the sampling, excavation and transportation - as needed.
Community acceptance	3	The injection event is not expected to impede private or community areas.	2.5	Excavation is expected to temporarily close some of the store pumps.	3	Activities are not expected to impede community areas besides the closure of one gasoline pump.
Score:	**24**		**21.5**		**25**	

N/A = Not applicable, 1 = poor, 2 = average, 3 = good

Recommended Cleanup Alternative and Preliminary Schedule

KAS considers a combined approach of activated carbon injection and soil excavation (**Alternative #3),** to be the most cost-effective remedial approach which will meet the objectives for corrective action, reduce off Site impacts and expedite declines in dissolved phase VOC levels toward VGES. Upon approval, it is anticipated that soil excavation will be completed by November 2020. As requested by AST, implementation and completion of the activated carbon injection will be conducted in spring 2021. Additionally, AST requested any work with the interception trench to be conducted following the injection event in spring 2021.

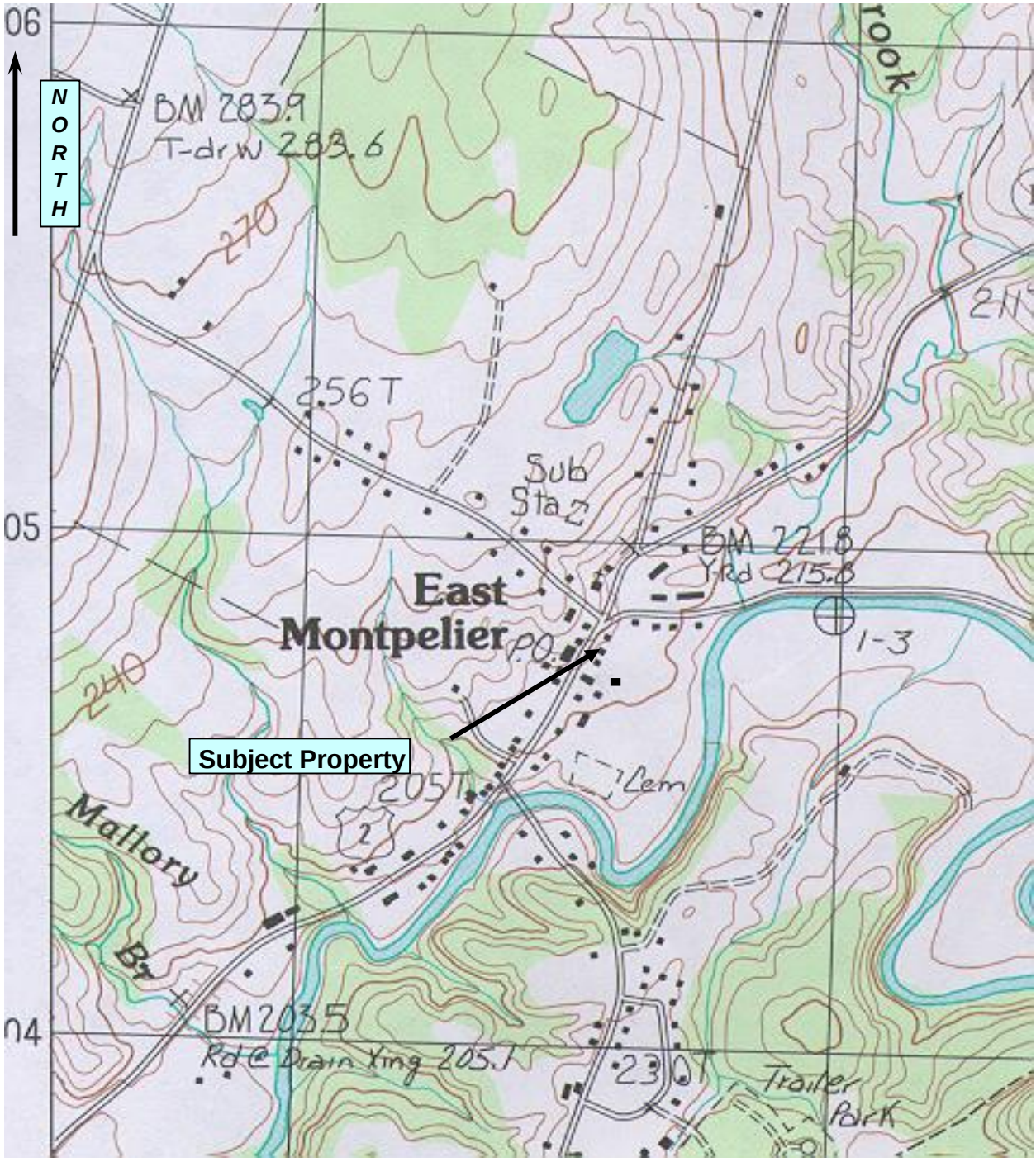
5.0 Recommendations

Based upon the results of the ECCA, KAS recommends the following;

- A Corrective Action Plan should be developed to include a remedial design for activated carbon injection and soil removal at the Site.

Appendix A

Site Location Map
Site Vicinity Map
Site Map with Boring Locations
Soil Cross Section Location Map
Soil Cross Section Details
Groundwater Contour Map: September 2, 2020
Groundwater Total VOC Elevation Map: September 2, 2020



KAS #

Source: *USGS Mapping Plainfield Quadrangle 1986*

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Lamb Residence
East Montpelier, Vermont

Site Location Map
USGS Mapping

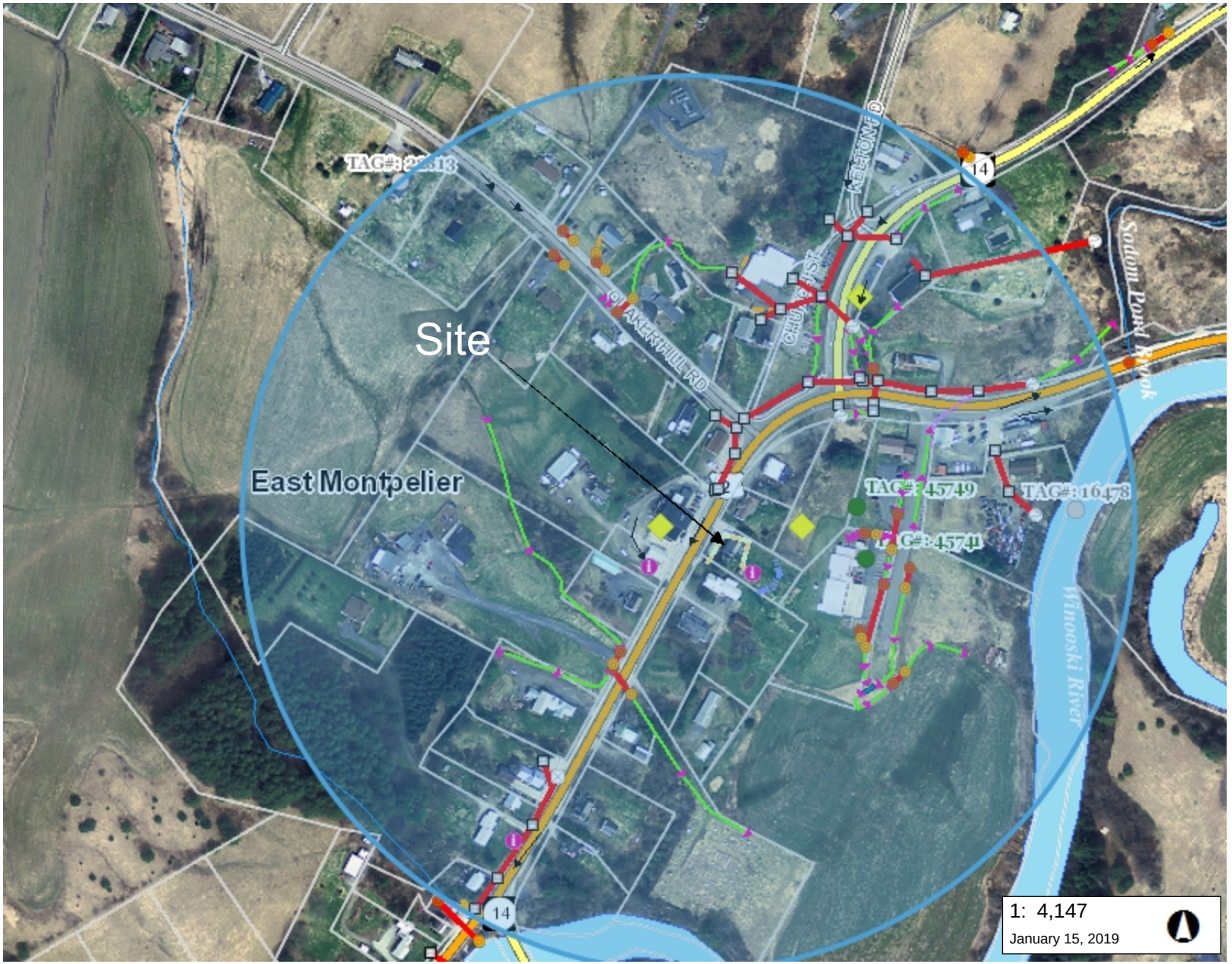
Date: 01/15/19	Drawing No. 0	Scale: 1:24,000	By: SD

VERMONT

Site Vicinity Map

Vermont Agency of Natural Resources

vermont.gov



1: 4,147

January 15, 2019

LEGEND

Wetland - VSWI

- Class 1 Wetland
- Class 2 Wetland
- Buffer

Existing stormwater point

- <all other values>
- Pipe Cross (not connected)
- Catchbasin
- Dry Well
- Drop Inlet
- Grate/Curb Inlet
- Yard drain
- Junction Box
- Stormwater Manhole
- Outfall
- Culvert inlet
- Culvert outlet
- Pond outlet structure
- Treatment feature (see notes)
- Retrofit
- Unknown Point
- Information Point

Existing stormwater line

- Storm line
- Storm line (old Sanitary line)
- Tunnel (storm)
- Swale

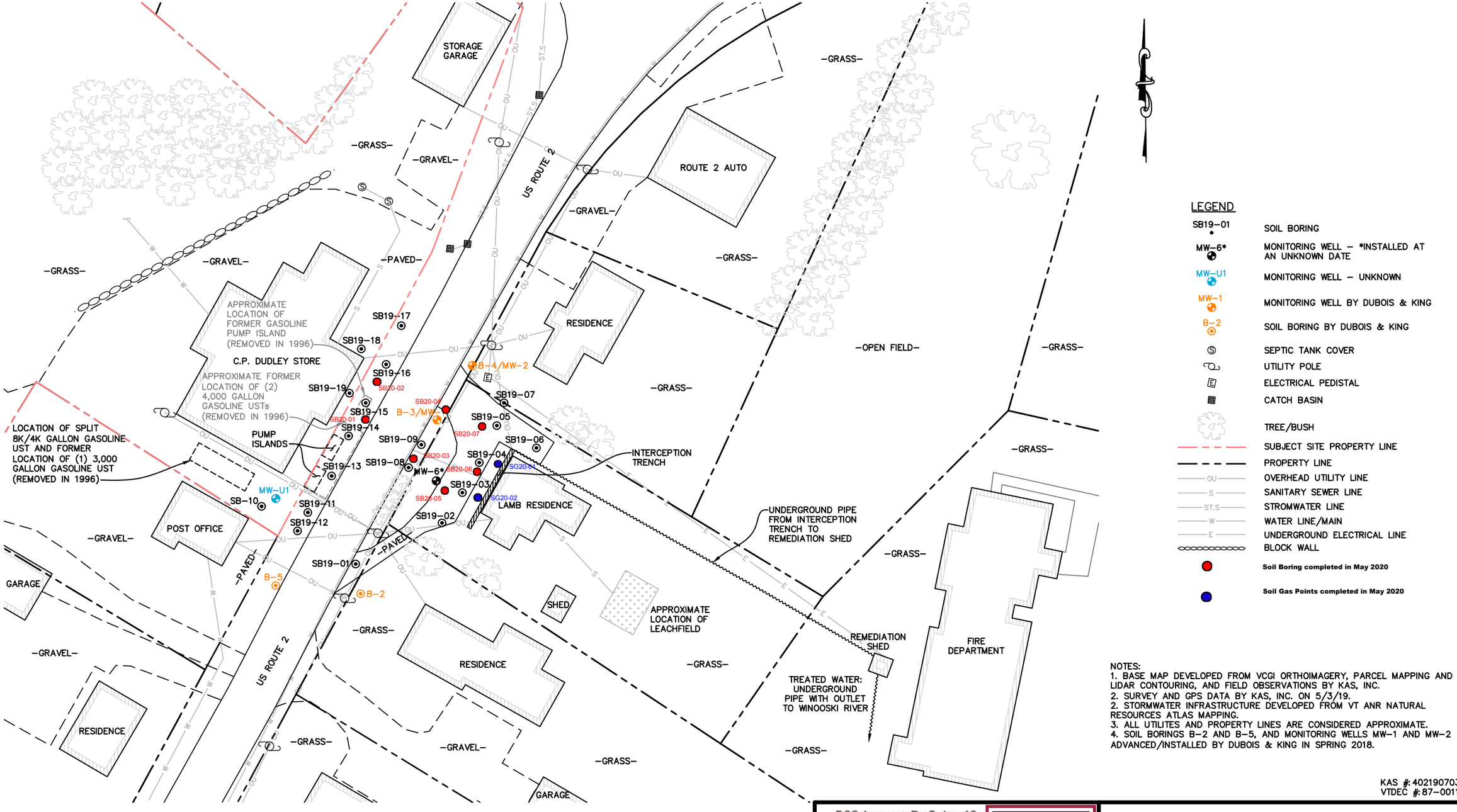
NOTES

Lamb Residence
2910 U.S. Route 2
East Montpelier, VT; SMS#87-0011

211.0 0 106.00 211.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 346 Ft. 1cm = 41 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION



LEGEND

- SB19-01 — SOIL BORING
- MW-6* — MONITORING WELL – *INSTALLED AT AN UNKNOWN DATE
- MW-U1 — MONITORING WELL – UNKNOWN
- MW-1 — MONITORING WELL BY DUBOIS & KING
- B-2 — SOIL BORING BY DUBOIS & KING
- S — SEPTIC TANK COVER
- UTILITY POLE
- E — ELECTRICAL PEDISTAL
- CATCH BASIN
- TREE/BUSH
- SUBJECT SITE PROPERTY LINE
- PROPERTY LINE
- OU — OVERHEAD UTILITY LINE
- S — SANITARY SEWER LINE
- ST.S — STROMWATER LINE
- W — WATER LINE/MAIN
- E — UNDERGROUND ELECTRICAL LINE
- BLOCK WALL
- Soil Boring completed in May 2020
- Soil Gas Points completed in May 2020

NOTES:
1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY, PARCEL MAPPING AND LIDAR CONTOURING, AND FIELD OBSERVATIONS BY KAS, INC.
2. SURVEY AND GPS DATA BY KAS, INC. ON 5/3/19.
2. STORMWATER INFRASTRUCTURE DEVELOPED FROM VT ANR NATURAL RESOURCES ATLAS MAPPING.
3. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.
4. SOIL BORINGS B-2 AND B-5, AND MONITORING WELLS MW-1 AND MW-2 ADVANCED/INSTALLED BY DUBOIS & KING IN SPRING 2018.

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VTDEC #: 87-0011

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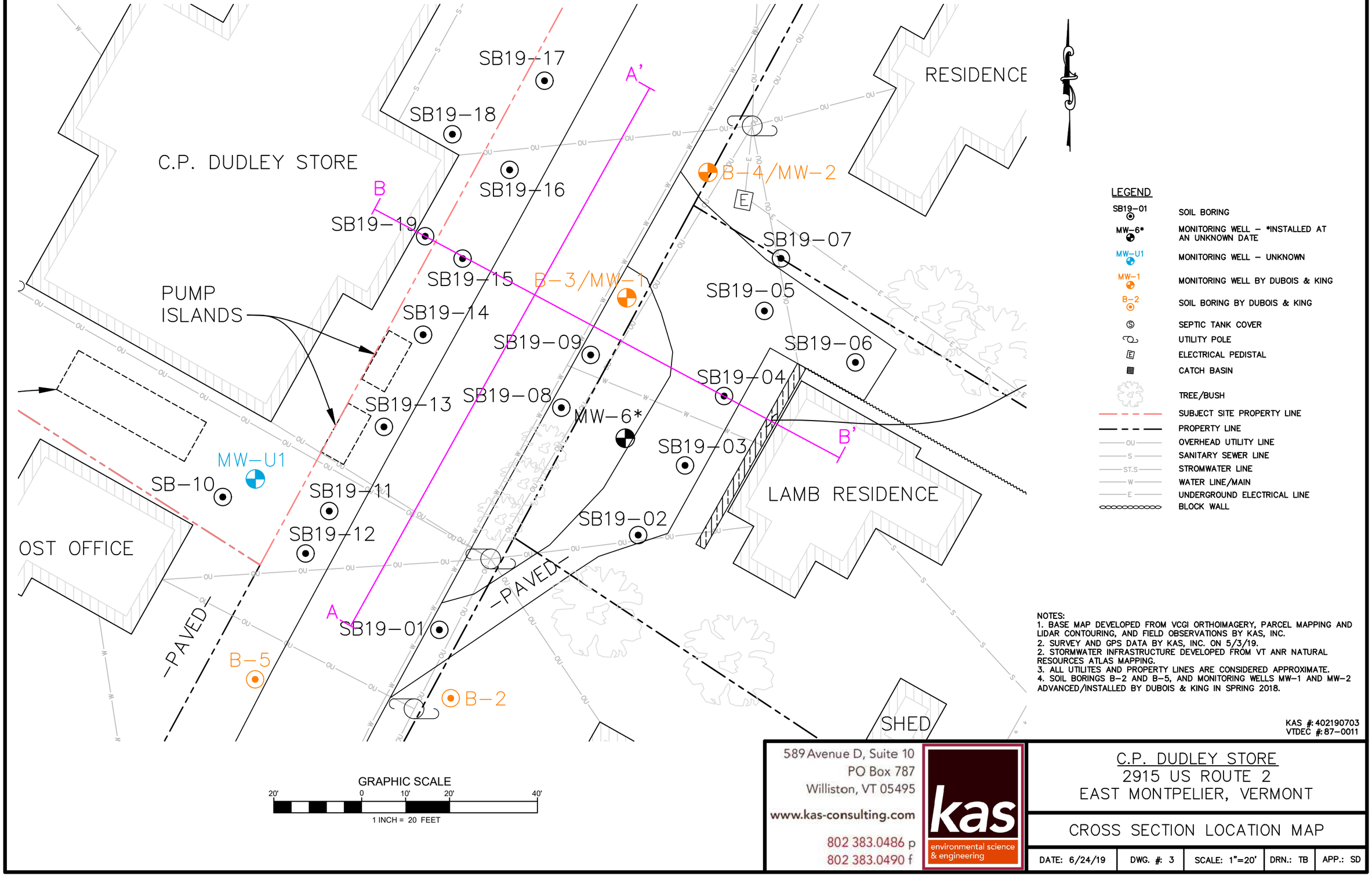
C.P. DUDLEY STORE
2915 US ROUTE 2
EAST MONTPELIER, VERMONT

Site Map with Boring Locations

DATE: 7/19/19	DWG. #: 1	SCALE: 1"=50'	DRN.: TB	APP.: SD



LEGEND

SB19–01	SOIL BORING
MW–6*	MONITORING WELL – *INSTALLED AT AN UNKNOWN DATE
MW–U1	MONITORING WELL – UNKNOWN
MW–1	MONITORING WELL BY DUBOIS & KING
B–2	SOIL BORING BY DUBOIS & KING
S	SEPTIC TANK COVER
	UTILITY POLE
E	ELECTRICAL PEDISTAL
	CATCH BASIN
	TREE/BUSH
	SUBJECT SITE PROPERTY LINE
	PROPERTY LINE
OU	OVERHEAD UTILITY LINE
S	SANITARY SEWER LINE
ST.S	STROMWATER LINE
W	WATER LINE/MAIN
E	UNDERGROUND ELECTRICAL LINE
	BLOCK WALL

NOTES:
1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY, PARCEL MAPPING AND LIDAR CONTOURING, AND FIELD OBSERVATIONS BY KAS, INC.
2. SURVEY AND GPS DATA BY KAS, INC. ON 5/3/19.
2. STORMWATER INFRASTRUCTURE DEVELOPED FROM VT ANR NATURAL RESOURCES ATLAS MAPPING.
3. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.
4. SOIL BORINGS B–2 AND B–5, AND MONITORING WELLS MW–1 AND MW–2 ADVANCED/INSTALLED BY DUBOIS & KING IN SPRING 2018.

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C.P. DUDLEY STORE
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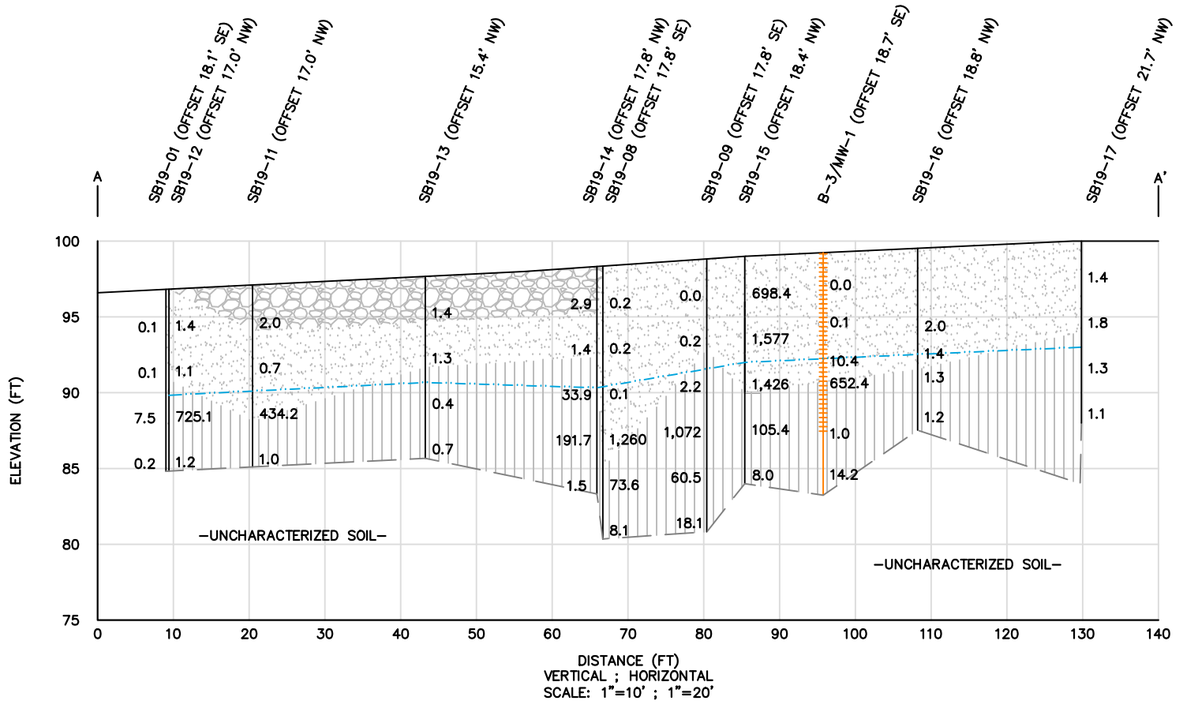
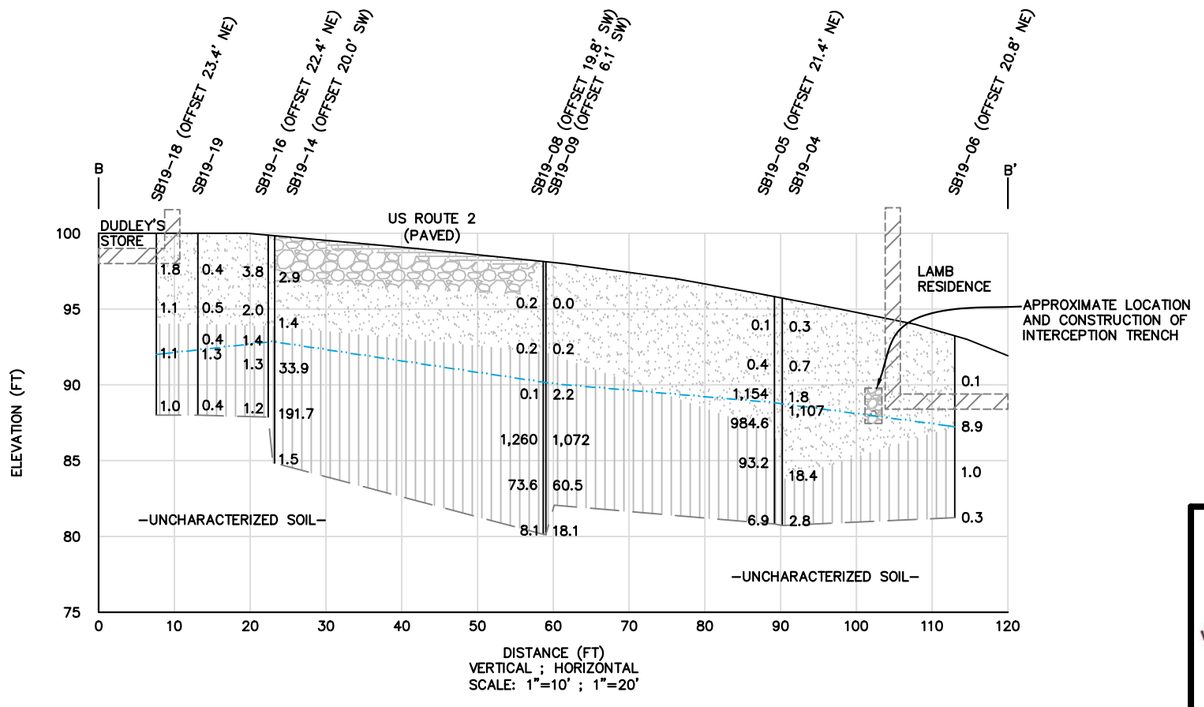
EAST MONTPELIER, VERMONT

CROSS SECTION LOCATION MAP

DATE: 6/24/19	DWG. #: 3	SCALE: 1"=20'	DRN.: TB	APP.: SD





LEGEND

SB19-01 — 7.5 — SOIL BORING WITH PID READING AT THE TIME OF DRILLING (ppmv)

B-3/MW-1 — 652.4 — MONITORING WELL BY DUBOIS & KING WITH PID READING AT THE TIME OF DRILLING (ppmv):
TRACK LINE = MONITORING WELL
SOLID LINE = BORING ADVANCEMENT

APPROXIMATE GROUNDWATER LEVEL AT TIME OF DRILLING – 4/11/19 & 4/12/19

GP = SANDY GRAVEL

SP/SW = SAND AND SILTY SAND

ML = SILT

ASPHALT

GRAPHIC SCALE
10' 0 5' 10' 20'
1 INCH = 10 FEET

GRAPHIC SCALE
20' 0 10' 20' 40'
1 INCH = 20 FEET

NOTES:
1. MW DATA PROVIDED BY DUBOIS & KING "MONITORING WELL/SOIL BORING LOG" DATED 4/25/18.
2. BORING DATA PROVIDED BY KAS, INC. "BORING LOG" DATED 4/11/19.
3. ELEVATION SET TO ARBITRARY DATUM 100.0'.
4. EXISTING GROUND ELEVATION BASED ON VCGI LIDAR DATA.

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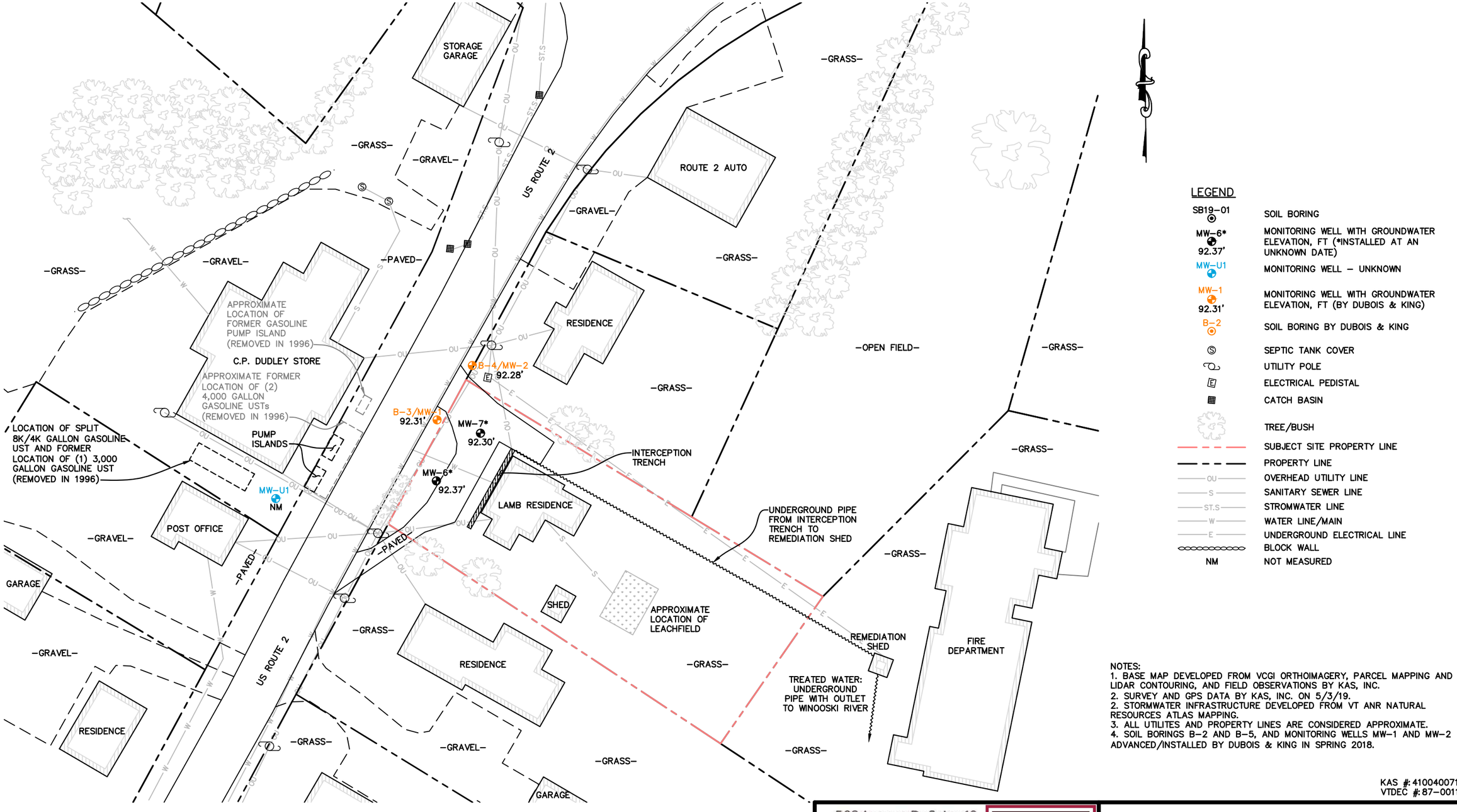
C.P. DUDLEY STORE
2915 US ROUTE 2
EAST MONTPELIER, VERMONT

CROSS SECTION DETAILS

DATE: 6/25/19	DWG. #: 4	SCALE: AS NOTED	DRN.: TB	APP.: SD



LEGEND

SB19-01	SOIL BORING
MW-6* 92.37'	MONITORING WELL WITH GROUNDWATER ELEVATION, FT (*INSTALLED AT AN UNKNOWN DATE)
MW-U1	MONITORING WELL – UNKNOWN
MW-1 92.31'	MONITORING WELL WITH GROUNDWATER ELEVATION, FT (BY DUBOIS & KING)
B-2	SOIL BORING BY DUBOIS & KING
S	SEPTIC TANK COVER
	UTILITY POLE
E	ELECTRICAL PEDISTAL
	CATCH BASIN
	TREE/BUSH
	SUBJECT SITE PROPERTY LINE
	PROPERTY LINE
OU	OVERHEAD UTILITY LINE
S	SANITARY SEWER LINE
ST.S	STROMWATER LINE
W	WATER LINE/MAIN
E	UNDERGROUND ELECTRICAL LINE
	BLOCK WALL
NM	NOT MEASURED

NOTES:
1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY, PARCEL MAPPING AND LIDAR CONTOURING, AND FIELD OBSERVATIONS BY KAS, INC.
2. SURVEY AND GPS DATA BY KAS, INC. ON 5/3/19.
2. STORMWATER INFRASTRUCTURE DEVELOPED FROM VT ANR NATURAL RESOURCES ATLAS MAPPING.
3. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.
4. SOIL BORINGS B-2 AND B-5, AND MONITORING WELLS MW-1 AND MW-2 ADVANCED/INSTALLED BY DUBOIS & KING IN SPRING 2018.

KAS #: 410040071
VTDEC #: 87-0011

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LAMB RESIDENCE
2910 US ROUTE 2
EAST MONTPELIER, VERMONT

GROUNDWATER ELEVATION MAP
MEASURED: 9/2/20

DATE: 9/17/20	DWG. #: 2	SCALE: 1"=50'	DRN.: TB	APP.: SD

GRAPHIC SCALE

50' 0 25' 50' 100'

1 INCH = 50 FEET

KAS #: 410040071
VTDEC #: 87-0011

LEGEND

SB19-01	SOIL BORING
MW-6* 2,104	MONITORING WELL WITH TOTAL TARGETED VOC CONCENTRATION, ug/L & M=8021B (*INSTALLED AT AN UNKNOWN DATE)
MW-U1 ND	MONITORING WELL WITH TOTAL TARGETED VOC CONCENTRATION, ug/L & M=8021B (UNKNOWN)
MW-1 264	MONITORING WELL WITH TOTAL TARGETED VOC CONCENTRATION, ug/L & M=8021B (BY DUBOIS & KING)
B-2	SOIL BORING BY DUBOIS & KING
S	SEPTIC TANK COVER
	UTILITY POLE
E	ELECTRICAL PEDISTAL
	CATCH BASIN
	TREE/BUSH
	SUBJECT SITE PROPERTY LINE
	PROPERTY LINE
OU	OVERHEAD UTILITY LINE
S	SANITARY SEWER LINE
ST.S	STROMWATER LINE
W	WATER LINE/MAIN
E	UNDERGROUND ELECTRICAL LINE
	BLOCK WALL
ND	NONE DETECTED

ug/l

>5000
5000
3000
1500
800
400
200
100
75
50
25
10
5
0

NOTE: VOC CONCENTRATION CONTOURS CREATED WITH THE GWSDAT SPATIOTEMPORAL SOLUTE CONCENTRATION SMOOTHER FUNCTION.

NOTES:
1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY, PARCEL MAPPING AND LIDAR CONTOURING, AND FIELD OBSERVATIONS BY KAS, INC.
2. SURVEY AND GPS DATA BY KAS, INC. ON 5/3/19.
2. STORMWATER INFRASTRUCTURE DEVELOPED FROM VT ANR NATURAL RESOURCES ATLAS MAPPING.
3. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.
4. SOIL BORINGS B-2 AND B-5, AND MONITORING WELLS MW-1 AND MW-2 ADVANCED/INSTALLED BY DUBOIS & KING IN SPRING 2018.

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LAMB RESIDENCE
2910 US ROUTE 2
EAST MONTPELIER, VERMONT

GROUNDWATER: TOTAL VOC DISTRIBUTION MAP
SAMPLED: 9/2/20

DATE: 9/17/20	DWG. #: 3	SCALE: 1"=50'	DRN.: TB	APP.: SD

Appendix B

Boring Logs

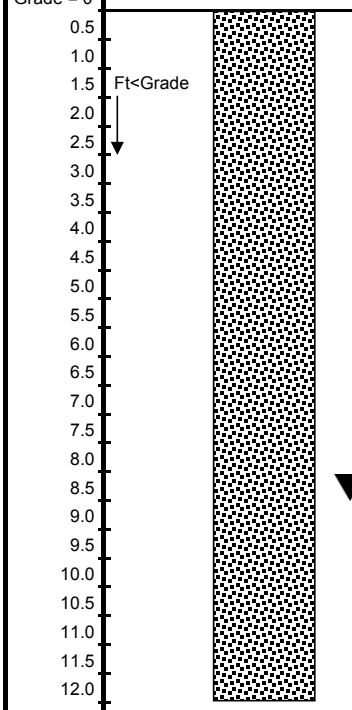
Soil Delineation Event: April 2019
AST Boring Event: May 2020

BORING LOG
Soil Boring No: SB19-01

Site: Dudley's Store

Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/31				
	0.1	80% coarse sand brown, 20% gravel	SP	
36/34				
	0.1	100% coarse sand, gray	SP	
36/36				
	7.5	100% fine sand, gray, wet	SP	
36/32				
	0.2	80% silt, 20% course sand, gray, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

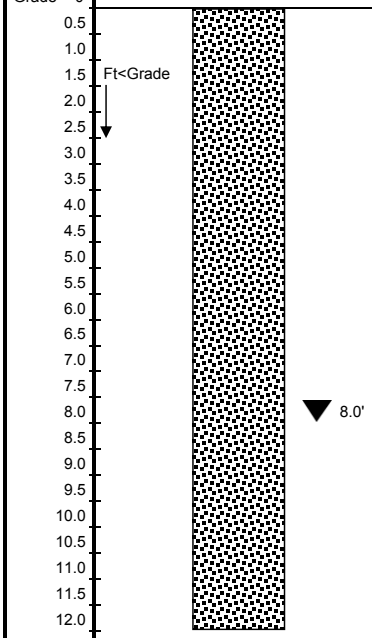
NA Not Applicable

▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-02

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/27				
	0.2	80% coarse sand brown, 20% gravel	SP	
36/33				
	0.1	100% coarse sand, brown	SP	
36/31				
	0.3			
	25.4	80% silt, 20% coarse sand, wet *soil sample collected for laboratory analysis*	ML	
36/36				
	3.2	100% silt, wet	ML	

Legend

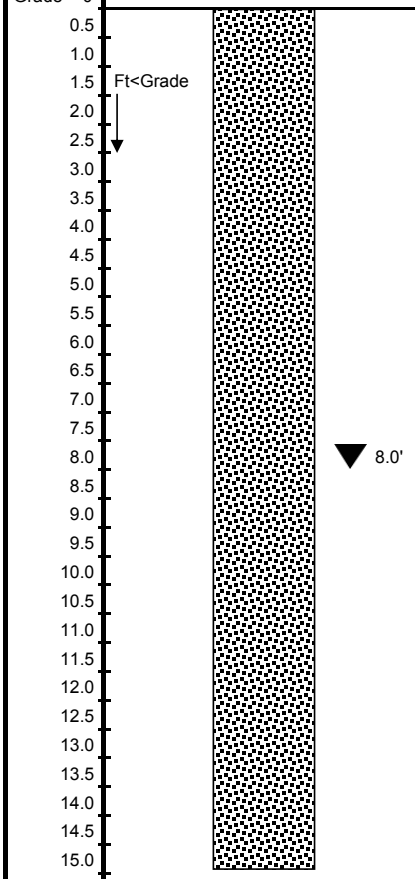
Drill Cuttings Placed in Annulus.
NR No Recovery
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-03

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/30				
	0.0	80% coarse sand brown, 20% gravel	SP	
36/33				
	0.0	100% coarse sand, brown	SP	
36/30				
	358.4	80% silt, 20% coarse sand, wet *soil sample collected for laboratory analysis*	ML	
36/30				
	34.6	100% silt, wet	ML	
36/8				
	1.8	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

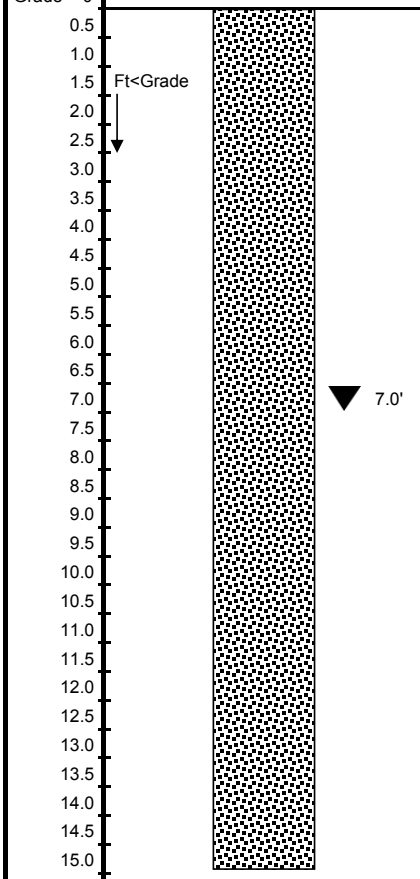
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-04

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/32				
	0.3	80% coarse sand brown, 20% gravel	SP	
36/34				
	0.7	100% coarse sand, gray	SP	
36/30				
	1.8			
	1,107	70% silt, 30% coarse sand, wet *soil sample collected for laboratory analysis*	ML	
		No recovery		
36/26				
	18.4			
	2.8	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

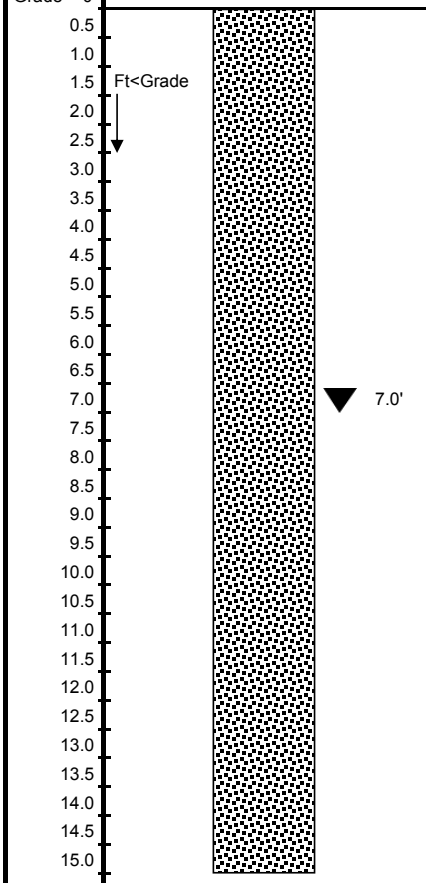
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-05

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/31				
	0.1	60% coarse sand brown, 40% gravel	SP	
36/31				
	0.4	70% silt, 30% coarse sand, moist	ML	
36/34				
	1,154	100% silt, wet *soil sample collected for laboratory analysis*	ML	
	984.6			
36/28				
	93.2	100% silt, wet	ML	
36/21				
	6.9	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

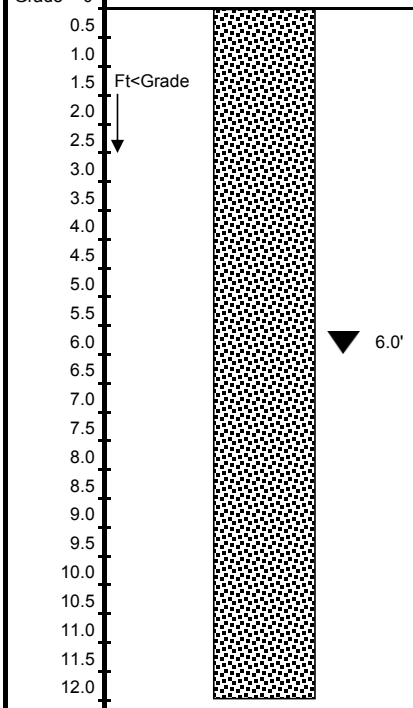
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-06

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/31				
	0.1	60% coarse sand brown, 40% gravel	SP	
36/30				
	8.9	70% silt, 30% coarse sand, wet	ML	
36/31				
	1.0	100% silt, wet	ML	
36/22				
	0.3	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

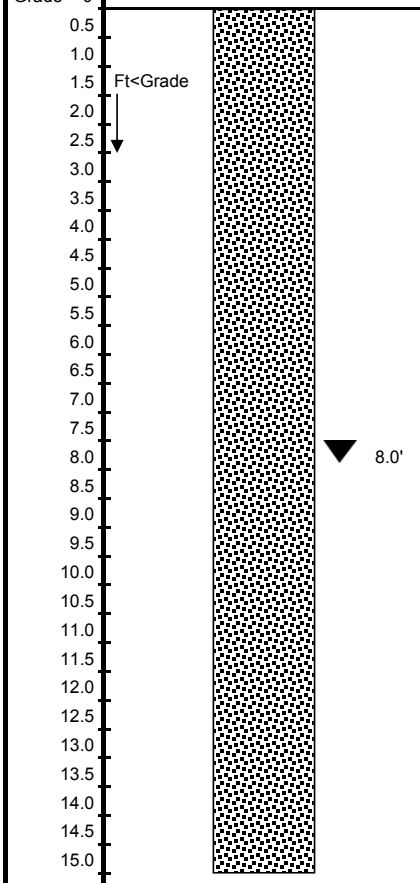
NA Not Applicable

▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-07

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/28				
	0.1	80% coarse sand brown, 20% gravel	SP	
36/31				
	163.5	70% silt, 30% coarse sand, moist	ML	
36/27				
	507.9	100% silt, wet *soil sample collected for laboratory analysis*	ML	
36/18				
	1.0	100% silt, wet	ML	
36/20				
	0.8	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

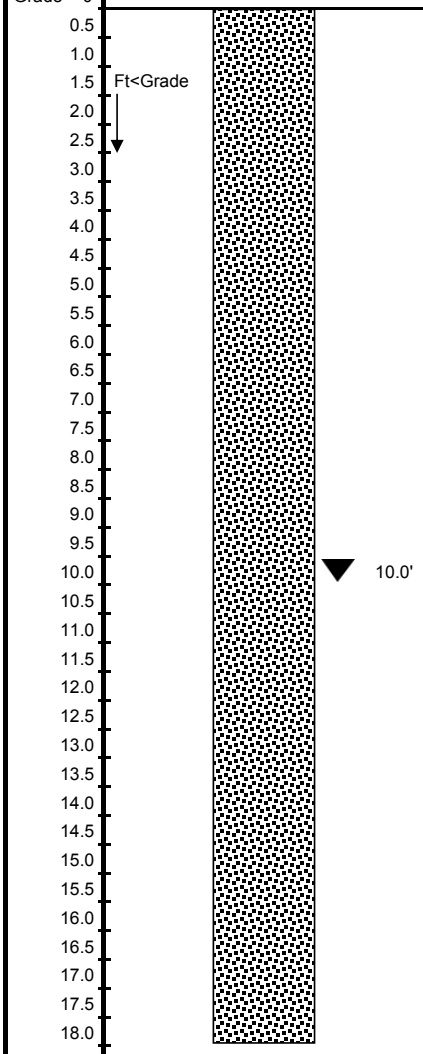
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-08

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/22				
	0.2	70% coarse sand brown, 30% gravel	SP	
36/31				
	0.2	70% silt, 30% coarse sand, moist	ML	
36/22				
	0.1	60% coarse sand brown, 40% gravel	SP	
36/18				
	1,260	60% coarse sand brown, 40% gravel *soil sample collected for laboratory analysis*	SP	
36/14				
	73.6	60% coarse sand brown, 40% gravel	SP	
36/12				
	8.1	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

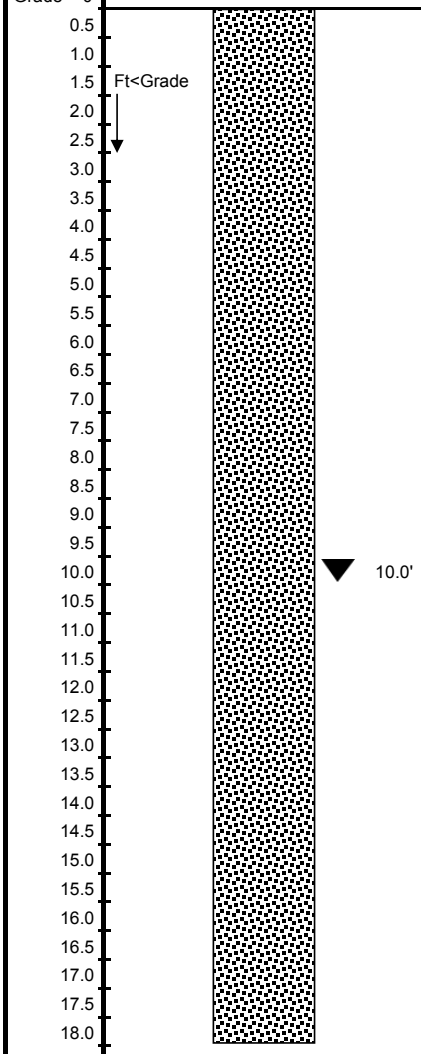
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-09

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/11/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/31				
	0.0	80% coarse sand brown, 20% gravel	SP	
36/36				
	0.2	40% silt, 60% coarse sand	ML	
36/34				
	2.2	100% silt, moist	ML	
36/19				
	1,072	100% silt, wet *soil sample collected for laboratory analysis*	ML	
36/24				
	60.5	100% silt, wet	ML	
36/10				
	18.1	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

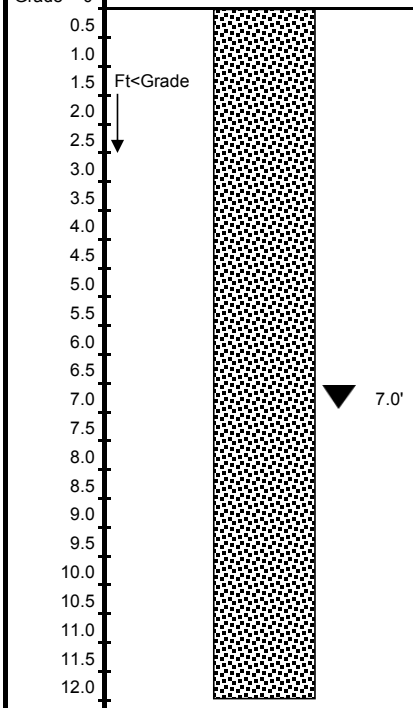
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-10

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/36				
	2.9	80% coarse sand brown, 20% gravel	SP	
36/34				
	1.4	60% silt, 40% coarse sand	ML	
36/36				
	1.1	100% silt, wet	ML	
36/24				
	0.8	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

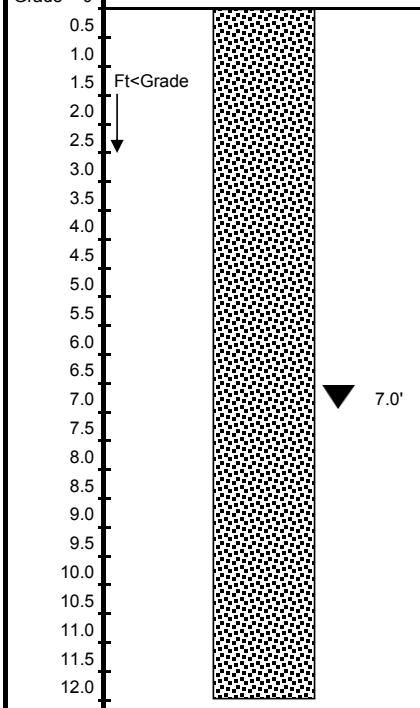
NA Not Applicable

▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-11

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/30				
	2.0	80% gravel, 20% coarse sand brown	GP	
36/36				
	0.7	70% coarse sand, 30% gravel	SP	
36/36				
	434.2	60% coarse sand, 40% silt, wet *soil sample collected for laboratory analysis*	SW	
36/15				
	1.0	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

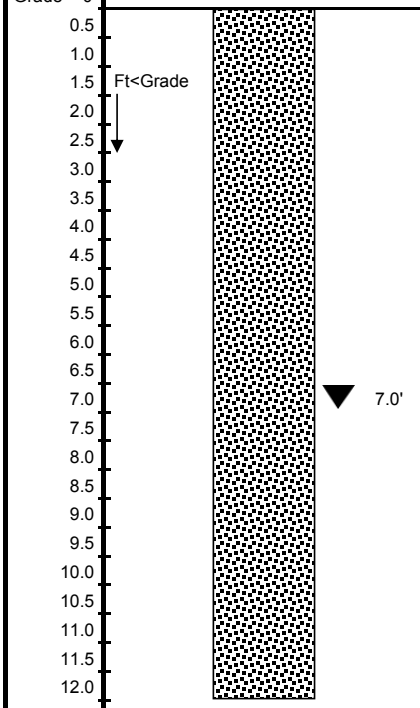
NA Not Applicable

▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-12

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/31				
	1.4	80% coarse sand, 20% silt	SW	
36/30				
	1.1	70% silt, 30% coarse sand	ML	
36/36				
	725.1	100% silt, wet *soil sample collected for laboratory analysis*	ML	
36/33				
	1.2	100% plastic silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

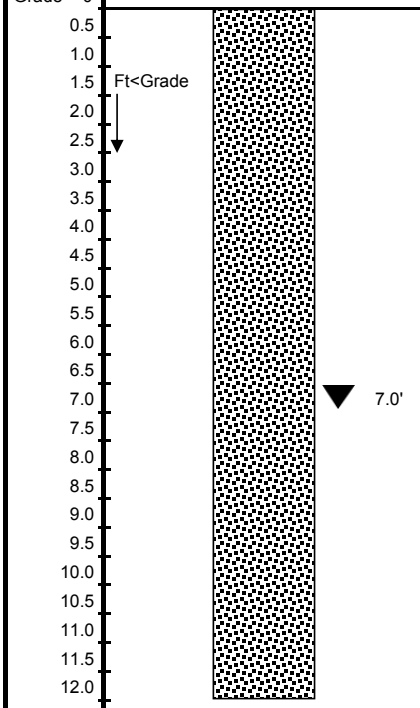
NA Not Applicable

▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-13

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	Direct Push
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/34				
	1.4	80% gravel, 20% coarse sand brown	GP	
36/33				
	1.3	60% coarse sand, 40% plastic silt	SW	
36/31				
	0.4	100% silt, wet	ML	
36/24				
	0.7	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

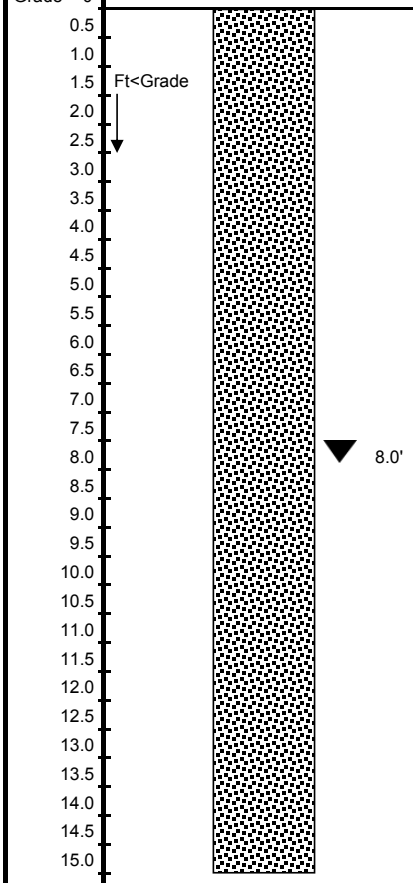
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-14

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/28				
	2.9	80% gravel, 20% coarse sand brown	GP	
36/18				
	1.4	70% silt, 30% coarse sand, moist	ML	
36/27				
	33.9	100% silt, wet	ML	
36/8		`		
	191.7	100% silt, wet *soil sample collected for laboratory analysis*	ML	
36/12				
	1.5	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

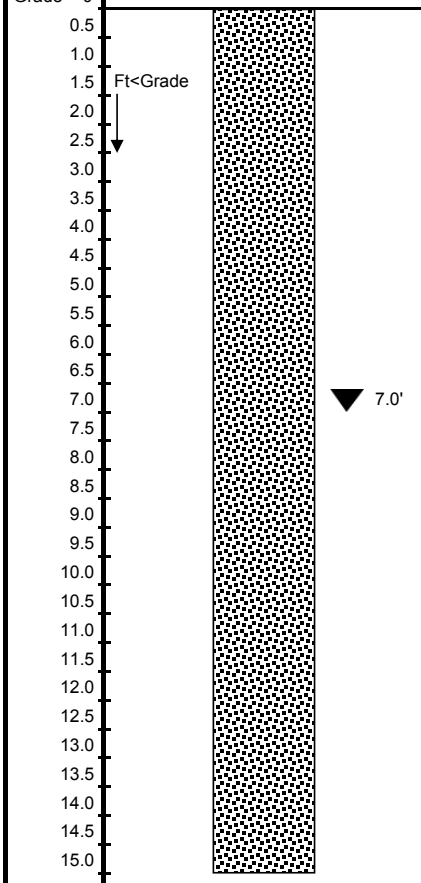
NA Not Applicable

Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-15

Site: Dudley's Store
Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/28				
	698.4	80% coarse sand, 20% gravel	SP	
36/31				
	1,577	100% coarse sand *soil sample collected for laboratory analysis*	SW	
36/29				
	1,426	70% coarse sand, 30% silt, wet	SW	
36/30		`		
	105.4	100% silt, wet	ML	
36/30				
	8.0	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

NA Not Applicable

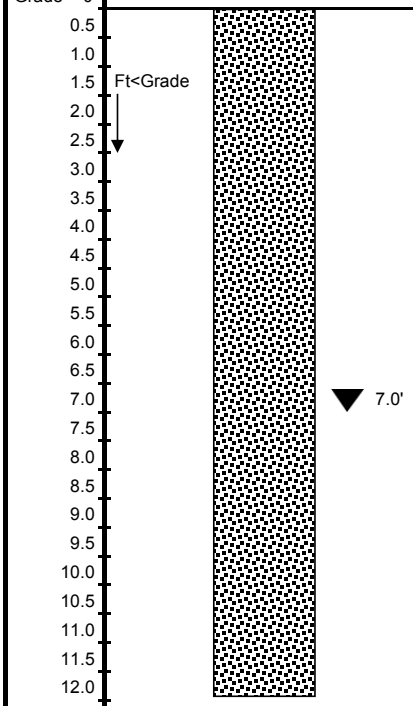
Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-16

Site: Dudley's Store

Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Boring Construction	Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
	36/29				
		3.8	80% coarse sand, 20% gravel	SP	
	36/31				
		2.0	70% coarse sand, 30% silt, wet	SW	
	36/34				
		1.4	70% coarse sand, 30% silt, wet	SW	
		1.3	100% silt, wet	ML	
	36/32		`		
		1.2	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

NA Not Applicable

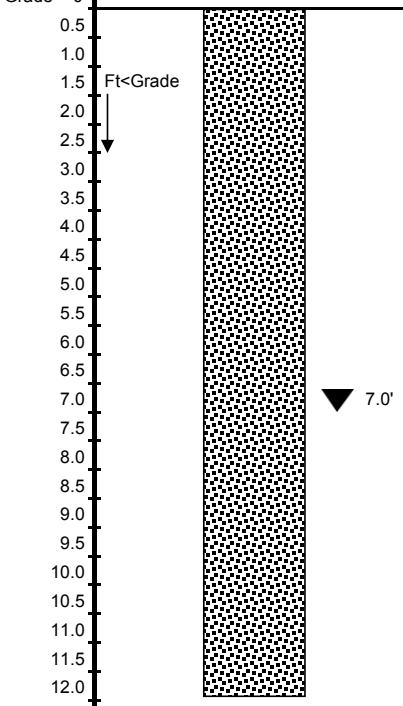
▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-17

Site: Dudley's Store

Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/36				
	1.4	80% coarse sand, 20% gravel	SP	
36/31				
	1.8	70% coarse sand, 30% silt, wet	SW	
36/36				
	1.3	100% silt, wet	ML	
36/14		`		
	1.1	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

NA Not Applicable

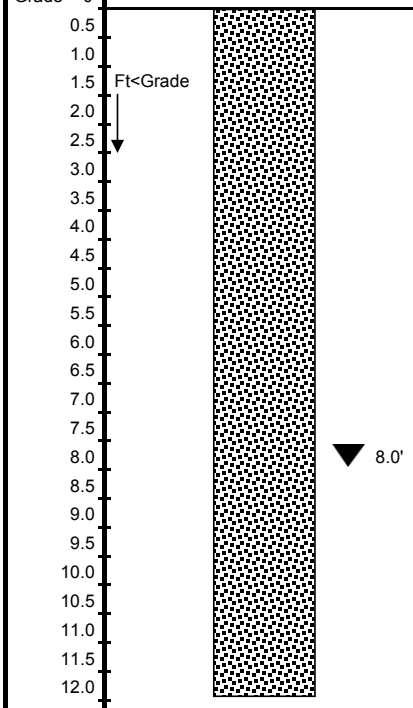
▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-18

Site: Dudley's Store

Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/36				
	1.8	80% coarse sand, 20% gravel	SP	
36/34				
	1.1	70% coarse sand, 30% silt, wet	SW	
36/36				
	1.1	100% silt, wet	ML	
36/28		`		
	1.0	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

NA Not Applicable

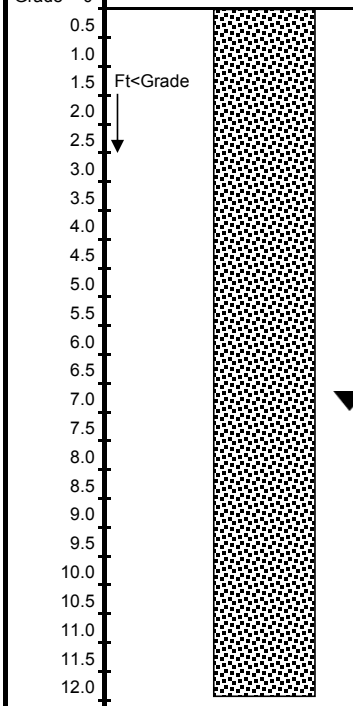
▼ Approximate Water Level During Drilling, below grade

BORING LOG
Soil Boring No: SB19-19

Site: Dudley's Store

Town, State: East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	4/12/2019
Drilled by :	T & K Drilling	Drilling Method:	
Driller:	Sean McGarry	Boring Diameter.:	2"
Logged by:	SD	Development Method:	N/A
		Screened Length:	N/A



Pen/Rec(")	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
36/36				
	0.4	80% coarse sand, 20% gravel	SP	
36/31				
	0.5	70% coarse sand, 30% silt, wet	SW	
36/35				
	0.4			
	1.3			
		100% silt, wet	ML	
36/30		`		
	0.4	100% silt, wet	ML	

Legend

Drill Cuttings Placed in Annulus.

NR No Recovery

NA Not Applicable

▼ Approximate Water Level During Drilling, below grade

SOIL BORING LOG
Soil Boring: SB20-01

C.P. Dudley/Lamb Residence
East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	5/19/2020
Drilled by :	KAS, Inc.	Drilling Method:	Geoprobe- Dual Tube
Driller:	SD/ED	Boring Diameter.:	2"
Supervised by:	Haley Grigel	Boring Depth:	16'
Logged by:	Haley Grigel		

Grade = 0

Ft<Grade

▼ ~ 9' bsg.

Pen/Rec (") / Blow Count	Interval (') / PID (ppmv)	Soil Characteristics / Pavement	Letter Symbol	Graphic Symbol
48/27	0-4	Dry well graded sand with silt and gravel	SW	
n/a	58.7	85% medium to coarse sand,15% gravel		
		Weak odor		
	826	Strong Odor		
48/34	4-8	Moist, sand with silt and gravel	ML	
n/a	158	70% silt, 20% sand, 10% gravel		
		Strong Odor		
	706	Clay	CH	
		Strong Odor		
48/27	8-12	Saturated clay	CH	
n/a	5.7	100% fines		
		Weak Odor		
	6.4	No odor		
48/38	12-16	Saturated clay	CH	
n/a	3.2	100% fines		
		No Odor		
	0.3	End of exploration		

Legend

Drill Cuttings Placed in Annulus.

NA Not Applicable

▼ Approximate Water Level During Drilling

SOIL BORING LOG
Soil Boring: SB20-02

C.P. Dudley/Lamb Residence
East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	5/19/2020
Drilled by :	KAS, Inc.	Drilling Method:	Geoprobe- Dual Tube
Driller:	SD/ED	Boring Diameter.:	2"
Supervised by:	Haley Grigel	Boring Depth:	16'
Logged by:	Haley Grigel		

Soil Boring (Grade = 0)	Pen/Rec (") / Blow Count	Interval (') / PID (ppmv)	Soil Characteristics / Pavement	Letter Symbol	Graphic Symbol
0.5 – 2.0	48/35 n/a	0-4 1.5	Dry well graded sand with silt and gravel 65% medium to coarse sand,35% gravel No odor	SW	
2.5 – 4.0		1.0	No odor		
4.5 – 6.0	48/39 n/a	4-8 1.0	Dry, sand with silt 70% silt, 30% sand No odor	ML	
6.5 – 8.0		0.1	No odor		
8.5 – 9.5	48/47 n/a	8-12 0.0	Saturated clay 100% fines No odor	CH	
10.0 – 12.0		0.0	No odor		
12.5 – 14.0	48/47 n/a	12-16 0.3	Saturated clay 100% fines No Odor	CH	
14.5 – 16.0		0.1			

Ft<Grade

▼ ~ 10.5' bsg.

End of exploration

Legend

Drill Cuttings Placed in Annulus.

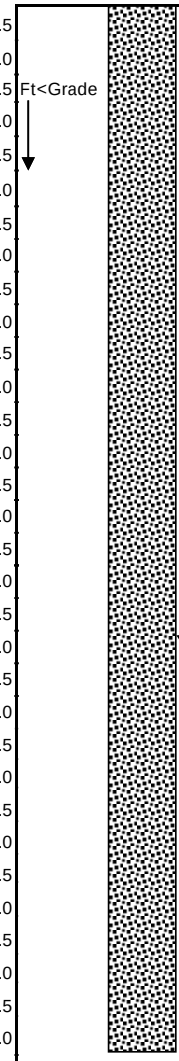
NA Not Applicable

▼ Approximate Water Level During Drilling

SOIL BORING LOG
Soil Boring: SB20-03

C.P. Dudley/Lamb Residence
East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	5/19/2020
Drilled by :	KAS, Inc.	Drilling Method:	Geoprobe- Dual Tube
Driller:	SD/ED	Boring Diameter.:	2"
Supervised by:	Haley Grigel	Boring Depth:	16'
Logged by:	Haley Grigel		



Pen/Rec (") / Blow Count	Interval (') / PID (ppmv)	Soil Characteristics / Pavement	Letter Symbol	Graphic Symbol
48/21	0-4	Dry well graded sand with silt and gravel	SW	
n/a	0.1	60% medium to coarse sand,20% silt, 20% gravel		
		No odor		
	0.0	No odor		
48/27	4-8	Dry, sand with silt	ML	
n/a	0.0	80% silt, 20% sand		
		No odor		
	0.0	No odor		
48/17	8-12	Saturated sand with silt and gravel	SW	
n/a	34.9	80% medium to coarse sand, 10% silt, 10% gravel		
		Strong Odor		
		Waste characterization sample collected here		
	22	Weak Odor		
48/18	12-16	Saturated sand with gravel	SW	
n/a	2.8	80% medium to coarse sand, 20% gravel		
		No Odor		
	0.0			

End of exploration

Legend

Drill Cuttings Placed in Annulus.

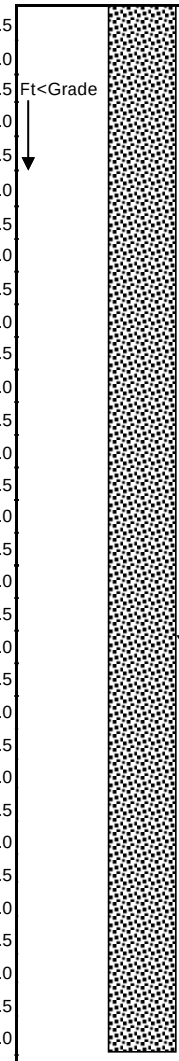
NA Not Applicable

▼ Approximate Water Level During Drilling

SOIL BORING LOG
Soil Boring: SB20-04

C.P. Dudley/Lamb Residence
East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	5/19/2020
Drilled by :	KAS, Inc.	Drilling Method:	Geoprobe- Dual Tube
Driller:	SD/ED	Boring Diameter.:	2"
Supervised by:	Haley Grigel	Boring Depth:	16'
Logged by:	Haley Grigel		



Pen/Rec (") / Blow Count	Interval (') / PID (ppmv)	Soil Characteristics / Pavement	Letter Symbol	Graphic Symbol
48/25	0-4	Dry well graded sand with silt and gravel	SW	
n/a	0.2	70% medium to coarse sand, 15% silt, 15% gravel		
		No odor		
	0.1	No odor		
48/17	4-8	Dry, sand with silt	SW	
n/a	0.0	80% silt, 20% sand		
		No odor		
	0.0	No odor		
48/23	8-12	Saturated sand	ML	
n/a	204	100% course sand		
		Strong Odor		
		Waste characterization sample collected here		
	12.7	Weak Odor		
48/18	12-16	Saturated sand with gravel	SW	
n/a	1.7	80% medium to coarse sand, 20% gravel		
		No Odor		
	0.3			

End of exploration

Legend

Drill Cuttings Placed in Annulus.

NA Not Applicable

▼ Approximate Water Level During Drilling

SOIL BORING LOG
Soil Boring: SB20-05

C.P. Dudley/Lamb Residence
East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	5/20/2020
Drilled by :	KAS, Inc.	Drilling Method:	Geoprobe- Dual Tube
Driller:	SD/ED	Boring Diameter.:	2"
Supervised by:	Haley Grigel	Boring Depth:	16'
Logged by:	Haley Grigel		

Soil Boring	Pen/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
Grade = 0	Blow Count	PID (ppmv)	Pavement		
0.5	48/26	0-4	Dry well graded sand with silt and gravel	SW	
1.0	n/a	1.3	80% medium to coarse sand, 20% gravel		
1.5 Ft<Grade			No odor		
2.0					
2.5		1.5	No odor		
3.0					
3.5					
4.0					
4.5	48/29	4-8	Moist to wet, sand with silt	SW	
5.0	n/a	1.8	80% sand, 20% silt		
5.5			No odor		
6.0					
6.5		2.4	No odor		
7.0					
7.5 ▼ ~ 7.5' bsg.					
8.0					
8.5	48/26	8-12	Saturated sand	ML	
9.0	n/a	115	100% course sand		
9.5			Strong Odor		
10.0					
10.5		17	Weak Odor		
11.0					
11.5					
12.0					
12.5	48/17	12-16	Saturated sand with gravel and clay	SW	
13.0	n/a	13	80% medium to coarse sand, 10% gravel, 10% fine		
13.5			No Odor		
14.0					
14.5			Saturated clay	CH	
15.0			100% clay		
15.5					
16.0		1.8			
			End of exploration		

Legend

Drill Cuttings Placed in Annulus.

NA Not Applicable

▼ Approximate Water Level During Drilling

SOIL BORING LOG
Soil Boring: SB20-06

C.P. Dudley/Lamb Residence
East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	5/20/2020
Drilled by :	KAS, Inc.	Drilling Method:	Geoprobe- Dual Tube
Driller:	SD/ED	Boring Diameter.:	2"
Supervised by:	Haley Grigel	Boring Depth:	16'
Logged by:	Haley Grigel		

Soil Boring	Pen/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
Grade = 0	Blow Count	PID (ppmv)	Pavement		
0.5	48/28	0-4	Dry well graded sand and gravel	SW	
1.0	n/a	3.9	80% medium to coarse sand, 20% gravel		
1.5 Ft<Grade			No odor		
2.0					
2.5		1.2	No odor		
3.0					
3.5					
4.0					
4.5	48/21	4-8	Dry to moist, sand with silt	SW	
5.0	n/a	0.4	80% sand, 20% silt		
5.5			No odor		
6.0					
6.5		1.7	No odor		
7.0					
7.5					
8.0					
8.5 ▼ ~ 8.5' bsg.	48/26	8-12	Saturated sand	ML	
9.0	n/a	406	100% course sand		
9.5			Strong Odor		
10.0					
10.5					
11.0					
11.5					
12.0					
12.5	48/17	12-16	Saturated sand with gravel	SW	
13.0	n/a	3.0	80% medium to coarse sand, 10% gravel, 10% fine		
13.5			No Odor		
14.0					
14.5					
15.0					
15.5					
16.0					
			End of exploration		

Legend

Drill Cuttings Placed in Annulus.

NA Not Applicable

▼ Approximate Water Level During Drilling

SOIL BORING LOG
Soil Boring: SB20-07

C.P. Dudley/Lamb Residence
East Montpelier, Vermont

KAS Project #:	402190703	Date Installed:	5/20/2020
Drilled by :	KAS, Inc.	Drilling Method:	Geoprobe- Dual Tube
Driller:	SD/ED	Boring Diameter.:	2"
Supervised by:	Haley Grigel	Boring Depth:	16'
Logged by:	Haley Grigel		

Soil Boring	Pen/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
Grade = 0	Blow Count	PID (ppmv)	Pavement		
0.5	48/21	0-4	Dry well graded sand with silt and gravel	SW	
1.0	n/a	3.2	60% medium to coarse sand, 20% silt, 20% gravel		
1.5 Ft<Grade			No odor		
2.0					
2.5		2.9	No odor		
3.0					
3.5					
4.0					
4.5	48/15	4-8	Dry to moist, sand	ML	
5.0	n/a	0.0	100% sand		
5.5			No odor		
6.0					
6.5		12	No odor		
7.0					
7.5					
8.0					
8.5 ▼ ~ 8.5' bsg.	48/23	8-12	Saturated sand	ML	
9.0	n/a	43	100% course sand		
9.5			Strong Odor		
10.0					
10.5					
11.0					
11.5					
12.0					
12.5	48/17	12-16	Saturated sand with silt and clay	SW	
13.0	n/a	6.9	60% sand, 30% silt, 10% clay		
13.5			No Odor		
14.0					
14.5			Saturated clay	CH	
15.0			100% clay		
15.5					
16.0		0.5			
			End of exploration		

Legend

Drill Cuttings Placed in Annulus.

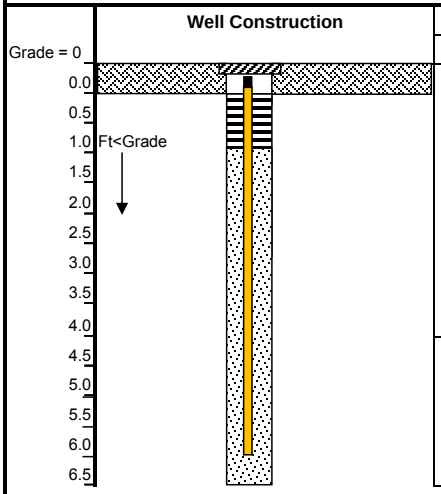
NA Not Applicable

▼ Approximate Water Level During Drilling

SOIL BORING LOG
Soil Gas Point: SG20-01

Site: C.P. Dudley's/Lamb Residence
Town, State: East Montpelier, Vermont

KAS Project #:	410040071	Date Installed:	05/19/20
Drilled by :	KAS Drilling	Drilling Method:	Direct Push
Driller:	Sam Driver/Eric Deratzian	Boring Diameter.:	2"
Logged by:	Haley Grigel	Development Method:	n/a
		Pipe Length:	6 Ft.



Well Construction	Pen/Rec (") / Blow Count	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
	48/16 n/a	0.1	Sand with Gravel 15% gravel, 85% sand, dry	SW	
	48/5 n/a	3.3	Sand with Gravel 20% gravel, 80% sand, dry	SW	

Legend

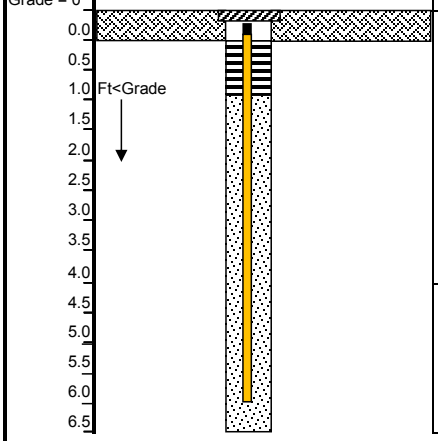
- Road Box with Bolt Down Cover, Set in Concrete.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Removable Plug.
- 1/4" Stainless Steel Tubing With Open End.

NM - Not Measured N/A - Not Applicable

SOIL BORING LOG
Soil Gas Point: SG20-02

Site: C.P. Dudley's/Lamb Residence
Town, State: East Montpelier, Vermont

KAS Project #:	410040071	Date Installed:	05/19/20
Drilled by :	KAS Drilling	Drilling Method:	Direct Push
Driller:	Sam Driver/Eric Deratzian	Boring Diameter.:	2"
Logged by:	Haley Grigel	Development Method:	n/a
		Pipe Length:	6 Ft.



Well Construction	Pen/Rec (") / Blow Count	PID (ppmv)	Soil Characteristics	Letter Symbol	Graphic Symbol
	48/0 n/a		No Recovery		
	48/14 n/a	0.1	Sand with Gravel 10% gravel, 90% sand, dry	SW	

Legend

- Road Box with Bolt Down Cover, Set in Concrete.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Removable Plug.
- 1/4" Stainless Steel Tubing With Open End.

NM - Not Measured N/A - Not Applicable

Appendix C

Water Level Data

9/2/2020

Well I.D.	Date of Installation	Well Depth (ft)	Well Diameter	Well Screen Interval (ft)	Top of Casing Elevation	Depth To Product btoc	Depth To Water btoc	Product Thickness	Specific Gravity Of Product	Water Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	4/25/2018	14.54	1"	15-2'	102.32	-	10.01	-	-	-	92.31	-
MW-2	4/25/2018	14.39	1"	15-2'	102.82	-	10.54	-	-	-	92.28	-
MW-6	N/A	13.45	2"	N/A	100.00	-	7.63	-	-	-	92.37	-
MW-7	N/A	14.45	2"	N/A	99.52	-	7.22	-	-	-	92.30	-

HISTORIC WATER TABLE ELEVATIONS

Well I.D.	*Measurement Date:* 9/2/2020											
MW-1	92.31											
MW-2	92.28											
MW-6	92.37											
MW-7	92.30											

Notes:
N/A - Not Available
All values reported in feet.
NM= Not Measured

Appendix D

Groundwater and Soil Quality Summary

Groundwater: 2020
Soil: April 2019 and May 2020

MW-1

Sample Date / *Method* / PARAMETER	1/9/2020 8260C	5/19/2020* 8260B				VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<0.5	ND<0.5				5	0.92	7.4
Toluene	ND<1.0	**0.56**				1,000	-	-
Ethylbenzene	ND<1.0	ND<0.5				700	2.2	18
Xylenes, Total	ND<2.0	**1.16**				10,000	-	-
Total BTEX	ND	**1.72**				-	-	-
MTBE	ND<2.0	ND<0.5				11	-	-
n-Propylbenzene	ND<1.0	-				-	-	-
1,2,4-Trimethylbenzene	ND<1.0	**0.89**				23	330	1,200
1,3,5-Trimethylbenzene	ND<1.0	-					470	1,700
1,2,3-Trimethylbenzene	ND<1.0	-					-	-
Naphthalene	ND<0.5	**2.37**				0.5	4	28
Isobutyrate	-	**0.55**				-	-	-
Chloride	-	**189**				4,000	-	-
Nitrate	-	**1.30**				1,000	-	-
Sulfate	-	**30.1**				-	-	-
Carbon Dioxide	-	**38.8**				-	-	-
Total Targeted VOCs	ND	**264.73**				-	-	-
TVPH	-	ND<0.5				-	-	-

MW-2

Sample Date / *Method* / PARAMETER	1/9/2020 8260C					VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<0.5					5	0.92	7.4
Toluene	ND<1.0					1,000	-	-
Ethylbenzene	ND<1.0					700	2.2	18
Xylenes, Total	ND<2.0					10,000	-	-
Total BTEX	ND					-	-	-
MTBE	ND<2.0					11	-	-
n-Propylbenzene	ND<1.0					-	-	-
1,2,4-Trimethylbenzene	ND<1.0					23	330	1,200
1,3,5-Trimethylbenzene	ND<1.0						470	1,700
1,2,3-Trimethylbenzene	ND<1.0						-	-
Naphthalene	ND<0.5					0.5	4	28
Total Targeted VOCs	ND					-	-	-

5/19/20* - GW samples collected for AST
All Values Reported in ug/L
VGES - Vermont Groundwater Enforcement Standard (December 16, 2016 updated July 6, 2019)
VIS - Vapor Intrusion Standards (July 6, 2019)
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed VGES in place at time of sampling

MW-U1

Sample Date / *Method* / PARAMETER	1/9/2020 8260C					VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<0.5					5	0.92	7.4
Toluene	ND<1.0					1,000	-	-
Ethylbenzene	ND<1.0					700	2.2	18
Xylenes, Total	ND<2.0					10,000	-	-
Total BTEX	ND					-	-	-
MTBE	ND<2.0					11	-	-
n-Propylbenzene	ND<1.0					-	-	-
1,2,4-Trimethylbenzene	ND<1.0					23	330	1,200
1,3,5-Trimethylbenzene	ND<1.0						470	1,700
1,2,3-Trimethylbenzene	ND<1.0						-	-
Naphthalene	ND<0.5					0.5	4	28
Total Targeted VOCs	ND					-	-	-

MW-6

Sample Date / *Method* / PARAMETER	1/9/2020 8260C	5/19/20* 8260B				VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	ND<25.0	ND<0.5				5	0.92	7.4
Toluene	ND<50.0	**0.92**				1,000	-	-
Ethylbenzene	ND<50.0	**7.99**				700	2.2	18
Xylenes, Total	**59.0**	**35.47**				10,000	-	-
Total BTEX	**59.0**	**44.38**				-	-	-
MTBE	ND<100	ND<0.5				11	-	-
n-Propylbenzene	**289.**	-				-	-	-
1,2,4-Trimethylbenzene	**1,210.**	**282**				23	330	1,200
1,3,5-Trimethylbenzene	**463.**	-					470	1,700
1,2,3-Trimethylbenzene	**142.**	-					-	-
Naphthalene	ND<25.0	**5.13**				0.5	4	28
Chloride	-	**352**				4,000	-	-
Nitrate	-	**1.38**				1,000	-	-
Sulfate	-	**16.5**				-	-	-
Methane	-	**25.1**				-	-	-
Carbon Dioxide	-	**54.6**				-	-	-
Total Targeted VOCs	**2,104.**	**781.09**				-	-	-
TVPH	-	**5.05**				-	-	-

MW-7

Sample Date / *Method* / PARAMETER	9/2/2020 8021B					VGES	VIS - Groundwater	
							Resident	Non-Resident
Benzene	**40.7**					5	0.92	7.4
Toluene	**39.4**					1,000	-	-
Ethylbenzene	**151**					700	2.2	18
Xylenes, Total	**326**					10,000	-	-
Total BTEX	**557.1**					-	-	-
MTBE	ND<20.0					11	-	-
1,2,4-Trimethylbenzene	**913**					23	330	1,200
1,3,5-Trimethylbenzene	**103**						470	1,700
1,2,3-Trimethylbenzene	**160**						-	-
Naphthalene	**62.4**					0.5	4	28
Total Targeted VOCs	**1,796.**					-	-	-

5/19/20* - GW samples collected for AST
All Values Reported in ug/L
VGES - Vermont Groundwater Enforcement Standard (December 16, 2016 updated July 6, 2019)
VIS - Vapor Intrusion Standards (July 6, 2019)
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed VGES in place at time of sampling

Soil Quality Summary

C.P.Dudley's Store and Lamb Residence
East Montpelier, Vermont

Soil Sample	*SB19-02*	*SB19-03*	*SB19-04*	*SB19-05*	*SB19-07*	*SB19-08*	VSS	VSS
Sample Depth (ft.)	*8-9'*	*8-9'*	*7-8'*	*7-8'*	*8-9'*	*11-12'*	Resident	Non- Resident
PID reading (ppmv)	*25.4*	*358.4*	*1,107*	*1,154*	*507.9*	*1,260*	Soil	Soil
Sample Date	*4/11/19*	*4/11/19*	*4/11/19*	*4/11/19*	*4/11/19*	*4/11/19*		
VOCs by Method 8260C (mg/kg)								
Benzene	ND<0.129	ND<0.121	ND<0.225	ND<0.234	ND<0.103	ND<0.102	0.7	4.2
Toluene	0.527	0.771	5.01	4.69	1.78	0.401	706	798
Ethylbenzene	0.151	0.243	31	20.1	1.13	0.331	3.7	22
Xylenes (total)	0.75	1.41	143	47	5.76	1.48	252	257
MTBE	ND<0.258	ND<0.242	ND<0.450	ND<0.468	ND<0.206	ND<0.204	649	4464
1,3,5-trimethylbenzene	ND<0.258	ND<0.242	22	147	0.872	0.82	144	177
1,2,4-trimethylbenzene	ND<0.258	ND<0.242	207	457	3.56	2.67		
Naphthalene	ND<0.258	ND<0.242	14.7	10	0.479	ND<0.204	2.7	16
Total Reported VOCs	1.43	2.42	423	686	13.6	5.7		

Soil Sample	*SB19-09*	*SB19-11*	*SB19-12*	*SB19-14*	*SB19-15*	*B-3/MW-1**	VSS	VSS
Sample Depth (ft.)	*11-12'*	*8-9'*	*8-9'*	*11-12'*	*5-6'*	*8-12'*	Resident	Non- Resident
PID reading (ppmv)	*1,072*	*434.2*	*725.1*	*191.7*	*1,577*	*652.4*	Soil	Soil
Sample Date	*4/11/19*	*4/12/19*	*4/12/19*	*4/12/19*	*4/12/19*	*4/25/18*		
VOCs by Method 8260C (mg/kg)								
Benzene	3.1	ND<0.110	ND<0.102	ND<0.099	ND<0.437	-	0.7	4.2
Toluene	132	0.599	0.691	0.782	7.5	-	706	798
Ethylbenzene	124	0.19	0.409	0.383	11.1	ND<0.019	3.7	22
Xylenes (total)	595	1.17	2.58	2.23	83.9	ND<0.019	252	257
MTBE	ND<0.848	ND<0.220	ND<0.204	ND<0.198	ND<0.874	-	649	4464
1,3,5-trimethylbenzene	86	ND<0.220	0.285	0.286	29.8	0.443	144	177
1,2,4-trimethylbenzene	291	ND<0.220	0.852	0.499	110	1.43		
Naphthalene	41.5	ND<0.220	ND<0.204	ND<0.198	26.8	ND<0.013	2.7	16
Total Reported VOCs	1,272.6	1.96	4.8	4.2	269	1.9		

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

*B3 collected in April 2018 by Dubois & King, Inc.

."-" indicates compound not analyzed for

IRULE= Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

Vermont Soil Standards (VSS) from Appendix A of the IRULE

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Reported concentrations exceed IRULE VSS for a resident

SB20-01

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.05	ND<0.05	ND<0.05	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.05	ND<0.05	ND<0.05	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.05	ND<0.05	ND<0.05	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	0.656	1.02	0.0601	0.00137	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	133	176	4.53	0.0179	0.0025	0.00487	0.00440	706
Ethylbenzene	ND<0.0005	87.4	132	3.19	0.0291	0.00069	0.00175	0.00088	3.7
m/p-Xylene	0.0006	515	918	22.7	0.1565	0.01147	0.01573	0.01093	252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	199	350	9.83	0.0523	0.00467	0.00918	0.00647	144
Naphthalene	ND<0.0005	26.5	47.6	1.36	0.00335	0.00065	0.00067	0.00087	2.7
TVPH	ND<0.5	4,050	6,920	176	1.47	ND<0.5	ND<0.5	ND<0.5	-

SB20-02

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	ND<0.0005	ND<0.0005	0.00106	0.00089	0.00104	0.00068	0.00310	706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	0.00065	ND<0.0005	ND<0.0005	ND<0.0005	0.00110	3.7
m/p-Xylene	ND<0.0005	ND<0.0005	ND<0.0005	0.003	0.00232	0.00229	0.0021	0.00661	252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	0.00216	0.00186	0.00165	0.00140	0.00503	144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00054	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-

SB20-03

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	0.00054	ND<0.0005	ND<0.0005	0.00051	0.00110	0.00088	ND<0.0005	706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	3.7
m/p-Xylene	ND<0.0005	0.0021	0.00071	ND<0.0005	0.0016	0.00228	0.00090	ND<0.0005	252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	0.00180	0.00092	ND<0.0005	0.00064	0.00222	0.00109	ND<0.0005	144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00121	0.00055	ND<0.0005	ND<0.0005	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	66.3	9.56	ND<0.5	ND<0.5	-

All Values Reported in mg/kg
VSS - Vermont Soil Standards (July 2019)
NT - Not Tested
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed Residential VSS

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SB20-04

Sample Date	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.70
Toluene	ND<0.0005	0.00442	0.00094	ND<0.0005	0.0368	ND<0.0005	0.00089	0.00054	706
Ethylbenzene	ND<0.0005	0.00463	0.00060	ND<0.0005	0.0423	ND<0.0005	0.00067	0.00203	3.7
m/p-Xylene	0.00090	0.02779	0.00239	ND<0.0005	0.2178	ND<0.0005	0.00368	0.00469	252
o-Xylene									
1,2,4-Trimethylbenzene	0.00114	0.00836	0.00102	ND<0.0005	0.48	0.00107	0.00255	0.00185	144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.0304	0.00069	ND<0.0005	ND<0.0005	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	768	13.6	ND<0.5	ND<0.5	-

SB20-05

Sample Date	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.0246	ND<0.0005	0.00069	ND<0.0005	0.70
Toluene	0.00134	0.00051	ND<0.0005	ND<0.0005	0.0939	ND<0.0005	0.00085	ND<0.0005	706
Ethylbenzene	0.00088	ND<0.0005	ND<0.0005	ND<0.0005	0.0271	ND<0.0005	0.00559	ND<0.0005	3.7
m/p-Xylene	0.00489	0.00216	0.00150	0.00084	0.2751	ND<0.0005	0.00357	0.00064	252
o-Xylene									
1,2,4-Trimethylbenzene	0.00252	0.00114	ND<0.0005	0.00067	21.5	ND<0.0005	0.0259	ND<0.0005	144
Naphthalene	0.00092	ND<0.0005	ND<0.0005	0.00065	0.710	ND<0.0005	0.00126	ND<0.0005	2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	7.45	974	2.18	3.16	ND<0.5	-

SB20-06

Sample Date	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020			Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	12.0	15.0			VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B			
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.70
Toluene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.0805	ND<0.0005			706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.186	ND<0.0005			3.7
m/p-Xylene	0.00065	0.00056	ND<0.0005	ND<0.0005	8.05	0.00223			252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	22	0.00902			144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	1.16	0.00194			2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	ND<0.5	814	64.9			-

SB20-07

Sample Date	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020	5/20/2020			Residential
Depth (feet bg)	2.0	4.0	6.0	8.0	10.0	12.0			VSS
Method	8260B	8260B	8260B	8260B	8260B	8260B			
PARAMETER									
Dimethyl Sulfide	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			-
MTBE	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			649
1,2-Dichloroethane	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.29
Benzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			0.70
Toluene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			706
Ethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00083	ND<0.0005			3.7
m/p-Xylene	ND<0.0005	0.00064	ND<0.0005	ND<0.0005	0.00139	0.00061			252
o-Xylene									
1,2,4-Trimethylbenzene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	0.00120	0.00060			144
Naphthalene	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005	ND<0.0005			2.7
TVPH	ND<0.5	ND<0.5	ND<0.5	3.26	11.9	1.55			-

All Values Reported in mg/kg
VSS - Vermont Soil Standards (July 2019)
NT - Not Tested
ND - None detected above sample-specific compound detection limit
Bold font indicates a detected concentration.
Shaded values meet or exceed Residential VSS

Appendix E

Air Quality Summary

Indoor Air Quality
Soil Gas Quality

INDOOR AIR QUALITY SUMMARY

Basement

Sample Date / *Method* / *PARAMETER*	1/9/2020 VOCs SIMS	6/18/2020 VOCs SIMS		VTDEC I-Rule Indoor Air Standards (IAS)	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	2.8	ND<0.17		-	-
Freon 22	1.2	-		-	-
Chloromethane	2.0	ND<0.14		-	-
n-Butane	7.5	-		-	-
Trichlorfluoromethane (Freon 11)	1.3	ND<0.78		-	-
Freon TF	0.58	-		-	-
Acetone	42	55		-	-
Ethyl Acetate	-	8.5			
Isopropanol	-	13			
Isopropyl alcohol	4.5	-		-	-
Carbon Disulfide	ND<1.6	ND<1.1			
Methylene Chloride	7.3	23		60.34	817.6
Styrene	ND<0.85	0.43			
tert-Butyl alcohol	0.40	-		-	-
n-Hexane	1.0	ND<4.9		-	-
Methyl Ethyl Ketone	2.6	-		-	-
Chloroform	0.26	ND<0.034		0.04	0.36
Tetrahydrofuran	0.48	ND<0.10		-	-
Cyclohexane	0.44	ND<0.12		-	-
Carbon tetrachloride	0.38	0.52		0.17	1.36
2,2,4-Trimethylpentane	0.80	-		-	-
Benzene	0.89	0.42		0.13	1.05
n-Heptane	3.1	3.0		-	-
1,4-Dioxane	0.42	ND<1.3			
Toulene	5.5	15		-	-
Ethylbenzene	0.49	0.62		0.40	3.27
m,p-Xylene	1.6	2.1		-	-
o-Xylene	0.69	0.76		-	-
Xylene (total)	2.3	2.86		-	-
1,3,5-Trimethylbenzene	0.27	ND<0.17		60	210.24
1,2,4-Trimethylbenzene	0.74	0.60			
4-Isopropyltoluene	0.30	-		-	-
Naphthalene	ND<2.6	1.5		0.262	0.262

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Indoor Air Standards (IAS)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

INDOOR AIR QUALITY SUMMARY

First Floor

Sample Date / *Method* / *PARAMETER*	1/9/2020 VOCs SIMS	6/18/2020 VOCs SIMS		VTDEC I-Rule Indoor Air Standards (IAS)	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	3.0	2.5		-	-
Freon 22	1.3	-		-	-
Chloromethane	1.6	ND<0.14		-	-
n-Butane	4.0	-		-	-
Trichlorfluoromethane (Freon 11)	1.5	ND<1.1		-	-
Freon TF	0.64	-		-	-
Acetone	25	49		-	-
Isopropyl alcohol	3.7	-		-	-
Carbon Disulfide	1.1	ND<1.1			
Methylene Chloride	3.2	7.5		60.34	817.6
tert-Butyl alcohol	0.51	-		-	-
n-Hexane	ND<0.70	ND<4.9		-	-
Methyl Ethyl Ketone	4.0	-		-	-
Chloroform	0.41	ND<0.034		0.04	0.36
Tetrahydrofuran	ND<15.0	ND<0.10		-	-
Cyclohexane	0.20	ND<0.12		-	-
Carbon tetrachloride	0.56	0.43		0.17	1.36
2,2,4-Trimethylpentane	0.31	-		-	-
Benzene	0.73	0.32		0.13	1.05
n-Heptane	1.4	0.71		-	-
1,4-Dioxane	ND<18.0	ND<1.3			
Toulene	1.5	4.0		-	-
Ethylbenzene	ND<0.87	0.52		0.40	3.27
m,p-Xylene	ND<2.2	1.7		-	-
o-Xylene	ND<0.87	0.68		-	-
Xylene (total)	ND<3.0	2.38		-	-
1,3,5-Trimethylbenzene	ND<0.98	ND<0.17		60	210.24
1,2,4-Trimethylbenzene	ND<0.98	0.43			
4-Isopropyltoluene	ND<1.1	-		-	-
Naphthalene	ND<2.6	0.41		0.262	0.262

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Indoor Air Standards (IAS)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

SOIL GAS QUALITY SUMMARY

SG20-01

Sample Date / *Method* / *PARAMETER*	6/18/2020 VOCs SIMS			VTDEC I-Rule Vapor Intrusion Standards Sub-Slab Soil Gas	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	ND<0.49			-	-
Chloromethane	ND<0.41			-	-
Trichlorfluoromethane (Freon 11)	ND<2.2			-	-
Acetone	19			-	-
Methylene Chloride	ND<3.5			2,000	27,000
Carbon tetrachloride	ND<0.63			5.7	45
Tetrachloroethylene	1.7			21	170
Benzene	8.9			4.3	35
n-Heptane	ND<0.41			-	-
Ethanol	ND<7.5			-	-
Toluene	4.0			-	-
Ethylbenzene	0.84			13	110
m,p-Xylene	3.4			-	-
o-Xylene	2.60			-	-
1,3,5-Trimethylbenzene	0.87			2,000	7,000.00
1,2,4-Trimethylbenzene	2.9				
Naphthalene	1.0			1.0	8.0

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Vapor Intrusion Standards (Sub-Slab Soil Gas)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

SOIL GAS QUALITY SUMMARY

SG20-02

Sample Date / *Method* / *PARAMETER*	6/18/2020 VOCs SIMS			VTDEC I-Rule Vapor Intrusion Standards Sub-Slab Soil Gas	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	ND<0.49			-	-
Chloromethane	ND<0.41			-	-
Trichlorfluoromethane (Freon 11)	ND<0.40			-	-
Acetone	12			-	-
Methylene Chloride	ND<1.0			2,000	27,000
Carbon tetrachloride	ND<1.0			5.7	45
Tetrachloroethylene	1.9			21	170
Benzene	2.1			4.3	35
n-Heptane	ND<1.0			-	-
Ethanol	220			-	-
Toluene	3.8			-	-
Ethylbenzene	0.76			13	110
m,p-Xylene	3.2			-	-
o-Xylene	1.4			-	-
1,3,5-Trimethylbenzene	0.66			2,000	7,000.00
1,2,4-Trimethylbenzene	2.4				
Naphthalene	0.89			1.0	8.0

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Vapor Intrusion Standards (Sub-Slab Soil Gas)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

AIR QUALITY SUMMARY

Ambient/Background

Sample Date / *Method* / *PARAMETER*	1/9/2020 VOCs SIMS	6/18/2020 VOCs SIMS		VTDEC I-Rule Indoor Air Standards (IAS)	
				Resident	Non-Resident
Dichlorodifluoromethane (Freon 12)	0.59	2.4		-	-
Freon 22	ND<1.8	-		-	-
Chloromethane	0.30	1.1		-	-
n-Butane	0.28	-		-	-
Trichlorfluoromethane (Freon 11)	ND<1.1	1.3		-	-
Freon TF	ND<1.5	-		-	-
Acetone	6.2	15		-	-
Isopropyl alcohol	1.4	-		-	-
Carbon Disulfide	ND<1.6	ND<1.1			
Methylene Chloride	ND<1.7	2.7		60.34	817.6
tert-Butyl alcohol	ND<15.0	-		-	-
n-Hexane	ND<0.70	ND<4.9		-	-
Methyl Ethyl Ketone	1.2	-		-	-
Chloroform	ND<0.98			0.04	0.36
Tetrahydrofuran	ND<15.0			-	-
Cyclohexane	ND<0.69			-	-
Carbon tetrachloride	ND<0.22	0.47		0.17	1.36
2,2,4-Trimethylpentane	ND<0.93			-	-
Benzene	ND<0.64	0.29		0.13	1.05
n-Heptane	ND<0.82	0.64		-	-
Ethanol	-	18		-	-
1,4-Dioxane	ND<18.0	ND<1.3			
Toulene	ND<0.75	2.9		-	-
Ethylbenzene	ND<0.87	0.43		0.40	3.27
m,p-Xylene	ND<2.2	1.6		-	-
o-Xylene	ND<0.87	0.75		-	-
Xylene (total)	ND<3.0	2.35		-	-
1,3,5-Trimethylbenzene	ND<0.98	0.17		60	210.24
1,2,4-Trimethylbenzene	ND<0.98	0.55			
4-Isopropyltoluene	ND<1.1	-		-	-
Naphthalene	ND<2.6	ND<0.18		0.262	0.262

NOTES:

All values reported in ug/m^3 unless otherwise indicated.

I-Rule = Investigation and Remediation of Contaminated Properties Rule (July 6, 2019)

VTDEC I-Rule Indoor Air Standards (IAS)

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the applicable screening value (e.g., resident) are shaded

"-" indicates not analyzed or that a screening value is not provided in the I-Rule

Appendix F

Laboratory Analytical Reports

ENDYNE Inc.
Environmental Laboratories

Laboratory Report

KAS, Inc 100306
PO Box 787
Williston, VT 05489

Atten: Sam Driver

PROJECT: 410040071 Lamb Residence
WORK ORDER: **2001-00917**
DATE RECEIVED: January 10, 2020
DATE REPORTED: January 15, 2020
SAMPLER: Jolene Turner

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

CLIENT: KAS, Inc
PROJECT: 410040071 Lamb Residence
REPORT DATE: 1/15/2020

WORK ORDER: **2001-00917**
DATE RECEIVED: 01/10/2020

TEST METHOD: EPA 8260C

001 Site: MW-1 Date Sampled: 1/9/20 11:24 Analysis Date: 1/14/20 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 2.0	ug/L	A	
Surr. 1 (Dibromofluoromethane)	107	%	A		Surr. 2 (Toluene d8)	99	%	A	
Surr. 3 (4-Bromofluorobenzene)	102	%	A		Unidentified Peaks	0		U	

CLIENT: KAS, Inc
PROJECT: 410040071 Lamb Residence
REPORT DATE: 1/15/2020

WORK ORDER: **2001-00917**
DATE RECEIVED: 01/10/2020

TEST METHOD: EPA 8260C

002 Site: MW-2 Date Sampled: 1/9/20 11:48 Analysis Date: 1/14/20 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 2.0	ug/L	A	
Surr. 1 (Dibromofluoromethane)	108	%	A		Surr. 2 (Toluene d8)	103	%	A	
Surr. 3 (4-Bromofluorobenzene)	102	%	A		Unidentified Peaks	0		U	

CLIENT: KAS, Inc
PROJECT: 410040071 Lamb Residence
REPORT DATE: 1/15/2020

WORK ORDER: **2001-00917**
DATE RECEIVED: 01/10/2020

TEST METHOD: EPA 8260C

003 Site: MW-U1 Date Sampled: 1/9/20 09:37 Analysis Date: 1/14/20 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 2.0	ug/L	A	
Surr. 1 (Dibromofluoromethane)	106	%	A		Surr. 2 (Toluene d8)	101	%	A	
Surr. 3 (4-Bromofluorobenzene)	90	%	A		Unidentified Peaks	0		U	

CLIENT: KAS, Inc
PROJECT: 410040071 Lamb Residence
REPORT DATE: 1/15/2020

WORK ORDER: **2001-00917**
DATE RECEIVED: 01/10/2020

TEST METHOD: EPA 8260C

004 Site: MW-6 Date Sampled: 1/9/20 10:53 Analysis Date: 1/14/20 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 250	ug/L	A		Chloromethane	< 150	ug/L	A	
Vinyl chloride	< 25.0	ug/L	A		Bromomethane	< 25.0	ug/L	A	
Chloroethane	< 250	ug/L	A		Trichlorofluoromethane	< 100	ug/L	A	
Diethyl ether	< 250	ug/L	N		1,1-Dichloroethene	< 35.0	ug/L	A	
Acetone	< 500	ug/L	A		Carbon disulfide	< 250	ug/L	A	
Methylene chloride	< 250	ug/L	A		t-Butanol	< 1,000	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 100	ug/L	A		trans-1,2-Dichloroethene	< 50.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 100	ug/L	N		1,1-Dichloroethane	< 50.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 100	ug/L	N		2-Butanone	< 500	ug/L	A	
2,2-Dichloropropane	< 50.0	ug/L	N		cis-1,2-Dichloroethene	< 50.0	ug/L	A	
Bromochloromethane	< 40.0	ug/L	A		Chloroform	< 50.0	ug/L	A	
Tetrahydrofuran	< 500	ug/L	N		1,1,1-Trichloroethane	< 50.0	ug/L	A	
Carbon tetrachloride	< 25.0	ug/L	A		1,1-Dichloropropene	< 50.0	ug/L	N	
Benzene	< 25.0	ug/L	A		t-Amylmethyl ether (TAME)	< 100	ug/L	N	
1,2-Dichloroethane	< 25.0	ug/L	A		Trichloroethene	< 25.0	ug/L	A	
1,2-Dichloropropane	< 25.0	ug/L	A		Dibromomethane	< 100	ug/L	A	
Bromodichloromethane	< 25.0	ug/L	A		cis-1,3-Dichloropropene	< 50.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 500	ug/L	A		Toluene	< 50.0	ug/L	A	
trans-1,3-Dichloropropene	< 50.0	ug/L	A		1,1,2-Trichloroethane	< 50.0	ug/L	A	
Tetrachloroethene	< 25.0	ug/L	A		1,3-Dichloropropane	< 50.0	ug/L	N	
2-Hexanone	< 500	ug/L	A		Dibromochloromethane	< 50.0	ug/L	A	
1,2-Dibromoethane	< 100	ug/L	A		Chlorobenzene	< 50.0	ug/L	A	
Ethylbenzene	< 50.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 100	ug/L	A	
Xylenes, Total	59.0	ug/L	A		Styrene	< 50.0	ug/L	A	
Bromoform	< 100	ug/L	A		Isopropylbenzene	< 50.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 100	ug/L	A		Bromobenzene	< 50.0	ug/L	A	
n-Propylbenzene	289	ug/L	A		1,2,3-Trichloropropane	< 100	ug/L	A	
2-Chlorotoluene	< 50.0	ug/L	A		1,3,5-Trimethylbenzene	463	ug/L	A	
4-Chlorotoluene	< 50.0	ug/L	A		t-Butylbenzene	< 50.0	ug/L	A	
1,2,4-Trimethylbenzene	1,210	ug/L	A		s-Butylbenzene	< 50.0	ug/L	A	
4-Isopropyltoluene	< 50.0	ug/L	A		1,3-Dichlorobenzene	< 50.0	ug/L	A	
1,4-Dichlorobenzene	< 50.0	ug/L	A		1,2,3-Trimethylbenzene	142	ug/L	U	
n-Butylbenzene	< 50.0	ug/L	A		1,2-Dichlorobenzene	< 50.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 100	ug/L	A		1,2,4-Trichlorobenzene	< 100	ug/L	A	
1,3,5-Trichlorobenzene	< 100	ug/L	N		Hexachlorobutadiene	< 25.0	ug/L	A	
Naphthalene	< 25.0	ug/L	A		1,2,3-Trichlorobenzene	< 100	ug/L	A	
Surr. 1 (Dibromofluoromethane)	104	%	A		Surr. 2 (Toluene d8)	103	%	A	
Surr. 3 (4-Bromofluorobenzene)	104	%	A		Unidentified Peaks	>10		U	

CLIENT: KAS, Inc
PROJECT: 410040071 Lamb Residence
REPORT DATE: 1/15/2020

WORK ORDER: **2001-00917**
DATE RECEIVED: 01/10/2020

TEST METHOD: EPA 8260C

005 Site: Duplicate Date Sampled: 1/9/20 09:37 Analysis Date: 1/14/20 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 2.0	ug/L	A	
Surr. 1 (Dibromofluoromethane)	105	%	A		Surr. 2 (Toluene d8)	100	%	A	
Surr. 3 (4-Bromofluorobenzene)	100	%	A		Unidentified Peaks	0		U	

CLIENT: KAS, Inc
PROJECT: 410040071 Lamb Residence
REPORT DATE: 1/15/2020

WORK ORDER: **2001-00917**
DATE RECEIVED: 01/10/2020

TEST METHOD: EPA 8260C

006 Site: Trip Blank Date Sampled: 1/9/20 07:00 Analysis Date: 1/14/20 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 2.0	ug/L	A	
Surr. 1 (Dibromofluoromethane)	103	%	A		Surr. 2 (Toluene d8)	100	%	A	
Surr. 3 (4-Bromofluorobenzene)	102	%	A		Unidentified Peaks	0		U	

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

Special Reporting Instructions/PO#: 410040071

Project Name: Lamb Residence E. Montpelier, VT	Client/Contact Name: Sam Driver	Sampler Name: Jolene Turner
State of Origin: VT X NY __ NH __ Other __	Phone #: KAS, Inc.	Phone #: KAS, Inc.
Endyne WO #	Mailing Address: KAS, Inc.	Billing Address: KAS, Inc.

Sample Location	Matrix	GRAB	COMP	Date/Time Sampled	Sample Containers No.	Sample Containers Type/Size	Sample Preservation	Analysis Required	Field Results/Remarks	Due Date
MW-1	H20	X		1/9/20 1124	2	40mL	HCL	8260B		
MW-2	↓	↓		1148	↓	↓	↓	↓		
MW-U1				937						
MW-6				1053						
Duplicate				937						
Trip Blank	↓	↓		700	↓	↓	↓	↓		

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
[signature]	1/9/20 1351	Kelly Carpenter	1/10/19 1255pm	Etoomey	1/10/20 @ 12:55

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH Only
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	8081 Pest
3	Ammonia N	8						23	8015 DRO	28	8082 PCB
4	Nitrite N	9						24	8260B	29	PP13 Metals
5	Nitrate N	10					ocarbons	25	8270 B/N or Acid	30	Total RCRA8
31	Metals (Total, Diss.) Ag						n, Mo, Na, Ni, Pb, Sb, Se, Sn, Tl, U, V, Zn				
32	TCLP (volatiles, semi-v										
34	Corrosivity	35									
38	Other										

2001-00917
2001-00917
KAS, Inc
410040071 Lamb Residence

LAB USE ONLY
Delivery: Client
Temp: -2.4
Comment:

(White - Laboratory / Yellow - Client)

RPI Groundwater Laboratory Analytical Results

C.P. Dudley Store

VTDEC #87-0011

Sample ID. No.	MW-1				MW-6			
Date Sampled	5/19/2020				5/19/2020			
Sample Depth	n/a	ft			n/a	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/L		ND	0.5	ug/L	
MTBE	ND	0.5	ug/L		ND	0.5	ug/L	
1,2-Dichloroethane	ND	0.5	ug/L		ND	0.5	ug/L	
Benzene	ND	0.5	ug/L		ND	0.5	ug/L	
Toluene	0.56	0.5	ug/L		0.92	0.5	ug/L	
Ethylbenzene	ND	0.5	ug/L		7.99	0.5	ug/L	
m/p-Xylene	1.16	0.5	ug/L		30.4	0.5	ug/L	
o-Xylene	ND	0.5	ug/L		5.07	0.5	ug/L	
1,2,4-Trimethylbenzene	0.89	0.5	ug/L		282	0.5	ug/L	
Naphthalene	2.37	0.5	ug/L		5.13	0.5	ug/L	
TVPH	ND	0.5	mg/L		5.05	0.5	mg/L	
% Surrogate Recovery								
1,2-Dichloroethane-d4	96				91			
d8-Toluene	98				102			
p-Bromofluorobenzene	97				102			
Lactate	ND	0.2	mg/L		ND	0.2	mg/L	
Acetate	ND	0.2	mg/L		ND	0.2	mg/L	
Propionate	ND	0.2	mg/L		ND	0.2	mg/L	
Formate/Isobutyrate	0.55	0.4	mg/L		ND	0.4	mg/L	
Butyrate	ND	0.2	mg/L		ND	0.2	mg/L	
Pyruvate	ND	0.2	mg/L		ND	0.2	mg/L	
Chloride	189	2	mg/L		352	4	mg/L	
Nitrite	ND	0.2	mg/L		ND	0.2	mg/L	
Succinate	ND	1	mg/L		ND	1	mg/L	
Nitrate	1.30	0.2	mg/L		1.38	0.2	mg/L	
Sulfate	30.1	0.2	mg/L		16.5	0.2	mg/L	
Phosphate	ND	0.2	mg/L		ND	0.2	mg/L	
Sulfide	ND	0.2	mg/L		ND	0.2	mg/L	
Methane	ND	20	ug/L		25.1	20	ug/L	
Ethane	ND	2	ug/L		ND	2	ug/L	
Ethylene	ND	2	ug/L		ND	2	ug/L	
Propane	ND	2	ug/L		ND	2	ug/L	
Propylene	ND	2	ug/L		ND	2	ug/L	
Isobutane	ND	2	ug/L		ND	2	ug/L	
n-Butane	ND	2	ug/L		ND	2	ug/L	
Acetylene	ND	2	ug/L		ND	2	ug/L	
t-2-Butene	ND	2	ug/L		ND	2	ug/L	
1-Butene	ND	2	ug/L		ND	2	ug/L	
Isobutylene	ND	2	ug/L		ND	2	ug/L	
cis-2-Butene	ND	2	ug/L		ND	2	ug/L	
1,3-Butadiene	ND	2	ug/L		ND	2	ug/L	
Methyl Acetylene	ND	2	ug/L		ND	2	ug/L	
Carbon Dioxide	38.8	2	mg/L		54.6	2	ug/L	

ENDYNE Inc.
Environmental Laboratories

Laboratory Report

KAS, Inc 100306
PO Box 787
Williston, VT 05489

Atten: Sam Driver

PROJECT: 402190703 Dudley Store
WORK ORDER: **1904-08437**
DATE RECEIVED: April 17, 2019
DATE REPORTED: April 26, 2019
SAMPLER: Sam Driver

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

CLIENT: KAS, Inc
PROJECT: 402190703 Dudley Store
REPORT DATE: 4/26/2019

WORK ORDER: **1904-08437**
DATE RECEIVED: 04/17/2019

TEST METHOD: EPA 8260C

001 Site: SB19-02 Date Sampled: 4/11/19 09:23 Analysis Date: 4/24/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 258	ug/Kg, Dry	A	
Benzene	< 129	ug/Kg, Dry	A		Toluene	572	ug/Kg, Dry	A	
Ethylbenzene	151	ug/Kg, Dry	A		Xylenes, Total	750	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	< 258	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	< 258	ug/Kg, Dry	A	
Naphthalene	< 258	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	98	%	U	
Surr. 2 (Toluene d8)	100	%	U		Surr. 3 (4-Bromofluorobenzene)	101	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

002 Site: SB19-03 Date Sampled: 4/11/19 09:54 Analysis Date: 4/24/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 242	ug/Kg, Dry	A	
Benzene	< 121	ug/Kg, Dry	A		Toluene	771	ug/Kg, Dry	A	
Ethylbenzene	243	ug/Kg, Dry	A		Xylenes, Total	1,410	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	< 242	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	896	ug/Kg, Dry	A	
Naphthalene	< 242	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	96	%	U	
Surr. 2 (Toluene d8)	97	%	U		Surr. 3 (4-Bromofluorobenzene)	102	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

003 Site: SB19-04 Date Sampled: 4/11/19 10:16 Analysis Date: 4/24/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 450	ug/Kg, Dry	A	
Benzene	< 225	ug/Kg, Dry	A		Toluene	5,010	ug/Kg, Dry	A	
Ethylbenzene	31,000	ug/Kg, Dry	A		Xylenes, Total	143,000	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	22,000	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	207,000	ug/Kg, Dry	A	
Naphthalene	14,700	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	94	%	U	
Surr. 2 (Toluene d8)	91	%	U		Surr. 3 (4-Bromofluorobenzene)	117	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

004 Site: SB19-05 Date Sampled: 4/11/19 11:01 Analysis Date: 4/24/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 468	ug/Kg, Dry	A	
Benzene	< 234	ug/Kg, Dry	A		Toluene	4,690	ug/Kg, Dry	A	
Ethylbenzene	20,100	ug/Kg, Dry	A		Xylenes, Total	46,900	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	147,000	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	457,000	ug/Kg, Dry	A	
Naphthalene	10,300	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	91	%	U	
Surr. 2 (Toluene d8)	94	%	U		Surr. 3 (4-Bromofluorobenzene)	108	%	U	
Unidentified Peaks	> 10		U						

CLIENT: KAS, Inc
PROJECT: 402190703 Dudley Store
REPORT DATE: 4/26/2019

WORK ORDER: **1904-08437**
DATE RECEIVED: 04/17/2019

TEST METHOD: EPA 8260C

005 Site: SB19-07 Date Sampled: 4/11/19 13:00 Analysis Date: 4/24/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 206	ug/Kg, Dry	A	
Benzene	< 103	ug/Kg, Dry	A		Toluene	1,780	ug/Kg, Dry	A	
Ethylbenzene	1,130	ug/Kg, Dry	A		Xylenes, Total	5,760	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	872	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	3,560	ug/Kg, Dry	A	
Naphthalene	479	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	93	%	U	
Surr. 2 (Toluene d8)	94	%	U		Surr. 3 (4-Bromofluorobenzene)	98	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

006 Site: SB19-08 Date Sampled: 4/11/19 13:35 Analysis Date: 4/24/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 204	ug/Kg, Dry	A	
Benzene	< 102	ug/Kg, Dry	A		Toluene	401	ug/Kg, Dry	A	
Ethylbenzene	331	ug/Kg, Dry	A		Xylenes, Total	1,480	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	820	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	2,670	ug/Kg, Dry	A	
Naphthalene	< 204	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	95	%	U	
Surr. 2 (Toluene d8)	98	%	U		Surr. 3 (4-Bromofluorobenzene)	102	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

007 Site: SB19-09 Date Sampled: 4/11/19 14:10 Analysis Date: 4/24/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 848	ug/Kg, Dry	A	
Benzene	3,010	ug/Kg, Dry	A		Toluene	132,000	ug/Kg, Dry	A	
Ethylbenzene	124,000	ug/Kg, Dry	A		Xylenes, Total	595,000	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	86,000	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	291,000	ug/Kg, Dry	A	
Naphthalene	41,500	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	93	%	U	
Surr. 2 (Toluene d8)	97	%	U		Surr. 3 (4-Bromofluorobenzene)	107	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

008 Site: SB19-11 Date Sampled: 4/12/19 08:55 Analysis Date: 4/25/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 220	ug/Kg, Dry	A	
Benzene	< 110	ug/Kg, Dry	A		Toluene	599	ug/Kg, Dry	A	
Ethylbenzene	190	ug/Kg, Dry	A		Xylenes, Total	1,170	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	< 220	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	< 220	ug/Kg, Dry	A	
Naphthalene	< 220	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	97	%	U	
Surr. 2 (Toluene d8)	95	%	U		Surr. 3 (4-Bromofluorobenzene)	102	%	U	
Unidentified Peaks	> 10		U						

CLIENT: KAS, Inc
PROJECT: 402190703 Dudley Store
REPORT DATE: 4/26/2019

WORK ORDER: **1904-08437**
DATE RECEIVED: 04/17/2019

TEST METHOD: EPA 8260C

009 Site: SB19-12 Date Sampled: 4/12/19 09:16 Analysis Date: 4/25/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 204	ug/Kg, Dry	A	
Benzene	< 102	ug/Kg, Dry	A		Toluene	691	ug/Kg, Dry	A	
Ethylbenzene	409	ug/Kg, Dry	A		Xylenes, Total	2,580	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	285	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	852	ug/Kg, Dry	A	
Naphthalene	< 204	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	97	%	U	
Surr. 2 (Toluene d8)	96	%	U		Surr. 3 (4-Bromofluorobenzene)	101	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

010 Site: SB19-14 Date Sampled: 4/12/19 10:29 Analysis Date: 4/25/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 198	ug/Kg, Dry	A	
Benzene	< 99.0	ug/Kg, Dry	A		Toluene	782	ug/Kg, Dry	A	
Ethylbenzene	383	ug/Kg, Dry	A		Xylenes, Total	2,230	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	286	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	499	ug/Kg, Dry	A	
Naphthalene	< 198	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	97	%	U	
Surr. 2 (Toluene d8)	98	%	U		Surr. 3 (4-Bromofluorobenzene)	102	%	U	
Unidentified Peaks	> 10		U						

TEST METHOD: EPA 8260C

011 Site: SB19-15 Date Sampled: 4/12/19 11:01 Analysis Date: 4/25/19 W EEP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Prep EPA 5035A	Complete		A		Methyl-t-butyl ether (MTBE)	< 874	ug/Kg, Dry	A	
Benzene	< 437	ug/Kg, Dry	A		Toluene	7,500	ug/Kg, Dry	A	
Ethylbenzene	11,100	ug/Kg, Dry	A		Xylenes, Total	83,900	ug/Kg, Dry	A	
1,3,5-Trimethylbenzene	29,800	ug/Kg, Dry	A		1,2,4-Trimethylbenzene	110,000	ug/Kg, Dry	A	
Naphthalene	26,800	ug/Kg, Dry	A		Surr. 1 (Dibromofluoromethane)	97	%	U	
Surr. 2 (Toluene d8)	93	%	U		Surr. 3 (4-Bromofluorobenzene)	103	%	U	
Unidentified Peaks	> 10		U						

Report Summary of Qualifiers and Notes

VOC results below 200 ug/Kg may be biased low due to sample preparation by 5035A High method.

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

80077

Special Reporting Instructions/PO#: KAS # 402190703

Project Name: Dudley Store	Client/Contact Name: KAS, Inc.	Sampler Name: Sam Driver
State of Origin: (VT) NY NH Other	Phone #: 802-383-0486	Phone #: 802-383-0486
Endyne WO #	Mailing Address:	Billing Address:

Sample Location	Matrix	GRAB	COMP	Date/Time Sampled	Sample Containers No.	Sample Containers Type/Size	Sample Preservation	Analysis Required	FieldResults/Remarks	Due Date
SB19-02	So:1	X		4/11/19 923	2	40mL	MeOH/Wash	19		
SB19-03				4/11/19 954						
SB19-04				1016						
SB19-05				1101						
SB19-07				1:00						
SB19-08				1:35						
SB19-09				2:10						
SB19-11				4/12/19 855						
SB19-12				916						
SB19-14				1029						

1904-08437
1904-08437
KAS, Inc
402198703 Dudley Store

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
SD	4/16/19 12:09	Kelly Carpenter	4/17/19 10:20 am	Attorney	4/17/19 @ 11:35

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH Only
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	8081 Pest
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	8082 PCB
4	Nitrite N	9	BOD	14	Turbidity	(19)	VT PCF	24	8260B	29	PP13 Metals
5	Nitrate N	10	Alkalinity	15	Conductivity	20	VOC Halocarbons	25	8270 B/N or Acid	30	Total RCRA8
31	Metals (Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Tl, U, V, Zn										
32	TCLP (volatiles, semi-volatiles, metals, pesticides, herbicides)					33	Other				
34	Corrosivity	35	Ignitability	36	Reactivity	37	Other				
38	Other										

LAB USE ONLY
Delivery: Client
Temp: 3.4
Comment:

(White - Laboratory / Yellow - Client)

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

80465

Special Reporting Instructions/PO#: KAS # 402190703

Project Name: Dudley Store	Client/Contact Name: KAS, Inc.	Sampler Name: Sam Driver
State of Origin: (VT) NY NH Other	Phone #: 802-383-0486	Phone #: 802-383-0486
Endyne WO #	Mailing Address:	Billing Address:

Sample Location	Matrix	GRAB	COMP	Date/Time Sampled	Sample Containers No.	Sample Containers Type/Size	Sample Preservation	Analysis Required	FieldResults/Remarks	Due Date
SB19-15	Soil	X		4/12/19 1102	2	40m2	MeOH/None	19		

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
SD	4/16/19 12:45	Molly Cunpagna	4/17/19 10:20am	Etoomey	4/17/19 @ 11:35

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH Only
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	8081 Pest
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	8082 PCB
4	Nitrite N	9	BOD	14	Turbidity	(19)	VT PCF	24	8260B	29	PP13 Metals
5	Nitrate N	10	Alkalinity	15	Conductivity	20	VOC Halocarbons	25	8270 B/N or Acid	30	Total RCRA8
31	Metals (Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Tl, U, V, Zn										
32	TCLP (volatiles, semi-volatiles, metals, pesticides, herbicides)					33	Other				
34	Corrosivity	35	Ignitability	36	Reactivity	37	Other				
38	Other										

LAB USE ONLY
Delivery: Client
Temp: 3.4
Comment:

(White - Laboratory / Yellow - Client)

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-01				SB20-01				SB20-01				SB20-01			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft Reporting Limit	Units	Flags	04'	ft Reporting Limit	Units	Flags	06'	ft Reporting Limit	Units	Flags	08'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg	
Benzene	ND	0.5	ug/Kg		656	50	ug/Kg		1020	50	ug/Kg		60.1	50	ug/Kg	
Toluene	ND	0.5	ug/Kg		133000	250	ug/Kg		176000	500	ug/Kg		4530	50	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		87400	250	ug/Kg		132000	500	ug/Kg		3190	50	ug/Kg	
m/p-Xylene	0.60	0.5	ug/Kg		359000	250	ug/Kg		636000	500	ug/Kg	E	16000	50	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		156000	250	ug/Kg		282000	500	ug/Kg		6700	50	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		199000	250	ug/Kg		350000	500	ug/Kg		9830	50	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		26500	50	ug/Kg		47600	50	ug/Kg		1360	50	ug/Kg	
TVPH	ND	0.5	mg/Kg		4050	50	mg/Kg		6920	500	mg/Kg		176	50	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	76				79				79				80			
d8-Toluene	79				107				100				98			
p-Bromofluorobenzene	83				113				97				95			

Sample ID. No.	SB20-01				SB20-01				SB20-01				SB20-01			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft Reporting Limit	Units	Flags	12'	ft Reporting Limit	Units	Flags	14'	ft Reporting Limit	Units	Flags	16'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	1.37	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	17.9	0.5	ug/Kg		2.50	0.5	ug/Kg		4.87	0.5	ug/Kg		4.40	0.5	ug/Kg	
Ethylbenzene	29.1	0.5	ug/Kg		0.69	0.5	ug/Kg		1.75	0.5	ug/Kg		0.88	0.5	ug/Kg	
m/p-Xylene	137	0.5	ug/Kg		7.80	0.5	ug/Kg		10.9	0.5	ug/Kg		7.03	0.5	ug/Kg	
o-Xylene	19.5	0.5	ug/Kg		3.67	0.5	ug/Kg		4.83	0.5	ug/Kg		3.90	0.5	ug/Kg	
1,2,4-Trimethylbenzene	52.3	0.5	ug/Kg		4.67	0.5	ug/Kg		9.18	0.5	ug/Kg		6.47	0.5	ug/Kg	
Naphthalene	3.35	0.5	ug/Kg		0.65	0.5	ug/Kg		0.67	0.5	ug/Kg		0.87	0.5	ug/Kg	
TVPH	1.47	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	93				83				79				79			
d8-Toluene	100				97				99				98			
p-Bromofluorobenzene	91				87				89				88			

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-02				SB20-02				SB20-02				SB20-02			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft Reporting Limit	Units	Flags	04'	ft Reporting Limit	Units	Flags	06'	ft Reporting Limit	Units	Flags	08'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		1.06	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.65	0.5	ug/Kg	
m/p-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		2.27	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.73	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		2.16	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				74				75				75			
d8-Toluene	92				96				98				98			
p-Bromofluorobenzene	82				83				86				88			

Sample ID. No.	SB20-02				SB20-02				SB20-02				SB20-02			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft Reporting Limit	Units	Flags	12'	ft Reporting Limit	Units	Flags	14'	ft Reporting Limit	Units	Flags	16'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	0.89	0.5	ug/Kg		1.04	0.5	ug/Kg		0.68	0.5	ug/Kg		3.10	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		1.10	0.5	ug/Kg	
m/p-Xylene	1.73	0.5	ug/Kg		1.66	0.5	ug/Kg		1.54	0.5	ug/Kg		4.74	0.5	ug/Kg	
o-Xylene	0.59	0.5	ug/Kg		0.63	0.5	ug/Kg		0.56	0.5	ug/Kg		1.87	0.5	ug/Kg	
1,2,4-Trimethylbenzene	1.86	0.5	ug/Kg		1.65	0.5	ug/Kg		1.40	0.5	ug/Kg		5.03	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.54	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				75				75				73			
d8-Toluene	96				97				97				98			
p-Bromofluorobenzene	86				87				88				87			

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-03				SB20-03				SB20-03				SB20-03			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		0.54	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	ND	0.5	ug/Kg		1.33	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		0.77	0.5	ug/Kg		0.71	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		1.80	0.5	ug/Kg		0.92	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	78				75				76				72			
d8-Toluene	86				95				96				95			
p-Bromofluorobenzene	66				81				81				83			

Sample ID. No.	SB20-03				SB20-03				SB20-03				SB20-03			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft			12'	ft			14'	ft			16'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	0.51	0.5	ug/Kg		1.10	0.5	ug/Kg		0.88	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	0.63	0.5	ug/Kg		1.45	0.5	ug/Kg		0.90	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	0.97	0.5	ug/Kg		0.83	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	0.64	0.5	ug/Kg		2.22	0.5	ug/Kg		1.09	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	1.21	0.5	ug/Kg		0.55	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	66.3	10	mg/Kg		9.56	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				76				78				75			
d8-Toluene	106				102				96				98			
p-Bromofluorobenzene	132				109				86				91			

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-04				SB20-04				SB20-04				SB20-04			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft Reporting Limit	Units	Flags	04'	ft Reporting Limit	Units	Flags	06'	ft Reporting Limit	Units	Flags	08'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		4.42	0.5	ug/Kg		0.94	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		4.63	0.5	ug/Kg		0.60	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	0.90	0.5	ug/Kg		18.4	0.5	ug/Kg		1.57	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		9.39	0.5	ug/Kg		0.82	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	1.14	0.5	ug/Kg		8.36	0.5	ug/Kg		1.02	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				79				75				73			
d8-Toluene	96				91				92				92			
p-Bromofluorobenzene	85				85				81				82			

Sample ID. No.	SB20-04				SB20-04				SB20-04				SB20-04			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft Reporting Limit	Units	Flags	12'	ft Reporting Limit	Units	Flags	14'	ft Reporting Limit	Units	Flags	16'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	36.8	10	ug/Kg		ND	0.5	ug/Kg		0.89	0.5	ug/Kg		0.54	0.5	ug/Kg	
Ethylbenzene	42.3	10	ug/Kg		ND	0.5	ug/Kg		0.67	0.5	ug/Kg		2.03	0.5	ug/Kg	
m/p-Xylene	136	10	ug/Kg		ND	0.5	ug/Kg		2.90	0.5	ug/Kg		2.73	0.5	ug/Kg	
o-Xylene	81.8	10	ug/Kg		ND	0.5	ug/Kg		0.78	0.5	ug/Kg		1.96	0.5	ug/Kg	
1,2,4-Trimethylbenzene	480	10	ug/Kg		1.07	0.5	ug/Kg		2.55	0.5	ug/Kg		1.85	0.5	ug/Kg	
Naphthalene	30.4	10	ug/Kg		0.69	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	768	50	mg/Kg		13.6	0.5	mg/Kg	E	ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	77				79				76				71			
d8-Toluene	108				104				95				95			
p-Bromofluorobenzene	123				116				86				86			

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-05				SB20-05				SB20-05				SB20-05			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	1.34	0.5	ug/Kg		0.51	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	0.88	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	3.48	0.5	ug/Kg		1.50	0.5	ug/Kg		0.78	0.5	ug/Kg		0.84	0.5	ug/Kg	
o-Xylene	1.41	0.5	ug/Kg		0.66	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	2.52	0.5	ug/Kg		1.14	0.5	ug/Kg		ND	0.5	ug/Kg		0.67	0.5	ug/Kg	
Naphthalene	0.92	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.65	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		7.45	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	75				75				75				77			
d8-Toluene	92				92				95				95			
p-Bromofluorobenzene	84				81				86				93			

Sample ID. No.	SB20-05				SB20-05				SB20-05				SB20-05			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	10'	ft			12'	ft			14'	ft			15'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	25	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	25	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	25	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	24.6	25	ug/Kg		ND	0.5	ug/Kg		0.69	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	93.9	25	ug/Kg		ND	0.5	ug/Kg		0.85	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	27.1	25	ug/Kg		ND	0.5	ug/Kg		5.59	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	211	25	ug/Kg		ND	0.5	ug/Kg		2.05	0.5	ug/Kg		0.64	0.5	ug/Kg	
o-Xylene	64.1	25	ug/Kg		ND	0.5	ug/Kg		1.52	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	21500	25	ug/Kg		ND	0.5	ug/Kg		25.9	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	710	25	ug/Kg		ND	0.5	ug/Kg		1.26	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	974	25	mg/Kg		2.18	0.5	mg/Kg		3.16	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	95				78				77				76			
d8-Toluene	122				97				99				95			
p-Bromofluorobenzene	118				94				99				88			

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-06				SB20-06				SB20-06				SB20-06			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	0.65	0.5	ug/Kg		0.56	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	73				79				80				75			
d8-Toluene	93				88				92				92			
p-Bromofluorobenzene	84				77				76				84			

Sample ID. No.	SB20-06				SB20-06			
Date Sampled	5/20/2020				5/20/2020			
Sample Depth	12'	ft			15'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	25	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	25	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	25	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	25	ug/Kg		ND	0.5	ug/Kg	
Toluene	80.5	25	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	186	25	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	6300	25	ug/Kg		0.65	0.5	ug/Kg	
o-Xylene	1750	25	ug/Kg		1.58	0.5	ug/Kg	
1,2,4-Trimethylbenzene	22000	25	ug/Kg		9.02	0.5	ug/Kg	
Naphthalene	1160	25	ug/Kg		1.94	0.5	ug/Kg	
TVPH	814	25	mg/Kg		64.9	10	mg/Kg	
% Surrogate Recovery								
1,2-Dichloroethane-d4	113				78			
d8-Toluene	135				112			
p-Bromofluorobenzene	142				155			

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-07				SB20-07				SB20-07				SB20-07			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	ND	0.5	ug/Kg		0.64	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		3.26	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	75				77				77				77			
d8-Toluene	91				94				88				92			
p-Bromofluorobenzene	81				81				74				83			

Sample ID. No.	SB20-07				SB20-07			
Date Sampled	5/20/2020				5/20/2020			
Sample Depth	10'	ft			12	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	0.83	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	1.39	0.5	ug/Kg		0.61	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	1.20	0.5	ug/Kg		0.60	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	11.9	0.5	mg/Kg		1.55	0.5	mg/Kg	
% Surrogate Recovery								
1,2-Dichloroethane-d4	102				75			
d8-Toluene	98				96			
p-Bromofluorobenzene	150				92			

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ANALYTICAL REPORT

Eurofins TestAmerica, Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

Laboratory Job ID: 200-52174-1
Laboratory Sample Delivery Group: 200-52174
Client Project/Site: Lamb Residence

For:
KAS, Inc.
PO BOX 787
589 Avenue 10, Suite 10
Williston, Vermont 05495

Attn: Mr. Sam Driver

Kathryn Kelly

Authorized for release by:
1/21/2020 10:17:40 AM

Kathryn Kelly, Project Manager II
(802)923-1021
kathryn.kelly@testamericainc.com

Table of Contents

Definitions/Glossary

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
^	Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 200-52174-1

Laboratory: Eurofins TestAmerica, Burlington

Narrative

CASE NARRATIVE

Client: KAS, Inc.

Project: Lamb Residence

Report Number: 200-52174-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 01/10/2020; the samples arrived in good condition.

VOLATILE ORGANIC COMPOUNDS
Samples BASEMENT, 1ST FLOOR and OUTSIDE were analyzed for Volatile Organic Compounds in accordance with EPA Method TO-15. The samples were analyzed on 01/18/2020.

Several analytes were detected in method blank MB 200-151551/4 at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The initial calibration verification (ICV) result for batch 200-151551 was above the upper control limit. Sample results were non-detects, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Client Sample ID: BASEMENT

Lab Sample ID: 200-52174-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	0.57		0.50	0.11	ppb v/v	1		TO-15	Total/NA
Freon 22	0.33	J	0.50	0.12	ppb v/v	1		TO-15	Total/NA
Chloromethane	0.94		0.50	0.11	ppb v/v	1		TO-15	Total/NA
n-Butane	3.2		0.50	0.11	ppb v/v	1		TO-15	Total/NA
Trichlorofluoromethane	0.23		0.20	0.060	ppb v/v	1		TO-15	Total/NA
Freon TF	0.076	J	0.20	0.038	ppb v/v	1		TO-15	Total/NA
Acetone	17		5.0	1.2	ppb v/v	1		TO-15	Total/NA
Isopropyl alcohol	1.9	J	5.0	0.48	ppb v/v	1		TO-15	Total/NA
Methylene Chloride	2.1		0.50	0.27	ppb v/v	1		TO-15	Total/NA
tert-Butyl alcohol	0.13	J	5.0	0.038	ppb v/v	1		TO-15	Total/NA
n-Hexane	0.30		0.20	0.20	ppb v/v	1		TO-15	Total/NA
Methyl Ethyl Ketone	0.88		0.50	0.072	ppb v/v	1		TO-15	Total/NA
Chloroform	0.053	J	0.20	0.032	ppb v/v	1		TO-15	Total/NA
Tetrahydrofuran	0.16	J	5.0	0.066	ppb v/v	1		TO-15	Total/NA
Cyclohexane	0.13	J	0.20	0.046	ppb v/v	1		TO-15	Total/NA
Carbon tetrachloride	0.060		0.035	0.024	ppb v/v	1		TO-15	Total/NA
2,2,4-Trimethylpentane	0.17	J	0.20	0.041	ppb v/v	1		TO-15	Total/NA
Benzene	0.28		0.20	0.067	ppb v/v	1		TO-15	Total/NA
n-Heptane	0.74		0.20	0.056	ppb v/v	1		TO-15	Total/NA
1,4-Dioxane	0.12	J	5.0	0.084	ppb v/v	1		TO-15	Total/NA
Toluene	1.5		0.20	0.11	ppb v/v	1		TO-15	Total/NA
Ethylbenzene	0.11	J	0.20	0.063	ppb v/v	1		TO-15	Total/NA
m,p-Xylene	0.38	J	0.50	0.10	ppb v/v	1		TO-15	Total/NA
Xylene, o-	0.16	J	0.20	0.048	ppb v/v	1		TO-15	Total/NA
Xylene (total)	0.54	J	0.70	0.048	ppb v/v	1		TO-15	Total/NA
1,3,5-Trimethylbenzene	0.054	J	0.20	0.039	ppb v/v	1		TO-15	Total/NA
1,2,4-Trimethylbenzene	0.15	J	0.20	0.044	ppb v/v	1		TO-15	Total/NA
4-Isopropyltoluene	0.054	J	0.20	0.039	ppb v/v	1		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	2.8		2.5	0.54	ug/m3	1		TO-15	Total/NA
Freon 22	1.2	J	1.8	0.42	ug/m3	1		TO-15	Total/NA
Chloromethane	2.0		1.0	0.23	ug/m3	1		TO-15	Total/NA
n-Butane	7.5		1.2	0.26	ug/m3	1		TO-15	Total/NA
Trichlorofluoromethane	1.3		1.1	0.34	ug/m3	1		TO-15	Total/NA
Freon TF	0.58	J	1.5	0.29	ug/m3	1		TO-15	Total/NA
Acetone	42		12	2.9	ug/m3	1		TO-15	Total/NA
Isopropyl alcohol	4.5	J	12	1.2	ug/m3	1		TO-15	Total/NA
Methylene Chloride	7.3		1.7	0.94	ug/m3	1		TO-15	Total/NA
tert-Butyl alcohol	0.40	J	15	0.12	ug/m3	1		TO-15	Total/NA
n-Hexane	1.0		0.70	0.70	ug/m3	1		TO-15	Total/NA
Methyl Ethyl Ketone	2.6		1.5	0.21	ug/m3	1		TO-15	Total/NA
Chloroform	0.26	J	0.98	0.16	ug/m3	1		TO-15	Total/NA
Tetrahydrofuran	0.48	J	15	0.19	ug/m3	1		TO-15	Total/NA
Cyclohexane	0.44	J	0.69	0.16	ug/m3	1		TO-15	Total/NA
Carbon tetrachloride	0.38		0.22	0.15	ug/m3	1		TO-15	Total/NA
2,2,4-Trimethylpentane	0.80	J	0.93	0.19	ug/m3	1		TO-15	Total/NA
Benzene	0.89		0.64	0.21	ug/m3	1		TO-15	Total/NA
n-Heptane	3.1		0.82	0.23	ug/m3	1		TO-15	Total/NA
1,4-Dioxane	0.42	J	18	0.30	ug/m3	1		TO-15	Total/NA
Toluene	5.5		0.75	0.41	ug/m3	1		TO-15	Total/NA
Ethylbenzene	0.49	J	0.87	0.27	ug/m3	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: BASEMENT (Continued) — Lab Sample ID: 200-52174-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
m,p-Xylene	1.6	J	2.2	0.43	ug/m3	1		TO-15	Total/NA
Xylene, o-	0.69	J	0.87	0.21	ug/m3	1		TO-15	Total/NA
Xylene (total)	2.3	J	3.0	0.21	ug/m3	1		TO-15	Total/NA
1,3,5-Trimethylbenzene	0.27	J	0.98	0.19	ug/m3	1		TO-15	Total/NA
1,2,4-Trimethylbenzene	0.74	J	0.98	0.22	ug/m3	1		TO-15	Total/NA
4-Isopropyltoluene	0.30	J	1.1	0.21	ug/m3	1		TO-15	Total/NA

Client Sample ID: 1ST FLOOR — Lab Sample ID: 200-52174-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	0.60		0.50	0.11	ppb v/v	1		TO-15	Total/NA
Freon 22	0.37	J	0.50	0.12	ppb v/v	1		TO-15	Total/NA
Chloromethane	0.78		0.50	0.11	ppb v/v	1		TO-15	Total/NA
n-Butane	1.7		0.50	0.11	ppb v/v	1		TO-15	Total/NA
Trichlorofluoromethane	0.26		0.20	0.060	ppb v/v	1		TO-15	Total/NA
Freon TF	0.084	J	0.20	0.038	ppb v/v	1		TO-15	Total/NA
Acetone	10		5.0	1.2	ppb v/v	1		TO-15	Total/NA
Isopropyl alcohol	1.5	J	5.0	0.48	ppb v/v	1		TO-15	Total/NA
Carbon disulfide	0.34	J	0.50	0.074	ppb v/v	1		TO-15	Total/NA
Methylene Chloride	0.93		0.50	0.27	ppb v/v	1		TO-15	Total/NA
tert-Butyl alcohol	0.17	J	5.0	0.038	ppb v/v	1		TO-15	Total/NA
Methyl Ethyl Ketone	1.4		0.50	0.072	ppb v/v	1		TO-15	Total/NA
Chloroform	0.083	J	0.20	0.032	ppb v/v	1		TO-15	Total/NA
Cyclohexane	0.059	J	0.20	0.046	ppb v/v	1		TO-15	Total/NA
Carbon tetrachloride	0.090		0.035	0.024	ppb v/v	1		TO-15	Total/NA
2,2,4-Trimethylpentane	0.067	J	0.20	0.041	ppb v/v	1		TO-15	Total/NA
Benzene	0.23		0.20	0.067	ppb v/v	1		TO-15	Total/NA
n-Heptane	0.33		0.20	0.056	ppb v/v	1		TO-15	Total/NA
Toluene	0.40		0.20	0.11	ppb v/v	1		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	3.0		2.5	0.54	ug/m3	1		TO-15	Total/NA
Freon 22	1.3	J	1.8	0.42	ug/m3	1		TO-15	Total/NA
Chloromethane	1.6		1.0	0.23	ug/m3	1		TO-15	Total/NA
n-Butane	4.0		1.2	0.26	ug/m3	1		TO-15	Total/NA
Trichlorofluoromethane	1.5		1.1	0.34	ug/m3	1		TO-15	Total/NA
Freon TF	0.64	J	1.5	0.29	ug/m3	1		TO-15	Total/NA
Acetone	25		12	2.9	ug/m3	1		TO-15	Total/NA
Isopropyl alcohol	3.7	J	12	1.2	ug/m3	1		TO-15	Total/NA
Carbon disulfide	1.1	J	1.6	0.23	ug/m3	1		TO-15	Total/NA
Methylene Chloride	3.2		1.7	0.94	ug/m3	1		TO-15	Total/NA
tert-Butyl alcohol	0.51	J	15	0.12	ug/m3	1		TO-15	Total/NA
Methyl Ethyl Ketone	4.0		1.5	0.21	ug/m3	1		TO-15	Total/NA
Chloroform	0.41	J	0.98	0.16	ug/m3	1		TO-15	Total/NA
Cyclohexane	0.20	J	0.69	0.16	ug/m3	1		TO-15	Total/NA
Carbon tetrachloride	0.56		0.22	0.15	ug/m3	1		TO-15	Total/NA
2,2,4-Trimethylpentane	0.31	J	0.93	0.19	ug/m3	1		TO-15	Total/NA
Benzene	0.73		0.64	0.21	ug/m3	1		TO-15	Total/NA
n-Heptane	1.4		0.82	0.23	ug/m3	1		TO-15	Total/NA
Toluene	1.5		0.75	0.41	ug/m3	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Client Sample ID: OUTSIDE

Lab Sample ID: 200-52174-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	0.12	J	0.50	0.11	ppb v/v	1		TO-15	Total/NA
Chloromethane	0.15	J	0.50	0.11	ppb v/v	1		TO-15	Total/NA
n-Butane	0.12	J	0.50	0.11	ppb v/v	1		TO-15	Total/NA
Acetone	2.6	J	5.0	1.2	ppb v/v	1		TO-15	Total/NA
Isopropyl alcohol	0.56	J	5.0	0.48	ppb v/v	1		TO-15	Total/NA
Methyl Ethyl Ketone	0.41	J	0.50	0.072	ppb v/v	1		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	0.59	J	2.5	0.54	ug/m3	1		TO-15	Total/NA
Chloromethane	0.30	J	1.0	0.23	ug/m3	1		TO-15	Total/NA
n-Butane	0.28	J	1.2	0.26	ug/m3	1		TO-15	Total/NA
Acetone	6.2	J	12	2.9	ug/m3	1		TO-15	Total/NA
Isopropyl alcohol	1.4	J	12	1.2	ug/m3	1		TO-15	Total/NA
Methyl Ethyl Ketone	1.2	J	1.5	0.21	ug/m3	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Client Sample ID: BASEMENT

Lab Sample ID: 200-52174-1

Date Collected: 01/09/20 10:19
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	**0.57**		0.50	0.11	ppb v/v			01/18/20 02:47	1
Freon 22	**0.33**	**J**	0.50	0.12	ppb v/v			01/18/20 02:47	1
1,2-Dichlorotetrafluoroethane	0.20	U	0.20	0.035	ppb v/v			01/18/20 02:47	1
Chloromethane	**0.94**		0.50	0.11	ppb v/v			01/18/20 02:47	1
n-Butane	**3.2**		0.50	0.11	ppb v/v			01/18/20 02:47	1
Vinyl chloride	0.078	U	0.078	0.044	ppb v/v			01/18/20 02:47	1
1,3-Butadiene	0.20	U	0.20	0.057	ppb v/v			01/18/20 02:47	1
Bromomethane	0.20	U	0.20	0.051	ppb v/v			01/18/20 02:47	1
Chloroethane	0.50	U	0.50	0.054	ppb v/v			01/18/20 02:47	1
Bromoethene(Vinyl Bromide)	0.20	U	0.20	0.052	ppb v/v			01/18/20 02:47	1
Trichlorofluoromethane	**0.23**		0.20	0.060	ppb v/v			01/18/20 02:47	1
Freon TF	**0.076**	**J**	0.20	0.038	ppb v/v			01/18/20 02:47	1
1,1-Dichloroethene	0.20	U	0.20	0.039	ppb v/v			01/18/20 02:47	1
Acetone	**17**		5.0	1.2	ppb v/v			01/18/20 02:47	1
Isopropyl alcohol	**1.9**	**J**	5.0	0.48	ppb v/v			01/18/20 02:47	1
Carbon disulfide	0.50	U	0.50	0.074	ppb v/v			01/18/20 02:47	1
3-Chloropropene	0.50	U	0.50	0.064	ppb v/v			01/18/20 02:47	1
Methylene Chloride	**2.1**		0.50	0.27	ppb v/v			01/18/20 02:47	1
tert-Butyl alcohol	**0.13**	**J**	5.0	0.038	ppb v/v			01/18/20 02:47	1
Methyl tert-butyl ether	0.20	U	0.20	0.033	ppb v/v			01/18/20 02:47	1
trans-1,2-Dichloroethene	0.20	U	0.20	0.042	ppb v/v			01/18/20 02:47	1
n-Hexane	**0.30**		0.20	0.20	ppb v/v			01/18/20 02:47	1
1,1-Dichloroethane	0.20	U	0.20	0.041	ppb v/v			01/18/20 02:47	1
Methyl Ethyl Ketone	**0.88**		0.50	0.072	ppb v/v			01/18/20 02:47	1
cis-1,2-Dichloroethene	0.050	U	0.050	0.045	ppb v/v			01/18/20 02:47	1
1,2-Dichloroethene, Total	0.40	U	0.40	0.042	ppb v/v			01/18/20 02:47	1
Chloroform	**0.053**	**J**	0.20	0.032	ppb v/v			01/18/20 02:47	1
Tetrahydrofuran	**0.16**	**J**	5.0	0.066	ppb v/v			01/18/20 02:47	1
1,1,1-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 02:47	1
Cyclohexane	**0.13**	**J**	0.20	0.046	ppb v/v			01/18/20 02:47	1
Carbon tetrachloride	**0.060**		0.035	0.024	ppb v/v			01/18/20 02:47	1
2,2,4-Trimethylpentane	**0.17**	**J**	0.20	0.041	ppb v/v			01/18/20 02:47	1
Benzene	**0.28**		0.20	0.067	ppb v/v			01/18/20 02:47	1
1,2-Dichloroethane	0.20	U	0.20	0.032	ppb v/v			01/18/20 02:47	1
n-Heptane	**0.74**		0.20	0.056	ppb v/v			01/18/20 02:47	1
Trichloroethene	0.035	U	0.035	0.035	ppb v/v			01/18/20 02:47	1
Methyl methacrylate	0.50	U	0.50	0.033	ppb v/v			01/18/20 02:47	1
1,2-Dichloropropane	0.20	U	0.20	0.033	ppb v/v			01/18/20 02:47	1
1,4-Dioxane	**0.12**	**J**	5.0	0.084	ppb v/v			01/18/20 02:47	1
Bromodichloromethane	0.20	U	0.20	0.035	ppb v/v			01/18/20 02:47	1
cis-1,3-Dichloropropene	0.20	U	0.20	0.032	ppb v/v			01/18/20 02:47	1
methyl isobutyl ketone	0.50	U	0.50	0.036	ppb v/v			01/18/20 02:47	1
Toluene	**1.5**		0.20	0.11	ppb v/v			01/18/20 02:47	1
trans-1,3-Dichloropropene	0.20	U	0.20	0.039	ppb v/v			01/18/20 02:47	1
1,1,2-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 02:47	1
Tetrachloroethene	0.20	U	0.20	0.033	ppb v/v			01/18/20 02:47	1
Methyl Butyl Ketone (2-Hexanone)	0.50	U	0.50	0.048	ppb v/v			01/18/20 02:47	1
Dibromochloromethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 02:47	1

Client Sample ID: BASEMENT

Lab Sample ID: 200-52174-1

Date Collected: 01/09/20 10:19
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	0.20	U	0.20	0.049	ppb v/v			01/18/20 02:47	1
Chlorobenzene	0.20	U	0.20	0.056	ppb v/v			01/18/20 02:47	1
Ethylbenzene	**0.11**	**J**	0.20	0.063	ppb v/v			01/18/20 02:47	1
m,p-Xylene	**0.38**	**J**	0.50	0.10	ppb v/v			01/18/20 02:47	1
Xylene, o-	**0.16**	**J**	0.20	0.048	ppb v/v			01/18/20 02:47	1
Xylene (total)	**0.54**	**J**	0.70	0.048	ppb v/v			01/18/20 02:47	1
Styrene	0.20	U	0.20	0.040	ppb v/v			01/18/20 02:47	1
Bromoform	0.20	U ^	0.20	0.048	ppb v/v			01/18/20 02:47	1
Cumene	0.20	U	0.20	0.035	ppb v/v			01/18/20 02:47	1
1,1,2,2-Tetrachloroethane	0.20	U	0.20	0.042	ppb v/v			01/18/20 02:47	1
n-Propylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 02:47	1
4-Ethyltoluene	0.20	U	0.20	0.041	ppb v/v			01/18/20 02:47	1
1,3,5-Trimethylbenzene	**0.054**	**J**	0.20	0.039	ppb v/v			01/18/20 02:47	1
2-Chlorotoluene	0.20	U	0.20	0.042	ppb v/v			01/18/20 02:47	1
tert-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/18/20 02:47	1
1,2,4-Trimethylbenzene	**0.15**	**J**	0.20	0.044	ppb v/v			01/18/20 02:47	1
sec-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/18/20 02:47	1
4-Isopropyltoluene	**0.054**	**J**	0.20	0.039	ppb v/v			01/18/20 02:47	1
1,3-Dichlorobenzene	0.20	U	0.20	0.11	ppb v/v			01/18/20 02:47	1
1,4-Dichlorobenzene	0.20	U	0.20	0.12	ppb v/v			01/18/20 02:47	1
Benzyl chloride	0.20	U	0.20	0.085	ppb v/v			01/18/20 02:47	1
n-Butylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 02:47	1
1,2-Dichlorobenzene	0.20	U	0.20	0.097	ppb v/v			01/18/20 02:47	1
1,2,4-Trichlorobenzene	0.50	U	0.50	0.22	ppb v/v			01/18/20 02:47	1
Hexachlorobutadiene	0.20	U	0.20	0.076	ppb v/v			01/18/20 02:47	1
Naphthalene	0.50	U	0.50	0.17	ppb v/v			01/18/20 02:47	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	**2.8**		2.5	0.54	ug/m3			01/18/20 02:47	1
Freon 22	**1.2**	**J**	1.8	0.42	ug/m3			01/18/20 02:47	1
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	0.24	ug/m3			01/18/20 02:47	1
Chloromethane	**2.0**		1.0	0.23	ug/m3			01/18/20 02:47	1
n-Butane	**7.5**		1.2	0.26	ug/m3			01/18/20 02:47	1
Vinyl chloride	0.20	U	0.20	0.11	ug/m3			01/18/20 02:47	1
1,3-Butadiene	0.44	U	0.44	0.13	ug/m3			01/18/20 02:47	1
Bromomethane	0.78	U	0.78	0.20	ug/m3			01/18/20 02:47	1
Chloroethane	1.3	U	1.3	0.14	ug/m3			01/18/20 02:47	1
Bromoethene(Vinyl Bromide)	0.87	U	0.87	0.23	ug/m3			01/18/20 02:47	1
Trichlorofluoromethane	**1.3**		1.1	0.34	ug/m3			01/18/20 02:47	1
Freon TF	**0.58**	**J**	1.5	0.29	ug/m3			01/18/20 02:47	1
1,1-Dichloroethene	0.79	U	0.79	0.15	ug/m3			01/18/20 02:47	1
Acetone	**42**		12	2.9	ug/m3			01/18/20 02:47	1
Isopropyl alcohol	**4.5**	**J**	12	1.2	ug/m3			01/18/20 02:47	1
Carbon disulfide	1.6	U	1.6	0.23	ug/m3			01/18/20 02:47	1
3-Chloropropene	1.6	U	1.6	0.20	ug/m3			01/18/20 02:47	1
Methylene Chloride	**7.3**		1.7	0.94	ug/m3			01/18/20 02:47	1
tert-Butyl alcohol	**0.40**	**J**	15	0.12	ug/m3			01/18/20 02:47	1
Methyl tert-butyl ether	0.72	U	0.72	0.12	ug/m3			01/18/20 02:47	1
trans-1,2-Dichloroethene	0.79	U	0.79	0.17	ug/m3			01/18/20 02:47	1

Client Sample ID: BASEMENT

Lab Sample ID: 200-52174-1

Date Collected: 01/09/20 10:19
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Hexane	**1.0**		0.70	0.70	ug/m3			01/18/20 02:47	1
1,1-Dichloroethane	0.81	U	0.81	0.17	ug/m3			01/18/20 02:47	1
Methyl Ethyl Ketone	**2.6**		1.5	0.21	ug/m3			01/18/20 02:47	1
cis-1,2-Dichloroethene	0.20	U	0.20	0.18	ug/m3			01/18/20 02:47	1
1,2-Dichloroethene, Total	1.6	U	1.6	0.17	ug/m3			01/18/20 02:47	1
Chloroform	**0.26**	**J**	0.98	0.16	ug/m3			01/18/20 02:47	1
Tetrahydrofuran	**0.48**	**J**	15	0.19	ug/m3			01/18/20 02:47	1
1,1,1-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/18/20 02:47	1
Cyclohexane	**0.44**	**J**	0.69	0.16	ug/m3			01/18/20 02:47	1
Carbon tetrachloride	**0.38**		0.22	0.15	ug/m3			01/18/20 02:47	1
2,2,4-Trimethylpentane	**0.80**	**J**	0.93	0.19	ug/m3			01/18/20 02:47	1
Benzene	**0.89**		0.64	0.21	ug/m3			01/18/20 02:47	1
1,2-Dichloroethane	0.81	U	0.81	0.13	ug/m3			01/18/20 02:47	1
n-Heptane	**3.1**		0.82	0.23	ug/m3			01/18/20 02:47	1
Trichloroethene	0.19	U	0.19	0.19	ug/m3			01/18/20 02:47	1
Methyl methacrylate	2.0	U	2.0	0.14	ug/m3			01/18/20 02:47	1
1,2-Dichloropropane	0.92	U	0.92	0.15	ug/m3			01/18/20 02:47	1
1,4-Dioxane	**0.42**	**J**	18	0.30	ug/m3			01/18/20 02:47	1
Bromodichloromethane	1.3	U	1.3	0.23	ug/m3			01/18/20 02:47	1
cis-1,3-Dichloropropene	0.91	U	0.91	0.15	ug/m3			01/18/20 02:47	1
methyl isobutyl ketone	2.0	U	2.0	0.15	ug/m3			01/18/20 02:47	1
Toluene	**5.5**		0.75	0.41	ug/m3			01/18/20 02:47	1
trans-1,3-Dichloropropene	0.91	U	0.91	0.18	ug/m3			01/18/20 02:47	1
1,1,2-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/18/20 02:47	1
Tetrachloroethene	1.4	U	1.4	0.22	ug/m3			01/18/20 02:47	1
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	0.20	ug/m3			01/18/20 02:47	1
Dibromochloromethane	1.7	U	1.7	0.31	ug/m3			01/18/20 02:47	1
1,2-Dibromoethane	1.5	U	1.5	0.38	ug/m3			01/18/20 02:47	1
Chlorobenzene	0.92	U	0.92	0.26	ug/m3			01/18/20 02:47	1
Ethylbenzene	**0.49**	**J**	0.87	0.27	ug/m3			01/18/20 02:47	1
m,p-Xylene	**1.6**	**J**	2.2	0.43	ug/m3			01/18/20 02:47	1
Xylene, o-	**0.69**	**J**	0.87	0.21	ug/m3			01/18/20 02:47	1
Xylene (total)	**2.3**	**J**	3.0	0.21	ug/m3			01/18/20 02:47	1
Styrene	0.85	U	0.85	0.17	ug/m3			01/18/20 02:47	1
Bromoform	2.1	U ^	2.1	0.50	ug/m3			01/18/20 02:47	1
Cumene	0.98	U	0.98	0.17	ug/m3			01/18/20 02:47	1
1,1,2,2-Tetrachloroethane	1.4	U	1.4	0.29	ug/m3			01/18/20 02:47	1
n-Propylbenzene	0.98	U	0.98	0.19	ug/m3			01/18/20 02:47	1
4-Ethyltoluene	0.98	U	0.98	0.20	ug/m3			01/18/20 02:47	1
1,3,5-Trimethylbenzene	**0.27**	**J**	0.98	0.19	ug/m3			01/18/20 02:47	1
2-Chlorotoluene	1.0	U	1.0	0.22	ug/m3			01/18/20 02:47	1
tert-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/18/20 02:47	1
1,2,4-Trimethylbenzene	**0.74**	**J**	0.98	0.22	ug/m3			01/18/20 02:47	1
sec-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/18/20 02:47	1
4-Isopropyltoluene	**0.30**	**J**	1.1	0.21	ug/m3			01/18/20 02:47	1
1,3-Dichlorobenzene	1.2	U	1.2	0.66	ug/m3			01/18/20 02:47	1
1,4-Dichlorobenzene	1.2	U	1.2	0.72	ug/m3			01/18/20 02:47	1
Benzyl chloride	1.0	U	1.0	0.44	ug/m3			01/18/20 02:47	1

Client Sample ID: BASEMENT

Lab Sample ID: 200-52174-1
Matrix: Air
Date Collected: 01/09/20 10:19
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	1.1	U	1.1	0.21	ug/m3			01/18/20 02:47	1
1,2-Dichlorobenzene	1.2	U	1.2	0.58	ug/m3			01/18/20 02:47	1
1,2,4-Trichlorobenzene	3.7	U	3.7	1.6	ug/m3			01/18/20 02:47	1
Hexachlorobutadiene	2.1	U	2.1	0.81	ug/m3			01/18/20 02:47	1
Naphthalene	2.6	U	2.6	0.89	ug/m3			01/18/20 02:47	1

Client Sample ID: 1ST FLOOR

Lab Sample ID: 200-52174-2
Matrix: Air
Date Collected: 01/09/20 10:22
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	**0.60**		0.50	0.11	ppb v/v			01/18/20 03:46	1
Freon 22	**0.37**	**J**	0.50	0.12	ppb v/v			01/18/20 03:46	1
1,2-Dichlorotetrafluoroethane	0.20	U	0.20	0.035	ppb v/v			01/18/20 03:46	1
Chloromethane	**0.78**		0.50	0.11	ppb v/v			01/18/20 03:46	1
n-Butane	**1.7**		0.50	0.11	ppb v/v			01/18/20 03:46	1
Vinyl chloride	0.078	U	0.078	0.044	ppb v/v			01/18/20 03:46	1
1,3-Butadiene	0.20	U	0.20	0.057	ppb v/v			01/18/20 03:46	1
Bromomethane	0.20	U	0.20	0.051	ppb v/v			01/18/20 03:46	1
Chloroethane	0.50	U	0.50	0.054	ppb v/v			01/18/20 03:46	1
Bromoethene(Vinyl Bromide)	0.20	U	0.20	0.052	ppb v/v			01/18/20 03:46	1
Trichlorofluoromethane	**0.26**		0.20	0.060	ppb v/v			01/18/20 03:46	1
Freon TF	**0.084**	**J**	0.20	0.038	ppb v/v			01/18/20 03:46	1
1,1-Dichloroethene	0.20	U	0.20	0.039	ppb v/v			01/18/20 03:46	1
Acetone	**10**		5.0	1.2	ppb v/v			01/18/20 03:46	1
Isopropyl alcohol	**1.5**	**J**	5.0	0.48	ppb v/v			01/18/20 03:46	1
Carbon disulfide	**0.34**	**J**	0.50	0.074	ppb v/v			01/18/20 03:46	1
3-Chloropropene	0.50	U	0.50	0.064	ppb v/v			01/18/20 03:46	1
Methylene Chloride	**0.93**		0.50	0.27	ppb v/v			01/18/20 03:46	1
tert-Butyl alcohol	**0.17**	**J**	5.0	0.038	ppb v/v			01/18/20 03:46	1
Methyl tert-butyl ether	0.20	U	0.20	0.033	ppb v/v			01/18/20 03:46	1
trans-1,2-Dichloroethene	0.20	U	0.20	0.042	ppb v/v			01/18/20 03:46	1
n-Hexane	0.20	U	0.20	0.20	ppb v/v			01/18/20 03:46	1
1,1-Dichloroethane	0.20	U	0.20	0.041	ppb v/v			01/18/20 03:46	1
Methyl Ethyl Ketone	**1.4**		0.50	0.072	ppb v/v			01/18/20 03:46	1
cis-1,2-Dichloroethene	0.050	U	0.050	0.045	ppb v/v			01/18/20 03:46	1
1,2-Dichloroethene, Total	0.40	U	0.40	0.042	ppb v/v			01/18/20 03:46	1
Chloroform	**0.083**	**J**	0.20	0.032	ppb v/v			01/18/20 03:46	1
Tetrahydrofuran	5.0	U	5.0	0.066	ppb v/v			01/18/20 03:46	1
1,1,1-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 03:46	1
Cyclohexane	**0.059**	**J**	0.20	0.046	ppb v/v			01/18/20 03:46	1
Carbon tetrachloride	**0.090**		0.035	0.024	ppb v/v			01/18/20 03:46	1
2,2,4-Trimethylpentane	**0.067**	**J**	0.20	0.041	ppb v/v			01/18/20 03:46	1
Benzene	**0.23**		0.20	0.067	ppb v/v			01/18/20 03:46	1
1,2-Dichloroethane	0.20	U	0.20	0.032	ppb v/v			01/18/20 03:46	1
n-Heptane	**0.33**		0.20	0.056	ppb v/v			01/18/20 03:46	1
Trichloroethene	0.035	U	0.035	0.035	ppb v/v			01/18/20 03:46	1

Client Sample ID: 1ST FLOOR

Date Collected: 01/09/20 10:22
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Lab Sample ID: 200-52174-2

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl methacrylate	0.50	U	0.50	0.033	ppb v/v			01/18/20 03:46	1
1,2-Dichloropropane	0.20	U	0.20	0.033	ppb v/v			01/18/20 03:46	1
1,4-Dioxane	5.0	U	5.0	0.084	ppb v/v			01/18/20 03:46	1
Bromodichloromethane	0.20	U	0.20	0.035	ppb v/v			01/18/20 03:46	1
cis-1,3-Dichloropropene	0.20	U	0.20	0.032	ppb v/v			01/18/20 03:46	1
methyl isobutyl ketone	0.50	U	0.50	0.036	ppb v/v			01/18/20 03:46	1
Toluene	**0.40**		0.20	0.11	ppb v/v			01/18/20 03:46	1
trans-1,3-Dichloropropene	0.20	U	0.20	0.039	ppb v/v			01/18/20 03:46	1
1,1,2-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 03:46	1
Tetrachloroethene	0.20	U	0.20	0.033	ppb v/v			01/18/20 03:46	1
Methyl Butyl Ketone (2-Hexanone)	0.50	U	0.50	0.048	ppb v/v			01/18/20 03:46	1
Dibromochloromethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 03:46	1
1,2-Dibromoethane	0.20	U	0.20	0.049	ppb v/v			01/18/20 03:46	1
Chlorobenzene	0.20	U	0.20	0.056	ppb v/v			01/18/20 03:46	1
Ethylbenzene	0.20	U	0.20	0.063	ppb v/v			01/18/20 03:46	1
m,p-Xylene	0.50	U	0.50	0.10	ppb v/v			01/18/20 03:46	1
Xylene, o-	0.20	U	0.20	0.048	ppb v/v			01/18/20 03:46	1
Xylene (total)	0.70	U	0.70	0.048	ppb v/v			01/18/20 03:46	1
Styrene	0.20	U	0.20	0.040	ppb v/v			01/18/20 03:46	1
Bromoform	0.20	U ^	0.20	0.048	ppb v/v			01/18/20 03:46	1
Cumene	0.20	U	0.20	0.035	ppb v/v			01/18/20 03:46	1
1,1,2,2-Tetrachloroethane	0.20	U	0.20	0.042	ppb v/v			01/18/20 03:46	1
n-Propylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 03:46	1
4-Ethyltoluene	0.20	U	0.20	0.041	ppb v/v			01/18/20 03:46	1
1,3,5-Trimethylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 03:46	1
2-Chlorotoluene	0.20	U	0.20	0.042	ppb v/v			01/18/20 03:46	1
tert-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/18/20 03:46	1
1,2,4-Trimethylbenzene	0.20	U	0.20	0.044	ppb v/v			01/18/20 03:46	1
sec-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/18/20 03:46	1
4-Isopropyltoluene	0.20	U	0.20	0.039	ppb v/v			01/18/20 03:46	1
1,3-Dichlorobenzene	0.20	U	0.20	0.11	ppb v/v			01/18/20 03:46	1
1,4-Dichlorobenzene	0.20	U	0.20	0.12	ppb v/v			01/18/20 03:46	1
Benzyl chloride	0.20	U	0.20	0.085	ppb v/v			01/18/20 03:46	1
n-Butylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 03:46	1
1,2-Dichlorobenzene	0.20	U	0.20	0.097	ppb v/v			01/18/20 03:46	1
1,2,4-Trichlorobenzene	0.50	U	0.50	0.22	ppb v/v			01/18/20 03:46	1
Hexachlorobutadiene	0.20	U	0.20	0.076	ppb v/v			01/18/20 03:46	1
Naphthalene	0.50	U	0.50	0.17	ppb v/v			01/18/20 03:46	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	**3.0**		2.5	0.54	ug/m3			01/18/20 03:46	1
Freon 22	**1.3**	**J**	1.8	0.42	ug/m3			01/18/20 03:46	1
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	0.24	ug/m3			01/18/20 03:46	1
Chloromethane	**1.6**		1.0	0.23	ug/m3			01/18/20 03:46	1
n-Butane	**4.0**		1.2	0.26	ug/m3			01/18/20 03:46	1
Vinyl chloride	0.20	U	0.20	0.11	ug/m3			01/18/20 03:46	1
1,3-Butadiene	0.44	U	0.44	0.13	ug/m3			01/18/20 03:46	1
Bromomethane	0.78	U	0.78	0.20	ug/m3			01/18/20 03:46	1
Chloroethane	1.3	U	1.3	0.14	ug/m3			01/18/20 03:46	1

Client Sample ID: 1ST FLOOR

Date Collected: 01/09/20 10:22
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Lab Sample ID: 200-52174-2

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoethene(Vinyl Bromide)	0.87	U	0.87	0.23	ug/m3			01/18/20 03:46	1
Trichlorofluoromethane	**1.5**		1.1	0.34	ug/m3			01/18/20 03:46	1
Freon TF	**0.64**	**J**	1.5	0.29	ug/m3			01/18/20 03:46	1
1,1-Dichloroethene	0.79	U	0.79	0.15	ug/m3			01/18/20 03:46	1
Acetone	**25**		12	2.9	ug/m3			01/18/20 03:46	1
Isopropyl alcohol	**3.7**	**J**	12	1.2	ug/m3			01/18/20 03:46	1
Carbon disulfide	**1.1**	**J**	1.6	0.23	ug/m3			01/18/20 03:46	1
3-Chloropropene	1.6	U	1.6	0.20	ug/m3			01/18/20 03:46	1
Methylene Chloride	**3.2**		1.7	0.94	ug/m3			01/18/20 03:46	1
tert-Butyl alcohol	**0.51**	**J**	15	0.12	ug/m3			01/18/20 03:46	1
Methyl tert-butyl ether	0.72	U	0.72	0.12	ug/m3			01/18/20 03:46	1
trans-1,2-Dichloroethene	0.79	U	0.79	0.17	ug/m3			01/18/20 03:46	1
n-Hexane	0.70	U	0.70	0.70	ug/m3			01/18/20 03:46	1
1,1-Dichloroethane	0.81	U	0.81	0.17	ug/m3			01/18/20 03:46	1
Methyl Ethyl Ketone	**4.0**		1.5	0.21	ug/m3			01/18/20 03:46	1
cis-1,2-Dichloroethene	0.20	U	0.20	0.18	ug/m3			01/18/20 03:46	1
1,2-Dichloroethene, Total	1.6	U	1.6	0.17	ug/m3			01/18/20 03:46	1
Chloroform	**0.41**	**J**	0.98	0.16	ug/m3			01/18/20 03:46	1
Tetrahydrofuran	15	U	15	0.19	ug/m3			01/18/20 03:46	1
1,1,1-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/18/20 03:46	1
Cyclohexane	**0.20**	**J**	0.69	0.16	ug/m3			01/18/20 03:46	1
Carbon tetrachloride	**0.56**		0.22	0.15	ug/m3			01/18/20 03:46	1
2,2,4-Trimethylpentane	**0.31**	**J**	0.93	0.19	ug/m3			01/18/20 03:46	1
Benzene	**0.73**		0.64	0.21	ug/m3			01/18/20 03:46	1
1,2-Dichloroethane	0.81	U	0.81	0.13	ug/m3			01/18/20 03:46	1
n-Heptane	**1.4**		0.82	0.23	ug/m3			01/18/20 03:46	1
Trichloroethene	0.19	U	0.19	0.19	ug/m3			01/18/20 03:46	1
Methyl methacrylate	2.0	U	2.0	0.14	ug/m3			01/18/20 03:46	1
1,2-Dichloropropane	0.92	U	0.92	0.15	ug/m3			01/18/20 03:46	1
1,4-Dioxane	18	U	18	0.30	ug/m3			01/18/20 03:46	1
Bromodichloromethane	1.3	U	1.3	0.23	ug/m3			01/18/20 03:46	1
cis-1,3-Dichloropropene	0.91	U	0.91	0.15	ug/m3			01/18/20 03:46	1
methyl isobutyl ketone	2.0	U	2.0	0.15	ug/m3			01/18/20 03:46	1
Toluene	**1.5**		0.75	0.41	ug/m3			01/18/20 03:46	1
trans-1,3-Dichloropropene	0.91	U	0.91	0.18	ug/m3			01/18/20 03:46	1
1,1,2-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/18/20 03:46	1
Tetrachloroethene	1.4	U	1.4	0.22	ug/m3			01/18/20 03:46	1
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	0.20	ug/m3			01/18/20 03:46	1
Dibromochloromethane	1.7	U	1.7	0.31	ug/m3			01/18/20 03:46	1
1,2-Dibromoethane	1.5	U	1.5	0.38	ug/m3			01/18/20 03:46	1
Chlorobenzene	0.92	U	0.92	0.26	ug/m3			01/18/20 03:46	1
Ethylbenzene	0.87	U	0.87	0.27	ug/m3			01/18/20 03:46	1
m,p-Xylene	2.2	U	2.2	0.43	ug/m3			01/18/20 03:46	1
Xylene, o-	0.87	U	0.87	0.21	ug/m3			01/18/20 03:46	1
Xylene (total)	3.0	U	3.0	0.21	ug/m3			01/18/20 03:46	1
Styrene	0.85	U	0.85	0.17	ug/m3			01/18/20 03:46	1
Bromoform	2.1	U ^	2.1	0.50	ug/m3			01/18/20 03:46	1
Cumene	0.98	U	0.98	0.17	ug/m3			01/18/20 03:46	1

Client Sample ID: 1ST FLOOR

Lab Sample ID: 200-52174-2

Date Collected: 01/09/20 10:22
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	1.4	U	1.4	0.29	ug/m3			01/18/20 03:46	1
n-Propylbenzene	0.98	U	0.98	0.19	ug/m3			01/18/20 03:46	1
4-Ethyltoluene	0.98	U	0.98	0.20	ug/m3			01/18/20 03:46	1
1,3,5-Trimethylbenzene	0.98	U	0.98	0.19	ug/m3			01/18/20 03:46	1
2-Chlorotoluene	1.0	U	1.0	0.22	ug/m3			01/18/20 03:46	1
tert-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/18/20 03:46	1
1,2,4-Trimethylbenzene	0.98	U	0.98	0.22	ug/m3			01/18/20 03:46	1
sec-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/18/20 03:46	1
4-Isopropyltoluene	1.1	U	1.1	0.21	ug/m3			01/18/20 03:46	1
1,3-Dichlorobenzene	1.2	U	1.2	0.66	ug/m3			01/18/20 03:46	1
1,4-Dichlorobenzene	1.2	U	1.2	0.72	ug/m3			01/18/20 03:46	1
Benzyl chloride	1.0	U	1.0	0.44	ug/m3			01/18/20 03:46	1
n-Butylbenzene	1.1	U	1.1	0.21	ug/m3			01/18/20 03:46	1
1,2-Dichlorobenzene	1.2	U	1.2	0.58	ug/m3			01/18/20 03:46	1
1,2,4-Trichlorobenzene	3.7	U	3.7	1.6	ug/m3			01/18/20 03:46	1
Hexachlorobutadiene	2.1	U	2.1	0.81	ug/m3			01/18/20 03:46	1
Naphthalene	2.6	U	2.6	0.89	ug/m3			01/18/20 03:46	1

Client Sample ID: OUTSIDE

Lab Sample ID: 200-52174-3

Date Collected: 01/09/20 10:25
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	**0.12**	**J**	0.50	0.11	ppb v/v			01/18/20 04:43	1
Freon 22	0.50	U	0.50	0.12	ppb v/v			01/18/20 04:43	1
1,2-Dichlorotetrafluoroethane	0.20	U	0.20	0.035	ppb v/v			01/18/20 04:43	1
Chloromethane	**0.15**	**J**	0.50	0.11	ppb v/v			01/18/20 04:43	1
n-Butane	**0.12**	**J**	0.50	0.11	ppb v/v			01/18/20 04:43	1
Vinyl chloride	0.078	U	0.078	0.044	ppb v/v			01/18/20 04:43	1
1,3-Butadiene	0.20	U	0.20	0.057	ppb v/v			01/18/20 04:43	1
Bromomethane	0.20	U	0.20	0.051	ppb v/v			01/18/20 04:43	1
Chloroethane	0.50	U	0.50	0.054	ppb v/v			01/18/20 04:43	1
Bromoethene(Vinyl Bromide)	0.20	U	0.20	0.052	ppb v/v			01/18/20 04:43	1
Trichlorofluoromethane	0.20	U	0.20	0.060	ppb v/v			01/18/20 04:43	1
Freon TF	0.20	U	0.20	0.038	ppb v/v			01/18/20 04:43	1
1,1-Dichloroethene	0.20	U	0.20	0.039	ppb v/v			01/18/20 04:43	1
Acetone	**2.6**	**J**	5.0	1.2	ppb v/v			01/18/20 04:43	1
Isopropyl alcohol	**0.56**	**J**	5.0	0.48	ppb v/v			01/18/20 04:43	1
Carbon disulfide	0.50	U	0.50	0.074	ppb v/v			01/18/20 04:43	1
3-Chloropropene	0.50	U	0.50	0.064	ppb v/v			01/18/20 04:43	1
Methylene Chloride	0.50	U	0.50	0.27	ppb v/v			01/18/20 04:43	1
tert-Butyl alcohol	5.0	U	5.0	0.038	ppb v/v			01/18/20 04:43	1
Methyl tert-butyl ether	0.20	U	0.20	0.033	ppb v/v			01/18/20 04:43	1
trans-1,2-Dichloroethene	0.20	U	0.20	0.042	ppb v/v			01/18/20 04:43	1
n-Hexane	0.20	U	0.20	0.20	ppb v/v			01/18/20 04:43	1
1,1-Dichloroethane	0.20	U	0.20	0.041	ppb v/v			01/18/20 04:43	1
Methyl Ethyl Ketone	**0.41**	**J**	0.50	0.072	ppb v/v			01/18/20 04:43	1

Client Sample ID: OUTSIDE

Lab Sample ID: 200-52174-3

Date Collected: 01/09/20 10:25
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.050	U	0.050	0.045	ppb v/v			01/18/20 04:43	1
1,2-Dichloroethene, Total	0.40	U	0.40	0.042	ppb v/v			01/18/20 04:43	1
Chloroform	0.20	U	0.20	0.032	ppb v/v			01/18/20 04:43	1
Tetrahydrofuran	5.0	U	5.0	0.066	ppb v/v			01/18/20 04:43	1
1,1,1-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 04:43	1
Cyclohexane	0.20	U	0.20	0.046	ppb v/v			01/18/20 04:43	1
Carbon tetrachloride	0.035	U	0.035	0.024	ppb v/v			01/18/20 04:43	1
2,2,4-Trimethylpentane	0.20	U	0.20	0.041	ppb v/v			01/18/20 04:43	1
Benzene	0.20	U	0.20	0.067	ppb v/v			01/18/20 04:43	1
1,2-Dichloroethane	0.20	U	0.20	0.032	ppb v/v			01/18/20 04:43	1
n-Heptane	0.20	U	0.20	0.056	ppb v/v			01/18/20 04:43	1
Trichloroethene	0.035	U	0.035	0.035	ppb v/v			01/18/20 04:43	1
Methyl methacrylate	0.50	U	0.50	0.033	ppb v/v			01/18/20 04:43	1
1,2-Dichloropropane	0.20	U	0.20	0.033	ppb v/v			01/18/20 04:43	1
1,4-Dioxane	5.0	U	5.0	0.084	ppb v/v			01/18/20 04:43	1
Bromodichloromethane	0.20	U	0.20	0.035	ppb v/v			01/18/20 04:43	1
cis-1,3-Dichloropropene	0.20	U	0.20	0.032	ppb v/v			01/18/20 04:43	1
methyl isobutyl ketone	0.50	U	0.50	0.036	ppb v/v			01/18/20 04:43	1
Toluene	0.20	U	0.20	0.11	ppb v/v			01/18/20 04:43	1
trans-1,3-Dichloropropene	0.20	U	0.20	0.039	ppb v/v			01/18/20 04:43	1
1,1,2-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 04:43	1
Tetrachloroethene	0.20	U	0.20	0.033	ppb v/v			01/18/20 04:43	1
Methyl Butyl Ketone (2-Hexanone)	0.50	U	0.50	0.048	ppb v/v			01/18/20 04:43	1
Dibromochloromethane	0.20	U	0.20	0.036	ppb v/v			01/18/20 04:43	1
1,2-Dibromoethane	0.20	U	0.20	0.049	ppb v/v			01/18/20 04:43	1
Chlorobenzene	0.20	U	0.20	0.056	ppb v/v			01/18/20 04:43	1
Ethylbenzene	0.20	U	0.20	0.063	ppb v/v			01/18/20 04:43	1
m,p-Xylene	0.50	U	0.50	0.10	ppb v/v			01/18/20 04:43	1
Xylene, o-	0.20	U	0.20	0.048	ppb v/v			01/18/20 04:43	1
Xylene (total)	0.70	U	0.70	0.048	ppb v/v			01/18/20 04:43	1
Styrene	0.20	U	0.20	0.040	ppb v/v			01/18/20 04:43	1
Bromoform	0.20	U ^	0.20	0.048	ppb v/v			01/18/20 04:43	1
Cumene	0.20	U	0.20	0.035	ppb v/v			01/18/20 04:43	1
1,1,2,2-Tetrachloroethane	0.20	U	0.20	0.042	ppb v/v			01/18/20 04:43	1
n-Propylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 04:43	1
4-Ethyltoluene	0.20	U	0.20	0.041	ppb v/v			01/18/20 04:43	1
1,3,5-Trimethylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 04:43	1
2-Chlorotoluene	0.20	U	0.20	0.042	ppb v/v			01/18/20 04:43	1
tert-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/18/20 04:43	1
1,2,4-Trimethylbenzene	0.20	U	0.20	0.044	ppb v/v			01/18/20 04:43	1
sec-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/18/20 04:43	1
4-Isopropyltoluene	0.20	U	0.20	0.039	ppb v/v			01/18/20 04:43	1
1,3-Dichlorobenzene	0.20	U	0.20	0.11	ppb v/v			01/18/20 04:43	1
1,4-Dichlorobenzene	0.20	U	0.20	0.12	ppb v/v			01/18/20 04:43	1
Benzyl chloride	0.20	U	0.20	0.085	ppb v/v			01/18/20 04:43	1
n-Butylbenzene	0.20	U	0.20	0.039	ppb v/v			01/18/20 04:43	1
1,2-Dichlorobenzene	0.20	U	0.20	0.097	ppb v/v			01/18/20 04:43	1
1,2,4-Trichlorobenzene	0.50	U	0.50	0.22	ppb v/v			01/18/20 04:43	1

Client Sample ID: OUTSIDE

Lab Sample ID: 200-52174-3

Date Collected: 01/09/20 10:25
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobutadiene	0.20	U	0.20	0.076	ppb v/v			01/18/20 04:43	1
Naphthalene	0.50	U	0.50	0.17	ppb v/v			01/18/20 04:43	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	**0.59**	**J**	2.5	0.54	ug/m3			01/18/20 04:43	1
Freon 22	1.8	U	1.8	0.42	ug/m3			01/18/20 04:43	1
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	0.24	ug/m3			01/18/20 04:43	1
Chloromethane	**0.30**	**J**	1.0	0.23	ug/m3			01/18/20 04:43	1
n-Butane	**0.28**	**J**	1.2	0.26	ug/m3			01/18/20 04:43	1
Vinyl chloride	0.20	U	0.20	0.11	ug/m3			01/18/20 04:43	1
1,3-Butadiene	0.44	U	0.44	0.13	ug/m3			01/18/20 04:43	1
Bromomethane	0.78	U	0.78	0.20	ug/m3			01/18/20 04:43	1
Chloroethane	1.3	U	1.3	0.14	ug/m3			01/18/20 04:43	1
Bromoethene(Vinyl Bromide)	0.87	U	0.87	0.23	ug/m3			01/18/20 04:43	1
Trichlorofluoromethane	1.1	U	1.1	0.34	ug/m3			01/18/20 04:43	1
Freon TF	1.5	U	1.5	0.29	ug/m3			01/18/20 04:43	1
1,1-Dichloroethene	0.79	U	0.79	0.15	ug/m3			01/18/20 04:43	1
Acetone	**6.2**	**J**	12	2.9	ug/m3			01/18/20 04:43	1
Isopropyl alcohol	**1.4**	**J**	12	1.2	ug/m3			01/18/20 04:43	1
Carbon disulfide	1.6	U	1.6	0.23	ug/m3			01/18/20 04:43	1
3-Chloropropene	1.6	U	1.6	0.20	ug/m3			01/18/20 04:43	1
Methylene Chloride	1.7	U	1.7	0.94	ug/m3			01/18/20 04:43	1
tert-Butyl alcohol	15	U	15	0.12	ug/m3			01/18/20 04:43	1
Methyl tert-butyl ether	0.72	U	0.72	0.12	ug/m3			01/18/20 04:43	1
trans-1,2-Dichloroethene	0.79	U	0.79	0.17	ug/m3			01/18/20 04:43	1
n-Hexane	0.70	U	0.70	0.70	ug/m3			01/18/20 04:43	1
1,1-Dichloroethane	0.81	U	0.81	0.17	ug/m3			01/18/20 04:43	1
Methyl Ethyl Ketone	**1.2**	**J**	1.5	0.21	ug/m3			01/18/20 04:43	1
cis-1,2-Dichloroethene	0.20	U	0.20	0.18	ug/m3			01/18/20 04:43	1
1,2-Dichloroethene, Total	1.6	U	1.6	0.17	ug/m3			01/18/20 04:43	1
Chloroform	0.98	U	0.98	0.16	ug/m3			01/18/20 04:43	1
Tetrahydrofuran	15	U	15	0.19	ug/m3			01/18/20 04:43	1
1,1,1-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/18/20 04:43	1
Cyclohexane	0.69	U	0.69	0.16	ug/m3			01/18/20 04:43	1
Carbon tetrachloride	0.22	U	0.22	0.15	ug/m3			01/18/20 04:43	1
2,2,4-Trimethylpentane	0.93	U	0.93	0.19	ug/m3			01/18/20 04:43	1
Benzene	0.64	U	0.64	0.21	ug/m3			01/18/20 04:43	1
1,2-Dichloroethane	0.81	U	0.81	0.13	ug/m3			01/18/20 04:43	1
n-Heptane	0.82	U	0.82	0.23	ug/m3			01/18/20 04:43	1
Trichloroethene	0.19	U	0.19	0.19	ug/m3			01/18/20 04:43	1
Methyl methacrylate	2.0	U	2.0	0.14	ug/m3			01/18/20 04:43	1
1,2-Dichloropropane	0.92	U	0.92	0.15	ug/m3			01/18/20 04:43	1
1,4-Dioxane	18	U	18	0.30	ug/m3			01/18/20 04:43	1
Bromodichloromethane	1.3	U	1.3	0.23	ug/m3			01/18/20 04:43	1
cis-1,3-Dichloropropene	0.91	U	0.91	0.15	ug/m3			01/18/20 04:43	1
methyl isobutyl ketone	2.0	U	2.0	0.15	ug/m3			01/18/20 04:43	1
Toluene	0.75	U	0.75	0.41	ug/m3			01/18/20 04:43	1
trans-1,3-Dichloropropene	0.91	U	0.91	0.18	ug/m3			01/18/20 04:43	1
1,1,2-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/18/20 04:43	1

Client Sample ID: OUTSIDE

Lab Sample ID: 200-52174-3

Date Collected: 01/09/20 10:25
Matrix: Air
Date Received: 01/10/20 10:26
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	1.4	U	1.4	0.22	ug/m3			01/18/20 04:43	1
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	0.20	ug/m3			01/18/20 04:43	1
Dibromochloromethane	1.7	U	1.7	0.31	ug/m3			01/18/20 04:43	1
1,2-Dibromoethane	1.5	U	1.5	0.38	ug/m3			01/18/20 04:43	1
Chlorobenzene	0.92	U	0.92	0.26	ug/m3			01/18/20 04:43	1
Ethylbenzene	0.87	U	0.87	0.27	ug/m3			01/18/20 04:43	1
m,p-Xylene	2.2	U	2.2	0.43	ug/m3			01/18/20 04:43	1
Xylene, o-	0.87	U	0.87	0.21	ug/m3			01/18/20 04:43	1
Xylene (total)	3.0	U	3.0	0.21	ug/m3			01/18/20 04:43	1
Styrene	0.85	U	0.85	0.17	ug/m3			01/18/20 04:43	1
Bromoform	2.1	U ^	2.1	0.50	ug/m3			01/18/20 04:43	1
Cumene	0.98	U	0.98	0.17	ug/m3			01/18/20 04:43	1
1,1,2,2-Tetrachloroethane	1.4	U	1.4	0.29	ug/m3			01/18/20 04:43	1
n-Propylbenzene	0.98	U	0.98	0.19	ug/m3			01/18/20 04:43	1
4-Ethyltoluene	0.98	U	0.98	0.20	ug/m3			01/18/20 04:43	1
1,3,5-Trimethylbenzene	0.98	U	0.98	0.19	ug/m3			01/18/20 04:43	1
2-Chlorotoluene	1.0	U	1.0	0.22	ug/m3			01/18/20 04:43	1
tert-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/18/20 04:43	1
1,2,4-Trimethylbenzene	0.98	U	0.98	0.22	ug/m3			01/18/20 04:43	1
sec-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/18/20 04:43	1
4-Isopropyltoluene	1.1	U	1.1	0.21	ug/m3			01/18/20 04:43	1
1,3-Dichlorobenzene	1.2	U	1.2	0.66	ug/m3			01/18/20 04:43	1
1,4-Dichlorobenzene	1.2	U	1.2	0.72	ug/m3			01/18/20 04:43	1
Benzyl chloride	1.0	U	1.0	0.44	ug/m3			01/18/20 04:43	1
n-Butylbenzene	1.1	U	1.1	0.21	ug/m3			01/18/20 04:43	1
1,2-Dichlorobenzene	1.2	U	1.2	0.58	ug/m3			01/18/20 04:43	1
1,2,4-Trichlorobenzene	3.7	U	3.7	1.6	ug/m3			01/18/20 04:43	1
Hexachlorobutadiene	2.1	U	2.1	0.81	ug/m3			01/18/20 04:43	1
Naphthalene	2.6	U	2.6	0.89	ug/m3			01/18/20 04:43	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 200-151551/4
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	0.50	U	0.50	0.11	ppb v/v			01/17/20 11:31	1
Freon 22	0.50	U	0.50	0.12	ppb v/v			01/17/20 11:31	1
1,2-Dichlorotetrafluoroethane	0.20	U	0.20	0.035	ppb v/v			01/17/20 11:31	1
Chloromethane	0.50	U	0.50	0.11	ppb v/v			01/17/20 11:31	1
n-Butane	0.50	U	0.50	0.11	ppb v/v			01/17/20 11:31	1
Vinyl chloride	0.078	U	0.078	0.044	ppb v/v			01/17/20 11:31	1
1,3-Butadiene	0.20	U	0.20	0.057	ppb v/v			01/17/20 11:31	1
Bromomethane	0.20	U	0.20	0.051	ppb v/v			01/17/20 11:31	1
Chloroethane	0.50	U	0.50	0.054	ppb v/v			01/17/20 11:31	1
Bromoethene(Vinyl Bromide)	0.20	U	0.20	0.052	ppb v/v			01/17/20 11:31	1
Trichlorofluoromethane	0.20	U	0.20	0.060	ppb v/v			01/17/20 11:31	1
Freon TF	0.20	U	0.20	0.038	ppb v/v			01/17/20 11:31	1
1,1-Dichloroethene	0.20	U	0.20	0.039	ppb v/v			01/17/20 11:31	1
Acetone	5.0	U	5.0	1.2	ppb v/v			01/17/20 11:31	1
Isopropyl alcohol	5.0	U	5.0	0.48	ppb v/v			01/17/20 11:31	1
Carbon disulfide	0.50	U	0.50	0.074	ppb v/v			01/17/20 11:31	1
3-Chloropropene	0.50	U	0.50	0.064	ppb v/v			01/17/20 11:31	1
Methylene Chloride	0.50	U	0.50	0.27	ppb v/v			01/17/20 11:31	1
tert-Butyl alcohol	5.0	U	5.0	0.038	ppb v/v			01/17/20 11:31	1
Methyl tert-butyl ether	0.20	U	0.20	0.033	ppb v/v			01/17/20 11:31	1
trans-1,2-Dichloroethene	0.20	U	0.20	0.042	ppb v/v			01/17/20 11:31	1
n-Hexane	0.20	U	0.20	0.20	ppb v/v			01/17/20 11:31	1
1,1-Dichloroethane	0.20	U	0.20	0.041	ppb v/v			01/17/20 11:31	1
Methyl Ethyl Ketone	0.50	U	0.50	0.072	ppb v/v			01/17/20 11:31	1
cis-1,2-Dichloroethene	0.050	U	0.050	0.045	ppb v/v			01/17/20 11:31	1
1,2-Dichloroethene, Total	0.40	U	0.40	0.042	ppb v/v			01/17/20 11:31	1
Chloroform	0.20	U	0.20	0.032	ppb v/v			01/17/20 11:31	1
Tetrahydrofuran	5.0	U	5.0	0.066	ppb v/v			01/17/20 11:31	1
1,1,1-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/17/20 11:31	1
Cyclohexane	0.20	U	0.20	0.046	ppb v/v			01/17/20 11:31	1
Carbon tetrachloride	0.035	U	0.035	0.024	ppb v/v			01/17/20 11:31	1
2,2,4-Trimethylpentane	0.20	U	0.20	0.041	ppb v/v			01/17/20 11:31	1
Benzene	0.20	U	0.20	0.067	ppb v/v			01/17/20 11:31	1
1,2-Dichloroethane	0.20	U	0.20	0.032	ppb v/v			01/17/20 11:31	1
n-Heptane	0.20	U	0.20	0.056	ppb v/v			01/17/20 11:31	1
Trichloroethene	0.035	U	0.035	0.035	ppb v/v			01/17/20 11:31	1
Methyl methacrylate	0.50	U	0.50	0.033	ppb v/v			01/17/20 11:31	1
1,2-Dichloropropane	0.20	U	0.20	0.033	ppb v/v			01/17/20 11:31	1
1,4-Dioxane	5.0	U	5.0	0.084	ppb v/v			01/17/20 11:31	1
Bromodichloromethane	0.20	U	0.20	0.035	ppb v/v			01/17/20 11:31	1
cis-1,3-Dichloropropene	0.20	U	0.20	0.032	ppb v/v			01/17/20 11:31	1
methyl isobutyl ketone	0.50	U	0.50	0.036	ppb v/v			01/17/20 11:31	1
Toluene	0.20	U	0.20	0.11	ppb v/v			01/17/20 11:31	1
trans-1,3-Dichloropropene	0.20	U	0.20	0.039	ppb v/v			01/17/20 11:31	1
1,1,2-Trichloroethane	0.20	U	0.20	0.036	ppb v/v			01/17/20 11:31	1
Tetrachloroethene	0.20	U	0.20	0.033	ppb v/v			01/17/20 11:31	1
Methyl Butyl Ketone (2-Hexanone)	0.50	U	0.50	0.048	ppb v/v			01/17/20 11:31	1
Dibromochloromethane	0.20	U	0.20	0.036	ppb v/v			01/17/20 11:31	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-151551/4
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	0.20	U	0.20	0.049	ppb v/v			01/17/20 11:31	1
Chlorobenzene	0.20	U	0.20	0.056	ppb v/v			01/17/20 11:31	1
Ethylbenzene	0.20	U	0.20	0.063	ppb v/v			01/17/20 11:31	1
m,p-Xylene	0.50	U	0.50	0.10	ppb v/v			01/17/20 11:31	1
Xylene, o-	0.20	U	0.20	0.048	ppb v/v			01/17/20 11:31	1
Xylene (total)	0.70	U	0.70	0.048	ppb v/v			01/17/20 11:31	1
Styrene	0.20	U	0.20	0.040	ppb v/v			01/17/20 11:31	1
Bromoform	0.0581	J ^	0.20	0.048	ppb v/v			01/17/20 11:31	1
Cumene	0.20	U	0.20	0.035	ppb v/v			01/17/20 11:31	1
1,1,2,2-Tetrachloroethane	0.0454	J	0.20	0.042	ppb v/v			01/17/20 11:31	1
n-Propylbenzene	0.0495	J	0.20	0.039	ppb v/v			01/17/20 11:31	1
4-Ethyltoluene	0.0549	J	0.20	0.041	ppb v/v			01/17/20 11:31	1
1,3,5-Trimethylbenzene	0.20	U	0.20	0.039	ppb v/v			01/17/20 11:31	1
2-Chlorotoluene	0.0524	J	0.20	0.042	ppb v/v			01/17/20 11:31	1
tert-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/17/20 11:31	1
1,2,4-Trimethylbenzene	0.20	U	0.20	0.044	ppb v/v			01/17/20 11:31	1
sec-Butylbenzene	0.20	U	0.20	0.035	ppb v/v			01/17/20 11:31	1
4-Isopropyltoluene	0.20	U	0.20	0.039	ppb v/v			01/17/20 11:31	1
1,3-Dichlorobenzene	0.125	J	0.20	0.11	ppb v/v			01/17/20 11:31	1
1,4-Dichlorobenzene	0.137	J	0.20	0.12	ppb v/v			01/17/20 11:31	1
Benzyl chloride	0.0873	J	0.20	0.085	ppb v/v			01/17/20 11:31	1
n-Butylbenzene	0.20	U	0.20	0.039	ppb v/v			01/17/20 11:31	1
1,2-Dichlorobenzene	0.111	J	0.20	0.097	ppb v/v			01/17/20 11:31	1
1,2,4-Trichlorobenzene	0.50	U	0.50	0.22	ppb v/v			01/17/20 11:31	1
Hexachlorobutadiene	0.20	U	0.20	0.076	ppb v/v			01/17/20 11:31	1
Naphthalene	0.50	U	0.50	0.17	ppb v/v			01/17/20 11:31	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	2.5	U	2.5	0.54	ug/m3			01/17/20 11:31	1
Freon 22	1.8	U	1.8	0.42	ug/m3			01/17/20 11:31	1
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	0.24	ug/m3			01/17/20 11:31	1
Chloromethane	1.0	U	1.0	0.23	ug/m3			01/17/20 11:31	1
n-Butane	1.2	U	1.2	0.26	ug/m3			01/17/20 11:31	1
Vinyl chloride	0.20	U	0.20	0.11	ug/m3			01/17/20 11:31	1
1,3-Butadiene	0.44	U	0.44	0.13	ug/m3			01/17/20 11:31	1
Bromomethane	0.78	U	0.78	0.20	ug/m3			01/17/20 11:31	1
Chloroethane	1.3	U	1.3	0.14	ug/m3			01/17/20 11:31	1
Bromoethene(Vinyl Bromide)	0.87	U	0.87	0.23	ug/m3			01/17/20 11:31	1
Trichlorofluoromethane	1.1	U	1.1	0.34	ug/m3			01/17/20 11:31	1
Freon TF	1.5	U	1.5	0.29	ug/m3			01/17/20 11:31	1
1,1-Dichloroethene	0.79	U	0.79	0.15	ug/m3			01/17/20 11:31	1
Acetone	12	U	12	2.9	ug/m3			01/17/20 11:31	1
Isopropyl alcohol	12	U	12	1.2	ug/m3			01/17/20 11:31	1
Carbon disulfide	1.6	U	1.6	0.23	ug/m3			01/17/20 11:31	1
3-Chloropropene	1.6	U	1.6	0.20	ug/m3			01/17/20 11:31	1
Methylene Chloride	1.7	U	1.7	0.94	ug/m3			01/17/20 11:31	1
tert-Butyl alcohol	15	U	15	0.12	ug/m3			01/17/20 11:31	1
Methyl tert-butyl ether	0.72	U	0.72	0.12	ug/m3			01/17/20 11:31	1
trans-1,2-Dichloroethene	0.79	U	0.79	0.17	ug/m3			01/17/20 11:31	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-151551/4
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Hexane	0.70	U	0.70	0.70	ug/m3			01/17/20 11:31	1
1,1-Dichloroethane	0.81	U	0.81	0.17	ug/m3			01/17/20 11:31	1
Methyl Ethyl Ketone	1.5	U	1.5	0.21	ug/m3			01/17/20 11:31	1
cis-1,2-Dichloroethene	0.20	U	0.20	0.18	ug/m3			01/17/20 11:31	1
1,2-Dichloroethene, Total	1.6	U	1.6	0.17	ug/m3			01/17/20 11:31	1
Chloroform	0.98	U	0.98	0.16	ug/m3			01/17/20 11:31	1
Tetrahydrofuran	15	U	15	0.19	ug/m3			01/17/20 11:31	1
1,1,1-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/17/20 11:31	1
Cyclohexane	0.69	U	0.69	0.16	ug/m3			01/17/20 11:31	1
Carbon tetrachloride	0.22	U	0.22	0.15	ug/m3			01/17/20 11:31	1
2,2,4-Trimethylpentane	0.93	U	0.93	0.19	ug/m3			01/17/20 11:31	1
Benzene	0.64	U	0.64	0.21	ug/m3			01/17/20 11:31	1
1,2-Dichloroethane	0.81	U	0.81	0.13	ug/m3			01/17/20 11:31	1
n-Heptane	0.82	U	0.82	0.23	ug/m3			01/17/20 11:31	1
Trichloroethene	0.19	U	0.19	0.19	ug/m3			01/17/20 11:31	1
Methyl methacrylate	2.0	U	2.0	0.14	ug/m3			01/17/20 11:31	1
1,2-Dichloropropane	0.92	U	0.92	0.15	ug/m3			01/17/20 11:31	1
1,4-Dioxane	18	U	18	0.30	ug/m3			01/17/20 11:31	1
Bromodichloromethane	1.3	U	1.3	0.23	ug/m3			01/17/20 11:31	1
cis-1,3-Dichloropropene	0.91	U	0.91	0.15	ug/m3			01/17/20 11:31	1
methyl isobutyl ketone	2.0	U	2.0	0.15	ug/m3			01/17/20 11:31	1
Toluene	0.75	U	0.75	0.41	ug/m3			01/17/20 11:31	1
trans-1,3-Dichloropropene	0.91	U	0.91	0.18	ug/m3			01/17/20 11:31	1
1,1,2-Trichloroethane	1.1	U	1.1	0.20	ug/m3			01/17/20 11:31	1
Tetrachloroethene	1.4	U	1.4	0.22	ug/m3			01/17/20 11:31	1
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	0.20	ug/m3			01/17/20 11:31	1
Dibromochloromethane	1.7	U	1.7	0.31	ug/m3			01/17/20 11:31	1
1,2-Dibromoethane	1.5	U	1.5	0.38	ug/m3			01/17/20 11:31	1
Chlorobenzene	0.92	U	0.92	0.26	ug/m3			01/17/20 11:31	1
Ethylbenzene	0.87	U	0.87	0.27	ug/m3			01/17/20 11:31	1
m,p-Xylene	2.2	U	2.2	0.43	ug/m3			01/17/20 11:31	1
Xylene, o-	0.87	U	0.87	0.21	ug/m3			01/17/20 11:31	1
Xylene (total)	3.0	U	3.0	0.21	ug/m3			01/17/20 11:31	1
Styrene	0.85	U	0.85	0.17	ug/m3			01/17/20 11:31	1
Bromoform	0.600	J ^	2.1	0.50	ug/m3			01/17/20 11:31	1
Cumene	0.98	U	0.98	0.17	ug/m3			01/17/20 11:31	1
1,1,2,2-Tetrachloroethane	0.312	J	1.4	0.29	ug/m3			01/17/20 11:31	1
n-Propylbenzene	0.243	J	0.98	0.19	ug/m3			01/17/20 11:31	1
4-Ethyltoluene	0.270	J	0.98	0.20	ug/m3			01/17/20 11:31	1
1,3,5-Trimethylbenzene	0.98	U	0.98	0.19	ug/m3			01/17/20 11:31	1
2-Chlorotoluene	0.271	J	1.0	0.22	ug/m3			01/17/20 11:31	1
tert-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/17/20 11:31	1
1,2,4-Trimethylbenzene	0.98	U	0.98	0.22	ug/m3			01/17/20 11:31	1
sec-Butylbenzene	1.1	U	1.1	0.19	ug/m3			01/17/20 11:31	1
4-Isopropyltoluene	1.1	U	1.1	0.21	ug/m3			01/17/20 11:31	1
1,3-Dichlorobenzene	0.751	J	1.2	0.66	ug/m3			01/17/20 11:31	1
1,4-Dichlorobenzene	0.824	J	1.2	0.72	ug/m3			01/17/20 11:31	1
Benzyl chloride	0.452	J	1.0	0.44	ug/m3			01/17/20 11:31	1
n-Butylbenzene	1.1	U	1.1	0.21	ug/m3			01/17/20 11:31	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-151551/4
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.666	J	1.2	0.58	ug/m3			01/17/20 11:31	1
1,2,4-Trichlorobenzene	3.7	U	3.7	1.6	ug/m3			01/17/20 11:31	1
Hexachlorobutadiene	2.1	U	2.1	0.81	ug/m3			01/17/20 11:31	1
Naphthalene	2.6	U	2.6	0.89	ug/m3			01/17/20 11:31	1

Lab Sample ID: LCS 200-151551/3
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	10.6	10.3		ppb v/v		97	61 - 142
Freon 22	10.6	10.2		ppb v/v		97	60 - 147
1,2-Dichlorotetrafluoroethane	10.6	10.5		ppb v/v		99	71 - 141
Chloromethane	10.0	10.0		ppb v/v		100	56 - 141
n-Butane	10.0	9.85		ppb v/v		98	53 - 151
Vinyl chloride	10.0	10.0		ppb v/v		100	61 - 135
1,3-Butadiene	10.0	10.4		ppb v/v		104	58 - 139
Bromomethane	10.0	9.63		ppb v/v		96	72 - 124
Chloroethane	10.6	10.5		ppb v/v		99	68 - 130
Bromoethene(Vinyl Bromide)	10.0	9.62		ppb v/v		96	75 - 125
Trichlorofluoromethane	10.0	9.51		ppb v/v		95	70 - 129
Freon TF	10.7	9.78		ppb v/v		92	70 - 121
1,1-Dichloroethene	10.0	9.31		ppb v/v		93	68 - 120
Acetone	10.0	8.12		ppb v/v		81	54 - 154
Isopropyl alcohol	10.0	9.47		ppb v/v		95	53 - 142
Carbon disulfide	10.0	9.08		ppb v/v		91	71 - 138
3-Chloropropene	10.7	8.75		ppb v/v		82	50 - 150
Methylene Chloride	10.0	8.50		ppb v/v		85	59 - 137
tert-Butyl alcohol	10.8	10.1		ppb v/v		93	66 - 132
Methyl tert-butyl ether	10.6	9.55		ppb v/v		90	70 - 127
trans-1,2-Dichloroethene	10.0	8.86		ppb v/v		89	69 - 137
n-Hexane	10.0	8.35		ppb v/v		84	63 - 138
1,1-Dichloroethane	10.0	9.03		ppb v/v		90	66 - 130
Methyl Ethyl Ketone	10.0	8.79		ppb v/v		88	72 - 124
cis-1,2-Dichloroethene	10.0	8.99		ppb v/v		90	72 - 121
Chloroform	10.0	9.27		ppb v/v		93	73 - 124
Tetrahydrofuran	10.0	8.91		ppb v/v		89	60 - 149
1,1,1-Trichloroethane	10.0	9.80		ppb v/v		98	72 - 127
Cyclohexane	10.0	8.78		ppb v/v		88	76 - 124
Carbon tetrachloride	10.0	9.77		ppb v/v		98	71 - 133
2,2,4-Trimethylpentane	10.0	8.57		ppb v/v		86	68 - 131
Benzene	10.0	8.92		ppb v/v		89	73 - 119
1,2-Dichloroethane	10.0	9.82		ppb v/v		98	68 - 135
n-Heptane	10.0	8.22		ppb v/v		82	60 - 142
Trichloroethene	10.0	9.33		ppb v/v		93	73 - 122
Methyl methacrylate	10.0	8.72		ppb v/v		87	73 - 129
1,2-Dichloropropane	10.0	8.76		ppb v/v		88	69 - 128
1,4-Dioxane	10.0	9.99		ppb v/v		100	66 - 129
Bromodichloromethane	10.0	9.44		ppb v/v		94	75 - 127

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-151551/3
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	10.0	9.04		ppb v/v		90	74 - 125
methyl isobutyl ketone	10.0	8.75		ppb v/v		88	58 - 144
Toluene	10.0	7.96		ppb v/v		80	75 - 122
trans-1,3-Dichloropropene	10.0	9.92		ppb v/v		99	74 - 128
1,1,2-Trichloroethane	10.0	8.48		ppb v/v		85	75 - 126
Tetrachloroethene	10.0	8.43		ppb v/v		84	70 - 125
Methyl Butyl Ketone (2-Hexanone)	10.0	8.79		ppb v/v		88	57 - 143
Dibromochloromethane	10.6	10.3		ppb v/v		97	73 - 125
1,2-Dibromoethane	10.7	9.79		ppb v/v		92	78 - 122
Chlorobenzene	10.5	9.80		ppb v/v		93	76 - 119
Ethylbenzene	10.0	9.64		ppb v/v		96	74 - 122
m,p-Xylene	20.0	19.7		ppb v/v		98	76 - 121
Xylene, o-	10.0	10.2		ppb v/v		102	73 - 123
Styrene	10.0	10.3		ppb v/v		103	74 - 125
Bromoform	10.0	12.8	^	ppb v/v		128	53 - 149
Cumene	10.0	9.47		ppb v/v		95	73 - 123
1,1,2,2-Tetrachloroethane	10.0	8.88		ppb v/v		89	74 - 126
n-Propylbenzene	10.0	9.43		ppb v/v		94	73 - 127
4-Ethyltoluene	10.0	9.47		ppb v/v		95	75 - 129
1,3,5-Trimethylbenzene	10.0	9.15		ppb v/v		92	72 - 126
2-Chlorotoluene	10.0	9.61		ppb v/v		96	74 - 126
tert-Butylbenzene	10.0	9.16		ppb v/v		92	71 - 125
1,2,4-Trimethylbenzene	10.0	9.24		ppb v/v		92	71 - 129
sec-Butylbenzene	10.0	9.03		ppb v/v		90	70 - 128
4-Isopropyltoluene	10.5	9.62		ppb v/v		92	68 - 130
1,3-Dichlorobenzene	10.0	10.5		ppb v/v		105	69 - 131
1,4-Dichlorobenzene	10.0	10.7		ppb v/v		107	67 - 132
Benzyl chloride	10.0	10.5		ppb v/v		105	60 - 136
n-Butylbenzene	10.5	10.1		ppb v/v		96	65 - 137
1,2-Dichlorobenzene	10.8	11.0		ppb v/v		102	68 - 129
1,2,4-Trichlorobenzene	11.0	12.1		ppb v/v		110	50 - 150
Hexachlorobutadiene	10.8	10.5		ppb v/v		97	58 - 130
Naphthalene	10.5	11.2		ppb v/v		106	50 - 150

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	52	51.0		ug/m3		97	61 - 142
Freon 22	37	36.2		ug/m3		97	60 - 147
1,2-Dichlorotetrafluoroethane	74	73.6		ug/m3		99	71 - 141
Chloromethane	21	20.7		ug/m3		100	56 - 141
n-Butane	24	23.4		ug/m3		98	53 - 151
Vinyl chloride	26	25.6		ug/m3		100	61 - 135
1,3-Butadiene	22	23.0		ug/m3		104	58 - 139
Bromomethane	39	37.4		ug/m3		96	72 - 124
Chloroethane	28	27.6		ug/m3		99	68 - 130
Bromoethene(Vinyl Bromide)	44	42.1		ug/m3		96	75 - 125
Trichlorofluoromethane	56	53.4		ug/m3		95	70 - 129
Freon TF	82	74.9		ug/m3		92	70 - 121
1,1-Dichloroethene	40	36.9		ug/m3		93	68 - 120

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-151551/3
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	24	19.3		ug/m3		81	54 - 154
Isopropyl alcohol	25	23.3		ug/m3		95	53 - 142
Carbon disulfide	31	28.3		ug/m3		91	71 - 138
3-Chloropropene	34	27.4		ug/m3		82	50 - 150
Methylene Chloride	35	29.5		ug/m3		85	59 - 137
tert-Butyl alcohol	33	30.6		ug/m3		93	66 - 132
Methyl tert-butyl ether	38	34.4		ug/m3		90	70 - 127
trans-1,2-Dichloroethene	40	35.1		ug/m3		89	69 - 137
n-Hexane	35	29.4		ug/m3		84	63 - 138
1,1-Dichloroethane	40	36.5		ug/m3		90	66 - 130
Methyl Ethyl Ketone	29	25.9		ug/m3		88	72 - 124
cis-1,2-Dichloroethene	40	35.7		ug/m3		90	72 - 121
Chloroform	49	45.3		ug/m3		93	73 - 124
Tetrahydrofuran	29	26.3		ug/m3		89	60 - 149
1,1,1-Trichloroethane	55	53.5		ug/m3		98	72 - 127
Cyclohexane	34	30.2		ug/m3		88	76 - 124
Carbon tetrachloride	63	61.5		ug/m3		98	71 - 133
2,2,4-Trimethylpentane	47	40.0		ug/m3		86	68 - 131
Benzene	32	28.5		ug/m3		89	73 - 119
1,2-Dichloroethane	40	39.8		ug/m3		98	68 - 135
n-Heptane	41	33.7		ug/m3		82	60 - 142
Trichloroethene	54	50.1		ug/m3		93	73 - 122
Methyl methacrylate	41	35.7		ug/m3		87	73 - 129
1,2-Dichloropropane	46	40.5		ug/m3		88	69 - 128
1,4-Dioxane	36	36.0		ug/m3		100	66 - 129
Bromodichloromethane	67	63.2		ug/m3		94	75 - 127
cis-1,3-Dichloropropene	45	41.0		ug/m3		90	74 - 125
methyl isobutyl ketone	41	35.8		ug/m3		88	58 - 144
Toluene	38	30.0		ug/m3		80	75 - 122
trans-1,3-Dichloropropene	45	45.0		ug/m3		99	74 - 128
1,1,2-Trichloroethane	55	46.3		ug/m3		85	75 - 126
Tetrachloroethene	68	57.1		ug/m3		84	70 - 125
Methyl Butyl Ketone (2-Hexanone)	41	36.0		ug/m3		88	57 - 143
Dibromochloromethane	90	87.9		ug/m3		97	73 - 125
1,2-Dibromoethane	82	75.3		ug/m3		92	78 - 122
Chlorobenzene	48	45.1		ug/m3		93	76 - 119
Ethylbenzene	43	41.9		ug/m3		96	74 - 122
m,p-Xylene	87	85.3		ug/m3		98	76 - 121
Xylene, o-	43	44.4		ug/m3		102	73 - 123
Styrene	43	43.7		ug/m3		103	74 - 125
Bromoform	100	132	^	ug/m3		128	53 - 149
Cumene	49	46.6		ug/m3		95	73 - 123
1,1,2,2-Tetrachloroethane	69	61.0		ug/m3		89	74 - 126
n-Propylbenzene	49	46.3		ug/m3		94	73 - 127
4-Ethyltoluene	49	46.6		ug/m3		95	75 - 129
1,3,5-Trimethylbenzene	49	45.0		ug/m3		92	72 - 126
2-Chlorotoluene	52	49.8		ug/m3		96	74 - 126
tert-Butylbenzene	55	50.3		ug/m3		92	71 - 125

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-151551/3
Matrix: Air
Analysis Batch: 151551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	49	45.4		ug/m3		92	71 - 129
sec-Butylbenzene	55	49.6		ug/m3		90	70 - 128
4-Isopropyltoluene	58	52.8		ug/m3		92	68 - 130
1,3-Dichlorobenzene	60	63.4		ug/m3		105	69 - 131
1,4-Dichlorobenzene	60	64.3		ug/m3		107	67 - 132
Benzyl chloride	52	54.3		ug/m3		105	60 - 136
n-Butylbenzene	58	55.4		ug/m3		96	65 - 137
1,2-Dichlorobenzene	65	66.2		ug/m3		102	68 - 129
1,2,4-Trichlorobenzene	81	89.7		ug/m3		110	50 - 150
Hexachlorobutadiene	120	112		ug/m3		97	58 - 130
Naphthalene	55	58.5		ug/m3		106	50 - 150

QC Association Summary

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Air - GC/MS VOA

Analysis Batch: 151551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-52174-1	BASEMENT	Total/NA	Air	TO-15	
200-52174-2	1ST FLOOR	Total/NA	Air	TO-15	
200-52174-3	OUTSIDE	Total/NA	Air	TO-15	
MB 200-151551/4	Method Blank	Total/NA	Air	TO-15	
LCS 200-151551/3	Lab Control Sample	Total/NA	Air	TO-15	

Lab Chronicle

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Client Sample ID: BASEMENT
Date Collected: 01/09/20 10:19
Date Received: 01/10/20 10:26

Lab Sample ID: 200-52174-1
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	151551	01/18/20 02:47	A1B	TAL BUR

Client Sample ID: 1ST FLOOR
Date Collected: 01/09/20 10:22
Date Received: 01/10/20 10:26

Lab Sample ID: 200-52174-2
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	151551	01/18/20 03:46	A1B	TAL BUR

Client Sample ID: OUTSIDE
Date Collected: 01/09/20 10:25
Date Received: 01/10/20 10:26

Lab Sample ID: 200-52174-3
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	151551	01/18/20 04:43	A1B	TAL BUR

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Laboratory: Eurofins TestAmerica, Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-20
Connecticut	State	PH-0751	09-30-19 *
Connecticut	State	PH-0751	09-30-21
Connecticut	State Program	PH-0751	09-30-21
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-15-20
Florida	NELAP	E87467	06-30-20
Minnesota	NELAP	050-999-436	12-31-20
New Hampshire	NELAP	2006	12-18-20
New Hampshire	NELAP	2006	12-18-20
New Jersey	NELAP	VT972	06-30-20
New York	NELAP	10391	03-31-20
Pennsylvania	NELAP	68-00489	04-30-20
Rhode Island	State	LAO00298	12-30-20
Rhode Island	State Program	LAO00298	12-30-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00272	08-09-20
Vermont	State	VT4000	12-31-20
Virginia	NELAP	460209	12-14-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: KAS, Inc.
Project/Site: Lamb Residence

Job ID: 200-52174-1
SDG: 200-52174

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
200-52174-1	BASEMENT	Air	01/09/20 10:19	01/10/20 10:26	Air Canister (6-Liter) #5632
200-52174-2	1ST FLOOR	Air	01/09/20 10:22	01/10/20 10:26	Air Canister (6-Liter) #5161
200-52174-3	OUTSIDE	Air	01/09/20 10:25	01/10/20 10:26	Air Canister (6-Liter) #5642

Eurofins TestAmerica, Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.

eurofins | Environment Testing TestAmerica

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact Information		Client Project Manager: Sam Driver	Samples Collected By: Jolene Turner	COC No: 1 of 1 COCs
Company Name: KAS, Inc.		Phone: 802-383-0486		
Address: 589 Ave D Suite 10		Email: Sam@kas-consulting.com		
City/State/Zip: Williston VT 05495				
Phone: 802-383-0486		Site Contact:		For Lab Use Only:
FAX: 802-383-0490		Tel/Fax		Walk-in Client:
Project Name: Lamb Residence		Analysis Turnaround Time		Lab Sampling:
Site/Location: E. Montpelier, VT		Standard (Specific): STAT		Job / SDG No.:
P O # 4100400711		Rush (Specifiy):		(See below for Add'l Items)

Sample Identification	Sample Start Date	Time Start	Sample End Date	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-14A (Standard / Low Level)	TO-15 SIM	EPA 3C	EPA 25C	ASTM D-1946	EPA 15/16	Other (Please specify in notes section)	Sample Type	Indoor Air/Ambient Air	Sub-Slab	Soil Gas	Soil Vapor Extraction (SVE)	Landfill Gas	Other (Please specify in notes section)	Sample Specific Notes:
Basement	1/9/20	949	1/9/20	1019	-25	-1	4718	5632	X								X						
1st floor	↓	952	↓	1022	-30	-3	4708	5161	↓								↓						
Outside	↓	955	↓	1025	-30	-6	6124	5642	↓								↓						

200-52174 COC

Temperature (Fahrenheit)			
Start	Interior 9°	Ambient 9°	
Stop	9°	9°	

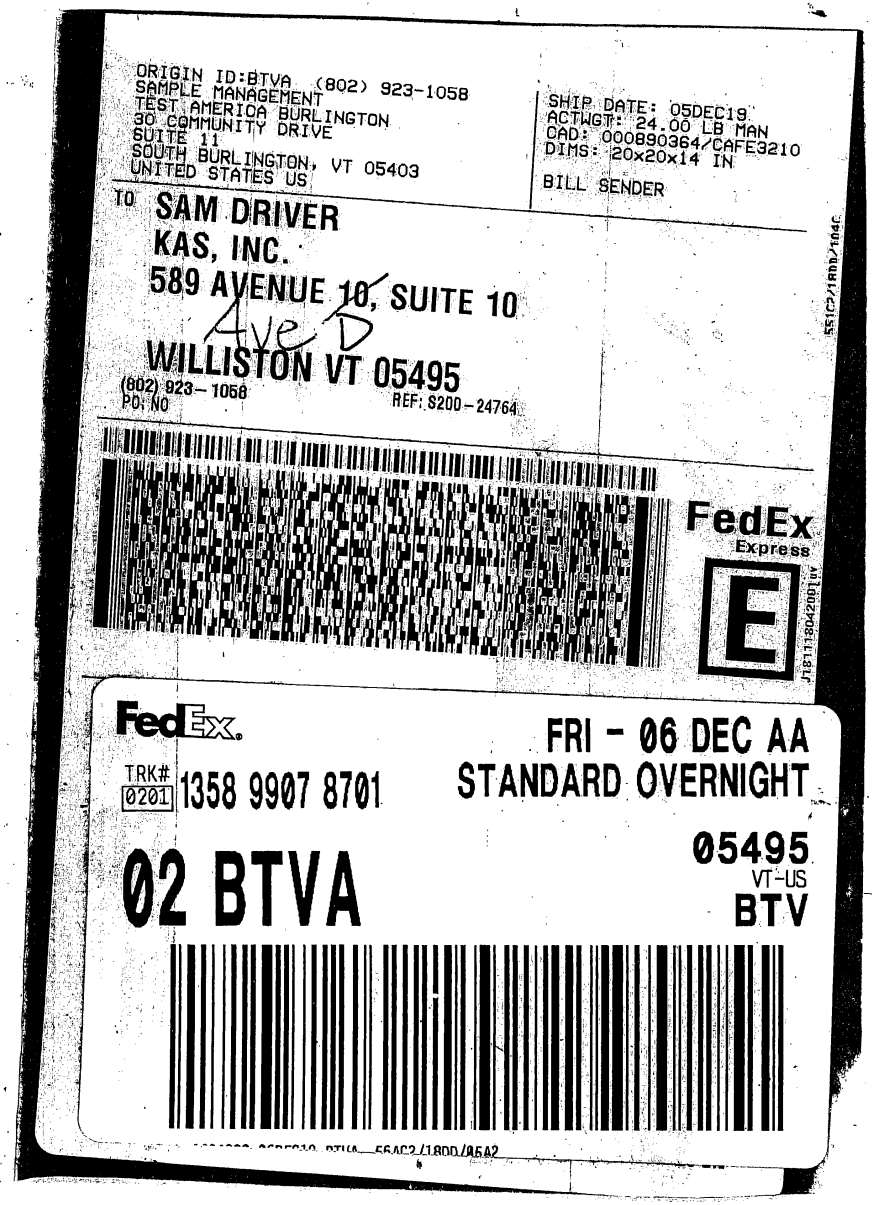
Pressure (inches of Hg)		
Start	Interior	Ambient
Stop	30.71 in	30.71 in

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date / Time: 1/9/20 1346	Samples Received by:	
Samples Relinquished by:	Date / Time: 1/10/20 1240	Received by:	1/10/20 12:40
Relinquished by:	Date / Time:	Received by:	
Lab Use Only: Shipper Name:	Opened by:	Condition:	

Form No. CA-C-WI-003, Rev. 2.13, dated 4/10/2019

1/21/2020



ORIGIN ID:BTVA (802) 923-1058
SAMPLE MANAGEMENT
TEST AMERICA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON, VT 05403
UNITED STATES US

SHIP DATE: 05DEC19
ACTWGT: 24.00 LB MAN
CAD: 000890364/CAFE3210
DIMS: 20x20x14 IN

BILL SENDER

TO SAM DRIVER
KAS, INC.
589 AVENUE 10, SUITE 10
Ave D
WILLISTON VT 05495
(802) 923-1058
PO: NO
REF: S200-24764

FedEx Express

FedEx

TRK# 0201 1358 9907 8701

FRI - 06 DEC AA
STANDARD OVERNIGHT

02 BTVA

05495
VT-US
BTV

Login Sample Receipt Checklist

Client: KAS, Inc.

Job Number: 200-52174-1
SDG Number: 200-52174

Login Number: 52174
List Number: 1
Creator: Lavigne, Scott M

List Source: Eurofins TestAmerica, Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	N/A	Thermal preservation not required.
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	Max DF#	# Cycles	Cleaning Start Date/Time		System Start Temp(s):		Technician	Can Size	Certification Type:
Oven 3/4	10	32	11/12/2019	1355	21	21	SML	6 liter	batch

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Date:	Time:	Tech:	Temp:	Final Reading Gauge:	Date:	Time:	Tech:	Temp:
1	5632	30.06	30.06	0	29.8	G26	11/13/19	1300	S	21.0	G26	11/30/19	1400	S	22.0
2	5636	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
3	5722	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
4	4312	30.01	30.01	0	29.8	G26	11/26/19	1215	S	21.0	G26	"	"	"	"
5	5043	30.06	30.06	0	29.8	G26	11/13/19	1300	S	21.0	G26	"	"	"	"
6	5642	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
7	4554	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
8	5161	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
9	3289	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
10	4361	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
11	4546	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"
12	6017	"	30.06	0	29.8	G26	"	"	"	"	G26	"	"	"	"

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (2) Pressure readings must be at least 24 hours apart.

If time frame was not met, the PM must authorize shipment of canister **PM Authorization** **Date:**

Clean Canister Certification Analysis & Authorization of Release to Inventory

Test Method: ☒ TO15 Routine ☐ TO15 LL

Can ID	Date	Sequence	Analyst	Inventory Level 1	2	3	4	Secondary Review Limited	Review Date	Reviewer
4312	11/14/19	38768	KPI		XXXXXX				11/14/19	
4312	11/15/19	38768	KPi						11/15/19	

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Dup Tees/Vac gauges (enter IDs if included):

Comments:

Page 33 of 100

4/21/2020

Form ID: FAI023:12
Revision Date: 12/18/2018

TestAmerica Burlington

200-51460-A-4
4312
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 11/12/2019 12:00 AM 200-1340491

Loc: 200
51460
#4
A

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Burlington Job No.: 200-51460-1

SDG No.:

Client Sample ID: 4312 Lab Sample ID: 200-51460-4

Matrix: Air Lab File ID: 200-38768-009.D

Analysis Method: TO-15 Date Collected: 11/12/2019 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 11/14/2019 15:03

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 149666 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
115-07-1	Propylene	1.0	U	1.0	1.0
75-71-8	Dichlorodifluoromethane	0.10	U	0.10	0.10
75-45-6	Freon 22	0.10	U	0.10	0.10
76-14-2	1,2-Dichlorotetrafluoroethane	0.040	U	0.040	0.040
74-87-3	Chloromethane	0.10	U	0.10	0.10
106-97-8	n-Butane	0.10	U *	0.10	0.10
75-01-4	Vinyl chloride	0.040	U	0.040	0.040
106-99-0	1,3-Butadiene	0.040	U	0.040	0.040
74-83-9	Bromomethane	0.040	U	0.040	0.040
75-00-3	Chloroethane	0.10	U	0.10	0.10
593-60-2	Bromoethene(Vinyl Bromide)	0.040	U	0.040	0.040
75-69-4	Trichlorofluoromethane	0.040	U	0.040	0.040
64-17-5	Ethanol	1.0	U	1.0	1.0
76-13-1	Freon TF	0.040	U	0.040	0.040
75-35-4	1,1-Dichloroethene	0.040	U	0.040	0.040
67-64-1	Acetone	1.0	U	1.0	1.0
67-63-0	Isopropyl alcohol	1.0	U	1.0	1.0
75-15-0	Carbon disulfide	0.10	U	0.10	0.10
107-05-1	3-Chloropropene	0.10	U	0.10	0.10
75-09-2	Methylene Chloride	0.10	U	0.10	0.10
75-65-0	tert-Butyl alcohol	1.0	U	1.0	1.0
1634-04-4	Methyl tert-butyl ether	0.040	U	0.040	0.040
156-60-5	trans-1,2-Dichloroethene	0.040	U	0.040	0.040
110-54-3	n-Hexane	0.040	U	0.040	0.040
75-34-3	1,1-Dichloroethane	0.040	U	0.040	0.040
108-05-4	Vinyl acetate	1.0	U	1.0	1.0
141-78-6	Ethyl acetate	1.0	U	1.0	1.0
78-93-3	Methyl Ethyl Ketone	0.10	U	0.10	0.10
156-59-2	cis-1,2-Dichloroethene	0.040	U	0.040	0.040
540-59-0	1,2-Dichloroethene, Total	0.080	U	0.080	0.080
67-66-3	Chloroform	0.040	U	0.040	0.040
109-99-9	Tetrahydrofuran	1.0	U	1.0	1.0
71-55-6	1,1,1-Trichloroethane	0.040	U	0.040	0.040
110-82-7	Cyclohexane	0.040	U	0.040	0.040
56-23-5	Carbon tetrachloride	0.040	U	0.040	0.040
540-84-1	2,2,4-Trimethylpentane	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Burlington Job No.: 200-51460-1

SDG No.:

Client Sample ID: 4312 Lab Sample ID: 200-51460-4

Matrix: Air Lab File ID: 200-38768-009.D

Analysis Method: TO-15 Date Collected: 11/12/2019 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 11/14/2019 15:03

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 149666 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
71-43-2	Benzene	0.040	U	0.040	0.040
107-06-2	1,2-Dichloroethane	0.040	U	0.040	0.040
142-82-5	n-Heptane	0.040	U	0.040	0.040
79-01-6	Trichloroethene	0.040	U	0.040	0.040
80-62-6	Methyl methacrylate	0.10	U	0.10	0.10
78-87-5	1,2-Dichloropropane	0.040	U	0.040	0.040
123-91-1	1,4-Dioxane	1.0	U	1.0	1.0
75-27-4	Bromodichloromethane	0.040	U	0.040	0.040
10061-01-5	cis-1,3-Dichloropropene	0.040	U	0.040	0.040
108-10-1	methyl isobutyl ketone	0.10	U	0.10	0.10
108-88-3	Toluene	0.040	U	0.040	0.040
10061-02-6	trans-1,3-Dichloropropene	0.040	U	0.040	0.040
79-00-5	1,1,2-Trichloroethane	0.040	U	0.040	0.040
127-18-4	Tetrachloroethene	0.040	U	0.040	0.040
591-78-6	Methyl Butyl Ketone (2-Hexanone)	0.10	U	0.10	0.10
124-48-1	Dibromochloromethane	0.040	U	0.040	0.040
106-93-4	1,2-Dibromoethane	0.040	U	0.040	0.040
108-90-7	Chlorobenzene	0.040	U	0.040	0.040
100-41-4	Ethylbenzene	0.040	U	0.040	0.040
179601-23-1	m,p-Xylene	0.10	U	0.10	0.10
95-47-6	Xylene, o-	0.040	U	0.040	0.040
1330-20-7	Xylene (total)	0.14	U	0.14	0.14
100-42-5	Styrene	0.040	U	0.040	0.040
75-25-2	Bromoform	0.040	U	0.040	0.040
98-82-8	Cumene	0.040	U	0.040	0.040
79-34-5	1,1,2,2-Tetrachloroethane	0.040	U	0.040	0.040
103-65-1	n-Propylbenzene	0.040	U	0.040	0.040
622-96-8	4-Ethyltoluene	0.040	U	0.040	0.040
108-67-8	1,3,5-Trimethylbenzene	0.040	U	0.040	0.040
95-49-8	2-Chlorotoluene	0.040	U	0.040	0.040
98-06-6	tert-Butylbenzene	0.040	U	0.040	0.040
95-63-6	1,2,4-Trimethylbenzene	0.040	U	0.040	0.040
135-98-8	sec-Butylbenzene	0.040	U	0.040	0.040
99-87-6	4-Isopropyltoluene	0.040	U	0.040	0.040
541-73-1	1,3-Dichlorobenzene	0.040	U	0.040	0.040
106-46-7	1,4-Dichlorobenzene	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Burlington Job No.: 200-51460-1

SDG No.:

Client Sample ID: 4312 Lab Sample ID: 200-51460-4

Matrix: Air Lab File ID: 200-38768-009.D

Analysis Method: TO-15 Date Collected: 11/12/2019 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 11/14/2019 15:03

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 149666 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
100-44-7	Benzyl chloride	0.040	U	0.040	0.040
104-51-8	n-Butylbenzene	0.040	U	0.040	0.040
95-50-1	1,2-Dichlorobenzene	0.040	U	0.040	0.040
120-82-1	1,2,4-Trichlorobenzene	0.10	U	0.10	0.10
87-68-3	Hexachlorobutadiene	0.040	U	0.040	0.040
91-20-3	Naphthalene	0.10	U	0.10	0.10

Eurofins TestAmerica, Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D
Lims ID: 200-51460-A-4
Client ID: 4312
Sample Type: Client
Inject. Date: 14-Nov-2019 15:03:30 ALS Bottle#: 8 Worklist Smp#: 9
Purge Vol: 200.000 mL Dil. Factor: 0.2000
Sample Info: 200-0038768-009
Misc. Info.: 51460-4
Operator ID: ggg Instrument ID: CHG.i

Method: \\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\TO15_MasterMethod_(v1)_G.m
Limit Group: AI_TO15_ICAL
Last Update: 15-Nov-2019 11:07:40 Calib Date: 12-Nov-2019 02:55:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Burlington\ChromData\CHG.i\20191111-38718.b\200-38718-014.D

Column 1 : RTX-624 (0.32 mm) Det: MS SCAN
Process Host: CTX0307

First Level Reviewer: puangmaleek Date: 15-Nov-2019 11:07:40

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		3.065				ND	U
2 Dichlorodifluoromethane	85		3.129				ND	
3 Chlorodifluoromethane	51		3.155				ND	U
4 1,2-Dichloro-1,1,2,2-tetra	85		3.353				ND	
5 Chloromethane	50		3.439				ND	U
6 Butane	43		3.637				ND	U
7 Vinyl chloride	62		3.642				ND	
8 Butadiene	54		3.717				ND	
10 Bromomethane	94		4.231				ND	
11 Chloroethane	64		4.429				ND	
13 Vinyl bromide	106		4.760				ND	
14 Trichlorofluoromethane	101		4.878				ND	
17 Ethanol	45		5.183				ND	
21 1,1-Dichloroethene	96		5.798				ND	U
20 1,1,2-Trichloro-1,2,2-trif	101		5.820				ND	U
22 Acetone	43		5.868				ND	
24 Isopropyl alcohol	45		6.125				ND	
23 Carbon disulfide	76		6.173				ND	
25 3-Chloro-1-propene	41		6.446				ND	U
27 Methylene Chloride	49		6.681				ND	U
28 2-Methyl-2-propanol	59		6.863				ND	
29 Methyl tert-butyl ether	73		7.146				ND	
31 trans-1,2-Dichloroethene	61		7.152				ND	
33 Hexane	57		7.644				ND	
34 1,1-Dichloroethane	63		7.922				ND	
35 Vinyl acetate	43		7.927				ND	
38 2-Butanone (MEK)	72		8.906				ND	
37 cis-1,2-Dichloroethene	96		8.922				ND	U
39 Ethyl acetate	88		8.981				ND	
* 40 Chlorobromomethane	128	9.345	9.350	-0.005	84	426535	10.0	
41 Tetrahydrofuran	42		9.372				ND	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
42 Chloroform	83		9.538				ND	
S 30 1,2-Dichloroethene, Total	61		9.665				ND	
44 1,1,1-Trichloroethane	97		9.843				ND	
43 Cyclohexane	84		9.971				ND	
45 Carbon tetrachloride	117		10.126				ND	
47 Benzene	78		10.517				ND	U
48 1,2-Dichloroethane	62		10.618				ND	
46 Isooctane	57		10.736				ND	
49 n-Heptane	43		11.089				ND	U
* 50 1,4-Difluorobenzene	114	11.341	11.346	-0.005	94	2062205	10.0	
53 Trichloroethene	95		11.817				ND	
54 1,2-Dichloropropane	63		12.352				ND	
55 Methyl methacrylate	69		12.459				ND	
56 1,4-Dioxane	88		12.480				ND	
57 Dibromomethane	174	12.523	12.523	0.000	42	1231	0.0148	M
58 Dichlorobromomethane	83		12.876				ND	
60 cis-1,3-Dichloropropene	75		13.764				ND	
61 4-Methyl-2-pentanone (MIBK	43		14.064				ND	U
65 Toluene	92		14.443				ND	
66 trans-1,3-Dichloropropene	75		14.925				ND	
67 1,1,2-Trichloroethane	83		15.326				ND	
68 Tetrachloroethene	166		15.497				ND	
69 2-Hexanone	43		15.775				ND	U
71 Chlorodibromomethane	129		16.102				ND	
72 Ethylene Dibromide	107		16.348				ND	
* 74 Chlorobenzene-d5	117	17.311	17.316	-0.005	86	1767725	10.0	
75 Chlorobenzene	112		17.380				ND	
76 Ethylbenzene	91		17.584				ND	
78 m-Xylene & p-Xylene	106		17.862				ND	
79 o-Xylene	106		18.675				ND	
80 Styrene	104		18.718				ND	
81 Bromoform	173		19.098				ND	
82 Isopropylbenzene	105		19.429				ND	
S 73 Xylenes, Total	106		19.600				ND	
84 1,1,2,2-Tetrachloroethane	83		20.007				ND	U
85 N-Propylbenzene	91		20.189				ND	
89 2-Chlorotoluene	91		20.339				ND	
88 4-Ethyltoluene	105		20.398				ND	U
90 1,3,5-Trimethylbenzene	105		20.499				ND	U
92 tert-Butylbenzene	119		20.997				ND	U
93 1,2,4-Trimethylbenzene	105		21.088				ND	U
94 sec-Butylbenzene	105		21.334				ND	U
96 1,3-Dichlorobenzene	146		21.510				ND	U
95 4-Isopropyltoluene	119		21.553				ND	U
97 1,4-Dichlorobenzene	146		21.655				ND	U
98 Benzyl chloride	91		21.815				ND	U
100 n-Butylbenzene	91		22.120				ND	U
101 1,2-Dichlorobenzene	146		22.158				ND	U
103 1,2,4-Trichlorobenzene	180		24.624				ND	U
104 Hexachlorobutadiene	225		24.865				ND	U
105 Naphthalene	128		25.111				ND	U

QC Flag Legend

Review Flags

M - Manually Integrated

U - Marked Undetected

Reagents:

ATTO15GIS_00015 Amount Added: 20.00 Units: mL Run Reagent

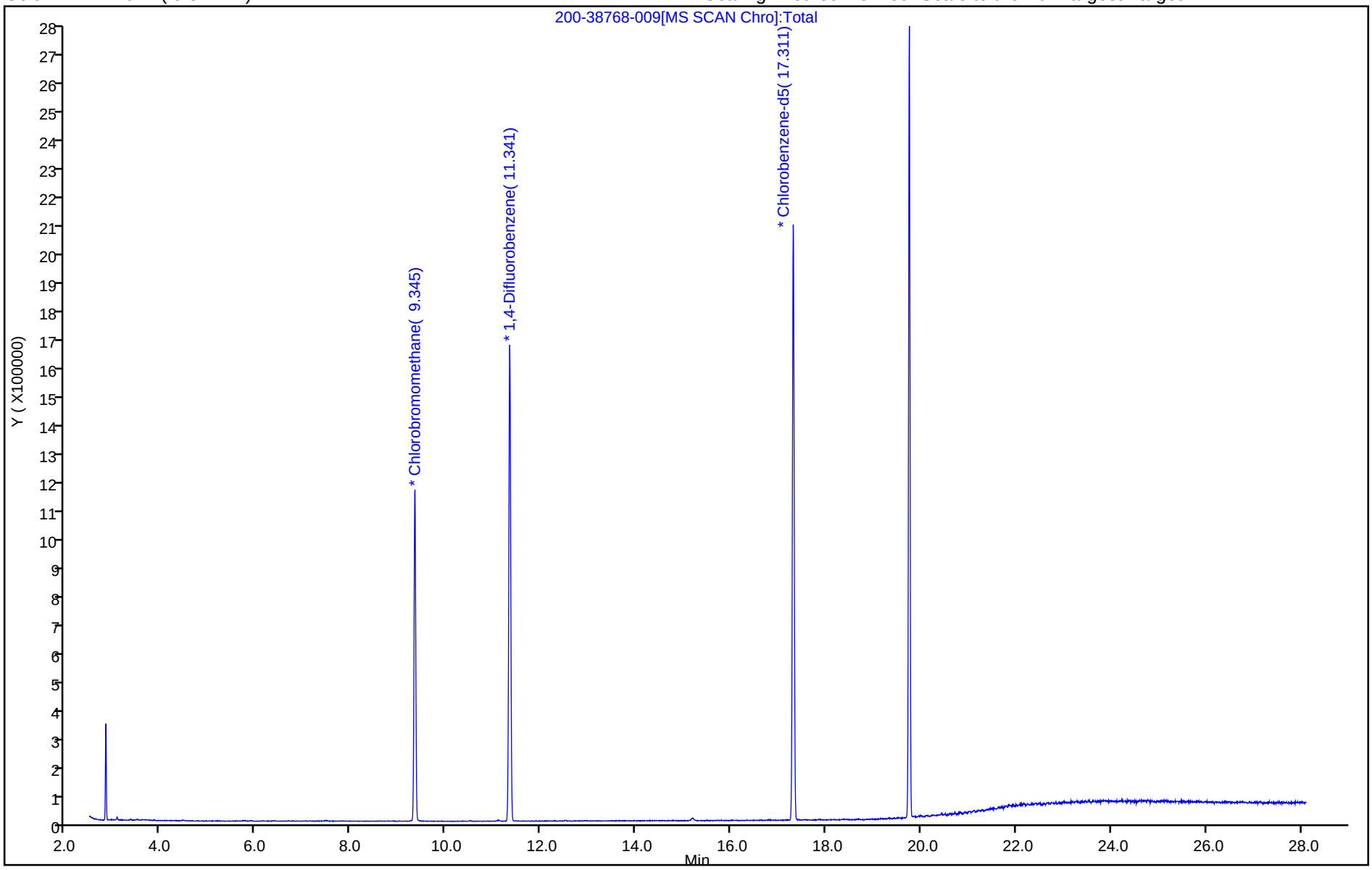
Report Date: 15-Nov-2019 11:07:41 Chrom Revision: 2.3 17-Oct-2019 22:00:42

Eurofins TestAmerica, Burlington

Data File: \\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D

Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i	Operator ID:	ggg
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4	Worklist Smp#:	9
Client ID:	4312				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	8
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		

Column: RTX-624 (0.32 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



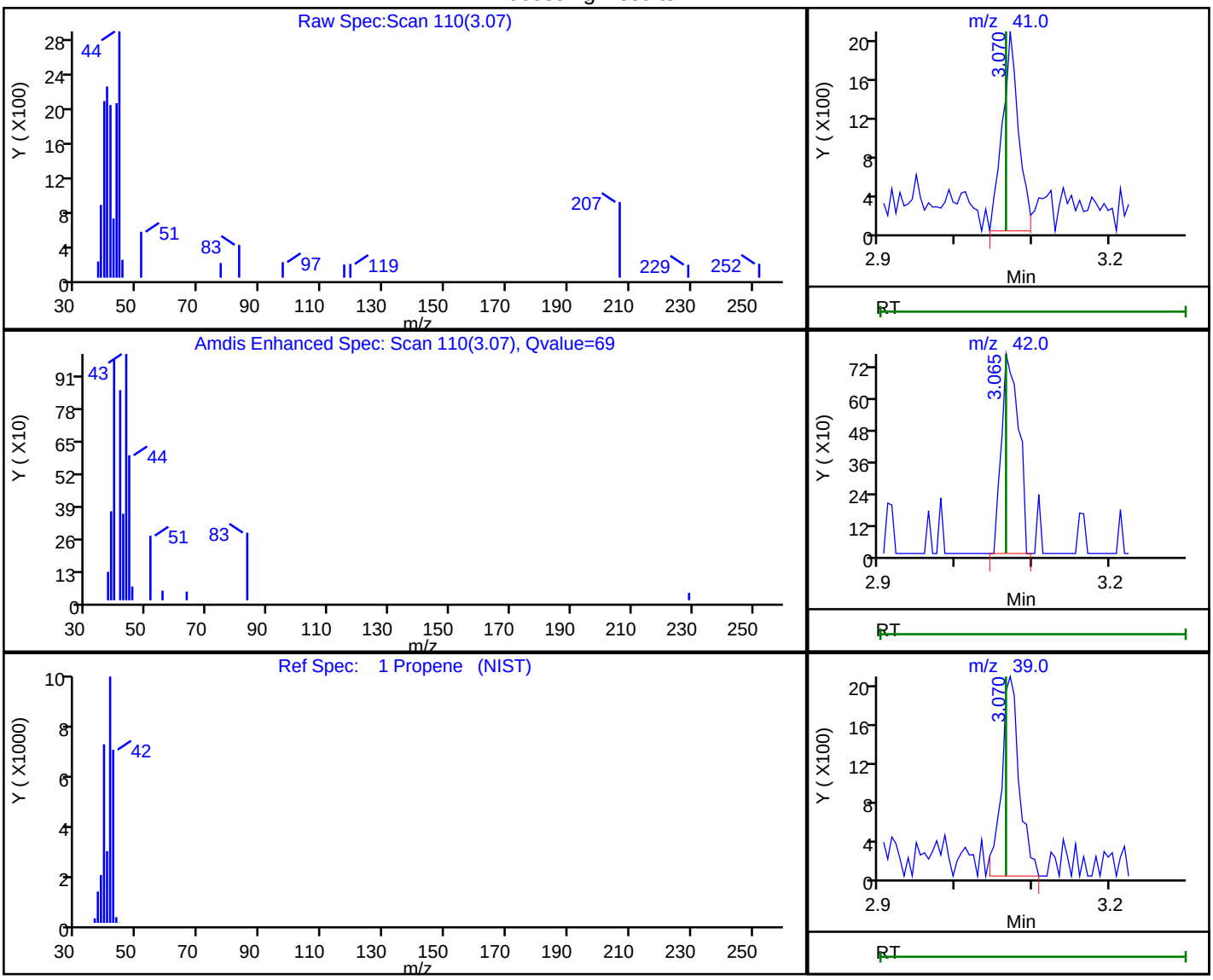
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

1 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.07	41.00	2957	0.205410
3.06	42.00	1184	
3.07	39.00	3305	

Reviewer: puangmaleek, 15-Nov-2019 11:06:10

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

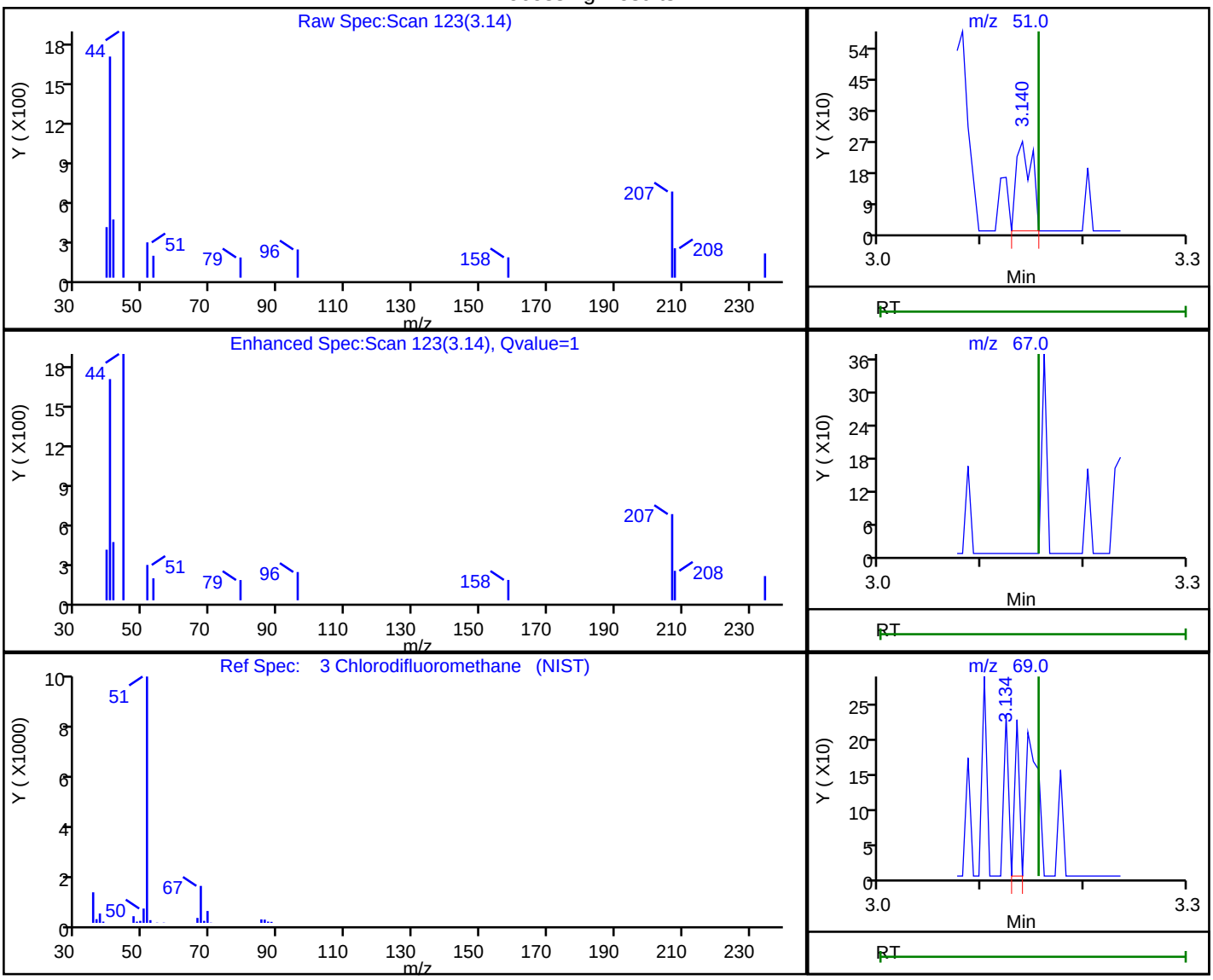
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

3 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.14	51.00	280	0.007260
3.13	69.00	71	
3.16	67.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:12

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

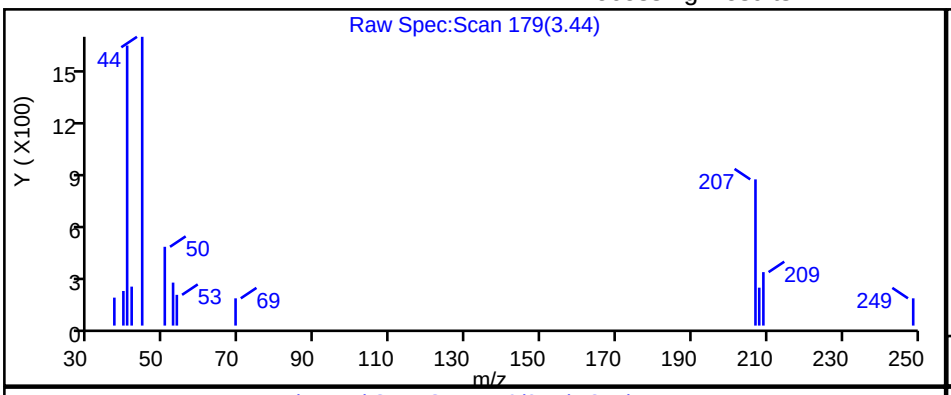
User Disabled Compound Report

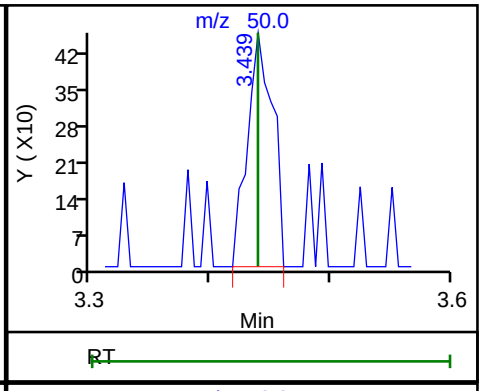
Eurofins TestAmerica, Burlington

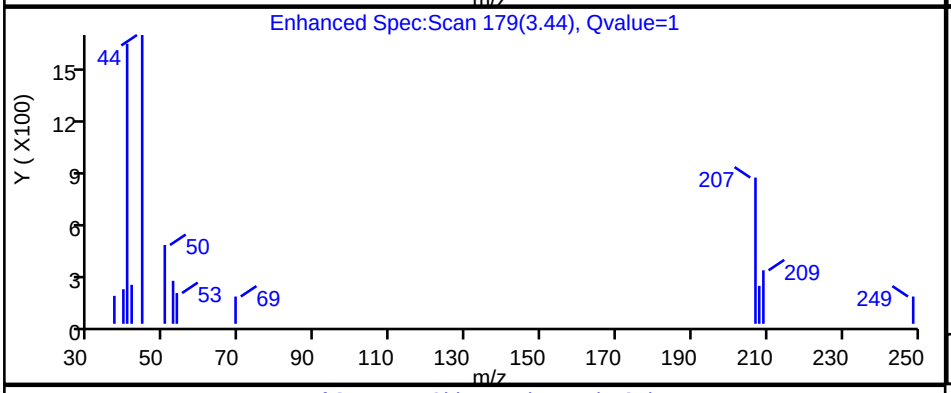
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

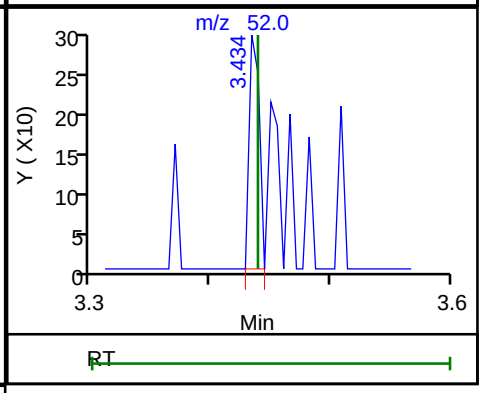
5 Chloromethane, CAS: 74-87-3

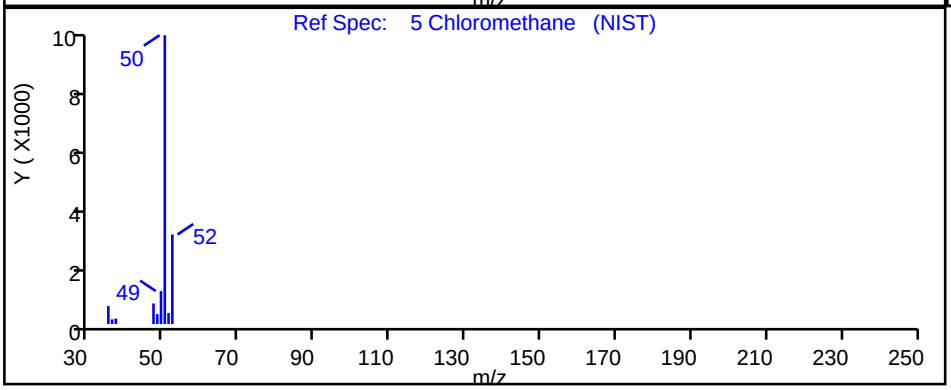
Processing Results











RT	Mass	Response	Amount
3.44	50.00	667	0.031598
3.43	52.00	174	

Reviewer: puangmaleek, 15-Nov-2019 11:06:14

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

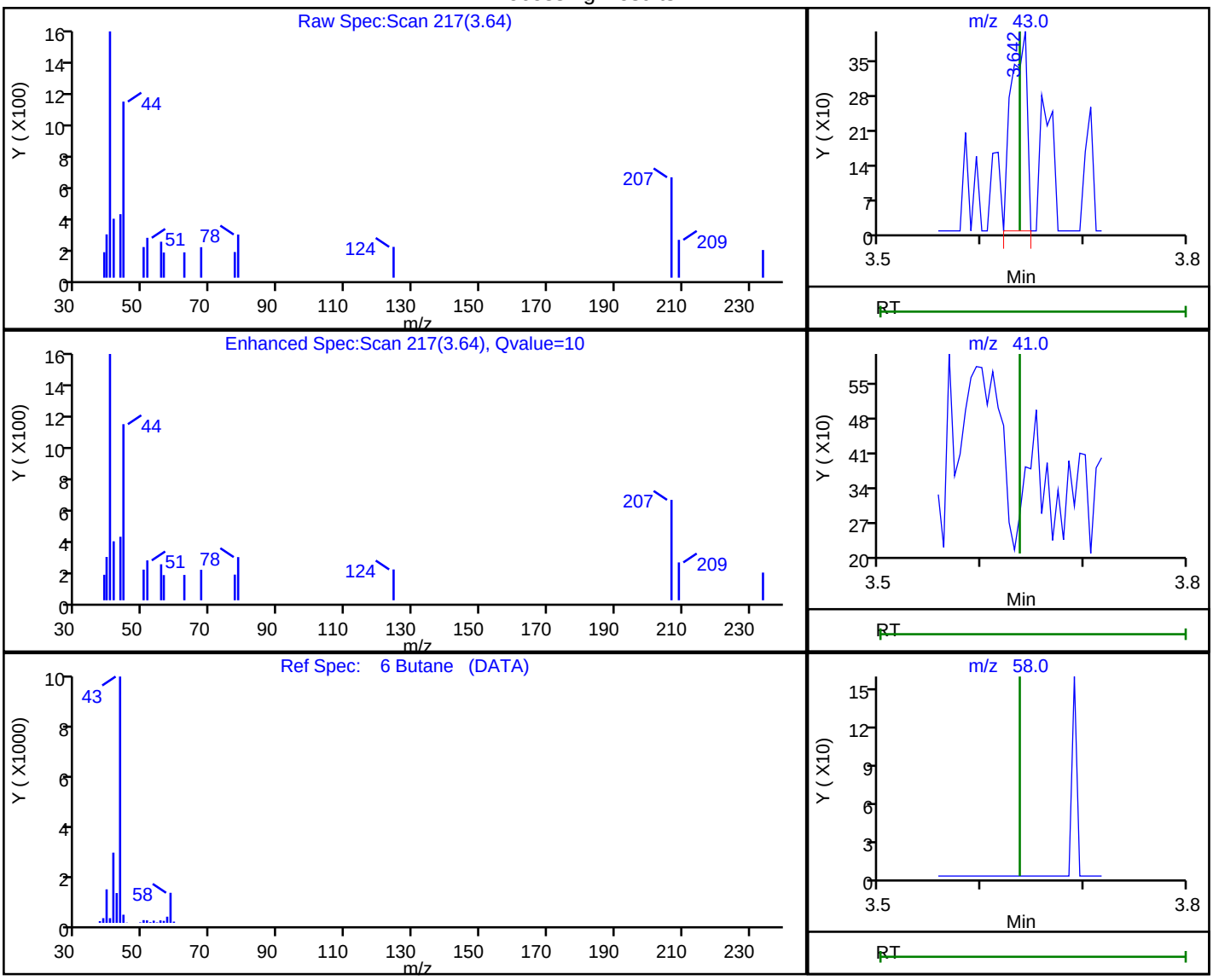
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

6 Butane, CAS: 106-97-8

Processing Results



RT	Mass	Response	Amount
3.64	43.00	432	0.021262
3.64	41.00	0	
3.64	58.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:16

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

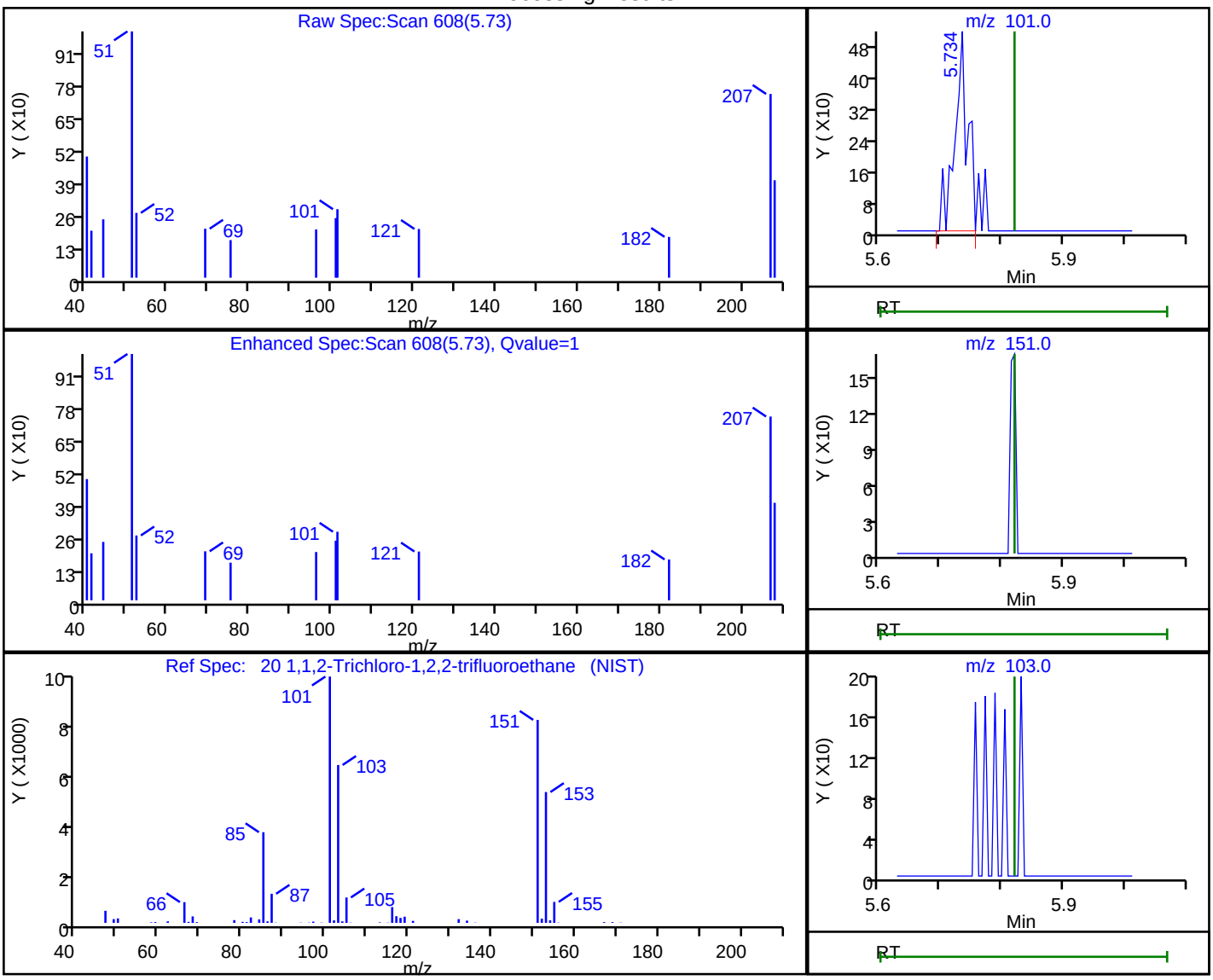
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

20 1,1,2-Trichloro-1,2,2-trifluoroethane, CAS: 76-13-1

Processing Results



RT	Mass	Response	Amount
5.73	101.00	754	0.009413
5.82	151.00	0	
5.82	103.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:20

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

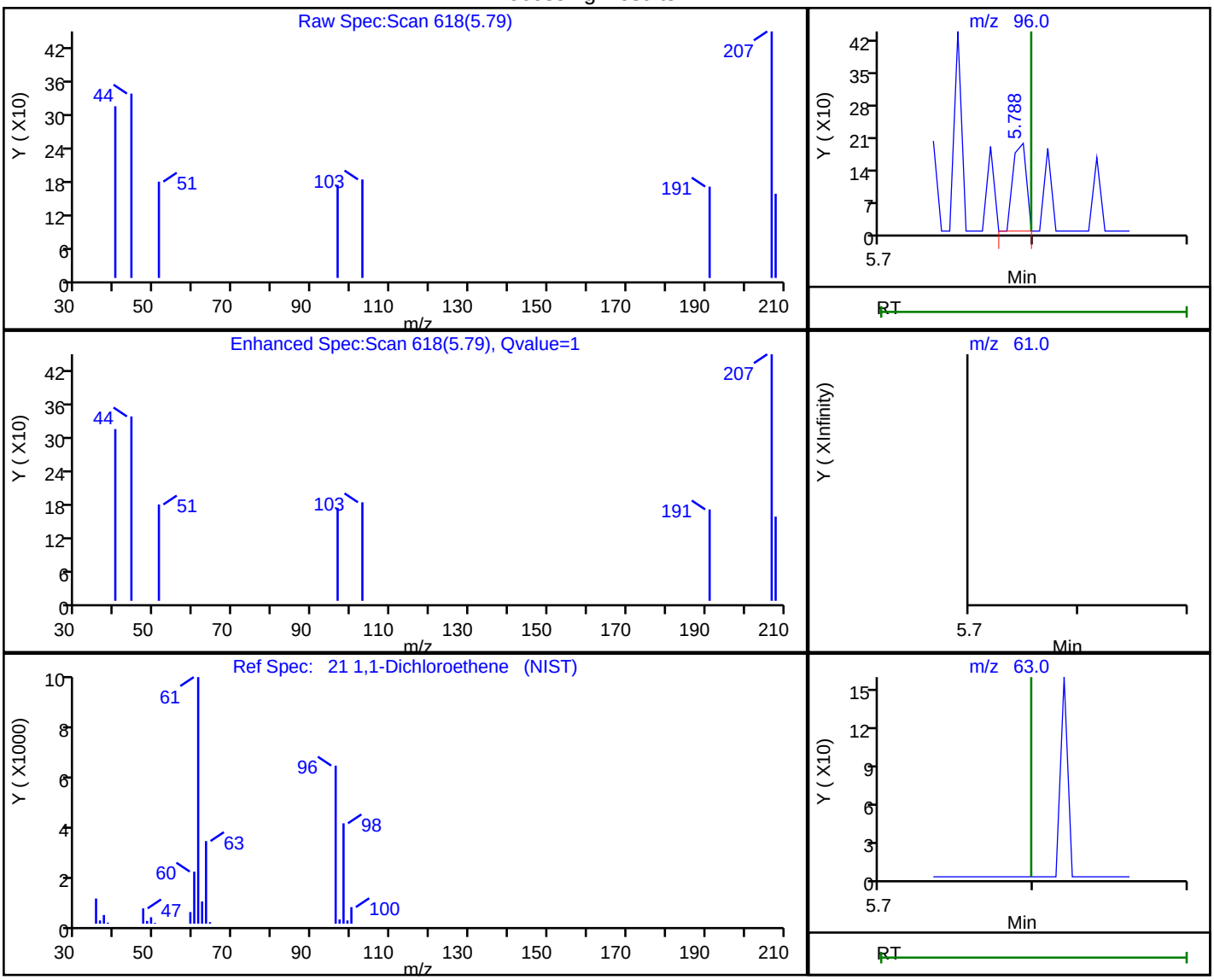
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

21 1,1-Dichloroethene, CAS: 75-35-4

Processing Results



RT	Mass	Response	Amount
5.79	96.00	115	0.003125
5.80	61.00	0	
5.80	63.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:19

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

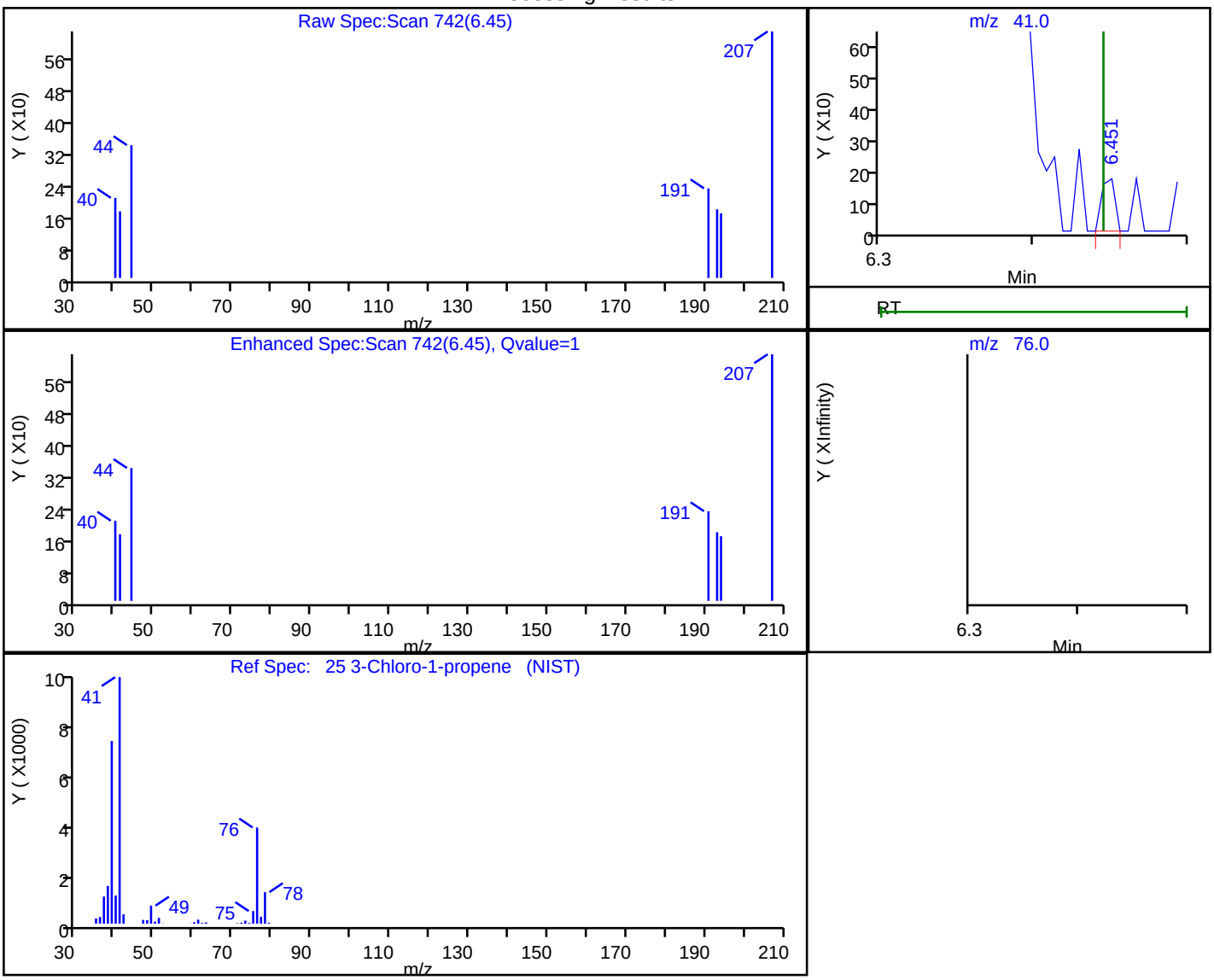
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

25 3-Chloro-1-propene, CAS: 107-05-1

Processing Results



RT	Mass	Response	Amount
6.45	41.00	102	0.003843
6.45	76.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:23

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

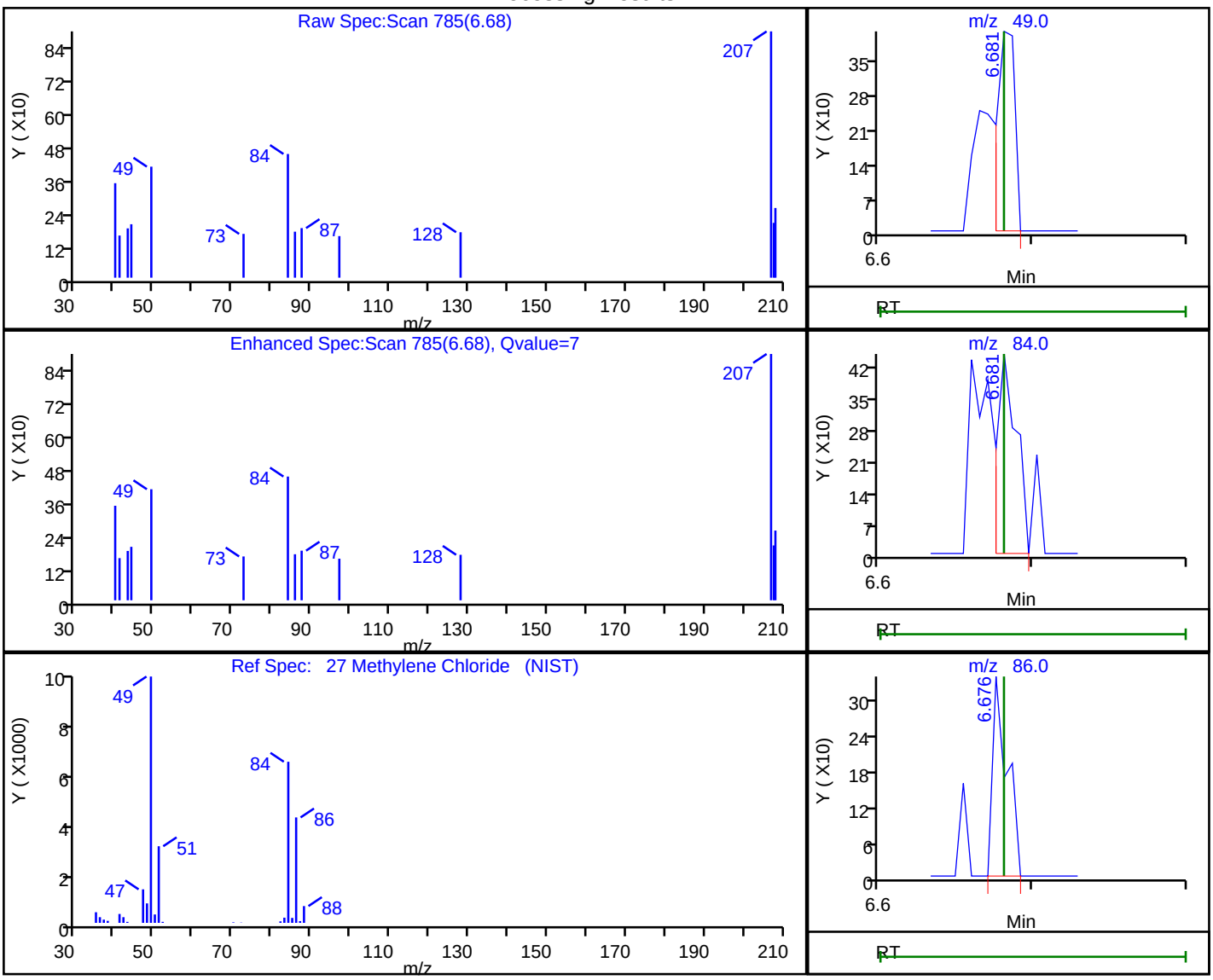
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

27 Methylene Chloride, CAS: 75-09-2

Processing Results



RT	Mass	Response	Amount
6.68	49.00	325	0.010899
6.68	84.00	397	
6.68	86.00	223	

Reviewer: puangmaleek, 15-Nov-2019 11:06:25

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

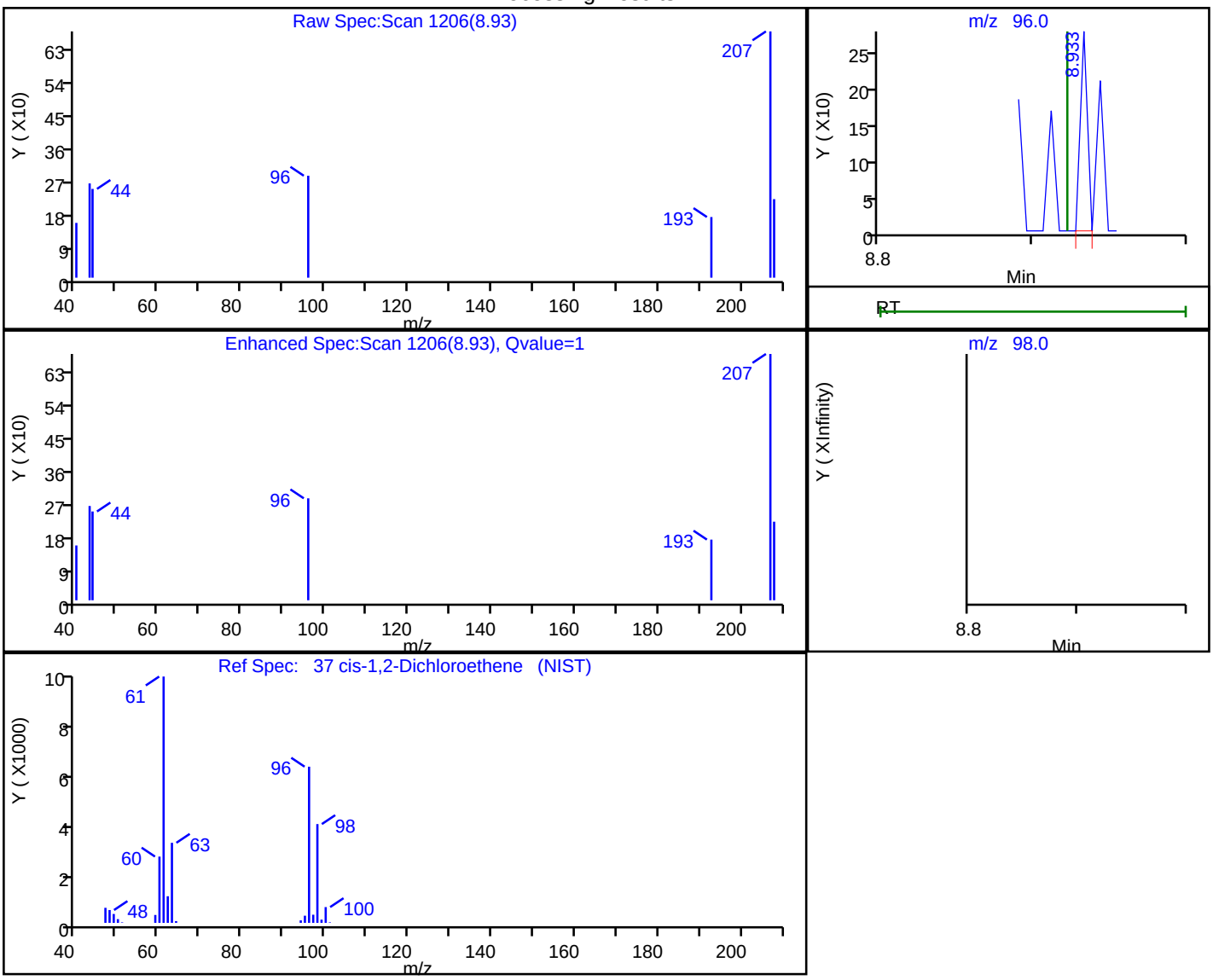
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

37 cis-1,2-Dichloroethene, CAS: 156-59-2

Processing Results



RT	Mass	Response	Amount
8.93	96.00	90	0.002193
8.92	98.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:31

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

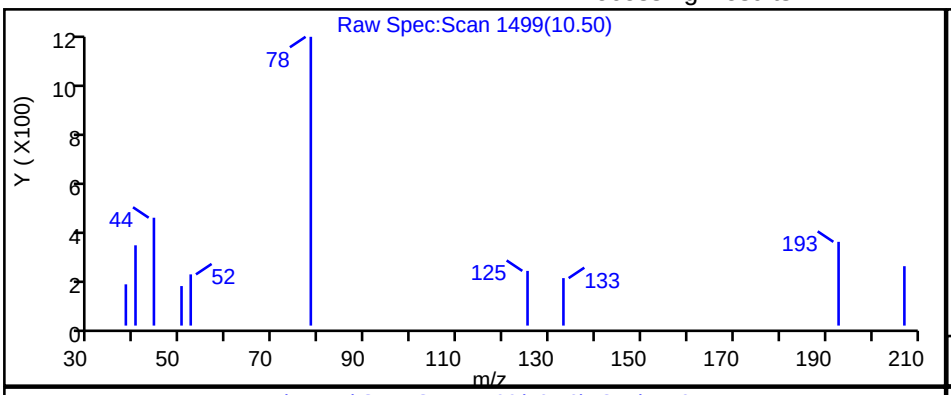
User Disabled Compound Report

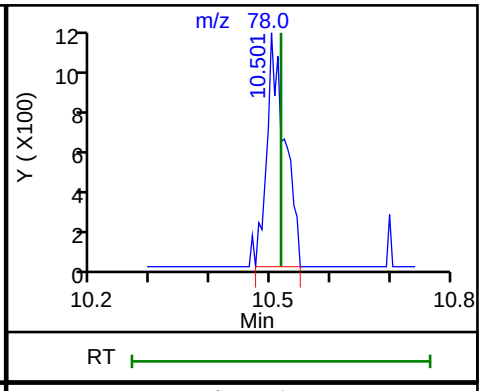
Eurofins TestAmerica, Burlington

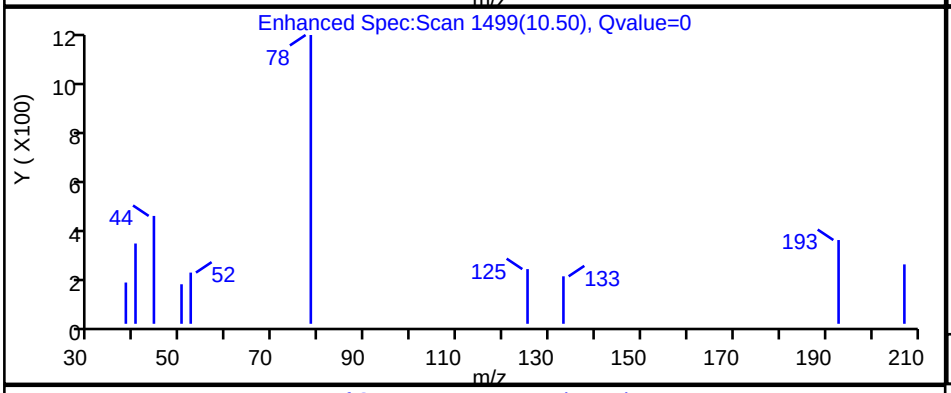
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

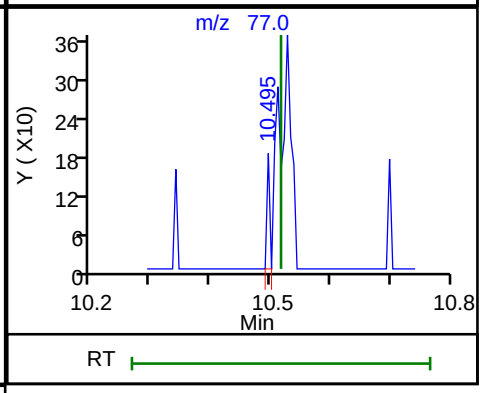
47 Benzene, CAS: 71-43-2

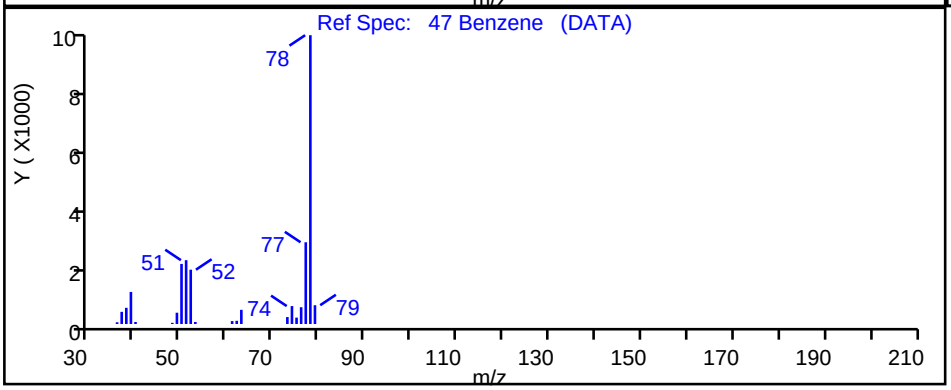
Processing Results











RT	Mass	Response	Amount
10.50	78.00	2409	0.018688
10.50	77.00	58	

Reviewer: puangmaleek, 15-Nov-2019 11:06:35

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

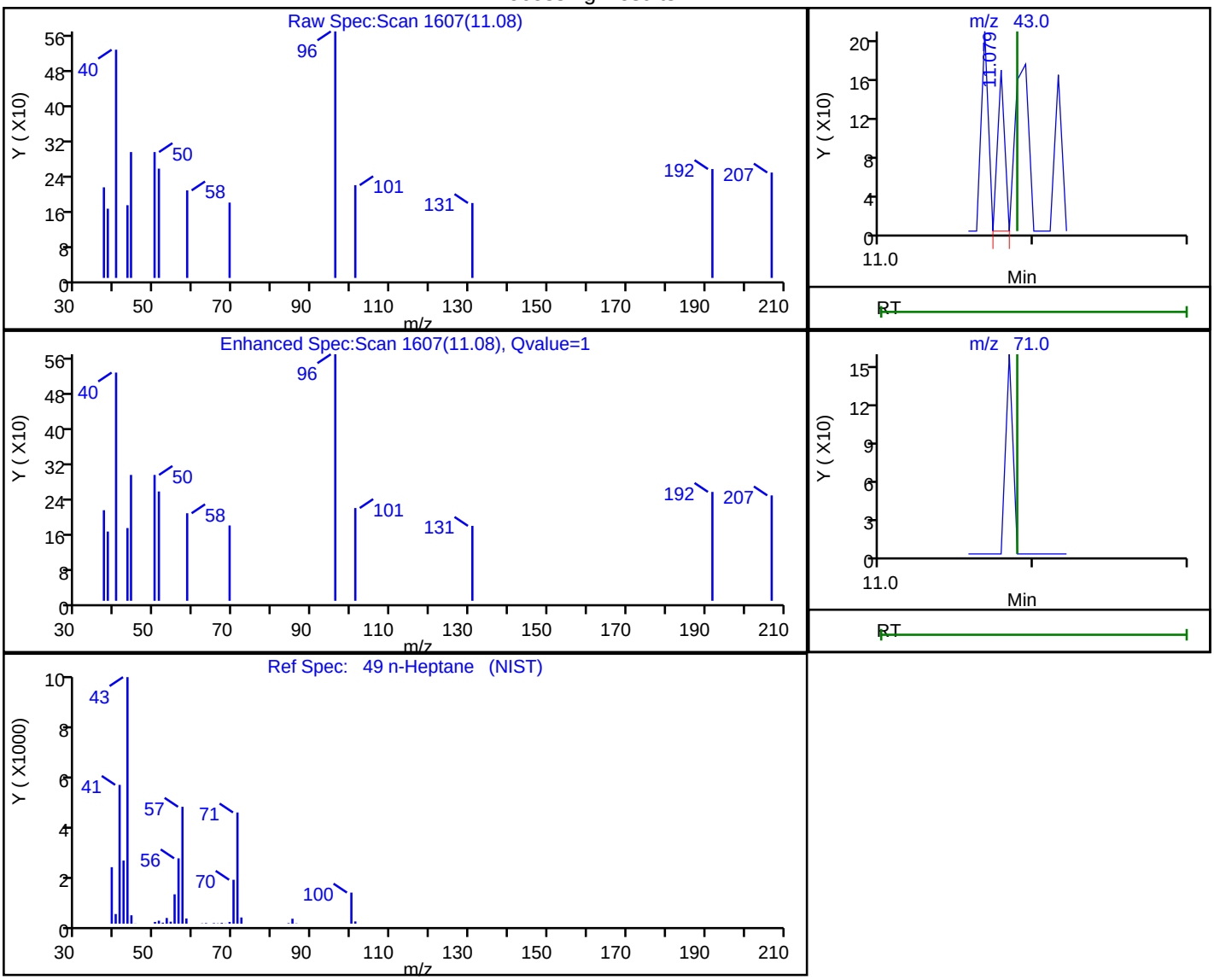
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

49 n-Heptane, CAS: 142-82-5

Processing Results



RT	Mass	Response	Amount
11.08	43.00	54	0.000840
11.09	71.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:38

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

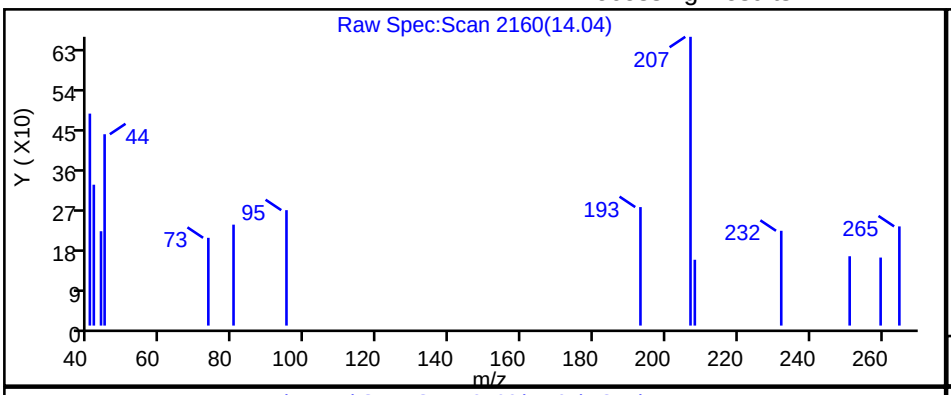
User Disabled Compound Report

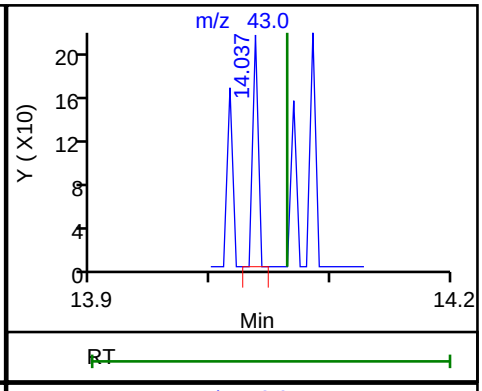
Eurofins TestAmerica, Burlington

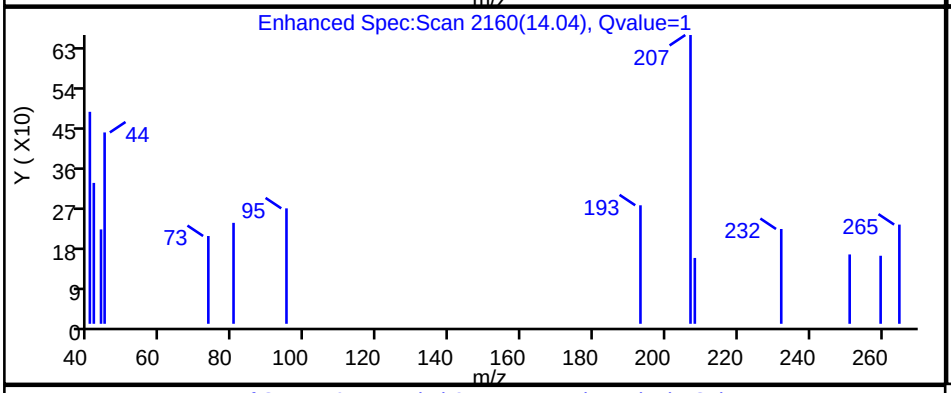
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

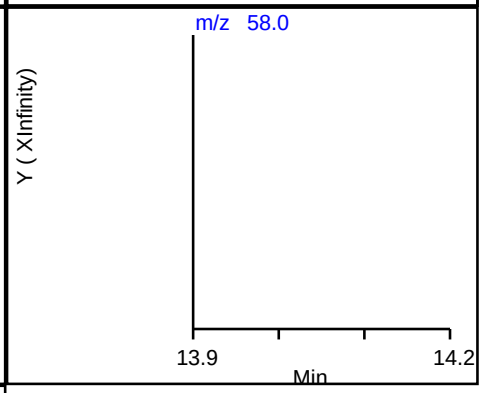
61 4-Methyl-2-pentanone (MIBK), CAS: 108-10-1

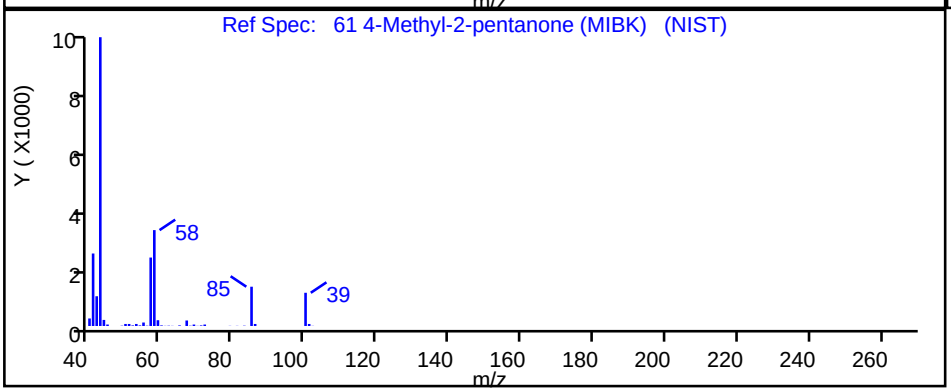
Processing Results











RT	Mass	Response	Amount
14.04	43.00	69	0.000904
14.06	58.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:06:52

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

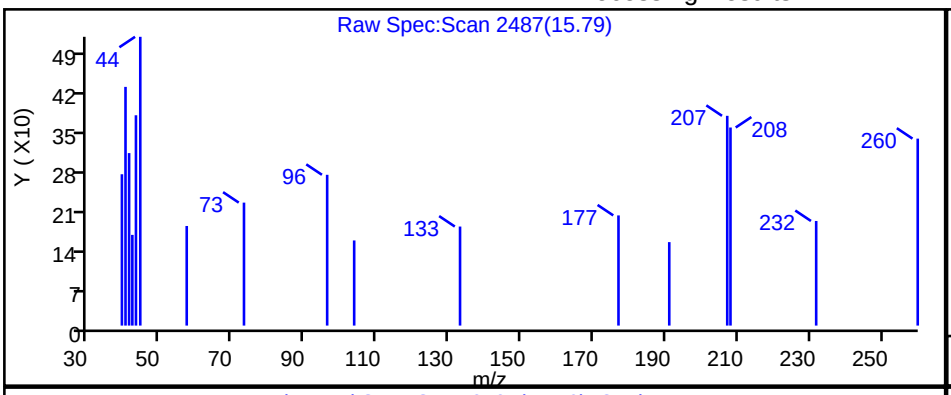
User Disabled Compound Report

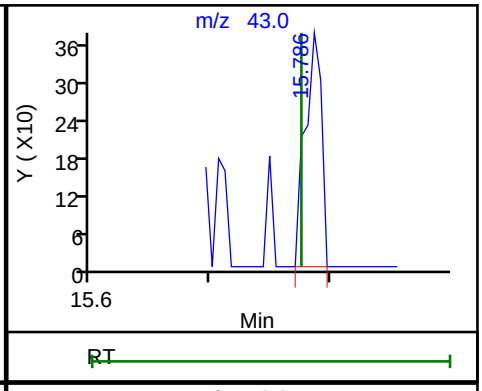
Eurofins TestAmerica, Burlington

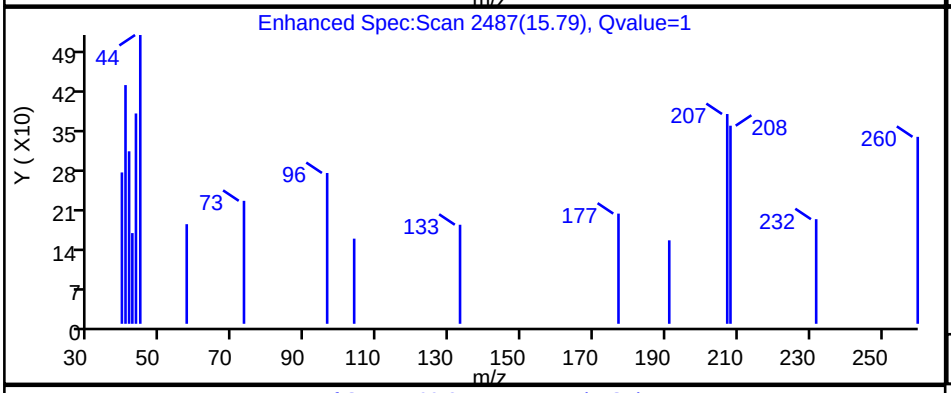
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

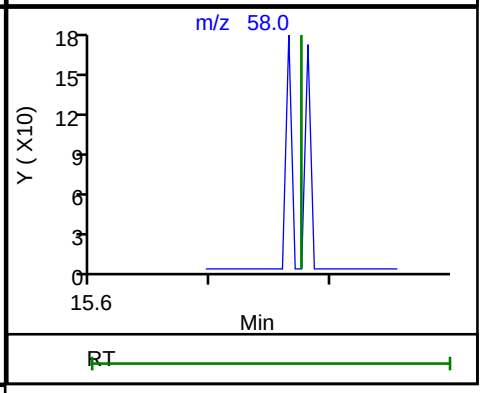
69 2-Hexanone, CAS: 591-78-6

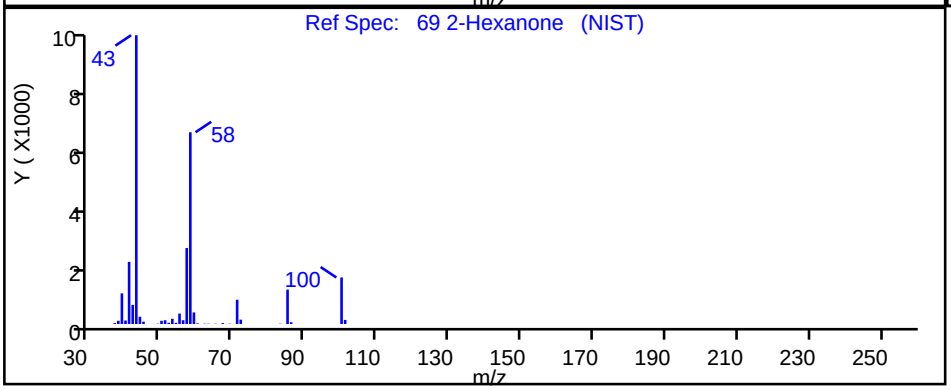
Processing Results











RT	Mass	Response	Amount
15.79	43.00	359	0.005050
15.78	58.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:01

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

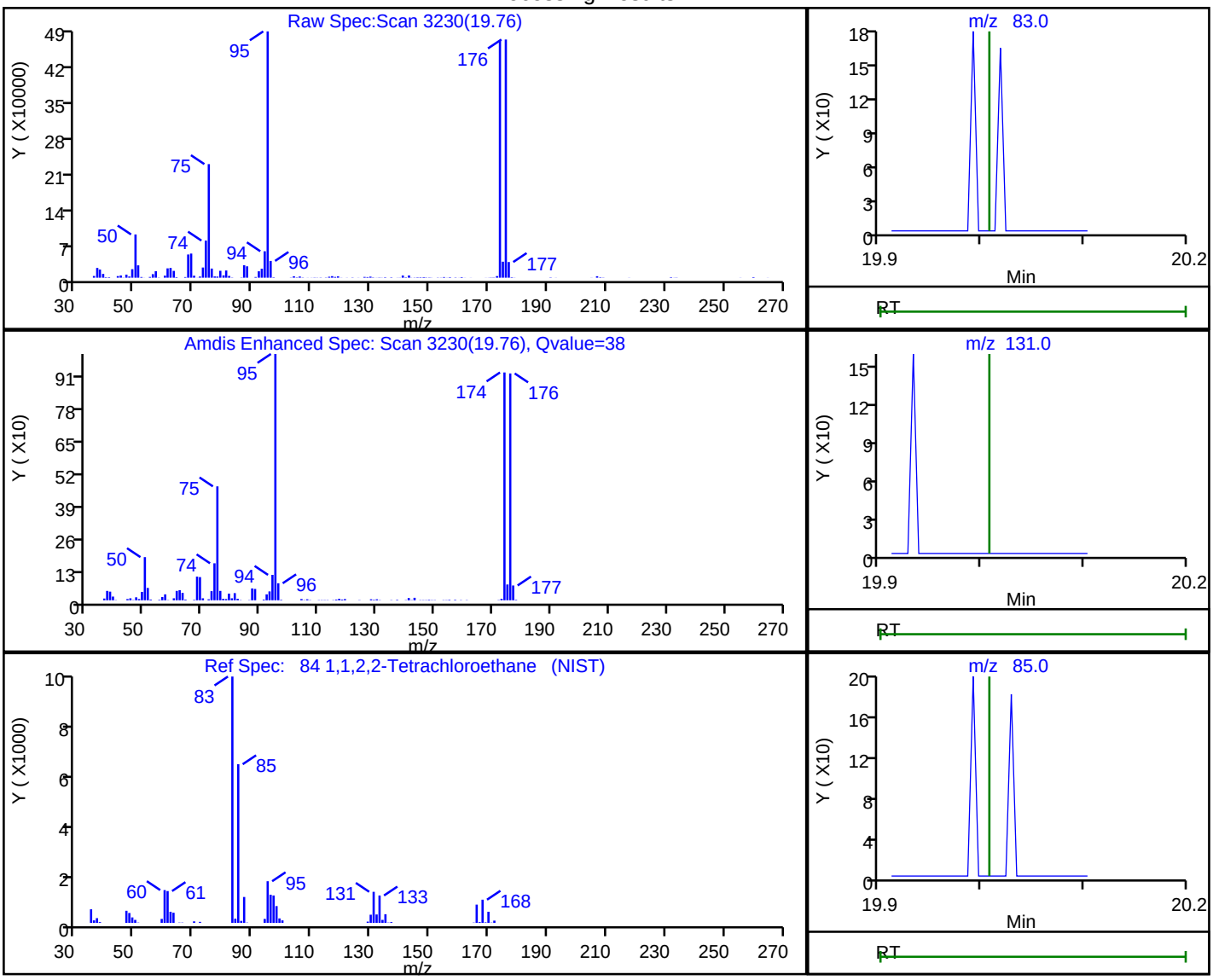
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

84 1,1,2,2-Tetrachloroethane, CAS: 79-34-5

Processing Results



RT	Mass	Response	Amount
19.76	83.00	518	0.004309
19.76	131.00	1417	
20.01	85.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:14

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

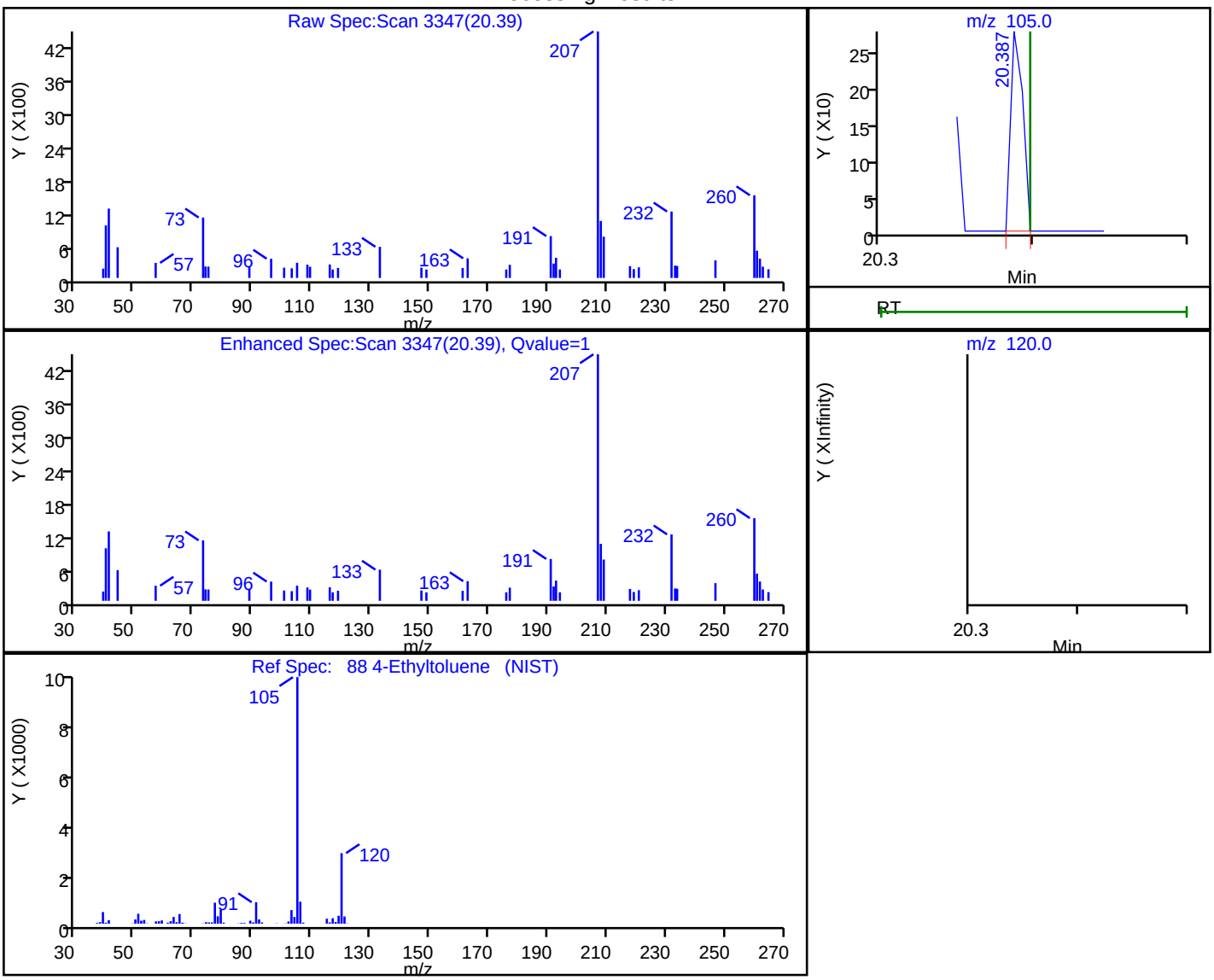
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

88 4-Ethyltoluene, CAS: 622-96-8

Processing Results



RT	Mass	Response	Amount
20.39	105.00	150	0.000689
20.40	120.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:17

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

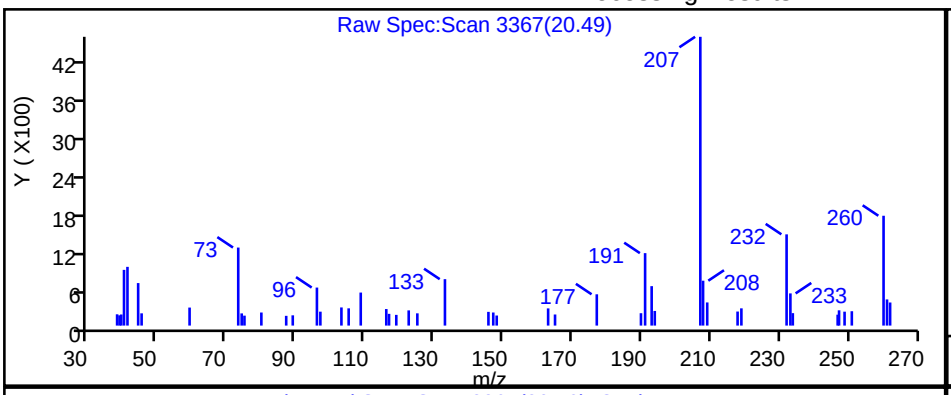
User Disabled Compound Report

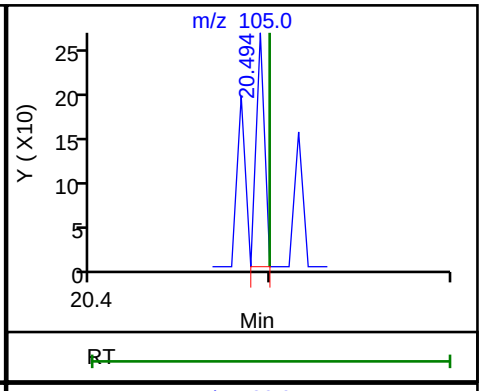
Eurofins TestAmerica, Burlington

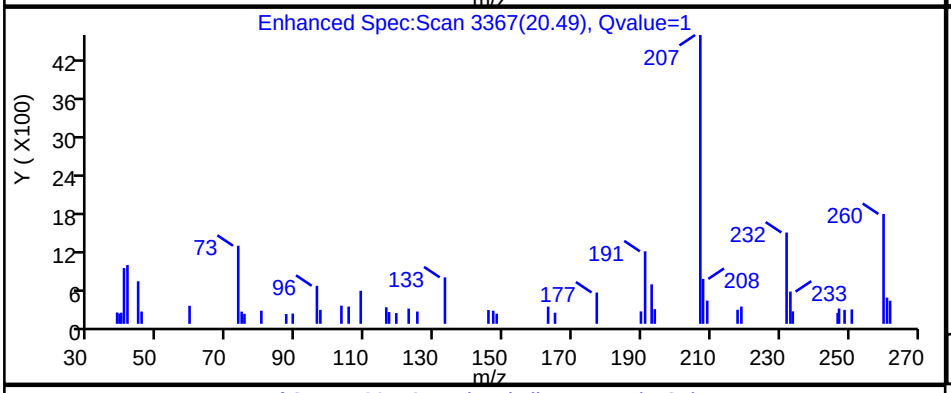
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

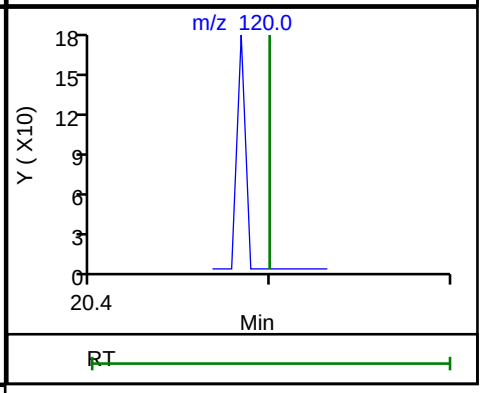
90 1,3,5-Trimethylbenzene, CAS: 108-67-8

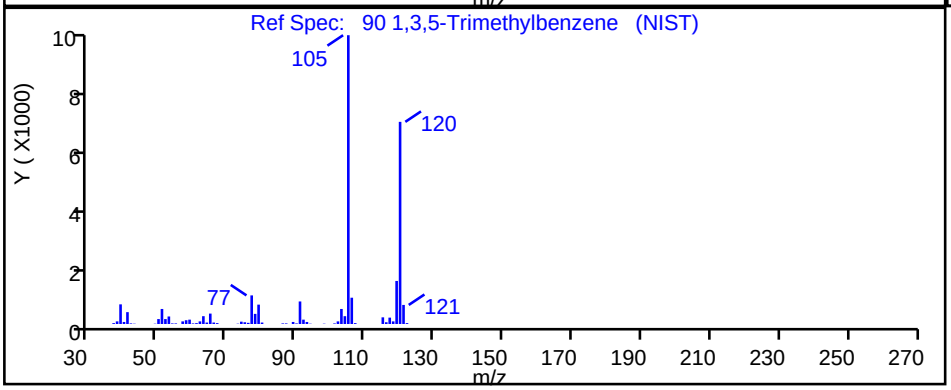
Processing Results











RT	Mass	Response	Amount
20.49	105.00	86	0.000454
20.50	120.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:18

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

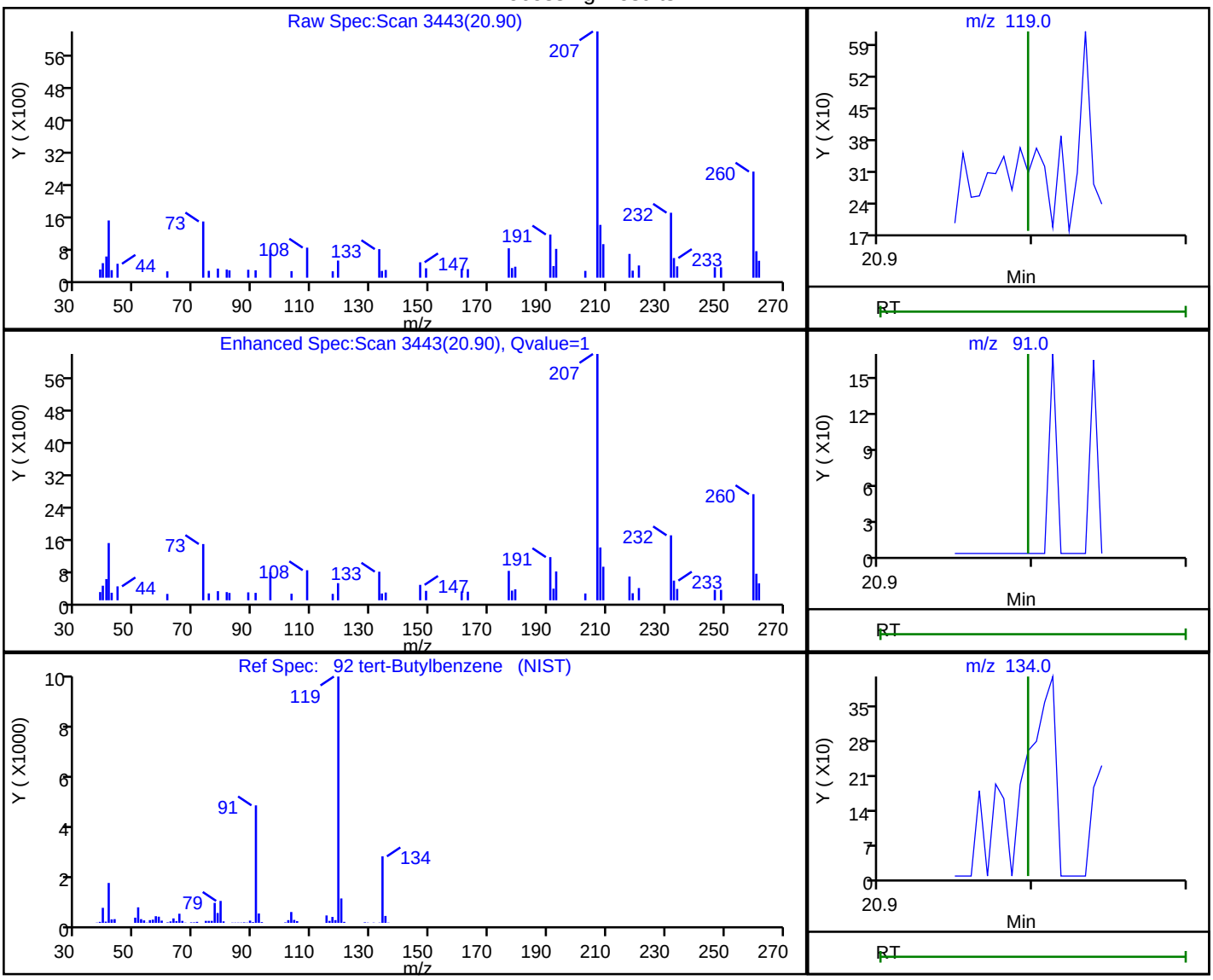
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

92 tert-Butylbenzene, CAS: 98-06-6

Processing Results



RT	Mass	Response	Amount
20.90	119.00	308	0.001717
20.91	134.00	179	
21.00	91.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:19

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

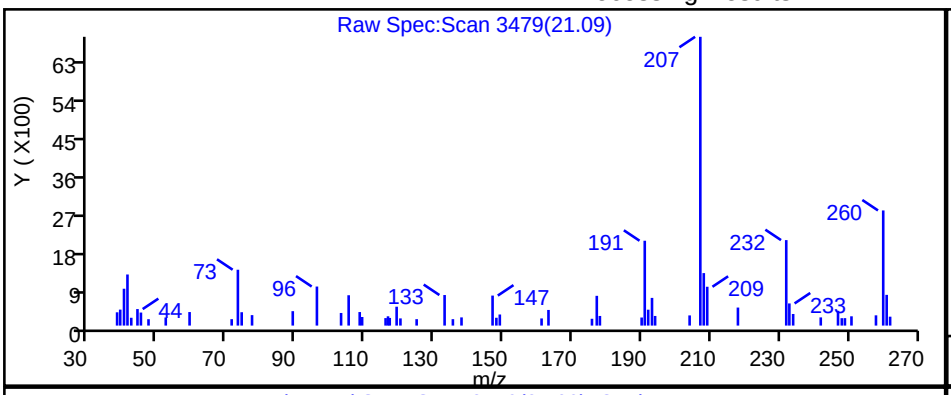
User Disabled Compound Report

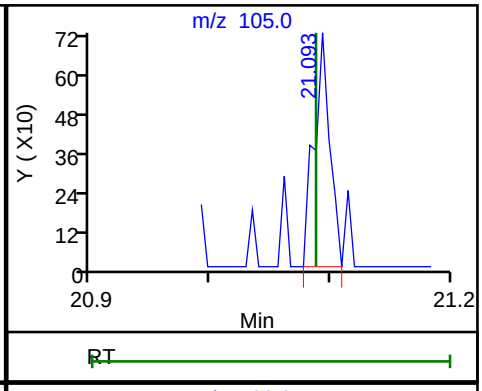
Eurofins TestAmerica, Burlington

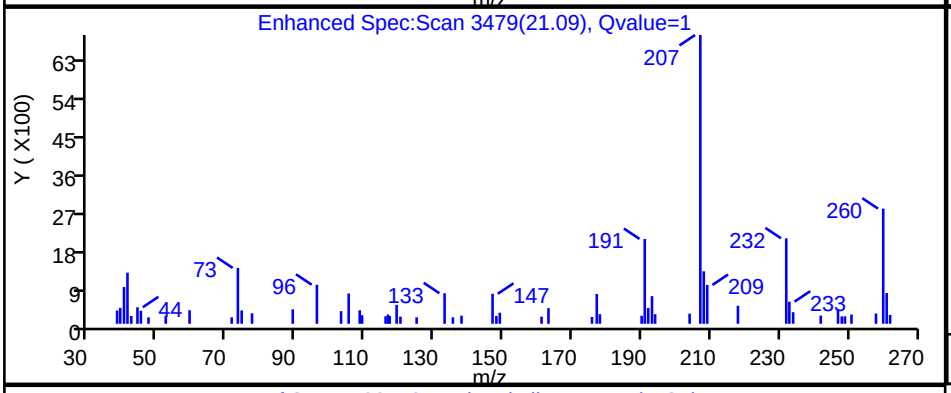
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

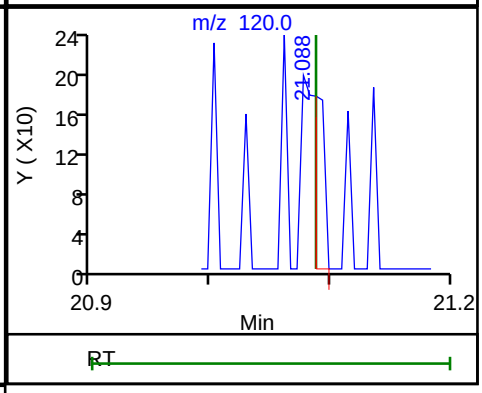
93 1,2,4-Trimethylbenzene, CAS: 95-63-6

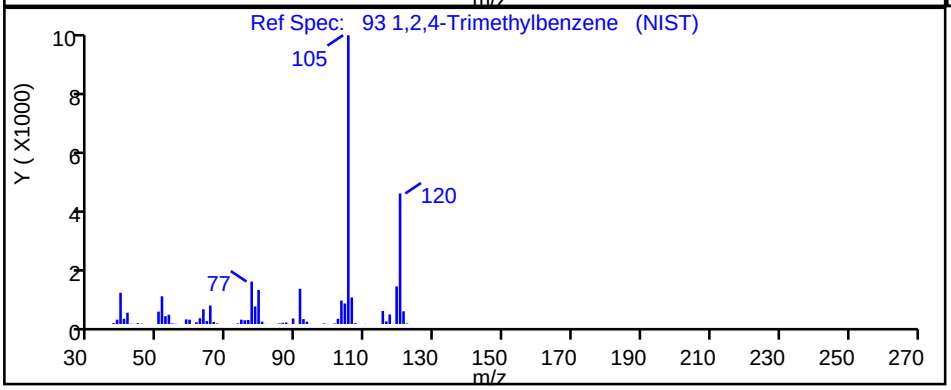
Processing Results











RT	Mass	Response	Amount
21.09	105.00	662	0.003412
21.09	120.00	111	

Reviewer: puangmaleek, 15-Nov-2019 11:07:21

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

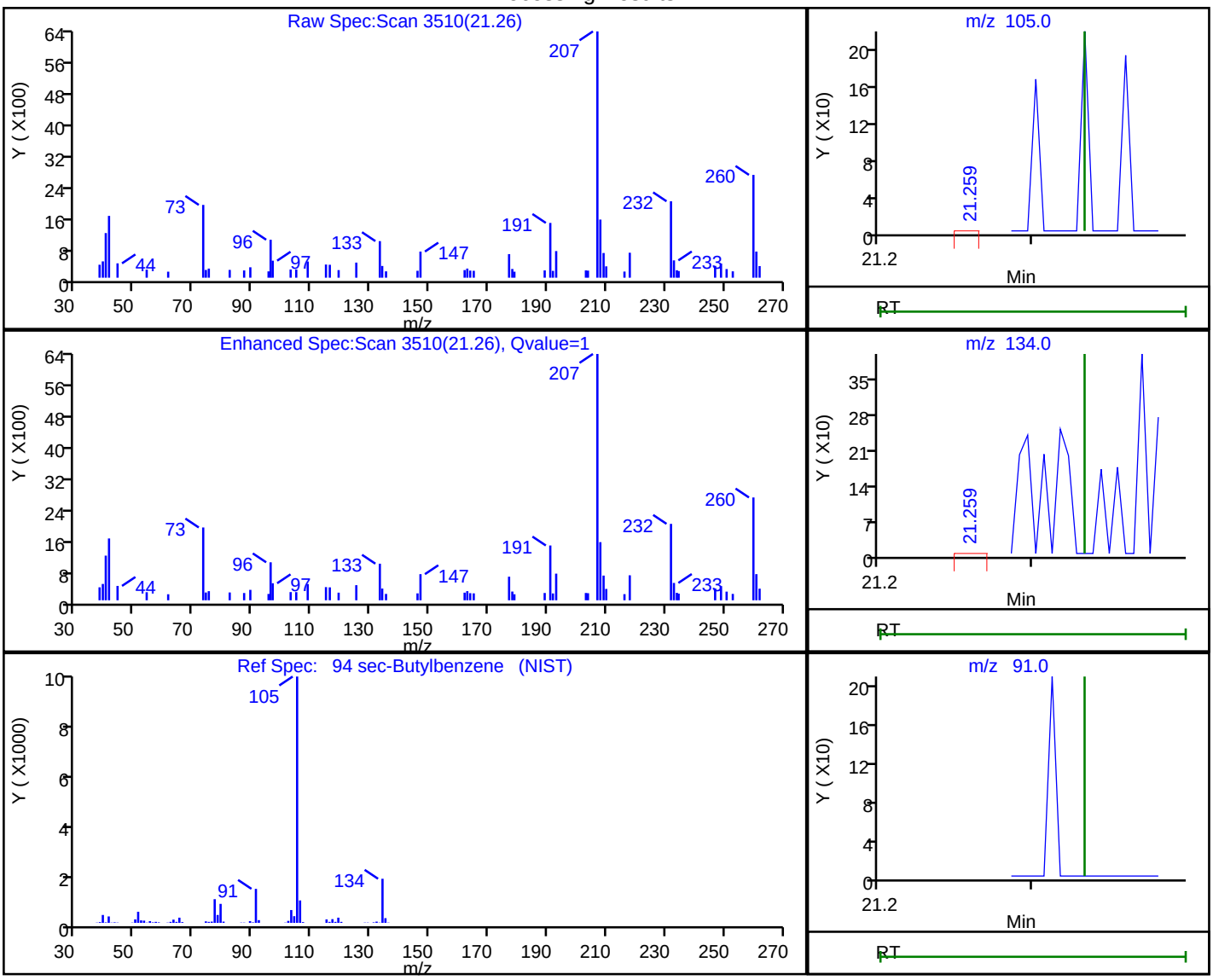
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

94 sec-Butylbenzene, CAS: 135-98-8

Processing Results



RT	Mass	Response	Amount
21.26	105.00	119	0.000442
21.26	134.00	235	
21.33	91.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:22

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

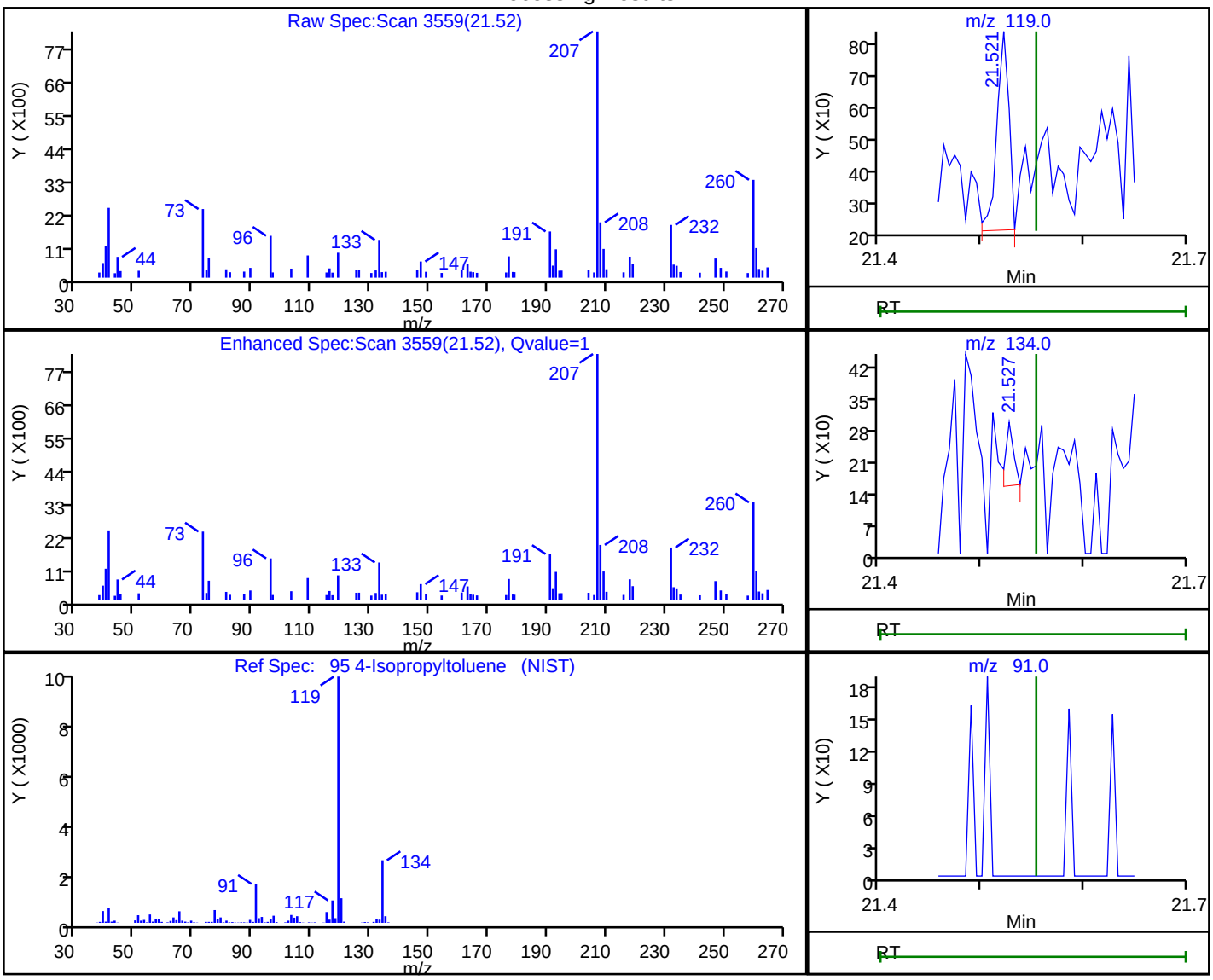
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

95 4-Isopropyltoluene, CAS: 99-87-6

Processing Results



RT	Mass	Response	Amount
21.52	119.00	518	0.002220
21.53	134.00	76	
21.55	91.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:25

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

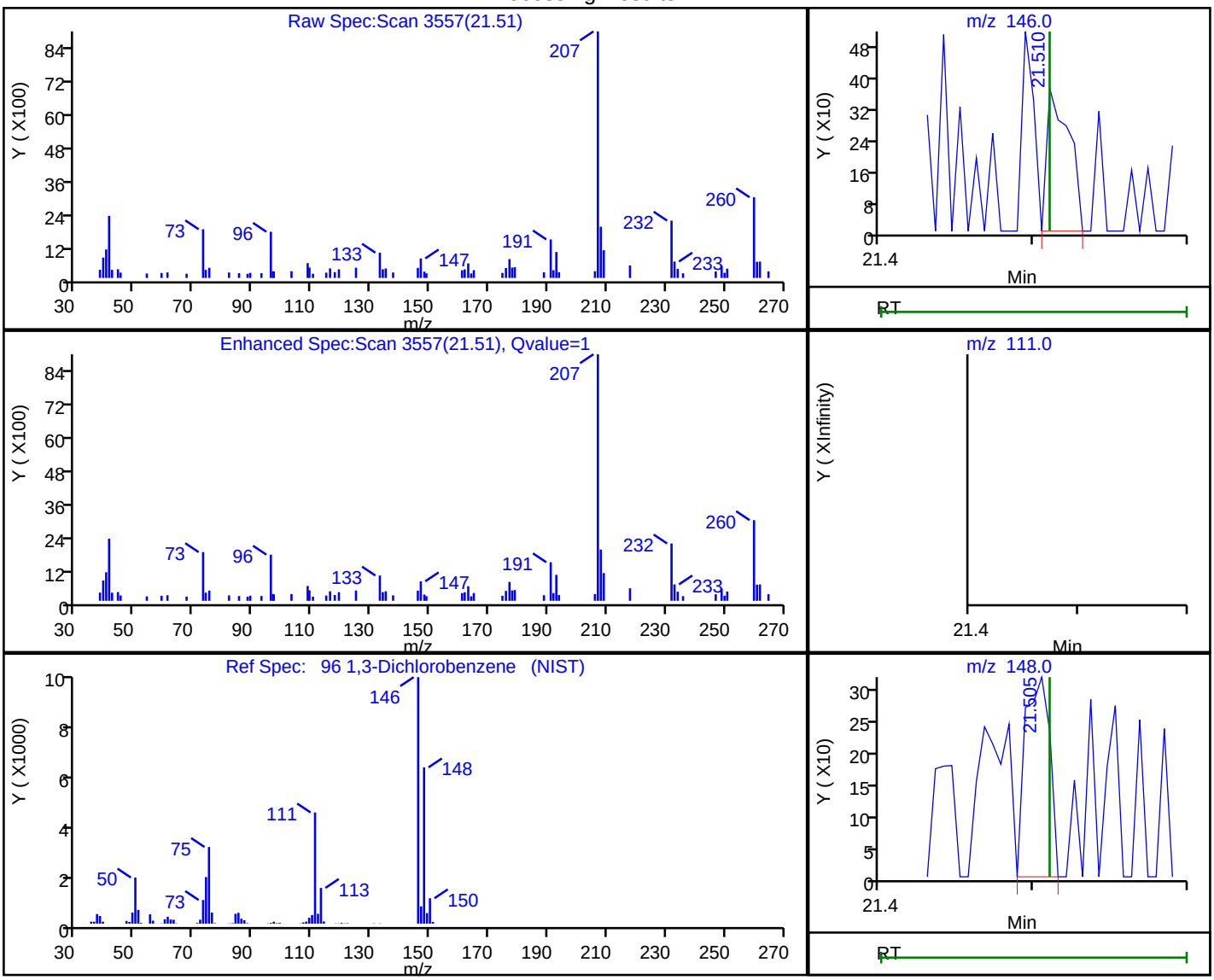
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

96 1,3-Dichlorobenzene, CAS: 541-73-1

Processing Results



RT	Mass	Response	Amount
21.51	146.00	367	0.002438
21.51	148.00	347	
21.51	111.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:24

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

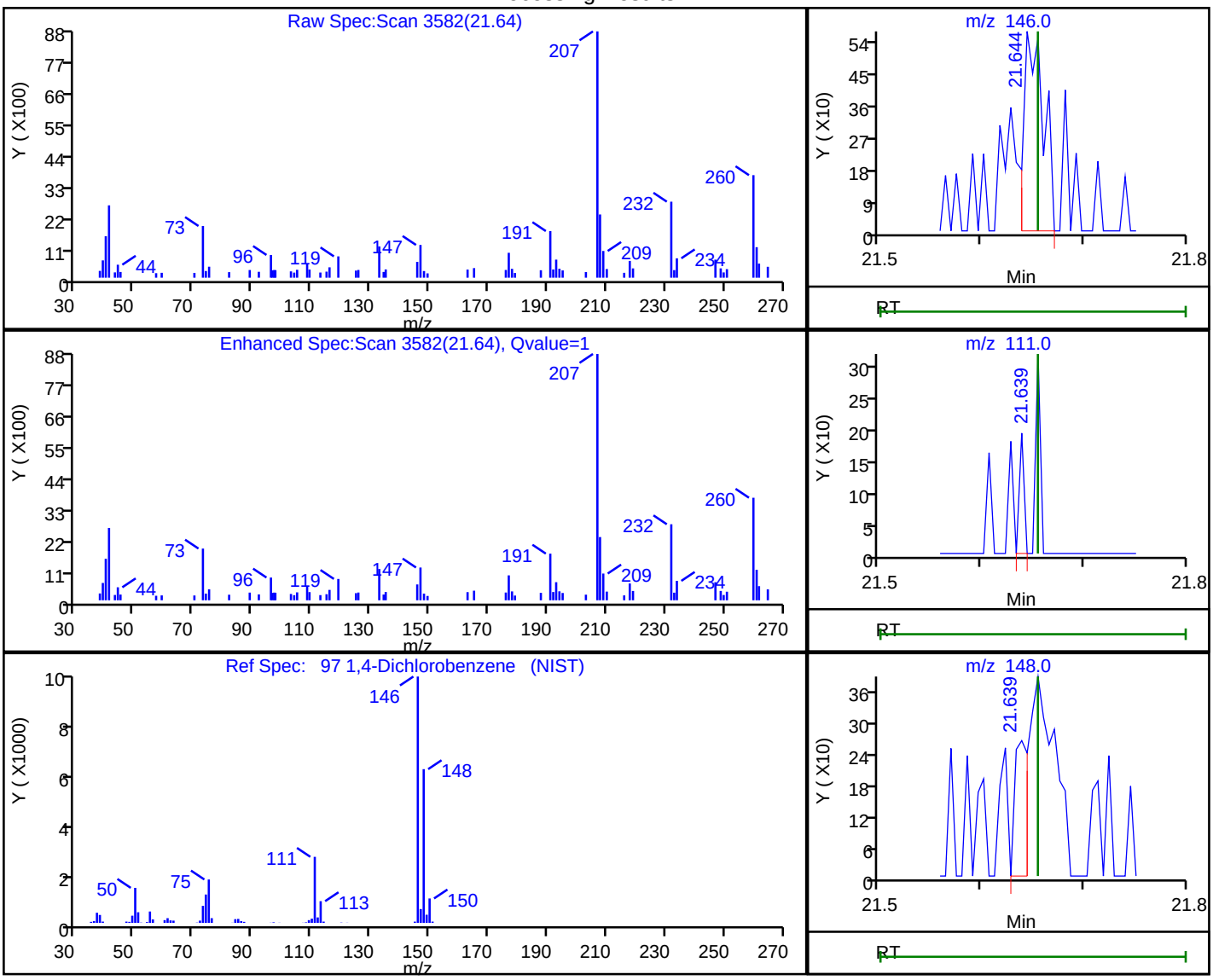
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

97 1,4-Dichlorobenzene, CAS: 106-46-7

Processing Results



RT	Mass	Response	Amount
21.64	146.00	751	0.004982
21.64	111.00	61	
21.64	148.00	239	

Reviewer: puangmaleek, 15-Nov-2019 11:07:27

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

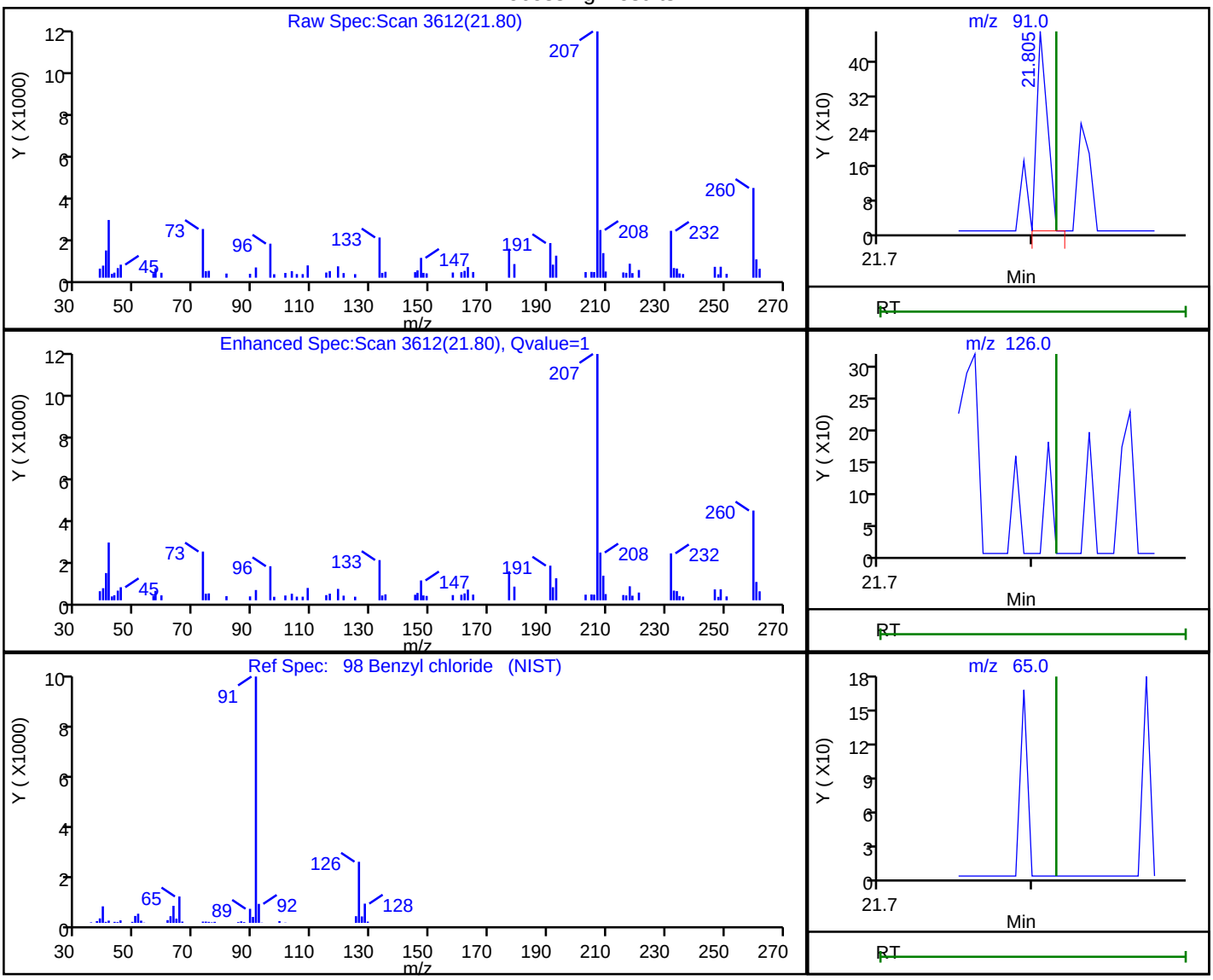
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

98 Benzyl chloride, CAS: 100-44-7

Processing Results



RT	Mass	Response	Amount
21.80	91.00	223	0.001340
21.82	126.00	0	
21.82	65.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:29

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

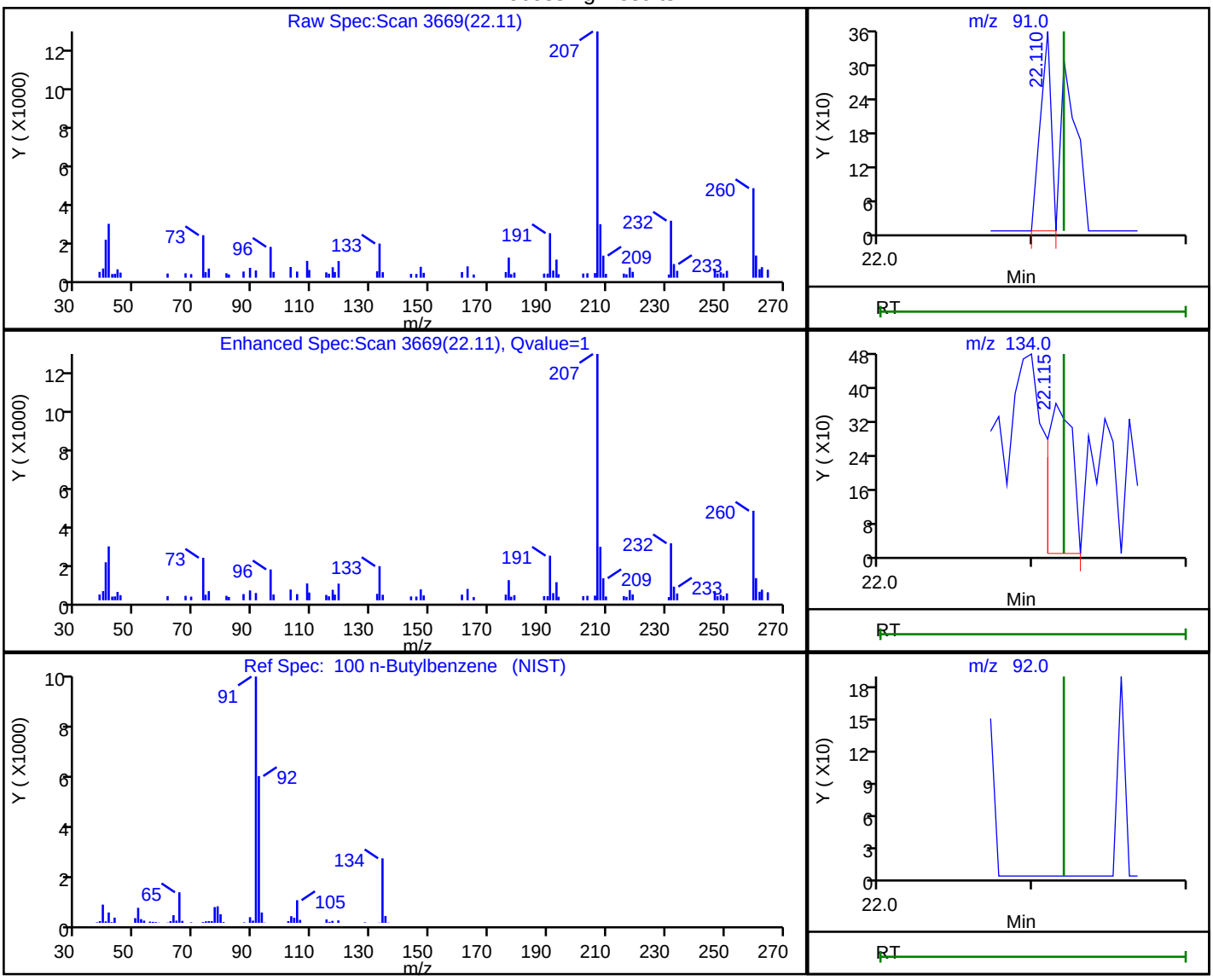
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

100 n-Butylbenzene, CAS: 104-51-8

Processing Results



RT	Mass	Response	Amount
22.11	91.00	173	0.000810
22.11	134.00	398	
22.12	92.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:30

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

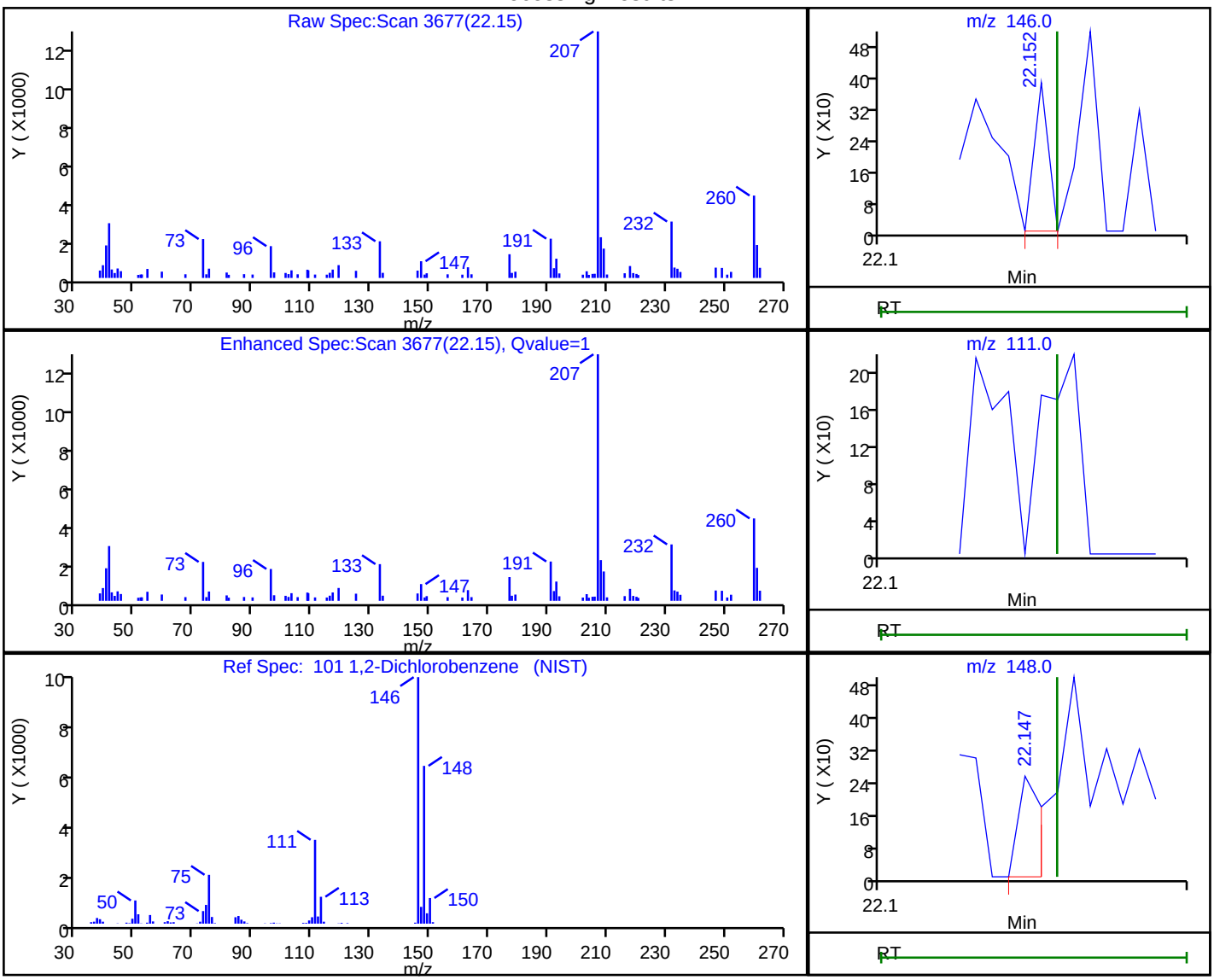
User Disabled Compound Report

Eurofins TestAmerica, Burlington

Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

101 1,2-Dichlorobenzene, CAS: 95-50-1

Processing Results



RT	Mass	Response	Amount
22.15	146.00	122	0.000838
22.15	148.00	135	
22.16	111.00	0	

Reviewer: puangmaleek, 15-Nov-2019 11:07:31

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

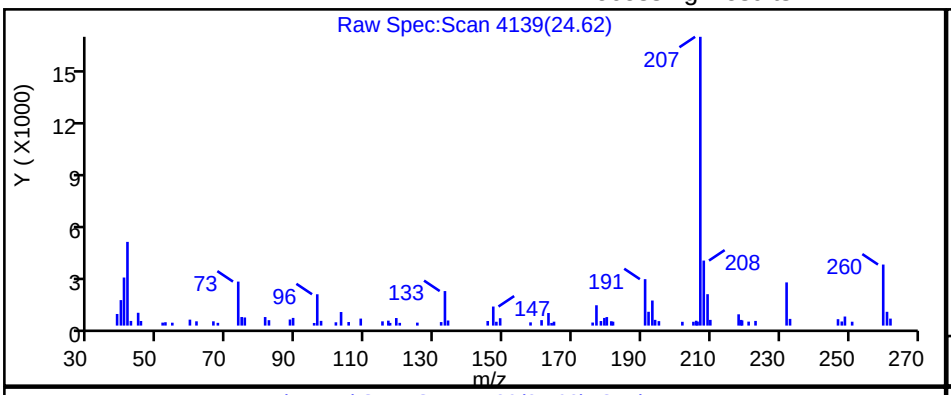
User Disabled Compound Report

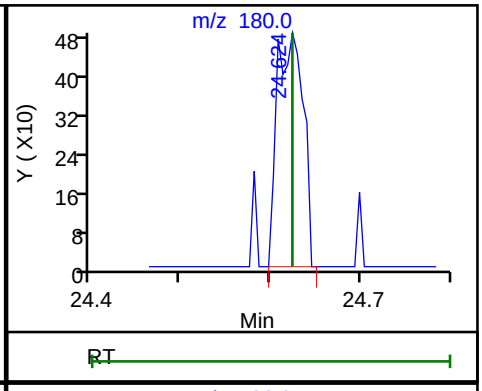
Eurofins TestAmerica, Burlington

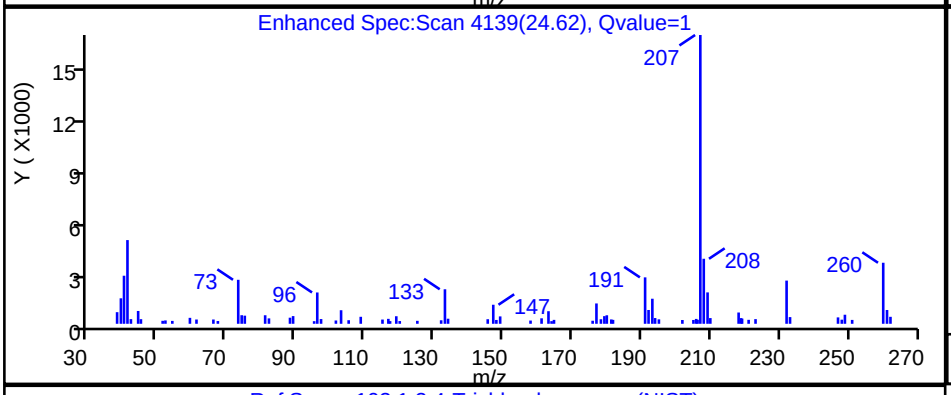
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

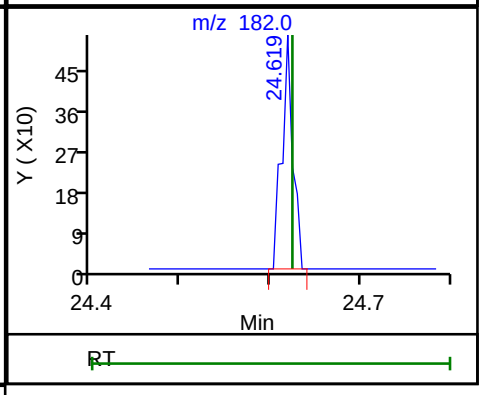
103 1,2,4-Trichlorobenzene, CAS: 120-82-1

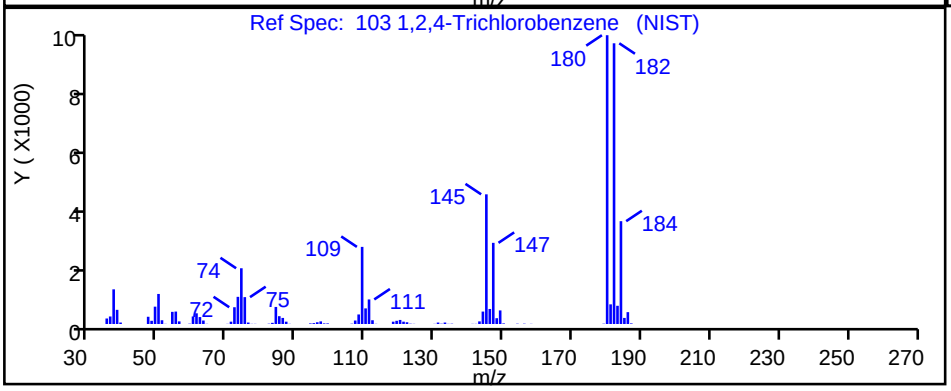
Processing Results











RT	Mass	Response	Amount
24.62	180.00	989	0.008619
24.62	182.00	443	

Reviewer: puangmaleek, 15-Nov-2019 11:07:33

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

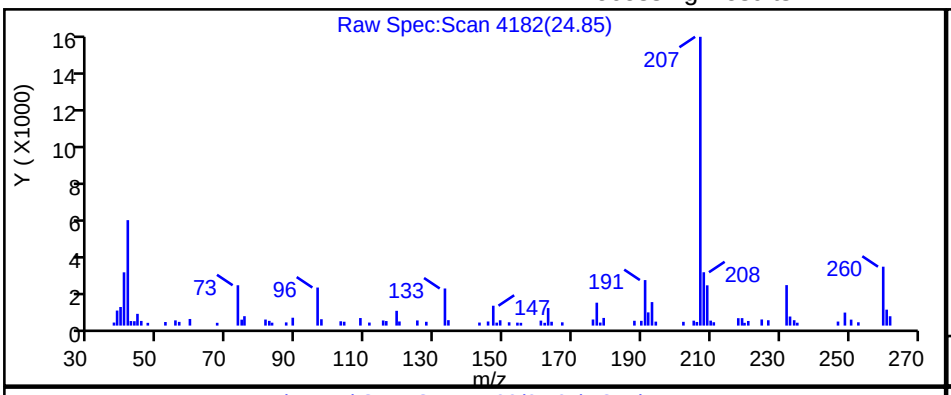
User Disabled Compound Report

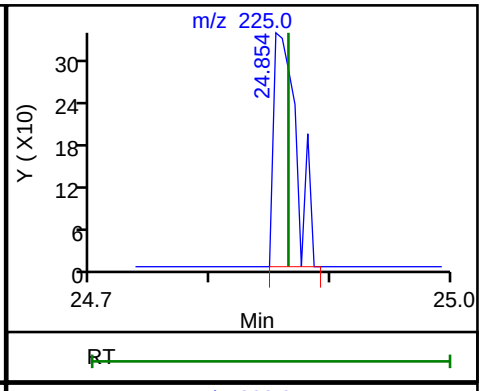
Eurofins TestAmerica, Burlington

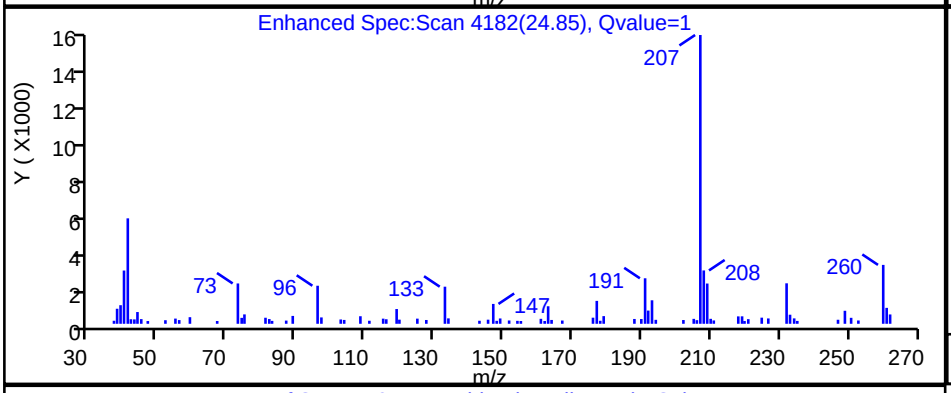
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

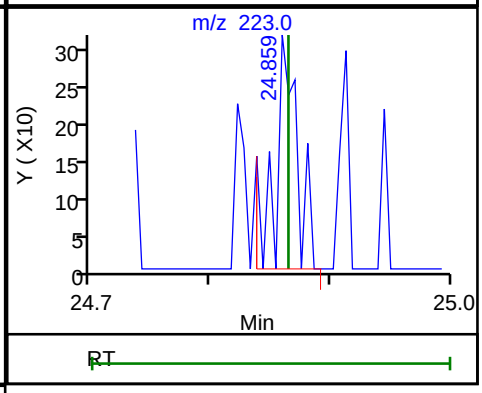
104 Hexachlorobutadiene, CAS: 87-68-3

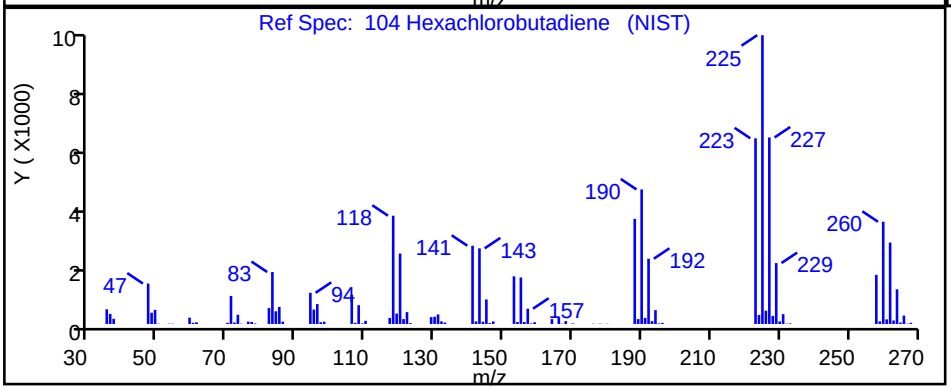
Processing Results











RT	Mass	Response	Amount
24.85	225.00	440	0.003376
24.86	223.00	409	

Reviewer: puangmaleek, 15-Nov-2019 11:07:34

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

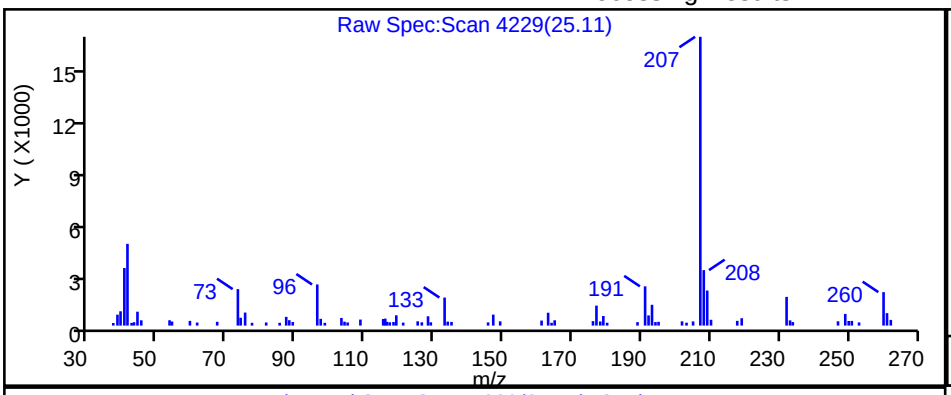
User Disabled Compound Report

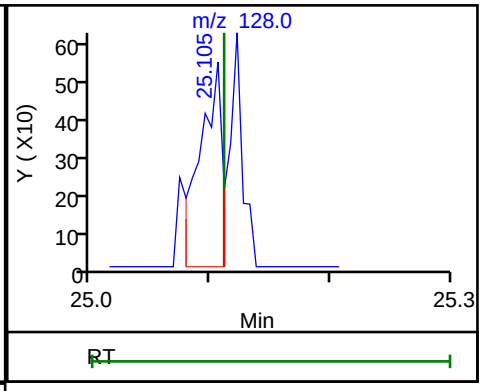
Eurofins TestAmerica, Burlington

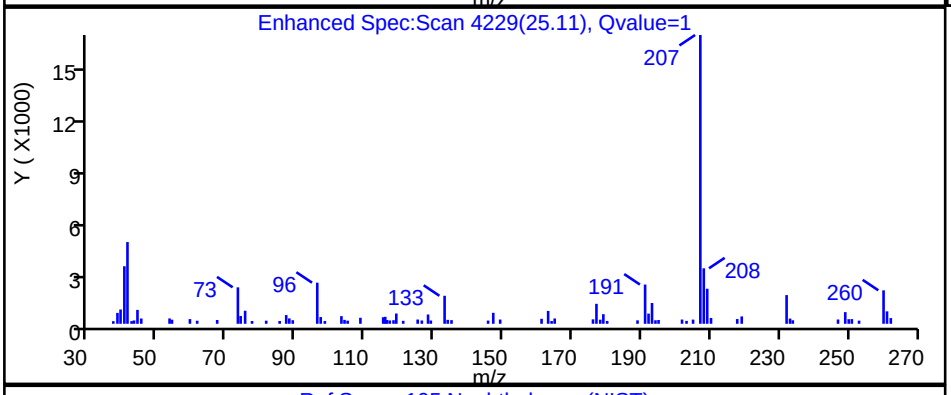
Data File:	\\chromna\Burlington\ChromData\CHG.i\20191114-38768.b\200-38768-009.D				
Injection Date:	14-Nov-2019 15:03:30	Instrument ID:	CHG.i		
Lims ID:	200-51460-A-4	Lab Sample ID:	200-51460-4		
Client ID:	4312				
Operator ID:	ggg	ALS Bottle#:	8	Worklist Smp#:	9
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_MasterMethod_(v1)_G	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

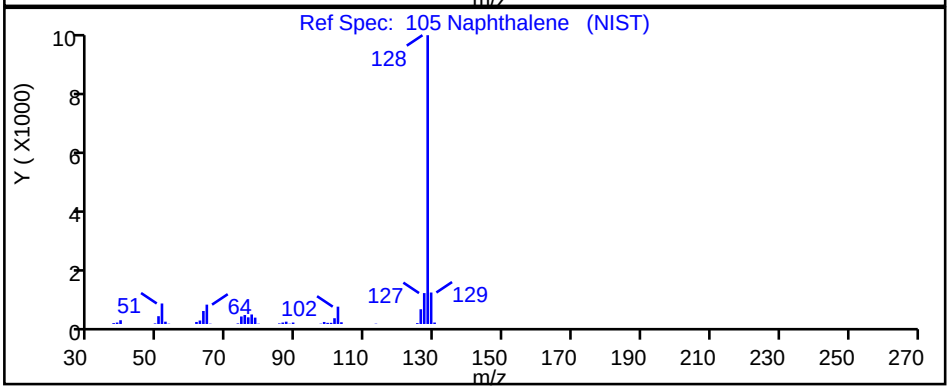
105 Naphthalene, CAS: 91-20-3

Processing Results









RT	Mass	Response	Amount
25.11	128.00	718	0.003505

Reviewer: puangmaleek, 15-Nov-2019 11:07:36

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

June 26, 2020

Sam Driver
KAS Environmental
589 Avenue D
Williston, VT 05495

Project Location: E. Montpelier, VT
Client Job Number:
Project Number: 410040071
Laboratory Work Order Number: 20F1011

Enclosed are results of analyses for samples received by the laboratory on June 19, 2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

KAS Environmental
589 Avenue D
Williston, VT 05495
ATTN: Sam Driver

REPORT DATE: 6/26/2020

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 410040071

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 20F1011

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: E. Montpelier, VT

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SG-1	20F1011-01	Soil Gas		EPA TO-15	
SG-2	20F1011-02	Soil Gas		EPA TO-15	
Background	20F1011-03	Ambient Air		EPA TO-15	
IA-Basement	20F1011-04	Indoor air		EPA TO-15	
IA-First Floor	20F1011-05	Indoor air		EPA TO-15	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA TO-15

Qualifications:

E

Reported result is estimated. Value reported over verified calibration range.

Analyte & Samples(s) Qualified:

Ethanol
B260738-DUP1

L-03

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

Benzyl chloride
20F1011-01[SG-1], 20F1011-02[SG-2], 20F1011-03[Background], 20F1011-04[IA-Basement], 20F1011-05[IA-First Floor], B260733-BLK1, B260733-BS1, B260738-BLK1, B260738-BS1, B260738-DUP1

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Benzyl chloride
20F1011-01[SG-1], 20F1011-02[SG-2], 20F1011-03[Background], 20F1011-04[IA-Basement], 20F1011-05[IA-First Floor], B260733-BLK1, B260733-BS1, B260738-BLK1, B260738-BS1, B260738-DUP1, S049677-CCV1, S049678-CCV1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY
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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: SG-1
Sample ID: 20F1011-01
Sample Matrix: Soil Gas
Sampled: 6/18/2020 10:27

Sample Description/Location:
Sub Description/Location:
Canister ID: 1124
Canister Size: 6 liter
Flow Controller ID: 3537
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -30
Final Vacuum(in Hg): -9
Receipt Vacuum(in Hg): -8.5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Acetone	7.9	4.0		19	9.5	2	6/24/20 18:59	BRF
Benzene	2.8	0.10		8.9	0.32	2	6/24/20 18:59	BRF
Benzyl chloride	ND	0.20	V-05, L-03	ND	1.0	2	6/24/20 18:59	BRF
Bromodichloromethane	ND	0.10		ND	0.67	2	6/24/20 18:59	BRF
Bromoform	ND	0.10		ND	1.0	2	6/24/20 18:59	BRF
Bromomethane	ND	0.10		ND	0.39	2	6/24/20 18:59	BRF
1,3-Butadiene	ND	0.10		ND	0.22	2	6/24/20 18:59	BRF
2-Butanone (MEK)	ND	4.0		ND	12	2	6/24/20 18:59	BRF
Carbon Disulfide	ND	1.0		ND	3.1	2	6/24/20 18:59	BRF
Carbon Tetrachloride	ND	0.10		ND	0.63	2	6/24/20 18:59	BRF
Chlorobenzene	ND	0.10		ND	0.46	2	6/24/20 18:59	BRF
Chloroethane	ND	0.10		ND	0.26	2	6/24/20 18:59	BRF
Chloroform	ND	0.10		ND	0.49	2	6/24/20 18:59	BRF
Chloromethane	ND	0.20		ND	0.41	2	6/24/20 18:59	BRF
Cyclohexane	ND	0.10		ND	0.34	2	6/24/20 18:59	BRF
Dibromochloromethane	ND	0.10		ND	0.85	2	6/24/20 18:59	BRF
1,2-Dibromoethane (EDB)	ND	0.10		ND	0.77	2	6/24/20 18:59	BRF
1,2-Dichlorobenzene	ND	0.10		ND	0.60	2	6/24/20 18:59	BRF
1,3-Dichlorobenzene	ND	0.10		ND	0.60	2	6/24/20 18:59	BRF
1,4-Dichlorobenzene	ND	0.10		ND	0.60	2	6/24/20 18:59	BRF
Dichlorodifluoromethane (Freon 12)	ND	0.10		ND	0.49	2	6/24/20 18:59	BRF
1,1-Dichloroethane	ND	0.10		ND	0.40	2	6/24/20 18:59	BRF
1,2-Dichloroethane	ND	0.10		ND	0.40	2	6/24/20 18:59	BRF
1,1-Dichloroethylene	ND	0.10		ND	0.40	2	6/24/20 18:59	BRF
cis-1,2-Dichloroethylene	ND	0.10		ND	0.40	2	6/24/20 18:59	BRF
trans-1,2-Dichloroethylene	ND	0.10		ND	0.40	2	6/24/20 18:59	BRF
1,2-Dichloropropane	ND	0.10		ND	0.46	2	6/24/20 18:59	BRF
cis-1,3-Dichloropropene	ND	0.10		ND	0.45	2	6/24/20 18:59	BRF
trans-1,3-Dichloropropene	ND	0.10		ND	0.45	2	6/24/20 18:59	BRF
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.10		ND	0.70	2	6/24/20 18:59	BRF
1,4-Dioxane	ND	1.0		ND	3.6	2	6/24/20 18:59	BRF
Ethanol	ND	4.0		ND	7.5	2	6/24/20 18:59	BRF
Ethyl Acetate	ND	0.10		ND	0.36	2	6/24/20 18:59	BRF
Ethylbenzene	0.19	0.10		0.84	0.43	2	6/24/20 18:59	BRF
4-Ethyltoluene	ND	0.10		ND	0.49	2	6/24/20 18:59	BRF
Heptane	ND	0.10		ND	0.41	2	6/24/20 18:59	BRF
Hexachlorobutadiene	ND	0.10		ND	1.1	2	6/24/20 18:59	BRF

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: SG-1
Sample ID: 20F1011-01
Sample Matrix: Soil Gas
Sampled: 6/18/2020 10:27

Sample Description/Location:
Sub Description/Location:
Canister ID: 1124
Canister Size: 6 liter
Flow Controller ID: 3537
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -30
Final Vacuum(in Hg): -9
Receipt Vacuum(in Hg): -8.5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Hexane	ND	4.0		ND	14	2	6/24/20 18:59	BRF
2-Hexanone (MBK)	ND	0.10		ND	0.41	2	6/24/20 18:59	BRF
Isopropanol	ND	4.0		ND	9.8	2	6/24/20 18:59	BRF
Methyl tert-Butyl Ether (MTBE)	ND	0.10		ND	0.36	2	6/24/20 18:59	BRF
Methylene Chloride	ND	1.0		ND	3.5	2	6/24/20 18:59	BRF
4-Methyl-2-pentanone (MIBK)	ND	0.10		ND	0.41	2	6/24/20 18:59	BRF
Naphthalene	0.19	0.10		1.00	0.52	2	6/24/20 18:59	BRF
Propene	ND	4.0		ND	6.9	2	6/24/20 18:59	BRF
Styrene	ND	0.10		ND	0.43	2	6/24/20 18:59	BRF
1,1,2,2-Tetrachloroethane	ND	0.10		ND	0.69	2	6/24/20 18:59	BRF
Tetrachloroethylene	0.25	0.10		1.7	0.68	2	6/24/20 18:59	BRF
Tetrahydrofuran	ND	0.10		ND	0.29	2	6/24/20 18:59	BRF
Toluene	1.1	0.10		4.0	0.38	2	6/24/20 18:59	BRF
1,2,4-Trichlorobenzene	ND	0.20		ND	1.5	2	6/24/20 18:59	BRF
1,1,1-Trichloroethane	ND	0.10		ND	0.55	2	6/24/20 18:59	BRF
1,1,2-Trichloroethane	ND	0.10		ND	0.55	2	6/24/20 18:59	BRF
Trichloroethylene	ND	0.10		ND	0.54	2	6/24/20 18:59	BRF
Trichlorofluoromethane (Freon 11)	ND	0.40		ND	2.2	2	6/24/20 18:59	BRF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.40		ND	3.1	2	6/24/20 18:59	BRF
1,2,4-Trimethylbenzene	0.60	0.10		2.9	0.49	2	6/24/20 18:59	BRF
1,3,5-Trimethylbenzene	0.18	0.10		0.87	0.49	2	6/24/20 18:59	BRF
Vinyl Acetate	ND	2.0		ND	7.0	2	6/24/20 18:59	BRF
Vinyl Chloride	ND	0.10		ND	0.26	2	6/24/20 18:59	BRF
m&p-Xylene	0.78	0.20		3.4	0.87	2	6/24/20 18:59	BRF
o-Xylene	0.60	0.10		2.6	0.43	2	6/24/20 18:59	BRF

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	93.0	70-130	6/24/20 18:59

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: SG-2
Sample ID: 20F1011-02
Sample Matrix: Soil Gas
Sampled: 6/18/2020 10:32

Sample Description/Location:
Sub Description/Location:
Canister ID: 1275
Canister Size: 6 liter
Flow Controller ID: 3519
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -8
Receipt Vacuum(in Hg): -7.5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

	ppbv			ug/m3			Date/Time	
Analyte	Results	RL	Flag/Qual	Results	RL	Dilution	Analyzed	Analyst
Acetone	5.0	4.0		12	9.5	2	6/25/20 6:40	BRF
Benzene	0.67	0.10		2.1	0.32	2	6/25/20 6:40	BRF
Benzyl chloride	ND	0.20	L-03, V-05	ND	1.0	2	6/25/20 6:40	BRF
Bromodichloromethane	ND	0.10		ND	0.67	2	6/25/20 6:40	BRF
Bromoform	ND	0.10		ND	1.0	2	6/25/20 6:40	BRF
Bromomethane	ND	0.10		ND	0.39	2	6/25/20 6:40	BRF
1,3-Butadiene	ND	0.10		ND	0.22	2	6/25/20 6:40	BRF
2-Butanone (MEK)	ND	4.0		ND	12	2	6/25/20 6:40	BRF
Carbon Disulfide	ND	1.0		ND	3.1	2	6/25/20 6:40	BRF
Carbon Tetrachloride	ND	0.10		ND	0.63	2	6/25/20 6:40	BRF
Chlorobenzene	ND	0.10		ND	0.46	2	6/25/20 6:40	BRF
Chloroethane	ND	0.10		ND	0.26	2	6/25/20 6:40	BRF
Chloroform	ND	0.10		ND	0.49	2	6/25/20 6:40	BRF
Chloromethane	ND	0.20		ND	0.41	2	6/25/20 6:40	BRF
Cyclohexane	ND	0.10		ND	0.34	2	6/25/20 6:40	BRF
Dibromochloromethane	ND	0.10		ND	0.85	2	6/25/20 6:40	BRF
1,2-Dibromoethane (EDB)	ND	0.10		ND	0.77	2	6/25/20 6:40	BRF
1,2-Dichlorobenzene	ND	0.10		ND	0.60	2	6/25/20 6:40	BRF
1,3-Dichlorobenzene	ND	0.10		ND	0.60	2	6/25/20 6:40	BRF
1,4-Dichlorobenzene	ND	0.10		ND	0.60	2	6/25/20 6:40	BRF
Dichlorodifluoromethane (Freon 12)	ND	0.10		ND	0.49	2	6/25/20 6:40	BRF
1,1-Dichloroethane	ND	0.10		ND	0.40	2	6/25/20 6:40	BRF
1,2-Dichloroethane	ND	0.10		ND	0.40	2	6/25/20 6:40	BRF
1,1-Dichloroethylene	ND	0.10		ND	0.40	2	6/25/20 6:40	BRF
cis-1,2-Dichloroethylene	ND	0.10		ND	0.40	2	6/25/20 6:40	BRF
trans-1,2-Dichloroethylene	ND	0.10		ND	0.40	2	6/25/20 6:40	BRF
1,2-Dichloropropane	ND	0.10		ND	0.46	2	6/25/20 6:40	BRF
cis-1,3-Dichloropropene	ND	0.10		ND	0.45	2	6/25/20 6:40	BRF
trans-1,3-Dichloropropene	ND	0.10		ND	0.45	2	6/25/20 6:40	BRF
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.10		ND	0.70	2	6/25/20 6:40	BRF
1,4-Dioxane	ND	1.0		ND	3.6	2	6/25/20 6:40	BRF
Ethanol	120	20		220	38	10	6/25/20 7:13	BRF
Ethyl Acetate	ND	0.10		ND	0.36	2	6/25/20 6:40	BRF
Ethylbenzene	0.17	0.10		0.76	0.43	2	6/25/20 6:40	BRF
4-Ethyltoluene	ND	0.10		ND	0.49	2	6/25/20 6:40	BRF
Heptane	ND	0.10		ND	0.41	2	6/25/20 6:40	BRF
Hexachlorobutadiene	ND	0.10		ND	1.1	2	6/25/20 6:40	BRF

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: SG-2
Sample ID: 20F1011-02
Sample Matrix: Soil Gas
Sampled: 6/18/2020 10:32

Sample Description/Location:
Sub Description/Location:
Canister ID: 1275
Canister Size: 6 liter
Flow Controller ID: 3519
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -8
Receipt Vacuum(in Hg): -7.5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Hexane	ND	4.0		ND	14	2	6/25/20 6:40	BRF
2-Hexanone (MBK)	ND	0.10		ND	0.41	2	6/25/20 6:40	BRF
Isopropanol	ND	4.0		ND	9.8	2	6/25/20 6:40	BRF
Methyl tert-Butyl Ether (MTBE)	ND	0.10		ND	0.36	2	6/25/20 6:40	BRF
Methylene Chloride	ND	1.0		ND	3.5	2	6/25/20 6:40	BRF
4-Methyl-2-pentanone (MIBK)	ND	0.10		ND	0.41	2	6/25/20 6:40	BRF
Naphthalene	0.17	0.10		0.89	0.52	2	6/25/20 6:40	BRF
Propene	ND	4.0		ND	6.9	2	6/25/20 6:40	BRF
Styrene	ND	0.10		ND	0.43	2	6/25/20 6:40	BRF
1,1,2,2-Tetrachloroethane	ND	0.10		ND	0.69	2	6/25/20 6:40	BRF
Tetrachloroethylene	0.28	0.10		1.9	0.68	2	6/25/20 6:40	BRF
Tetrahydrofuran	ND	0.10		ND	0.29	2	6/25/20 6:40	BRF
Toluene	1.0	0.10		3.8	0.38	2	6/25/20 6:40	BRF
1,2,4-Trichlorobenzene	ND	0.20		ND	1.5	2	6/25/20 6:40	BRF
1,1,1-Trichloroethane	ND	0.10		ND	0.55	2	6/25/20 6:40	BRF
1,1,2-Trichloroethane	ND	0.10		ND	0.55	2	6/25/20 6:40	BRF
Trichloroethylene	ND	0.10		ND	0.54	2	6/25/20 6:40	BRF
Trichlorofluoromethane (Freon 11)	ND	0.40		ND	2.2	2	6/25/20 6:40	BRF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.40		ND	3.1	2	6/25/20 6:40	BRF
1,2,4-Trimethylbenzene	0.49	0.10		2.4	0.49	2	6/25/20 6:40	BRF
1,3,5-Trimethylbenzene	0.13	0.10		0.66	0.49	2	6/25/20 6:40	BRF
Vinyl Acetate	ND	2.0		ND	7.0	2	6/25/20 6:40	BRF
Vinyl Chloride	ND	0.10		ND	0.26	2	6/25/20 6:40	BRF
m&p-Xylene	0.75	0.20		3.2	0.87	2	6/25/20 6:40	BRF
o-Xylene	0.33	0.10		1.4	0.43	2	6/25/20 6:40	BRF

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	88.0	70-130	6/25/20 7:13
4-Bromofluorobenzene (1)	92.4	70-130	6/25/20 6:40

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: Background
Sample ID: 20F1011-03
Sample Matrix: Ambient Air
Sampled: 6/18/2020 10:08

Sample Description/Location:
Sub Description/Location:
Canister ID: 2154
Canister Size: 6 liter
Flow Controller ID: 3502
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -30
Final Vacuum(in Hg): -9
Receipt Vacuum(in Hg): -8.3
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

	ppbv			ug/m3			Date/Time	
Analyte	Results	RL	Flag/Qual	Results	RL	Dilution	Analyzed	Analyst
Acetone	6.1	1.4		15	3.3	0.698	6/24/20 14:50	BRF
Benzene	0.089	0.035		0.29	0.11	0.698	6/24/20 14:50	BRF
Benzyl chloride	ND	0.070	L-03, V-05	ND	0.36	0.698	6/24/20 14:50	BRF
Bromodichloromethane	ND	0.035		ND	0.23	0.698	6/24/20 14:50	BRF
Bromoform	ND	0.035		ND	0.36	0.698	6/24/20 14:50	BRF
Bromomethane	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
1,3-Butadiene	ND	0.035		ND	0.077	0.698	6/24/20 14:50	BRF
2-Butanone (MEK)	ND	1.4		ND	4.1	0.698	6/24/20 14:50	BRF
Carbon Disulfide	ND	0.35		ND	1.1	0.698	6/24/20 14:50	BRF
Carbon Tetrachloride	0.074	0.035		0.47	0.22	0.698	6/24/20 14:50	BRF
Chlorobenzene	ND	0.035		ND	0.16	0.698	6/24/20 14:50	BRF
Chloroethane	ND	0.035		ND	0.092	0.698	6/24/20 14:50	BRF
Chloroform	ND	0.035		ND	0.17	0.698	6/24/20 14:50	BRF
Chloromethane	0.52	0.070		1.1	0.14	0.698	6/24/20 14:50	BRF
Cyclohexane	ND	0.035		ND	0.12	0.698	6/24/20 14:50	BRF
Dibromochloromethane	ND	0.035		ND	0.30	0.698	6/24/20 14:50	BRF
1,2-Dibromoethane (EDB)	ND	0.035		ND	0.27	0.698	6/24/20 14:50	BRF
1,2-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 14:50	BRF
1,3-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 14:50	BRF
1,4-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 14:50	BRF
Dichlorodifluoromethane (Freon 12)	0.48	0.035		2.4	0.17	0.698	6/24/20 14:50	BRF
1,1-Dichloroethane	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
1,2-Dichloroethane	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
1,1-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
cis-1,2-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
trans-1,2-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
1,2-Dichloropropane	ND	0.035		ND	0.16	0.698	6/24/20 14:50	BRF
cis-1,3-Dichloropropene	ND	0.035		ND	0.16	0.698	6/24/20 14:50	BRF
trans-1,3-Dichloropropene	ND	0.035		ND	0.16	0.698	6/24/20 14:50	BRF
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.035		ND	0.24	0.698	6/24/20 14:50	BRF
1,4-Dioxane	ND	0.35		ND	1.3	0.698	6/24/20 14:50	BRF
Ethanol	9.5	1.4		18	2.6	0.698	6/24/20 14:50	BRF
Ethyl Acetate	ND	0.035		ND	0.13	0.698	6/24/20 14:50	BRF
Ethylbenzene	0.10	0.035		0.43	0.15	0.698	6/24/20 14:50	BRF
4-Ethyltoluene	ND	0.035		ND	0.17	0.698	6/24/20 14:50	BRF
Heptane	0.16	0.035		0.64	0.14	0.698	6/24/20 14:50	BRF
Hexachlorobutadiene	ND	0.035		ND	0.37	0.698	6/24/20 14:50	BRF

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: Background
Sample ID: 20F1011-03
Sample Matrix: Ambient Air
Sampled: 6/18/2020 10:08

Sample Description/Location:
Sub Description/Location:
Canister ID: 2154
Canister Size: 6 liter
Flow Controller ID: 3502
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -30
Final Vacuum(in Hg): -9
Receipt Vacuum(in Hg): -8.3
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Hexane	ND	1.4		ND	4.9	0.698	6/24/20 14:50	BRF
2-Hexanone (MBK)	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
Isopropanol	ND	1.4		ND	3.4	0.698	6/24/20 14:50	BRF
Methyl tert-Butyl Ether (MTBE)	ND	0.035		ND	0.13	0.698	6/24/20 14:50	BRF
Methylene Chloride	0.78	0.35		2.7	1.2	0.698	6/24/20 14:50	BRF
4-Methyl-2-pentanone (MIBK)	ND	0.035		ND	0.14	0.698	6/24/20 14:50	BRF
Naphthalene	ND	0.035		ND	0.18	0.698	6/24/20 14:50	BRF
Propene	ND	1.4		ND	2.4	0.698	6/24/20 14:50	BRF
Styrene	ND	0.035		ND	0.15	0.698	6/24/20 14:50	BRF
1,1,2,2-Tetrachloroethane	ND	0.035		ND	0.24	0.698	6/24/20 14:50	BRF
Tetrachloroethylene	ND	0.035		ND	0.24	0.698	6/24/20 14:50	BRF
Tetrahydrofuran	ND	0.035		ND	0.10	0.698	6/24/20 14:50	BRF
Toluene	0.78	0.035		2.9	0.13	0.698	6/24/20 14:50	BRF
1,2,4-Trichlorobenzene	ND	0.070		ND	0.52	0.698	6/24/20 14:50	BRF
1,1,1-Trichloroethane	ND	0.035		ND	0.19	0.698	6/24/20 14:50	BRF
1,1,2-Trichloroethane	ND	0.035		ND	0.19	0.698	6/24/20 14:50	BRF
Trichloroethylene	ND	0.035		ND	0.19	0.698	6/24/20 14:50	BRF
Trichlorofluoromethane (Freon 11)	0.23	0.14		1.3	0.78	0.698	6/24/20 14:50	BRF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.14		ND	1.1	0.698	6/24/20 14:50	BRF
1,2,4-Trimethylbenzene	0.11	0.035		0.55	0.17	0.698	6/24/20 14:50	BRF
1,3,5-Trimethylbenzene	0.036	0.035		0.17	0.17	0.698	6/24/20 14:50	BRF
Vinyl Acetate	ND	0.70		ND	2.5	0.698	6/24/20 14:50	BRF
Vinyl Chloride	ND	0.035		ND	0.089	0.698	6/24/20 14:50	BRF
m&p-Xylene	0.37	0.070		1.6	0.30	0.698	6/24/20 14:50	BRF
o-Xylene	0.17	0.035		0.75	0.15	0.698	6/24/20 14:50	BRF

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	93.8	70-130	6/24/20 14:50

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: IA-Basement
Sample ID: 20F1011-04
Sample Matrix: Indoor air
Sampled: 6/18/2020 10:06

Sample Description/Location:
Sub Description/Location:
Canister ID: 2003
Canister Size: 6 liter
Flow Controller ID: 3459
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -7
Receipt Vacuum(in Hg): -7
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

	ppbv			ug/m3			Date/Time	
Analyte	Results	RL	Flag/Qual	Results	RL	Dilution	Analyzed	Analyst
Acetone	23	1.4		55	3.3	0.698	6/24/20 15:21	BRF
Benzene	0.13	0.035		0.42	0.11	0.698	6/24/20 15:21	BRF
Benzyl chloride	ND	0.070	L-03, V-05	ND	0.36	0.698	6/24/20 15:21	BRF
Bromodichloromethane (SIM)	ND	0.0070		ND	0.047	0.698	6/24/20 15:21	BRF
Bromoform	ND	0.035		ND	0.36	0.698	6/24/20 15:21	BRF
Bromomethane	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
1,3-Butadiene	ND	0.035		ND	0.077	0.698	6/24/20 15:21	BRF
2-Butanone (MEK)	ND	1.4		ND	4.1	0.698	6/24/20 15:21	BRF
Carbon Disulfide	ND	0.35		ND	1.1	0.698	6/24/20 15:21	BRF
Carbon Tetrachloride	0.083	0.035		0.52	0.22	0.698	6/24/20 15:21	BRF
Chlorobenzene	ND	0.035		ND	0.16	0.698	6/24/20 15:21	BRF
Chloroethane	ND	0.035		ND	0.092	0.698	6/24/20 15:21	BRF
Chloroform (SIM)	ND	0.0070		ND	0.034	0.698	6/24/20 15:21	BRF
Chloromethane	ND	0.070		ND	0.14	0.698	6/24/20 15:21	BRF
Cyclohexane	ND	0.035		ND	0.12	0.698	6/24/20 15:21	BRF
Dibromochloromethane	ND	0.035		ND	0.30	0.698	6/24/20 15:21	BRF
1,2-Dibromoethane (EDB) (SIM)	ND	0.0070		ND	0.054	0.698	6/24/20 15:21	BRF
1,2-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 15:21	BRF
1,3-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 15:21	BRF
1,4-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 15:21	BRF
Dichlorodifluoromethane (Freon 12)	ND	0.035		ND	0.17	0.698	6/24/20 15:21	BRF
1,1-Dichloroethane	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
1,2-Dichloroethane	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
1,1-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
cis-1,2-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
trans-1,2-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
1,2-Dichloropropane	ND	0.035		ND	0.16	0.698	6/24/20 15:21	BRF
cis-1,3-Dichloropropene	ND	0.035		ND	0.16	0.698	6/24/20 15:21	BRF
trans-1,3-Dichloropropene	ND	0.035		ND	0.16	0.698	6/24/20 15:21	BRF
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.035		ND	0.24	0.698	6/24/20 15:21	BRF
1,4-Dioxane	ND	0.35		ND	1.3	0.698	6/24/20 15:21	BRF
Ethanol	640	600		1200	1100	300	6/24/20 23:20	BRF
Ethyl Acetate	2.4	0.035		8.5	0.13	0.698	6/24/20 15:21	BRF
Ethylbenzene	0.14	0.035		0.62	0.15	0.698	6/24/20 15:21	BRF
4-Ethyltoluene	ND	0.035		ND	0.17	0.698	6/24/20 15:21	BRF
Heptane	0.73	0.035		3.0	0.14	0.698	6/24/20 15:21	BRF
Hexachlorobutadiene	ND	0.035		ND	0.37	0.698	6/24/20 15:21	BRF

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: IA-Basement
Sample ID: 20F1011-04
Sample Matrix: Indoor air
Sampled: 6/18/2020 10:06

Sample Description/Location:
Sub Description/Location:
Canister ID: 2003
Canister Size: 6 liter
Flow Controller ID: 3459
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -7
Receipt Vacuum(in Hg): -7
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Hexane	ND	1.4		ND	4.9	0.698	6/24/20 15:21	BRF
2-Hexanone (MBK)	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
Isopropanol	5.2	1.4		13	3.4	0.698	6/24/20 15:21	BRF
Methyl tert-Butyl Ether (MTBE)	ND	0.035		ND	0.13	0.698	6/24/20 15:21	BRF
Methylene Chloride	6.5	0.35		23	1.2	0.698	6/24/20 15:21	BRF
4-Methyl-2-pentanone (MIBK)	ND	0.035		ND	0.14	0.698	6/24/20 15:21	BRF
Naphthalene	0.28	0.035		1.5	0.18	0.698	6/24/20 15:21	BRF
Propene	ND	1.4		ND	2.4	0.698	6/24/20 15:21	BRF
Styrene	0.10	0.035		0.43	0.15	0.698	6/24/20 15:21	BRF
1,1,2,2-Tetrachloroethane (SIM)	ND	0.0070		ND	0.048	0.698	6/24/20 15:21	BRF
Tetrachloroethylene	ND	0.035		ND	0.24	0.698	6/24/20 15:21	BRF
Tetrahydrofuran	ND	0.035		ND	0.10	0.698	6/24/20 15:21	BRF
Toluene	4.0	0.035		15	0.13	0.698	6/24/20 15:21	BRF
1,2,4-Trichlorobenzene	ND	0.070		ND	0.52	0.698	6/24/20 15:21	BRF
1,1,1-Trichloroethane	ND	0.035		ND	0.19	0.698	6/24/20 15:21	BRF
1,1,2-Trichloroethane	ND	0.035		ND	0.19	0.698	6/24/20 15:21	BRF
Trichloroethylene	ND	0.035		ND	0.19	0.698	6/24/20 15:21	BRF
Trichlorofluoromethane (Freon 11)	ND	0.14		ND	0.78	0.698	6/24/20 15:21	BRF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.14		ND	1.1	0.698	6/24/20 15:21	BRF
1,2,4-Trimethylbenzene	0.12	0.035		0.60	0.17	0.698	6/24/20 15:21	BRF
1,3,5-Trimethylbenzene	ND	0.035		ND	0.17	0.698	6/24/20 15:21	BRF
Vinyl Acetate	ND	0.70		ND	2.5	0.698	6/24/20 15:21	BRF
Vinyl Chloride	ND	0.035		ND	0.089	0.698	6/24/20 15:21	BRF
m&p-Xylene	0.48	0.070		2.1	0.30	0.698	6/24/20 15:21	BRF
o-Xylene	0.18	0.035		0.76	0.15	0.698	6/24/20 15:21	BRF

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	91.0	70-130	6/24/20 15:21
4-Bromofluorobenzene (1)	93.5	70-130	6/24/20 23:20
4-Bromofluorobenzene (1) (SIM)	89.8	70-130	6/24/20 15:21
4-Bromofluorobenzene (1) (SIM)	90.8	70-130	6/24/20 23:20

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: IA-First Floor
Sample ID: 20F1011-05
Sample Matrix: Indoor air
Sampled: 6/18/2020 10:03

Sample Description/Location:
Sub Description/Location:
Canister ID: 1886
Canister Size: 6 liter
Flow Controller ID: 3483
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -28.5
Final Vacuum(in Hg): -7
Receipt Vacuum(in Hg): -8.5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

	ppbv			ug/m3			Date/Time	
Analyte	Results	RL	Flag/Qual	Results	RL	Dilution	Analyzed	Analyst
Acetone	20	1.4		49	3.3	0.698	6/24/20 15:53	BRF
Benzene	0.10	0.035		0.32	0.11	0.698	6/24/20 15:53	BRF
Benzyl chloride	ND	0.070	L-03, V-05	ND	0.36	0.698	6/24/20 15:53	BRF
Bromodichloromethane (SIM)	ND	0.0070		ND	0.047	0.698	6/24/20 15:53	BRF
Bromoform	ND	0.035		ND	0.36	0.698	6/24/20 15:53	BRF
Bromomethane	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
1,3-Butadiene	ND	0.035		ND	0.077	0.698	6/24/20 15:53	BRF
2-Butanone (MEK)	ND	1.4		ND	4.1	0.698	6/24/20 15:53	BRF
Carbon Disulfide	ND	0.35		ND	1.1	0.698	6/24/20 15:53	BRF
Carbon Tetrachloride	0.068	0.035		0.43	0.22	0.698	6/24/20 15:53	BRF
Chlorobenzene	ND	0.035		ND	0.16	0.698	6/24/20 15:53	BRF
Chloroethane	ND	0.035		ND	0.092	0.698	6/24/20 15:53	BRF
Chloroform (SIM)	ND	0.0070		ND	0.034	0.698	6/24/20 15:53	BRF
Chloromethane	ND	0.070		ND	0.14	0.698	6/24/20 15:53	BRF
Cyclohexane	ND	0.035		ND	0.12	0.698	6/24/20 15:53	BRF
Dibromochloromethane	ND	0.035		ND	0.30	0.698	6/24/20 15:53	BRF
1,2-Dibromoethane (EDB) (SIM)	ND	0.0070		ND	0.054	0.698	6/24/20 15:53	BRF
1,2-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 15:53	BRF
1,3-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 15:53	BRF
1,4-Dichlorobenzene	ND	0.035		ND	0.21	0.698	6/24/20 15:53	BRF
Dichlorodifluoromethane (Freon 12)	0.51	0.035		2.5	0.17	0.698	6/24/20 15:53	BRF
1,1-Dichloroethane	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
1,2-Dichloroethane	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
1,1-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
cis-1,2-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
trans-1,2-Dichloroethylene	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
1,2-Dichloropropane	ND	0.035		ND	0.16	0.698	6/24/20 15:53	BRF
cis-1,3-Dichloropropene	ND	0.035		ND	0.16	0.698	6/24/20 15:53	BRF
trans-1,3-Dichloropropene	ND	0.035		ND	0.16	0.698	6/24/20 15:53	BRF
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.035		ND	0.24	0.698	6/24/20 15:53	BRF
1,4-Dioxane	ND	0.35		ND	1.3	0.698	6/24/20 15:53	BRF
Ethanol	1900	600		3700	1100	300	6/24/20 23:47	BRF
Ethyl Acetate	4.3	0.035		15	0.13	0.698	6/24/20 15:53	BRF
Ethylbenzene	0.12	0.035		0.52	0.15	0.698	6/24/20 15:53	BRF
4-Ethyltoluene	ND	0.035		ND	0.17	0.698	6/24/20 15:53	BRF
Heptane	0.17	0.035		0.71	0.14	0.698	6/24/20 15:53	BRF
Hexachlorobutadiene	ND	0.035		ND	0.37	0.698	6/24/20 15:53	BRF

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ANALYTICAL RESULTS

Project Location: E. Montpelier, VT
Date Received: 6/19/2020
Field Sample #: IA-First Floor
Sample ID: 20F1011-05
Sample Matrix: Indoor air
Sampled: 6/18/2020 10:03

Sample Description/Location:
Sub Description/Location:
Canister ID: 1886
Canister Size: 6 liter
Flow Controller ID: 3483
Sample Type: 24 hr

Work Order: 20F1011
Initial Vacuum(in Hg): -28.5
Final Vacuum(in Hg): -7
Receipt Vacuum(in Hg): -8.5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Hexane	ND	1.4		ND	4.9	0.698	6/24/20 15:53	BRF
2-Hexanone (MBK)	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
Isopropanol	ND	1.4		ND	3.4	0.698	6/24/20 15:53	BRF
Methyl tert-Butyl Ether (MTBE)	ND	0.035		ND	0.13	0.698	6/24/20 15:53	BRF
Methylene Chloride	2.2	0.35		7.5	1.2	0.698	6/24/20 15:53	BRF
4-Methyl-2-pentanone (MIBK)	ND	0.035		ND	0.14	0.698	6/24/20 15:53	BRF
Naphthalene	0.078	0.035		0.41	0.18	0.698	6/24/20 15:53	BRF
Propene	ND	1.4		ND	2.4	0.698	6/24/20 15:53	BRF
Styrene	0.075	0.035		0.32	0.15	0.698	6/24/20 15:53	BRF
1,1,2,2-Tetrachloroethane (SIM)	ND	0.0070		ND	0.048	0.698	6/24/20 15:53	BRF
Tetrachloroethylene	ND	0.035		ND	0.24	0.698	6/24/20 15:53	BRF
Tetrahydrofuran	ND	0.035		ND	0.10	0.698	6/24/20 15:53	BRF
Toluene	1.1	0.035		4.0	0.13	0.698	6/24/20 15:53	BRF
1,2,4-Trichlorobenzene	ND	0.070		ND	0.52	0.698	6/24/20 15:53	BRF
1,1,1-Trichloroethane	ND	0.035		ND	0.19	0.698	6/24/20 15:53	BRF
1,1,2-Trichloroethane	ND	0.035		ND	0.19	0.698	6/24/20 15:53	BRF
Trichloroethylene	ND	0.035		ND	0.19	0.698	6/24/20 15:53	BRF
Trichlorofluoromethane (Freon 11)	ND	0.14		ND	0.78	0.698	6/24/20 15:53	BRF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.14		ND	1.1	0.698	6/24/20 15:53	BRF
1,2,4-Trimethylbenzene	0.087	0.035		0.43	0.17	0.698	6/24/20 15:53	BRF
1,3,5-Trimethylbenzene	ND	0.035		ND	0.17	0.698	6/24/20 15:53	BRF
Vinyl Acetate	ND	0.70		ND	2.5	0.698	6/24/20 15:53	BRF
Vinyl Chloride	ND	0.035		ND	0.089	0.698	6/24/20 15:53	BRF
m&p-Xylene	0.39	0.070		1.7	0.30	0.698	6/24/20 15:53	BRF
o-Xylene	0.16	0.035		0.68	0.15	0.698	6/24/20 15:53	BRF

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	91.5	70-130	6/24/20 23:47
4-Bromofluorobenzene (1)	92.9	70-130	6/24/20 15:53
4-Bromofluorobenzene (1) (SIM)	89.7	70-130	6/24/20 23:47
4-Bromofluorobenzene (1) (SIM)	91.1	70-130	6/24/20 15:53

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Sample Extraction Data

Prep Method: TO-15 Prep **Analytical Method: EP**

Lab Number [Field ID]	Batch	Pressure Dilution	Pre Dilution	Pre-Dil Initial mL	Pre-Dil Final mL	Default Injection mL	Actual Injection mL	Date
20F1011-04 [IA-Basement]	B260733	1.5	1	N/A	1000	200	430	06/24/20
20F1011-04RE1 [IA-Basement]	B260733	1.5	200	5	1000	200	200	06/24/20
20F1011-05 [IA-First Floor]	B260733	1.5	1	N/A	1000	200	430	06/24/20
20F1011-05RE1 [IA-First Floor]	B260733	1.5	200	5	1000	200	200	06/24/20

Prep Method: TO-15 Prep **Analytical Method: EP**

Lab Number [Field ID]	Batch	Pressure Dilution	Pre Dilution	Pre-Dil Initial mL	Pre-Dil Final mL	Default Injection mL	Actual Injection mL	Date
20F1011-01 [SG-1]	B260738	1.5	1	N/A	1000	200	150	06/24/20
20F1011-02 [SG-2]	B260738	1.5	1	N/A	1000	200	150	06/24/20
20F1011-02RE1 [SG-2]	B260738	1.5	1	N/A	1000	200	30	06/24/20
20F1011-03 [Background]	B260738	1.5	1	N/A	1000	200	430	06/24/20

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260738 - TO-15 Prep											
Blank (B260738-BLK1)					Prepared & Analyzed: 06/24/20						
Acetone	ND	0.80									
Benzene	ND	0.020									
Benzyl chloride	ND	0.020									L-03, V-05
Bromodichloromethane	ND	0.020									
Bromoform	ND	0.020									
Bromomethane	ND	0.020									
1,3-Butadiene	ND	0.020									
2-Butanone (MEK)	ND	0.80									
Carbon Disulfide	ND	0.20									
Carbon Tetrachloride	ND	0.020									
Chlorobenzene	ND	0.020									
Chloroethane	ND	0.020									
Chloroform	ND	0.020									
Chloromethane	ND	0.040									
Cyclohexane	ND	0.020									
Dibromochloromethane	ND	0.020									
1,2-Dibromoethane (EDB)	ND	0.020									
1,2-Dichlorobenzene	ND	0.020									
1,3-Dichlorobenzene	ND	0.020									
1,4-Dichlorobenzene	ND	0.020									
Dichlorodifluoromethane (Freon 12)	ND	0.020									
1,1-Dichloroethane	ND	0.020									
1,2-Dichloroethane	ND	0.020									
1,1-Dichloroethylene	ND	0.020									
cis-1,2-Dichloroethylene	ND	0.020									
trans-1,2-Dichloroethylene	ND	0.020									
1,2-Dichloropropane	ND	0.020									
cis-1,3-Dichloropropene	ND	0.020									
trans-1,3-Dichloropropene	ND	0.020									
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.020									
1,4-Dioxane	ND	0.20									
Ethanol	ND	0.80									
Ethyl Acetate	ND	0.020									
Ethylbenzene	ND	0.020									
4-Ethyltoluene	ND	0.020									
Heptane	ND	0.020									
Hexachlorobutadiene	ND	0.020									
Hexane	ND	0.80									
2-Hexanone (MBK)	ND	0.020									
Isopropanol	ND	0.80									
Methyl tert-Butyl Ether (MTBE)	ND	0.020									
Methylene Chloride	ND	0.20									
4-Methyl-2-pentanone (MIBK)	ND	0.020									
Naphthalene	ND	0.020									
Propene	ND	0.80									
Styrene	ND	0.020									

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC		%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260738 - TO-15 Prep												
Blank (B260738-BLK1)					Prepared & Analyzed: 06/24/20							
1,1,2,2-Tetrachloroethane	ND	0.020										
Tetrachloroethylene	ND	0.020										
Tetrahydrofuran	ND	0.020										
Toluene	ND	0.020										
1,2,4-Trichlorobenzene	ND	0.020										
1,1,1-Trichloroethane	ND	0.020										
1,1,2-Trichloroethane	ND	0.020										
Trichloroethylene	ND	0.020										
Trichlorofluoromethane (Freon 11)	ND	0.080										
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.080										
1,2,4-Trimethylbenzene	ND	0.020										
1,3,5-Trimethylbenzene	ND	0.020										
Vinyl Acetate	ND	0.40										
Vinyl Chloride	ND	0.020										
m&p-Xylene	ND	0.040										
o-Xylene	ND	0.020										
Surrogate: 4-Bromofluorobenzene (1)	*7.23*				*8.00*		*90.4*		*70-130*			
LCS (B260738-BS1)					Prepared & Analyzed: 06/24/20							
Acetone	4.92				5.00		98.4		70-130			
Benzene	4.64				5.00		92.8		70-130			
Benzyl chloride	2.63				5.00		**52.6**	*	70-130			V-05, L-03
Bromodichloromethane	4.85				5.00		96.9		70-130			
Bromoform	4.85				5.00		97.1		70-130			
Bromomethane	4.87				5.00		97.5		70-130			
1,3-Butadiene	5.10				5.00		102		70-130			
2-Butanone (MEK)	4.40				5.00		88.1		70-130			
Carbon Disulfide	4.99				5.00		99.8		70-130			
Carbon Tetrachloride	4.66				5.00		93.3		70-130			
Chlorobenzene	5.09				5.00		102		70-130			
Chloroethane	4.84				5.00		96.9		70-130			
Chloroform	5.23				5.00		105		70-130			
Chloromethane	4.83				5.00		96.6		70-130			
Cyclohexane	4.61				5.00		92.2		70-130			
Dibromochloromethane	4.87				5.00		97.3		70-130			
1,2-Dibromoethane (EDB)	5.05				5.00		101		70-130			
1,2-Dichlorobenzene	4.83				5.00		96.5		70-130			
1,3-Dichlorobenzene	5.11				5.00		102		70-130			
1,4-Dichlorobenzene	4.93				5.00		98.5		70-130			
Dichlorodifluoromethane (Freon 12)	5.21				5.00		104		70-130			
1,1-Dichloroethane	5.08				5.00		102		70-130			
1,2-Dichloroethane	5.00				5.00		100		70-130			
1,1-Dichloroethylene	4.94				5.00		98.8		70-130			
cis-1,2-Dichloroethylene	5.07				5.00		101		70-130			
trans-1,2-Dichloroethylene	5.16				5.00		103		70-130			
1,2-Dichloropropane	4.89				5.00		97.7		70-130			

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260738 - TO-15 Prep											
LCS (B260738-BS1)					Prepared & Analyzed: 06/24/20						
cis-1,3-Dichloropropene	4.37				5.00		87.4	70-130			
trans-1,3-Dichloropropene	4.07				5.00		81.4	70-130			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	4.99				5.00		99.7	70-130			
1,4-Dioxane	3.61				5.00		72.1	70-130			
Ethanol	5.99				5.00		120	70-130			
Ethyl Acetate	4.08				5.00		81.7	70-130			
Ethylbenzene	4.78				5.00		95.5	70-130			
4-Ethyltoluene	4.74				5.00		94.8	70-130			
Heptane	4.54				5.00		90.8	70-130			
Hexachlorobutadiene	4.01				5.00		80.3	70-130			
Hexane	4.71				5.00		94.2	70-130			
2-Hexanone (MBK)	4.43				5.00		88.6	70-130			
Isopropanol	4.41				5.00		88.2	70-130			
Methyl tert-Butyl Ether (MTBE)	4.48				5.00		89.5	70-130			
Methylene Chloride	4.48				5.00		89.6	70-130			
4-Methyl-2-pentanone (MIBK)	4.75				5.00		94.9	70-130			
Naphthalene	3.63				5.00		72.5	70-130			
Propene	4.49				5.00		89.7	70-130			
Styrene	4.67				5.00		93.4	70-130			
1,1,2,2-Tetrachloroethane	5.29				5.00		106	70-130			
Tetrachloroethylene	5.03				5.00		101	70-130			
Tetrahydrofuran	4.94				5.00		98.8	70-130			
Toluene	4.77				5.00		95.4	70-130			
1,2,4-Trichlorobenzene	3.68				5.00		73.7	70-130			
1,1,1-Trichloroethane	4.14				5.00		82.9	70-130			
1,1,2-Trichloroethane	5.00				5.00		100	70-130			
Trichloroethylene	4.65				5.00		93.0	70-130			
Trichlorofluoromethane (Freon 11)	5.19				5.00		104	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4.84				5.00		96.8	70-130			
1,2,4-Trimethylbenzene	4.69				5.00		93.8	70-130			
1,3,5-Trimethylbenzene	4.82				5.00		96.5	70-130			
Vinyl Acetate	4.35				5.00		87.0	70-130			
Vinyl Chloride	5.42				5.00		108	70-130			
m&p-Xylene	9.76				10.0		97.6	70-130			
o-Xylene	4.82				5.00		96.5	70-130			
Surrogate: 4-Bromofluorobenzene (1)	*7.73*				*8.00*		*96.6*	*70-130*			

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Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260738 - TO-15 Prep											
Duplicate (B260738-DUP1)			**Source: 20F1011-02**		Prepared & Analyzed: 06/24/20						
Acetone	4.8	4.0	11	9.5		5.0			2.86	25	
Benzene	0.66	0.10	2.1	0.32		0.67			1.81	25	
Benzyl chloride	ND	0.10	ND	0.52		ND				25	L-03, V-05
Bromodichloromethane	ND	0.10	ND	0.67		ND				25	
Bromoform	ND	0.10	ND	1.0		ND				25	
Bromomethane	ND	0.10	ND	0.39		ND				25	
1,3-Butadiene	ND	0.10	ND	0.22		ND				25	
2-Butanone (MEK)	ND	4.0	ND	12		ND				25	
Carbon Disulfide	ND	1.0	ND	3.1		ND				25	
Carbon Tetrachloride	ND	0.10	ND	0.63		ND				25	
Chlorobenzene	ND	0.10	ND	0.46		ND				25	
Chloroethane	ND	0.10	ND	0.26		ND				25	
Chloroform	ND	0.10	ND	0.49		ND				25	
Chloromethane	ND	0.20	ND	0.41		ND				25	
Cyclohexane	ND	0.10	ND	0.34		ND				25	
Dibromochloromethane	ND	0.10	ND	0.85		ND				25	
1,2-Dibromoethane (EDB)	ND	0.10	ND	0.77		ND				25	
1,2-Dichlorobenzene	ND	0.10	ND	0.60		ND				25	
1,3-Dichlorobenzene	ND	0.10	ND	0.60		ND				25	
1,4-Dichlorobenzene	ND	0.10	ND	0.60		ND				25	
Dichlorodifluoromethane (Freon 12)	ND	0.10	ND	0.49		ND				25	
1,1-Dichloroethane	ND	0.10	ND	0.40		ND				25	
1,2-Dichloroethane	ND	0.10	ND	0.40		ND				25	
1,1-Dichloroethylene	ND	0.10	ND	0.40		ND				25	
cis-1,2-Dichloroethylene	ND	0.10	ND	0.40		ND				25	
trans-1,2-Dichloroethylene	ND	0.10	ND	0.40		ND				25	
1,2-Dichloropropane	ND	0.10	ND	0.46		ND				25	
cis-1,3-Dichloropropene	ND	0.10	ND	0.45		ND				25	
trans-1,3-Dichloropropene	ND	0.10	ND	0.45		ND				25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.10	ND	0.70		ND				25	
1,4-Dioxane	ND	1.0	ND	3.6		ND				25	
Ethanol	110	4.0	200	7.5		110			1.89	25	E
Ethyl Acetate	ND	0.10	ND	0.36		ND				25	
Ethylbenzene	0.18	0.10	0.80	0.43		0.17			5.59	25	
4-Ethyltoluene	ND	0.10	ND	0.49		ND				25	
Heptane	ND	0.10	ND	0.41		ND				25	
Hexachlorobutadiene	ND	0.10	ND	1.1		ND				25	
Hexane	ND	4.0	ND	14		ND				25	
2-Hexanone (MBK)	ND	0.10	ND	0.41		ND				25	
Isopropanol	3.7	4.0	9.1	9.8		3.8			3.51	25	
Methyl tert-Butyl Ether (MTBE)	ND	0.10	ND	0.36		ND				25	
Methylene Chloride	ND	1.0	ND	3.5		ND				25	
4-Methyl-2-pentanone (MIBK)	ND	0.10	ND	0.41		ND				25	
Naphthalene	0.19	0.10	0.97	0.52		0.17			8.99	25	
Propene	ND	4.0	ND	6.9		ND				25	
Styrene	0.092	0.10	0.39	0.43		0.092			0.00	25	

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QUALITY CONTROL

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Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260738 - TO-15 Prep											
Duplicate (B260738-DUP1)			**Source: 20F1011-02**		Prepared & Analyzed: 06/24/20						
1,1,2,2-Tetrachloroethane	ND	0.10	ND	0.69		ND				25	
Tetrachloroethylene	0.26	0.10	1.8	0.68		0.28			8.06	25	
Tetrahydrofuran	ND	0.10	ND	0.29		ND				25	
Toluene	1.1	0.10	4.0	0.38		1.0			6.94	25	
1,2,4-Trichlorobenzene	ND	0.10	ND	0.74		ND				25	
1,1,1-Trichloroethane	ND	0.10	ND	0.55		ND				25	
1,1,2-Trichloroethane	ND	0.10	ND	0.55		ND				25	
Trichloroethylene	ND	0.10	ND	0.54		ND				25	
Trichlorofluoromethane (Freon 11)	0.26	0.40	1.4	2.2		0.27			4.55	25	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.40	ND	3.1		ND				25	
1,2,4-Trimethylbenzene	0.54	0.10	2.6	0.49		0.49			10.2	25	
1,3,5-Trimethylbenzene	0.15	0.10	0.72	0.49		0.13			8.57	25	
Vinyl Acetate	ND	2.0	ND	7.0		ND				25	
Vinyl Chloride	ND	0.10	ND	0.26		ND				25	
m&p-Xylene	0.74	0.20	3.2	0.87		0.75			0.805	25	
o-Xylene	0.34	0.10	1.5	0.43		0.33			2.40	25	
Surrogate: 4-Bromofluorobenzene (1)	*7.40*				*8.00*		*92.5*	*70-130*			

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260733 - TO-15 Prep											
Blank (B260733-BLK1)					Prepared & Analyzed: 06/24/20						
Acetone	ND	0.80									
Benzene	ND	0.020									
Benzyl chloride	ND	0.020									L-03, V-05
Bromodichloromethane (SIM)	ND	0.0040									
Bromoform	ND	0.020									
Bromomethane	ND	0.020									
1,3-Butadiene	ND	0.020									
2-Butanone (MEK)	ND	0.80									
Carbon Disulfide	ND	0.20									
Carbon Tetrachloride	ND	0.020									
Chlorobenzene	ND	0.020									
Chloroethane	ND	0.020									
Chloroform (SIM)	ND	0.0040									
Chloromethane	ND	0.040									
Cyclohexane	ND	0.020									
Dibromochloromethane	ND	0.020									
1,2-Dibromoethane (EDB) (SIM)	ND	0.0040									
1,2-Dichlorobenzene	ND	0.020									
1,3-Dichlorobenzene	ND	0.020									
1,4-Dichlorobenzene	ND	0.020									
Dichlorodifluoromethane (Freon 12)	ND	0.020									
1,1-Dichloroethane	ND	0.020									
1,2-Dichloroethane	ND	0.020									
1,1-Dichloroethylene	ND	0.020									
cis-1,2-Dichloroethylene	ND	0.020									
trans-1,2-Dichloroethylene	ND	0.020									
1,2-Dichloropropane	ND	0.020									
cis-1,3-Dichloropropene	ND	0.020									
trans-1,3-Dichloropropene	ND	0.020									
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.020									
1,4-Dioxane	ND	0.20									
Ethanol	ND	0.80									
Ethyl Acetate	ND	0.020									
Ethylbenzene	ND	0.020									
4-Ethyltoluene	ND	0.020									
Heptane	ND	0.020									
Hexachlorobutadiene	ND	0.020									
Hexane	ND	0.80									
2-Hexanone (MBK)	ND	0.020									
Isopropanol	ND	0.80									
Methyl tert-Butyl Ether (MTBE)	ND	0.020									
Methylene Chloride	ND	0.20									
4-Methyl-2-pentanone (MIBK)	ND	0.020									
Naphthalene	ND	0.020									
Propene	ND	0.80									
Styrene	ND	0.020									

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC		%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260733 - TO-15 Prep												
Blank (B260733-BLK1)					Prepared & Analyzed: 06/24/20							
1,1,2,2-Tetrachloroethane (SIM)	ND	0.0040										
Tetrachloroethylene	ND	0.020										
Tetrahydrofuran	ND	0.020										
Toluene	ND	0.020										
1,2,4-Trichlorobenzene	ND	0.020										
1,1,1-Trichloroethane	ND	0.020										
1,1,2-Trichloroethane	ND	0.020										
Trichloroethylene	ND	0.020										
Trichlorofluoromethane (Freon 11)	ND	0.080										
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.080										
1,2,4-Trimethylbenzene	ND	0.020										
1,3,5-Trimethylbenzene	ND	0.020										
Vinyl Acetate	ND	0.40										
Vinyl Chloride	ND	0.020										
m&p-Xylene	ND	0.040										
o-Xylene	ND	0.020										
Surrogate: 4-Bromofluorobenzene (1)	*7.23*				*8.00*		*90.4*		*70-130*			
Surrogate: 4-Bromofluorobenzene (1) (SIM)	*7.15*				*8.00*		*89.4*		*70-130*			
LCS (B260733-BS1)					Prepared & Analyzed: 06/24/20							
Acetone	4.92				5.00		98.4		70-130			
Benzene	4.64				5.00		92.8		70-130			
Benzyl chloride	2.63				5.00		**52.6**	*	70-130			L-03, V-05
Bromodichloromethane (SIM)	5.47				5.00		109		70-130			
Bromoform	4.85				5.00		97.1		70-130			
Bromomethane	4.87				5.00		97.5		70-130			
1,3-Butadiene	5.10				5.00		102		70-130			
2-Butanone (MEK)	4.40				5.00		88.1		70-130			
Carbon Disulfide	4.99				5.00		99.8		70-130			
Carbon Tetrachloride	4.66				5.00		93.3		70-130			
Chlorobenzene	5.09				5.00		102		70-130			
Chloroethane	4.84				5.00		96.9		70-130			
Chloroform (SIM)	5.88				5.00		118		70-130			
Chloromethane	4.83				5.00		96.6		70-130			
Cyclohexane	4.61				5.00		92.2		70-130			
Dibromochloromethane	4.87				5.00		97.3		70-130			
1,2-Dibromoethane (EDB) (SIM)	5.52				5.00		110		70-130			
1,2-Dichlorobenzene	4.83				5.00		96.5		70-130			
1,3-Dichlorobenzene	5.11				5.00		102		70-130			
1,4-Dichlorobenzene	4.93				5.00		98.5		70-130			
Dichlorodifluoromethane (Freon 12)	5.21				5.00		104		70-130			
1,1-Dichloroethane	5.08				5.00		102		70-130			
1,2-Dichloroethane	5.00				5.00		100		70-130			
1,1-Dichloroethylene	4.94				5.00		98.8		70-130			
cis-1,2-Dichloroethylene	5.07				5.00		101		70-130			
trans-1,2-Dichloroethylene	5.16				5.00		103		70-130			

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B260733 - TO-15 Prep											
LCS (B260733-BS1)					Prepared & Analyzed: 06/24/20						
1,2-Dichloropropane	4.89				5.00		97.7	70-130			
cis-1,3-Dichloropropene	4.37				5.00		87.4	70-130			
trans-1,3-Dichloropropene	4.07				5.00		81.4	70-130			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	4.99				5.00		99.7	70-130			
1,4-Dioxane	3.61				5.00		72.1	70-130			
Ethanol	5.99				5.00		120	70-130			
Ethyl Acetate	4.08				5.00		81.7	70-130			
Ethylbenzene	4.78				5.00		95.5	70-130			
4-Ethyltoluene	4.74				5.00		94.8	70-130			
Heptane	4.54				5.00		90.8	70-130			
Hexachlorobutadiene	4.01				5.00		80.3	70-130			
Hexane	4.71				5.00		94.2	70-130			
2-Hexanone (MBK)	4.43				5.00		88.6	70-130			
Isopropanol	4.41				5.00		88.2	70-130			
Methyl tert-Butyl Ether (MTBE)	4.48				5.00		89.5	70-130			
Methylene Chloride	4.48				5.00		89.6	70-130			
4-Methyl-2-pentanone (MIBK)	4.75				5.00		94.9	70-130			
Naphthalene	3.63				5.00		72.5	70-130			
Propene	4.49				5.00		89.7	70-130			
Styrene	4.67				5.00		93.4	70-130			
1,1,2,2-Tetrachloroethane (SIM)	5.64				5.00		113	70-130			
Tetrachloroethylene	5.03				5.00		101	70-130			
Tetrahydrofuran	4.94				5.00		98.8	70-130			
Toluene	4.77				5.00		95.4	70-130			
1,2,4-Trichlorobenzene	3.68				5.00		73.7	70-130			
1,1,1-Trichloroethane	4.14				5.00		82.9	70-130			
1,1,2-Trichloroethane	5.00				5.00		100	70-130			
Trichloroethylene	4.65				5.00		93.0	70-130			
Trichlorofluoromethane (Freon 11)	5.19				5.00		104	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4.84				5.00		96.8	70-130			
1,2,4-Trimethylbenzene	4.69				5.00		93.8	70-130			
1,3,5-Trimethylbenzene	4.82				5.00		96.5	70-130			
Vinyl Acetate	4.35				5.00		87.0	70-130			
Vinyl Chloride	5.42				5.00		108	70-130			
m&p-Xylene	9.76				10.0		97.6	70-130			
o-Xylene	4.82				5.00		96.5	70-130			
Surrogate: 4-Bromofluorobenzene (1)	*7.73*				*8.00*		*96.6*	*70-130*			
Surrogate: 4-Bromofluorobenzene (1) (SIM)	*7.57*				*8.00*		*94.6*	*70-130*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
E	Reported result is estimated. Value reported over verified calibration range.
L-03	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the low side.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

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INTERNAL STANDARD AREA AND RT SUMMARY

EPA TO-15

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (S046269-ICV1)			Lab File ID: J2006421.D			Analyzed: 03/05/20 02:35			
Bromochloromethane (1)	171241	2.882	171486	2.879	100	60 - 140	0.0030	+/-0.50	
1,4-Difluorobenzene (1)	791531	3.481	793015	3.481	100	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1)	712247	5.06	711943	5.06	100	60 - 140	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA TO-15

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (S049677-CCV1)			Lab File ID: J2017604.D			Analyzed: 06/24/20 08:51			
Bromochloromethane (1)	141866	2.88	171486	2.879	83	60 - 140	0.0010	+/-0.50	
1,4-Difluorobenzene (1)	698823	3.481	793015	3.481	88	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1)	593044	5.06	711943	5.06	83	60 - 140	0.0000	+/-0.50	
LCS (B260733-BS1)			Lab File ID: J2017605.D			Analyzed: 06/24/20 09:17			
Bromochloromethane (1)	141411	2.879	141866	2.88	100	60 - 140	-0.0010	+/-0.50	
Bromochloromethane (1) (SIM)	179982	2.881	181181	2.878	99	60 - 140	0.0030	+/-0.50	
1,4-Difluorobenzene (1)	692809	3.481	698823	3.481	99	60 - 140	0.0000	+/-0.50	
1,4-Difluorobenzene (1) (SIM)	898664	3.482	907745	3.479	99	60 - 140	0.0030	+/-0.50	
Chlorobenzene-d5 (1)	590792	5.06	593044	5.06	100	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1) (SIM)	763988	5.061	767593	5.061	100	60 - 140	0.0000	+/-0.50	
Blank (B260733-BLK1)			Lab File ID: J2017609.D			Analyzed: 06/24/20 11:09			
Bromochloromethane (1)	144938	2.87	141866	2.88	102	60 - 140	-0.0100	+/-0.50	
Bromochloromethane (1) (SIM)	185277	2.868	181181	2.878	102	60 - 140	-0.0100	+/-0.50	
1,4-Difluorobenzene (1)	681201	3.472	698823	3.481	97	60 - 140	-0.0090	+/-0.50	
1,4-Difluorobenzene (1) (SIM)	888414	3.473	907745	3.479	98	60 - 140	-0.0060	+/-0.50	
Chlorobenzene-d5 (1)	579890	5.057	593044	5.06	98	60 - 140	-0.0030	+/-0.50	
Chlorobenzene-d5 (1) (SIM)	746048	5.058	767593	5.061	97	60 - 140	-0.0030	+/-0.50	
IA-Basement (20F1011-04)			Lab File ID: J2017614.D			Analyzed: 06/24/20 15:21			
Bromochloromethane (1)	146088	2.869	141866	2.88	103	60 - 140	-0.0110	+/-0.50	
Bromochloromethane (1) (SIM)	187192	2.871	181181	2.878	103	60 - 140	-0.0070	+/-0.50	
1,4-Difluorobenzene (1)	686316	3.474	698823	3.481	98	60 - 140	-0.0070	+/-0.50	
1,4-Difluorobenzene (1) (SIM)	903733	3.476	907745	3.479	100	60 - 140	-0.0030	+/-0.50	
Chlorobenzene-d5 (1)	591886	5.06	593044	5.06	100	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1) (SIM)	764414	5.058	767593	5.061	100	60 - 140	-0.0030	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

EPA TO-15

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
IA-First Floor (20F1011-05)			Lab File ID: J2017615.D			Analyzed: 06/24/20 15:53			
Bromochloromethane (1)	144813	2.87	141866	2.88	102	60 - 140	-0.0100	+/-0.50	
Bromochloromethane (1) (SIM)	186628	2.868	181181	2.878	103	60 - 140	-0.0100	+/-0.50	
1,4-Difluorobenzene (1)	685874	3.475	698823	3.481	98	60 - 140	-0.0060	+/-0.50	
1,4-Difluorobenzene (1) (SIM)	896181	3.473	907745	3.479	99	60 - 140	-0.0060	+/-0.50	
Chlorobenzene-d5 (1)	578242	5.057	593044	5.06	98	60 - 140	-0.0030	+/-0.50	
Chlorobenzene-d5 (1) (SIM)	751568	5.058	767593	5.061	98	60 - 140	-0.0030	+/-0.50	
IA-Basement (20F1011-04RE1)			Lab File ID: J2017624.D			Analyzed: 06/24/20 23:20			
Bromochloromethane (1)	148534	2.866	141866	2.88	105	60 - 140	-0.0140	+/-0.50	
Bromochloromethane (1) (SIM)	186152	2.864	181181	2.878	103	60 - 140	-0.0140	+/-0.50	
1,4-Difluorobenzene (1)	701317	3.471	698823	3.481	100	60 - 140	-0.0100	+/-0.50	
1,4-Difluorobenzene (1) (SIM)	895105	3.469	907745	3.479	99	60 - 140	-0.0100	+/-0.50	
Chlorobenzene-d5 (1)	589026	5.056	593044	5.06	99	60 - 140	-0.0040	+/-0.50	
Chlorobenzene-d5 (1) (SIM)	751809	5.058	767593	5.061	98	60 - 140	-0.0030	+/-0.50	
IA-First Floor (20F1011-05RE1)			Lab File ID: J2017625.D			Analyzed: 06/24/20 23:47			
Bromochloromethane (1)	151116	2.867	141866	2.88	107	60 - 140	-0.0130	+/-0.50	
Bromochloromethane (1) (SIM)	190060	2.865	181181	2.878	105	60 - 140	-0.0130	+/-0.50	
1,4-Difluorobenzene (1)	716335	3.472	698823	3.481	103	60 - 140	-0.0090	+/-0.50	
1,4-Difluorobenzene (1) (SIM)	913115	3.473	907745	3.479	101	60 - 140	-0.0060	+/-0.50	
Chlorobenzene-d5 (1)	599129	5.057	593044	5.06	101	60 - 140	-0.0030	+/-0.50	
Chlorobenzene-d5 (1) (SIM)	766860	5.058	767593	5.061	100	60 - 140	-0.0030	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA TO-15

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (S049678-CCV1)			Lab File ID: J2017604.D			Analyzed: 06/24/20 08:51			
Bromochloromethane (1)	141866	2.88	171486	2.879	83	60 - 140	0.0010	+/-0.50	
1,4-Difluorobenzene (1)	698823	3.481	793015	3.481	88	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1)	593044	5.06	711943	5.06	83	60 - 140	0.0000	+/-0.50	
LCS (B260738-BS1)			Lab File ID: J2017605.D			Analyzed: 06/24/20 09:17			
Bromochloromethane (1)	141411	2.879	141866	2.88	100	60 - 140	-0.0010	+/-0.50	
1,4-Difluorobenzene (1)	692809	3.481	698823	3.481	99	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1)	590792	5.06	593044	5.06	100	60 - 140	0.0000	+/-0.50	
Blank (B260738-BLK1)			Lab File ID: J2017609.D			Analyzed: 06/24/20 11:09			
Bromochloromethane (1)	144938	2.87	141866	2.88	102	60 - 140	-0.0100	+/-0.50	
1,4-Difluorobenzene (1)	681201	3.472	698823	3.481	97	60 - 140	-0.0090	+/-0.50	
Chlorobenzene-d5 (1)	579890	5.057	593044	5.06	98	60 - 140	-0.0030	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

EPA TO-15

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Background (20F1011-03)			Lab File ID: J2017613.D			Analyzed: 06/24/20 14:50			
Bromochloromethane (1)	144878	2.87	141866	2.88	102	60 - 140	-0.0100	+/-0.50	
1,4-Difluorobenzene (1)	674746	3.475	698823	3.481	97	60 - 140	-0.0060	+/-0.50	
Chlorobenzene-d5 (1)	569549	5.057	593044	5.06	96	60 - 140	-0.0030	+/-0.50	
SG-1 (20F1011-01)			Lab File ID: J2017621.D			Analyzed: 06/24/20 18:59			
Bromochloromethane (1)	153888	2.873	141866	2.88	108	60 - 140	-0.0070	+/-0.50	
1,4-Difluorobenzene (1)	756215	3.478	698823	3.481	108	60 - 140	-0.0030	+/-0.50	
Chlorobenzene-d5 (1)	639504	5.06	593044	5.06	108	60 - 140	0.0000	+/-0.50	
Duplicate (B260738-DUP1)			Lab File ID: J2017623.D			Analyzed: 06/24/20 19:52			
Bromochloromethane (1)	149463	2.876	141866	2.88	105	60 - 140	-0.0040	+/-0.50	
1,4-Difluorobenzene (1)	750903	3.481	698823	3.481	107	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1)	638777	5.06	593044	5.06	108	60 - 140	0.0000	+/-0.50	
SG-2 (20F1011-02)			Lab File ID: J2017626.D			Analyzed: 06/25/20 06:40			
Bromochloromethane (1)	139186	2.869	141866	2.88	98	60 - 140	-0.0110	+/-0.50	
1,4-Difluorobenzene (1)	708012	3.478	698823	3.481	101	60 - 140	-0.0030	+/-0.50	
Chlorobenzene-d5 (1)	610004	5.059	593044	5.06	103	60 - 140	-0.0010	+/-0.50	
SG-2 (20F1011-02RE1)			Lab File ID: J2017627.D			Analyzed: 06/25/20 07:13			
Bromochloromethane (1)	145910	2.869	141866	2.88	103	60 - 140	-0.0110	+/-0.50	
1,4-Difluorobenzene (1)	726804	3.481	698823	3.481	104	60 - 140	0.0000	+/-0.50	
Chlorobenzene-d5 (1)	619844	5.06	593044	5.06	105	60 - 140	0.0000	+/-0.50	

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CONTINUING CALIBRATION CHECK

EPA TO-15

S049678-CCV1

COMPOUND	TYPE	CONC. (ppbv)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	A	5.00	4.95	0.9796876	0.9704256		-0.9	30
Benzene	A	5.00	4.77	0.6375912	0.6077213		-4.7	30
Benzyl chloride	A	5.00	2.85	0.7167197	0.408191		-43.0	30 *
Bromodichloromethane	A	5.00	4.97	0.4748233	0.4715632		-0.7	30
Bromoform	A	5.00	5.20	0.6950199	0.7224044		3.9	30
Bromomethane	A	5.00	4.83	0.909406	0.877865		-3.5	30
1,3-Butadiene	A	5.00	5.16	0.5169436	0.5339348		3.3	30
2-Butanone (MEK)	A	5.00	4.30	1.543265	1.325634		-14.1	30
Carbon Disulfide	A	5.00	5.08	2.33722	2.372504		1.5	30
Carbon Tetrachloride	A	5.00	4.90	0.5094529	0.4989029		-2.1	30
Chlorobenzene	A	5.00	5.42	0.728227	0.7891704		8.4	30
Chloroethane	A	5.00	4.86	0.4391418	0.4267238		-2.8	30
Chloroform	A	5.00	5.28	1.936339	2.04284		5.5	30
Chloromethane	A	5.00	5.14	0.5620705	0.5776042		2.8	30
Cyclohexane	A	5.00	4.67	0.2845592	0.2659558		-6.5	30
Dibromochloromethane	A	5.00	5.72	0.6385841	0.7302932		14.4	30
1,2-Dibromoethane (EDB)	A	5.00	5.25	0.4783536	0.502325		5.0	30
1,2-Dichlorobenzene	A	5.00	5.13	0.7471642	0.7661327		2.5	30
1,3-Dichlorobenzene	A	5.00	5.41	0.7664602	0.828752		8.1	30
1,4-Dichlorobenzene	A	5.00	5.40	0.7393356	0.7992743		8.1	30
Dichlorodifluoromethane (Freon 12)	A	5.00	5.26	2.35253	2.475102		5.2	30
1,1-Dichloroethane	A	5.00	5.14	1.430173	1.470278		2.8	30
1,2-Dichloroethane	A	5.00	5.13	1.106142	1.135393		2.6	30
1,1-Dichloroethylene	A	5.00	5.00	1.204068	1.203795		-0.02	30
cis-1,2-Dichloroethylene	A	5.00	5.32	1.07756	1.145351		6.3	30
trans-1,2-Dichloroethylene	A	5.00	5.28	1.130705	1.193002		5.5	30
1,2-Dichloropropane	A	5.00	5.09	0.1991236	0.2026608		1.8	30
cis-1,3-Dichloropropene	A	5.00	4.76	0.3572364	0.3397759		-4.9	30
trans-1,3-Dichloropropene	A	5.00	4.18	0.3129787	0.2616743		-16.4	30
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 1	A	5.00	5.36	2.326007	2.494173		7.2	30
1,4-Dioxane	A	5.00	3.78	0.1732339	0.1308463		-24.5	30
Ethanol	A	5.00	5.24	0.1255735	0.1315495		4.8	30
Ethyl Acetate	A	5.00	4.09	0.2477596	0.2025348		-18.3	30
Ethylbenzene	A	5.00	5.03	1.197498	1.203731		0.5	30
4-Ethyltoluene	A	5.00	5.04	1.351789	1.363363		0.9	30
Heptane	A	5.00	4.68	0.1729354	0.1618539		-6.4	30
Hexachlorobutadiene	A	5.00	4.83	0.812542	0.7842413		-3.5	30
Hexane	L	5.00	4.87	0.7804057	0.7087477		-2.7	30

con-test® ANALYTICAL LABORATORY

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CONTINUING CALIBRATION CHECK

EPA TO-15

S049678-CCV1

COMPOUND	TYPE	CONC. (ppbv)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
2-Hexanone (MBK)	A	5.00	4.56	0.3567465	0.3250889		-8.9	30
Isopropanol	A	5.00	4.76	1.125544	1.072279		-4.7	30
Methyl tert-Butyl Ether (MTBE)	A	5.00	4.64	2.5422	2.359522		-7.2	30
Methylene Chloride	A	5.00	4.52	0.8298926	0.7493832		-9.7	30
4-Methyl-2-pentanone (MIBK)	A	5.00	4.87	0.1558953	0.1518279		-2.6	30
Naphthalene	A	5.00	4.19	1.212726	1.015501		-16.3	30
Propene	A	5.00	4.57	0.4432536	0.4048102		-8.7	30
Styrene	A	5.00	5.00	0.7337347	0.7337655		0.004	30
1,1,2,2-Tetrachloroethane	A	5.00	5.52	0.6122093	0.6753496		10.3	30
Tetrachloroethylene	A	5.00	5.20	0.5377059	0.5590169		4.0	30
Tetrahydrofuran	A	5.00	4.88	0.7053666	0.6880521		-2.5	30
Toluene	A	5.00	4.86	0.9370482	0.91047		-2.8	30
1,2,4-Trichlorobenzene	A	5.00	4.41	0.5443959	0.4803367		-11.8	30
1,1,1-Trichloroethane	A	5.00	4.60	0.4607639	0.4240616		-8.0	30
1,1,2-Trichloroethane	A	5.00	5.17	0.3149276	0.3253668		3.3	30
Trichloroethylene	A	5.00	4.81	0.3042494	0.2928558		-3.7	30
Trichlorofluoromethane (Freon 11)	A	5.00	5.28	2.447973	2.586982		5.7	30
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	A	5.00	4.96	1.896751	1.880445		-0.9	30
1,2,4-Trimethylbenzene	A	5.00	5.06	1.114795	1.128129		1.2	30
1,3,5-Trimethylbenzene	A	5.00	5.10	1.121018	1.143748		2.0	30
Vinyl Acetate	A	5.00	4.53	1.564335	1.417586		-9.4	30
Vinyl Chloride	A	5.00	5.46	0.711258	0.7771954		9.3	30
m&p-Xylene	A	10.0	10.3	0.9669022	0.9928464		2.7	30
o-Xylene	A	5.00	5.08	0.9232339	0.9378596		1.6	30

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA TO-15 in Air	
Acetone	AIHA,NY,ME,NH
Acetone	AIHA,NY,ME,NH
Benzene	AIHA,FL,NJ,NY,ME,NH,VA
Benzene	AIHA,FL,NJ,NY,ME,NH,VA
Benzyl chloride	AIHA,FL,NJ,NY,ME,NH,VA
Benzyl chloride	AIHA,FL,NJ,NY,ME,NH,VA
Bromodichloromethane	AIHA,NJ,NY,ME,NH,VA
Bromodichloromethane	AIHA,NJ,NY,ME,NH,VA
Bromoform	AIHA,NJ,NY,ME,NH,VA
Bromoform	AIHA,NJ,NY,ME,NH,VA
Bromomethane	AIHA,FL,NJ,NY,ME,NH
Bromomethane	AIHA,FL,NJ,NY,ME,NH
1,3-Butadiene	AIHA,NJ,NY,ME,NH,VA
1,3-Butadiene	AIHA,NJ,NY,ME,NH,VA
2-Butanone (MEK)	AIHA,FL,NJ,NY,ME,NH,VA
2-Butanone (MEK)	AIHA,FL,NJ,NY,ME,NH,VA
Carbon Disulfide	AIHA,NJ,NY,ME,NH,VA
Carbon Disulfide	AIHA,NJ,NY,ME,NH,VA
Carbon Tetrachloride	AIHA,FL,NJ,NY,ME,NH,VA
Carbon Tetrachloride	AIHA,FL,NJ,NY,ME,NH,VA
Chlorobenzene	AIHA,FL,NJ,NY,ME,NH,VA
Chlorobenzene	AIHA,FL,NJ,NY,ME,NH,VA
Chloroethane	AIHA,FL,NJ,NY,ME,NH,VA
Chloroethane	AIHA,FL,NJ,NY,ME,NH,VA
Chloroform	AIHA,FL,NJ,NY,ME,NH,VA
Chloroform	AIHA,FL,NJ,NY,ME,NH,VA
Chloromethane	AIHA,FL,NJ,NY,ME,NH,VA
Chloromethane	AIHA,FL,NJ,NY,ME,NH,VA
Cyclohexane	AIHA,NJ,NY,ME,NH,VA
Cyclohexane	AIHA,NJ,NY,ME,NH,VA
Dibromochloromethane	AIHA,NY,ME,NH
Dibromochloromethane	AIHA,NY,ME,NH
1,2-Dibromoethane (EDB)	AIHA,NJ,NY,ME,NH
1,2-Dibromoethane (EDB)	AIHA,NJ,NY,ME,NH
1,2-Dichlorobenzene	AIHA,FL,NJ,NY,ME,NH,VA
1,2-Dichlorobenzene	AIHA,FL,NJ,NY,ME,NH,VA
1,3-Dichlorobenzene	AIHA,NJ,NY,ME,NH
1,3-Dichlorobenzene	AIHA,NJ,NY,ME,NH
1,4-Dichlorobenzene	AIHA,FL,NJ,NY,ME,NH,VA
1,4-Dichlorobenzene	AIHA,FL,NJ,NY,ME,NH,VA
Dichlorodifluoromethane (Freon 12)	AIHA,NY,ME,NH
Dichlorodifluoromethane (Freon 12)	AIHA,NY,ME,NH
1,1-Dichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,1-Dichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,2-Dichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,2-Dichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,1-Dichloroethylene	AIHA,FL,NJ,NY,ME,NH,VA

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA TO-15 in Air	
1,1-Dichloroethylene	AIHA,FL,NJ,NY,ME,NH,VA
cis-1,2-Dichloroethylene	AIHA,FL,NY,ME,NH,VA
cis-1,2-Dichloroethylene	AIHA,FL,NY,ME,NH,VA
trans-1,2-Dichloroethylene	AIHA,NJ,NY,ME,NH,VA
trans-1,2-Dichloroethylene	AIHA,NJ,NY,ME,NH,VA
1,2-Dichloropropane	AIHA,FL,NJ,NY,ME,NH,VA
1,2-Dichloropropane	AIHA,FL,NJ,NY,ME,NH,VA
cis-1,3-Dichloropropene	AIHA,FL,NJ,NY,ME,NH,VA
cis-1,3-Dichloropropene	AIHA,FL,NJ,NY,ME,NH,VA
trans-1,3-Dichloropropene	AIHA,NY,ME,NH
trans-1,3-Dichloropropene	AIHA,NY,ME,NH
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	AIHA,NJ,NY,ME,NH,VA
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	AIHA,NJ,NY,ME,NH,VA
1,4-Dioxane	AIHA,NJ,NY,ME,NH,VA
1,4-Dioxane	AIHA,NJ,NY,ME,NH,VA
Ethanol	AIHA
Ethanol	AIHA
Ethyl Acetate	AIHA
Ethyl Acetate	AIHA
Ethylbenzene	AIHA,FL,NJ,NY,ME,NH,VA
Ethylbenzene	AIHA,FL,NJ,NY,ME,NH,VA
4-Ethyltoluene	AIHA,NJ
4-Ethyltoluene	AIHA,NJ
Heptane	AIHA,NJ,NY,ME,NH,VA
Heptane	AIHA,NJ,NY,ME,NH,VA
Hexachlorobutadiene	AIHA,NJ,NY,ME,NH,VA
Hexachlorobutadiene	AIHA,NJ,NY,ME,NH,VA
Hexane	AIHA,FL,NJ,NY,ME,NH,VA
Hexane	AIHA,FL,NJ,NY,ME,NH,VA
2-Hexanone (MBK)	AIHA
2-Hexanone (MBK)	AIHA
Isopropanol	AIHA,NY,ME,NH
Isopropanol	AIHA,NY,ME,NH
Methyl tert-Butyl Ether (MTBE)	AIHA,FL,NJ,NY,ME,NH,VA
Methyl tert-Butyl Ether (MTBE)	AIHA,FL,NJ,NY,ME,NH,VA
Methylene Chloride	AIHA,FL,NJ,NY,ME,NH,VA
Methylene Chloride	AIHA,FL,NJ,NY,ME,NH,VA
4-Methyl-2-pentanone (MIBK)	AIHA,FL,NJ,NY,ME,NH
4-Methyl-2-pentanone (MIBK)	AIHA,FL,NJ,NY,ME,NH
Naphthalene	NY,ME,NH
Naphthalene	NY,ME,NH
Propene	AIHA
Propene	AIHA
Styrene	AIHA,FL,NJ,NY,ME,NH,VA
Styrene	AIHA,FL,NJ,NY,ME,NH,VA
1,1,2,2-Tetrachloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,1,2,2-Tetrachloroethane	AIHA,FL,NJ,NY,ME,NH,VA

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA TO-15 in Air	
Tetrachloroethylene	AIHA,FL,NJ,NY,ME,NH,VA
Tetrachloroethylene	AIHA,FL,NJ,NY,ME,NH,VA
Tetrahydrofuran	AIHA
Tetrahydrofuran	AIHA
Toluene	AIHA,FL,NJ,NY,ME,NH,VA
Toluene	AIHA,FL,NJ,NY,ME,NH,VA
1,2,4-Trichlorobenzene	AIHA,NJ,NY,ME,NH,VA
1,2,4-Trichlorobenzene	AIHA,NJ,NY,ME,NH,VA
1,1,1-Trichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,1,1-Trichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,1,2-Trichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
1,1,2-Trichloroethane	AIHA,FL,NJ,NY,ME,NH,VA
Trichloroethylene	AIHA,FL,NJ,NY,ME,NH,VA
Trichloroethylene	AIHA,FL,NJ,NY,ME,NH,VA
Trichlorofluoromethane (Freon 11)	AIHA,NY,ME,NH
Trichlorofluoromethane (Freon 11)	AIHA,NY,ME,NH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	AIHA,NJ,NY,ME,NH,VA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	AIHA,NJ,NY,ME,NH,VA
1,2,4-Trimethylbenzene	AIHA,NJ,NY,ME,NH
1,2,4-Trimethylbenzene	AIHA,NJ,NY,ME,NH
1,3,5-Trimethylbenzene	AIHA,NJ,NY,ME,NH
1,3,5-Trimethylbenzene	AIHA,NJ,NY,ME,NH
Vinyl Acetate	AIHA,FL,NJ,NY,ME,NH,VA
Vinyl Acetate	AIHA,FL,NJ,NY,ME,NH,VA
Vinyl Chloride	AIHA,FL,NJ,NY,ME,NH,VA
Vinyl Chloride	AIHA,FL,NJ,NY,ME,NH,VA
m&p-Xylene	AIHA,FL,NJ,NY,ME,NH,VA
m&p-Xylene	AIHA,FL,NJ,NY,ME,NH,VA
o-Xylene	AIHA,FL,NJ,NY,ME,NH,VA
o-Xylene	AIHA,FL,NJ,NY,ME,NH,VA

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2021
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2021
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2021
RI	Rhode Island Department of Health	LAO00112	12/30/2020
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2021
FL	Florida Department of Health	E871027 NELAP	06/30/2021
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2021
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2021
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2021

con-test ANALYTICAL LABORATORY

2 OF 10 11

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

Doc #378 Rev 1_03242017

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	KAS, Inc.
Address:	569 Avenue D, Suite 10, Williston, VT
Phone:	802-383-0486
Project Name:	Lamb Residence
Project Location:	E. Montpelier, VT
Project Number:	4100400 71
Project Manager:	SD
Con-Test Quote Name/Number:	2005416
Invoice Recipient:	Sam Driver
Sampled By:	SD / CS

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date: Normal T.A.T

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: samd@kas-consulting.com
Fax To #:

ANALYSIS REQUESTED

Lab Use	Client Use	Collection Data		Duration	Flow Rate	Matrix	Volume	MATRIX CODE	CONCENTRATION CODE	TO-15 SIMS	TO-15 MA LEVEL	" Hg Initial Pressure	" Hg Final Pressure	" Hg Lab Receipt Pressure	Summa Can ID	Flow Controller ID
Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Total Minutes Sampled	☐ m³/min ☐ L/min	Code	☒ Liters ☐ m³									
01	SG-1	6/17/20 1035	6/18/20 1027	1432	~~2.5~~	SG	6		M		X	30	9	8.5	1124	3537
02	SG-2	6/17/20 1036	6/18/20 1032	1436	~~2.5~~	SG	6				X	29	8	7.5	1275	3519
03	Background	6/17/20 1033	6/18/20 1008	1415		AMB	6				X	30	9	8.3	2154	3502
04	IA - Basement	6/17/20 1031	6/18/20 1006	1415		IA	6			X		29	7	7	2003	3459
05	IA - First Floor	6/17/20 1035	6/18/20 1003	1415		IA	6		↓	X		28.5	7	8.5	1886	3483

Please fill out completely, sign, date and retain the yellow copy for your records

Summa canisters and flow controllers must be returned within 15 days of receipt or rental fees will apply

For summa canister and flow controller information please refer to Con-Test's Air Media Agreement

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Codes:
SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other_____

Relinquished by: (signature)	Date/Time: 6/18/20 1547
Received by: (signature)	Date/Time: 6/18/20 1545
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time: 6/19/20 1355
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA:
CT:
Other: VERMONT

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ Other

con-test ANALYTICAL LABORATORY www.contestlabs.com
NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

Air Media Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client KAS

Received By RLF | Date 6/19/20 | Time 1355

How were the samples received? In Cooler ____ | On Ice ____ | No Ice ____ | In Box T | Ambient ____ | Melted Ice ____

Were samples within Temperature Compliance? 2-6°C NA | By Gun # ____ | Actual Temp - ____ | By Blank # ____ | Actual Temp - ____

Was Custody Seal Intact? NA | Were Samples Tampered with? NA

Was COC Relinquished ? T | Does Chain Agree With Samples? T

Are there any loose caps/valves on any samples? F

Is COC in ink/ Legible? T

Did COC Include all Pertinent Information? Client T | Analysis T | Sampler Name T | Project T | ID's T | Collection Dates/Times T

Are Sample Labels filled out and legible? T

Are there Rushes? F | Who was notified? ____

Samples are received within holding time? T

Proper Media Used? T | Individually Certified Cans? T(2)

Are there Trip Blanks? F | Is there enough Volume? T

Containers:	#	Size	Regulator	Duration	Accessories:			
Summa Cans	5	6L	5	24hr	Nut/Ferrule	5	IC Train	
Tedlar Bags					Tubing	15ft		
TO-17 Tubes					T-Connector		Shipping Charges	
Radiello					Syringe			
Pufs/TO-11s					Tedlar			

Can #'s					Reg #'s				
1124					3537				
1275					3519				
2154					3502				
2003					3459				
1886					3493				
Unused Media					**Pufs/TO-17's**				

Comments:

ENDYNE Inc.
Environmental Laboratories

Laboratory Report

KAS, Inc 100306
PO Box 787
Williston, VT 05489

Atten: Sam Driver

PROJECT: 410040071 Lamb Residence
WORK ORDER: **2009-24543**
DATE RECEIVED: September 03, 2020
DATE REPORTED: September 10, 2020
SAMPLER: Sam Driver

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

CLIENT: KAS, Inc
PROJECT: 410040071 Lamb Residence
REPORT DATE: 9/10/2020

WORK ORDER: **2009-24543**
DATE RECEIVED: 09/03/2020

TEST METHOD: EPA 8260C

001 Site: Influent Date Sampled: 9/2/20 12:45 Analysis Date: 9/3/20 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		Benzene	2.4	ug/L	A	
Toluene	< 1.0	ug/L	A		Ethylbenzene	1.2	ug/L	A	
Xylenes, Total	11.3	ug/L	A		1,3,5-Trimethylbenzene	4.7	ug/L	A	
1,2,4-Trimethylbenzene	7.2	ug/L	A		1,2,3-Trimethylbenzene	29.4	ug/L	U	
Naphthalene	4.9	ug/L	A		Surr. 1 (Dibromofluoromethane)	101	%	A	
Surr. 2 (Toluene d8)	103	%	A		Surr. 3 (4-Bromofluorobenzene)	99	%	A	
Unidentified Peaks	>10		U						

TEST METHOD: EPA 8260C

002 Site: Effluent #1 Date Sampled: 9/2/20 12:43 Analysis Date: 9/3/20 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		Benzene	< 0.5	ug/L	A	
Toluene	< 1.0	ug/L	A		Ethylbenzene	< 1.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
Naphthalene	< 0.5	ug/L	A		Surr. 1 (Dibromofluoromethane)	102	%	A	
Surr. 2 (Toluene d8)	103	%	A		Surr. 3 (4-Bromofluorobenzene)	99	%	A	
Unidentified Peaks	0		U						

TEST METHOD: EPA 8260C

003 Site: Effluent #2 Date Sampled: 9/2/20 12:41 Analysis Date: 9/3/20 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		Benzene	< 0.5	ug/L	A	
Toluene	< 1.0	ug/L	A		Ethylbenzene	< 1.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
Naphthalene	< 0.5	ug/L	A		Surr. 1 (Dibromofluoromethane)	102	%	A	
Surr. 2 (Toluene d8)	102	%	A		Surr. 3 (4-Bromofluorobenzene)	97	%	A	
Unidentified Peaks	0		U						

TEST METHOD: EPA 8021B

004 Site: MW-7 Date Sampled: 9/2/20 13:23 Analysis Date: 9/9/20 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 20.0	ug/L	N		Benzene	40.7	ug/L	N	
Toluene	39.4	ug/L	N		Ethylbenzene	151	ug/L	N	
Xylenes, Total	326	ug/L	N		1,3,5-Trimethylbenzene	103	ug/L	N	
1,2,4-Trimethylbenzene	913	ug/L	N		1,2,3-Trimethylbenzene	160	ug/L	U	
Naphthalene	62.4	ug/L	N		Surr. 1 (Bromobenzene)	95	%	N	
Unidentified Peaks	>10		N						

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

Special Reporting Instructions/PO#: KAS #410040071

Project Name: Lamb Residence	Client/Contact Name: KAS, Inc.	Sampler Name: Sam Driver
State of Origin: (VT) NY NH Other	Phone #:	Phone #:
Endyne WO #	Mailing Address:	Billing Address:

Sample Location	Matrix	GRAB	COMP	Date/Time Sampled	Sample Containers No.	Sample Containers Type/Size	Sample Preservation	Analysis Required	FieldResults/Remarks	Due Date
Effluent #2	H_2O	X		9/2/20 1241	2	40mL	HCL	19		
Effluent #1	↓	↓		1243	↓	↓	↓	↓		
Influent				1245						
MW-7	↓	↓		1323	↓	↓	↓	↓		

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
SR	9/2/20 7:00	Kelly Carpenter	9/3/20 1025 am	RLamothe	9/3/20 10:25

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH Only
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	8081 Pest
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO		8082 PCB
4	Nitrite N	9	BOD	14	Turbidity	19	VT PCF				
5	Nitrate N	10	Alkalinity	15	Conductivity	20	VOC Haloca				
31	Metals (Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, M										
32	TCLP (volatiles, semi-volatiles, metals, pesticides, herbicides)					33	Other				
34	Corrosivity	35	Ignitability	36	Reactivity	37	Other				
38	Other										

2009-24543

2009-24543

KAS, Inc
410040071 Lamb Residence

LAB USE ONLY
Delivery: Client
Temp: 2.0
Comment:

(White - Laboratory / Yellow - Client)

Appendix G

AST Environmental, Inc. – Remedial Approach Proposal

ENVIRONMENTAL, INC.

July 22, 2020

Mr. Sam Driver
KAS Consulting
589 Avenue D, Suite 10
Williston, VT 05495

RE: Trap & Treat® Remedial Approach Proposal
C.P. Dudley
2915 US-2
East Montpelier, VT 05651
VTDEC #87-0011

Dear Mr. Driver,

AST Environmental, Inc. (AST) appreciates the opportunity to provide this proposal to address petroleum impacts in saturated soil and groundwater at the C.P. Dudley facility. AST has prepared the remedial design based on the data from the recently completed Remedial Design Characterization conducted on May 19th and 20th, 2020. The following are the cleanup goals for the site:

- VGES (July 6th, 2019)

KAS conducted an RDC to refine the existing Conceptual Site Model (CSM) on May 19th and 20th, 2020; seven (7) soil borings (SB20-01 thru SB20-07) were installed to total depths of 16' below ground surface (bgs) in all borings. Existing monitoring wells MW-1 and MW-6 were purged and sampled. The site map has been updated to show the approximate locations of each boring as shown on the attached Figure. Soil and groundwater samples were submitted to the Remediation Products, Inc. (RPI) Project Support Laboratory in Golden, CO, soil and groundwater samples were analyzed for VOCs + TVPH using EPA Method 8260b. Groundwater samples were additionally analyzed for Anions using EPA Method 300.1 Ion Chromatography and Dissolved Gases using EPA Method RSK-175. The RPI analytical results are included in the Attachments.

Upon reviewing the RDC soil TVPH data, high concentrations exist in shallow unsaturated soil extending to depths between 4' feet below ground surface (bgs) to 6' bgs in RDC location SB20-01. The significant TVPH concentrations (4,050 mg/kg at 4' and 6,920 mg/kg at 6' bgs) exceed by 2x to 3x the maximum quantity of BOS 200® that can be injected during a single injection event. Furthermore, injection of BOS 200® into unsaturated media is not recommended because the mass transport mechanism (vapor transport) is slow to remediate soil to site-specific clean-up standards. Finally, injections are not recommended at shallow depths due to the high probability of injectate short circuiting to the ground surface. AST recommends over-excavation (OE) of impacted material in these areas to protect groundwater and remove source mass infiltration from unsaturated media.

BOS 200® INJECTION DESIGN

The Final BOS 200® Injection Design is also being provided for consideration. The specific design for the saturated zone of the treatment area is detailed in the Attachments Section. BOS 200® provides a unique opportunity to utilize two proven technologies to effectively remediate petroleum hydrocarbon sites. The two technologies are 1) the trapping of the contaminants via carbon adsorption and 2) the subsequent treatment via biological degradation within the BOS 200® matrix as the product incorporates both aerobic and anaerobic microbial processes.

These two proven and immensely powerful remediation mechanisms make what is called the Trap & Treat® process. The "Trap" provides the immediate mass reduction and plume control, while the "Treat" provides the continued long-term remedial degradation.

The product comes as a fine-grained dry material which consists of carbon, calcium sulfate, nitrate, phosphate, and ammonia in a proprietary blend. BOS 200® is 77% by weight carbon and up to 19% gypsum. Gypsum is 79% by weight sulfate which translates to approximately 15% by weight sulfate in BOS 200®. The BOS 200® is mixed with water and a facultative blend of microbes (inoculation with aerobic and anaerobic microbes) to create a solids suspension. This is now an ideal environment for biological degradation, where hydrocarbons are adsorbed on to BOS 200® particles made up of:

- Electron Acceptors: oxygen, nitrate, ammonia and sulfate (primary)
- Nutrients - phosphorus and nitrogen
- Aerobic and anaerobic blend of facultative microbes (over 27 species)

There is a lower limit of the amount of BOS 200® that can installed and still be effective at a site. This amount is driven by several site features such as soil type, groundwater flux, and contaminant concentrations. The success in achieving cleanup goals is not just in the product installed, but the distribution of the product in subsurface. Distribution is controlled by the injection techniques used: vertical and horizontal spacing are a function of soil type, high pressure injection vs. low pressure injection, and top down vs. bottom up. For this site, given the soil type and contaminant mass, AST proposes to optimize the injectate distribution by 1) using top down techniques, 2) using relatively high-pressure injections (enough pressure to provide localized soil lifting and propagation of BOS 200® from the injection tip), and 3) adjusting the horizontal and vertical injection spacing.

Given the soil types at this site, it is expected that the injection pressures will vary from 200 to 600 psig (measured at the discharge of the injection pump, the injection system pressure losses are approximately 180 psig for hoses, valves, and injection tips). In fine-grained sediments (clays and silts) there is typically a break pressure (soil lifting pressure) that is sustained momentarily and then the pressure drops off to a lower reading (propagation pressure). Coarse-grained sediments (sands and fine gravels) typically display a steady progression of pressure as the lithology near the injection tip is fluidized and turbulent flow is created. The discussion of the vertical and horizontal injection spacing is provided below for the injection area.

The unique properties of BOS 200® and the method of implementation provide a safe and predictable alternative to competing technologies used in the industry today. Installation of BOS 200® provides immediate removal of contaminant mass in groundwater while providing long term protection through continued adsorption and biodegradation, rebound-effects are typically eliminated through successful dosing and installation. This is achieved without hazardous

byproducts, radical subsurface chemistry changes, or volatilization, nor is there a need to overcome natural background constituents or properties prior to treating contaminant mass. Existing compliance points can be preserved during and after injection; if BOS 200® enters a monitoring well, redevelopment using a downhole pump to remove the accumulated solids can return the monitoring well to pre-injection conditions.

Daylighting (surfacing of injected material) is common at most injection sites due to any number of factors including (but not limited to): previous investigative and/or corrective action activities, current weather conditions (dry spell causing surface desiccation, wet period with elevated GW table, etc.), anthropogenic disturbances (buried utilities, constructed structures like building footers, basements, UST systems and piping, etc.), poor surface condition (deteriorated asphalt, cracks in concrete), and natural features like plants/trees and associated root systems. While minor in most cases, daylighting requires recognition, immediate action, and proper housekeeping as its occurrence can indicate some potential hazards or concerns during injection. These could include impacting utility corridors, injectate entering basements and negative perception of an uninformed bystander.

To mitigate daylighting and its perceived hazards and/or concerns, detailed pressure logs and continuous monitoring of the immediate surroundings by field personnel is maintained throughout the injection project. Pressure logs maintained during injections are especially important as they can shed light on the type of soil where injection is being completed and whether injectate is simply bypassing to a previous depth or other preferential path. During injections, the operator of the injection system will monitor for sudden pressure and/or flow changes as these may indicate either fracture propagation or short-circuiting.

The methodology and approach for in-situ injection implemented by AST is designed for both the success in optimizing subsurface distribution of remedial treatment but also in minimizing daylighting and preventing impacts to buried utilities and/or structures. Daylighting and short-circuiting wastes product, if the product is not being installed correctly it cannot effectively remediate contaminants of concern. Injection grids are tightly spaced horizontally to provide adequate subsurface coverage and contaminant contact, but also minimize daylighting and frequency of contact with adjacent features of concern. Injection point locations can be adjusted for requested/required setback buffers from utilities, UST systems, structures, and monitoring wells. Vertical distances between injection intervals are spaced in such a manner as to maintain borehole seal and prevent daylighting back up around the rod itself.

Injection points within the grid are completed at alternating vertical intervals (compared to the closest adjacent points) to provide both overlap and separation off-sets, but they are also completed in a staggered sequence of every other point in a row and skipping a row as work progresses. This process is used to minimize hydraulic loading and allow enough time to discharge accumulated subsurface pressure in an area from hydraulic injection of fluids. Finally, allowing injection point back-pressure to stabilize before tooling removal and proper abandonment of completed injection points following tooling removal prevents daylighting once the "cork is removed from the bottle" and short-circuiting to adjacent injection points during subsequent borehole completion.

The horizontal extent of the proposed injection area is depicted on the attached Figure. The BOS 200® injection design has been prepared for each area using the following approach:

1. Current and historical data from soil and groundwater sampling (i.e., analytical results, the screened interval of the wells, gauging data, etc.) were used to determine the vertical and

horizontal extent of petroleum hydrocarbons impacts in each area.

2. Using the data for each area, a contaminant mass loading on a unit basis (lbs. benzene per ft^3 of impacted media) was determined. The analytical data in the historical tables combined with horizontal and vertical dimensions between monitoring wells were used to develop contaminant mass loadings (lbs. benzene per ft^3 of impacted media) for each of the designated areas.

3. The contaminant mass loadings were then used to determine the BOS 200® loadings (lbs. BOS 200® installed per ft^3 of impacted media) necessary to remediate a specific depth interval within a designated injection area.

The BOS 200® slurries will be prepared using AST's trailer mounted mixing and injection system. AST utilizes a top down injection technique to ensure effective distribution within the subsurface during in-situ injection. Injection is performed using a Wanner Engineering Hydracell D35 positive displacement diaphragm pump capable of 35 gallons per minute (gpm) and up to 1,200 psig. The pump is typically set at the maximum flow rate of 35 gpm to maximize fluid velocity at the injection tip during BOS 200® installation. This is critical to ensuring effective distribution of suspended slurries in fine-grained low permeability sediments. One and a half inch (1.5") diameter Geoprobe® rods are advanced to the target intervals using direct-push from a Geoprobe® 7822DT, BOS 200® slurries are delivered through a 1.5" Geoprobe® injection tip with custom-oriented ports with number and port diameter on the horizontal plane specific to the site-specific geology of the facility.

AST will provide an injection summary table which details the metrics of the injection event, these details includes:

1. The injection point location
2. The time each injection occurred
3. The pressure metrics used to support induced fracture emplacement has occurred
4. The pounds of BOS 200® and gypsum injected at each interval, total amount per day, and total for the project
5. The vertical interval of each injection in feet below ground surface (bgs)
6. Any comments or observations by staff while performing the remedial injections

It is important to note that the "Injection Pressure" column recorded in this summary table represents the sum of the internal system pressure plus formational pressure. The internal system pressure includes all losses due to fittings, hoses, valves, and drill tooling. A close approximation of the actual pressure seen at the injection tip outlet can be found by subtracting the system losses from the recorded value observed at the discharge end of the pump. For the components used during an injection event, the system losses are approximately 100-600 psi. This calculation is included under a separate column titled "Formation Pressure".

POST-INJECTION SAMPLING

Following the injection effort, AST will collect groundwater samples from all monitoring wells in the injection area prior to demobilizing. Analyses should include VOCs (EPA Method 8260b), Anions using Ion Chromatography (EPA Method 300.1 or equivalent), and Dissolved Gases using EPA Method RSK 175. AST further recommends performing progress groundwater sampling events at intervals of one-month post-injection and quarterly for one year after the initial one-month sampling event for a total of five (5) groundwater-monitoring event. These samples can be analyzed at the RPI Project Support Laboratory in Golden, CO for no-cost analysis.

DATA ANALYSIS AND REPORTING

Once the injection work is complete, AST will prepare and submit a summary report which will include a chronology of events at the site, a figure depicting actual injection point locations, a data table summarizing the details of the injection event (injection point location, time each injection occurred, vertical interval of each injection in feet below ground surface (bgs), pressure metrics measured at each injection, pounds of BOS 200® injected at each interval, total material installed per day, total material installed for the project, comments or observations by staff while performing the remedial injections), and photographs of the injection activities.

If you have any questions or wish to discuss the information provided herein, please feel free to call me at (859) 846-4900 or write via email at bbrab@astenv.com.

Sincerely,

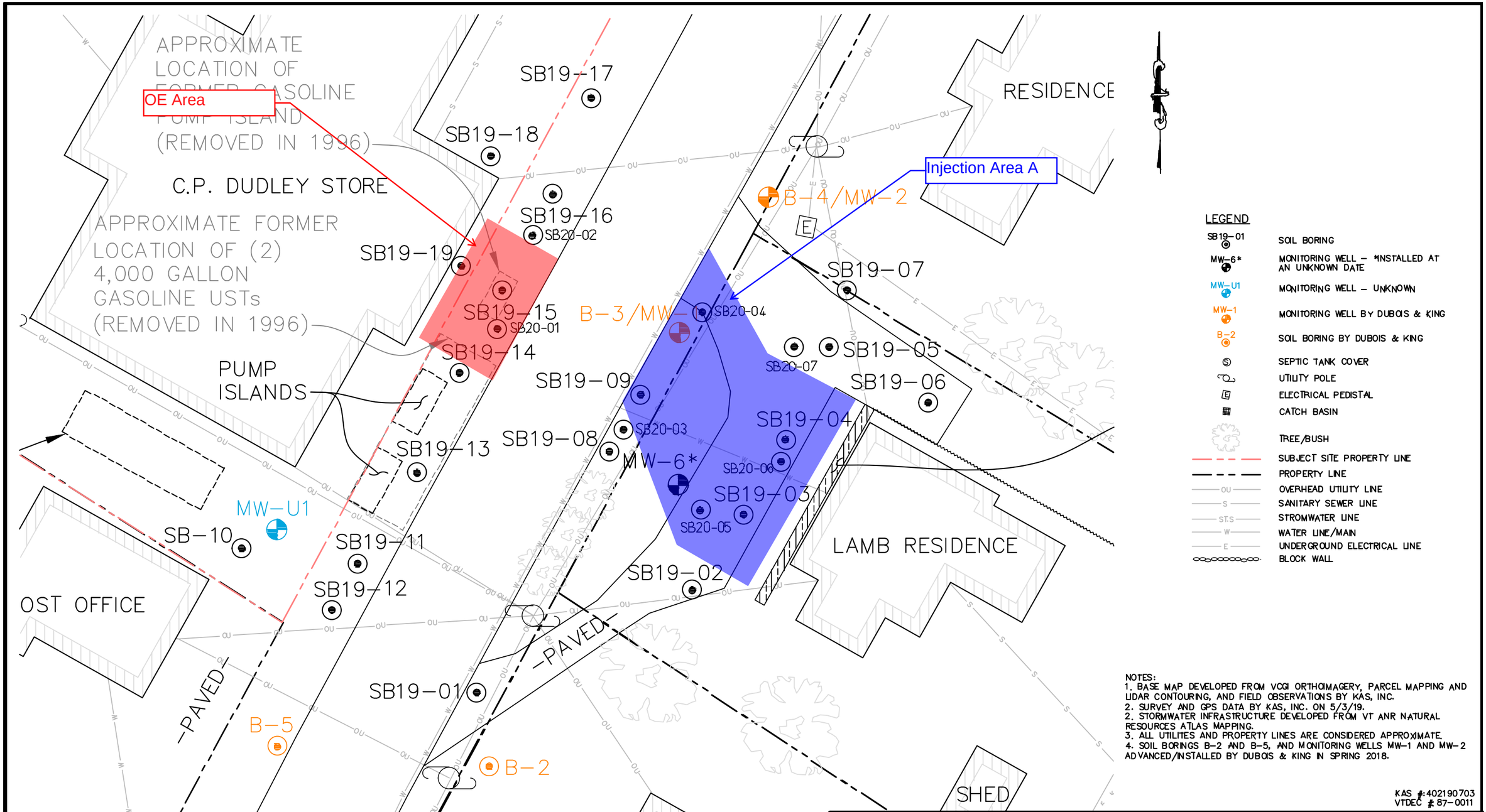
AST Environmental, Inc.

Bill Brab, C.P.G., P.G.
Senior Project Manager

ATTACHMENTS

1. Updated Site Map
2. RPI Laboratory Analytical Report
3. Updated BOS 200® Design scope of Work, Calculations, and Cost

Figure



NOTES:
1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY, PARCEL MAPPING AND LIDAR CONTOURING, AND FIELD OBSERVATIONS BY KAS, INC.
2. SURVEY AND GPS DATA BY KAS, INC. ON 5/3/19.
2. STORMWATER INFRASTRUCTURE DEVELOPED FROM VT ANR NATURAL RESOURCES ATLAS MAPPING.
3. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.
4. SOIL BORINGS B-2 AND B-5, AND MONITORING WELLS MW-1 AND MW-2 ADVANCED/INSTALLED BY DUBOIS & KING IN SPRING 2018.

KAS #:402190703
VTDEC #:87-0011

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kas environmental science & engineering

C.P. DUDLEY STORE
2915 US ROUTE 2
EAST MONTPELIER, VERMONT

SITE MAP

DATE: 07/21/20	DWG. #: 1	SCALE: 1"=20'	DRN.: TB	APP.: SD

RPI Laboratory Analytical Report and Updated BOS 200® Design

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-01				SB20-01				SB20-01				SB20-01			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft Reporting Limit	Units	Flags	04'	ft Reporting Limit	Units	Flags	06'	ft Reporting Limit	Units	Flags	08'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg		ND	50	ug/Kg	
Benzene	ND	0.5	ug/Kg		656	50	ug/Kg		1020	50	ug/Kg		60.1	50	ug/Kg	
Toluene	ND	0.5	ug/Kg		133000	250	ug/Kg		176000	500	ug/Kg		4530	50	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		87400	250	ug/Kg		132000	500	ug/Kg		3190	50	ug/Kg	
m/p-Xylene	0.60	0.5	ug/Kg		359000	250	ug/Kg		636000	500	ug/Kg	E	16000	50	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		156000	250	ug/Kg		282000	500	ug/Kg		6700	50	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		199000	250	ug/Kg		350000	500	ug/Kg		9830	50	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		26500	50	ug/Kg		47600	50	ug/Kg		1360	50	ug/Kg	
TVPH	ND	0.5	mg/Kg		4050	50	mg/Kg		6920	500	mg/Kg		176	50	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	76				79				79				80			
d8-Toluene	79				107				100				98			
p-Bromofluorobenzene	83				113				97				95			

Sample ID. No.	SB20-01				SB20-01				SB20-01				SB20-01			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft Reporting Limit	Units	Flags	12'	ft Reporting Limit	Units	Flags	14'	ft Reporting Limit	Units	Flags	16'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	1.37	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	17.9	0.5	ug/Kg		2.50	0.5	ug/Kg		4.87	0.5	ug/Kg		4.40	0.5	ug/Kg	
Ethylbenzene	29.1	0.5	ug/Kg		0.69	0.5	ug/Kg		1.75	0.5	ug/Kg		0.88	0.5	ug/Kg	
m/p-Xylene	137	0.5	ug/Kg		7.80	0.5	ug/Kg		10.9	0.5	ug/Kg		7.03	0.5	ug/Kg	
o-Xylene	19.5	0.5	ug/Kg		3.67	0.5	ug/Kg		4.83	0.5	ug/Kg		3.90	0.5	ug/Kg	
1,2,4-Trimethylbenzene	52.3	0.5	ug/Kg		4.67	0.5	ug/Kg		9.18	0.5	ug/Kg		6.47	0.5	ug/Kg	
Naphthalene	3.35	0.5	ug/Kg		0.65	0.5	ug/Kg		0.67	0.5	ug/Kg		0.87	0.5	ug/Kg	
TVPH	1.47	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	93				83				79				79			
d8-Toluene	100				97				99				98			
p-Bromofluorobenzene	91				87				89				88			

RPI Soil Laboratory Analytical Results
C.P. Dudley Store
VTDEC #87-0011

Sample ID. No.	SB20-02				SB20-02				SB20-02				SB20-02			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft Reporting Limit	Units	Flags	04'	ft Reporting Limit	Units	Flags	06'	ft Reporting Limit	Units	Flags	08'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		1.06	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.65	0.5	ug/Kg	
m/p-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		2.27	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.73	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		2.16	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				74				75				75			
d8-Toluene	92				96				98				98			
p-Bromofluorobenzene	82				83				86				88			

Sample ID. No.	SB20-02				SB20-02				SB20-02				SB20-02			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft Reporting Limit	Units	Flags	12'	ft Reporting Limit	Units	Flags	14'	ft Reporting Limit	Units	Flags	16'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	0.89	0.5	ug/Kg		1.04	0.5	ug/Kg		0.68	0.5	ug/Kg		3.10	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		1.10	0.5	ug/Kg	
m/p-Xylene	1.73	0.5	ug/Kg		1.66	0.5	ug/Kg		1.54	0.5	ug/Kg		4.74	0.5	ug/Kg	
o-Xylene	0.59	0.5	ug/Kg		0.63	0.5	ug/Kg		0.56	0.5	ug/Kg		1.87	0.5	ug/Kg	
1,2,4-Trimethylbenzene	1.86	0.5	ug/Kg		1.65	0.5	ug/Kg		1.40	0.5	ug/Kg		5.03	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.54	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				75				75				73			
d8-Toluene	96				97				97				98			
p-Bromofluorobenzene	86				87				88				87			

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Sample ID. No.	SB20-03				SB20-03				SB20-03				SB20-03			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		0.54	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	ND	0.5	ug/Kg		1.33	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		0.77	0.5	ug/Kg		0.71	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		1.80	0.5	ug/Kg		0.92	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	78				75				76				72			
d8-Toluene	86				95				96				95			
p-Bromofluorobenzene	66				81				81				83			

Sample ID. No.	SB20-03				SB20-03				SB20-03				SB20-03			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft			12'	ft			14'	ft			16'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	0.51	0.5	ug/Kg		1.10	0.5	ug/Kg		0.88	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	0.63	0.5	ug/Kg		1.45	0.5	ug/Kg		0.90	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	0.97	0.5	ug/Kg		0.83	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	0.64	0.5	ug/Kg		2.22	0.5	ug/Kg		1.09	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	1.21	0.5	ug/Kg		0.55	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	66.3	10	mg/Kg		9.56	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				76				78				75			
d8-Toluene	106				102				96				98			
p-Bromofluorobenzene	132				109				86				91			

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Sample ID. No.	SB20-04				SB20-04				SB20-04				SB20-04			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	02'	ft Reporting Limit	Units	Flags	04'	ft Reporting Limit	Units	Flags	06'	ft Reporting Limit	Units	Flags	08'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		4.42	0.5	ug/Kg		0.94	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		4.63	0.5	ug/Kg		0.60	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	0.90	0.5	ug/Kg		18.4	0.5	ug/Kg		1.57	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		9.39	0.5	ug/Kg		0.82	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	1.14	0.5	ug/Kg		8.36	0.5	ug/Kg		1.02	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	74				79				75				73			
d8-Toluene	96				91				92				92			
p-Bromofluorobenzene	85				85				81				82			

Sample ID. No.	SB20-04				SB20-04				SB20-04				SB20-04			
Date Sampled	5/19/2020				5/19/2020				5/19/2020				5/19/2020			
Sample Depth	10'	ft Reporting Limit	Units	Flags	12'	ft Reporting Limit	Units	Flags	14'	ft Reporting Limit	Units	Flags	16'	ft Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	10	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	36.8	10	ug/Kg		ND	0.5	ug/Kg		0.89	0.5	ug/Kg		0.54	0.5	ug/Kg	
Ethylbenzene	42.3	10	ug/Kg		ND	0.5	ug/Kg		0.67	0.5	ug/Kg		2.03	0.5	ug/Kg	
m/p-Xylene	136	10	ug/Kg		ND	0.5	ug/Kg		2.90	0.5	ug/Kg		2.73	0.5	ug/Kg	
o-Xylene	81.8	10	ug/Kg		ND	0.5	ug/Kg		0.78	0.5	ug/Kg		1.96	0.5	ug/Kg	
1,2,4-Trimethylbenzene	480	10	ug/Kg		1.07	0.5	ug/Kg		2.55	0.5	ug/Kg		1.85	0.5	ug/Kg	
Naphthalene	30.4	10	ug/Kg		0.69	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	768	50	mg/Kg		13.6	0.5	mg/Kg	E	ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	77				79				76				71			
d8-Toluene	108				104				95				95			
p-Bromofluorobenzene	123				116				86				86			

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Sample ID. No.	SB20-05				SB20-05				SB20-05				SB20-05			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	1.34	0.5	ug/Kg		0.51	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	0.88	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	3.48	0.5	ug/Kg		1.50	0.5	ug/Kg		0.78	0.5	ug/Kg		0.84	0.5	ug/Kg	
o-Xylene	1.41	0.5	ug/Kg		0.66	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	2.52	0.5	ug/Kg		1.14	0.5	ug/Kg		ND	0.5	ug/Kg		0.67	0.5	ug/Kg	
Naphthalene	0.92	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		0.65	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		7.45	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	75				75				75				77			
d8-Toluene	92				92				95				95			
p-Bromofluorobenzene	84				81				86				93			

Sample ID. No.	SB20-05				SB20-05				SB20-05				SB20-05			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	10'	ft			12'	ft			14'	ft			15'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	25	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	25	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	25	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	24.6	25	ug/Kg		ND	0.5	ug/Kg		0.69	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	93.9	25	ug/Kg		ND	0.5	ug/Kg		0.85	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	27.1	25	ug/Kg		ND	0.5	ug/Kg		5.59	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	211	25	ug/Kg		ND	0.5	ug/Kg		2.05	0.5	ug/Kg		0.64	0.5	ug/Kg	
o-Xylene	64.1	25	ug/Kg		ND	0.5	ug/Kg		1.52	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	21500	25	ug/Kg		ND	0.5	ug/Kg		25.9	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	710	25	ug/Kg		ND	0.5	ug/Kg		1.26	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	974	25	mg/Kg		2.18	0.5	mg/Kg		3.16	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	95				78				77				76			
d8-Toluene	122				97				99				95			
p-Bromofluorobenzene	118				94				99				88			

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Sample ID. No.	SB20-06				SB20-06				SB20-06				SB20-06			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	0.65	0.5	ug/Kg		0.56	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	73				79				80				75			
d8-Toluene	93				88				92				92			
p-Bromofluorobenzene	84				77				76				84			

Sample ID. No.	SB20-06				SB20-06			
Date Sampled	5/20/2020				5/20/2020			
Sample Depth	12'	ft			15'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	25	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	25	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	25	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	25	ug/Kg		ND	0.5	ug/Kg	
Toluene	80.5	25	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	186	25	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	6300	25	ug/Kg		0.65	0.5	ug/Kg	
o-Xylene	1750	25	ug/Kg		1.58	0.5	ug/Kg	
1,2,4-Trimethylbenzene	22000	25	ug/Kg		9.02	0.5	ug/Kg	
Naphthalene	1160	25	ug/Kg		1.94	0.5	ug/Kg	
TVPH	814	25	mg/Kg		64.9	10	mg/Kg	
% Surrogate Recovery								
1,2-Dichloroethane-d4	113				78			
d8-Toluene	135				112			
p-Bromofluorobenzene	142				155			

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Sample ID. No.	SB20-07				SB20-07				SB20-07				SB20-07			
Date Sampled	5/20/2020				5/20/2020				5/20/2020				5/20/2020			
Sample Depth	02'	ft			04'	ft			06'	ft			08'	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	ND	0.5	ug/Kg		0.64	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	ND	0.5	mg/Kg		ND	0.5	mg/Kg		ND	0.5	mg/Kg		3.26	0.5	mg/Kg	
% Surrogate Recovery																
1,2-Dichloroethane-d4	75				77				77				77			
d8-Toluene	91				94				88				92			
p-Bromofluorobenzene	81				81				74				83			

Sample ID. No.	SB20-07				SB20-07			
Date Sampled	5/20/2020				5/20/2020			
Sample Depth	10'	ft			12	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
MTBE	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2-Dichloroethane	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Benzene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Toluene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
Ethylbenzene	0.83	0.5	ug/Kg		ND	0.5	ug/Kg	
m/p-Xylene	1.39	0.5	ug/Kg		0.61	0.5	ug/Kg	
o-Xylene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
1,2,4-Trimethylbenzene	1.20	0.5	ug/Kg		0.60	0.5	ug/Kg	
Naphthalene	ND	0.5	ug/Kg		ND	0.5	ug/Kg	
TVPH	11.9	0.5	mg/Kg		1.55	0.5	mg/Kg	
% Surrogate Recovery								
1,2-Dichloroethane-d4	102				75			
d8-Toluene	98				96			
p-Bromofluorobenzene	150				92			

RPI Groundwater Laboratory Analytical Results

C.P. Dudley Store

VTDEC #87-0011

Sample ID. No.	MW-1				MW-6			
Date Sampled	5/19/2020				5/19/2020			
Sample Depth	n/a	ft			n/a	ft		
		Reporting Limit	Units	Flags		Reporting Limit	Units	Flags
Dimethyl Sulfide	ND	0.5	ug/L		ND	0.5	ug/L	
MTBE	ND	0.5	ug/L		ND	0.5	ug/L	
1,2-Dichloroethane	ND	0.5	ug/L		ND	0.5	ug/L	
Benzene	ND	0.5	ug/L		ND	0.5	ug/L	
Toluene	0.56	0.5	ug/L		0.92	0.5	ug/L	
Ethylbenzene	ND	0.5	ug/L		7.99	0.5	ug/L	
m/p-Xylene	1.16	0.5	ug/L		30.4	0.5	ug/L	
o-Xylene	ND	0.5	ug/L		5.07	0.5	ug/L	
1,2,4-Trimethylbenzene	0.89	0.5	ug/L		282	0.5	ug/L	
Naphthalene	2.37	0.5	ug/L		5.13	0.5	ug/L	
TVPH	ND	0.5	mg/L		5.05	0.5	mg/L	
% Surrogate Recovery								
1,2-Dichloroethane-d4	96				91			
d8-Toluene	98				102			
p-Bromofluorobenzene	97				102			
Lactate	ND	0.2	mg/L		ND	0.2	mg/L	
Acetate	ND	0.2	mg/L		ND	0.2	mg/L	
Propionate	ND	0.2	mg/L		ND	0.2	mg/L	
Formate/Isobutyrate	0.55	0.4	mg/L		ND	0.4	mg/L	
Butyrate	ND	0.2	mg/L		ND	0.2	mg/L	
Pyruvate	ND	0.2	mg/L		ND	0.2	mg/L	
Chloride	189	2	mg/L		352	4	mg/L	
Nitrite	ND	0.2	mg/L		ND	0.2	mg/L	
Succinate	ND	1	mg/L		ND	1	mg/L	
Nitrate	1.30	0.2	mg/L		1.38	0.2	mg/L	
Sulfate	30.1	0.2	mg/L		16.5	0.2	mg/L	
Phosphate	ND	0.2	mg/L		ND	0.2	mg/L	
Sulfide	ND	0.2	mg/L		ND	0.2	mg/L	
Methane	ND	20	ug/L		25.1	20	ug/L	
Ethane	ND	2	ug/L		ND	2	ug/L	
Ethylene	ND	2	ug/L		ND	2	ug/L	
Propane	ND	2	ug/L		ND	2	ug/L	
Propylene	ND	2	ug/L		ND	2	ug/L	
Isobutane	ND	2	ug/L		ND	2	ug/L	
n-Butane	ND	2	ug/L		ND	2	ug/L	
Acetylene	ND	2	ug/L		ND	2	ug/L	
t-2-Butene	ND	2	ug/L		ND	2	ug/L	
1-Butene	ND	2	ug/L		ND	2	ug/L	
Isobutylene	ND	2	ug/L		ND	2	ug/L	
cis-2-Butene	ND	2	ug/L		ND	2	ug/L	
1,3-Butadiene	ND	2	ug/L		ND	2	ug/L	
Methyl Acetylene	ND	2	ug/L		ND	2	ug/L	
Carbon Dioxide	38.8	2	mg/L		54.6	2	ug/L	

Client Name	KAS
Project Location	CP Dudley Store (VTDEC #87-0011) - East Montpelier, VT

		Area A SB20-04, 05, 06	Totals
Site Information	Predominate Geology of Treatment Zone	Sand	
	Treatment Zone Area (ft^2)	1,725	**1,725**
	Contamination Depth Start (ft bgs)	6.0	
	Contamination Depth End (ft bgs)	13.0	
	Treatment Volume (yd^3)	447.2	**447**
	Triangular Grid Spacing (ft)	6.0	
	Number of Injection Points - Design	48	**48**
	Injection Interval Distance (ft)	2.0	
	Number of Injection Intervals per Point - Design	4.0	
	Total Number of Injection Intervals	192	**192**
	Effective Porosity	33%	
	Pore Volume (L)	112,848	
	Soil Density (lb/ft^3)	110	
TPH Design Calculations	TPH Groundwater Concentration (mg/L)	5	
	TPH Soil Concentration (mg/kg)	974	
	TPH Mass (lb)	1,298	
	BOS 200 Total Demand (lb)	2,336	
	BOS 200 per Injection Interval - Design (lb)	15	
	BOS 200 Slurry Volume per Interval (gal)	15	
	Average BOS 200 per Injection Point (lb)	60	
	BOS 200 Total (lb)	2,880	**2,900**
Design Basis	Select Speciated or TPH	TPH	
	Design BOS 200 Total per Area (lb)	2,880	**2,900**
Trap & Treat Bacteria Calculations	Bacteria Concentrate (gal)	6	**10**
Sulfate Demand Calculations	Supplemental Gypsum per Interval - Design (lb)	15	
	Total Supplemental Gypsum (lb)	2,880	**2,900**
Slurry and Water Volumes	Slurry Volume per Interval (gal)	15	
	Estimated Water Volume (gal)	2,880	**2,880**
Summary	BOS 200 Total (lb)	2,900	
	BOS 200 Unit Price ($, per RPI website)	$6.00	
	Bacteria Concentrate (gal)	10	
	Bacteria Concentrate Price ($, per RPI website)	$100.00	
	Supplemental Gypsum Total (lb)	2,900	
	Gypsum Unit Price ($)	$0.40	
	Estimated Shipping and Tax ($/lb)	$0.40	
	Total Material Price ($)	**$20,720**	
	Linear Footage per Day Achievable	225	
	Number of Field Days to Complete	3	
	Installation Day Rate ($)	$5,000	
	Per Diem ($)	$700	
	Mobilization ($)	$5,600	
	Injection Location Markout ($) **See Note 1**	$2,500	
	Total Installation Price ($)	**$25,200**	
	Reporting ($)	**$960**	
	Total Estimated Price ($)	**$46,880**	

1.) If a separate mobilization is required to mark the injection grid prior to equipment mobilization (e.g. for pre-clearing purposes), AST has provided pricing for a senior staff member to be on-site to mark the grid and coordinate initial pre-clearing efforts.

AST Standard Terms and Conditions

1	Pricing for products and services is valid through December 31, 2020.
2	Pricing is based on the quantities outlined above. Should the quantities change from this design, pricing must be adjusted to conform to the pricing structure shown at: https://www.trapandtreat.com/product-pricing/
3	Unless a MSA is in place, payment terms are full payment of product and shipping costs upon arrival. Payment of injection services is not to exceed 30 calendar days from date of invoice. Interest will accrue at a monthly rate of 1.5% for all outstanding balances including interest. The interest rate will be prorated for partial months
4	There will be adequate water onsite (e.g. 25-gpm service) to prepare the BOS materials for injection. The water service should be within 200 ft of all injection locations; fire hoses can be placed and remain in-place for the duration of the injection (i.e. shuttling of water is not required). The water will be provided at no cost to AST. Hydrant permits and fees will be provided by others. Note that AST can bring hose ramps if discussed before mobilization.
5	All utilities and underground appurtenances will be located prior to AST performing injection services on-site. AST has not provided pricing for a private utility locating service, this can be provided by AST for an additional cost. AST will not be responsible for repairs to mis-marked or unmarked buried utilities and other appurtenances. AST has not included any provisions to perform invasive subsurface utility clearance (such as hand auger boreholes or air-knife excavation). Hand augering and/or other invasive utility clearances such as air knife will be performed at a minimum of 72-hours prior to mobilization of AST Injection Staff.
6	The site stratigraphy allows for pushing up to 225 linear feet of 1.5” direct push rods per day and the geology/logistics allow for the injection of up to 1,950 lb of slurry per day.
7	The total depth throughout the area identified in the injection design will be accessible via direct push utilizing a Geoprobe® 7000 series rig (or equivalent).
8	Asphalt/concrete penetrations will be patched with like materials. Concrete coring, if necessary, is assumed to be performed by others.
9	Investigated derived waste will be drummed and staged on site for disposal by others.
10	Traffic control and site security to be provided by others, if required.
11	The project is non-union and will not require prevailing wages.
12	Work is performed during standard workweek and hours (Monday-Saturday 7am-6pm)
13	Cold Weather Protocol:
	All injection work is to be performed with overnight temperatures above 32 degrees F. If injections are to be performed with overnight lows below 32 degrees F, the installation price will be subject to an additional 25% charge to account for loss time for additional shutdown/startup time for the injection system.
	Injection work in temperatures below 20 degrees F is a health and safety concern for the injection crew. If temperatures are not above 20 degrees F by 10 a.m., no injection work will be performed that day. A daily stand by rate will be charged for days lost due to cold weather.
14	Extra time may be needed onsite to redevelop monitoring wells. AST will notify the client as soon as possible if this extra time is necessary.

Appendix H

Cost Estimates

ECAA - ALTERNATIVE #1: BOS 200® CARBON INJECTION KAS #410040071
C.P. Dudley Store and Lamb Residence (SMS# 87-0011)
September 2020

Assumptions:
1. Work scope based on Trap & Treat® Remedial Approach Proposal injection design provided by AST dated July 22, 2020

WORK ELEMENT	UNITS	CATEGORY	QTY	RATE/	ELEMENT	10% MARKUP	ADJ	TASK
TASK 1: CAP PREP/FINAL DESIGN/PROJECT MANAGEMENT								
CAP PREPARATION	HR	STAFF SCIENTIST	24	$95.00	$2,280.00		$2,280.00	
COST ESTIMATE REVISION	HR	STAFF SCIENTIST	4	$95.00	$380.00		$380.00	
HASP UPDATE	HR	STAFF SCIENTIST	1	$95.00	$95.00		$95.00	
DRAFTING	HR	DRAFTSPERSON	6	$65.00	$390.00		$390.00	
FINAL DESIGN	HR	PROFESSIONAL ENGINEER	10	$115.00	$1,150.00		$1,150.00	
SENIOR REVIEW	HR	SENIOR	2	$115.00	$230.00		$230.00	
PROJECT COORDINATION/MANAGEMENT	HR	STAFF SCIENTIST	8	$80.00	$640.00		$640.00	**$5,165.00**
TASK 2: DIGSAFE								
PRIVATE UTILITY LOCATOR	EA	VT UNDERGROUND LOCATORS	1	$650.00	$650.00		$650.00	
TASK COORDINATION	HR	STAFF SCIENTIST	1.5	$95.00	$142.50		$142.50	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	FIELD TECH II	2	$65.00	$130.00		$130.00	
KAS LABOR: ON-SITE	HR	FIELD TECH II	3	$65.00	$195.00		$195.00	
MILEAGE	MILE	EXPENSE	85	$0.580	$49.30		$49.30	**$1,166.80**
TASK 3: BOS 200® INJECTION (3 DAYS TOTAL)								
TASK COORDINATION	HR	STAFF SCIENTIST	5	$95.00	$475.00		$475.00	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	STAFF SCIENTIST	6	$95.00	$570.00		$570.00	
KAS LABOR: ON-SITE (10.5 HRS/DAY)	HR	STAFF SCIENTIST	31.5	$95.00	$2,992.50		$2,992.50	
MILEAGE	MILE	EXPENSE	255	$0.575	$146.63		$146.63	
INTERFACE PROBE	DAY	EXPENSE	3	$55.00	$165.00		$165.00	
INSTALLATION & MATERIALS	EA	AST	1	$46,880.00	$46,880.00	$1,000.00	$47,880.00	**$52,229.13**
TASK 5: INSTALLATION OF REPLACEMENT MONITORING WELLS (MW-1, MW-6 and MW-7 - IF NECESSARY)								
TASK COORDINATION	HR	STAFF SCIENTIST	3	$95.00	$285.00		$285.00	
KAS LABOR: TRAVEL/MOBE/DEMOBE	HR	STAFF SCIENTIST	2.5	$95.00	$237.50		$237.50	
KAS LABOR: ON-SITE (1 DAYS)	HR	STAFF SCIENTIST	8	$95.00	$760.00		$760.00	
MILEAGE	MILE	EXPENSE	85	$0.580	$49.30		$49.30	
PID	DAY	EXPENSE	1	$90.00	$90.00		$90.00	
WELL REPLACEMENT DRILLING	EA	KAS, INC.	1	$2,196.85	$2,196.85		$2,196.85	**$3,618.65**
TASK 6: GROUNDWATER MONITORING (ONE MONTH POST INJ. EVENT, 4 QUARTERLY EVENTS)								
TASK COORDINATION	HR	STAFF SCIENTIST	3	$95.00	$285.00		$285.00	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	FIELD TECH II	2.5	$65.00	$162.50		$162.50	
KAS LABOR: ON-SITE	HR	FIELD TECH II	2	$65.00	$130.00		$130.00	
MILEAGE	MILE	EXPENSE	85	$0.575	$48.88		$48.88	
MAGNETOMETER	DAY	EXPENSE	1	$25.00	$25.00		$25.00	
INTERFACE PROBE	DAY	EXPENSE	1	$55.00	$55.00		$55.00	
SAMPLE KITS (GW)	EA	EXPENSE	3	$15.00	$45.00		$45.00	
VOC ANALYSIS 8260B (3 WELLS)			No Cost - RPI to analyze data					**$751.38**
							5 EVENTS TOTAL :	**$3,756.88**
TASK 5: CORRECTIVE ACTION COMPLETION REPORT								
DRAFTING	HR	DRAFTSMAN	4	$65.00	$260.00		$260.00	
REPORT PREPARATION	HR	STAFF SCIENTIST	24	$95.00	$2,280.00		$2,280.00	
SENIOR REVIEW	HR	SENIOR	1.5	$115.00	$172.50		$172.50	
ADMINISTRATIVE	HR	ADMIN	0.5	$50.00	$25.00		$25.00	**$2,737.50**
TASK 6: CORRECTIVE ACTION PERFORMANCE REPORT								
DRAFTING	HR	DRAFTSMAN	4	$65.00	$260.00		$260.00	
REPORT PREPARATION	HR	STAFF SCIENTIST	20	$95.00	$1,900.00		$1,900.00	
SENIOR REVIEW	HR	SENIOR	1	$115.00	$115.00		$115.00	
ADMINISTRATIVE	HR	ADMIN	0.5	$50.00	$25.00		$25.00	
							PER REPORT:	**$2,300.00**
							ANNUAL COST (2 REPORTS):	**$4,600.00**
							CAP COST YEAR 1:	**$65,808.95**
							TOTAL ESTIMATED COST:	**$73,273.95**

ECAA - ALTERNATIVE #2: EXCAVATION

KAS #410040071

C.P. Dudley Store and Lamb Residence (SMS# 87-0011)

September 2020

Cubic Yards Impacted Soil	200
Tons of Impacted Soil	300
Number of 20-ton Trucks	14

Assumptions:

1. Assumes excavation will focus in area around SB19-15 as illustrated in AST Design (see Appendix G).
2. Excavation will focus on sands with PID readings > 50 ppmv to a depth of 8-12 feet depending on the area, underlain by silt or clay.
3. Data from ECAA and former Sidewalk Pedestrian Project can be used for waste profiling and no further characterization is needed for disposal.
4. Minimal on-Site stockpiling due to Site constraints and mass of soil. Live loading is included in the excavation cost estimate.
5. Sheet piling is necessary to stabilize U.S Route 2.
6. Dewatering may be required and will utilize the existing dewatering system currently operating on the Lamb Residence.
7. Clean fill will be backfilled into the excavation area and compacted.
8. The excavated area will be resurfaced to grade with the existing hardscape.
9. The excavation is anticipated to take 5 days in total.

WORK ELEMENT	UNITS	CATEGORY	QTY	RATE/	ELEMENT	10% MARKUP	ADJ	TASK
TASK 1: CAP PREP/FINAL DESIGN/PROJECT MANAGEMENT								
CAP PREPARATION	HR	STAFF SCIENTIST	20	$95.00	$1,900.00		$1,900.00	
COST ESTIMATE REVISION	HR	STAFF SCIENTIST	4	$95.00	$380.00		$380.00	
HASP UPDATE	HR	STAFF SCIENTIST	1	$95.00	$95.00		$95.00	
DRAFTING	HR	DRAFTSPERSON	6	$65.00	$390.00		$390.00	
FINAL DESIGN	HR	PROFESSIONAL ENGINEER	10	$115.00	$1,150.00		$1,150.00	
SENIOR REVIEW	HR	SENIOR	2	$115.00	$230.00		$230.00	
PROJECT COORDINATION/MANAGEMENT	HR	STAFF SCIENTIST	8	$80.00	$640.00		$640.00	**$4,785.00**
TASK 2: DIGSAFE								
PRIVATE UTILITY LOCATOR	EA	VT UNDERGROUND LOCATORS	1	$650.00	$650.00		$650.00	
TASK COORDINATION	HR	STAFF SCIENTIST	1.5	$95.00	$142.50		$142.50	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	FIELD TECH II	2	$65.00	$130.00		$130.00	
KAS LABOR: ON-SITE	HR	FIELD TECH II	3	$65.00	$195.00		$195.00	
MILEAGE	MILE	EXPENSE	85	$0.575	$48.88		$48.88	**$1,166.38**
TASK 3: EXCAVATION & SITE RESTORATION (5 Days)								
TASK COORDINATION	HR	STAFF SCIENTIST	6	$95.00	$570.00		$570.00	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	STAFF SCIENTIST	12.5	$95.00	$1,187.50		$1,187.50	
KAS LABOR: ON-SITE	HR	STAFF SCIENTIST	40	$95.00	$3,800.00		$3,800.00	
PID	DAY	EXPENSE	5	$90.00	$450.00		$450.00	
DISPOSAL (Daily Cover)	Ton	Casella, Inc	300	$40.00	$12,000.00	$1,000.00	$13,000.00	
EXCAVATION & SITE RESTORATION	EA	SITE CONTRACTOR	1	$77,530.00	$77,530.00	$1,000.00	$78,530.00	
								$97,537.50
TASK 4: CORRECTIVE ACTION COMPLETION REPORT								
DRAFTING	HR	DRAFTSMAN	4	$65.00	$260.00		$260.00	
REPORT PREPARATION	HR	STAFF SCIENTIST	20	$95.00	$1,900.00		$1,900.00	
SENIOR REVIEW	HR	SENIOR	2	$115.00	$230.00		$230.00	
ADMINISTRATIVE	HR	ADMIN	0.5	$50.00	$25.00		$25.00	**$2,415.00**

TOTAL ESTIMATED COST: $105,903.88

ECAA - ALTERNATIVE #3: COMBINED INJECTION/EXCAVATION KAS #410040071

C.P. Dudley Store and Lamb Residence (SMS# 87-0011)

September 2020

Cubic Yards Impacted Soil	200
Tons of Impacted Soil	300
Number of 20-ton Trucks	14

Assumptions:

1. Assumes excavation will focus in area around SB19-15 as illustrated in AST Design (see Appendix G).
2. Excavation will focus on sands with PID readings > 50 ppmv to a depth of 8-12 feet depending on the area, underlain by silt or clay.
3. Data from ECAA and former Sidewalk Pedestrian Project can be used for waste profiling and no further characterization is needed for disposal.
4. Minimal on-Site stockpiling due to Site constraints and mass of soil. Live loading is included in the excavation cost estimate.
5. Sheet piling is necessary to stabilize U.S Route 2.
6. Dewatering may be required and will utilize the existing dewatering system currently operating on the Lamb Residence.
7. Clean fill will be backfilled into the excavation area and compacted.
8. The excavated area will be resurfaced to grade with the existing hardscape.
9. The excavation is anticipated to take 5 days in total.
10. Work scope based on Trap & Treat® Remedial Approach Proposal injection design provided by AST dated July 22, 2020

WORK ELEMENT	UNITS	CATEGORY	QTY	RATE/	ELEMENT	10% MARKUP	ADJ	TASK
TASK 1: CAP PREP/FINAL DESIGN/PROJECT MANAGEMENT								
CAP PREPARATION	HR	STAFF SCIENTIST	18	$95.00	$1,710.00		$1,710.00	
COST ESTIMATE REVISION	HR	STAFF SCIENTIST	4	$95.00	$380.00		$380.00	
HASP UPDATE	HR	STAFF SCIENTIST	1	$95.00	$95.00		$95.00	
DRAFTING	HR	DRAFTSPERSON	8	$65.00	$520.00		$520.00	
FINAL DESIGN	HR	PROFESSIONAL ENGINEER	8	$115.00	$920.00		$920.00	
SENIOR REVIEW	HR	SENIOR	2	$115.00	$230.00		$230.00	
PROJECT COORDINATION/MANAGEMENT	HR	STAFF SCIENTIST	8	$80.00	$640.00		$640.00	**$4,495.00**
TASK 2: DIGSAFE								
PRIVATE UTILITY LOCATOR	EA	VT UNDERGROUND LOCATORS	1	$650.00	$650.00		$650.00	
TASK COORDINATION	HR	STAFF SCIENTIST	1.5	$95.00	$142.50		$142.50	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	FIELD TECH II	2	$65.00	$130.00		$130.00	
KAS LABOR: ON-SITE	HR	FIELD TECH II	3	$65.00	$195.00		$195.00	
MILEAGE	MILE	EXPENSE	85	$0.575	$48.88		$48.88	**$1,166.38**
TASK 3: EXCAVATION & SITE RESTORATION (5 Days)								
TASK COORDINATION	HR	STAFF SCIENTIST	6	$95.00	$570.00		$570.00	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	STAFF SCIENTIST	12.5	$95.00	$1,187.50		$1,187.50	
KAS LABOR: ON-SITE	HR	STAFF SCIENTIST	40	$95.00	$3,800.00		$3,800.00	
PID	DAY	EXPENSE	5	$90.00	$450.00		$450.00	
DISPOSAL (Daily Cover)	Ton	Casella, Inc	300	$40.00	$12,000.00	$1,000.00	$13,000.00	
EXCAVATION & SITE RESTORATION	EA	SITE CONTRACTOR	1	$77,530.00	$77,530.00	$1,000.00	$78,530.00	**$97,537.50**
TASK 4: BOS 200® INJECTION (3 DAYS TOTAL)								
TASK COORDINATION	HR	STAFF SCIENTIST	5	$95.00	$475.00		$475.00	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	STAFF SCIENTIST	6	$95.00	$570.00		$570.00	
KAS LABOR: ON-SITE (10.5 HRS/DAY)	HR	STAFF SCIENTIST	31.5	$95.00	$2,992.50		$2,992.50	
MILEAGE	MILE	EXPENSE	255	$0.575	$146.63		$146.63	
INTERFACE PROBE	DAY	EXPENSE	3	$55.00	$165.00		$165.00	
INSTALLATION & MATERIALS	EA	AST	1	$46,880.00	$46,880.00	$1,000.00	$47,880.00	**$52,229.13**
TASK 5: INSTALLATION OF REPLACEMENT MONITORING WELLS (MW-1, MW-6 and MW-7 - IF NECESSARY)								
KAS LABOR: TRAVEL/MOBE/DEMOBE	HR	STAFF SCIENTIST	2.5	$95.00	$237.50		$237.50	
KAS LABOR: ON-SITE (1 DAYS)	HR	STAFF SCIENTIST	8	$95.00	$760.00		$760.00	
MILEAGE	MILE	EXPENSE	85	$0.580	$49.30		$49.30	
PID	DAY	EXPENSE	1	$90.00	$90.00		$90.00	
WELL REPLACEMENT DRILLING	EA	KAS, INC.	1	$2,196.85	$2,196.85		$2,196.85	**$3,333.65**
TASK 6: GROUNDWATER MONITORING (ONE MONTH POST INJ. EVENT, 4 QUARTERLY EVENTS)								
TASK COORDINATION	HR	STAFF SCIENTIST	3	$95.00	$285.00		$285.00	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	FIELD TECH II	2.5	$65.00	$162.50		$162.50	
KAS LABOR: ON-SITE	HR	FIELD TECH II	2	$65.00	$130.00		$130.00	
MILEAGE	MILE	EXPENSE	85	$0.575	$48.88		$48.88	
MAGNETOMETER	DAY	EXPENSE	1	$25.00	$25.00		$25.00	
INTERFACE PROBE	DAY	EXPENSE	1	$55.00	$55.00		$55.00	
SAMPLE KITS (GW)	EA	EXPENSE	3	$15.00	$45.00		$45.00	
VOC ANALYSIS 8260B (3 WELLS)			No Cost - RPI to analyze data					**$751.38**
							5 EVENTS TOTAL :	**$3,756.88**
TASK 7: CORRECTIVE ACTION COMPLETION REPORT								
DRAFTING	HR	DRAFTSMAN	4	$65.00	$260.00		$260.00	
REPORT PREPARATION	HR	STAFF SCIENTIST	16	$95.00	$1,520.00		$1,520.00	
SENIOR REVIEW	HR	SENIOR	2	$115.00	$230.00		$230.00	
ADMINISTRATIVE	HR	ADMIN	0.5	$50.00	$25.00		$25.00	**$2,035.00**
TASK 8: CORRECTIVE ACTION PERFORMANCE REPORT								
DRAFTING	HR	DRAFTSMAN	4	$65.00	$260.00		$260.00	
REPORT PREPARATION	HR	STAFF SCIENTIST	16	$95.00	$1,520.00		$1,520.00	
SENIOR REVIEW	HR	SENIOR	1	$115.00	$115.00		$115.00	
ADMINISTRATIVE	HR	ADMIN	0.5	$50.00	$25.00		$25.00	
							PER REPORT:	**$1,920.00**
							ANNUAL COST (2 REPORTS):	**$3,840.00**

TOTAL ESTIMATED COST: $168,393.53

Appendix E

Public Notice Form

VERMONT

State of Vermont
Department of Environmental Conservation
Waste Management & Prevention Division
Davis Building - 1st Floor, One National Life Drive
Montpelier, VT 05620-3704

OFFICIAL NOTICE

Dear _____,

This is an official notice that a draft Corrective Action Plan (CAP) has been prepared by KAS, Inc. on behalf of Biron A & P Life Estate and Mr. and Mrs. Lamb for the C.P. Ducley Store and Lamb Residence site. Vermont law requires that adjoining and/or impacted property owners receive notice of this CAP, as well as being provided a 30 day public comment period.

The CAP approval process includes a public comment period and an opportunity to request a public meeting. Note that in order to appeal a final CAP approval, comments must be submitted during the public comment period.

To view the draft CAP, please visit the Environmental Notice Bulletin (ENB) at ENB.VERMONT.GOV, and enter the site number: 87-0011 in the "Permit #" space. Do not include spaces or dashes.

For further information, please visit the following website:
DEC.VERMONT.GOV/PERMITS/ENB/GENERAL.

FOR QUESTIONS CONTACT:
Waste Management & Prevention Division, Sites Management Section (SMS)
SMS Site Manager: Matt Becker
SMS Site Manager email address: Matthew.Becker@vermont.gov
(802) 828-1138

SITE NUMBER

87-0011

NAME OF POTENTIALLY RESPONSIBLE PARTY

Angela Biron and Mr. and Mrs. Durward Lamb

LOCATION OF CORRECTIVE ACTION STREET ADDRESS/ROUTE

2910 and 2915 U.S. Route 2

TOWN(S) WHERE PROPOSED CORRECTIVE ACTION WILL TAKE PLACE

East Montpelier

Appendix F

I-Rule Corrective Action Plan Checklist

Vermont Department of Environmental Conservation
Waste Management and Prevention Division
Sites Management Section
I-Rule CORRECTIVE ACTION PLAN Checklist

Site Number: 87-0011
Site Name: C.P. Dudley Store and Lamb Residence
Site Address: 2915 and 2910 U.S. Route 2
Site City/Town: East Montpelier
Report Title: Corrective Action Plan
Report Date: March 11, 2021
Consultant: KAS, Inc.
Report Author: Sam Driver

Deliverable	YES	N/A	Comments	WMPD Use Only	
				Adequate	Inadequate
Subchapter 5. Corrective Action					
§35-505. Corrective Action Plan					
Executive Summary	✓				
Public Notice	✓				
Performance standards	✓				
Remedial Construction Plan	✓				
Waste Management Plan	✓				
Implementation schedule	✓				
Corrective Action Maintenance Plan	✓				
Institutional Control Plan	✓				
Redevelopment and Reuse Plan	✓				
QA/QC Plan	✓				
Cost estimate	✓				
Updated maps	✓				
Tabular contaminant concentrations	✓				
Cross-sections	✓				
Proposed contractors and subcontractors	✓				
P.E. Signature and certification	✓				

Appendix G

Cost Estimate

Cost Estimate - Corrective Action Plan
C.P. Dudley Store and Lamb Residence (SMS# 87-0011)
KAS #410040071
March 2021

Cubic Yards Impacted Soil	230
Tons of Impacted Soil	345
Number of 20-ton Trucks	16

WORK ELEMENT	UNITS	CATEGORY	QTY	RATE/	ELEMENT	10% MARKUP	ADJ	TASK
TASK 1: PROJECT MANAGEMENT/SITE PLANNING								
FINAL DESIGN/SCHEDULE UPDATE	HR	STAFF SCIENTIST	4	$95.00	$380.00		$380.00	
OVERALL PROJECT COORDINATION	HR	STAFF SCIENTIST	18	$95.00	$1,710.00		$1,710.00	
KAS CONTRACTOR PREP/COORDINATION	HR	STAFF SCIENTIST	4	$95.00	$380.00		$380.00	
KAS FINAL DESIGN/SUPPORT	HR	ENGINEER	8	$115.00	$920.00		$920.00	
KAS PRINCIPAL REVIEW	HR	PRINCIPAL	1	$115.00	$115.00		$115.00	**$3,505.00**
TASK 2: PREMARK/BASELINE SAMPLING/BUILDING ASSESSMENT (3 Days)								
TASK COORDINATION	HR	PROJECT MANAGER	6	$95.00	$570.00		$570.00	
KAS LABOR: MOBE (PREP/TRAVEL)	HR	FIELD TECH II	3.5	$65.00	$227.50		$227.50	
KAS LABOR: ON-SITE	HR	FIELD TECH II	14	$65.00	$910.00		$910.00	
KAS LABOR: DEMOBE (TRAVEL/UNLOAD)	HR	FIELD TECH II	3.5	$65.00	$227.50		$227.50	
MILEAGE	MILE	EXPENSE	252	$0.56	$141.12		$141.12	
UTILITY LOCATOR	EA	VT UNDERGROUND	1	$600.00	$600.00	$60.00	$660.00	
MAGNETOMETER	DAY	EXPENSE	1	$25.00	$25.00		$25.00	
INTERFACE PROBE	DAY	EXPENSE	1	$55.00	$55.00		$55.00	
SAMPLE KITS (GW)	EA	EXPENSE	8	$15.00	$120.00		$120.00	
VOC ANALYSIS 8260C (5 WELLS, 2 QA/QC)	EA	ENDYNE	7	$140.00	$980.00	$98.00	$1,078.00	
PID	DAY	EXPENSE	2	$90.00	$180.00		$180.00	
TEMP/HUMIDITY PEN	EA	Expense	1	$15.00	$15.00		$15.00	
HELIUM DETCTOR RENTAL	EA	Expense	1	$75.00	$75.00		$75.00	
CALIBRATED AIR PUMP	EA	Expense	1	$30.00	$30.00		$30.00	
HELIUM CANISTER (Tracer Gas)	EA	Expense	1	$20.00	$20.00		$20.00	
EPA TO-15 (2 Soil Gas and 2 Indoor Air, 1 QA/QC)	EA	Con-Test	5	$266.50	$1,332.50	$133.25	$1,465.75	
SUMMA CANISTER RENTAL	EA	Con-Test	5	$50.00	$250.00	$25.00	$275.00	
FLOW CONTRORLLER RENTAL	EA	Con-Test	5	$25.00	$125.00	$12.50	$137.50	**$6,212.37**
TASK 3: WASTE CHARACTERIZATION SAMPLING								
PROJECT COORDINATION	HR	PROJECT MANAGER	2	$95.00	$190.00		$190.00	
KAS LABOR: MOBE	HR	STAFF SCIENTIST	1	$80.00	$80.00		$80.00	
KAS LABOR: ON-SITE	HR	STAFF SCIENTIST	6	$80.00	$480.00		$480.00	
KAS LABOR: DEMOBE	HR	STAFF SCIENTIST	1	$80.00	$80.00		$80.00	
MILEAGE	MILE	EXPENSE	84	$0.56	$47.04		$47.04	
GEOPROBE	EA	KAS	1	$1,845.00	$1,845.00		$1,845.00	
PID	EA	EXPENSE	1	$90.00	$90.00		$90.00	
SAMPLE KIT, SOIL	EA	EXPENSE	3	$15.00	$45.00		$45.00	
WASTE CHARACTERIZATION - TPH-GRO VIA 8015	EA	CONTEST	3	$90.00	$270.00	$27.00	$297.00	
WASTE CHARACTERIZATION - TPH-DRO VIA 8015	EA	CONTEST	3	$90.00	$270.00	$27.00	$297.00	
WASTE CHARACTERIZATION - TCLP RCRA 8 Metals	EA	CONTEST	3	$60.00	$180.00	$18.00	$198.00	
WASTE CHARACTERIZATION - TLCP VOCs	EA	CONTEST	3	$90.00	$270.00	$27.00	$297.00	
WASTE CHARACTERIZATION - Ignitability	EA	CONTEST	3	$35.00	$105.00	$10.50	$115.50	**$4,061.54**
TASK 4: BOS 200 INJECTION (3 Days)								
TASK COORDINATION	HR	PROJECT MANAGER	4	$95.00	$380.00		$380.00	
KAS LABOR: MOBE (PREP/TRAVEL)	HR	STAFF SCIENTIST	3.5	$80.00	$280.00		$280.00	
KAS LABOR: ON-SITE (10.5 HRS/DAY)	HR	STAFF SCIENTIST	31.5	$80.00	$2,520.00		$2,520.00	
KAS LABOR: DEMOBE (TRAVEL/UNLOAD)	HR	STAFF SCIENTIST	3.5	$80.00	$280.00		$280.00	
MILEAGE	MILE	EXPENSE	252	$0.56	$141.12		$141.12	
MAGNETOMETER	DAY	EXPENSE	1	$25.00	$25.00		$25.00	
INTERFACE PROBE	DAY	EXPENSE	1	$55.00	$55.00		$55.00	
PID	DAY	EXPENSE	3	$90.00	$270.00		$270.00	
FRAC TANK (12 Days) - 4,000 gallon	EA	UNITED RENTAL	1	$3,270.72	$3,270.72	$327.07	$3,597.79	
WATER SUPPLY - 4,000 gallons	EA	Fire Department	1	$2,500.00	$2,500.00	$250.00	$2,750.00	
AST - INJECTION CREW/EQUIPMENT/PRODCUT	EA	AST ENVIRONMENTAL	1	$46,880.00	$46,880.00	$1,000.00	$47,880.00	**$58,178.91**
TASK 5: WELL REDEVELOPMENT (MW-1, MW-2, MW-6 and MW-7)								
TASK COORDINATION	HR	PROJECT MANAGER	1	$95.00	$96.00		$96.00	
KAS LABOR: MOBE (PREP/TRAVEL)	HR	FIELD TECH II	1	$65.00	$66.00		$66.00	
KAS LABOR: ON-SITE	HR	FIELD TECH II	2.5	$65.00	$67.50		$67.50	
KAS LABOR: DEMOBE (TRAVEL/UNLOAD)	HR	FIELD TECH II	1	$65.00	$66.00		$66.00	
MILEAGE	MILE	EXPENSE	84	$0.56	$84.56		$84.56	
INTERFACE PROBE	DAY	EXPENSE	1	$55.00	$56.00		$56.00	
MAGNETOMETER	DAY	EXPENSE	1	$25.00	$26.00		$26.00	**$462.06**
TASK 6: INSTALLATION OF REPLACEMENT WELLS (IF NECESSARY - MW-1, MW-2, MW-6 and MW-7)								
TASK COORDINATION	HR	PROJECT MANAGER	3	$95.00	$285.00		$285.00	
KAS LABOR: TRAVEL/MOBE/DEMOBE	HR	STAFF SCIENTIST	2.5	$80.00	$200.00		$200.00	
KAS LABOR: ON-SITE (1 DAYS)	HR	STAFF SCIENTIST	8	$80.00	$640.00		$640.00	
MILEAGE	MILE	EXPENSE	84	$0.56	$47.04		$47.04	
PID	DAY	EXPENSE	1	$90.00	$90.00		$90.00	
WELL REPLACEMENT DRILLING	EA	KAS, INC.	1	$2,196.85	$2,196.85		$2,196.85	**$3,458.89**
TASK 7: EXCAVATION & SITE RESTORATION (5 Days)								
TASK COORDINATION	HR	PROJECT MANAGER	8	$95.00	$760.00		$760.00	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	STAFF SCIENTIST	12.5	$95.00	$1,187.50		$1,187.50	
KAS LABOR: ON-SITE	HR	STAFF SCIENTIST	40	$95.00	$3,800.00		$3,800.00	
MILEAGE	MILE	EXPENSE	420	$0.56	$235.20		$235.20	
PID	DAY	EXPENSE	5	$90.00	$450.00		$450.00	
SAMPLE KIT (Soil)	EA	EXPENSE	1	$15.00	$15.00		$15.00	
VOC ANALYSIS via EPA Method 8260C (Bottom of Excavation)	EA	ENDYNE	1	$140.00	$140.00	$14.00	$154.00	
DISPOSAL (Daily Cover)	Ton	CASELLA	345	$40.00	$13,800.00	$1,000.00	$14,800.00	
EXCAVATION & SITE RESTORATION	EA	SITE CONTRACTOR	1	$77,530.00	$77,530.00	$1,000.00	$78,530.00	**$99,931.70**
TASK 8: DEWATERING								
PROJECT COORDINATION/MANAGEMENT/PREP	EA	STAFF SCIENTIST	4	$95.00	$380.00		$380.00	
DISCHARGE PERMIT (#3-9004)	EA	EXPENSE	1	$215.00	$215.00		$215.00	
FRAC TANK (12 Days) - 12,000 gallon	EA	UNITED RENTAL	1	$2,847.29	$2,847.29	$284.73	$3,132.02	
CARBON DRUMS	EA	FILCORP	2	$600.00	$1,200.00	$120.00	$1,320.00	
WASTE DISPOSAL (SPENT CARBON DRUMS, FRAC TANK CLEANING)	EA	NRC/US ECOLOGY	1	$6,449.00	$6,449.00	$644.90	$7,093.90	**$12,140.92**
TASK 9: GROUNDWATER MONITORING (ONE MONTH POST CAP COMPLETETION, 4 QUARTERLY EVENTS)								
TASK COORDINATION	HR	STAFF SCIENTIST	1.5	$95.00	$142.50		$142.50	
KAS LABOR: TRAVEL/MOB/DEMOB	HR	FIELD TECH II	2.5	$65.00	$162.50		$162.50	
KAS LABOR: ON-SITE	HR	FIELD TECH II	3	$65.00	$195.00		$195.00	
MILEAGE	MILE	EXPENSE	84	$0.56	$47.04		$47.04	
MAGNETOMETER	DAY	EXPENSE	1	$25.00	$25.00		$25.00	
INTERFACE PROBE	DAY	EXPENSE	1	$55.00	$55.00		$55.00	
SAMPLE KITS (4 GW Wells:MW-1, MW-2, MW-6 and MW-7)	EA	EXPENSE	4	$15.00	$60.00		$60.00	
REPORT SUMMARY	HR	STAFF SCIENTIST	3	$95.00	$285.00		$285.00	
SENIOR REVIEW	HR	SENIOR	0.5	$115.00	$57.50		$57.50	
VOC ANALYSIS 8260C (4 WELLS)			No Cost - RPI to analyze data					**$1,029.54**
							5 EVENTS TOTAL :	**$5,147.70**

...continued on next page

TASK 10: POST REMEDIAL SAMPLING (Soil Gas and Indoor Air)								
TASK COORDINATION	HR	PROJECT MANAGER	2	$95.00	$190.00		$190.00	
KAS LABOR: MOBE (PREP/TRAVEL)	HR	FIELD TECH II	3.5	$65.00	$227.50		$227.50	
KAS LABOR: ON-SITE	HR	FIELD TECH II	14	$65.00	$910.00		$910.00	
KAS LABOR: DEMOBE (TRAVEL/UNLOAD)	HR	FIELD TECH II	3.5	$65.00	$227.50		$227.50	
MILEAGE	MILE	EXPENSE	252	$0.56	$141.12		$141.12	
MAGNETOMETER	DAY	EXPENSE	1	$25.00	$25.00		$25.00	
PID	DAY	EXPENSE	2	$90.00	$180.00		$180.00	
TEMP/HUMIDITY PEN	EA	Expense	1	$15.00	$15.00		$15.00	
HELIUM DETCTOR RENTAL	EA	Expense	1	$75.00	$75.00		$75.00	
CALIBRATED AIR PUMP	EA	Expense	1	$30.00	$30.00		$30.00	
HELIUM CANISTER (Tracer Gas)	EA	Expense	1	$20.00	$20.00		$20.00	
EPA TO-15 (2 Soil Gas and 2 Indoor Air, 1 QA/QC)	EA	Con-Test	5	$266.50	$1,332.50	$133.25	$1,465.75	
SUMMA CANISTER RENTAL	EA	Con-Test	5	$50.00	$250.00	$25.00	$275.00	
FLOW CONTRORLLER RENTAL	EA	Con-Test	5	$25.00	$125.00	$12.50	$137.50	**$3,919.37**
TASK 11: CORRECTIVE ACTION COMPLETION REPORT								
DRAFTING	HR	DRAFTSMAN	4	$65.00	$260.00		$260.00	
REPORT PREPARATION	HR	STAFF SCIENTIST	24	$95.00	$2,280.00		$2,280.00	
SENIOR REVIEW	HR	SENIOR	2	$115.00	$230.00		$230.00	
ADMINISTRATIVE	HR	ADMIN	0.5	$50.00	$25.00		$25.00	**$2,795.00**
TASK 12: CORRECTIVE ACTION PERFORMANCE REPORT (Annual)								
DRAFTING	HR	DRAFTSMAN	4	$65.00	$260.00		$260.00	
REPORT PREPARATION	HR	STAFF SCIENTIST	16	$95.00	$1,520.00		$1,520.00	
SENIOR REVIEW	HR	SENIOR	1	$115.00	$115.00		$115.00	
ADMINISTRATIVE	HR	ADMIN	0.5	$50.00	$25.00		$25.00	**$1,920.00**

TOTAL ESTIMATED COST: $201,733.46

Appendix H

Project Timeline

CAP Schedule

KAS, Inc.

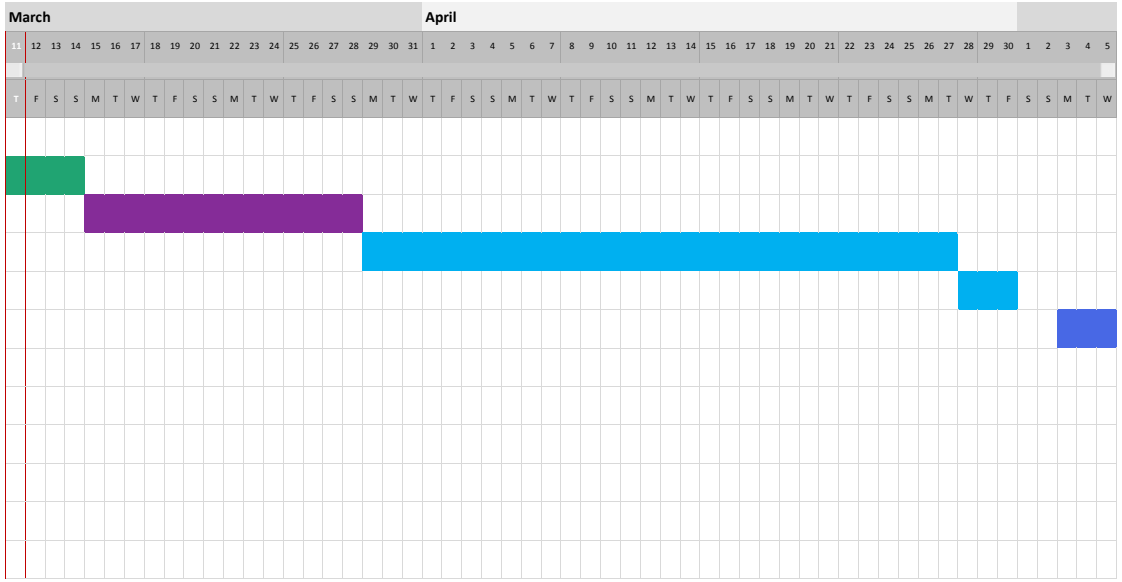
Sam Driver

Project Start Date: 3/11/2021

Scrolling Increment: 0

Legend: On track | Low risk | Med risk | High risk | Unassigned

Milestone description	Category	Assigned to	Progress	Start	End	Days
TITLE 1						
CAP Submittal	On Track	KAS	100%	3/11/2021	3/14/2021	4
CAP revisions/comments	High Risk	KAS/VTDEC	0%	3/15/2021	3/26/2021	14
30-Day Public Period	Low Risk	N/A	0%	3/29/2021	4/27/2021	30
Public notice prep/field prep	Low Risk	KAS	0%	4/28/2021	4/30/2021	3
Baseline Sampling/Pre-Mark	Med Risk	KAS	0%	5/3/2021	5/5/2021	3
Waste Characterization Sampling	Med Risk	KAS	0%	5/6/2021	5/7/2021	1
BOS Injection	High Risk	KAS/AST	0%	5/12/2021	5/17/2021	6
Well Redevelopment/Replacement	Low Risk	KAS	0%	5/24/2021	5/25/2021	1
Soil Removal	High Risk	KAS/JP SiCard	0%	6/7/2021	6/11/2021	5
Post Remedial Sampling	High Risk	KAS	0%	6/14/2021	6/18/2021	5
CAP Completion Report	High Risk	KAS	0%	6/21/2021	6/30/2021	10



CAP Schedule

KAS, Inc.

Sam Driver

Project Start Date: 3/11/2021

Scrolling Increment: 51

Legend: On track | Low risk | Med risk | High risk | Unassigned

Milestone description	Category	Assigned to	Progress	Start	End	Days
TITLE 1						
CAP Submittal	On Track	KAS	100%	3/11/2021	3/14/2021	4
CAP revisions/comments	High Risk	KAS/VTDEC	0%	3/15/2021	3/26/2021	14
30-Day Public Period	Low Risk	N/A	0%	3/29/2021	4/27/2021	30
Public notice prep/field prep	Low Risk	KAS	0%	4/28/2021	4/30/2021	3
Baseline Sampling/Pre-Mark	Med Risk	KAS	0%	5/3/2021	5/5/2021	3
Waste Characterization Sampling	Med Risk	KAS	0%	5/6/2021	5/7/2021	1
BOS Injection	High Risk	KAS/AST	0%	5/12/2021	5/17/2021	6
Well Redevelopment/Replacement	Low Risk	KAS	0%	5/24/2021	5/25/2021	1
Soil Removal	High Risk	KAS/JP SiCard	0%	6/7/2021	6/11/2021	5
Post Remedial Sampling	High Risk	KAS	0%	6/14/2021	6/18/2021	5
CAP Completion Report	High Risk	KAS	0%	6/21/2021	6/30/2021	10