ROSS ENVIRONMENTAL ASSOCIATES, INC.

Hydrogeology, Water Quality, Regulatory Compliance
& Permitting. Environmental Site Assessments,
Petroleum Investigations, Remediation.

Indoor Air Sampling Report

Blake's Auto Service Center
1149 Ethan Allen Highway
Georgia, VT

(SMS Site # 2018-4815)
Site Coordinates: 44° 41' 43.7" N 73° 06' 32.7" W

27 February 2023

Prepared For:

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R.E.A. Project No. 2023-0001
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TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**

Conceptual Model 2

1.0 Introduction **3**

1.1 Site Location and Setting 3

1.2 Site Setting 4

2.0 Indoor Air Assessment **5**

2.1 Building Assessment & Inventory 5

2.2 Indoor Air Sampling Results 6

2.3 Indoor Air Sampling Procedures 7

3.0 Quality Assurance/Quality Control **8**

4.0 Recommendations **9**

5.0 Limitations **9**

6.0 Certification **10**

List of Attachments

Figures

Tables

Appendix A Conceptual Site Model

Appendix B Site Photographs

Appendix C Building Inventory /Assessment" Form & Safety Data Sheet

Appendix D Barometric Pressure Information

Appendix E Laboratory Reports – Indoor Air (February 2023)

Executive Summary

On 7 February 2023, Ross Environmental Associates, Inc. (***R.E.A.***) completed indoor air sampling at the Blake's Auto Service Center located at 1149 Ethan Allen Highway in Georgia, Vermont (**Figures 1 & 2**). This sampling event was completed in accordance with the work plan and cost estimate addressed to Susan and Randall Blake, dated 16 January 2023. The work plan and cost estimate were approved by Mr. James Donaldson of the Vermont Department of Environmental Conservation (VT DEC) in the email dated 18 January 2023. The sampling event was completed in accordance with VT DEC guidelines.

Low concentrations of a few volatile organic compounds (VOCs) were detected in the indoor air samples during the February 2023 sampling event. None of the VT DEC Standards for Non-Residential Indoor Air were exceeded in any of the samples collected in February 2023; however, the Residential Indoor Air Standards for carbon tetrachloride, tetrachloroethene, ethylbenzene, and benzene were exceeded in the indoor air sample (IA-Bay) collected in the western garage bay. Also, dichlorodifluoromethane (Freon 12), carbon tetrachloride, benzene, and toluene were detected in the ambient air sample (IA-AA) at similar or slightly lower concentrations than in the indoor air sample. Comparison of the February 2023 analytical results (subslab and indoor air) with those from previous sampling events show a similar contaminant pattern with a decreasing trend.

The findings of this sampling event are summarized below:

- The subject property is a commercial parcel located in Georgia near Exit 18 of Interstate-89. An automotive service center has occupied the property since the late 1970s.
- The building is connected to a shared drinking water system and an on-site septic system.
- None of the VT DEC Indoor Air Standards for Non-Residential Indoor Air were exceeded in any of the samples; however, the Residential Indoor Air Standards for carbon tetrachloride, tetrachloroethene, ethylbenzene, and benzene were exceeded in the indoor air sample (IA-Bay). It should be noted that the concentrations of Freon 12, toluene, carbon tetrachloride and benzene in the indoor air sample were similar to those detected in the ambient air sample.

- Low concentrations of several petroleum related compounds were also detected in the indoor air sample collected on 7 February 2023; including benzene, toluene, ethylbenzene, m,p-xylenes, and o-xylenes.
- No off-site receptors appear to be threatened or impacted by the historic use of the property as an auto maintenance facility.
- Low concentrations of PCE may be present beneath the building; however, the threat to indoor air is considered to be low at this time.

The approximate sample locations are shown on **Figure 3** and the tabulated laboratory analytical results are included in **Tables 1, & 2.** Photographs obtained on the day of the sampling event are included in **Appendix B**. A copy of the VT DEC "Building Inventory /Assessment" form and Safety Data Sheet (SDS) are included in **Appendix C.** Barometric pressure information is included in **Appendix D** and a copy of the laboratory report is included in **Appendix E**.

Conceptual Site Model

Review of the results of the recent indoor air sampling in conjunction with the previous soil gas sampling data suggests the presence of a PCE vapor-phase plume beneath the on-site building. Low concentrations of PCE have also been identified in subsurface soil and groundwater samples; however, the extent of subsurface contamination has been adequately determined. No active on-site source of PCE contamination has been identified and the floor drain has been sealed. Available information also indicates that site conditions are favorable for natural attenuation and that no off-site sensitive receptors are impacted at this time. A copy of the updated Conceptual site model is included in **Attachment A**.

1.0 Introduction

Ross Environmental Associates, Inc. (***R.E.A.***) to complete an indoor air sampling at the property located at 1149 Ethan Allen Highway in Georgia, Vermont. The investigation was performed to address the request for an evaluation of the potential for vapor intrusion into the onsite building by Mr. James Donaldson of the VT DEC during an onsite meeting on 11 January 2023. The indoor air sampling was performed in accordance with the VT DEC approved work plan and cost estimate dated 16 January 2023.

1.1 Site Location and Setting

The Blake's Auto Service Center building is located on the west side of Ethan Allen Highway (AKA US Route 7) approximately 700 feet south of the I-89 Exit 18 (**Figure 1**). The building was cleaned prior to the sampling event and all oil & hazardous materials (OHM) were removed on 29 January 2023. Also, the door to the back office/utility room was sealed prior to the sampling event. An aboveground storage tank is located on the south side of the building in a three-sided attached shed. Two above grade hydraulic lifts are located in the western garage bays (# 3 & #4). The approximate AST location is shown on **Figure 3**. The surrounding buildings all utilize on-site septic systems and private on-site drinking water supply wells.

Drinking water for the subject property and several of the adjacent properties is provided by the Blake/RL Vallee Georgia Mobil drinking water system (WSID# VT0021231). One other public supply wells and eight private wells are shown on the VT ANR Natural Resource Atlas to be located within a 1,000-foot radius of the site. The nearest surface water body to the subject property is the Arrowhead Mountain Lake, which is located approximately 0.65 miles to the southeast. The approximate locations of nearby sensitive receptors are shown on **Figure 4**.

Native surficial materials in the vicinity of the site are mapped as the Champlain Sea deposits consisting of pebbly marine sand. Bedrock in the area is mapped as the Dunham Dolostone Formation (Cdu), which consists of dolostone, buff- and pink-mottled and massive, or light-gray, pinkish-gray-weathering, that is massive to poorly bedded of Lower Cambrian age.

Summary of Property Information	
Site Owner	Blake Living Trust
Site Occupant(s)	Blake's Auto Service Center
Date(s) of Ownership	Circa 1978 - present
Site Location/Legal Desc.	1149 Ethan Allen Highway - Georgia, VT
Parcel ID	117470000
Parcel size	±1.0 acres
Zoning	Commercial
County	Franklin
USGS Quadrangle	Milton, VT; 1:24,000; 1987
Latitude/Longitude	latitude 44° 41' 43.7" N, and longitude 73° 06' 32.7" W (NAD83)
NAICS Code	811100 – Auto repair shop
Site Database Listing	SMS Site # 2018-4815 (chlorinated solvent release associated with former floor drain)

1.2 Site History

The subject property is located at 1149 Ethan Allen Highway in Georgia, Vermont (Figures 1 & 2). The subject property is currently occupied by the Blake's Auto Service Center building, which has been an automotive maintenance shop since the late-1970s. Previous work completed on site is summarized in the following reports:

June 2019 Site Investigation – *Blake's Auto Service Center 1149 Ethan Allen Highway Georgia, Vermont SMS Site # 2018-4815.* Prepared for Yvonne Blake, Susan Blake, and Randall Blake. Prepared by The Verterre Group. Dated 28 June 2019.

July 2019 Groundwater Monitoring Report – *Blake's Auto Service Center 1149 Ethan Allen Highway Georgia, Vermont SMS Site # 2018-4815.* Prepared for Yvonne Blake, Susan Blake, and Randall Blake. Prepared by The Verterre Group. Dated 12 September 2019.

June 2020 Air Sampling Report – *Blake's Auto Service Center 1149 Ethan Allen Highway Georgia, Vermont SMS Site # 2018-4815.* Prepared for Yvonne Blake, Susan Blake, and Randall Blake. Prepared by The Verterre Group. Dated 26 February 2021.

The Verterre Group report dated 26 February 2021 states "Four rounds of ambient air sampling and sub-slab sampling has occurred at the property since 2018. The sub-slab results of SGP-2 indicate that TCE and PCE are consistently above the non-residential sub-slab standards; indicating that a source area is likely present near this point. The ambient air results indicated that PCE was above the indoor air standards for non-residential properties in 2018 and 2019. The results decreased to below the indoor air non-residential standard in 2020 and 2021 following the sealing of cracks by Mr. Blake with Sikaflex." The cracks and conduits in the garage floor were reportedly sealed by Mr. Blake in May 2020.

In January 2023, ***R.E.A***. attended an onsite meeting with Mr. James Donaldson (VT DEC project manager), Mr. & Mrs. Blake (Property owners), and Mr. Luke Wiley (Ruggiano Engineering) to discuss the site history and requirements for site closure. During the site meeting, Mr. Donaldson indicated that there were three general scenarios for site closure:

1. If the results for the proposed indoor air sample were below the residential and non-residential indoor air quality standards, site closure would be achieved with no additional sampling, and the site could be assigned "Sites Management Activities Completed (SMAC)".
2. If the results for the proposed indoor air sample were below the non-residential indoor air quality standards but above the residential standards, site closure with a deed restriction may be possible.
3. If the results for the proposed indoor air sample were above both the residential and non-residential indoor air quality standards, an Evaluation of Corrective Action Alternatives (ECAA) would be necessary to evaluate several possible corrective actions followed by preparation of a Corrective Action Plan (CAP) to outline the selected remedy.

Based on this information, ***R.E.A.*** developed a work plan for indoor air sampling, which was approved by Mr. Donaldson in an email dated 13 January 2023.

2.0 INDOOR AIR ASSESSMENT

The February 2023, an indoor air sample was collected directly adjacent to the sealed floor drain as requested by Mr. James Donaldson. ***R.E.A.*** personnel also completed a building assessment and inventory of material stored and used in the building. This facility has been used as an automotive maintenance shop since the late-1970s. No oil or hazardous materials (OHM) were present in the

building at the time of the sampling event; however, typical automotive products and petroleum have been used in this building since the late-1970s.

2.1 Building Assessment & Inventory

On 7 February 2023, ***R.E.A.*** personnel completed a building assessment and inventory of material stored and used in the building. Photographs of each room taken on the day of sample collection are included in **Appendix B** and a copy of the VT DEC "Building Inventory /Assessment" form is included in **Appendix C**.

The building is constructed on a concrete slab foundation. The building is well maintained and appears to have an average tightness. The floors in all four garage bays were pressure washed on 29 January 2023 and all equipment and automotive products were removed from the building, except for two above grade hydraulic lifts. The floors appeared to be in good condition and visible cracks were sealed. According to Mr. Randall Blake, the floors were sealed with Sikaflex® concrete sealant in May 2020. The building is heated with a hot-air heating system using fuel oil stored in a 275-gallon AST located in a three-sided enclosure on the exterior of the building. The heat was not on at the time of the sample collection.

During the initial site meeting, Mr. Blake provided information on two products commonly used at the facility - Berkebile Oil (2+2) Protection First Class and Pro-Source Automotive Brake Parts Cleaner Non-chlorinated. Copies of the Safety Data Sheets (SDSs) for these two products and the Sikaflex® concrete sealant are included in **Appendix** C.

Summary of On-Site Utilities	
Historical Tenants:	The subject property has been occupied by an automotive service center sine the late-1970s. The property was undeveloped prior to that time.
Historical Use:	Commercial
Number of Stories:	1
Construction Type:	- concrete slab foundation - brick structure
Heating/Ventilation:	- Fuel oil – 275-gallon AST in exterior shed with furnace air exchange in utility room - Fan vent in main garage (Bay 1 & 2)
Sewer Service:	On-site septic system
Water Supply:	Shared supply well
Other:	- overhead electric and telecom (public) - buried water and sewer lines

2.2 Indoor Air Sampling Results

On 7 February 2023, ***R.E.A.*** collected one indoor air sample (IA-BA) and one ambient air sample (IA-AA). Comparison of the results for indoor air samples collected in February 2021 to those for February 2023 (**Table 1**) show a very good correlation between contaminant pattern with a general decreasing trend. None of the VT DEC Indoor Air Standards for Non-Residential Indoor Air were exceeded in any of the samples collected in February 2023; however, the Residential Indoor Air Standards for carbon tetrachloride, tetrachloroethene, ethylbenzene, and benzene were exceeded in the indoor air (IA-Bay) collected in February 2023. It should be noted that the concentrations of Freon 12, carbon tetrachloride, benzene and toluene detected in the indoor air sample were similar to those detected in the ambient air sample (IA-AA). 1,1,2,2-tetrachloroethene was also detected in the ambient air sample collected outside the building (IA-AA) at 0.37 $\mu g/m^3$. Several other volatile petroleum compounds were detected above the method detection limits in the indoor air sample but not in the ambient air sample collected outside of the building. A summary of the air samples results for 7 February 2023 is included on **Table 2**.

PCE, and carbon tetrachloride were historically used as degreasing solvents and dichlorodifluoromethane (Freon 12) was reportedly used in vehicle air conditioning prior to 1994. Most of the other compounds detected in the ambient and indoor air samples are commonly associated paint and petroleum products. A summary of the compounds detected in indoor air along with common uses is included on **Table 4**.

The summa canisters were delivered under chain of custody by Fed Ex to Eurofins – Environmental Testing America in Folsom, California for laboratory analysis. The samples were received at the laboratory on 8 February 2023. Both of the samples were analyzed for the possible presence of VOCs in accordance with EPA Method TO-15 SIM (low level) in order to meet the reporting limits for the contaminants of concern at the site. A copy of the laboratory report is included in **Appendix E.**

2.3 Indoor Air Sampling Procedures

On 7 February 2023, ***R.E.A.*** personnel collected an indoor air samples using summa canister within the garage bay in the vicinity of the sealed floor drain (IA-Bay). One other sample (IA-AA) was collected outside the building envelope to evaluate the typical background concentrations of ambient air in the vicinity of the subject property. Approximate sample locations are shown on **Figure 3**. The indoor air samples were collected in 6-liter, stainless steel, individually certified, summa canisters with a laboratory calibrated regulator with a max flow rate of approximately 10 mls/min and sample duration of four (4) hours.

The barometric pressure and ambient temperature were recorded on the day of sample collection using a VanEssen Instruments Barro-diver datalogger and the subslab pressurization was measured using an InfilTec® digit micro-manometer. The temperature in the building was approximately 50° F and the outside temperature varied from around 15° F in the morning (8:00 AM) to about 35° F at the completion of sampling (12: 30 PM). A slight positive pressure was noted in the building. The heating system was not operating during the test period. Mr. Blake indicated the heat was shut off the night before and the door to the back room was sealed. Barometric pressure information is included in **Appendix D.**

After initiating the indoor air sampling, a photo-ionization detector (PID) was utilized to screen indoor air for the possible presence of VOCs. PID readings were all 0.0 ppmv in the building.

PID screening was performed using a factory-calibrated Ion-Science Tiger PID equipped with a 10.6 eV lamp. In addition, after completion of the indoor air sampling and after the summa canisters were sealed, PID readings and pressure measurements were obtained from the existing subslab vapor points.

Summary of Vapor Point Readings			
Subslab Vapor Point	**Pressure Reading (inches of water)**	**PID Reading (ppmv)**	**Time**
SGP-1	0.000-0.002	0.1	12:24
SGP -2	0.008 – 0.011	0.0	12:33
Other:	The building temperature was approximately 50° F. The heating system was off during the testing period.		

3.0 Quality Assurance /Quality Control

No trip blank or duplicate samples were collected for quality assurance/quality control (QA/QC) as requested by the VT DEC project manage and outlined in the approved work plan.

Several compounds were detected in the ambient air sample, collected outside the building, at concentrations ranging between 0.34 and 2.2 $\mu g/m^3$. Similar compounds were detected in the ambient air sample as those detected in the indoor air sample. The ambient air (IA-AA) sample results are included on **Table 2**.

4.0 Recommendations

Based on the most recent indoor air sampling results with no exceedance of the Non-residential indoor air standards, the Blake's Auto Service Center property may meet the criteria for site closure with a notice to the land records and/or land use restrictions. However, residual contamination remains in the area of the former floor drain beneath the building. Proper management of contaminated soil may be necessary if this area of the site is redeveloped.

1. Notify the VT DEC of the findings of this assessment and formally request that the site be considered for site closure.

2. The monitoring wells should abandonment in accordance with the VT DEC "Well Closure Guidance" and Water Supply Rule, Chapter 21, Section 12.3.5.
3. Another option would be to perform an ECCA to evaluate various options to support site closure without a notice to the land record and land use restrictions.

5.0 Limitations

The investigation report was prepared in accordance with the VT DEC Investigation and Remediation of Contaminated Properties Rule (2019), and current industry standards.

The work was undertaken to assess environmental conditions specifically on the subject property in accordance with generally accepted engineering and hydrogeological practices. No other warranty, express or implied, is made. Absolute assurance that any and all possible contamination at the site was identified cannot be provided.

The report conclusions are based, in part, on information provided by the client, their agents, or third parties, including state or local officials. ***R.E.A.*** assumes no responsibility for the accuracy and completeness of the information. Where visual observations are included in the report, they represent conditions at the time of the inspection, and may not be indicative of past or future site conditions.

6.0 Certification

"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 correct."

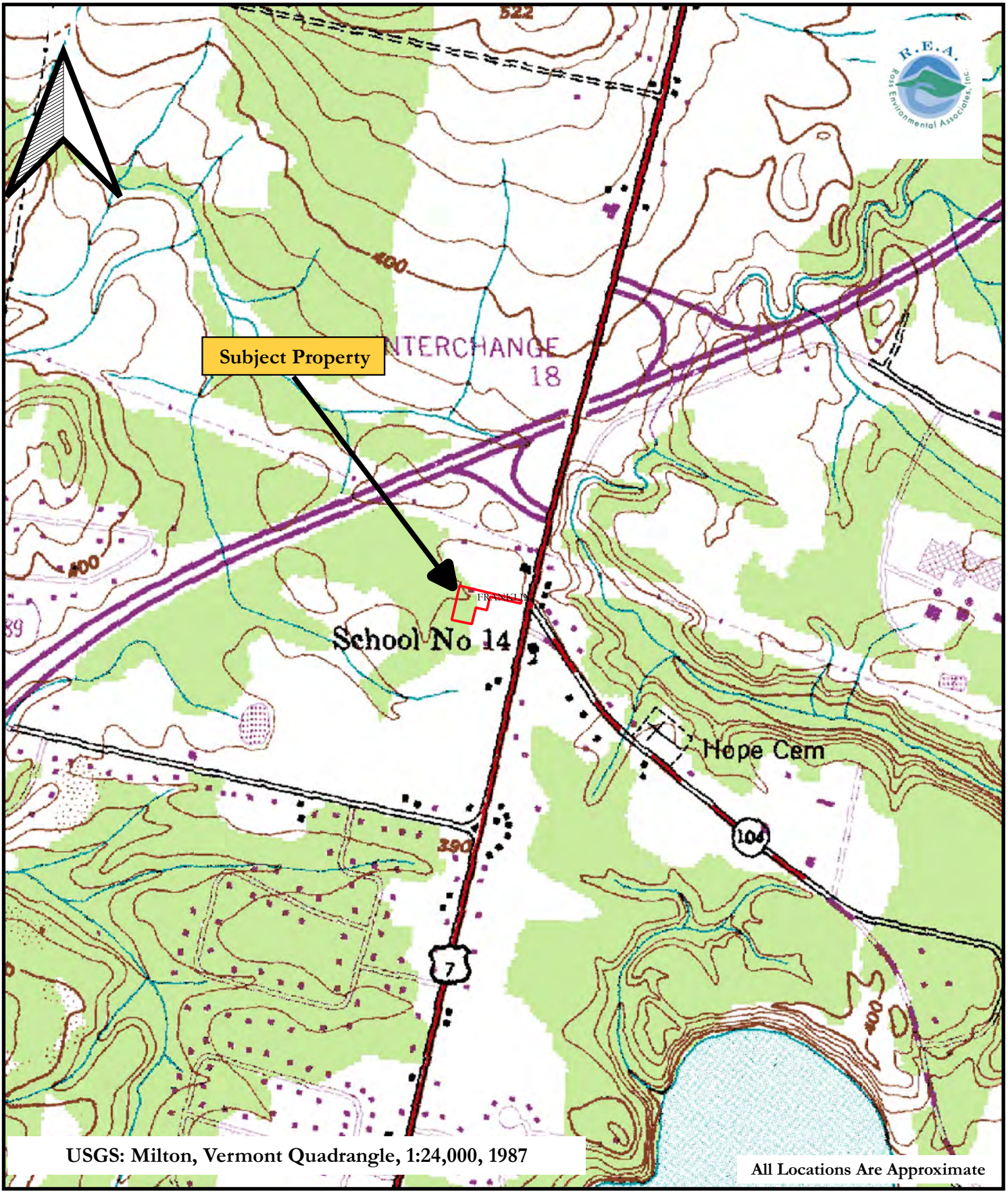
Ross Environmental Associates, Inc.



Robert J. Ross, CGWP
Principal Hydrogeologist

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FIGURES



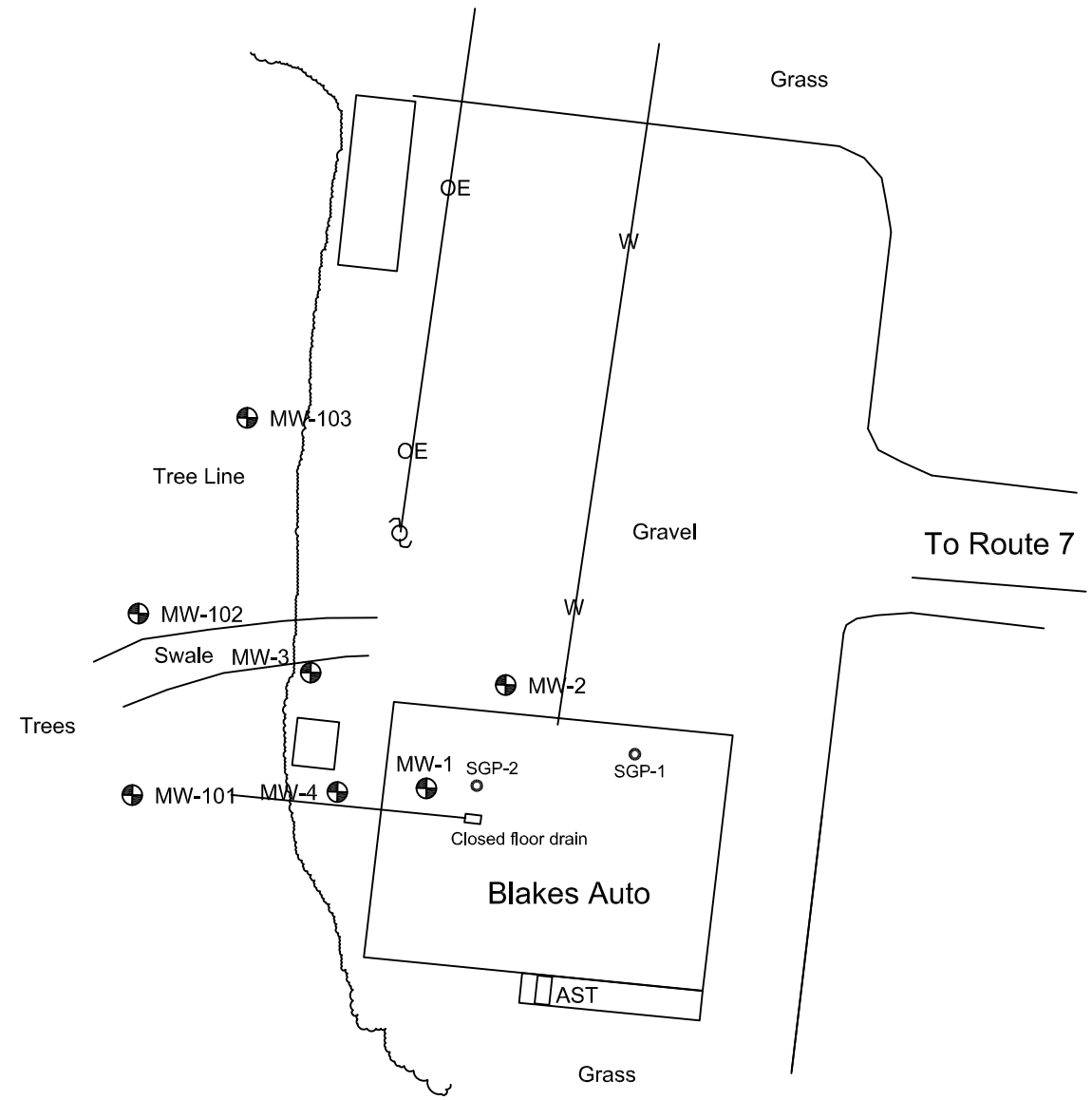
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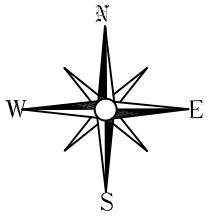
Site Coordinates: N 44° 41' 43.7" W 73°06' 32.7" (NAD 83)

Subject Property

SMS# 2018-4815

Figure 1
Site Location Map
Blake's Auto Service Center
1149 Ethan Allen Highway
Georgia, Vermont





LEGEND

- Groundwater monitoring well
- W — Approximate location of water line
- oe — Approximate location of Overhead electric line

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SCALE
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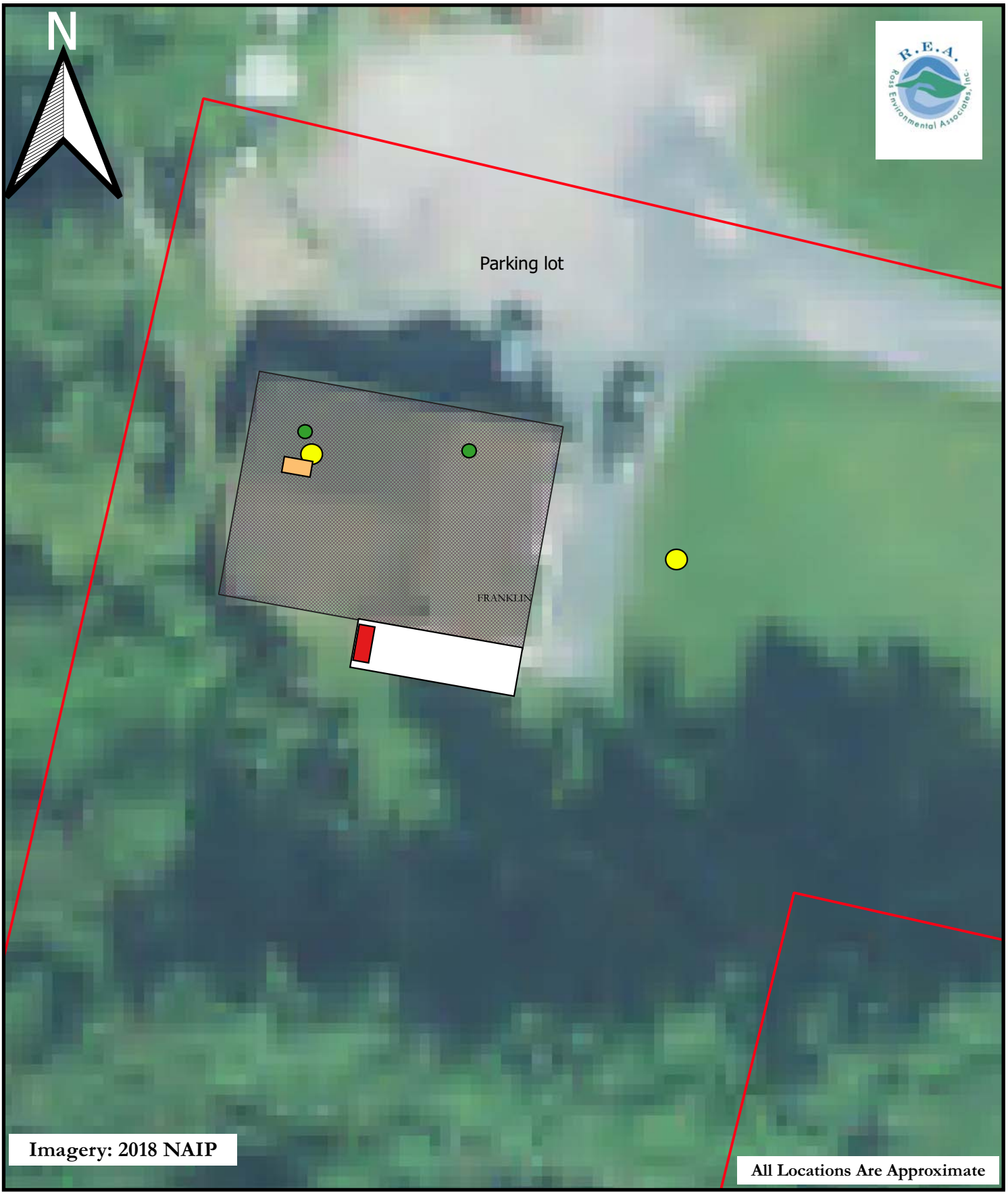
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Verterre Project #19002	
DRAWN BY:	SRC
CHECKED BY:	MR
APPROVED BY:	MR
DATE:	05/31/19
SCALE:	1" = 30'

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FIGURE 2
SITE PLAN

Blake's Auto
Georgia, Vermont



0 20 40 ft

Site Coordinates: N 44° 41' 43.7" W 73°06' 32.7" (NAD 83)

Subject Property

sealed floor drain

AST

Sample Location - 2/7/2023

Subslab vapor point

Figure 3
Site Features
Blake's Auto Service Center
1149 Ethan Allen Highway
Georgia, Vermont

TABLES

TABLE 1
COMPARISON OF ANALYTICAL RESULTS - INDOOR AIR SAMPLING

Blake's Auto Service Center
1149 Ethan Allen Highway
Georgia, Vermont

Analyte	Indoor - Residential Air (ug/m3)	Indoor - Non-residential Air (ug/m3)	KAS	Verterre			R.E.A.	
							IA-Bay	IA-AA
			10/18/2018	11/18/2019	6/24/2020	2/17/2021	2/7/2023	
Dichlorodifluoromethane (Freon 12)	---	---	**7.0**	<2.8	< 2.5	**2.6**	**3.1**	**2.2**
Tetrachloroethylene (Tetrachloroethene, PCE)	**0.63**	**5.11**	**7.8**	**6.6**	**2.8**	**2.6**	**1.6**	ND<0.19
Trichloroethylene (Trichloroethene, TCE)	**0.20**	**0.70**	< 0.19	<1.1	<1.1	<1.1	ND<0.14	ND<0.15
Carbon tetrachloride	**0.17**	**1.36**	---	---	---	---	**0.39**	**0.38**
Benzene	**0.13**	**1.05**	---	---	---	---	**0.70**	**0.44**
Ethylbenzene	**0.40**	**3.27**	---	---	---	---	**0.43**	ND<0.12
m,p-Xylenes	---	---	---	---	---	---	**1.80**	ND<0.25
o-Xylenes	---	---	---	---	---	---	**0.64**	ND<0.12
1,1,2,2-tetrachloroethene	---	---	---	---	---	---	ND<0.19	**0.37**
toluene	---	---	---	---	---	---	**1.1**	**0.34**

Notes:
All results reported as micrograms per cubic meter of air (ug/m^3)
VT DEC Indoor Air - IRULE Appendix A, 2019.
--- No established screening value for corresponding analyte.
Shaded Values are exceedences of the screening level for residential air.
All samples were collected using active low flow indoor air sampling procedures.

Laboratory Qualifiers:
Q: One or more quality control parameters failed for the compound
J: Mass value below limit of quantification, but above limit of detection, estimated mass value
E: Mass value exceeds upper calibration level, estimated mass value
ND Not detected above indicated detection limit.

TABLE 2
SUMMARY OF INDOOR AIR SAMPLING RESULTS

Blake's Auto Service Center
1149 Ethan Allen Highway
Georgia, Vermont
Monitoring Date: 7 February 2023

Analyte	Indoor - Residential Air (ug/m3)	Indoor - Non-residential Air (ug/m3)	IA-Bay	IA-AA (Ambient)
Dichlorodifluoromethane (Freon 12)	---	---	3.1	2.1
Trichloroethylene (Trichloroethene, TCE)	0.20	0.70	ND<0.14	ND<0.15
Tetrachloroethylene (Tetrachloroethene, PCE)	0.63	5.11	1.60	ND<0.19
Carbon tetrachloride	0.17	1.36	0.39	0.38
Benzene	0.13	1.05	0.70	0.44
Toluene	---	---	1.10	0.34
ethylbenzene	0.40	3.27	0.43	ND<0.12
m,p-Xylene	---	---	1.80	ND<0.25
o-Xylene	---	---	0.64	ND<0.12
1,1,2,2-tretrachloroethene	---	---	ND<0.19	0.37

Notes:
All results reported as micrograms per cubic meter of air (ug/m^3)
VT DEC Indoor Air - IRULE Appendix A, 2019.
--- No established screening value for corresponding analyte.
Shaded Values are exceedences of the screening level for residential air.
All samples were collected using active low flow indoor air sampling procedures.

Laboratory Qualifiers:
Q: One or more quality control parameters failed for the compound
J: Mass value below limit of quantification, but above limit of detection, estimated mass value
E: Mass value exceeds upper calibration level, estimated mass value
ND Not detected above indicated detection limit.

TABLE 3
Information on Chemicals Found During Indoor Air Testing

Blake's Auto Service Center
1149 Ethan Allen Highway
Georgia, Vermont

Analyte	CAS #	Synonyms	common uses and sources
Dichlorodifluoromethane	75-71-8	Freon-12	refrigerant and aerosol spray propellant
Trichloroethylene	79-01-6	Trichloroethene, TCE	industrial solvent, wood finshes, adhesives, paint & stain removers
Tetrachloroethylene	127-18-4	Tetrachloroethene, perchloroethylene, PCE, perc	dry-cleaning of fabrics, industrial solvent, degreasing solvent
1,1,2,2-tetrachloroethene	79-34-5	bonoform, cellon, or westron	solvent, wood stains and varnishes
Carbon tetrachloride	56-23-5	Freon-10, tetrachloromethane, Halon-14, carbon tet	refrigerant and aerosol spray propellant, solvent, cleansing agent in the dry cleaning industry
Ethylbenzene	100-41-4	Ethylbenzol; Phenylethane	component of gasoline, anti-knocking agent
Benzene	71-43-2		solvent, petroleum products, paints, detergents, thiners, cigarette smoke
Xylenes - m & p	1330-20-7	dimethylbenzene	component of gasoline and petroleum products, solvent
Toluene	108-88-3		petroleum products, paints, lacquers, explosives (TNT) and glues

ATTACHMENT A

Conceptual Site Model

The following Conceptual Site Model (CSM) was developed in accordance with § 35-302 of the Investigation and Remediation of Contaminated Properties Rule (2017) using data from previous investigations and updated to included site specific data collected during this investigation. The CSM includes a discussion of the possible source(s) and nature of contamination discovered on site, hydrogeologic setting of the Site and surrounding area, contaminant fate mechanisms and transport pathways, and potential routes of exposure to nearby ecological and human receptors, if any.

The subject property is located at 1149 Ethan Allen Highway in Georgia, Vermont. The subject property encompasses a ±1.0-acre parcel that accommodates a 2,000 square foot building with 4 garage bays, a parking lot to the north and open land to the east and south of the building. The on-site building occupies the northwestern portion of the parcel.

A.1 Geology and Hydrogeology

The subject property is located on a flat parcel that is surrounded by woodland and light commercial and residential developments. No significant geological features were observed during the site reconnaissance or noted on published information on or in the immediate vicinity of the subject property. The nearest surface water body to the subject property is the Arrowhead Mountain Lake, which is located approximately 0.65 miles to the southeast.

Native surficial materials in the vicinity of the site are mapped as the Champlain Sea deposits consisting of pebbly marine sand. Bedrock in the area is mapped as the Dunham Dolostone Formation (Cdu), which consists of dolostone, buff- and pink-mottled and massive, or light-gray, pinkish-gray-weathering, which is massive to poorly bedded of Lower Cambrian age. No bedrock outcrops were observed on site or on adjacent properties.

During an initial site investigation (ISI) performed by Verterre Group in June 2019, subsurface soils at the site were observed to be predominantly sand and silt overlying very dense silt. Groundwater was encountered within 1.0 feet bgs at the time of drilling. Each soil boring was advanced to approximately 10 feet bgs. Three monitoring wells were installed and the groundwater flow direction in the unconfined surficial aquifer was determined to be toward the west-southwest.

A.2 Release Mechanisms

Tetrachloroethene (PCE) contamination was discovered at the site in October 2018 during the collection of groundwater and subslab soil gas samples beneath the building. Available information indicates that soil, groundwater, and soil gas beneath the site have been impacted by as release to the former floor drain likely related to historic site operations. No upgradient or nearby sources of PCE were identified during the ISI and the recent operations on the property have not used materials containing PCE.

A.3 Nature of Contaminants and Distribution

Based on current information, the contaminant of concern (COC) at the Blake's Auto Service Center property is tetrachloroethene (AKA - perchloroethene, perc or PCE). PCE is a common degreasing solvent often associated with historic automotive maintenance operations. In addition, dichlorodifluoromethane was also detected at low concentrations in groundwater beneath the site. Dichlorodifluoromethane was reportedly used in vehicle air conditioning prior to 1994.

Review of the results of the recent indoor air sampling in conjunction with the previous soil gas sampling data suggests the presence of a PCE vapor-phase plume beneath the on-site building. Low concentrations of PCE have also been identified in a subsurface soil sample collected in June 2019 and groundwater samples collected in June 2019 and June 2021.

A.4 Sensitive Receptor Evaluation

Based on the current CSM, potential exposure pathways to human and/or ecological receptors are evaluated below. The Vermont Agency of Natural Resources Atlas (NRA) utilized to search for potential sensitive receptors within 0.5-mile of the Site.

A.4.1 Soil

Available information indicates that in soil beneath the site has been impacted by low concentrations of PCE that is likely related to a release to the former floor drain. Low concentrations of tetrachloroethene was detected in the subsurface soil collected from SB-3 during the June 2019 assessment; however, no Vermont Soil Screening Values (SSVs) were exceeded. No other VOCs were detected above the laboratory method detection limits in the soil samples collected on site.

A.4.2 Soil Vapor

One building is located on the subject property, which has been occupied by the Blake's Auto Service Center since the late 1970s. The eastern side of building (Bays 1 & 2) was originally constructed in the late-1970s and with an addition of two bays (Bays 3 & 4) in 1988. The building is well maintained and appears to have an average tightness. The floors in all four garage bays were pressure washed on 29 January 2023 and all equipment and automotive products were removed from the building, except for two above grade hydraulic lifts. The building currently sits on an at-grade slab foundation which appeared to be in good condition with visible sealed cracks throughout. Mr. Blake reportedly sealed the cracks with Sikaflex® concrete sealant in May 2020.

Previously, subslab soil gas samples were collected from two points in October 2018, November 2019, June 2020, and February 2021. Tetrachloroethylene (PCE) and dichloro-difluoromethane were detected in both sample points during all four sampling events. TCE was detected in the SGP-2 sample point during all four sampling events and in the SGP-1 sample point in October 2018. The non-residential subslab soil gas vapor intrusion standards for PCE and TCE were exceeded in the SGP-2 sample point during all four sampling events. No other non-residential subslab soil gas vapor intrusion standards exceeded except for PCE in the SGP-1 sample collected in October 2018.

The previous soil gas and indoor air data identified the presence of a PCE vapor-phase plume beneath the on-site building. The primary risk of exposure to VOCs in the soil gas is via intrusion of the soil gas into building interiors. Previous indoor air sampling data indicates that a potential for vapor intrusion condition does exist for the on-site building and that a completed pathway between soil vapor and indoor air likely exists.

A.4.3 Indoor Air

Previously, indoor air samples were collected in October 2018, November 2019, June 2020, and February 2021 to evaluate possible impact to indoor air in the building. Tetrachloroethylene (PCE) was detected in the indoor air samples at concentrations ranging

between 2.6 and 7.8 micrograms per cubic meter ($\mu g/m^3$). The VT DEC Vapor Intrusion (VI) Standards for PCE in non-residential air was exceeded in the indoor samples collected in 2018 and 2019 but was not exceeded in any of the samples collected in 2020 or 2021. Low concentrations of dichlorodifluoromethane were also detected during the October 2018 and February 2021 sampling events. A general decreasing trend was noted between 2018 and 2021, which may be due to the cracks in the floor being sealed in May 2020.

None of the VT DEC Indoor Air Standards for Non-Residential Indoor Air were exceeded in the samples collected in February 2023; however, the Residential Indoor Air Standards for PCE, ethylbenzene, benzene and carbon tetrachloride were exceeded. Based on available information, the threat to the indoor air is considered to be moderate to low.

A.4.4 Groundwater

Based on available information, the underlying groundwater formation does not appear to have been significantly impacted by historic or recent operations at the site. Low concentrations of PCE and dichlorodifluoromethane were detected in the groundwater samples collected during the June 2019 sampling event. The Vermont Groundwater Enforcement Standard (VGES) for PCE was exceeded in one of the samples (MW-3) collected during the June 2019 and July 2019 assessments. In addition, dichlorodifluoromethane was also detected at low concentrations during the groundwater sampling events in June 2019 and July 2019 and low concentrations of TCE were detected during the July 2019 monitoring event.

Drinking water for the subject property and several of the adjacent properties is provided by the Blake/RL Vallee Georgia Mobil drinking water system (WSID# VT0021231). One other public supply well and eight private wells are shown on the VT ANR Natural Resource Atlas to be located within a 1,000-foot radius of the site. In June 2019, no VOCs were detected in the water samples collected from two of the nearby supply wells. Based on this information, the threat to the nearby drinking water supply is considered to be very low and no completed migration pathway between on-site contamination and the nearby drinking water supply wells has been identified to date.

A.4.5 Surface Water

The nearest surface water body to the subject property is the Arrowhead Mountain Lake, which is located approximately 0.65 miles to the southeast. No wetlands are located on or adjacent to the subject property based on review of the VT ANR Natural Resource Atlas (NRA). Although low concentrations of groundwater contamination were discovered on site; no completed migration pathway was identified between on-site contamination and nearby surface water bodies to date.

Based on available information, the threat to the Arrowhead Mountain Lake is considered to be very low.

A.4.6 Utility Corridors

Several private underground utilities are located on site including water and sewer lines. The buried sewer line reportedly exits the western side of the building to the on-site septic system. The water line extends to the north-northeast to the shared well on property located at 1139

Ethan Allen Highway (WSID # VT0021231). No known leaks or issues with this water or sewer lines have been reported or identified to date.

Based on available information, no significant threat to underground utilities located on-site have been identified to date.

A4.7 Ecological Receptors

Using the VT ANR Natural Resource Atlas, ***R.E.A.*** determined that no ecological receptors are located within 1,000 feet of the Site, except for two habitat blocks. One habitat block is located on the adjoining property to the west. This habitat block has a final weighted score of 4, which is considered a relatively low priority. The other habitat block is located approximately 750 feet to the northeast of the subject property. This habitat block has a final weighted score of 5 with a threat weighted score of 4.

Based on the information, the risk of an impact to this ecological receptor is expected to be very low.

ATTACHMENT B



Photo 1. Site overview. North side of building. View toward the southwest.



Photo 2. Site overview. West side of building. View toward the south.



Photo 3. Site overview. East side of building. View toward the southwest.

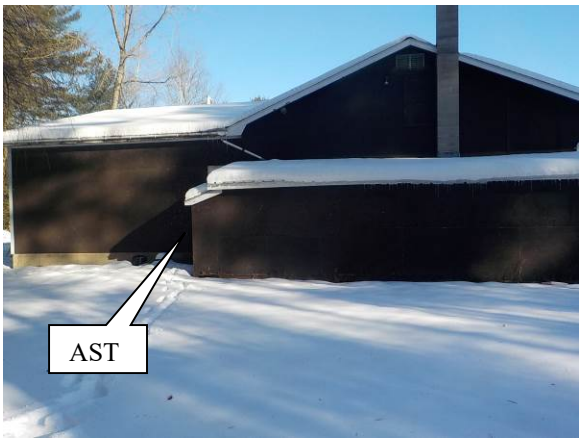


Photo 4. Site overview. South side of building. View toward the north.



Photo 5. 275-gallon AST on the south side of the building. View toward the east.



Photo 6. Interior of garage – Bays 3 & 4. Indoor air sample location (IA-Bay)



Photo 7. East side of building – location of ambient air sample. (IA-AA).

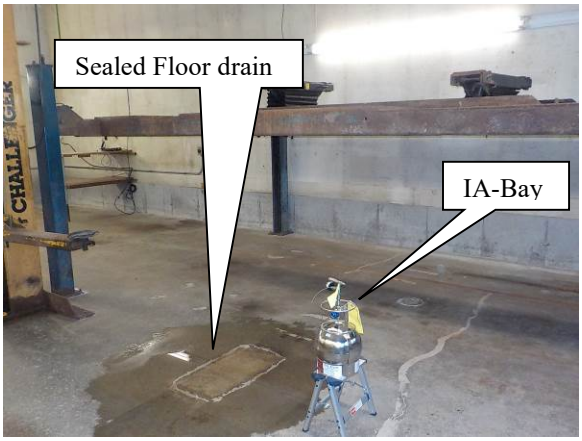


Photo 8. Interior of garage – Bays 3 & 4. Indoor air sample location (IA-Bay).



Photo 9. Condition of floor – Bays 3 & 4. (photo from 11 January 2023)

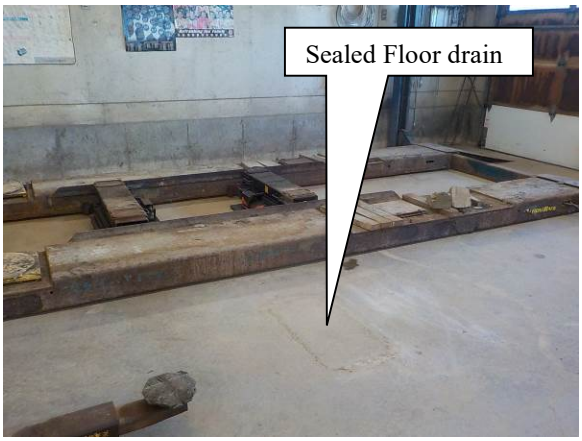


Photo 10. Condition of floor – Bays 3 & 4 (photo from 11 January 2023).



Photo 11. Interior of garage – Bays 1 & 2 (eastern side of building).


Photo 12. Interior of garage – Bays 1 & 2 (south wall).



Photo 13. Interior of garage – Bays 3 & 4. (Back wall).



Photo 14. Condition of wall – Bays 3 & 4 (west wall).



Photo 15. Condition of wall – Bays 1 & 2 (east wall).



Photo 16. Berkebile Oil (2+2) Protection First Class (photo from 11 January 2023)



Photo 17. Pro-Source Automotive Brake Parts Cleaner Non-chlorinated (photo from 11 January 2023).

ATTACHMENT C

2023-001

INITIAL BUILDING ASSESSMENT & INVENTORY

A survey of the presence of possible indoor air contaminant sources (dry cleaned clothing, etc.) needs to be conducted prior to indoor air sampling. While this may not be possible in all buildings being assessed, if at all possible, this survey using this document should be completed at least 48 hours prior to sampling the indoor air.

This document will be used during all future indoor air sampling events to help document changes in the indoor conditions and any changes that might affect indoor air quality.

Preparer's Name: Bob Ross Date/Time Prepared 2/7/23 0820

Preparer's Affiliation: REA Phone No. 802 253-4280

Purpose of Investigation Indoor Air Sample
- Former floor drain issue -

OCCUPANT:

Interviewed: Y/N

Last Name: Blake First Name: Randy

Address: Ethan Allen Hwy
Georgia, VT

Home/Cell Phone: 802 999-2886 Office Phone:

Other Contact Information Susan Blake

# of Occupants/persons at this location 2 Ages of Occupants:

OWNER or LANDLORD (Check if same as occupant : ✓)

Interviewed: Y/N

Last Name: First Name:

Address:

OWNER or LANDLORD (continued)

Home/Cell Phone: _____ Office Phone: _____

Other Contact Information _____

BUILDING CHARACTERISTICS:

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi Use
Industrial	Religious	Other: 4 Bay Auto Garage

Year Constructed: 1988 - 1978 (east)
(2 Bays)

If Property is residential (Circle type)

Ranch	2-Family	3-Family	Farmhouse
Raised Ranch	Split Level	Colonial	Historic
Cape Cod	Contemporary	Mobile Home	Modular
Log Home	Apartment House	Townhouse/Condos	

Other: _____

If multiple unit, how many? _____

If Property is Commercial:

Business Type/s Auto Repair / maintenance

Does it include residences? Y (N) If yes, how many: _____

If Property is Industrial:

What type of Industry? _____

Chemicals used on site: _____

Other Characteristics:

Number of Floors 1 Is building insulated? (Yes) No Unknown

Insulation type if known: Fiberglass matting & Blown in ceiling

Building Age: 45 ± yrs Does building appear air tight? Tight (Average) Not Tight

Are there any obvious airflow patterns in building? Yes (No) If yes, where: _____

Notes:

In early 1980's some Body work was performed on site

Floor drain Sealed –

Cracks in floor Sealed –

RESIDENTIAL BASEMENT AND CONSTURCTION CHARACTERISTICS

(Circle those that apply)

Above grade construction:	wood frame	concrete	stone	brick _____
Basement type:	full	crawlspace	none: slab	other _____
Basement floor:	concrete	dirt	stone	other _____
Basement floor:	uncovered	covered	covered with _____	
Concrete floor:	unsealed	sealed	sealed with _____	
Foundation walls:	poured	block	stone	other _____
Foundation walls:	unsealed	sealed	sealed with _____	
The basement is:	wet	damp	dry	moldy
The basement is:	finished	unfinished	partially finished	

Is a sump or sumps present? Y / N How many? _____

Is there water in the sump or sumps? Y / N Are Sump/Sumps actively pumping? Y/N NA

Where do sumps discharge? _____

What is the condition of the slab? V. Good Cracks Sealed Anchor pots

What is the condition of the walls? Good

(If possible, the condition of the walls and slab should be photo documented)

If there is a basement, what is the approximate lowest depth below grade? _____ (feet) none

Identify potential soil vapor entry points and approximate size (e.g. cracks, utility ports, drains)

_____

Cracks in floor Sealed

No obvious open cracks @ time of site visit,

Notes: _____

_____

_____

_____

HEATING, VENTING and AIR CONDITIONING

(Circle those that apply)

Type of heating system(s) used in the building (Circle all that apply)

(Hot air circulation)	Heat pump	Hot water baseboard
Hot water radiators	Steam radiators	Space heaters
Radiant floor	Electric baseboard	Wood/Coal stove
Vented Kerosene Heater	Unvented Kerosene Heater	
Outdoor wood boiler	Other_____	

Describe heating system: 2 heating vents - ceiling AST in Back Room

If more than one heating system is used (e.g. wood stove & oil fired furnace), provide an estimate of what percent of total heating demand is supplied by each heating system: _____

Primary Fuel Type:

Natural Gas	(Fuel Oil)	Kerosene
Electric	Propane	Solar
Wood	Coal	
Other _____		

Is there an outdoor supplied air vent/fan to the furnace? (Yes) No

Is there a whole house fan? Yes (No)

The Boiler/Furnace is located: Basement (Main Floor) Outdoors Other _____

Is there fuel storage in the basement or garage Y(N)

If so, describe: — Back storage Room - outside

Look for abandoned fuel lines from previous tanks, underground or aboveground.

Describe any: —

Is a radon mitigation system installed and operating? Yes (No)

Is there air conditioning? Central Air Window Units (None)

Locate exhaust fans (cooking, bathroom, etc.: _____

Notes_____

OCCUPANCY

NA

Is basement/lowest level occupied? Full-time Occasionally Seldom Never

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage)

Basement: _____

_____

_____

1st Floor _____

_____

_____

2nd Floor _____

_____

_____

3rd Floor _____

_____

_____

Other: _____

_____

_____

FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

Bldg is a 4 Bay Garage -

a. Is there an attached garage? Yes No

b. Does the garage have a separate heating unit? Yes No NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car) Yes No NA Specify: _____

d. Has the building ever had a fire? Yes (No) Unknown When_____

e. Is a kerosene or unvented gas space heater present? Yes (No) Where_____

f. Is there a workshop or hobby/craft area? Yes No Where & Type _____

NA

g. Is there smoking in the building? Yes (No)

h. Has painting/staining been done in the last 6 months? Yes (No)

Where & When? _____

If so: what type (latex, oil, etc.):_____

i. Is there new carpet, drapes or other textiles? Yes (No)

What Type, Where & When: _____

j: Have carpets, drapes or other textiles been professionally cleaned recently: Yes No

If so, how? _____

k. Have air fresheners been used recently? Yes (No)

When & Type? _____

l. Is there a kitchen exhaust fan? Yes No NA

If yes, flow rate (if known) and where vented? _____

m. Is there a bathroom exhaust fan? Yes (No)

If yes, where vented? _____

n. Is there a clothes dryer? Yes (No)

If yes, is it vented outside? Yes No

o. Has there been an interior or exterior or pesticide application? Yes (No)

If yes, when & type? _____

Are there any odors in the building Yes No

If yes, please describe slight Petroleum

floor cleaned about 1 week ago All products & Equipment Removed

FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

Do any of the building occupants use solvents at work? (Yes) No

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist, dry cleaning)

If yes, what types? Auto mechanic

If yes, are their clothes washed at work? Yes (No)

Do they wear a uniform at work that they do not bring home? Yes (No)

Do any of the occupants work at a dry cleaners? Yes (No)

Do any of the occupants dry clean their clothes? (Circle appropriate response)

Yes, use dry cleaner weekly NO

Yes, use dry cleaners infrequently (monthly or less)

Indoor Contaminant Sources (if Indoor Air sampling is occurring)

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor and room). If possible, any potential sources should be removed from the building 48 hours prior to the sampling event. Please note whether or not the potential source was removed. Any ventilation implemented after removal of the items should be completed at least 24 hours prior to the commencement of the indoor air sampling event. Use either of the two tables below as appropriate.

All products Removed about 1 week ago

Indoor Contaminant Sources

Potential Sources	Description/Location(s)	Removed Yes / No/ NA
Gasoline storage cans		✓
Gas-powered equipment		✓
Kerosene storage cans or lanterns	—	
Paints / thinners / strippers	—	
Cleaning solvents		✓
Oven cleaners	—	
Carpet / upholstery cleaners	—	
Other house cleaning products that might contain contaminants of concern		
Moth balls	—	
Polishes / waxes	—	
Insecticides	—	
Furniture / floor polish	—	
Nail polish / polish remover	—	
Hairspray	—	
Air fresheners	—	
Cologne / perfume	—	
Fuel tank (inside building)	Yes Back room outside Heat off since 7pm	NA
Wood stove or fireplace	—	NA
New furniture / upholstery	—	
New carpeting / flooring	—	NA
Hobbies - glues, paints, etc.	—	

List specific products found that have the potential to affect indoor air quality (if indoor air samples are to be collected). Do not open a container to determine the contents or to take a field instrument reading. If field measurements are collected they will be from around the closed container only. Photo document and describe unlabeled containers and fixtures.

All products Removed & floors cleaned about 1 week ago

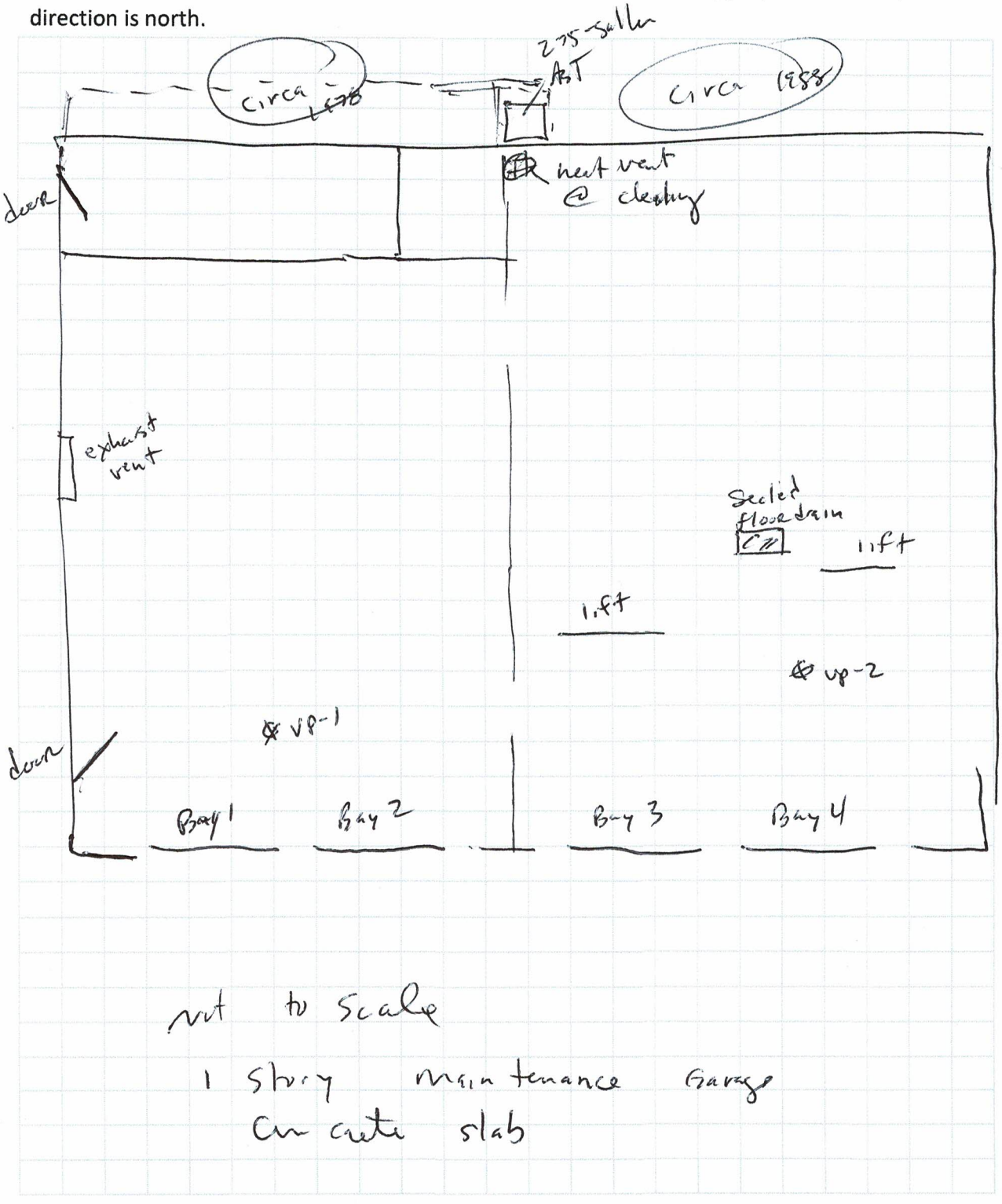
Location	Product Description	Size (units)	Chemical Ingredients	Field Instrument Reading (units)	Removed? Y/N
Back room outside	fuel oil	275-gallon	—	—	N

* Describe the condition of the product containers as Unopened (UO), Used (U), or Deteriorated (D)

** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible

FLOOR PLANS

Basement Layout: Identify furnace and water heater, chemical storage, utility entrances, major cracks in floors/walls, sumps, chimney, etc., and sample locations if appropriate. Identify which direction is north.



First Floor Layout: Identify furnace and water heater, chemical storage, vent locations, preliminary screening locations, and sample locations. Also identify which direction is north.

PRO-SOURCE NON CHLORINATED BRAKE CLEANER

BD1019-1 45645991

SAFETY DATA SHEET

OSHA HCS (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Chemical Name	Mixture
CAS No.	Mixture
Trade Name	PRO-SOURCENON CHLORINATED BRAKE CLEANER ,FOR INDUSTRIAL USE ONLY
Product Code	BD1019-1 45645991

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Automotive Care Product
Uses Advised Against	None
Company Identification	Manufactured for:/Distributed by: Class C Solutions Group, a business of MSC Industrial Supply Co. 525 Harbour Place Drive Davidson, North Carolina 28036 2595 Skymark Avenue, Suite 202 Mississauga, ON L4W 4L5 Canada
Telephone	866-438-6767

Emergency telephone number

Emergency Phone No.	**Transportation Emergency: 760 476 3962 (Access code 335546).** **Toll Free number: 1 866 519 4752 (Access code 335546).**

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200)	Flam. Aerosol 1; Compressed dissolved gas; STOT SE 3; Skin Irrit. 2; Eye Irrit. 2; Asp. Tox. 1

Label elements

Hazard Symbol



Signal word(s)

DANGER

Hazard Statement(s)

Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
May cause drowsiness or dizziness.
May cause respiratory irritation.
Causes skin irritation. Causes serious eye irritation.
May be fatal if swallowed and enters airways.

Precautionary Statement(s)	Use only outdoors or in a well-ventilated area. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe mist/vapours/spray. Wash hands and exposed skin after use. Protect from sunlight and do not expose to temperatures exceeding 50 ºC/122 ºF. Keep out of reach of children.
Other hazards	Harmful to aquatic life.
Additional Information	Contains: residual Toluene (CAS No. 108-88-3) ~ ≤ 0.13%. Studies in animals have shown that repeated exposures to toluene produce adverse reproductive effects. However, in similar animal studies, mixed xylenes containing up to 2.4% residual toluene did not result in reproductive or developmental toxicity. As such, this product has not been classified as a reproductive toxicant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	% wt. *	CAS No.	Hazard classification
Acetone	45 - 55	67-64-1	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336
Xylene	5-10	1330-20-7	Flam. Liq. 3; H226 Eye Irrit. 2; H320 Skin Irrit. 2; H315 Asp. Tox. 1; H304 STOT SE 3; H335
Heptane, branched, cyclic and linear	30-40	426260-76-6	Flam. Liq. 2; H225 Asp. Tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3; H336 Aquatic Acute 2; H401 Aquatic Chronic 3; H412
Carbon dioxide	5 - 10	124-38-9	Compressed dissolved gas

Additional Information - Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below.**:**

- Ethylbenzene (CAS No. 100-41-4) ~ ≤ 5%
- Toluene (CAS No. 108-88-3) ~ ≤ 0.13%

* The exact percentage withheld as a trade secret in accordance with 29 CFR 1910.1200.

SECTION 4: FIRST AID MEASURES



Description of first aid measures

Inhalation	Move person to fresh air. If breathing is labored, administer oxygen. If symptoms develop, obtain medical attention.

Skin Contact	Wash affected skin with soap and water. If symptoms develop, obtain medical attention. Take off contaminated clothing and wash it before reuse. Get medical advice/attention if you feel unwell.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Do not give anything by mouth to an unconscious person. Do NOT induce vomiting. Seek medical treatment.
Most important symptoms and effects, both acute and delayed	Aspiration of droplets may cause pulmonary oedema. May cause drowsiness and dizziness.
Indication of any immediate medical attention and special treatment needed	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

-Suitable Extinguishing Media	Extinguish with carbon dioxide, dry chemical, foam or water spray.
-Unsuitable Extinguishing Media	Do not use water jet.
Special hazards arising from the substance or mixture	Highly flammable vapor (flash point below 23°C).
Advice for fire-fighters	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Keep containers cool by spraying with water if exposed to fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Take precautionary measures against static discharges. Avoid contact with skin and eyes. Avoid breathing vapors.
Environmental precautions	Prevent liquid entering sewers, basements and work pits.
Methods and material for containment and cleaning up	Cover spills with inert absorbent material. Transfer to a container for disposal or recovery.
Reference to other sections	None
Additional Information	None

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Avoid contact with skin and eyes. Use product in a well-ventilated area only.

Conditions for safe storage, including any incompatibilities

-Storage temperature	Store locked up. Keep in a cool, well ventilated place. Protect from sunlight. Store at temperatures not exceeding 50 °C / 122 °F. Keep container tightly closed.
-Incompatible materials	This product should be stored away from sources of strong heat or oxidizing chemicals.
Specific end use(s)	Automotive Care Product

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE.	CAS No.	(8hr TWA)		(STEL)		Note:
		PEL (OSHA)	TLV (ACGIH)	PEL (OSHA)	TLV (ACGIH)	
Acetone	67-64-1	1000 ppm	500 ppm	------	750 ppm	^NIC
Toluene	108-88-3	200 ppm	20 ppm	300 ppm*	------	*10-min. Ceiling
Xylene	1330-20-7	100 ppm	100 ppm	------	150 ppm	------
Ethylbenzene	100-41-4	100 ppm	20 ppm	------	------	------
Heptane, branched, cylic and linear	426260-76-6	500 ppm**	1500 mg/m^3	-----	-----	**n-heptane
Carbon dioxide	124-38-9	------	5000 ppm	------	30,000 ppm	------

^NIC = Notice of Intended Changes (ACGIH®);

Recommended monitoring method NIOSH 1300 (Ketones I); NIOSH 1500 (hydrocarbons, B.P. 36 - 126 ºC); NIOSH 1501 (Hydrocarbons, Aromatic)

Exposure controls

Appropriate engineering controls Provide adequate ventilation to ensure that the occupational exposure limit is not exceeded.

Personal protection equipment

Eye/face protection — Wear protective eyewear (goggles, face shield, or safety glasses).



Skin protection (Hand protection/ Other) — Wear suitable gloves if prolonged skin contact is likely (Viton®/Butyl rubber). Check with protective equipment manufacturer's data.



Respiratory protection — Normally no personal respiratory protection is necessary. In case of insufficient ventilation, wear suitable respiratory equipment.



Thermal hazards — Not normally required. Use gloves with insulation for thermal protection, when needed.

Environmental Exposure Controls None known

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Aerosol Spray
Color.	Colorless
Odor	Acetone-like
Odor Threshold (ppm)	Not available
pH (Value)	Not available
Melting Point (°C) / Freezing Point (°C)	Not available
Boiling point/boiling range (°C):	56 (Acetone)
Flash Point (°C)	-17 (Acetone)
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable
Explosive Limit Ranges	2.5% - 12.8% v/v (Acetone)
Vapor pressure (Pascal)	2.4 x 10^4 (Acetone)
Vapor Density (Air=1)	Not available
Density (g/ml)	Not available

Solubility (Water)	Not available
Solubility (Other)	Not available
Partition Coefficient (n-Octanol/water)	Not available
Auto Ignition Point (°C)	465 (Acetone)
Decomposition Temperature (°C)	Not available
Kinematic Viscosity @ 20 °C	<0.9 mm2/s (Xylene)
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

Other information **VOC:** 44%

SECTION 10: STABILITY AND REACTIVITY

Reactivity Stable under normal conditions.
Chemical stability Stable.
Possibility of hazardous reactions None anticipated.
Conditions to avoid Avoid contact with heat and ignition sources.

Incompatible materials Strong oxidizing agents. Reducing agents. Acids. Bases. Chlorinated compounds. Aldehydes. Acetone may form explosive mixtures in contact with chromic anhydride, chromyl alcohol, hexachloromelamine, hydrogen peroxide,permonosulfuric acid, potassium tertbutoxide and thioglycol.

Hazardous decomposition product(s) Carbon monoxide, Carbon dioxide, Acrid smoke

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation**,** Skin Contact**,** Eye Contact

Information on toxicological effects

Acetone (CAS No. 67-64-1)

Acute toxicity Oral LD50 = 5800 mg/kg (rat)
Dermal LD50 >15800 mg/kg (rabbit)
Inhalation LC50 76 mg/L (4 hour(s)) (rat) - Vapours may cause drowsiness and dizziness.

Irritation / Corrosivity Causes serious eye irritation. Repeated exposure may cause skin dryness or cracking.

Sensitisation It is not a skin sensitiser.

Repeated dose toxicity Oral NOAEL = 500 mg/kg/day (rat) (90-days)
Inhalation NOAEC ≥ 3.515 mg/L (rat), Vapour

Carcinogenicity It is unlikely to present a carcinogenic hazard to man.

NTP	IARC	ACGIH	OSHA	NIOSH
No.	No.	No.	No.	No.

Mutagenicity Negative
Toxicity for reproduction Negative
Other information None known.

Xylenes (CAS No.1330-20-7)

Acute toxicity Oral LD50 = 3520 mg/kg (rat)
Dermal LD50 >5000 mg/kg (rabbit)
Inhalation LC50 = 27.6 mg/L (4 hour(s)) (rat) - Vapours may cause drowsiness and dizziness. May cause respiratory irritation.

Irritation / Corrosivity Causes eye irritation. Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Sensitisation It is not a skin sensitiser.

Repeated dose toxicity Oral NOAEL = 900 mg/kg/day (rat) (90-days)
Inhalation NOAEL ≥ 19,000 ppm (rat)

Carcinogenicity It is unlikely to present a carcinogenic hazard to man.

NTP	IARC	ACGIH	OSHA	NIOSH
No.	No.	No.	No.	No.

Mutagenicity Negative

Toxicity for reproduction Negative

Other information Contains: residual Toluene (CAS No. 108-88-3) ~ ≤ 0.13%. Studies in animals have shown that repeated exposures to toluene produce adverse reproductive effects. However, in similar animal studies, mixed xylenes containing up to 2.4% residual toluene did not result in reproductive or developmental toxicity. As such, this product has not been classified as a reproductive toxicant.

Heptane, branched, cylic and linear (CAS# 426260-76-6) - By analogy with similar materials:

Acute toxicity Oral: LD50 >5 g/kg-bw
Dermal: LD50 >2 g/kg-bw
Inhalation: LC50 = 65 - 103 mg/L (Vapor), 4-hr. rat
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.

Irritation/Corrosivity Causes skin irritation. Repeated exposure may cause skin dryness or cracking. May cause eye irritation.

Sensitization It is not a skin sensitizer.

Repeated dose toxicity NOAEC: 12350 mg/m3 (2 yr, inhal., rat, Systemic effects)
LOAEC: 1650 mg/m3 (2 hr, inhal., rat, CNS effects)
May cause drowsiness or dizziness.

Carcinogenicity No data. It is unlikely to present a carcinogenic hazard to man.

NTP	IARC	ACGIH	OSHA	NIOSH
No.	No.	No.	No.	No.

Mutagenicity There is no evidence of mutagenic potential.
Reproductive toxicity Not available

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Heptane, branched, cylic and linear (CAS# 426260-76-6) - By analogy with similar materials:

Short term
LL50 (96 hour): >13.4 mg/L (*Oncorhynchus mykiss*)
EL50 (48 hour): 3 mg/l (*Daphnia magna,* mobility*)*
EC50 (96 hour): 13 mg/l (*Pseudokirchnerella subcapitata*)

Long Term
NOELR (28 days) 1.5 mg/l *(Fish*) QSAR
LOEC (21 days): 0.32 mg/l (*Daphnia magna*)
NOEL (96 hour) 6.3 mg/l (*Algae)*

Acetone (CAS No. 67-64-1):

Short term
LC50 (96 hour): 5,540 mg/l (Rainbow Trout (*Oncorhynchus mykiss*))
LC50 (96 hour): 8,300 mg/l (Bluegill Sunfish (*Lepomis macrochirus*))
LC50 (48 hour(s)): 12,600 – 12,700 mg/l *(Daphnia magna)*
EC50 (14 d): 3,020 mg/l (Algae (*Chlorella pyrenoidosa*)
EC50 (15 min): 14,500 mg/l (Bacteria (*Photobacterium phosphoreum*)

Long Term
Not available.

Persistence and degradability Readily biodegradable.

Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product has high mobility in soil.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods — Disposal should be in accordance with local, state or national legislation. Consult an accredited waste disposal contractor or the local authority for advice.

SECTION 14: TRANSPORT INFORMATION

	U.S. DOT	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN number	1950	1950	1950
Proper Shipping Name	Aerosols, flammable	Aerosols, flammable	Aerosols, flammable
Transport hazard class(es)	2.1	2.1	2.1
Packing group	Not applicable	Not applicable	Not applicable
Environmental hazards	None assigned	None assigned	None assigned
Special precautions for user	None assigned	None assigned	None assigned

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status**:** All components listed or polymer exempt.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)
Acetone	67-64-1	48	5000
m-Xylene	108-38-3	46	1000
o-Xylene	95-47-6	15	1000
p-Xylene	106-42-3	20	100
Ethylbenzene	100-41-4	<19	1000
Toluene	108-88-3	0.14	1000

SARA 311/312 - Hazard Categories: See SECTION 2: HAZARDS IDENTIFICATION

SARA 313 - Toxic Chemicals (40 CFR 372):

Chemical Name	CAS No.	Typical %wt.
m-Xylene	108-38-3	46
o-Xylene	95-47-6	15
p-Xylene	106-42-3	20
Ethylbenzene	100-41-4	<19
Toluene	108-88-3	0.14

SARA 302 - Extremely Hazardous Substances(40 CFR 355):

Chemical Name	CAS No.	Typical %wt.	TPQ (pounds)
None	----	----	----

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 9.

Date of preparation: June 15, 2021

Hazard Statement(s) and Risk Phrases Listed in: SECTION 2:/ SECTION 3:

Hazard Statement(s)

- H222: Extremely flammable aerosol.
- H225: Highly flammable liquid and vapor.
- H226: Flammable liquid and vapour.
- H280: Contains gas under pressure; may explode if heated.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.
- H336: May cause drowsiness or dizziness.
- H402: Harmful to aquatic life.
- H412: Harmful to aquatic life with long lasting effects.

Training advice: None.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **BERKEBILE OIL 2+2 PROTECTION FIRST CLASS**
(B-PFCA12, BPFC-A4, BPFCBLK-A12)

MANUFACTURED FOR:
The Berkebile Oil Company INC.
1216 Red Brant Road
Somerset, PA 15501 USA

Mailing Address:
PO BOX 715
Somerset, PA 15501

EMERGENCY NUMBER: (800) 424-9300 (CHEM TREC)
INFO NUMBER: (814) 443-1656

2. HAZARDS IDENTIFICATION

CLASSIFICATION

Flammable gas	1
Gas under pressure	Liquefied gas
Skin Corrosion/Irritation	3
Eye Damage/Irritation	2B



SIGNAL WORD: **Danger**

Hazard Statements

Extremely flammable gas
Contains gas under pressure; may explode if heated
Causes mild skin irritation
Causes eye irritation

Precautionary Statements

Keep away from heat/sparks/open flames/hot surfaces – No smoking
Do not spray on an open flame or other igntion source
Wash hands thoroughly after handling
IF ON SKIN: Wash with soap and water
IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
If skin irritation occurs: Get medical advice/attention
If eye irritation persists: Get medical advice/attention
Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F
Dispose of contents/container to comply with all local, state, and federal regulations

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Percent
WHITE MINERAL OIL	8042-47-5	35-55%
PROPANE	74-98-6	5-20%
BUTANE	106-97-8	5-20%
PROPYLENE CARBONATE	108-32-7	1-15%

4. FIRST AID MEASURES

I**NHALATION:** Remove to fresh air. Administer oxygen if needed. Apply artificial respiration if breating has stopped. Get medical attention.

EYE CONTACT: Wash immediately with large volumes of fresh water for at least 15 minutes. Get medical attention.

SKIN CONTACT: Wipe off with a towel. Wash with soap and water. Get medical attention if irritation persists.

INGESTION: Not a likely route of exposure.

Most important symptoms/effects, acute and delayed: Repeated exposure may cause skin dryness or cracking. May cause drowsiness or dizziness.

Indication of immediate medical attention and special treatment needed: None known.

5. FIRE FIGHTING MEASURES

Suitable and unsuitable extinguising media: Foam, Alcohol foam, CO2, Dry chemical, Water fog. Water spray may be ineffective.

Specific hazards arising from the chemical: Closed containers may explode from internal pressure build-up when exposed to extreme heat and discharge contents. Liquid content of container will support combustion. Overexposure to decomposition products may cause a health hazard. Symptoms may not be readily apparent. Obtain medical attention. Hazardous decomposition products include carbon dioxide, carbon monoxide, and other toxic fumes.

Special equipment and precautions for fire-fighters: Water may be used to cool containers to prevent pressure build-up and explosion when exposed to extreme heat. Wear goggles and use self-contained breathing apparatus. If water is used, fog nozzles are preferred.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Avoid breathing vapors. Ventilate area. Remove all sources of ignition.

Methods and materials for containment and cleaning up: Clean up with absorbent material and place in closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not puncture or incinerate (burn) cans. Do not stick pins, nails, or any other sharp objects into opening on top of can. Do not spray in eyes. Do not take internally. See product label for additional information.

Conditions for safe storage, including any incompatibilities: Store and use in cool, dry, well-ventilated areas.

Do not store above 120 F.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
WHITE MINERAL OIL 8042-47-5	PEL-TWA: Mist 5 mg/m3	TLV-TWA: Mist 5 mg/m3	
PROPANE 74-98-6	Not established	TWA: 1000 ppm	
BUTANE 106-97-8	Not established	TWA: 1000 ppm	
PROPYLENE CARBONATE 108-32-7	Not established	Not established	

Appropriate engineering controls: Ventilation should be sufficient to prevent inhalation of any vapors . General dilution and/or local exhoust ventilation in volume to keep PEL/TLV of most hazardous ingredient below acceptable limit and lel below stated limit.

Individual protection measures:

Respiratory protection: None under normal use. Avoid breathing vapors. In restricted areas , use approved chemical/mechanical filters designed to remove a combination or particles and vapor. In confined areas, use an approved air line respirator or hood. Self-contained breathing apparatus is required for vapor concentrations above PEL/TLV limits.

Protective gloves: None under normal use. Use solvent-resistant for prolonged or repeated contact.

Eye protection: None under normal use. However, use of safety glasses with splah guards or full face shield should be used if indicated.

Other protective clothing or equipment: None under normal use. However, use of solvent- resitant aprons or other clothing is recommended. Eye washes and safety showers in the workplace are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Aerosol product
Vapor Pressure: Not determined
Vapor Density: Heavier than air
Density: 0.886699867
Freezing point: Not determined
Boiling point: N/A
Evaporation rate: Slower than ether
Explosive Limits: Not applicable
Autoignition temperature: Not determined

Viscosity: 19000 cSt
Odor: Solvent
Odor threshold: Not determined
pH: Not applicable
Melting point: Not determined
Solubility: Not determined
Flash point: 320°F (160°C)
Flammability: Level 3 Aerosol
Partition coefficient (n-octanol/water): Not determined
Decomposition temperature: Not determined

10. STABILITY AND REACTIVITY

Reactivity: Not reactive under normal conditions of use.

Chemical stability: Stable under normal storage and handling conditions.

Possibility of hazardous reactions: None known.

Incompatible materials:

No data

Hazardous decomposition products:

No data

11. TOXICOLOGICAL INFORMATION

Long-term toxicological studies have not been conducted for this product.

12. ECOLOGICAL INFORMATION

Long-term ecological studies have not been conducted for this product.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local, state, and federal regulations. Before attempting clean up, refer to other sections of this document for hazard cautionary information.

14. TRANSPORT INFORMATION

By land: DOT Proper Shipping Name: None required per 49 CFR 173.306(i) for products that conform to the Limited Quantity provisions. Commodity shipping description: Lubricant, NOI

By water: DOT & IMDG Proper Shipping Name: UN1950, Aerosols, 2.1, LTD QTY

By air: DOT & IATA Proper Shipping Name: UN1950, Aerosols, flammable, 2.1, LTD QTY (packing instruction Y203 applies)

15. REGULATORY INFORMATION

All ingredients are either listed on the TSCA inventory or are exempt.

16. OTHER INFORMATION

Date Prepared: 4/20/2015 Revision 0

Date revised: 2015-04-20

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. BECAUSE THE INFORMATION CONTAINED HEREIN MAY BE APPLIED UNDER CONDITIONS BEYOND OUR CONTROL, WE ASSUME NO RESPONSIBILITY FOR ITS USE.

BUILDING TRUST

PRODUCT DATA SHEET

Sikaflex® Concrete Fix

One-component, non-sag, polyurethane sealant for sealing cracks/joints

PRODUCT DESCRIPTION

Sikaflex® Concrete Fix is a moisture-cured, 1-component, polyurethane-based, non-sag elastomeric sealant. Meets Federal specification TT-S-00230C, Type II. Meets ASTM C-920, Type S, Grade NS.

USES

- Designed for all types of joints and cracks where maximum depth of sealant will not exceed 1/2 in. (12.7 mm).
- Suitable for vertical and horizontal joints; readily placeable at 40 °F (4 °C).
- Has many applications as an elastic sealant between materials with dissimilar coefficients of expansion.

Ideal for:
- Weatherproofing of joints,cracks and gaps in concrete, brickwork, blockwork, masonry, stucco and metal frames
- Joints in walls, floors, balconies, around window or door frames
- Expansion joints
- Roofing

CHARACTERISTICS / ADVANTAGES

- High elasticity – cures to a tough, durable, flexible consistency with exceptional cut and tearresistance.
- Stress relaxation
- Excellent adhesion – bonds to most construction materials without a primer.
- Excellent resistance to aging, weathering
- Non-staining
- Urethane-based; suggested by EPA for radon reduction
- Paintable with water-based, oil-based or rubber-based paints
- Capable of ±35 % joint movement

PRODUCT INFORMATION

Packaging	10.1 fl. oz. (299 ml), moisture-proof composite cartridges, 12/case
Color	Limestone
Shelf Life	12 months in original, unopened containers
Storage Conditions	Store at 40 to 95 °F (4 to 35 °C). Condition material to 65 to 75 °F (18 to 24 °C) before using

TECHNICAL INFORMATION

Shore A Hardness	40±5	(ASTM C-661) Tested at: 73 °F (23 °C) 50 % R.H.
Chemical Resistance	Good resistance to water, diluted acids, and diluted alkalines. Consult Technical Service for specific data.	
Resistance to Weathering	Excellent	
Service Temperature	-40 to 170 °F (-40 to 77 °C)	

APPLICATION INFORMATION

Coverage

10.1 oz (299 ml) Cartridge: Yield in Linear Feet

Width	Depth 1/4"	Depth 3/8"	Depth 1/2"
1/4"	24.3		
3/8"	16.2	10.8	
1/2"	12.1	8.1	6.1
3/4"	8.1	5.4	4.0
1"			3.0
1-1/4"			2.4
1-1/2"			2.0

Ambient Air Temperature	40 to 100 °F (4 to 38 °C). Sealant should be installed when joint is at midrange of its anticipated movement
Substrate Temperature	40 to 100 °F (4 to 38 °C). Sealant should be installed when joint is at midrange of its anticipated movement
Cure Time	Final cure: 5–7 days
Tack Free Time	3–6 hours

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

Clean all surfaces. Cracks/Joints must be sound, clean, dry, frost-free, and free of oil and grease. Curing compound residues and any other foreign matter must be thoroughly removed.

APPLICATION METHOD / TOOLS

Recommended application temperatures: 40 to 100 °F (4 to 38 °C). For cold weather application, condition units at approximately 70 °F (21 °C); remove prior to using. For best performance, Sikaflex® Concrete Fix should be gunned into joint when joint slot is at mid-point of its designed expansion and contraction. Place nozzle of gun into bottom of the joint and fill entire joint. Keep the nozzle in the sealant, continue on with a steady flow of sealant preceding the nozzle to avoid air entrapment. Avoid overlapping of sealant to eliminate entrapment of air. Tool as required. Maximum sealant depth is 1/2 in. (12.7 mm) and width is 1 in. (25.4 mm). Minimum depth is 1/4 (6.3 mm) and width is 1/4 in. (6.3 mm). Proper design is 2:1 width to depth ratio. For use in horizontal joints in traffic areas, the absolute minimum depth of the sealant is 1/2 in. (12.7 mm). Always use bond breaker tape or closed cell backer rod for support on horizontal joints. Tool as necessary, with dry sealant spatula.

Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. For spillage, collect, absorb, and dispose of in accordance with current, applicable local, state, and federal regulations.

LIMITATIONS

- Allow 1-week cure at standard conditions when using Sikaflex® Concrete Fix in total water immersion and prior to painting.
- When overcoating with water-based, oil-based or rubber-based paints, compatibility and adhesion testing of mock-up installations is essential.
- Avoid exposure to high levels of chlorine. (Maximum continuous level is 5ppm of chlorine.)
- Maximum depth of sealant must not exceed 1/2 in. (12.7 mm); minimum depth is 1/4 in. (6.35 mm).
- Maximum width of sealant must not exceed 1 in. (25.4

mm).
- Maximum expansion and contraction should not exceed 35 % of average joint width.
- Do not cure in the presence of curing silicone sealants.
- Avoid contact with alcohol and other solvent cleaners during cure.
- Do not apply when moisture-vapor-transmission condition exists from the substrate as this can cause bubbling within the sealant.
- To avoid bubbling, do not apply when ambient air and substrate temperatures exceed 100o F (38o C). In extreme summertime conditions, preferably install sealant when ambient air and substrate temperatures are falling.
- Use opened cartridges the same day.
- When applying sealant, avoid air-entrapment.
- Since system is moisture-cured, permit sufficient exposure to air.
- The ultimate performance of Sikaflex® Concrete Fix depends on good joint design and proper application with joint surfaces properly prepared.
- Do not tool with detergent or soap solutions.
- Do not use paints which are silicone based or have a high solvent content. Avoid solvent-based and alcohol-based primers, stains, sealers and coatings.

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

OTHER RESTRICTIONS

See Legal Disclaimer.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

LEGAL DISCLAIMER

- **KEEP CONTAINER TIGHTLY CLOSED**
- **KEEP OUT OF REACH OF CHILDREN**
- **NOT FOR INTERNAL CONSUMPTION**
- **FOR INDUSTRIAL USE ONLY**
- **FOR PROFESSIONAL USE ONLY**

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by calling SIKA's Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

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C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537

SECTION 1. IDENTIFICATION

Product name	:	Sikaflex® Concrete Fix
Company name	:	Sika Corporation 201 Polito Avenue Lyndhurst, NJ 07071 USA www.sikausa.com
Telephone	:	(201) 933-8800
Telefax	:	(201) 804-1076
E-mail address	:	ehs@sika-corp.com
Emergency telephone	:	CHEMTREC: 800-424-9300 INTERNATIONAL: +1-703-527-3887
Recommended use of the chemical and restrictions on use	:	For further information, refer to product data sheet.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Respiratory sensitization	:	Category 1
Skin sensitization	:	Category 1
Carcinogenicity (Inhalation)	:	Category 1A
Specific target organ toxicity - repeated exposure (Inhalation)	:	Category 2

GHS label elements

Hazard pictograms :



Signal Word	:	Danger
Hazard Statements	:	H317 May cause an allergic skin reaction. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H350 May cause cancer by inhalation. H373 May cause damage to organs through prolonged or re-

peated exposure if inhaled.

Precautionary Statements : P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Labeling

There are no ingredients with unknown acute toxicity used in a mixture at a concentration >= 1%.

Other hazards

Intentional misuse by deliberate concentration and inhalation of vapor may be harmful or fatal.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures

Components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
xylene	1330-20-7	Flam. Liq. 3; H226 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315	>= 1 - < 5

		Eye Irrit. 2A; H319 STOT SE 3; H335 STOT RE 2; H373 Asp. Tox. 1; H304	
Quartz (SiO2)	14808-60-7	Carc. 1A; H350i STOT RE 1; H372 STOT SE 3; H335	>= 0.1 - < 1
ethylbenzene	100-41-4	Flam. Liq. 2; H225 Acute Tox. 4; H332 Carc. 2; H351 STOT RE 2; H373 Asp. Tox. 1; H304 Eye Irrit. 2A; H319	>= 0.1 - < 1
aromatic polyisocyanate	53317-61-6	Eye Irrit. 2A; H319 Skin Sens. 1; H317	>= 0.1 - < 1
4,4'-methylenediphenyl diisocyanate	101-68-8	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2B; H320 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335 STOT RE 2; H373	>= 0.1 - < 1

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air.
Consult a physician after significant exposure.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
If symptoms persist, call a physician.

In case of eye contact : Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not induce vomiting without medical advice.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Obtain medical attention.

Most important symptoms and effects, both acute and delayed : Asthmatic appearance
Allergic reactions
sensitizing effects
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficul-

ties if inhaled.
May cause cancer by inhalation.
May cause damage to organs through prolonged or repeated exposure if inhaled.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Deny access to unprotected persons.

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : Avoid exceeding the given occupational exposure limits (see section 8).
Do not get in eyes, on skin, or on clothing.
For personal protection see section 8.
Persons with a history of skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Smoking, eating and drinking should be prohibited in the application area.
Follow standard hygiene measures when handling chemical products.

Conditions for safe storage : Store in original container.
Keep container tightly closed in a dry and well-ventilated place.
Observe label precautions.
Store in accordance with local regulations.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
xylene	1330-20-7	TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	100 ppm	ACGIH
		STEL	150 ppm	ACGIH
		STEL	150 ppm 655 mg/m3	OSHA P0
		TWA	100 ppm 435 mg/m3	OSHA P0
Quartz (SiO2)	14808-60-7	TWA (Respirable particulate matter)	0.025 mg/m3	ACGIH
		TWA (Respirable dust)	0.05 mg/m3	OSHA Z-1
		TWA (respirable)	10 mg/m3 / %SiO2+2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO2+5	OSHA Z-3
		TWA (respirable dust fraction)	0.1 mg/m3	OSHA P0
		TWA (Respirable particulate matter)	0.025 mg/m3 (Silica)	ACGIH
		TWA (respirable dust fraction)	0.1 mg/m3	OSHA P0
		TWA (Respirable particulate matter)	0.025 mg/m3	ACGIH
		TWA (Respirable particulate matter)	0.025 mg/m3 (Silica)	ACGIH

ethylbenzene	100-41-4	TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	100 ppm 435 mg/m3	OSHA P0
		STEL	125 ppm 545 mg/m3	OSHA P0
4,4'-methylenediphenyl diiso-cyanate	101-68-8	TWA	0.005 ppm	ACGIH
		C	0.02 ppm 0.2 mg/m3	OSHA Z-1
		C	0.02 ppm 0.2 mg/m3	OSHA P0

The above constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Engineering measures : Use of adequate ventilation should be sufficient to control worker exposure to airborne contaminants. If the use of this product generates dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protective equipment

Respiratory protection : Use a properly fitted NIOSH approved air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.
Remove contaminated clothing and protective equipment before entering eating areas.
Wash thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	paste
Color	:	various
Odor	:	aromatic
Odor Threshold	:	No data available
pH	:	Not applicable
Melting point/range / Freezing point	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	Not applicable
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	0.01 hpa
Relative vapor density	:	No data available
Density	:	ca. 1.51 g/cm3 (73 °F / 23 °C)
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	> 20.5 mm2/s
Explosive properties	:	No data available
Oxidizing properties	:	No data available

Volatile organic compounds (VOC) content	:	37 g/l

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Stable under recommended storage conditions.
Conditions to avoid	:	No data available
Incompatible materials	:	No data available
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Components:

xylene:

Acute oral toxicity	:	LD50 Oral (Rat): 3,523 mg/kg
Acute dermal toxicity	:	LD50 Dermal (Rabbit): 1,700 mg/kg

ethylbenzene:

Acute oral toxicity	:	LD50 Oral (Rat): 3,500 mg/kg
Acute dermal toxicity	:	LD50 Dermal (Rabbit): 5,510 mg/kg

aromatic polyisocyanate:

Acute oral toxicity	:	LD50 Oral (Rat): > 5,000 mg/kg

4,4'-methylenediphenyl diisocyanate:

Acute inhalation toxicity	:	Acute toxicity estimate: 1.5 mg/l Test atmosphere: dust/mist Method: Expert judgment

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

May cause cancer by inhalation.

IARC	Group 1: Carcinogenic to humans	
	Quartz (SiO_2)	14808-60-7
	(Silica dust, crystalline)	
	Group 2B: Possibly carcinogenic to humans	
	titanium dioxide	13463-67-7
	Group 2B: Possibly carcinogenic to humans	
	Carbon black	1333-86-4
	Group 2B: Possibly carcinogenic to humans	
	ethylbenzene	100-41-4
OSHA	OSHA specifically regulated carcinogen	
	Quartz (SiO_2)	14808-60-7
	(crystalline silica)	
NTP	Known to be human carcinogen	
	Quartz (SiO_2)	14808-60-7
	(Silica, Crystalline (Respirable Size))	

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure if inhaled.
Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks : Carbon black (1333-86-4)
Animal Toxicity:
Rat, oral, duration 2 year
Effect: no tumors

Mouse, oral, duration 2 years
Effect: no tumors

Mouse, dermal, duration 18 months
Effect: no skin tumors
Rat, inhalation, duration 2 years
Target organ: lungs
Effect: inflammation, fibrosis, tumors
Note: Tumors in the rat lung are considered to be related to the "particle overload phenomenon" rather than to a specific chemical effect of carbon black itself in the lung. These effects in rats have been reported in many studies on other poorly soluble inorganic particles and appear to be rat specific. Tumors have not been observed in other species (i.e., mouse and hamster) for carbon black or other poorly soluble particles under similar circumstances and study conditions.
Mortality studies (human data): A study on carbon black production workers in the UK (Sorahan, 2001) found an increased risk of lung cancer in two of the five plant studied; however, the increase was not related to the dose of carbon black. Thus, the authors did not consider the increased risk in lung cancer to be due to carbon black exposure. A German study of carbon black workers at one plant (Morfeld, 2006; Buechte, 2006) found a similar increase in lung cancer risk but, like the Sorohan, 2001 (UK study) found no association with carbon black exposure. A large US study of 18 plants showed a reduction in lung cancer risk in carbon black production workers (DEll, 2006). Based upon these studies, the February 2006 Working Group at the International Agency for Research on Cancer (IARC) concluded that the human evidence for carcinogenicity was inadequate (IARC, 2010).
Since the IARC evaluation of carbon black, Sorahan and Harrington (2007) have re-analyzed the UK study data using an alternative exposure hypothesis and found a positive association with carbon black exposure in two of the five plants. The same exposure hypothesis was applied by Morfeld and McCunney (2009) to the German cohort; in contrast, they found no association between carbon black exposure and lung cancer risk and, thus, no support for the alternative exposure hypothesis used by Sorahan and Harrington.
Overall, as a result of these detailed investigations, no causative link between carbon black exposure and cancer risk in humans has been demonstrated.
IARC CANCER CLASSIFICATION: In 2006 IARC re-affirmed its 1995 finding that there is "inadequate evidence" from human health studies to assess whether carbon black causes cancer in humans. IARC concluded that there is "sufficient evidence" in experimental animal studies for the carcinogenicity of carbon black. IARC's overall evaluation is that carbon black is "possibly carcinogenic to humans" (Group 2B)". This conclusion was based on IARC's guidelines, which generally require such a classification if one species exhibits carcinogenicity in two or more animal studies (IARC, 2010).

Solvent extracts of carbon black were used in one study of rats in which skin tumors were found after dermal application and several studies of mice in which sarcomas were found

following subcutaneous injection. IARC concluded that there was "sufficient evidence" that carbon black extracts can cause cancer in animals (Group 2B).
ICGIH CANCER CLASSIFICATION: Confirmed Animal Carcinogen with Unknown Relevance to Humans (Category A3 Carcinogen).

ASSESSMENT: Applying the guidelines of self-classification under the Globally Harmonized System of Classification and Labeling of Chemicals, carbon black is not classified as a carcinogen. Lung tumors are induced in rats as a result of repeated exposure to inert, poorly soluble particles like carbon black and other poorly soluble particles. Rats tumors are a result of a secondary non-genotoxic mechanism that has questionable relevance for classification in humans. In support of this opinion, the CLP Guidance for Specific Target Organ Toxicity - Repeated Exposure (STOT-RE), cites lung overload under mechanisms not relevant to humans. Human health studies show that exposure to carbon black does not increase the risk to carcinogenicity.

Titanium dioxide (13463-67-7)
In lifetime inhalation studies of rats, airborne respirable-size titanium dioxide particles have shown to cause an increase in lung tumors at concentrations associated with substantial particle lung burdens and consequential pulmonary overload and inflammation. The potential for these adverse health effects appears to be closely related to the particle size and the amount of the exposed surface area that comes into contact with the lung. However, tests with other laboratory animals such as mice and hamsters, indicate that rats are significantly more susceptible to the pulmonary overload and inflammation that causes lung cancer. Epidemiological studies do not suggest an increased risk of cancer in humans from occupational exposure to titanium dioxide. Titanium dioxide has been characterized by IARC as possibly carcinogenic to humans (Group 2B) through inhalation (not ingestion). It has not been characterized as a potential carcinogen by either NTP or OSHA.

Quartz (14808-60-7): This classification is relevant when exposed to Quartz (silicon dioxide) in dust or powder form only, including cured product that is subject to sanding, grinding, cutting, or other surface preparation activities.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

ethylbenzene:

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects

Product:

Additional ecological information	:	Do not empty into drains; dispose of this material and its container in a safe way. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Domestic regulation

49 CFR
Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

TSCA list : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Respiratory or skin sensitization
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

xylene	1330-20-7	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 0.1 - < 1 %

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

xylene	1330-20-7	>= 1 - < 5 %

California Prop 65 ⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
OSHA P0	:	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit
OSHA P0 / C	:	Ceiling limit
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-1 / C	:	Ceiling
OSHA Z-3 / TWA	:	8-hour time weighted average

Notes to Reader

The information contained in this Safety Data Sheet applies only to the actual Sika Corporation ("Sika") product identified and described herein. This information is not intended to address, nor does it address the use or application of the identified Sika product in combination with any other material, product or process. All of the information set forth herein is based on technical data regarding the identified product that Sika believes to be reliable as of the date hereof. Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's current Product Data Sheet, product label and Safety Data Sheet for each Sika product, which are available at web site and/or telephone number listed in Section 1 of this SDS.

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Revision Date 09/30/2020

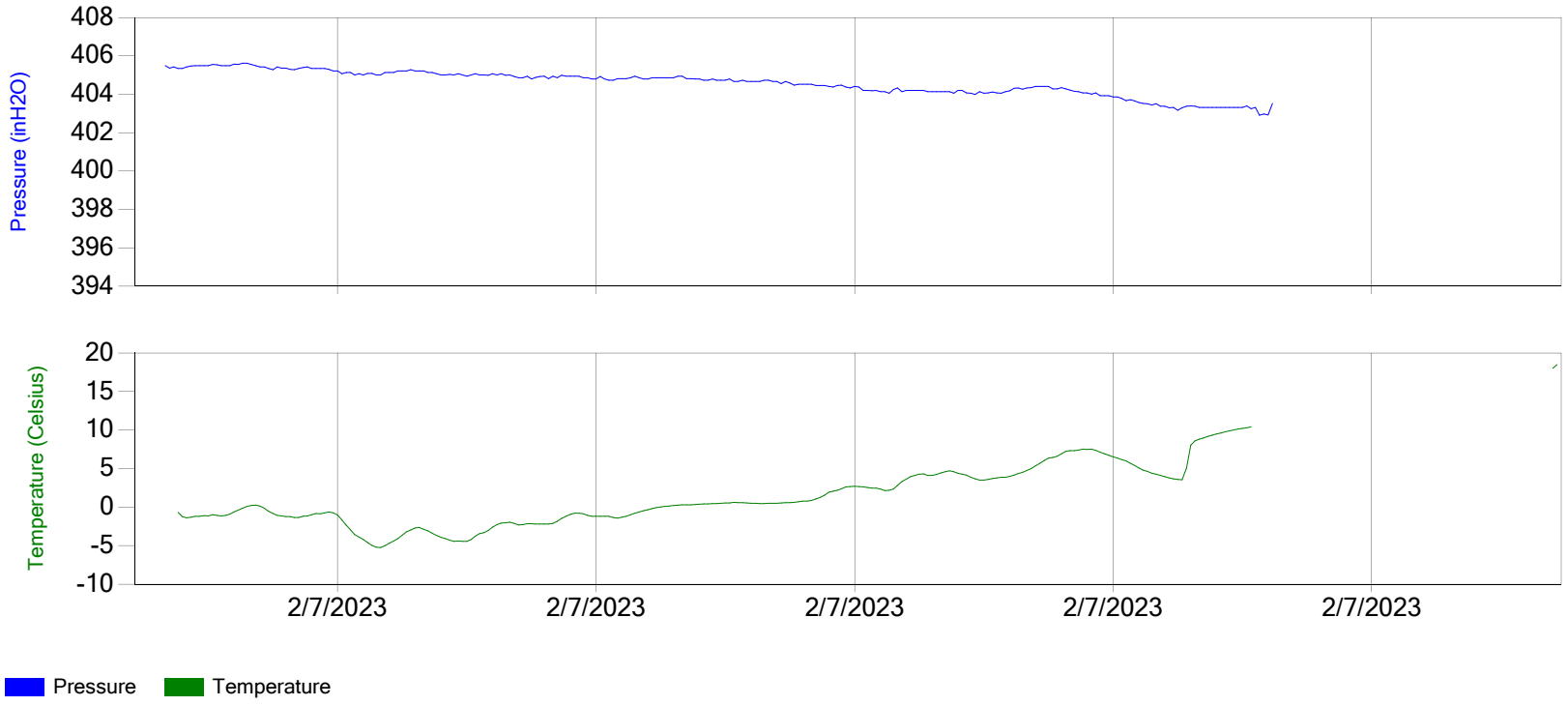
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ATTACHMENT D

Blake Auto
1149 Ethan Allen Highway
Georgia, VT

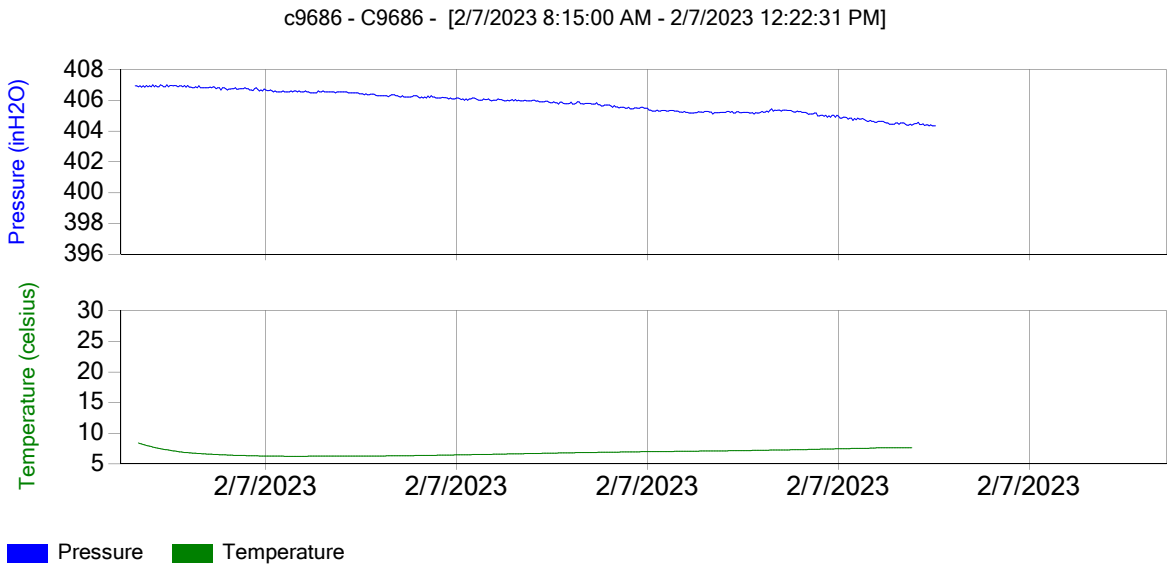
Ambient Conditions - outside

fo279mw&l - F0279 - [2/7/2023 8:14:00 AM - 2/7/2023 12:23:01 PM]



Blake Auto
1149 Ethan Allen Highway
Georgia, VT

Indoor Conditions



ATTACHMENT E

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2/21/2023
Mr. Bob Ross
Ross Environmental Associates, Inc.
PO Box 1533

Stowe VT 05672

Project Name: Blake Auto
Project #: 2023-001
Workorder #: 2302251

Dear Mr. Bob Ross

The following report includes the data for the above referenced project for sample(s) received on 2/8/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Jade White at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Jade White

Project Manager

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WORK ORDER #: 2302251

Work Order Summary

CLIENT:	Mr. Bob Ross Ross Environmental Associates, Inc. PO Box 1533 Stowe, VT 05672	**BILL TO:**	Mr. Bob Ross Ross Environmental Associates, Inc. PO Box 1533 Stowe, VT 05672
PHONE:	802-253-4280	**P.O. #**	2023-001
FAX:		**PROJECT #**	2023-001 Blake Auto
DATE RECEIVED:	02/08/2023	**CONTACT:**	Jade White
DATE COMPLETED:	02/21/2023		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	IA-Bay	Modified TO-15 SIM	4.5 "Hg	2 psi
02A	IA-AA	Modified TO-15 SIM	6.0 "Hg	2 psi
03A	Lab Blank	Modified TO-15 SIM	NA	NA
04A	CCV	Modified TO-15 SIM	NA	NA
05A	LCS	Modified TO-15 SIM	NA	NA
05AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:  DATE: 02/21/23

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-017, Effective date: 10/18/2022, Expiration date: 10/17/2023.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15 SIM
Ross Environmental Associates, Inc.
Workorder# 2302251

Two 6 Liter Summa Canister (100% SIM Ambient) samples were received on February 08, 2023. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

The Chain of Custody (COC) information for sample IA-AA did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

The following qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN- See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-Bay

Lab ID#: 2302251-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.067	0.63	0.33	3.1
Carbon Tetrachloride	0.027	0.062	0.17	0.39
Benzene	0.067	0.22	0.21	0.70
Toluene	0.067	0.30	0.25	1.1
Tetrachloroethene	0.027	0.24	0.18	1.6
Ethyl Benzene	0.027	0.10	0.12	0.43
m,p-Xylene	0.054	0.42	0.23	1.8
o-Xylene	0.027	0.15	0.12	0.64

Client Sample ID: IA-AA

Lab ID#: 2302251-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.071	0.45	0.35	2.2
Carbon Tetrachloride	0.028	0.060	0.18	0.38
Benzene	0.071	0.14	0.23	0.44
Toluene	0.071	0.090	0.27	0.34
1,1,2,2-Tetrachloroethane	0.028	0.054	0.19	0.37

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Client Sample ID: IA-Bay

Lab ID#: 2302251-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**21021507sim**	**Date of Collection:**	**2/7/23 12:19:00 PM**
Dil. Factor:	**1.34**	**Date of Analysis:**	**2/15/23 12:11 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.067	0.63	0.33	3.1
Freon 114	0.027	Not Detected	0.19	Not Detected
Chloromethane	0.67	Not Detected	1.4	Not Detected
Vinyl Chloride	0.013	Not Detected	0.034	Not Detected
Chloroethane	0.067	Not Detected	0.18	Not Detected
1,1-Dichloroethene	0.013	Not Detected	0.053	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
Methyl tert-butyl ether	0.13	Not Detected	0.48	Not Detected
1,1-Dichloroethane	0.027	Not Detected	0.11	Not Detected
cis-1,2-Dichloroethene	0.027	Not Detected	0.11	Not Detected
Chloroform	0.027	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.027	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.027	0.062	0.17	0.39
Benzene	0.067	0.22	0.21	0.70
1,2-Dichloroethane	0.027	Not Detected	0.11	Not Detected
Trichloroethene	0.027	Not Detected	0.14	Not Detected
Toluene	0.067	0.30	0.25	1.1
1,1,2-Trichloroethane	0.027	Not Detected	0.15	Not Detected
Tetrachloroethene	0.027	0.24	0.18	1.6
1,2-Dibromoethane (EDB)	0.027	Not Detected	0.20	Not Detected
Ethyl Benzene	0.027	0.10	0.12	0.43
m,p-Xylene	0.054	0.42	0.23	1.8
o-Xylene	0.027	0.15	0.12	0.64
1,1,2,2-Tetrachloroethane	0.027	Not Detected	0.18	Not Detected
1,4-Dichlorobenzene	0.027	Not Detected	0.16	Not Detected
Naphthalene	0.067	Not Detected	0.35	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: IA-AA

Lab ID#: 2302251-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**21021508sim**	**Date of Collection: 2/7/23 12:15:00 PM**	
Dil. Factor:	**1.42**	**Date of Analysis: 2/15/23 12:48 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.071	0.45	0.35	2.2
Freon 114	0.028	Not Detected	0.20	Not Detected
Chloromethane	0.71	Not Detected	1.5	Not Detected
Vinyl Chloride	0.014	Not Detected	0.036	Not Detected
Chloroethane	0.071	Not Detected	0.19	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.056	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.56	Not Detected
Methyl tert-butyl ether	0.14	Not Detected	0.51	Not Detected
1,1-Dichloroethane	0.028	Not Detected	0.11	Not Detected
cis-1,2-Dichloroethene	0.028	Not Detected	0.11	Not Detected
Chloroform	0.028	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.028	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.028	0.060	0.18	0.38
Benzene	0.071	0.14	0.23	0.44
1,2-Dichloroethane	0.028	Not Detected	0.11	Not Detected
Trichloroethene	0.028	Not Detected	0.15	Not Detected
Toluene	0.071	0.090	0.27	0.34
1,1,2-Trichloroethane	0.028	Not Detected	0.15	Not Detected
Tetrachloroethene	0.028	Not Detected	0.19	Not Detected
1,2-Dibromoethane (EDB)	0.028	Not Detected	0.22	Not Detected
Ethyl Benzene	0.028	Not Detected	0.12	Not Detected
m,p-Xylene	0.057	Not Detected	0.25	Not Detected
o-Xylene	0.028	Not Detected	0.12	Not Detected
1,1,2,2-Tetrachloroethane	0.028	0.054	0.19	0.37
1,4-Dichlorobenzene	0.028	Not Detected	0.17	Not Detected
Naphthalene	0.071	Not Detected	0.37	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: Lab Blank

Lab ID#: 2302251-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**21021506sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/15/23 10:52 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.050	Not Detected	0.25	Not Detected
Freon 114	0.020	Not Detected	0.14	Not Detected
Chloromethane	0.50	Not Detected	1.0	Not Detected
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Chloroform	0.020	Not Detected	0.098	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.050	Not Detected	0.19	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
1,2-Dibromoethane (EDB)	0.020	Not Detected	0.15	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
1,4-Dichlorobenzene	0.020	Not Detected	0.12	Not Detected
Naphthalene	0.050	Not Detected	0.26	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: CCV

Lab ID#: 2302251-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**21021502sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/15/23 08:03 AM**	

Compound	%Recovery
Freon 12	105
Freon 114	101
Chloromethane	83
Vinyl Chloride	91
Chloroethane	93
1,1-Dichloroethene	100
trans-1,2-Dichloroethene	100
Methyl tert-butyl ether	105
1,1-Dichloroethane	93
cis-1,2-Dichloroethene	102
Chloroform	97
1,1,1-Trichloroethane	100
Carbon Tetrachloride	87
Benzene	96
1,2-Dichloroethane	97
Trichloroethene	93
Toluene	99
1,1,2-Trichloroethane	94
Tetrachloroethene	88
1,2-Dibromoethane (EDB)	100
Ethyl Benzene	106
m,p-Xylene	101
o-Xylene	101
1,1,2,2-Tetrachloroethane	91
1,4-Dichlorobenzene	82
Naphthalene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	112	70-130

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Client Sample ID: LCS

Lab ID#: 2302251-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**21021503sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/15/23 08:51 AM**	

Compound	%Recovery	Method Limits
Freon 12	93	70-130
Freon 114	94	70-130
Chloromethane	74	70-130
Vinyl Chloride	84	70-130
Chloroethane	84	70-130
1,1-Dichloroethene	89	70-130
trans-1,2-Dichloroethene	91	70-130
Methyl tert-butyl ether	91	70-130
1,1-Dichloroethane	83	70-130
cis-1,2-Dichloroethene	91	70-130
Chloroform	82	70-130
1,1,1-Trichloroethane	89	70-130
Carbon Tetrachloride	83	60-140
Benzene	82	70-130
1,2-Dichloroethane	82	70-130
Trichloroethene	81	70-130
Toluene	84	70-130
1,1,2-Trichloroethane	88	70-130
Tetrachloroethene	78	70-130
1,2-Dibromoethane (EDB)	90	70-130
Ethyl Benzene	93	70-130
m,p-Xylene	89	70-130
o-Xylene	89	70-130
1,1,2,2-Tetrachloroethane	85	70-130
1,4-Dichlorobenzene	78	70-130
Naphthalene	117	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	111	70-130

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Client Sample ID: LCSD

Lab ID#: 2302251-05AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**21021504sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/15/23 09:37 AM**	

Compound	%Recovery	Method Limits
Freon 12	91	70-130
Freon 114	92	70-130
Chloromethane	74	70-130
Vinyl Chloride	84	70-130
Chloroethane	84	70-130
1,1-Dichloroethene	89	70-130
trans-1,2-Dichloroethene	91	70-130
Methyl tert-butyl ether	90	70-130
1,1-Dichloroethane	82	70-130
cis-1,2-Dichloroethene	91	70-130
Chloroform	81	70-130
1,1,1-Trichloroethane	87	70-130
Carbon Tetrachloride	81	60-140
Benzene	80	70-130
1,2-Dichloroethane	79	70-130
Trichloroethene	80	70-130
Toluene	83	70-130
1,1,2-Trichloroethane	87	70-130
Tetrachloroethene	77	70-130
1,2-Dibromoethane (EDB)	88	70-130
Ethyl Benzene	93	70-130
m,p-Xylene	90	70-130
o-Xylene	90	70-130
1,1,2,2-Tetrachloroethane	84	70-130
1,4-Dichlorobenzene	74	70-130
Naphthalene	122	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	112	70-130