Remedial Investigation

Snohomish County Airport
C-1 Building and C-1 Hangar
3220 100th Street SW, Suite A
Everett, Washington

for
Snohomish County Airports

June 30, 2023

GeoEngineers

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File No. 5530-014-02

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LIST OF ABBREVIATIONS AND ACRONYMS

AST	aboveground storage tank
ASTM	ASTM International
ATS	Aviation Technical Services, Inc.
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Cleanup Action Plan
CDM	Camp Dresser & McKee Inc.
CID	contained-in determination
COCs	contaminants of concern
CRECs	Controlled Recognized Environmental Conditions
CSM	Conceptual Site Model
CUL	cleanup level
CVOCs	chlorinated volatile organic compounds
DOT	Department of Transportation
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
F&B	Friedman & Bruya Inc.
FS	Feasibility Study
GPR	ground penetrating radar
HCID	hydrocarbon identification
HSA	hollow-stem auger
IDW	investigation derived waste
IPG	Integrated Planning Grant
MEK	2-butanone, methyl ethyl ketone
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
MTCA	Model Toxics Control Act
mV	millivolts
NAVD 88	North American Vertical Datum of 1988
NFA	no further action
ORP	oxidation reduction potential
PCBs	polychlorinated biphenyls

PCE	tetrachloroethylene/perchloroethylene
PCULs	preliminary cleanup levels
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
RCRA	Resource Control and Recovery Act
RECs	Recognized Environmental Conditions
RI	Remedial Investigation
ROW	right-of-way
Site	C-1 Building and C-1 Hangar Properties and surrounding area
SLs	screening levels
TAT	Technical Assistance Team
TCA	1,1,2-trichloroethane
TCE	trichloroethene
TEE	Terrestrial Ecological Evaluation
TPH	total petroleum hydrocarbons
TPH-D	Diesel-range total petroleum hydrocarbons
TPH-G	Gasoline-range total petroleum hydrocarbons
TPH-O	Heavy oil-range total petroleum hydrocarbons
Tramco	Tramco, Inc.
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
UST	underground storage tank
VI	Vapor Intrusion
VCP	Voluntary Cleanup Program
VOCs	volatile organic compound
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

Paine Field/Snohomish County Airport is the recipient of an Integrated Planning Grant (IPG) from Ecology and the RI is being completed under the IPG.

This Remedial Investigation (RI) Report has been prepared for the C-1 Building and C-1 Hangar Site located in Everett, Washington. The C-1 Building Property is listed by the Washington State Department of Ecology (Ecology) as the Precision Engines LLC site (Cleanup Site ID: 3526; Facility/Site ID: 84613634). The C-1 Hangar is not listed separately in Ecology's contaminated sites database. For the purposes of this report, the C-1 Building and C-1 Hangar Properties and relevant portions of the surrounding area where contamination has come to be located are referred to as the Site.

The RI Report has been prepared consistent with the RI Work Plan and Ecology guidance to document the investigation completed to define the nature and extent of contamination at the Site. The results of the RI will be used as the basis for the Feasibility Study (FS) that will identify and evaluate remedial alternatives and recommend a preferred cleanup action to address contamination in the media of concern and prepare a Cleanup Action Plan (CAP) in accordance with the requirements of the Model Toxics Control Act (MTCA) (Washington Administrative Code [WAC] 173-340-750).

Environmental investigations completed at the Site between 1986 and 2023 included sampling and laboratory chemical analysis of soil, groundwater, soil vapor and indoor air, and water and sediment from storm drains. Contaminants of concern (COCs) for soil, groundwater and indoor air were established for the RI based on the results of previous investigations, historical land use, potential source(s), and potential ecological receptors. Potential exposure pathways including direct contact, drinking water, and indoor air were evaluated for the Site.

Based on the current Conceptual Site Model (CSM), preliminary cleanup levels (PCULs) were selected based on complete exposure pathways for unrestricted land use for soil, groundwater, and indoor air in accordance with MTCA (WAC 173-340-720 through 750). Additionally, screening levels (SLs) for commercial worker exposure were developed consistent with commercial/office uses at the Site and in accordance with Ecology's Vapor Intrusion (VI) Guidance. COCs identified for the Site were characterized to document the nature and extent of contamination. A summary of prior Site uses, contaminant sources, and the nature and extent of contamination are as follows:

- Historical Aircraft Engine Overhaul and Aircraft Parking/Maintenance – Prior use, handling, and storage of hazardous materials inside the C-1 Building and C-1 Hangar, including Soltrol (mineral spirits), trichloroethene (TCE), naphthalene, carbon tetrachloride, and various oils and calibrating fluids, resulted in releases to soil beneath the two buildings.
    - TCE contamination is present in soil beneath the C-1 Building at the location of a former trench drain at concentrations greater than the PCUL.
    - Residual mineral spirits contamination in soil at one location beneath the C-1 Building based on the results of investigations conducted in 2000 and 2001.
    - 1,2-dichloroethane, TCE, naphthalene, carbon tetrachloride, chloroform, and benzene were detected in indoor air inside the C-1 Building and C-1 Hangar at concentrations greater than PCULs; the detected concentrations are less than the MTCA Method B indoor air screening levels for commercial exposure, which is the appropriate screening level for current uses in these two buildings.

- Chemical Spills/Releases to Stormwater Conveyance System – Releases to the former trench drain beneath the C-1 Building and to catch basins outside the building drained to the 55 plus year old stormwater pipes located in the C-1 Building storage yard and then leaked from pipe cracks or joints to soil and groundwater.
    - Vinyl chloride and arsenic are present in groundwater in the C-1 Building storage yard at concentrations greater than the PCUL. TCE was detected in soil samples collected adjacent to stormwater pipes and a catch basin located in the storage yard and the results of the RI indicate that the TCE released to the stormwater system migrated to groundwater and subsequently degraded to vinyl chloride.
- Chemical Storage, C-1 Building Storage Yard – The former use of an underground storage tank (UST) and an aboveground storage tank (AST), and the storage of spent solvents in drums in the C-1 Building storage yard resulted in releases of COCs to soil and groundwater.
    - TCE contamination is present in soil near the former AST at concentrations greater than the PCUL. The detected concentrations ranged in depth from 4 to 20 feet below ground surface (bgs) and indicate a likely surface spill/release.
    - Mineral spirits were detected in soil adjacent to the former AST at concentrations greater than the PCUL during a road improvement project and were subsequently remediated during construction activities in 2009.

The results of the RI document the nature and source(s) for the COCs, and identify data gaps in the extent of the COCs that will require additional investigation to identify and evaluate cleanup alternatives for contaminated media at the site and prepare the FS and CAP.

1.0 INTRODUCTION

This Remedial Investigation (RI) report describes environmental drilling and sampling conducted in 2022 and 2023 to address data gaps and complete characterization for the C-1 Building and C-1 Hangar Properties and surrounding area (Site) at Paine Field/Snohomish County Airport to support development of a RI, Feasibility Study (FS) and Cleanup Action Plan (CAP) for the Site. The RI report also includes relevant Site data from previous investigations to inform the nature and extent of contamination. The Site includes two properties located at 3220 100th Street SW in Everett, Washington, is approximately 2.35-acres in size and includes two adjoining buildings (Figure 1). The C-1 Building Property is developed with an approximately 25,000-square-foot building and an adjacent 12,000-square-foot exterior storage yard, and the C-1 Hangar Property is developed with an approximately 53,000-square-foot airplane hangar.

The Site has been the subject of several environmental investigations since at least 1998. These investigations include a Phase II Environmental Site Assessment (ESA) (AGI 1998), a Soil Investigation (URS 2001) and a combined Phase I and II ESA (HWA 2018). GeoEngineers completed a vapor intrusion (VI) evaluation in November and December 2020 (GEI 2021a), a Phase II ESA in March 2021 (GEI 2021b), and a supplemental soil and groundwater investigation in April 2022. The results of the investigations completed at the Site prior to 2022 are summarized in Sections 3.1 through 3.7, and the results of soil and groundwater sampling completed as part of the RI are summarized in Sections 3.8 and 3.9.

The purpose of the RI is to evaluate and document the nature and extent of contamination, including the identification of any remaining data gaps, to complete the Site characterization. The Paine Field/Snohomish County Airport plans to complete an RI, FS, and ultimately a CAP for the Site consistent with Ecology) Model Toxics Control Act (MTCA) requirements (Washington Administrative Code [WAC] 173-340).

Paine Field/Snohomish County Airport is the recipient of an Integrated Planning Grant (IPG) from Ecology and the RI work to date is being completed under the IPG.

1.1. Objectives

Objectives for the RI included the following to complete the Site characterization:

- Document the extent of the contaminants of concern (COCs) detected in soil and groundwater at concentrations greater than the preliminary MTCA cleanup levels during the investigations conducted between 1997 and 2021.
- Assess and document groundwater quality, connectivity, and flow direction by installing permanent monitoring wells at the Site.
- Support the development of a draft conceptual site model (CSM) to evaluate the need for and scope of a cleanup action.
- Identify any data gaps that need to be filled to complete a MTCA-compliant RI and prepare the FS and CAP.

1.2. Regulatory Framework

As noted above, the RI is being completed through an IPG from Ecology and under Ecology guidance and regulations. Paine Field/Snohomish County Airport plans to pursue Site closure in close coordination with Ecology and in accordance with all applicable requirements of the MTCA and its implementing regulations

2.0 PROPERTY CONDITIONS

The following summary includes information from the prior reports summarized in Section 3.0 regarding current and historical land use and the environmental setting for the Site. Figure 1 shows the general Site location and Figures 2 through 4 show the Site layout and exploration locations for investigations completed between 2020 and 2023.

2.1. Location and Description

The Site is located at 3220 100th Street SW in Everett, Washington at Paine Field/Snohomish County Airport which is zoned by Snohomish County for light industrial uses. The C-1 Building Property is approximately 0.85-acres and consists of one approximately 25,000 square-foot building and an adjacent 12,000-square-foot exterior storage yard. The C-1 Hangar is located adjacent to the C-1 Building and is approximately 1.5-acres developed with an approximately 53,000-square-foot aircraft hangar and the adjacent covered outdoor space referred to as the Hangar Annex.

2.2. Historical, Current and Future Land Use

The C-1 Building was developed in 1956 by Alaska Airlines and used for aircraft engine repair and overhaul. The building was sold to a parent company of Precision Engines in 1962 and continued to be used for aircraft engine repair and overhaul, and the manufacture of fuel injection systems by Precision Engines and sister company Precision Airmotive (HWA 2018). The C-1 Building was occupied by Precision Engines from 1997 until 2020. The building is currently vacant.

The C-1 Hangar was leased to Aviation Technical Services, Inc. (ATS) starting on April 1, 1999. The Hangar Annex was constructed and added to the lease in September 2011, and both leases were terminated on December 31, 2020. During the lease, the space was used for airplane storage, maintenance, general workshop, and office space. The C-1 Hangar is currently leased to Alaska Airlines for aircraft maintenance activities.

2.3. Utility Infrastructure

The C-1 Building and C-1 Hangar are supplied by municipal potable water sources. Stormwater captured on the C-1 Building roof is conveyed through vertical interior drainpipes located near the central portion of the building and to sub-slab piping. Utility locating activities, including a ground penetrating radar (GPR) survey and communications with Paine Field/Snohomish County Airport maintenance staff, indicate the sub-slab stormwater pipes lead southeast to a stormwater conveyance system located beneath the C-1 Building storage yard. Based on RI field observations, a portion of the stormwater collected from the C-1 Building roof is conveyed to a vertical drainpipe located near the northeast corner of the building and then discharged to an unpaved planter located adjacent to the C-1 building.

Stormwater originating from the paved C-1 Building storage yard drains to four exterior catch basins and is routed through the stormwater conveyance system to the northeast toward the parking lot adjacent to the C-1 Building. A wash tank and former trench drain located inside the C-1 Building (see Figure 2) were historically connected to the stormwater conveyance system and are identified as sources of contamination, as discussed in Section 3.1.1. The former trench drain was active as recent as 2003 and was planned to be decommissioned by filling with concrete in 2004 (HWA 2018), though the actual date of decommissioning was not confirmed in the reports reviewed. Stormwater captured on the C-1 Building roof and routed to exterior drains may locally influence groundwater levels outside the C-1 Building, as discussed in Sections 4.2 and 4.3.

2.4. Adjacent Property Uses

Surrounding property uses include Paine Field/Snohomish County Airport administrative offices, airport taxiways and runways, airline terminal and ramp, airplane hangars and associated storage yards, and paved parking. Two properties located within 1/8-mile of the Site are listed on Ecology databases of known or suspected contaminated sites: the Paine Field 32nd Avenue West right-of-way (ROW) and the Everett Paine Field Aviation School, both of which have site statuses listed as NFA.

3.0 SITE CHARACTERIZATION

Multiple environmental investigations have been completed to evaluate subsurface conditions at the C-1 Building between 1986 and 2023. Investigations were conducted at the adjacent C-1 Hangar in 2020 (VI Evaluation), 2021 (Phase II ESA) and 2022 (Supplemental Phase II ESA and RI). A summary of relevant information from the environmental investigations completed at the C-1 Building and the C-1 Hangar is included below.

3.1. 1986 Preliminary Site Assessment

A site assessment was completed in July 1986 by the U.S. Environmental Protection Agency (EPA) Region 10 Technical Assistance Team (TAT) in response to a reported complaint related to improper handling and disposal of chemicals by Tramco, Inc. (Tramco), the tenant of the C-1 Hangar (Weston 1986). The assessment indicates that Ecology had responded to reports of an oil spill at the property and that Tramco employees had dumped solvent and paint wastes into the storm sewer systems located east of the Hangar. A representative of Tramco stated to TAT personnel that employees had previously disposed used solvent waste into a drainage ditch and adjacent storm drains at the Tramco (C-1) Hangar, but current practices included placing all wastes into drums for off-site disposal.

3.1.1. Catch Basin Investigation Summary

Four sediment and three water samples were collected from storm drain catch basins located east of the Tramco (C-1) Hangar in the C-1 Building storage yard (see Figure 2) and submitted for laboratory chemical analysis for toluene, methylene chloride, benzene, tetrachloroethylene/perchloroethylene (PCE), trichloroethylene (TCE) and metals. Toluene and methyl ethyl ketone/2- butanone (MEK) and elevated concentrations of metals (antimony, cadmium, chromium, copper, lead, mercury, selenium, silver, thallium, tin, and zinc) were detected in the water and sediment samples collected from the storm line servicing the Tramco (C-1) Hangar. Detected concentrations of lead in sediment samples collected from the stormwater catch basins were reportedly between 4 and 60 times greater than published background soil concentrations. One catch basin was observed to receive effluent discharge from a pipe connecting to the C-1 Building, which was occupied by Precision Airmotive Corporation. The effluent was observed to be milky white/green in appearance and a sample of the effluent from this pipe was found to contain TCE, toluene, MEK, methylene chloride and benzene. Based on the findings of the investigation, the TAT recommended routine inspections of the stormwater drainage system and mitigative actions based on the completion of a thorough downstream storm sewer sampling program. Details regarding the completion of additional sampling were not available.

3.2. 1997 and 1998 Phase I and Phase II Environmental Site Assessments

A Phase I ESA was completed in March 1997 to assess the potential for contamination related to past and present property uses at several locations at Paine Field/Snohomish County Airport, including the C-1 Building (AGI 1997). The ESA identified surficial petroleum staining in the C-1 Building storage yard and past use of chlorinated solvents and mineral spirits based on review of available building records and the 1986 Site Assessment Report.

3.2.1. Soil and Groundwater Investigation Summary

A limited Phase II ESA was conducted by AGI Technologies at the C-1 Building on June 4, 1998 (AGI 1998) based on the findings and recommendations of the 1997 Phase I ESA. The purpose of the investigation was to assess soil inside the C-1 Building adjacent to drain lines located inside the building and stormwater conveyance lines that were identified as likely sources of contamination based on the 1986 assessment and the results of the Phase I ESA. Due to the presence of utilities within the C-1 Building concrete slab, borings were not completed inside the building. The investigation consisted of drilling two borings; one boring was completed adjacent to the storm drain catch basin located in the storage yard area with one soil sample collected at a depth of 8.5 feet below ground surface (bgs), and one boring was completed at the location of a former solvent underground storage tank (UST) adjacent to the C-1 Hangar (see Figure 2), with two soil samples collected at depths of 4 and 5.5 feet bgs. The UST was reportedly removed in 1991 but no documentation of the UST removal or environmental sampling was identified (HWA 2018). The soil samples were submitted for laboratory chemical analysis of petroleum hydrocarbons and halogenated volatile organic compounds (VOCs). The soil samples collected from the boring completed adjacent to the stormwater catch basin contained TCE at a concentration of 0.015 milligrams per kilogram (mg/kg) and the soil samples collected from a depth of 4 feet bgs within the former UST excavation contained diesel- and oil-range total petroleum hydrocarbons (TPH-D and TPH-O) at concentrations of 240 mg/kg and 620 mg/kg, respectively. The 1998 report concluded that the presence of TCE adjacent to the storm drain line indicated that solvents were discharged through the storm drain system and that solvent concentrations were likely greater in soil beneath the building. The report recommended additional drilling be completed inside the building once adequate utility locates were performed.

3.3. 2000 and 2001 Subsurface Investigations Inside the C-1 Building

In 2000 Camp Dresser & McKee Inc. (CDM) conducted an indoor air and subsurface soil investigation inside the C-1 Building (CDM 2001). Eighteen soil samples and two soil vapor samples were collected from the Precision Equipment Room/Fire Riser Room and the adjacent Airport office hallway, and four indoor samples were collected from the hallway and inside Airport offices.

3.3.1. Soil and Vapor Intrusion Investigation Summary

TPH-D were detected in soil samples collected from depths between 8 and 42 inches below the floor in Precision's Equipment Room/Fire Riser Room at concentrations ranging from 680 mg/kg to 23,000 mg/kg. Sub-slab soil vapor samples and indoor air samples contained petroleum hydrocarbons at concentrations between 210 and 220 milligrams per cubic meter (mg/m^3) and between 1.0 and 5.1 mg/m^3, respectively. Laboratory chromatograms show that the petroleum hydrocarbons detected in soil and indoor air matched Soltrol® 170, which was reportedly used by Precision Engines and Precision Airmotive as a calibrating fluid. The chromatogram profile of Soltrol® 170 shows the product falls within the C_{12} to C_{15} range and is similar in composition to mineral spirits (CDM 2001).

A supplemental soil investigation was completed by URS in 2001 (HWA 2018) to delineate the lateral and vertical extent of soil containing petroleum hydrocarbons/mineral spirits at concentrations greater than the MTCA Method A cleanup levels beneath the Precision Equipment and Fire Riser Rooms. Five soil borings were completed in the mineral spirits-impacted soil area from depths between 2 and 15 feet bgs. Petroleum hydrocarbons/mineral spirits were detected in 4 of 10 soil samples collected at concentrations ranging from 200 to 5,500 mg/kg. The lateral extent of contaminated soil was delineated based on the results of the investigation; however, vertical delineation was not achieved because the deepest sample collected (15 feet bgs) had a detected petroleum concentration of 5,500 mg/kg and drilling refusal due to dense soils prevented drilling below that depth. The previous exploration locations inside the fire riser room and associated chemical analytical results for collected soil samples are included in Appendix A (excerpts from HWA 2018).

A remedial excavation was reportedly completed in the fire riser room some time before 2011 that consisted of the excavation and removal of approximately 14, 55-gallon barrels of contaminated soil. However, no documentation of associated confirmation soil sampling was identified (HWA 2018).

3.4. 2009 Remedial Excavation/32nd Avenue West Improvements

A road improvement project for the 32nd Avenue West ROW in 2009 identified soils containing a petroleum hydrocarbon odor in the ROW adjacent to the mineral spirits aboveground storage tank (AST) formerly located in the C-1 Building storage yard. Five soil borings were completed to depths up to 3 feet bgs in this area to evaluate and document the extent of potential petroleum-impacted soil. Gasoline-range TPH (TPH-G), TPH-O and ethylbenzene were detected in one soil sample at concentrations less than the MTCA Method A cleanup levels. Approximately 13 cubic yards of suspect petroleum-impacted soils were excavated and stockpiled pending characterization and disposal. Two soil samples were collected from the soil stockpile and analyzed for TPH-G, TPH-D and VOCs. The results of chemical analysis indicated the stockpiled soil contained TPH-G at concentrations greater than the MTCA Method A cleanup level of 100 mg/kg. Based on a review of sample chromatograms, the TPH-G product was identified as mineral spirits (CDM 2009). TPH-D, TPH-O, 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene were also detected at concentrations less than their respective cleanup levels, and these chemicals were interpreted to be associated with the mineral spirits detected in the stockpiled soil (CDM 2009).

Four soil borings were completed in the area surrounding the remedial excavation and one boring was completed within the remedial excavation footprint. One soil sample was collected from each boring and analyzed for one or more of the following: petroleum hydrocarbon identification by NWTPH-HCID, TPH-G, TPH-D, and/or benzene, toluene, ethylbenzene, and xylenes (BTEX). TPH-G, TPH-O and ethylbenzene were detected at concentrations less than their respective MTCA cleanup levels; no other chemicals were detected at concentrations greater than laboratory reporting limits. Soil samples collected from the borings were not analyzed for VOCs.

3.5. 2018 Phase I and II Environmental Site Assessments

A combined Phase I and II ESA was conducted at the Site between March and May 2018, and the findings and results are presented in the report dated July 10, 2018 (HWA 2018). The 2018 Phase II ESA investigation scope was established based on the identified Recognized Environmental Condition (RECs) and Controlled REC (CREC) in the Phase I ESA. Phase II ESA sampling was completed in May 2018. The explorations were completed adjacent to features located in the C-1 Building storage yard: former UST excavation, former sump, distilling shed, compressor shed, stormwater catch basin, and the mineral spirits

AST. Excerpts from the 2018 HWA report are included in Appendix A, which show exploration locations and associated tabulated chemical analytical data.

3.5.1. Soil and Groundwater Investigation Summary

Phase II ESA sampling consisted of drilling six soil borings to depths between 10 and 15 feet bgs and the completion of one hand-auger boring in the C-1 Building storage yard, and installation of six sub-slab soil vapor probes inside the C-1 Building. Nine soil samples were collected from the direct-push and hand auger borings, and six soil vapor samples and one ambient indoor air sample were collected inside the building. Groundwater was encountered in four of the six borings at depths between 4 and 10 feet bgs and grab groundwater samples were collected from temporary wells installed in these borings. Soil and groundwater samples were submitted for laboratory chemical analysis for petroleum hydrocarbons, Resource Control and Recovery Act (RCRA) 8 metals (total and dissolved), and VOCs. Soil vapor and ambient air samples were submitted for analysis of VOCs and TPH-G. The results of the Phase II ESA sampling are summarized below.

- **Historical Solvent UST.** Two soil samples collected from depths of 5 feet bgs within and adjacent to the former UST contained acetone, 1,2-dichlorobenzene and naphthalene at concentrations less than MTCA Method A cleanup levels. The grab groundwater sample collected from the boring within the UST excavation footprint contained vinyl chloride at a concentration of 0.32 micrograms per liter (µg/L), which is greater than the MTCA Method A cleanup level. Chlorobenzene, 2-chlorofotoluene and 1,2-dichlorobenzene were also detected at concentrations less than the MTCA Method A cleanup levels.
- **Inactive Sump.** One soil sample collected from a depth of 3.5 feet bgs contained barium and chromium at concentrations less than applicable MTCA cleanup levels.
- **Distilling and Compressor Sheds.** TPH-O were detected in the hand-auger soil sample collected adjacent to the compressor shed at a concentration less than the MTCA Method A cleanup level. No other analytes were detected in soil from this area.
- **Stormwater Catch Basin.** One soil sample collected from a depth of 3 feet bgs adjacent to the northern-most stormwater catch basin (see Figure 2) contained TCE at a concentration of 0.12 mg/kg, which is greater than the MTCA Method A cleanup level. Acetone, vinyl chloride, (trans) 1,2-dichloroethene, (cis) 1,2-dichloroethene, barium, chromium and lead were also detected at concentrations less than the applicable MTCA cleanup levels. A grab groundwater sample collected from the boring at this location contained vinyl chloride and TCE at concentrations of 0.38 µg/L and 7 µg/L, which are greater than their respective MTCA cleanup levels. Acetone, chlorobenzene, 2-chlorotoluene, (cis) 1,2-dichloroethene, 1,2,4-trimethylbenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, arsenic, and barium were detected at concentrations less than the applicable cleanup levels.
- **Mineral Spirits AST.** One soil sample collected from a depth of 3 feet bgs in the vicinity of the mineral spirits AST contained acetone and 2-butanone (MEK) at concentrations less than the MTCA cleanup levels. A grab groundwater sample collected from the boring at this location contained vinyl chloride at a concentration of 0.62 µg/L, which is greater than the MTCA Method A cleanup level. TPH-D, benzene, acetone, and 1,2,4-trimethylbenzene were detected at concentrations less than applicable MTCA cleanup levels.
- **Soil Vapor and Ambient Air Inside C-1 Building.** Four sub-slab soil vapor samples were collected in the vicinity of the former wash tank and former trench drain located inside the C-1 Building and two

soil vapor samples were collected in the western and northern portions of the building. Outdoor air samples were not collected as part of the investigation. Sub-slab soil vapor and indoor air chemical analytical data were compared to the MTCA Method B soil vapor screening levels and MTCA Method B indoor air cleanup levels, both of which are based on residential exposure (also referred to as "unrestricted land use"). VOCs were detected in all six collected soil vapor samples at concentrations greater than the soil vapor screening level or the indoor air cleanup level. Additionally, gasoline-range petroleum hydrocarbons were detected in all soil vapor samples at concentrations less than the applicable screening and cleanup levels. TCE was detected in all collected soil vapor samples at concentrations ranging from 15.1 micrograms per cubic meter (μg/m^3) to 37,000 μg/m^3. Other VOCs detected at concentrations greater than the MTCA Method B soil vapor screening levels were PCE, 1,1,2-trichloroethane (TCA), 1,1-dichloroethane, 1,2,4–trimethylbenzene, 1,4-dichlorobenzene, acrolein, benzene, carbon tetrachloride, chloroform, and naphthalene. The highest detected VOC concentrations were from the soil vapor samples collected adjacent to the former wash tank (see Figure 2). Additionally, benzene, carbon tetrachloride, and TCE were detected in the indoor air sample at concentrations greater than the MTCA Method B indoor air cleanup levels.

Based on the results of the investigation, the 2018 Phase II ESA report concluded that the contaminant impacts to environmental media had not been fully characterized.

3.6. 2020 Vapor Intrusion Evaluation

A VI Evaluation was conducted at the Site in December 2020 to evaluate indoor air at the C-1 Hangar and portions of the C-1 Building based on commercial uses of the buildings. The findings of the evaluation are included in the C-1 Hangar and C-1 Building Vapor Evaluation Report (GEI 2021a; included as Appendix B), dated April 27, 2021, and were used to evaluate the nature and extent of contaminants in soil vapor and indoor air for this RI report. Twelve sub-slab soil vapor (SV-1 through SV-12), 13 indoor air (IA-1 through IA-13), and two outdoor air samples (OA-1 and OA-2) were collected during the VI Evaluation and submitted for laboratory chemical analysis for total petroleum hydrocarbons (TPH) and VOCs. Twelve sub-slab soil vapor and seven indoor air samples were collected inside the C-1 Hangar and six indoor air samples were collected within the C-1 Building as shown on Figure 2.

Two soil vapor samples (SV-10 and SV-12) were collected in the C-1 Hangar near the wall abutting the C-1 Building to assess soil vapor in areas closest to the C-1 Building where soil vapor sampling conducted in 2018 identified contaminant concentrations greater than the MTCA Method B soil vapor screening levels. Indoor air samples were collected in areas of the C-1 Building where soil or indoor air samples collected during previous investigations indicated the presence of one or more COCs at concentrations greater than the respective MTCA Method B indoor air cleanup levels. Two outdoor air samples were collected at locations upwind and downwind of the C-1 Hangar and C-1 Building at the time of sampling. Ecology guidance allows outdoor air results to be evaluated in conjunction with indoor air sampling to better estimate whether contaminants detected in indoor air are likely, or not likely, due to vapor intrusion (Ecology 2022a). Consistent with Ecology guidance, the minimum detected outdoor air sample concentrations for each analyte are subtracted from the indoor air sample results to account for background conditions (see Table 3). Soil vapor samples were not collected from the C-1 Building during the 2020 investigation.

For screening purposes, the sub-slab soil vapor sampling results were compared to the MTCA Method B soil vapor screening levels for residential exposure and to the soil vapor screening levels for commercial exposure (Table 1). Indoor air sample analytical results were evaluated by comparison to the MTCA Method

B indoor air cleanup levels for residential exposure and to indoor air screening levels for commercial exposure. The tabulated soil vapor and indoor air chemical analytical results are presented in Tables 1 and 2, respectively.

The TCE results for the indoor air samples were also compared to the TCE Short-Term Residential and Commercial Worker Indoor Air Action Levels of 2.0 µg/m^3 and 7.5 µg/m^3, respectively (Ecology 2022a). TCE indoor air concentrations are less than both Indoor Air Action Levels.

The findings of the 2020 VI Evaluation indicate that the detected concentrations of COCs in indoor air were detected at concentrations greater than the MTCA Method B indoor air cleanup levels for residential exposure, but not greater than the indoor air screening levels for commercial exposure. The commercial values are applicable to the commercial/office uses at the C-1 Building. Note that the report was published prior to Ecology's March 2022 update to the Commercial Worker Scenario (Ecology 2022a); a review of the 2020 data relative to the revised commercial worker screening levels indicate that the detected COC concentrations remain protective of commercial/office uses for the buildings. As noted above, the TCE results for the indoor air samples were also less than the TCE Short-Term Residential and Commercial Worker Indoor Air Action Levels.

The following is a summary of the soil vapor sample results for the 2020 VI Evaluation for samples with concentrations that are greater than the applicable screening or cleanup levels. Chemical analytical results for sub-slab vapor are presented in Table 1.

- TCE was detected in soil vapor at concentrations greater than the MTCA Method B soil vapor screening level for residential exposure in sample SV-10 and for residential and commercial exposure in sample SV-12 located in the C-1 Hangar near the wall that adjoins the C-1 Building.
- Naphthalene was detected in soil vapor at concentrations greater than the MTCA Method B soil vapor screening level for residential exposure in nine samples (SV-2, SV-3, SV-4, SV-6 through SV-10, and SV-12) collected inside the C-1 Hangar.
- TPH (the sum of individual petroleum fractions, BTEX and naphthalene) was detected in soil vapor in eight samples (SV-3, SV-4, SV-6, SV-7, and SV-9 through SV-12) located inside the C-1 Hangar at concentrations greater than the MTCA Method B soil vapor screening level for residential exposure, and in sample SV-6 at a concentration greater than the MTCA Method B soil vapor screening level for commercial exposure.
- PCE, 1,1-dichloroethane and chloroform were detected in one soil vapor sample (SV-12) located in the C-1 Hangar near the wall abutting the C-1 Building at concentrations greater than the MTCA Method B soil vapor screening level for residential exposure. The detected 1,1-dichloroethane and chloroform concentrations are greater than the MTCA Method B soil vapor screening level for commercial exposure.

The following is a summary of the indoor and outdoor air sample results for the 2020 VI Evaluation for samples with concentrations greater than the applicable screening or cleanup levels. Chemical analytical results for indoor and outdoor air samples are presented in Table 2. Table 3 presents the indoor air chemical analytical results adjusted to account for contributions from outdoor air. The chemicals listed below were detected in indoor air or soil vapor at concentrations greater than the MTCA Method B indoor air cleanup levels or soil vapor screening levels, respectively.

- TCE was detected in indoor air at one location inside the C-1 Hangar (IA-7) and at five locations inside the C-1 Building (IA-8, and IA-10 through IA-13) at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure. The adjusted TCE concentrations are also greater than the MTCA Method B indoor air cleanup level for residential exposure. However, TCE was not detected in any indoor air samples at concentrations greater than the MTCA Method B indoor air screening level for commercial exposure.
- Naphthalene was detected at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure in six indoor air samples (IA-1 through IA-6) collected inside the C-1 Hangar and in six indoor air samples (IA-8 through IA-13) collected inside the C-1 Building. The adjusted naphthalene concentrations were greater than the MTCA Method B indoor air cleanup level for residential exposure in seven samples (IA-1 through IA-6 and IA-10). However, naphthalene was not detected in any indoor air samples at concentrations greater than the MTCA Method B indoor air screening level for commercial exposure.
- TPH (the sum of individual petroleum fractions, BTEX and naphthalene) was detected in indoor air at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure in seven samples (IA-1 through IA-6 and IA-8) collected inside the C-1 Hangar and in six samples (IA-8 through IA-13) collected inside the C-1 Building. The adjusted TPH concentrations for these samples are also greater than the MTCA Method B indoor air cleanup level for residential exposure. However, TPH was not detected in any indoor air samples at concentrations greater than the MTCA Method B indoor air screening level for commercial exposure.
- Chloroform was detected at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure in seven indoor air samples (IA-7 through IA-13); two of the adjusted indoor air concentrations (IA-10 and IA-11) are also greater than the MTCA Method B indoor air cleanup level for residential exposure. However, chloroform was not detected in any indoor air samples at concentrations greater than the MTCA Method B indoor air screening level for commercial exposure.
- Benzene was detected in all twelve indoor air samples collected (IA-1 through IA-12) at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure. However, benzene was not detected in soil vapor at concentrations greater than the MTCA Method B soil vapor screening level for residential exposure. The adjusted benzene concentrations are also less than the MTCA Method B indoor air cleanup level for residential exposure and the MTCA Method B indoor air screening level for commercial exposure.
- 1,2-dichloroethane and carbon tetrachloride were detected at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure in one or more indoor air samples collected during the 2020 investigation. However, 1,2-dichloroethane and carbon tetrachloride were not detected in soil vapor at concentrations greater than the MTCA Method B soil vapor screening level for residential exposure. The adjusted 1,2-dichloroethane and carbon tetrachloride concentrations are also less than the MTCA Method B indoor air cleanup level for residential exposure and the MTCA Method B soil vapor screening level for commercial exposure.
- PCE and 1,1-dichloroethane were not detected at concentrations greater than the laboratory reporting limits in any of the indoor air or outdoor air samples.

Chemical analytical results for the air samples collected within the C-1 Building indicate that the adjusted indoor air concentration of chloroform, naphthalene, TCE and TPH are greater than the respective MTCA Method B indoor air cleanup levels for residential exposure. However, the VI Evaluation findings note that the adjusted indoor air concentrations of these analytes are less than the indoor air screening levels for commercial exposure, which are applicable for the commercial/office uses at the C-1 Building.

3.7. 2021 Phase II Environmental Site Assessment

A Phase II ESA was conducted in March 2021 to further assess the potential impacts to soil and groundwater identified at the Site during previous investigations. The 2021 investigation focused on the C-1 Hangar and portions of the C-1 Building and adjacent storage yard. The results of the Phase II ESA are presented in the Phase II Environmental Site Assessment report (GEI 2021b; included as Appendix C), dated June 1, 2021, and were used to evaluate the nature and extent of COC contamination at the Site for this RI. Fifteen soil borings (C-1 DP1 through C-1 DP15) were completed in the C-1 Hangar, the C-1 Building and southeast adjacent storage yard to depths of between 7 and 15 feet bgs. Twenty-nine soil samples and four grab groundwater samples were collected from the borings and submitted for laboratory chemical analysis for TPH, VOCs, polychlorinated biphenyls (PCBs), and RCRA metals. Of these samples, two soil samples were collected from one boring completed within the C-1 Building and four soil samples and two grab groundwater samples were collected from two borings completed in the storage yard. Soil boring and grab groundwater sampling locations are presented in Figure 3. Soil chemical analytical results are presented in Tables 3 through 5. Groundwater chemical analytical results are presented in Table 7. The following is a summary of the chemical analytical results for soil and groundwater samples with contaminant concentrations greater than the applicable cleanup levels.

- TCE was detected in two soil samples collected from depths of 4 and 7 feet bgs from boring C-1 DP15 at concentrations greater than the MTCA Method A cleanup level. Boring C-1 DP15 was located in the C-1 Building adjacent to the former location of the wash tank (see Figure 2).
- Total arsenic was detected in three grab groundwater samples collected from temporary wells installed in borings C-1 DP2, C-1 DP3 and C-1 DP14 at concentrations greater than the MTCA Method A cleanup level. Total arsenic was detected in the groundwater sample collected from boring C-1 DP13 at a concentration of 6.62 μg/L, which is greater than the MTCA cleanup level at the time of publication of the report; however, the cleanup level for arsenic has recently been revised by Ecology since publication of the report (Ecology 2022b).
- Total chromium and total lead were detected in three grab groundwater samples collected from temporary wells installed in borings C-1 DP2, C-1 DP3 and C-1 DP14 at concentrations greater than the MTCA Method A cleanup level.

The results of the grab groundwater sampling during the 2018 and 2020 Phase II ESAs indicate that further evaluation was needed to assess groundwater conditions at the Site, including the installation of permanent monitoring wells.

3.8. 2022 Supplemental Phase II Environmental Site Assessment

A supplemental Phase II ESA was conducted in April 2022 to further evaluate soil and groundwater conditions surrounding the C-1 Hangar and C-1 Building. The results of the investigation were published in the RI Work Plan (GEI 2022) and are summarized in this report. Four soil borings (C-1 HSA1 through C-1 HSA4) were completed to depths of between 16.6 and 25 feet bgs. Three of these borings were drilled in the vicinity of the C-1 Building while the fourth was drilled southwest of the C-1 Hangar (Figure 3).

Groundwater was encountered during drilling at borings C-1 HSA3 and C-1 HSA4 at depths of approximately 12 feet bgs and 4.5 feet bgs, respectively, and the borings were completed as permanent groundwater monitoring wells. Groundwater in monitoring well C-1 HSA4 was observed to recharge quickly with minimal drawdown during low-flow groundwater sampling. Well C-1 HSA3 was observed to recharge slowly following groundwater sampling. The results of the Site investigation, including the detection of COCs in near-by soil and groundwater that were reportedly historically discharged from the C-1 Building to the stormwater conveyance system, suggest that groundwater in the vicinity of monitoring well C-1 HSA4 may be influenced by the adjacent stormwater line. Groundwater was not encountered during drilling of borings C-1 HSA1 and C-1 HSA2.

Eleven soil samples were collected from the four borings and submitted for analysis for TPH, VOCs and RCRA metals. One groundwater sample was collected from each of the two monitoring wells and submitted for analysis for TPH, VOCs, and total and dissolved RCRA metals. The soil and groundwater chemical analytical results are presented in Tables 3 through 6 and summarized below:

- TCE was detected in two soil samples collected from boring C-1 HSA4, located near the storm drain east of the C-1 Building, at depths of 15 feet bgs (0.0022 mg/kg) and 20 feet bgs (0.067 mg/kg). The detected TCE concentration in the soil sample collected from 20 feet bgs is greater than the MTCA Method A cleanup level of 0.03 mg/kg. Toluene, total xylenes, and TCE breakdown products cis-1,2-dichloroethene and trans-1,2-dichloroethene were also detected in one or both soil samples at concentrations less than MTCA Method A cleanup levels.
- 1,2-dichloroethane was detected in soil samples collected from boring C-1 HSA2, located adjacent to the drainpipe connecting the stormwater catch basin to the C-1 Building, at depths of 10 and 15 feet bgs. The detected concentrations were less than the MTCA Method A cleanup level.
- The detected metals concentrations in the collected soil samples were consistent with naturally occurring background metals concentrations for Puget Sound (Table 6).
- Vinyl chloride was detected in the groundwater sample collected from monitoring well C-1 HSA4 at a concentration of 0.36 µg/L, which is greater than the MTCA Method A cleanup level of 0.20 µg/L. TPH-D, chlorobenzene and 1,2-dichlorobenzene were also detected in the collected groundwater sample at concentrations less than the MTCA cleanup levels.
- Total arsenic was detected in the groundwater samples collected from monitoring wells C-1 HSA3 and C-1 HSA4 at concentrations of 9.99 and 10.2 µg/L, respectively, which are greater than the MTCA Method A cleanup level of 8 µg/L. Dissolved arsenic concentrations in the two collected samples were less than the MTCA cleanup level.

Chemical analytical results for the 2021 Phase II ESA and the 2022 supplemental Phase II ESA investigation indicate that TCE-contaminated soil is present beneath the southern portion of the C-1 Building, within the building footprint. Additionally, vinyl chloride was detected at a concentration greater than the MTCA Method A cleanup level in groundwater from the monitoring well located in the storage yard (C-1 HSA4).

3.9. 2022 to 2023 Remedial Investigation

The objectives of the RI included completing additional field investigation and sampling to address data gaps in the Site characterization, further developing the CSM, and identifying the data needed to select an approach for Site cleanup. RI boring and monitoring well construction logs are presented in Appendix D, laboratory analytical reports are included in Appendix E, and RI field procedures are presented in Appendix F.

3.9.1. Pre-RI Data Gaps

The following data gaps were identified based on review of available data and the results of the previous investigations, including the 2020 VI Evaluation, the 2021 Phase II ESA, and the 2022 Supplemental Phase II ESA, as identified in the RI Work Plan:

- **Soil and groundwater within the C-1 Building footprint.** Previous soil sampling within the building footprint consisted of one boring completed during the 2021 Phase II ESA and the 2001 soil sampling associated with the mineral spirits-contaminated soil in the northwestern corner of the building. No evaluation had been completed of groundwater beneath the presumed source area near the south corner of the C-1 Building.
- **TCE and vinyl chloride in soil and groundwater in the C-1 Building storage yard.** Chlorinated solvents were previously detected in three grab groundwater samples collected from soil borings and one groundwater sample collected from a monitoring well; however, the vertical and lateral extent of TCE and vinyl chloride detected in soil and groundwater in the storage yard had not been documented.
- **Soil and groundwater conditions near the former mineral spirits AST location.** Diesel-range total petroleum hydrocarbons were detected in a 2018 grab groundwater sample collected in the vicinity of the former AST; the detected concentration was less than the MTCA Method A cleanup level, however groundwater in the vicinity of the former AST had not been fully evaluated.
- **Groundwater conditions beneath the C-1 Hangar.** Groundwater was encountered during the 2021 investigation at only one location beneath the C-1 Hangar near the southern end of the hangar. Groundwater conditions could not be further evaluated due to refusal during direct-push drilling. Groundwater conditions beneath the hangar adjacent to the presumed source area in the C-1 Building (northeast wall of C-1 Hangar; see Figure 4) had not been evaluated.
- **The vertical extent of mineral spirits-contaminated soil beneath the C-1 Building.** The vertical extent of mineral oil-impacted soil beneath the northeast portion of the C-1 Building had not been evaluated.

3.9.2. Soil Borings

Thirteen soil borings (C-1 RI1 through C-1 RI13, see Figure 4) were advanced to assess soil and groundwater beneath the C-1 Building and C-1 Hangar to document the lateral and vertical extent of VOC contamination identified in 2021 in the southern portion of the C-1 Building and assess soil and groundwater conditions in the C-1 Building storage yard.

Drilling and monitoring well installation activities were conducted from December 19 through 22, 2022. The soil borings were drilled using hollow stem auger (HSA) techniques by a licensed driller, Holocene Drilling of Puyallup, Washington. The borings were advanced to depths between 4 and 35.5 feet bgs depending on the area being investigated.

Soil samples collected during drilling were field screened using methods outlined in Appendix F, Field Procedures. Soil photoionization detector (PID) readings ranged from less than one part per million (<1 ppm) to 121.5 ppm in the borings. Up to four soil samples were collected from each boring at selected depth intervals between 4 and 20 feet bgs for laboratory chemical analysis. Soil samples were submitted to Friedman & Bruya Inc. (F&B) in Seattle, Washington for analysis for the following COCs identified in the RI Work Plan:

- TPH-G by method NWTPH-Gx;
- TPH-D/-O by method NWTPH-Dx;
- VOCs by EPA Method 8260; and
- Metals (RCRA 8) by EPA 6000/7000 series (Samples C-1 RI-1 to C-1 RI-5 only)

Forty soil samples (39 plus one duplicate) were submitted to F&B for the TPH and BTEX chemical analyses, 33 soil samples (32 plus one duplicate) were submitted for VOC chemical analysis, and 15 soil samples were submitted for total metals chemical analysis. Soil samples were collected from depths between 4 and 25 feet bgs. Laboratory analytical reports are included in Appendix C. Chemical analytical results are summarized in Tables 3 through 5 and Figure 5. Soil chemical analytical results are summarized below:

- TCE was detected in seven soil samples collected from borings C-1 RI-2 and C-1 RI-3, located adjacent to the former trench drain inside the C-1 Building, at depths between 4 and 20 feet bgs. The detected TCE concentrations ranged from 0.0034 mg/kg to 0.73 mg/kg, with TCE concentrations greater than the cleanup level (CUL) of 0.03 mg/kg in five of the seven soil samples. 1,1-dichoroethene, 1,1-dichoroethane, and 1,1,1-trichloroethane, cis-1,2-dichloroethene, and/or tetrachloroethene were detected in the soil samples at concentrations less than the CULs.
- TCE and/or cis-1,2-dichloroethene were detected in soil samples collected from borings C-1 RI-1, C-1 RI-6 and C-1 RI-9, located north of the former trench drain. The detected concentrations were less than the CULs.
- TCE was detected in three of four soil samples collected from boring C-1 RI-12 at concentrations ranging from 0.058 mg/kg to 0.061 mg/kg, which are greater than the CUL of 0.03 mg/kg. Cis-1,2-dichloroethene was detected in the three soil samples at concentrations less than the CULs.
- The detected metals concentrations in the collected soil samples were within naturally occurring background metals concentrations for Puget Sound (Table 6).

3.9.3. Groundwater Monitoring Wells

Groundwater monitoring wells were constructed in selected soil borings (C-1 RI10, C-1 RI12 and C-1 RI13), as shown on Figure 4, to assess groundwater conditions in areas of the Site that had not been previously evaluated. The monitoring wells were installed in the borings to depths between 15 and 25 feet bgs.

Wet soil conditions were observed in borings C-1 RI10, C-1 RI12 and C-1 RI13 between 10 and 20 feet bgs. Groundwater or wet soil conditions were not observed in the other 12 borings. The monitoring wells were constructed with 2-inch-diameter polyvinyl chloride (PVC) casing. A 10-foot-long, 0.010-slot screen was installed between 5 and 15 feet bgs in C-1 RI10 and C-1 RI13; and between 15 and 25 feet bgs in C-1 RI12. The monitoring wells were completed with a flush-mount, traffic-rated box at the surface. Copies of the boring logs and well construction diagrams are included in Appendix D.

The casing rim elevation of each new monitoring well was surveyed relative to North American Vertical Datum of 1988 (NAVD 88). Depth to groundwater measurements were taken prior to and during monitoring well sampling and elevations were calculated to evaluate the groundwater flow direction and gradient at the Site. Groundwater elevations are shown in Table 8 and in Figure 5.

Groundwater samples were collected for laboratory chemical analysis from five monitoring wells as part of the investigation (C-1 HSA3, C-1 HSA-4, C-1 RI-10, C-1 RI-12, and C-1 RI-13). Six groundwater samples (five samples plus one duplicate) were submitted to F&B for analysis for the following COCs identified in the RI Work Plan:

- Petroleum hydrocarbons by NWTPH-Gx and NWTPH-Dx
- VOCs by EPA Method 8260
- Total and Dissolved Metals (RCRA 8) by EPA 6000/7000 series

F&B's laboratory report is included in Appendix E, Analytical Laboratory Reports. The chemical analytical results are summarized and compared to Ecology MTCA Method A CULs, in the attached Table 7. A summary of the groundwater analytical results is follows:

- TPH-O was detected in the groundwater samples collected from monitoring wells C-1 HSA-4, C-1 RI-10, C-1 RI-12, and C-1 RI-13. The detected concentrations ranged from 200 µg/L to 300 µg/L and were less than the CUL of 500 µg/L.
- Vinyl chloride was detected in the groundwater samples collected from monitoring wells C-1 HSA-4, C-1 RI-10, C-1 RI-12, and C-1 RI-13 at concentrations ranging from 0.12 µg/L to 0.47 µg/L. The detected vinyl chloride concentrations in groundwater samples collected from monitoring wells C-1 HSA-4, C-1 RI-12 and C-1 RI-13 were greater than the cleanup level CUL of 0.20 µg/L.
- Chlorobenzene, 1,2-dichlorobenzene, cis-1,2-dichloroethene, and/or 1,2-dichloroethane were detected in the groundwater samples collected for monitoring wells C-1 HSA-4, C-1 RI-10, and C-1 RI-12 at concentrations less than the respective CUL.
- Total and dissolved arsenic were detected in five of five groundwater samples collected during 2022/2023. The detected total and dissolved arsenic concentrations were similar in each groundwater sample and ranged from 6.14 µg/L to 33.7 µg/L. The total and dissolved arsenic concentrations detected in groundwater samples collected from monitoring wells C-1 HSA-4, C-1 RI-10 and C-1 RI-13 were greater than the CUL of 8 µg/L.
- Total and dissolved barium were detected in all five of the groundwater samples collected at concentrations ranging from 41.4 µg/L to 103 µg/L, which are less than the CUL of 3,200 µg/L. Total and dissolved selenium were detected in four of five groundwater samples collected at concentrations ranging from 1.85 µg/L to 2.71 µg/L, which were less than the CUL of 80 µg/L. The detected total and dissolved barium and selenium concentrations were similar in each analyzed groundwater sample. Total chromium was detected in the groundwater sample collected from monitoring well C-1 RI-12 at a concentration of 1.10 µg/L, which is less than the CUL of 50 µg/L.

3.9.4. Investigation Derived Waste

Investigation derived waste (IDW), including soil and water, generated during the Phase II ESA and RI drilling and sampling activities was contained in Department of Transportation (DOT)-approved 55-gallon drums and temporarily stored on site pending characterization and disposal. The IDW is currently pending disposal at a facility licensed to receive the material. Soil and purge water IDW were characterized using the soil and groundwater sample data presented in Tables 2 through 6. Soil containing detectable concentrations of TCE or other chlorinated solvents were disposed under a contained-in determination (CID) from Ecology. Copies of the disposal receipts and the CID letter are included as Appendix G.

4.0 CONCEPTUAL SITE MODEL (CSM)

This section presents the preliminary CSM developed for the Site. The CSM was developed primarily based on the results of the 2020 VI Evaluation, the 2021 and 2022 Phase II ESAs and the RI. The results of investigations completed prior to 2020 were also used to supplement the more recent Site data for development of the CSM. The CSM will be refined, as warranted, following any additional investigations.

4.1. Physical Setting

The Site is located at Paine Field/Snohomish County Airport in Everett, Washington at an elevation of approximately 600 feet above mean sea level. Local surface topography in the Site vicinity is relatively flat. Approximately 1 mile west of the Site, topography slopes to the west toward Big Gulch Creek, which discharges into Possession Sound. The Site and surrounding area are primarily developed with airport buildings, associated paved parking, roads, and landscaping.

4.2. Geology and Hydrogeology

Soil conditions encountered at the Site generally consist of a fill layer up to approximately 4 to 10 feet thick overlying glacial till. The fill unit is comprised of a mixture of sand and silt, with varying amounts of gravel. The underlying glacial till is comprised of dense to very dense sand with interbedded silt and varying amounts of gravel. The upper portion of the till (generally 5 to 10 feet) is weathered and less dense than the underlying, unweathered till.

Groundwater at the Site occurs in discontinuous zones within the fill and upper portion of the weathered till and, where present, appears to be perched on top of the unweathered till. Groundwater has not been observed beneath the C-1 Building or C-1 Hangar but was observed beneath the C-1 Building storage yard. Groundwater was encountered in borings C-1 DP2, C-1 DP3, C-1 DP13, C-1 DP14, C-1 HSA3, C-1 HAS4, C-1 RI-10, C-1 RI-12, and C-1 RI-13. The groundwater flow direction is inferred to be generally toward the north across the C-1 Building storage yard based on the results of the RI (Figure 5). The results of the RI indicate that the stormwater conveyance pipes located in the C-1 Building storage yard have likely leaked over time, as discussed in Section 4.3, and the presence of groundwater in this area may be seasonally related to stormwater leaking from pipe cracks, holes or pipe joints, and discharge from the roof drain pipes.

A regional aquifer is interpreted to be present within advance outwash deposits beneath the airport and vicinity at depths of greater than 130 feet bgs with a regional groundwater flow direction toward the north (CDM 2000). Exploration logs are presented in Appendix D.

4.3. Sources of Contamination

Prior Site activities included the use of TCE, petroleum hydrocarbons and other VOCs associated with aircraft maintenance activities, which were spilled/released inside and surrounding the C-1 Building. The source of arsenic in groundwater was not identified during the RI.

The findings of the RI have identified the following confirmed or likely contaminant sources:

- **Wash tank and former trench drain located inside the C-1 Building.** These features were observed to be connected to the stormwater conveyance system, and chemicals were reportedly disposed of in these features during prior building operations. TCE was detected in soil collected below the former trench drain during the RI. Although chloroform and naphthalene were not identified in Site soil during the RI, both chemicals were detected in soil vapor beneath the C-1 Hangar in 2020 (soil vapor sample SV-12 located closest to the former trench drain) and in soil vapor samples collected adjacent to the former trench drain in the C-1 Building in 2018 (see Appendix A). The highest detected concentrations of chloroform and naphthalene in soil vapor were from samples collected closest to the former trench drain indicating the drain is the likely source for these chemicals in soil vapor beneath the C-1 Building and C-1 Hangar.
- **Direct discharge to stormwater catch basins.** Prior reports indicate chemicals were historically observed to have been discharged directly to the stormwater system.
- **Stormwater conveyance system.** Chemicals discharged to the former trench drain and directly to the storm system catch basins likely leaked at one or more locations resulting in the TCE and vinyl chloride detections identified in soil and groundwater near stormwater lines and catch basins in the C-1 Building storage yard.
- **Former UST adjacent to the C-1 Hangar.** Diesel- and oil-range petroleum hydrocarbons, acetone, 1,2-dichlorobenzene and naphthalene were historically detected in soil collected from within the UST excavation area footprint. Chlorobenzene, 2-chlorofotoluene, 1,2-dichlorobenzene and vinyl chloride were detected in a grab groundwater sample collected within the UST excavation footprint during the 2018 Phase II ESA.
- **Former mineral spirits AST.** TPH-G, TPH-D, benzene, toluene, ethylbenzene and xylenes were detected in soil adjacent to the former location of the AST during the 2009 road improvement project for the 32nd Avenue West ROW. Diesel-range petroleum hydrocarbons were detected in a 2018 grab groundwater sample collected in the vicinity of the former AST.
- **Surface releases/spills in the C-1 Building storage yard.** TCE was detected in soil samples collected from boring C-1 RI-12 at depths between 4 and 20 feet bgs. The TCE concentrations decreased with depth in the boring suggesting a surface release or spill that migrated downward through the fill soil and into the underlying native till.
- **Releases/spills inside the C-1 Building Precision Equipment Room/Fire Riser Room.** Mineral spirits/TPH-D were detected in soil samples collected in 2000 and 2001.

4.4. Potential Receptors and Exposure Pathways

The following potential exposure pathways and receptors have been identified based on the current and anticipated future land use at the Site:

- **Direct Contact.** Contaminated soil is located beneath building slabs and paved and/or improved surfaces of the Site; therefore, the direct contact pathway is not complete. Construction workers are the primary human receptor and may potentially be exposed through direct contact with contaminated soil during excavation activities that disturb the overlying improved/paved surfaces.

- **Drinking Water.** Groundwater beneath the Site is not considered to be a current source of drinking water. Drinking water is supplied by municipal water supplies (Mukilteo Water). However, drinking water is still considered a potential exposure pathway as required by Ecology and the MTCA regulations.
- **Surface Water.** Surface water discharge is not considered to be a current exposure pathway because the ground surface is mostly capped with improved/paved hardscapes and surface water is not present at the Site.
- **Indoor Air.** Soil vapor to indoor air is considered a complete exposure pathway for the Site based on the detected COC concentrations in soil vapor and indoor air in the C-1 Building during the 2018 investigation and in the C-1 Hangar during the 2020 VI evaluation. The potential for VI and impacts to indoor air is further discussed below in Section 6.4.

4.4.1. Terrestrial Ecological Evaluation

The Site qualifies for a Terrestrial Ecological Evaluation (TEE) exclusion because the Site meets the conditions of a TEE exclusion under WAC 173-340-7491(1)(b) and (1)(c). Contaminant-containing soil at the Site is covered by buildings, paved roads and paved parking areas and there are less than 1.5 acres of contiguous undeveloped land on the Site or within 500 feet of any area of the Site.

5.0 PRELIMINARY CLEANUP STANDARDS

MTCA Method A or Method B cleanup levels for unrestricted land use are the preliminary cleanup levels (PCULs) for soil and groundwater. Site cleanup levels and points of compliance for Site media will be developed following completion of supplemental RI activities to address the remaining data gaps identified in Section 8.0 and further define the extent of contamination at the Site.

6.0 NATURE AND EXTENT OF CONTAMINATION

The following section describes the nature and extent of contamination to soil, groundwater, soil vapor and indoor air based on the results of the RI. Exploration locations and detected TCE soil concentrations greater than the PCUL are shown in Figure 6. Monitoring well locations and detected vinyl chloride and/or arsenic groundwater concentrations greater than the PCUL are shown on Figure 7. Geologic cross section A-A' shows the approximate vertical extent of soil contamination and the TCE and arsenic groundwater plume (Figure 8).

6.1. Contaminants and Media of Concern

Potential COCs include potentially hazardous or toxic compounds which have a history of use at the Site, or which were detected in environmental media during environmental investigations. The COCs for each media are identified below based on the findings of the Site investigations and applicable MTCA criteria.

6.1.1. Soil

TPH and VOCs were identified as soil COCs for the Site based on the sources of contamination to soil and the site characterization results. TPH-D/mineral spirits and TCE contaminated soil remains in place at concentrations greater than the soil CULs beneath and adjacent to the C-1 Building. The nature and extent of soil COCs are further discussed in Section 6.2. Chemical analytical results for soil samples collected at the Site between 2021 and 2023 are summarized in Tables 3 through 5.

6.1.2. Groundwater

TPH, VOCs and arsenic were identified as groundwater COCs for the Site based on results of the RI. Vinyl chloride and arsenic were identified as the primary groundwater COCs because they are present in groundwater at concentrations greater than the groundwater PCULs in one or more groundwater sample collected at the Site between 2021 and 2023 and were detected in groundwater during the 2018 investigation.

Total chromium and/or total lead were present in groundwater at concentrations greater than the PCULs in three grab groundwater samples collected from borings in 2021; however, dissolved chromium and lead were not detected in these samples at concentrations greater than the PCULs. The elevated total chromium and total lead detected in these grab groundwater samples is attributed to the nature of grab sampling from open boreholes and not to a specific contaminant source at the Site.

The nature and extent of groundwater COCs is further discussed in Section 6.3. Chemical analytical results for groundwater samples collected at the Site between 2021 and 2023 are summarized in Table 7. Groundwater chemical analytical results for samples collected in 2018 are shown in Appendix A.

6.1.3. Soil Vapor and Indoor Air

Based on screening of the soil and groundwater data, TPH and VOCs were identified as COCs with the potential to migrate into enclosed spaces through VI at concentrations that could be greater than the Method B indoor air CULs and/or the screening level (SL) for the protection of commercial workers. An evaluation for VI potential is further discussed in Section 6.4. Chemical analytical results for soil vapor sampling completed at the C-1 Building and C-1 Hangar during the 2020 investigation are summarized in Tables 1 and 2.

6.2. Soil

The nature and extent of COCs in soil is based on the analytical data from soil samples collected at the Site between 2018 and 2023 because these data are relatively recent and considered most representative of current Site conditions. Soil data from the 2000 and 2001 investigation completed in the C-1 Building Precision Equipment Room/Fire Riser Room were used to inform the RI due to a lack of more recent data from this area.

TCE was the only soil COC that was detected at concentrations greater than the PCUL based on the results of the RI. Previous investigations in 2000 and 2001 identified mineral spirits in soil locally within the C-1 Building Precision Equipment Room/Fire Riser Room at concentrations greater than the PCUL. The nature and extent of COCs in soil at concentrations greater than the CUL is summarized below and shown in Figure 6.

6.2.1. Beneath the C-1 Building

TCE at concentrations greater than the PCUL is present in soil in the vicinity of the former C-1 Building former trench drain at depths ranging from approximately 4 to 20 feet bgs. The detected concentrations ranged from 0.044 mg/kg to 0.73 mg/kg for soil samples collected during the RI, which are greater than the PCUL of 0.03 mg/kg. Soil samples collected from borings completed to the north and northeast of the former trench drain (C-1 RI-1, C-1 RI-6, and C-1 RI-9) and to the southwest in the adjacent C-1 Hangar (C-1 RI-4 and C-1 RI-5) did not contain TCE at concentrations greater than the PCUL. Based on the data, the extent of TCE in soil at concentrations greater than the PCUL is interpreted to be limited to the area beneath and possibly immediately adjacent to the former trench drain inside the C-1 Building.

Four soil samples collected during investigations completed in 2000 and 2001 in the former Precision Equipment Room/Fire Riser Room (see Appendix A) had TPH-D (mineral spirits) concentrations greater than the PCUL. The lateral extent of TPH-D containing soil was delineated based on the results of the investigation; however, vertical delineation was not achieved. The deepest sample collected at a depth of 15 feet bgs had a detected TPH-D (mineral spirits) concentration of 5,500 mg/kg, which is greater than the CUL. A remedial investigation was reportedly completed in this area to remove soil from the area with the elevated TPH-D (mineral spirits) concentration; however, no documentation of the excavation or associated confirmation sampling is available. Attempts to complete a soil boring in this area in 2022 were not successful due to refusal in shallow dense soils before the 15-foot depth could be reached. Therefore, there is no information to assess if the soil with concentrations greater than the PCUL was removed or remains in place at this location.

6.2.2. C-1 Building Storage Yard

TCE at concentrations greater than the PCUL is present in soil in the vicinity of the stormwater conveyance pipes. TCE was detected at a concentration of 0.067 mg/kg in the RI soil sample collected from a depth of 20 feet bgs in boring C-1 HSA4, which is greater than the PCUL of 0.03 mg/kg. Additionally, one soil sample collected during the 2018 investigation from a depth of 3 feet bgs (boring B-5; see Appendix A) contained TCE at a concentration of 0.12 mg/kg.

TCE at concentrations greater than the PCUL is also present in soil near the southeastern edge of the C-1 Building storage yard, and in soil collected from boring C-1 RI-12 at depths of 4, 10, and 20 feet bgs. TCE was not detected at a concentration greater than the laboratory reporting limit in the soil sample collected from a depth of 25 feet bgs in boring-C-1 RI-12.

6.3. Groundwater

The nature and extent of COCs in groundwater for the RI is based on the analytical data from groundwater samples collected from monitoring wells constructed at the Site between 2022 and 2023, which are representative of current conditions. Groundwater samples collected at the Site prior to 2022 were grab samples collected from open boreholes for preliminary assessment purposes and are not considered representative of current conditions.

The extent of vinyl chloride and arsenic contamination in groundwater is shown in Figure 7 and the groundwater chemical analytical data are summarized in Table 7.

6.3.1. C-1 Building Storage Yard

Vinyl chloride at concentrations greater than the PCUL is present in groundwater in the northeastern half of the C-1 Building storage yard at monitoring wells C-1 HSA4, C-1 RI-12 and C-1 RI-13 with concentrations ranging from 0.25 µg/L to 0.47 µg/L.

Arsenic (total and dissolved) is present in groundwater at concentrations greater than the PCUL in monitoring wells C-1 HSA4, C-1 RI-10 and C-1 RI-13. The detected total and dissolved arsenic concentrations were similar for each sample analyzed indicating that most of the arsenic detected in groundwater is in the dissolved phase. Total and dissolved arsenic was detected at concentrations greater than the PCUL in a grab groundwater sample collected from boring C-1 DP14 during the 2021 Phase II ESA; however, groundwater was not present in this area at the time of monitoring well installation in 2022, so additional groundwater samples could not be collected from this area.

Based on the detected concentrations of vinyl chloride and arsenic in groundwater greater than the PCUL near the northern and eastern edge of the C-1 Building storage yard, the groundwater COC plume in this area likely extends beneath adjacent paved roads and parking areas to the northeast and southeast.

6.3.2. Beneath/Adjacent to the C-1 Hangar

Groundwater was identified at only one location (C-1 DP2) inside the C-1 Hangar and at one location immediately adjacent to the Hangar (C-1 DP3) during the 2021 Phase II ESA (see Figure 7). Total arsenic, chromium and lead were detected at concentrations greater than the PCULs in the grab groundwater samples collected from the borings; however, concentrations of dissolved arsenic, chromium and lead were less than the PCUL in the groundwater samples. These results suggest that the elevated total metals concentrations detected in the grab samples are likely related to suspended solids in the grab samples obtained from the borings and are not considered representative of groundwater conditions at these two locations. The drilling and sampling during the RI did not encounter groundwater beneath the C-1 Building.

6.4. Soil Vapor and Indoor Air

The nature and extent of Site COCs in soil vapor and indoor air is summarized below. The COCs in soil vapor and indoor air are TPH and VOCs. As discussed in Section 4.3, specific source areas for the carbon tetrachloride, chloroform and naphthalene detected in soil vapor and indoor air inside the C-1 Building and C-1 Hangar were not identified during the RI. Soil vapor and indoor air sampling locations are shown in Figures 2 and 3, respectively.

6.4.1. C-1 Building

Soil vapor sampling was not completed inside the C-1 Building during the 2020 VI Evaluation. Therefore, the results of indoor air sampling completed inside the C-1 Building in 2018 (HWA 1018) were used to evaluate the nature and extent of COC contamination in soil vapor beneath the C-1 Building for this RI. Three sub-slab soil vapor samples were collected in 2018 in the C-1 Building adjacent to former trench drain and adjacent to the wall abutting the C-1 Hangar and three samples were collected in the central and western portions of the C-1 Building.

In general, the detected VOC concentrations were highest in the soil vapor samples collected nearest the former trench drain indicating proximity to a source. TCE was detected at concentrations greater than the laboratory reporting limit in all six soil vapor samples at concentrations ranging from 15.1 $\mu g/m^3$ to 37,000 $\mu g/m^3$, which are greater than the soil vapor SL (see Appendix A). PCE, 1,1-dichloroetheane, 1,4-dichlorobenzenebenzene, naphthalene, benzene and/or TCE were also detected at concentrations greater than the soil vapor SL in one or more samples.

The results of indoor and outdoor air sampling identified 1,2-dichloroethane, benzene, carbon tetrachloride, chloroform, naphthalene, and TCE in indoor air inside the C-1 Building. The adjusted indoor air analytical results indicate that chloroform, naphthalene, TCE and TPH (the sum of individual petroleum fractions, BTEX and naphthalene) were present in one or more indoor air samples collected inside the C-1 Building at concentrations greater than the MTCA Method B cleanup level for residential exposure. TCE concentrations were greater than the MTCA Method B cleanup level for residential exposure in five of six air samples collected inside the C-1 Building.

No analytes were detected at concentrations greater than the MTCA Method B indoor air screening levels for commercial exposure.

6.4.2. C-1 Hangar

The results of sub-slab soil vapor sampling completed inside the C-1 Hangar in 2020 identified 1,1-dichloroethane (1,1-DCA), chloroform, naphthalene, PCE, TCE, and TPH (the sum of individual petroleum fractions, BTEX and naphthalene) in at least one soil vapor sample at a concentration greater than the MTCA Method B soil vapor screening levels for residential exposure. Additionally, 1,1-DCA, chloroform, naphthalene, and TCE were detected at concentrations greater than the MTCA Method B soil vapor screening levels for commercial exposure. Naphthalene detections in soil vapor were widespread throughout the C-1 Hangar and did not appear to be associated with any specific potential source of contamination. TCE, PCE, 1-1-dichloroethane and chloroform were detected in soil vapor at concentrations greater than the MTCA Method B soil vapor screening levels in samples SV-10 and SV-12, located close to the wall abutting the C-1 Building.

The results of the indoor and outdoor air sampling identified benzene, carbon tetrachloride, naphthalene, and TCE inside the C-1 Hangar. The adjusted indoor air analytical results indicate that naphthalene and TPH (the sum of individual petroleum fractions, BTEX and naphthalene) were present in all six indoor air samples collected inside the C-1 Hangar at concentrations greater than the MTCA Method B cleanup level for residential exposure. One indoor air sample (IA-7) collected near the wall abutting the C-1 Building also had a detected TCE concentrations greater than the MTCA Method B cleanup level for residential exposure. The naphthalene concentrations were greater than the MTCA Method B cleanup level for residential exposure in all six of the air samples collected inside the C-1 Hangar.

Chloroform and TCE were detected at concentrations greater than the respective MTCA Method B indoor air cleanup levels in only one indoor air sample (IA-7) collected near the wall abutting the C-1 Building, indicating the detected TCE and chloroform in indoor air are likely originating from soil beneath the adjacent C-1 Building.

No analytes were detected at concentrations greater than the MTCA Method B indoor air screening levels for commercial exposure.

7.0 CONTAMINANT FATE AND TRANSPORT

The fate and transport of contaminants are affected by the contaminant's chemical properties and the physical, chemical, and biological processes that they are exposed to. Factors influencing the transport of COCs at the Site include the location of contaminant sources, geology and hydrogeology, and storm sewer utility networks. Soil and groundwater contamination associated with the Site is situated beneath buildings and hardscape areas (paved parking areas and ROWs), which prevent direct exposure. TCE soil contamination is present beneath the former trench drain in the C-1 Building and in the storage yard area. Vinyl chloride and arsenic contamination in Site groundwater is limited to the C-1 Building storage yard and east of the C-1 Building. Source areas for the Site and lines of evidence supporting historical operations as the contaminant source(s) are discussed in Section 4.3.

In general, TCE, and to a lesser extent TPH, were discharged/spilled to the former trench drain inside the C-1 Building and into stormwater catch basins located in the storage yard, entered the stormwater pipes, and leaked through cracks or loose joints into the surrounding soil. TCE was also discharged/spilled to the ground from the containers staged in the C-1 building storage yard. TCE and TPH migrated vertically through the soil column to the groundwater table. Dissolved phase TCE and petroleum hydrocarbons then migrated horizontally and vertically downgradient of the source areas within preferential flow paths (including but not limited to along the fill and till contact) and laterally by dispersion and diffusion. TCE in groundwater degraded over time to other breakdown chemicals (cis-1,2-dichloroethene and trans-1,2-dichloroethene) due to the anoxic conditions documented in Site groundwater as discussed below. Further degradation converted the remaining chlorinated volatile organic compounds (CVOCs) to vinyl chloride. TCE in soil above the groundwater table remained as residual TCE in the vadose zone.

TCE and other VOCs released to the former trench drain have volatilized over time and intruded into indoor air within the C-1 Building and C-1 Hangar through cracks in the building slabs. TCE and other VOCs remaining in vadose zone soil beneath the former trench drain likely continue to volatilize into indoor air.

Groundwater geochemical conditions at the Site are favorable for reductive dichlorination due to low (0.06 to 0.72 ppm) dissolved oxygen concentrations and oxidation-reductive potential (ORP) values between -25 and -60 millivolts (mV) based on the results of the RI (see Appendix D). Degradation of TCE is evident due to the presence of vinyl chloride and the relative absence of middle-chain products (cis-1,2-dichloroethene was detected in only one of 12 groundwater samples collected at the Site between 2021 and 2023). The limited presence of cis-1,2-dichloroethene and the absence of trans-1,2-dichloroethene suggest the TCE plume in groundwater in the C-1 Building storage yard area has largely been degraded to vinyl chloride. The dissolved oxygen concentration observed in monitoring well C-1 RI-10 (3.18 ppm), located adjacent to the stormwater line, was significantly higher than other locations and may indicate the presence of oxygenated stormwater entering the Site aquifer through the leaking stormwater pipe. The absence of detected vinyl chloride in this well suggests the input of oxygen has locally degraded vinyl chloride to ethene.

The source of arsenic in Site groundwater is unknown. Dissolved arsenic concentrations were only slightly elevated above the PCUL of 8 µg/L in the RI groundwater sample collected from monitoring well C-1 RI-10 in January 2023, while dissolved arsenic concentrations in groundwater samples collected from monitoring wells C-1 HSA4 and C-1 RI-13, located near the northern portion of the C-1 Building storage yard, were between 28 and 30 µg/L. However, the dissolved arsenic concentration detected in the groundwater sample collected from monitoring well C-1 HSA4 in April 2022 was 7.62 µg/L, which is less than the PCUL and significantly less than the concentration detected in January 2023.

8.0 DATA GAPS

The following data gaps were identified during the RI and will be addressed during future investigations to supplement Site data necessary to complete the FS for the Site.

8.1. C-1 Building – Vertical Extent of TCE in Soil

TCE was identified in soil near the location of the former trench drain inside the C-1 Building at depths ranging from 4 to 20 feet bgs. The TCE concentrations greater than the PCUL in soil were delineated laterally in the area surrounding the former trench drain but not vertically beneath the former trench drain. However, the detected TCE concentration in the deepest soil sample collected (20 feet bgs) was 0.047 mg/kg, which is only slightly greater than the PCUL of 0.03 mg/kg and likely indicates the sample was collected near the deepest extent of soil with TCE at a concentration greater than the PCUL at that location. Based on the limited lateral extent of the TCE in soil at concentrations greater than the PCUL, the presence of the underlying dense till, and the absence of groundwater beneath the C-1 Building, the TCE is unlikely to extend much deeper than 20 feet bgs. Therefore, the lack of vertical delineation of the TCE in soil at this location is not considered a significant data gap.

8.2. C-1 Building – Vertical Extent of Mineral Spirits Contamination

Mineral spirits were identified in soil beneath the C-1 Building in the Precision Equipment Room/Fire Riser Room at concentrations greater than the applicable CULs during investigations in 2000 and 2001. The extent of mineral spirits greater than the CUL in soil were delineated laterally but not vertically. The deepest soil sample collected from a depth of 15 feet bgs had a detected mineral spirits concentration of 5,500 mg/kg. Additional deeper samples could not be collected due to drilling refusal at the dense till. The lack of vertical delineation at this location is not considered a significant data gap for the following reasons: the mineral spirits contamination in soil in this area was laterally delineated; mineral spirits soil contamination is unlikely to extend much deeper into the dense till; groundwater is not present beneath the C-1 Building; previous remedial actions may have removed a portion or all of the contaminated soil; and residual mineral spirits concentrations detected in soil may have degraded/decreased since 2000 and 2001.

8.3. Groundwater – C-1 Building Storage Yard

Vinyl chloride and arsenic concentrations were greater than the PCULs in the groundwater samples collected during the RI from the C-1 Building storage yard. The extent of vinyl chloride and arsenic in groundwater at concentrations were greater than the PCULs has not been delineated to the northeast and southeast of the storage yard into the adjacent paved parking areas and airport ROWs.

8.4. Soil – C-1 Building Storage Yard/32nd Avenue West ROW

TCE was detected in soil from boring C-1 RI-12 located in the eastern edge of the C-1 Building storage yard at concentrations greater than the PCUL (see Figure 6). The detected concentrations ranged in depth from 4 to 20 feet bgs and are likely related to a separate release/source area from other locations where TCE has been detected in soil. The extent of TCE in soil at concentrations were greater than the PCUL in this area is not known and may be associated with the former mineral spirits AST that was located in the vicinity or the storage of other chemicals in the C-1 Building storage yard. Confirmation sampling associated with the remedial excavation completed in the adjacent 32nd Avenue West ROW in 2009 did not identify contaminants in soil greater than the applicable cleanup levels; however, the soil confirmation samples collected were not analyzed for VOCs and therefore, there is no data to evaluate if the TCE detected in soil at boring C-1 RI-12 extends into the adjacent 32nd Avenue West ROW.

9.0 SUMMARY AND CONCLUSIONS

Investigations completed at the Site since 2000 have confirmed the presence of mineral spirits and TCE in soil at concentrations greater than the PCULs. Groundwater monitoring completed as part of the RI indicates that arsenic and vinyl chloride are present in groundwater in the C-1 Building storage yard at concentrations greater than the PCULs. Identified sources of contamination to soil and groundwater at the Site include a former trench drain located inside the C-1 Building, the stormwater conveyance system and a former AST located in the C-1 Building storage yard.

Soil with COC concentrations greater than the PCULs is limited to two locations beneath the C-1 Building and portions of the C-1 Building storage yard. The extent of groundwater with arsenic and vinyl chloride at concentrations greater than the PCULs is primarily beneath the C-1 Building storage yard and may extend to the northeast and southeast of the storage yard beneath the parking and ROW areas. Soil and groundwater contamination at the Site is capped by improved/paved surfaces and buildings and does not pose a risk for direct contact exposure under current Site conditions.

The adjusted chloroform, naphthalene, TCE, and TPH concentrations in the indoor air samples collected within the C-1 Hangar and/or C-1 Building were greater than the MTCA Method B indoor air cleanup levels for unrestricted land use. However, the adjusted COC concentrations in indoor air within the C-1 Building and C-1 Hangar were less than the MTCA Method B indoor air screening levels for commercial exposure, which are the appropriate screening levels based on the current uses of these buildings.

The data gaps identified in Section 8.0 of this report will be further investigated and addressed as required for development of the FS for the Site.

10.0 LIMITATIONS

We have prepared this report for the exclusive use of the Snohomish County Airport and their authorized agents and regulatory agencies.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment, and experience. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile, or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix H, Report Limitations and Guidelines for Use, for additional information pertaining to use of this report.

11.0 REFERENCES

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TABLES

Table 1

Soil Vapor Sample Chemical Analytical Results - 2020 VI Evaluation

C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

Sample ID	Sample Date	Air-Phase Petroleum Hydrocarbons (µg/m³)[1]				Volatile Organic Compounds (µg/m³)[2]										
		APH C5-C8 Aliphatics	APH C9-C12 Aliphatics	APH C9-C10 Aromatics	Sum of TPH/BTEXN	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2,4-Trimethylbenzene	1,2-Dibromoethane	1,4-Dioxane	1-Propene	2,2,4-Trimethylpentane
SV-1	11/30/20	**750**	270 U	140 U	**752**	**3.6**	0.76 U	4.2 U	0.30 U	2.2 U	2.2 U	14 U	0.42 U	2.0 U	6.6 U	26 U
SV-2	11/30/20	**380**	**290**	**590**	**1,277**	**8.7**	0.49 U	**8.4**	0.20 U	1.5 U	1.4 U	8.8 U	0.28 U	1.3 U	4.3 U	17 U
SV-3	11/30/20	**2,000**	**310**	**220**	**2,554**	3.1 U	0.78 U	4.4 U	0.31 U	2.3 U	2.3 U	14 U	0.44 U	2.1 U	6.9 U	27 U
SV-4	12/01/20	**3,000**	260 U	130 U	**3,010**	2.9 U	0.73 U	**4.8**	0.29 U	2.1 U	2.1 U	13 U	0.41 U	1.9 U	6.4 U	25 U
SV-5	12/01/20	**370**	**240**	**310**	**968**	1.9 U	0.47 U	2.6 U	0.19 U	1.4 U	1.3 U	**11**	0.26 U	1.2 U	4.1 U	16 U
SV-6	12/01/20	**22,000**	**1,800**	**460**	**24,547**	**32**	1.1 U	**340**	0.44 U	3.3 U	3.2 U	**43**	0.62 U	**5.5**	**65**	**40**
SV-7	12/01/20	**2,300**	**390**	**1,400**	**4,678**	3.0 U	0.76 U	**260**	0.30 U	2.2 U	**4.5**	**95**	0.42 U	2.0 U	**100**	26 U
SV-8	12/01/20	**200**	170 U	**180**	**395**	1.9 U	0.47 U	2.6 U	0.19 U	1.4 U	1.3 U	8.4 U	0.26 U	1.2 U	4.1 U	16 U
SV-9	12/01/20	**2,400**	**910**	**210**	**3,598**	**6.5**	0.78 U	**54**	0.31 U	2.3 U	2.3 U	**18**	0.44 U	2.1 U	6.9 U	27 U
SV-10	12/01/20	**1,300**	**480**	**220**	**2,047**	3.2 U	0.80 U	**28**	0.32 U	2.3 U	2.3 U	14 U	0.45 U	2.1 U	7.0 U	27 U
SV-11	12/01/20	**1,400**	**510**	150 U	**1,921**	**13**	0.84 U	**16**	0.33 U	2.5 U	2.4 U	15 U	0.47 U	2.2 U	7.3 U	28 U
SV-12	12/01/20	**4,600**	850 U	**800**	**5,429**	**7,900 J**	2.3 U	13 U	**1.8**	**530**	**930**	42 U	1.3 U	6.1 U	20 U	79 U
MTCA Method B Soil Vapor Screening Level for Residential Exposure [3]		NE	NE	NE	1,500	76,000	1.4	76,000	3	52	3,000	910	0.14	17	NE	NE
MTCA Soil Vapor Screening Level for Commericial Exposure [3]		NE	NE	NE	13,000	--	--	--	--	240	--	--	--	--	--	--

Table 1

Soil Vapor Sample Chemical Analytical Results - 2020 VI Evaluation

C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

Sample ID	Sample Date	Volatile Organic Compounds (µg/m3)[2]															
		Acetone	Acrolein	Allyl Chloride (3-Chloropropene)	Benzene	Butane	Carbon Tetrachloride	Chloroform	cis-1,2-Dichloroethylene	Dichlorodifluoromethane	Ethanol	Ethylbenzene	Isopropyl Alcohol	Methyl ethyl ketone (MEK)	Naphthalene	Pentane	Tetrachloroethylene
SV-1	11/30/20	**510 J**	11 U	8.6 U	**2.4**	13 U	1.7 U	0.27 U	2.2 U	2.7 U	**180**	2.4 U	**670 J**	16 U	1.4 U	16 U	37 U
SV-2	11/30/20	**360 J**	7.4 U	5.6 U	**3.7**	**36**	1.1 U	**0.51**	1.4 U	**3.1**	**220 J**	1.6 U	**97**	**11**	**5.5**	**18**	24 U
SV-3	11/30/20	**1,200 J**	12 U	8.9 U	1.8 U	**15**	1.8 U	0.28 U	2.3 U	**3.0**	**150**	**3.1**	**270**	**42**	**4.8**	17 U	39 U
SV-4	12/01/20	**2,000 J**	11 U	8.3 U	1.7 U	13 U	1.7 U	0.26 U	2.1 U	**2.9**	**270 J**	2.3 U	**3,600 J**	16 U	**2.9**	16 U	36 U
SV-5	12/01/20	**410 J**	7.0 U	5.3 U	**2.6**	8.1 U	1.1 U	0.17 U	1.3 U	**2.5**	**210 J**	**7.4**	**120**	10 U	**2.1**	10 U	23 U
SV-6	12/01/20	**2,000 J**	17 U	13 U	2.6 U	**29**	2.5 U	0.40 U	3.2 U	4.0 U	**640 J**	**51**	**1,000 J**	**140**	**6.5**	24 U	**93**
SV-7	12/01/20	**580 J**	11 U	8.6 U	**4.7**	**36**	**7.5**	0.27 U	2.2 U	**3.2**	**400 J**	**27**	**320**	**41**	**31**	**28**	37 U
SV-8	12/01/20	**240 J**	7.0 U	5.3 U	1.1 U	8.1 U	1.1 U	**0.55**	1.3 U	**2.8**	**490 J**	1.5 U	**67**	10 U	**6.7**	10 U	23 U
SV-9	12/01/20	**430 J**	12 U	8.9 U	1.8 U	14 U	1.8 U	0.28 U	2.3 U	2.8 U	**370 J**	**12**	**110**	17 U	**6.2**	17 U	39 U
SV-10	12/01/20	**460 J**	12 U	9.1 U	1.9 U	14 U	1.8 U	0.28 U	2.3 U	2.9 U	**240**	**6.1**	**83**	17 U	**8.8**	17 U	39 U
SV-11	12/01/20	**220**	13 U	9.5 U	1.9 U	15 U	1.9 U	0.30 U	2.4 U	3.0 U	**260**	2.6 U	**200**	18 U	**2.0**	18 U	41 U
SV-12	12/01/20	**190**	35 U	27 U	5.4 U	40 U	5.3 U	**170**	**20**	8.4 U	**150**	7.4 U	150 U	50 U	**12**	50 U	**740**
MTCA Method B Soil Vapor Screening Level for Residential Exposure [3]		470,000	0.3	14	11	NE	14	3.6	NE	1,500	NE	15,000	NE	76,000	2.5	NE	320
MTCA Soil Vapor Screening Level for Commericial Exposure [3]		--	--	--	--	--	--	17	--	--	--	--	--	--	11	--	1,500

Table 1

Soil Vapor Sample Chemical Analytical Results - 2020 VI Evaluation

C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

Sample ID	Sample Date	Volatile Organic Compounds (µg/m3)[2]						
		Tetrahydrofuran	Toluene	Trichloroethylene	Vinyl Bromide	Xylene, m-,p-	Xylene, o-	Total Xylenes[5]
SV-1	11/30/20	1.6 U	100 U	0.59 U	2.4 U	4.8 U	2.4 U	4.8 U
SV-2	11/30/20	1.1 U	68 U	**0.58**	1.6 U	**6.1**	**1.8**	**7.9**
SV-3	11/30/20	**2.5**	110 U	**0.64**	2.5 U	**12**	**3.7**	**15.7**
SV-4	12/01/20	**2.0**	100 U	**0.83**	2.3 U	**6.7**	2.3 U	**6.7**
SV-5	12/01/20	**15**	64 U	**0.37**	1.5 U	**29**	**6.9**	**35.9**
SV-6	12/01/20	**26**	150 U	0.87 U	3.5 U	**180**	**49**	**229**
SV-7	12/01/20	**18**	**390**	**0.74**	2.4 U	**98**	**37**	**135**
SV-8	12/01/20	**1.4**	64 U	**0.38**	1.5 U	**5.6**	**2.2**	**7.8**
SV-9	12/01/20	**2.6**	110 U	**2.8**	2.5 U	**44**	**16**	**60**
SV-10	12/01/20	**13**	110 U	**22**	2.5 U	**24**	**7.7**	**31.7**
SV-11	12/01/20	**7.1**	110 U	0.66 U	2.7 U	**6.4**	**2.6**	**9.0**
SV-12	12/01/20	5.0 U	320 U	**30,000 J**	7.4 U	**17**	7.4 U	**17**
MTCA Method B Soil Vapor Screening Level for Residential Exposure [3]		30,000	76,000	11	2.6	1,500	1,500	1,500
MTCA Soil Vapor Screening Level for Commercial [3]		--	--	95	--	--	--	--

Notes:

[1] Air-phase petroleum hydrocarbons analyzed using Massachusetts Department of Environmental Protection Method MA-APH. Chemical analytcial laboratory reports are included in Appendix E.

[2] VOCs analyzed using United States Environmental Protection Agency (EPA) Method TO-15.

[3] Model Toxics Control Act (MTCA) Method B soil vapor screening levels are from Ecology's "CLARC Master Spreadsheet.xlsx" dated January 2023.

[3] Model Toxics Control Act (MTCA) Commercial Worker soil vapor screening levels are from Ecology's "CLARC Master Spreadsheet.xlsx" dated January 2023.

[5] Sum of m,p-xylene and o-xylene. Where xylenes are non-detect, the highest laboratory reporting limit is shown.

µg/m^3 = micrograms per cubic meter

NE = not established

U = Constituent not detected above the laboratory reporting limit

-- = Commercial worker screening level not presented; VOC did not exceed the MTCA Method B Soil Vapor Screening Level.

J = Estimated concentration

Bold font type indicates the analyte was detected at a concentration greater than the laboratory reporting limit.

Gray shaded value indicates the detected concentration in soil vapor is greater than the MTCA Method B soil vapor screening level for residential exposure.

Yellow shaded value indicates the detected concentration in soil vapor is greater than the MTCA soil vapor screening levels for residential and commercial exposure.

Blue shading indicates the non-detect concentration was greater than the MTCA Method B indoor air cleanup level for residential exposure.

Table 2

Unadjusted Indoor Air and Outdoor Air Sample Chemical Analytical Results - 2020 VI Evaluation

C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

		Air-Phase Petroleum Hydrocarbons (µg/m³)[1]				Volatile Organic Compounds (µg/m³)[2]											
Sample ID	Sample Date	APH C5-C8 Aliphatics	APH C9-C12 Aliphatics	APH, C9-C10 Aromatics	Sum of TPH/BTEXN	1,1,2,2-Tetrachloroethane	1,2-Dibromoethane	1,2-Dichloroethane	1-Propene	Acetone	Acrolein	Allyl Chloride (3-Chloropropene)	Benzene	Benzyl chloride	Butane	Carbon Tetrachloride	Chloroform
IA-1_120120	12/01/20	**45**	**140**	25 U	188	0.14 U	0.077 U	**0.061**	1.2 U	**7.5**	2.1 U	1.6 U	**0.45**	0.052 U	**3.4**	**0.40**	**0.11**
IA-2_120120	12/01/20	40 U	**130**	25 U	133	0.14 U	0.077 U	**0.077**	1.2 U	**10**	2.1 U	1.6 U	**0.63**	0.052 U	**3.1**	**0.46**	**0.11**
IA-3_120120	12/01/20	**43**	**180**	25 U	226	0.14 U	0.077 U	**0.077**	1.2 U	**11**	2.1 U	1.6 U	**0.63**	0.052 U	**4.2**	**0.47**	**0.098**
IA-4_120120	12/01/20	**43**	**130**	25 U	176	0.14 U	0.077 U	**0.069**	1.2 U	**9.6**	2.1 U	1.6 U	**0.51**	0.052 U	**3.6**	**0.47**	**0.10**
IA-5_120120	12/01/20	40 U	**96**	25 U	99	0.14 U	0.077 U	**0.077**	1.2 U	**7.6**	2.1 U	1.6 U	**0.65**	0.052 U	**3.9**	**0.44**	**0.11**
IA-6_120120	12/01/20	40 U	**140**	25 U	143	0.14 U	0.077 U	**0.077**	1.2 U	**10**	2.1 U	1.6 U	**0.58**	0.052 U	**3.8**	**0.46**	**0.10**
IA-7_120120	12/01/20	40 U	50 U	25 U	0.54	0.14 U	0.077 U	**0.073**	**1.6**	**6.0**	2.1 U	1.6 U	**0.44**	0.052 U	2.4 U	**0.43**	**0.12**
IA-8_120120	12/01/20	**45**	**90**	25 U	139	0.14 U	0.077 U	**0.073**	1.2 U	**8.2**	2.1 U	1.6 U	**0.59**	0.052 U	**3.1**	**0.45**	**0.15**
IA-9_120120	12/01/20	**67**	**130**	25 U	201	0.14 U	0.077 U	**0.073**	1.2 U	**13**	2.1 U	1.6 U	**0.59**	0.052 U	**9.2**	**0.42**	**0.15**
IA-10_120120	12/01/20	**58**	**99**	25 U	161	0.14 U	0.077 U	**0.081**	1.2 U	**9.7**	2.1 U	1.6 U	**0.63**	0.052 U	**3.6**	**0.48**	**0.22**
IA-11_120120	12/01/20	**42**	**98**	25 U	144	0.14 U	0.077 U	**0.069**	1.2 U	**9.9**	2.1 U	1.6 U	**0.68**	0.052 U	**3.7**	**0.53**	**0.25**
IA-12_120120	12/01/20	**65**	**72**	25 U	141	0.14 U	0.077 U	**0.10**	1.2 U	**15**	2.1 U	1.6 U	**0.63**	0.052 U	**4.2**	**0.47**	**0.16**
IA-13_120120	12/01/20	**51**	**100**	25 U	155	0.14 U	0.077 U	**0.061**	1.2 U	**7.5**	2.1 U	1.6 U	**0.55**	0.052 U	**4.0**	**0.40**	**0.19**
OA-1_120120	12/01/20	40 U	50 U	25 U	NA	0.14 U	0.077 U	**0.073**	1.2 U	**5.0**	2.1 U	1.6 U	**0.42**	0.052 U	2.4 U	**0.47**	**0.093**
OA-2_120120	12/01/20	**59**	**52**	25 U	NA	0.14 U	0.077 U	**0.097**	**4.4**	**37**	2.1 U	1.6 U	**0.59**	0.052 U	2.4 U	**0.52**	**0.098**
MTCA Method B Indoor Air Cleanup Level for Residential Exposure [3]		NE	NE	NE	46	0.043	0.0042	0.096	NE	14,000	0.0091	0.42	0.32	0.051	NE	0.42	0.11
MTCA Method B Indoor Air Screening Level for Commercial Exposure [4]		NE	NE	NE	390	--	--	0.45	--	--	--	--	1.5	--	--	1.9	0.51

Notes:

[1] Air-phase petroleum hydrocarbons analyzed using Massachusetts Department of Environmental Protection Method MA-APH. Chemical analytical laboratory reports are included in Appendix E. Indoor air concentrations were adjusted to account for contributions from outdoor air (see Table 3).

[2] VOCs analyzed using United States Environmental Protection Agency (EPA) Method TO-15, except where noted. Indoor air concentrations were adjusted to account for contributions from outdoor air (see Table 3) for VOCs that were detected at concentrations greater than MTCA Method B indoor air cleanup levels.

[3] Model Toxics Control Act (MTCA) Method B indoor air cleanup levels for residential exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated January 2023. Residential exposure scenario assumes 365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic chemicals).

[4] Model Toxics Control Act (MTCA) Method B indoor air screening levels for commercial worker exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated January 2023. The commercial worker exposure scenario assumes 250 days/year, 9 hours/day for 25 years.

[5] Naphthalene analyzed using EPA Method TO-17.

[6] Sum of m,p-xylene and o-xylene. Where xylenes are non-detect, the highest laboratory reporting limit is shown.

µg/m³ = micrograms per cubic meter

NE = not established

NA = not applicable

-- = Commercial worker screening level not presented; VOC did not exceed the MTCA Method B Indoor Air Cleanup Level.

U = Constituent not detected above the laboratory reporting limit

Bold font type indicates the analyte was detected at a concentration greater than the laboratory reporting limit.

Gray shaded value indicates the unadjusted detected concentration in indoor air is greater than the MTCA Method B indoor air cleanup level for residential exposure.

Blue shading indicates the non-detect concentration was greater than the MTCA Method B indoor air cleanup level for residential exposure.

Table 2

Unadjusted Indoor Air and Outdoor Air Sample Chemical Analytical Results - 2020 VI Evaluation

C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

Sample ID	Sample Date	Volatile Organic Compounds (µg/m^3)[2]																	
		Dichlorodifluoromethane	Ethanol	Ethylbenzene	Hexachlorobutadiene	Hexane	Methylene Chloride	Naphthalene	Naphthalene[5]	Pentane	Tetrahydrofuran	Trichloroethylene	Vinyl Bromide	Xylene, m-,p-	Xylene, o-	Total Xylenes[6]	Butane	Pentane	Hexane
IA-1_120120	12/01/20	**2.4**	7.5 U	0.43 U	0.21 U	**4.0**	60 U	**0.21**	**0.11**	3.0 U	0.29 U	**0.15**	0.44 U	**1.4**	**0.63**	**2.03**	**3.4**	**3.0 U**	**4.0**
IA-2_120120	12/01/20	**2.3**	7.5 U	0.43 U	0.21 U	3.5 U	35 U	**0.18**	**0.11**	3.0 U	0.29 U	**0.14**	0.44 U	**1.6**	**0.72**	**2.32**	**3.1**	**3.0 U**	**3.5 U**
IA-3_120120	12/01/20	**2.7**	7.5 U	0.43 U	0.21 U	**3.6**	65 U	**0.20**	**0.11**	3.0 U	0.29 U	**0.13**	0.44 U	**1.5**	**0.66**	**2.16**	**4.2**	**3.0 U**	**3.6**
IA-4_120120	12/01/20	**2.8**	7.5 U	0.43 U	0.21 U	3.5 U	35 U	**0.27**	**0.10**	3.0 U	0.29 U	**0.13**	0.44 U	**1.5**	**0.66**	**2.16**	**3.6**	**3.0 U**	**3.5 U**
IA-5_120120	12/01/20	**3.0**	**9.8**	0.43 U	0.21 U	3.5 U	35 U	**0.14**	**0.12**	3.0 U	0.29 U	**0.12**	0.44 U	**1.3**	**0.55**	**1.85**	**3.9**	**3.0 U**	**3.5 U**
IA-6_120120	12/01/20	**2.9**	7.5 U	0.43 U	0.21 U	3.5 U	35 U	**0.19**	**0.11**	3.0 U	0.29 U	**0.19**	0.44 U	**1.6**	**0.70**	**2.30**	**3.8**	**3.0 U**	**3.5 U**
IA-7_120120	12/01/20	**2.9**	7.5 U	0.43 U	0.21 U	3.5 U	41 U	**0.057 J**	**0.10**	3.0 U	0.29 U	**1.1**	0.44 U	0.87 U	0.43 U	0.87 U	2.4 U	3.0 U	3.5 U
IA-8_120120	12/01/20	**2.2**	**16**	**0.48**	0.21 U	3.5 U	35 U	**0.094**	**0.12**	**7.4**	**0.31**	**0.37**	0.44 U	**1.7**	**0.66**	**2.36**	**3.1**	**7.4**	**3.5 U**
IA-9_120120	12/01/20	**2.5**	**11**	**0.48**	0.21 U	3.5 U	35 U	**0.13**	**0.15**	**29**	0.29 U	**0.31**	0.44 U	**1.8**	**0.73**	**2.53**	**9.2**	**29**	**3.5 U**
IA-10_120120	12/01/20	**2.9**	**84 J**	**0.60**	0.21 U	3.5 U	40 U	**0.15**	**0.14**	**13**	**0.31**	**0.44**	0.44 U	**2.3**	**0.79**	**3.09**	**3.6**	**13**	**3.5 U**
IA-11_120120	12/01/20	**2.8**	**95 J**	**0.57**	0.21 U	3.5 U	35 U	**0.084**	**0.13**	**12**	0.29 U	**0.41**	0.44 U	**2.1**	**0.77**	**2.87**	**3.7**	**12**	**3.5 U**
IA-12_120120	12/01/20	**2.9**	**37**	**0.46**	0.21 U	**7.3**	110 U	**0.084**	**0.12**	**7.3**	**0.31**	**0.70**	0.44 U	**1.7**	**0.60**	**2.30**	**4.2**	**7.3**	**7.3**
IA-13_120120	12/01/20	**2.5**	**25**	**0.51**	0.21 U	3.5 U	47 U	**0.13**	**0.13**	**7.9**	0.29 U	**0.60**	0.44 U	**1.9**	**0.67**	**2.57**	**4.0**	**7.9**	**3.5 U**
OA-1_120120	12/01/20	**2.9**	7.5 U	0.43 U	0.21 U	3.5 U	35 U	**0.057 J**	**0.061**	3.0 U	0.29 U	0.11 U	0.44 U	0.87 U	0.43 U	0.87 U	2.4 U	3.0 U	3.5 U
OA-2_120120	12/01/20	**3.0**	7.5 U	0.43 U	0.21 U	**3.9**	64 U	**0.079**	**0.058**	3.0 U	0.29 U	0.11 U	0.44 U	**0.91**	0.43 U	**0.91**	**2.4 U**	**3.0 U**	**3.9**
MTCA Method B Indoor Air Cleanup Level for Residential Exposure [3]		46	NE	460	0.11	320	66	0.074	0.074	NE	910	0.33	0.078	46	46	46	NE	NE	320
MTCA Method B Indoor Air Screening Level for Commercial Exposure [4]		--	--	--	--	--	--	0.34	0.34	--	--	2.8	--	--	--	--	--	--	--

Notes:

[1] Air-phase petroleum hydrocarbons analyzed using Massachusetts Department of Environmental Protection Method MA-APH. Chemical analytical laboratory reports are included in Appendix E. Indoor air concentrations were adjusted to account for contributions from outdoor air (see Table 3).

[2] VOCs analyzed using United States Environmental Protection Agency (EPA) Method TO-15, except where noted. Indoor air concentrations were adjusted to account for contributions from outdoor air (see Table 3) for VOCs that were detected at concentrations greater than MTCA Method B indoor air cleanup levels.

[3] Model Toxics Control Act (MTCA) Method B indoor air cleanup levels for residential exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated fJanuary 2023. Residential exposure scenario assumes 365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic chemicals).

[4] Model Toxics Control Act (MTCA) Method B indoor air screening levels for commercial worker exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated January 2023. The commercial worker exposure scenario assumes 250 days/year, 9 hours/day for 25 years.

[4] Naphthalene analyzed using EPA Method TO-17.

[5] Sum of m,p-xylene and o-xylene. Where xylenes are non-detect, the highest laboratory reporting limit is shown.

µg/m^3 = micrograms per cubic meter

NE = not established

NE = not established

-- = Commercial worker screening levels not presented; VOC did not exceed the MTCA Method B Indoor Air Cleanup Level.

U = Constituent not detected above the laboratory reporting limit

Bold font type indicates the analyte was detected at a concentration greater than the laboratory reporting limit.

Gray shaded value indicates the detected concentration in soil vapor is greater than the MTCA Method B indoor air cleanup level for residential exposure.

Blue shading indicates the non-detect concentration was greater than the MTCA Method B indoor air cleanup level for residential exposure.

Table 3

Adjusted Indoor Air Sample Chemical Analytical Results

C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

		Air-Phase Petroleum Hydrocarbons (µg/m^3)[1,2]	Volatile Organic Compounds (µg/m^3)[1,3]						
Sample ID	**Sample Date**	**Sum of TPH/BTEXN**	**1,2-Dichloroethane**	**Benzene**	**Carbon Tetrachloride**	**Chloroform**	**Naphthalene**	**Naphthalene[4]**	**Trichloroethylene**
IA-1_120120	12/01/20	187	**0**	**0.03**	**0**	**0.017**	**0.15**	**0.052**	**0.15**
IA-2_120120	12/01/20	133	**0.0040**	**0.21**	**0**	**0.017**	**0.12**	**0.052**	**0.14**
IA-3_120120	12/01/20	225	**0.0040**	**0.21**	**0**	**0.005**	**0.14**	**0.052**	**0.13**
IA-4_120120	12/01/20	175	**0**	**0.09**	**0**	**0.007**	**0.21**	**0.042**	**0.13**
IA-5_120120	12/01/20	98	**0.0040**	**0.23**	**0**	**0.017**	**0.083**	**0.062**	**0.12**
IA-6_120120	12/01/20	143	**0.0040**	**0.16**	**0**	**0.007**	**0.13**	**0.052**	**0.19**
IA-7_120120	12/01/20	0.06	**0**	**0.02**	**0**	**0.027**	**0**	**0.042**	**1.1**
IA-8_120120	12/01/20	138	**0**	**0.17**	**0**	**0.057**	**0.037**	**0.062**	**0.37**
IA-9_120120	12/01/20	200	**0**	**0.17**	**0**	**0.057**	**0.073**	**0.092**	**0.31**
IA-10_120120	12/01/20	161	**0.0080**	**0.21**	**0.01**	**0.127**	**0.093**	**0.082**	**0.44**
IA-11_120120	12/01/20	144	**0**	**0.26**	**0.06**	**0.157**	**0.027**	**0.072**	**0.41**
IA-12_120120	12/01/20	140	**0.027**	**0.21**	**0**	**0.067**	**0.027**	**0.062**	**0.7**
IA-13_120120	12/01/20	154	**0**	**0.13**	**0**	**0.097**	**0.073**	**0.072**	**0.6**
MTCA Method B Indoor Air Cleanup Level for Residential Exposure [5]		46	0.096	0.32	0.42	0.11	0.074	0.074	0.33
MTCA Method B Indoor Air Screening Level for Commercial Exposure [6]		390	0.045	1.5	1.9	0.51	0.34	0.34	2.8

Notes:

[1] Indoor air concentrations are adjusted to account for contributions from outdoor air. The lowest detected outdoor air concentration was used to adjust indoor air concentrations. If a VOC was not detected in outdoor air, the indoor air concentration was not adjusted. Only VOCs that were detected at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure (see Table 2) are listed in Table 3. A value of zero indicates the detected outdoor air concentration was equal to or greater than the detected indoor air concentration.

[2] Air-phase petroleum hydrocarbons analyzed using Massachusetts Department of Environmental Protection Method MA-APH.

[3] VOCs analyzed using United States Environmental Protection Agency (EPA) Method TO-15, except where noted.

[4] Naphthalene analyzed using EPA Method TO-17.

[5] Model Toxics Control Act (MTCA) Method B indoor air cleanup levels for residential exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated January 2023. Residential exposure scenario assumes 365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic

[6] Model Toxics Control Act (MTCA) Method B indoor air screening levels for commercial worker exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated January 2023. The commercial worker exposure scenario assumes 250 days/year, 9 hours/day for 25 years.

µg/m^3 = micrograms per cubic meter

NE = not established

Gray shaded value indicates the adjusted concentration in indoor air is greater than the MTCA Method B indoor air cleanup level for residential exposure.

Table 4

Soil Chemical Analytical Results 2021 and 2022[1]

Petroleum Hydrocarbons and BTEX

C-1 Hangar and C-1 Building, Snohomish County Airport

Everett, Washington

			Field Screening Results[3]		BTEX[4] (mg/kg)				Total Petroleum Hydrocarbons (mg/kg)[6]		
Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	Headspace Vapors (ppm)	Sheen	Benzene	Toluene	Ethylbenzene	Total Xylenes[5]	Gasoline Range	Diesel Range	Lube Oil Range
2021 Phase II ESA[7]											
C-1 DP1-3.5	3/31/2021	3.5	3.1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP1-11.0	3/31/2021	11.0	8.9	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP2-5.0	3/31/2021	5.0	3.8	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP2-11.0	3/31/2021	11.0	4.3	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP3-4.0	3/30/2021	4.0	0.7	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP3-7.0	3/30/2021	7.0	1,684	MS	0.005 U	0.005 U	0.005 U	0.01 U	**7.5**	50 U	250 U
C-1 DP4-3.5	3/30/2021	3.5	<1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP4-5.0	3/30/2021	5.0	3.7	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP4-7.0	3/30/2021	7.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP5-3.0	3/30/2021	3.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP5-6.0	3/30/2021	6.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP6-3.0	3/31/2021	3.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP6-6.0	3/31/2021	6.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP7-4.0	3/31/2021	4.0	3.0	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP7-9.0	3/31/2021	9.0	4.6	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP8-4.5	3/31/2021	4.5	1.9	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP8-9.0	3/31/2021	9.0	4.9	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP9-3.0	3/31/2021	3.0	3.4	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP9-7.5	3/31/2021	7.5	4.8	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP10-4.0	3/31/2021	4.0	3.7	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP11-4.0	3/31/2021	4.0	2.6	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP12-3.0	3/31/2021	3.0	2.2	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP12-8.0	3/31/2021	8.0	1.1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP13-2.0	3/30/2021	2.0	2.5	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP13-5.0	3/30/2021	5.0	2.3	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP14-5.0	3/30/2021	5.0	<1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP14-10.0	3/30/2021	10.0	2.3	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP15-4.0	3/30/2021	4.0	218	MS	0.005 U	0.005 U	0.005 U	0.01 U	**51**	50 U	250 U
C-1 DP15-7.0	3/30/2021	7.0	1.9	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
2022 Supplemental Phase II ESA Investigation[8]											
C-1 HSA1-5	4/4/2022	5.0	<1	SS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA1-15	4/4/2022	15.0	<1	NS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA2-4	4/4/2022	4.0	<1	NS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA2-10	4/4/2022	10.0	<1	SS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA2-15	4/4/2022	15.0	<1	NS	0.001 U	0.001 U	0.001 U	0.002 U	--	--	--
C-1 HSA3-5	4/5/2022	5.0	<1	NS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA3-10	4/5/2022	10.0	<1	NS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA4-5	4/5/2022	5.0	<1	SS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA4-10	4/5/2022	10.0	<1	MS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA4-15	4/5/2022	15.0	1.5	MS	0.001 U	0.001 U	0.001 U	0.002 U	5 U	50 U	250 U
C-1 HSA4-20	4/5/2022	20.0	<1	SS	0.001 U	**0.0032**	0.001 U	**0.0064**	5 U	50 U	250 U
2022 to 2023 Remedial Investigation[9]											
C-1 RI-1-4	12/19/2022	4.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-1-8	12/19/2022	8.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-1-10	12/19/2022	10.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-2-4	12/19/2022	4.0	9.1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-2-8	12/19/2022	8.0	4.9	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-2-10	12/19/2022	10.0	6.5	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-2-20	12/19/2022	20.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	--	--	--
C-1 RI-3-4	12/19/2022	4.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-3-8	12/19/2022	8.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-3-10	12/19/2022	10.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-4-4	12/19/2022	4.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-4-8	12/19/2022	8.0	1.2	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-4-10	12/19/2022	10.0	1.3	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-4-20	12/19/2022	20.0	1.5	NS	0.001 U	0.001 U	0.001 U	0.003 U	--	--	--
C-1 RI-5-4	12/19/2022	4.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-5-8	12/19/2022	8.0	1.1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-5-10	12/19/2022	10.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-5-20	12/19/2022	20.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	--	--	--
C-1 RI-6-4	12/20/2022	4.0	121.5	SS	0.001 U	0.001 U	**0.033**	**0.418**	5 U	50 U	250 U
C-1 RI-6-8	12/20/2022	8.0	3.1	NS	0.001 U	0.001 U	0.001 U	**0.0074**	**6.2**	50 U	250 U
C-1 RI-7-8	12/20/2022	8.0	1.2	SS	0.001 U	0.001 U	0.001 U	**0.0033**	5 U	50 U	250 U
C-1 RI-8-4	12/20/2022	4.0	13.2	SS	0.001 U	0.001 U	0.001 U	**0.0051**	5 U	50 U	250 U
C-1 RI-8-8	12/20/2022	8.0	11.1	NS	**0.0011**	**0.0027**	**0.0035**	**0.0078**	5 U	50 U	250 U
C-1 RI-9-4	12/20/2022	4.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-9-8	12/20/2022	8.0	1.2	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-10-4	12/21/2022	4.0	<1	MS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U

Table 4

Soil Chemical Analytical Results 2021 and 2022[1]

Petroleum Hydrocarbons and BTEX

C-1 Hangar and C-1 Building, Snohomish County Airport

Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	Field Screening Results[3]		BTEX[4] (mg/kg)				Total Petroleum Hydrocarbons (mg/kg)[6]		
			Headspace Vapors (ppm)	Sheen	Benzene	Toluene	Ethylbenzene	Total Xylenes[5]	Gasoline Range	Diesel Range	Lube Oil Range
C-1 RI-10-10	12/21/2022	10.0	<1	SS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-10-17	12/21/2022	17.0	1.4	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-11-2	12/21/2022	2.0	<1	MS	--	--	--	--	5 U	50 U	250 U
C-1 RI-Dup-1[10]	12/21/2022	2.0	<1	MS	--	--	--	--	5 U	**75**	250 U
C-1 RI-11-4	12/21/2022	4.0	2.4	SS	--	--	--	--	5 U	**180**	**880**
C-1 RI-12-4	12/20/2022	4.0	2.3	MS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-12-10	12/20/2022	10.0	7.6	SS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-12-20	12/20/2022	20.0	13	MS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-12-25	12/20/2022	25.0	<1	MS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-12-30	12/20/2022	30.0	<1	SS	--	--	--	--	--	--	--
C-1 RI-12-35	12/20/2022	35.0	<1	NS	--	--	--	--	--	--	--
C-1 RI-13-4	12/21/2022	4.0	<1	SS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-13-10	12/21/2022	10.0	<1	SS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
C-1 RI-13-20	12/21/2022	20.0	<1	NS	0.001 U	0.001 U	0.001 U	0.003 U	5 U	50 U	250 U
MTCA Method A or B Cleanup Level for Unrestricted Land Use					0.03	7	6	9	30/100[11]	2,000[12]	

Notes:

[1] Chemical analyses performed by Friedman and Bruya, Inc. of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix E.

[2] The approximate sample locations are shown in Figure 2.

[3] Field screening methods are described in Appendix A.

[4] BTEX compounds were analyzed by EPA Method 8260C.

[5] Sum of m,p-xylene and o-xylene. Where xylenes are non-detect, the highest laboratory reporting limit is shown.

[6] Petroleum hydrocarbons analyzed by NWTPH-Gx and NWTPH-Dx.

[7] Phase II Environmental Site Assessment conducted by GeoEngineers in March 2021.

[8] Supplemental Site Investigation conducted by GeoEngineers in April 2022.

[9] Remedial Investigation conducted by GeoEngineers in December 2022.

[10] Duplicate parent sample is C-1 RI-11-2.

[11] Cleanup level is 30 mg/kg when benzene present or 100 mg/kg when benzene is present.

[12] Cleanup level is the sum of diesel- and oil-range petroleum hydrocarbons.

-- = Not analyzed | bgs = below ground surface

NS = No sheen | mg/kg = milligrams per kilogram

SS = Slight sheen | U = Analyte not detected at a concentration greater than the listed reporting limit.

ESA = Environmental Site Assessment

Bold value indicates analyte detected at the concentration shown.

Table 5

Soil Chemical Analytical Results 2021 and 2022[1]

Volatile Organic Compounds (VOCs) and Polychlorinated Biphenyls (PCBs)

C-1 Hangar and C-1 Building, Snohomish County Airport

Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	VOCs[3] (mg/kg)																	Polychlorinated Biphenyls[4] (mg/kg)
			Chlorinated VOCs																	
			Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl Chloride	1,1-Dichloroethane	1,2-Dichloroethane (EDC)	1,1,1-Trichloroethane	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichlorobenzene	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chlorotoluene	
2021 Phase II ESA[5]																				
C-1 DP1-3.5	03/31/21	3.5	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP1-11.0	03/31/21	11.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP2-5.0	03/31/21	5.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP2-11.0	03/31/21	11.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP3-4.0	03/30/21	4.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP3-7.0	03/30/21	7.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP4-3.5	03/30/21	3.5	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP4-5.0	03/30/21	5.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP4-7.0	03/30/21	7.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.013**	0.005 U	0.025 U	0.025 U	**0.027**	0.005 U	**0.022**	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP5-3.0	03/30/21	3.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP5-6.0	03/30/21	6.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP6-3.0	03/31/21	3.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP6-6.0	03/31/21	6.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP7-4.0	03/31/21	4.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP7-9.0	03/31/21	9.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP8-4.5	03/31/21	4.5	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP8-9.0	03/31/21	9.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP9-3.0	03/31/21	3.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP9-7.5	03/31/21	7.5	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP10-4.0	03/31/21	4.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP11-4.0	03/31/21	4.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP12-3.0	03/31/21	3.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP12-8.0	03/31/21	8.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP13-2.0	03/30/21	2.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP13-5.0	03/30/21	5.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP14-5.0	03/30/21	5.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP14-10.0	03/30/21	10.0	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP15-4.0	03/30/21	4.0	**0.028**	**0.62**	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	**0.04**	**0.038**	**0.055**	0.005 U	**0.04**	0.005 U	**0.65**	**1.7**	**0.052**	0.02 U
C-1 DP15-7.0	03/30/21	7.0	0.005 U	**0.14**	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U

Table 5

Soil Chemical Analytical Results 2021 and 2022[1]

Volatile Organic Compounds (VOCs) and Polychlorinated Biphenyls (PCBs)

C-1 Hangar and C-1 Building, Snohomish County Airport

Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	VOCs[3] (mg/kg)																	Polychlorinated Biphenyls[4] (mg/kg)
			Chlorinated VOCs																	
			Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl Chloride	1,1-Dichloroethane	1,2-Dichloroethane (EDC)	1,1,1-Trichloroethane	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichlorobenzene	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chlorotoluene	
2022 Supplemental Phase II ESA Investigation[6]																				
C-1 HSA1-5	4/4/2022	5.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA1-15	4/4/2022	15.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA2-4	4/4/2022	4.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA2-10	4/4/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	**0.0026**	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA2-15	4/4/2022	15.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	**0.029**	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA3-5	4/5/2022	5.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA3-10	4/5/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA4-5	4/5/2022	5.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA4-10	4/5/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA4-15	4/5/2022	15.0	0.001 U	**0.0022**	**0.0014**	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 HSA4-20	4/5/2022	20.0	0.001 U	**0.067**	**0.018**	**0.0029**	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
2022 to 2023 Remedial Investigation[7]																				
C-1 RI-1-4	12/19/2022	4.0	0.001 U	**0.0020**	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-1-8	12/19/2022	8.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-1-10	12/19/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-2-4	12/19/2022	4.0	**0.0078**	**0.43**	0.001 U	0.002 U	**0.0014**	0.001 U	**0.0036**	0.002 U	**0.0091**	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-2-8	12/19/2022	8.0	**0.0021**	**0.29**	**0.0010**	0.002 U	**0.0035**	0.001 U	**0.0043**	0.002 U	**0.0030**	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-2-10	12/19/2022	10.0	**0.0031**	**0.73**	**0.0040**	0.002 U	**0.011**	0.001 U	**0.0067**	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-2-20[8]	12/19/2022	20.0	--	**0.044**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
C-1 RI-3-4	12/19/2022	4.0	**0.0026**	**0.047**	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-3-8	12/19/2022	8.0	0.001 U	**0.0049**	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-3-10	12/19/2022	10.0	0.001 U	**0.0034**	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-4-4	12/19/2022	4.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-4-8	12/19/2022	8.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-4-10	12/19/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-5-4	12/19/2022	4.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-5-8	12/19/2022	8.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-5-10	12/19/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-6-4	12/20/2022	4.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-6-8	12/20/2022	8.0	0.001 U	**0.0027**	**0.0027**	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-7-8	12/20/2022	8.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-8-4	12/20/2022	4.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-8-8	12/20/2022	8.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-9-4	12/20/2022	4.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-9-8	12/20/2022	8.0	0.001 U	0.001 U	**0.0013**	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-10-4	12/21/2022	4.0	0.001 U	**0.0014**	**0.0047**	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-10-10	12/21/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-10-17	12/21/2022	17.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-12-4	12/20/2022	4.0	0.001 U	**0.61**	**0.051**	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-12-10	12/20/2022	10.0	0.001 U	**0.075**	**0.0077**	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-12-20	12/20/2022	20.0	0.001 U	**0.058**	**0.0074**	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-12-25	12/20/2022	25.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--

Table 5

Soil Chemical Analytical Results 2021 and 2022[1]

Volatile Organic Compounds (VOCs) and Polychlorinated Biphenyls (PCBs)

C-1 Hangar and C-1 Building, Snohomish County Airport
Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	VOCs[3] (mg/kg)																	Polychlorinated Biphenyls[4] (mg/kg)
			Chlorinated VOCs																	
			Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl Chloride	1,1-Dichloroethane	1,2-Dichloroethane (EDC)	1,1,1-Trichloroethane	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichlorobenzene	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chlorotoluene	
C-1 RI-13-4	12/21/2022	4.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-13-10	12/21/2022	10.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
C-1 RI-13-20	12/21/2022	20.0	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--
MTCA Method A or B Cleanup Level for Unrestricted Land Use[9]			0.05	0.03	160	1,600	4,000[9]	0.67[9]	180[9]	11	2	NE	34.0	NE	7,200	800	NE	190	1,600	1

Notes:

[1] Chemical analyses performed by Friedman and Bruya, Inc. of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix E.

[2] The approximate exploration locations are shown in Figure 2.

[3] Volatiles were analyzed by EPA Method 8260D. Only volatiles that were detected are listed; all other volatiles are non-detect for all samples. BTEX results are presented in Table 1.

[4] PCBs analyzed by EPA Method 8082A.

[5] Phase II Environmental Site Assessment conducted by GeoEngineers in March 2021.

[6] Supplemental Site Investigation conducted by GeoEngineers in April 2022.

[7] Remedial Investigation conducted by GeoEngineers in December 2022.

[8] Sample C-1 RI-2-20 was analyzed for TCE outside of the hold time. Results should be considered an estimate value.

[9] Cleanup level shown is the MTCA Method A cleanup level for unrestricted land use. If no MTCA Method A value is available, the most conservative MTCA Method B cleanup level is presented.

bgs = below ground surface; mg/kg = milligrams per kilogram

U = Analyte not detected at a concentration greater than the listed reporting limit.

-- = Not analyzed; NA = Not available; NE = Not established

Bold value indicates analyte detected at the concentration shown.

Gray shaded value indicates the detected concentration exceeded the applicable cleanup level.

Table 6

Soil Chemical Analytical Results 2021 and 2022[1]

Total Metals

C-1 Hangar and C-1 Building, Snohomish County Airport
Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	Total Metals[3] (mg/kg)							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
2021 Phase II ESA[4]										
C-1 DP1-3.5	3/31/2021	3.5	**2.69**	**42.7**	1.00 U	**19.1**	**2.0**	1.00 U	1.00 U	1.00 U
C-1 DP1-11.0	3/31/2021	11.0	**2.92**	**50.5**	1.00 U	**65.7** [5]	**2.5**	1.00 U	1.00 U	1.00 U
C-1 DP2-5.0	3/31/2021	5.0	**4.74**	**34.5**	1.00 U	**21.1**	**1.74**	1.00 U	1.00 U	1.00 U
C-1 DP2-11.0	3/31/2021	11.0	**2.31**	**36.0**	1.00 U	**21.1**	**1.69**	1.00 U	1.00 U	1.00 U
C-1 DP3-4.0	3/30/2021	4.0	**2.25**	**26.0**	1.00 U	**23.3**	**4.86**	1.00 U	1.00 U	1.00 U
C-1 DP3-7.0	3/30/2021	7.0	**1.83**	**41.6**	1.00 U	**22.4**	**2.39**	1.00 U	1.00 U	1.00 U
C-1 DP4-3.5	3/30/2021	3.5	**1.78**	**50.1**	1.00 U	**20.3**	**2.14**	1.00 U	1.00 U	1.00 U
C-1 DP4-5.0	3/30/2021	5.0	**2.59**	**44.6**	1.00 U	**21.9**	**2.09**	1.00 U	1.00 U	1.00 U
C-1 DP4-7.0	3/30/2021	7.0	**1.83**	**35.6**	1.00 U	**19.4**	**1.62**	1.00 U	1.00 U	1.00 U
C-1 DP5-3.0	3/30/2021	3.0	**1.79**	**40.5**	1.00 U	**18.0**	**1.71**	1.00 U	1.00 U	1.00 U
C-1 DP5-6.0	3/30/2021	6.0	**2.08**	**48.0**	1.00 U	**24.6**	**2.37**	1.00 U	1.00 U	1.00 U
C-1 DP6-3.0	3/31/2021	3.0	**2.49**	**42.3**	1.00 U	**16.0**	**1.83**	1.00 U	1.00 U	1.00 U
C-1 DP6-6.0	3/31/2021	6.0	**2.63**	**48.0**	1.00 U	**20.0**	**2.13**	1.00 U	1.00 U	1.00 U
C-1 DP7-4.0	3/31/2021	4.0	**3.01**	**40.5**	1.00 U	**18.2**	**1.95**	1.00 U	1.00 U	1.00 U
C-1 DP7-9.0	3/31/2021	9.0	**2.01**	**38.3**	1.00 U	**18.2**	**1.75**	1.00 U	1.00 U	1.00 U
C-1 DP8-4.5	3/31/2021	4.5	**2.10**	**41.0**	1.00 U	**20.4**	**2.05**	1.00 U	1.00 U	1.00 U
C-1 DP8-9.0	3/31/2021	9.0	**2.93**	**47.2**	1.00 U	**18.8**	**2.22**	1.00 U	1.00 U	1.00 U
C-1 DP9-3.0	3/31/2021	3.0	**2.96**	**44.7**	1.00 U	**18.3**	**2.09**	1.00 U	1.00 U	1.00 U
C-1 DP9-7.5	3/31/2021	7.5	**2.36**	**44.2**	1.00 U	**20.8**	**2.36**	1.00 U	1.00 U	1.00 U
C-1 DP10-4.0	3/31/2021	4.0	**3.27**	**43.6**	1.00 U	**19.7**	**2.04**	1.00 U	1.00 U	1.00 U
C-1 DP11-4.0	3/31/2021	4.0	**2.98**	**46.5**	1.00 U	**18.3**	**2.22**	1.00 U	1.00 U	1.00 U
C-1 DP12-3.0	3/31/2021	3.0	**2.97**	**44.9**	1.00 U	**21.5**	**2.31**	1.00 U	1.00 U	1.00 U
C-1 DP12-8.0	3/31/2021	8.0	**3.02**	**39.3**	1.00 U	**21.4**	**2.11**	1.00 U	1.00 U	1.00 U
C-1 DP13-2.0	3/30/2021	2.0	**3.11**	**82.9**	1.00 U	**19.2**	**1.9**	1.00 U	1.00 U	1.00 U
C-1 DP13-5.0	3/30/2021	5.0	**3.35**	**40.7**	1.00 U	**14.7**	**1.59**	1.00 U	1.00 U	1.00 U
C-1 DP14-5.0	3/30/2021	5.0	**3.02**	**68.0**	1.00 U	**22.5**	**2.43**	1.00 U	1.00 U	1.00 U
C-1 DP14-10.0	3/30/2021	10.0	**1.71**	**32.5**	1.00 U	**16.4**	**1.31**	1.00 U	1.00 U	1.00 U
C-1 DP15-4.0	3/30/2021	4.0	**3.33**	**61.4**	1.00 U	**25.8**	**2.44**	1.00 U	1.00 U	1.00 U
C-1 DP15-7.0	3/30/2021	7.0	**3.24**	**56.5**	1.00 U	**19.6**	**2.15**	1.00 U	1.00 U	1.00 U
2022 Supplemental Phase II ESA Investigation[6]										
C-1 HSA1-5	4/4/2022	5.0	**1.70**	**46.2**	1 U	**15.9**	**1.59**	1 U	1 U	1 U
C-1 HSA1-15	4/4/2022	15.0	**2.14**	**48.5**	1 U	**22.3**	**2.26**	1 U	1 U	1 U
C-1 HSA2-4	4/4/2022	4.0	**2.36**	**43.5**	1 U	**19.4**	**2.03**	1 U	1 U	1 U
C-1 HSA4-5	4/5/2022	5.0	**2.13**	**52.3**	1 U	**18.2**	**1.90**	1 U	1 U	1 U
2022 to 2023 Remedial Investigation[7]										
C-1 RI-1-4	12/19/2022	4.0	**2.82**	**51.5**	1.0 U	**25.7**	**2.40**	1.0 U	1.0 U	1.0 U
C-1 RI-1-8	12/19/2022	8.0	**3.40**	**47.6**	1.0 U	**29.5**	**2.33**	1.0 U	1.0 U	1.0 U
C-1 RI-1-10	12/19/2022	10.0	**2.19**	**57.0**	1.0 U	**24.5**	**2.67**	1.0 U	1.0 U	1.0 U
C-1 RI-2-4	12/19/2022	4.0	**2.93**	**45.0**	1.0 U	**19.7**	**1.76**	1.0 U	1.0 U	1.0 U
C-1 RI-2-8	12/19/2022	8.0	**3.28**	**43.4**	1.0 U	**19.4**	**2.27**	1.0 U	1.0 U	1.0 U
C-1 RI-2-10	12/19/2022	10.0	**1.97**	**39.5**	1.0 U	**19.4**	**2.03**	1.0 U	1.0 U	1.0 U
C-1 RI-3-4	12/19/2022	4.0	**2.28**	**43.5**	1.0 U	**20.3**	**2.08**	1.0 U	1.0 U	1.0 U
C-1 RI-3-8	12/19/2022	8.0	**2.99**	**43.6**	1.0 U	**20.9**	**2.30**	1.0 U	1.0 U	1.0 U
C-1 RI-3-10	12/19/2022	10.0	**4.10**	**45.7**	1.0 U	**21.0**	**2.15**	1.0 U	1.0 U	1.0 U
C-1 RI-4-4	12/19/2022	4.0	**2.50**	**47.0**	1.0 U	**22.6**	**2.42**	1.0 U	1.0 U	1.0 U
C-1 RI-4-8	12/19/2022	8.0	**2.11**	**50.1**	1.0 U	**24.0**	**2.34**	1.0 U	1.0 U	1.0 U
C-1 RI-4-10	12/19/2022	10.0	**1.79**	**42.1**	1.0 U	**18.4**	**1.88**	1.0 U	1.0 U	1.0 U
C-1 RI-5-4	12/19/2022	4.0	**1.84**	**43.9**	1.0 U	**24.9**	**1.84**	1.0 U	1.0 U	1.0 U
C-1 RI-5-8	12/19/2022	8.0	**2.18**	**56.6**	1.0 U	**24.4**	**2.83**	1.0 U	1.0 U	1.0 U
C-1 RI-5-10	12/19/2022	10.0	**2.16**	**52.3**	1.0 U	**25.5**	**2.47**	1.0 U	1.0 U	1.0 U
MTCA Method A or B Cleanup Level			20	1,600 [8]	2	2,000 [8]	250	2	400 [8]	400 [8]
Naturally Occurring Background Metals in Puget Sound Soils[9]			7	NA	1	48	24	0.07	NA	NA

Notes:

[1] Chemical analyses performed by Friedman and Bruya, Inc. of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix

[2] The approximate exploration locations are shown in Figure 2.

[3] Metals analyzed by EPA Method 6020B.

[4] Phase II Environmental Site Assessment conducted by GeoEngineers in March 2021.

[5] Sample was analyzed for hexavalent chromium using EPA method 7196; hexavalent chromium was not detected and the cleanup level presented is for chromium III, which is the most common form of chromium.

[6] Supplemental Site Investigation conducted by GeoEngineers in April 2022.

[7] Remedial Investigation conducted by GeoEngineers in December 2022.

[8] Cleanup level shown is the most conservative MTCA Method B cleanup level available for protection of groundwater; if no cleanup level is available for protection of groundwater, the MTCA Method B cleanup level for direct contact is shown.

[9] 90th Percentile for natural background soil metals concentrations in Puget Sound region, Department of Ecology, publication #94-115, dated October 1994.

bgs = below ground surface

mg/kg = milligrams per kilogram

U = Analyte not detected at a concentration greater than the listed reporting limit.

NA = Not available

Bold value indicates analyte has been detected at the concentration shown.

Table 7

Groundwater Chemical Analytical Results 2021 through 2023[1]

Petroleum Hydrocarbons, VOCs, and Metals

C-1 Hangar and Building, Snohomish County Airport
Everett, Washington

		Total Petroleum Hydrocarbons[3] (µg/L)				Volatile Organic Compounds[5] (VOCs) (µg/L)							Metals[7] (µg/L)															
													Arsenic		Barium		Cadmium		Chromium		Lead		Mercury		Selenium		Silver	
Exploration Identification[2]	Sample Date	Gasoline Range	Stoddard Solvent Range[4]	Diesel Range	Motor Oil Range	Vinyl Chloride	Chlorobenzene	1,2-Dichlorobenzene	Methylene Chloride	cis-1,2-Dichloroethene	1,2-Dichloroethane (EDC)	PCBs[6] (µg/L)	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
2021 Phase II ESA[8]																												
C-1 DP2-033121W	3/31/2021	100 U	--	50.0 U	250 U	0.2 U	1 U	1 U	**12.0** [9]	1 U	1 U	0.100 U	**3.48**	**29.5**	**16.7**	**539**	1.00 U	**1.08**	**4.57**	**187**	**1.98**	**24.6**	1.00 U	1.00 U	1.00 U	**1.55**	**6.28**	1.00 U
C-1 DP3-033021W	3/30/2021	100 U	--	**110**	**330**	0.2 U	1 U	1 U	5.00 U	1 U	1 U	0.100 U	**2.68**	**34.7**	**8.11**	**752**	1.00 U	**4.46**	**1.41**	**210**	**1.13**	**120**	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
C-1 DP13-033121W	3/31/2021	100 U	--	50.0 U	250 U	0.2 U	1 U	1 U	5.00 U	1 U	1 U	0.100 U	1.00 U	**6.62**	**14.7**	**129**	1.00 U	1.00 U	1.00 U	**24.7**	1.00 U	**2.99**	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
C-1 DP14-033121W	3/31/2021	100 U	--	50.0 U	250 U	0.2 U	1 U	1 U	5.00 U	1 U	1 U	0.100 U	**9.53**	**30.8**	**48.3**	**595**	1.00 U	1.00 U	1.00 U	**69.2**	1.00 U	**10.9**	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2022 Supplemental Phase II ESA Investigation[10]																												
C-1 HSA3	4/21/2022	100 U	--	50 U	250 U	0.020 U	1.0 U	1.0 U	5 UJ	1 U	0.2 U	--	**7.41**	**9.99**	**65.4**	**71.8**	1.0 U	1.0 U	1.0 U	**2.23**	1.0 U	1.0 U	1.0 U	1.0 U	**3.03**	**3.26**	1.0 U	1.0 U
C-1 HSA4	4/21/2022	100 U	--	**230**	250 U	**0.36**	**3**	**1.4**	5 UJ	1 U	0.2 U	--	**7.62**	**10.2**	**52.7**	**55.9**	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.37**	**1.5**	1.0 U	1.0 U
2022 to 2023 Remedial Investigation[11]																												
C-1 HSA-3-20230110	1/10/2023	--	100 U	50 U	250 U	0.02 U	1 U	1 U	5 U	1 U	0.2 U	--	**7.53**	**7.67**	**103**	**99.8**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
C-1 HSA-4-20230109	1/9/2023	100 U	--	**200** [12]	250 U	**0.47**	**3.6**	**1.5**	5 U	1 U	0.2 U	--	**28.3**	**28.6**	**45**	**41.4**	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.87**	**1.97**	1.0 U	1.0 U
C-1 RI-10-20230109	1/9/2023	100 U	--	**210** [12]	250 U	**0.12**	**1.3**	1 U	5 U	1 U	0.2 U	--	**9.01**	**9.49**	**100**	**99.7**	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.85**	**1.90**	1.0 U	1.0 U
C-1 DUP-1-20230109[13]	1/9/2023	--	--	--	--	**0.13**	**1.3**	1 U	5 U	1 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
C-1 RI-12-20230110	1/10/2023	100 U	--	**220** [12]	250 U	**0.39**	1 U	1 U	5 U	**1.3**	**0.27**	--	**6.26**	**6.14**	**82.2**	**77.0**	1.0 U	1.0 U	1.0 U	**1.10**	1.0 U	1.0 U	1.0 U	1.0 U	**2.71**	**2.35**	1.0 U	1.0 U
C-1 RI-13-20230110	1/10/2023	100 U	--	**300** [12]	250 U	**0.25**	1 U	1 U	5 U	1 U	0.2 U	--	**29.9**	**33.7**	**76.9**	**78.9**	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.56**	**2.37**	1.0 U	
MTCA Method A or B Cleanup Level		1,000[14]		500		0.20	160[15]	720[15]	5	16[15]	5	0.1	8		3,200[15]		5		50[16]		15		2		80[15]		80[15]	

Notes:

[1] Chemical analyses performed by Friedman & Bruya of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix E.

[2] The approximate exploration locations are shown on Figure 2.

[3] Petroleum hydrocarbons analyzed by NWTPH-Gx and NWTPH-Dx.

[4] Carbon values range from C8 to C11 for quantification of Stoddard Solvents.

[5] Volatiles were analyzed by EPA Method 8260C. Only volatiles that were detected or not detected above cleanup levels in one or more samples are presented in this table.

[6] PCBs analyzed by EPA Method 8082A.

[7] Metals analyzed by EPA Method 6020B.

[8] Phase II Environmental Site Assessment conducted by GeoEngineers in March 2021.

[9] The detected concentration was qualified by the analytical laboratory as the result of laboratory contamination.

[10] Supplemental Site Investigation conducted by GeoEngineers in April 2022.

[11] Remedial Investigation conducted by GeoEngineers in December 2022.

[12] The diesel-range chromatogram did not match the laboratory standard and detected concentrations are likely attributed to the presence of organics in the sample.

[13] Duplicate parent sample is C-1 RI-10-20230109.

[14] Cleanup level when no benzene is present.

[15] Cleanup levels are presented for Method B carcinogenic values, which are the most conservative cleanup levels available.

[16] Cleanup levels are presented for Total Chromium.

bgs = below ground surface -- = Not analyzed µg/L = micrograms per liter NA = Not Available

U = Analyte not detected at a concentration greater than the listed reporting limit.

UJ = The analytical laboratory reported that the calibration results for this analyte were outside of acceptance criteria. The reported value is an estimate

Bold value indicates analyte detected at the concentration shown.

Gray shaded value indicates the detected concentration exceeded the applicable cleanup level.

Table 8

Monitoring Well Design and Groundwater Elevations

C-1 Hangar and Building, Snohomish County Airport
Everett, Washington

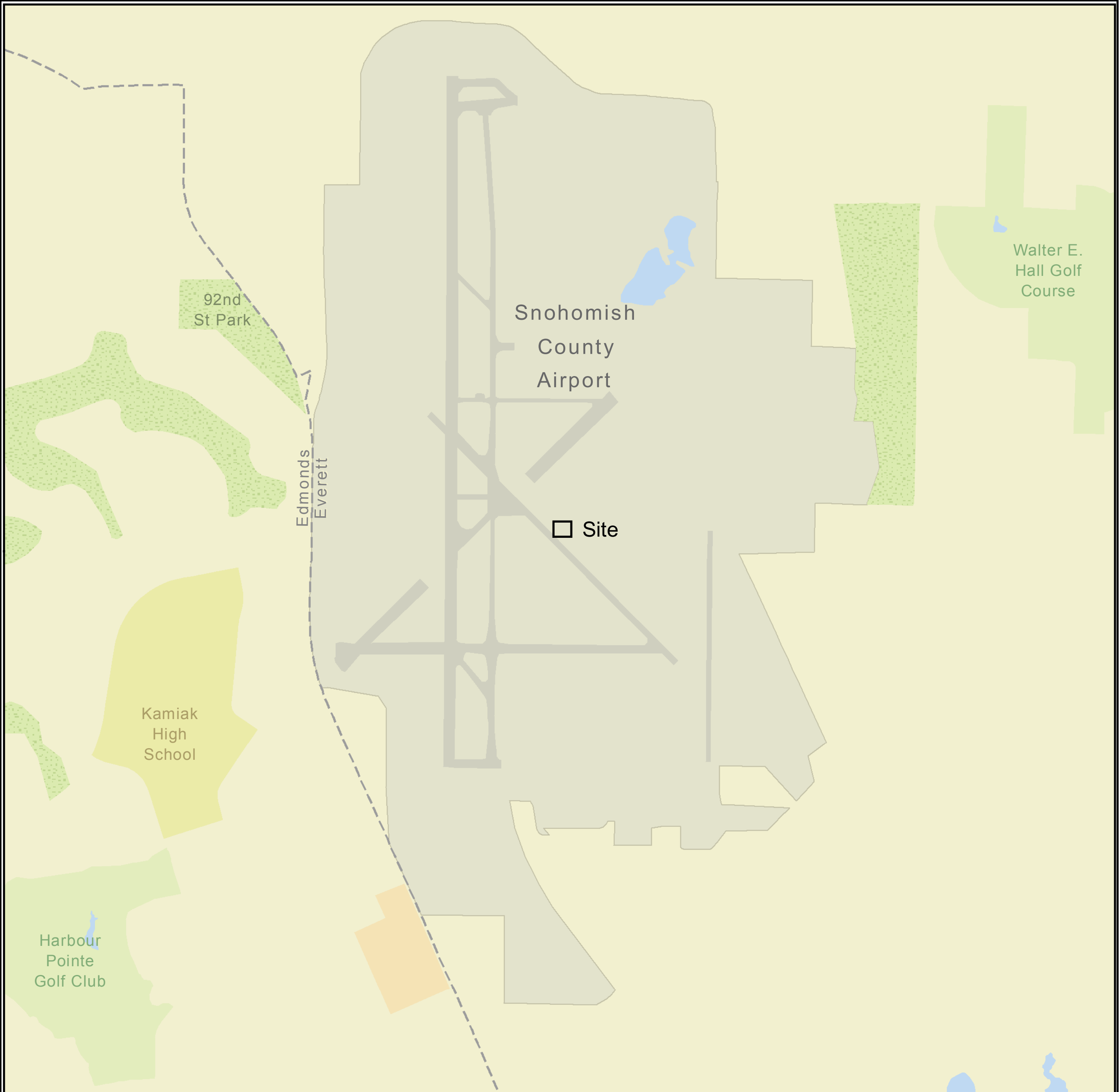
Monitoring Well Identification[2]	Date	Depth to Groundwater in Well or Boring (ft bTOC/bgs)[2]	Top of Monitoring Well Casing Elevation (NAVD88)	Groundwater Elevation (NAVD88)
2021 Phase II ESA				
C-1 DP2-033121W	3/31/2021	11.0	NA	NA
C-1 DP3-033021W	3/30/2021	4.0	NA	NA
C-1 DP13-033121W	3/31/2021	4.0	NA	NA
C-1 DP14-033121W	3/31/2021	10.0	NA	NA
2022 Supplemental Phase II ESA Investigation				
C-1 HSA3	4/21/2022	12.04	598.67	586.63
C-1 HSA4	4/21/2022	4.32	598.20	593.88
2022 to 2023 Remedial Investigation				
C-1 HSA-3-20230110	1/10/2023	6.28	598.67	592.39
C-1 HSA-4-20230109	1/9/2023	4.27	598.20	593.93
C-1 RI-10-20230109	1/9/2023	5.01	597.72	592.71
C-1 RI-12-20230110	1/10/2023	3.88	598.24	594.36
C-1 RI-13-20230110	1/10/2023	4.86	598.75	593.89

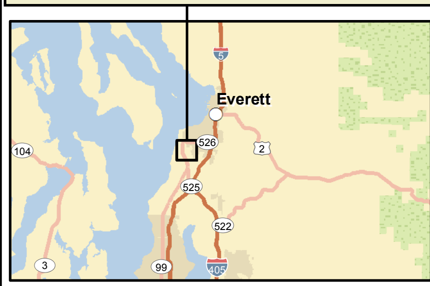
Notes:

[1] The approximate exploration locations are shown on Figure 2.

[2] Depth to groundwater in well measured in feet below top of casing (feet bTOC) on January 9 and 10, 2023. Groundwater elevation for each monitoring well is estimated based on ground surface elevations (NAVD88) determined during a survey completed on April 27, 2023.

NA = Monitoring well not constructed in boring, elevation not surveyed.





N
W E
S

2,000 0 2,000
Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: ESRI Data & Maps, Street Maps 2005

Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Vicinity Map

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

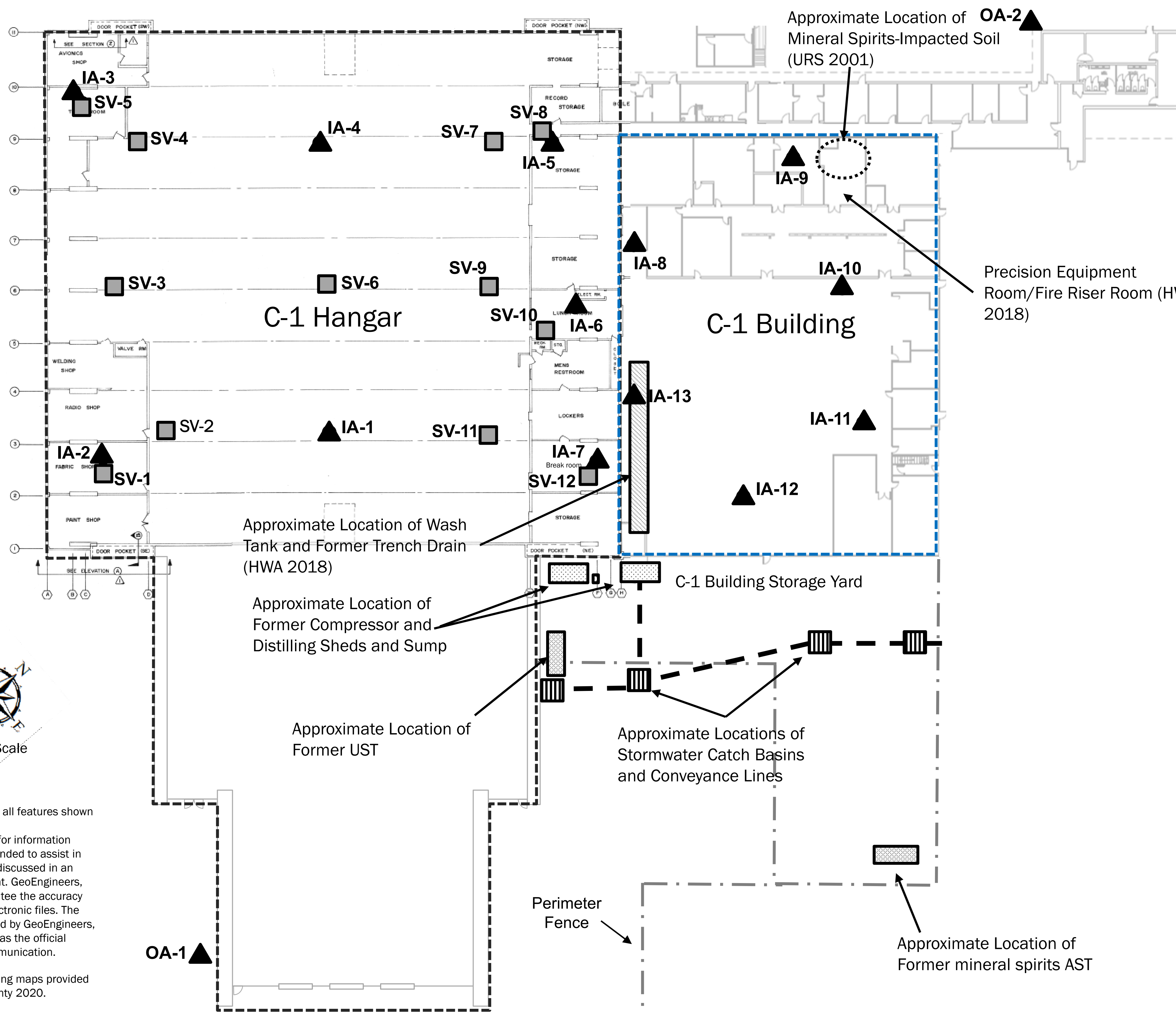
GeoEngineers

Figure 1

Map Revised: 4/25/2023

Path: \\red\projects\5\5530014\01\GIS\553001402_F1_VicinityMap.mxd

Office: Tacoma



Legend

- Sub-slab Soil Vapor Sample Location (GEI 2021)
- Indoor/Outdoor Air Sample Location (GEI 2021)
- C-1 Hangar Building Perimeter
- Precision Engines Building Perimeter

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

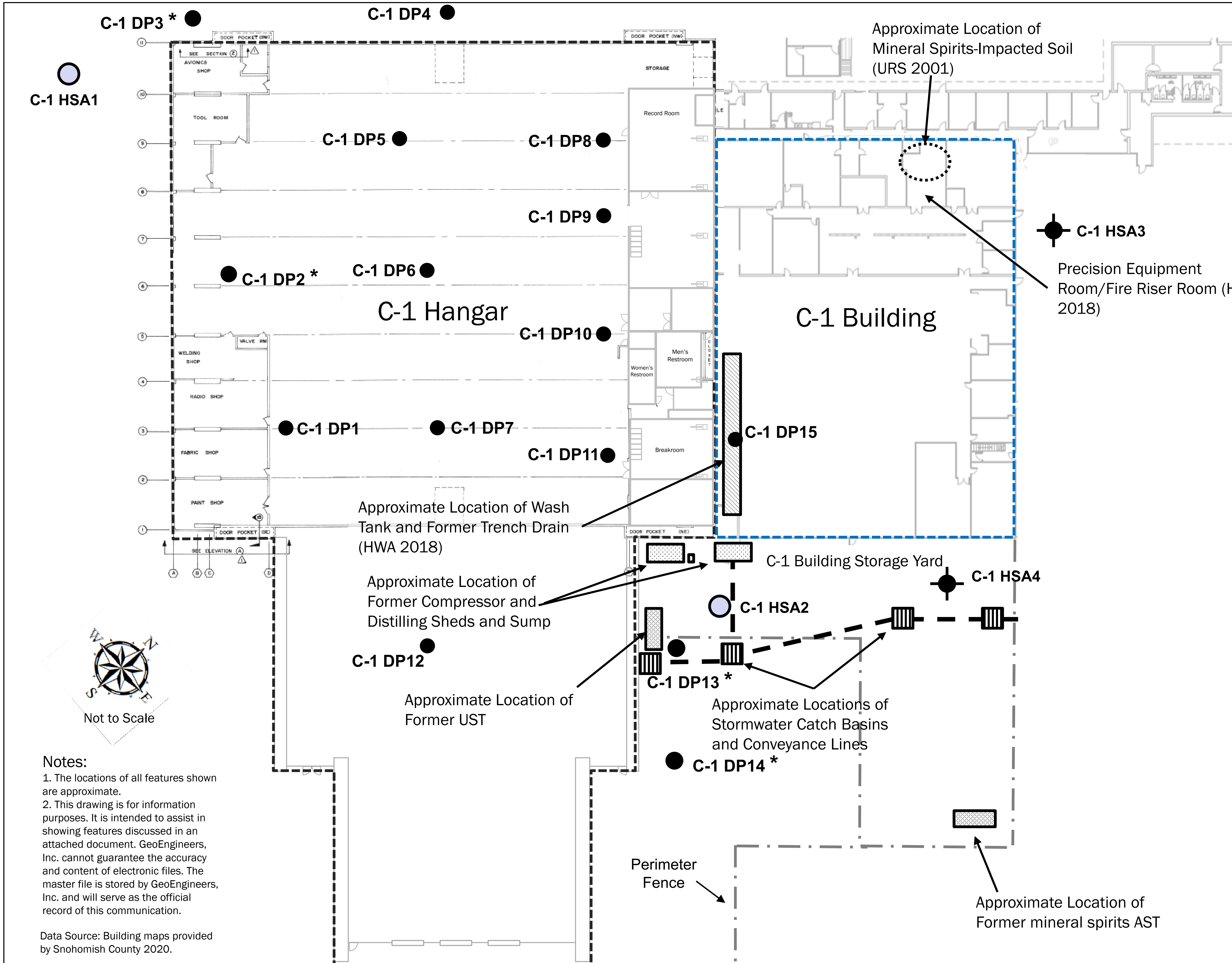
Data Source: Building maps provided by Snohomish County 2020.

Sub-Slab, Indoor Air and Outdoor Air Sampling Locations

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

GeoEngineers

Figure 2



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Building maps provided by Snohomish County 2020.

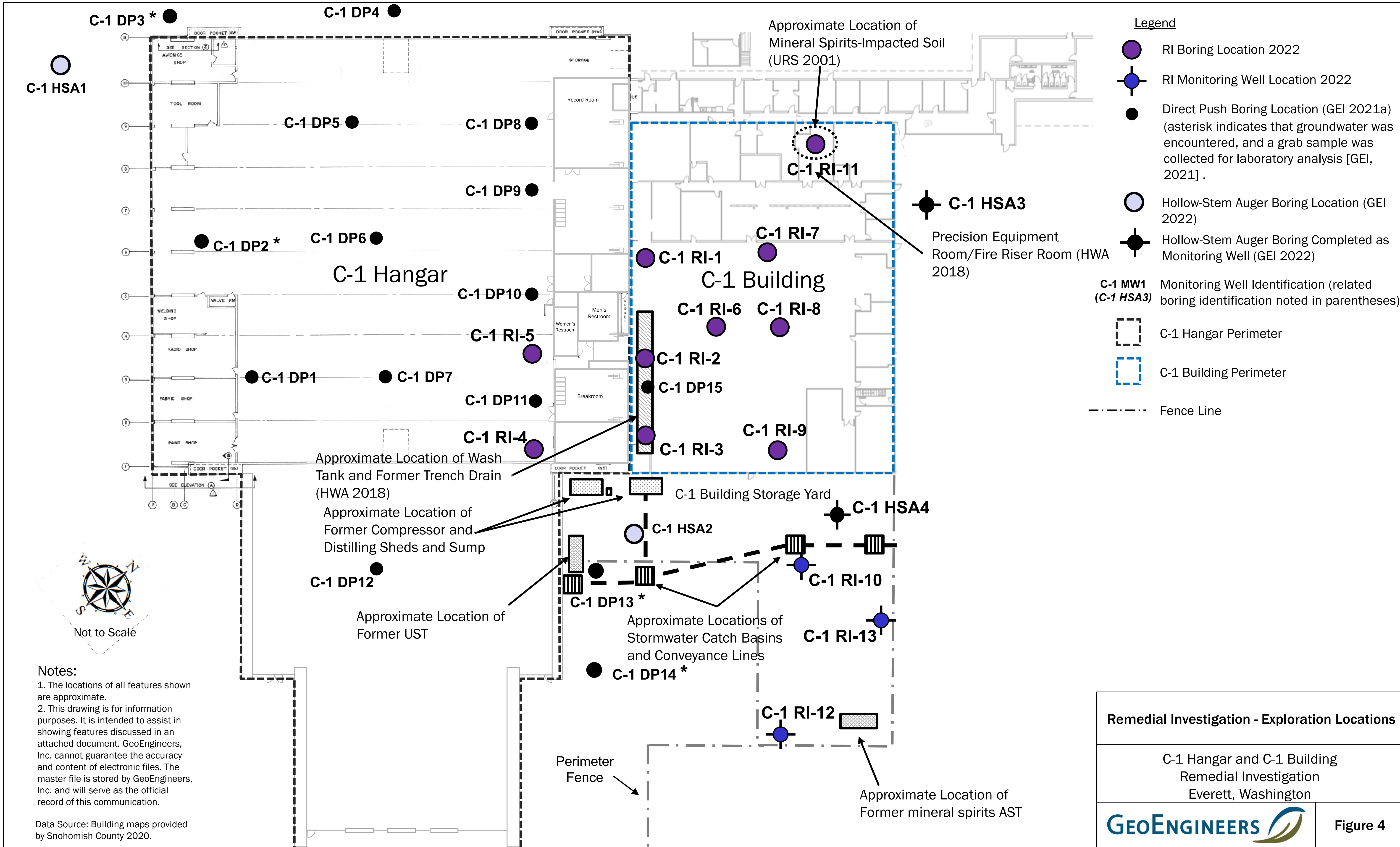
5530-014-01

Phase II ESA and Supplemental Phase II ESA Exploration Locations (2021 and 2022)

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

GeoEngineers

Figure 3



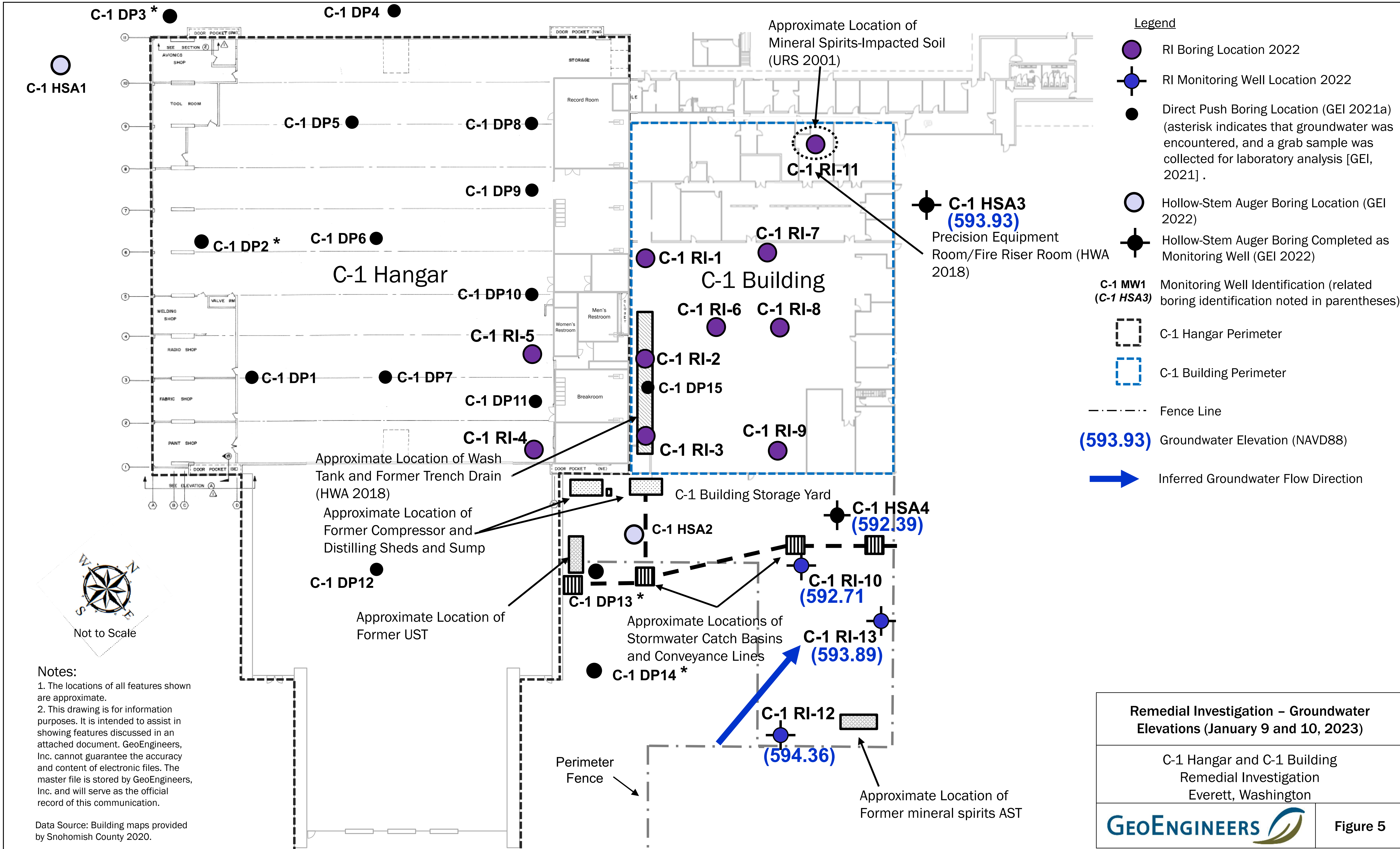
Remedial Investigation - Exploration Locations

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

GeoEngineers

Figure 4

5530-014-01



Notes:

1. The locations of all features shown are approximate.
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Data Source: Building maps provided by Snohomish County 2020.

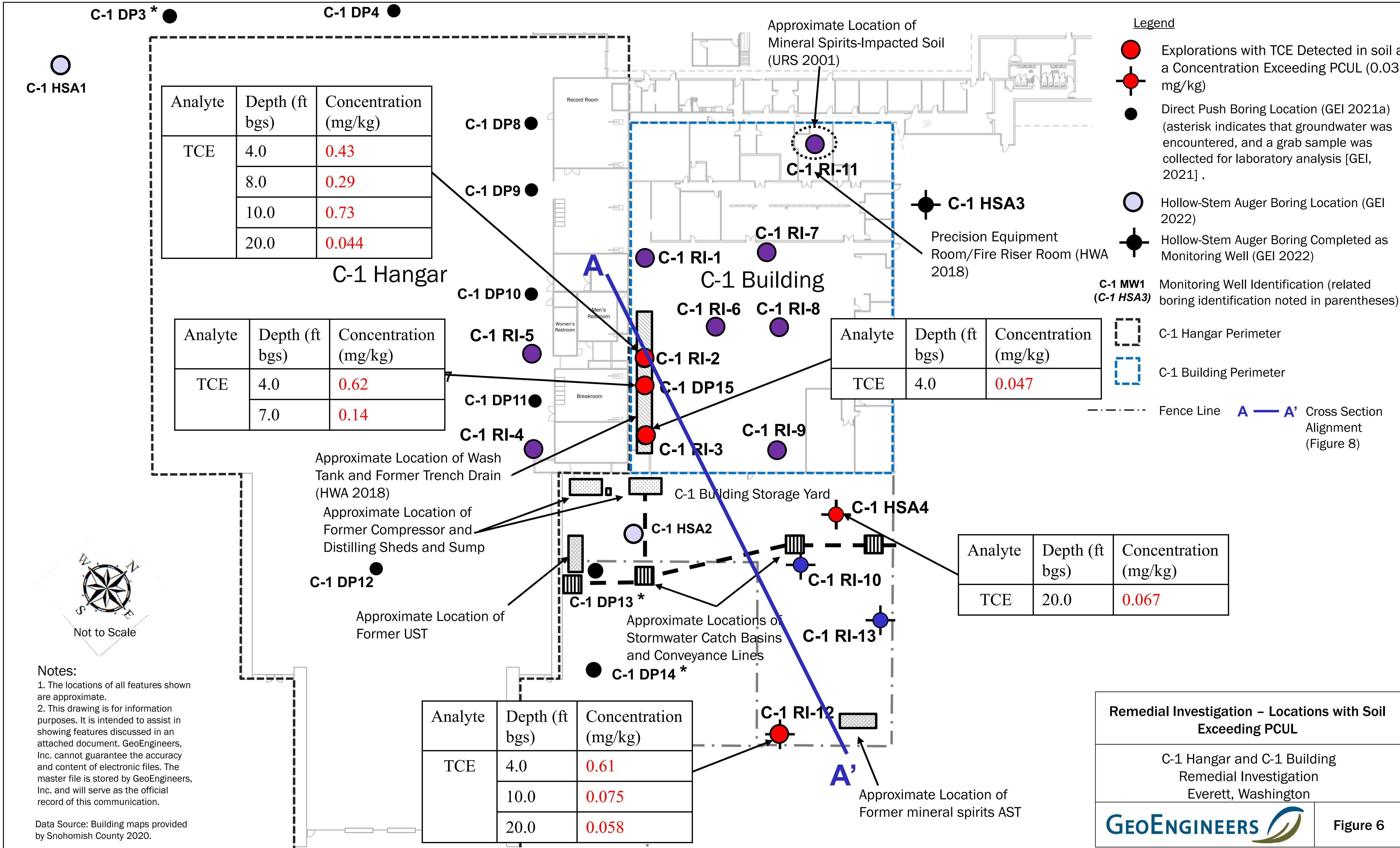
5530-014-01

Remedial Investigation – Groundwater Elevations (January 9 and 10, 2023)

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

GeoEngineers

Figure 5



Analyte	Depth (ft bgs)	Concentration (mg/kg)
TCE	4.0	0.43
	8.0	0.29
	10.0	0.73
	20.0	0.044

Analyte	Depth (ft bgs)	Concentration (mg/kg)
TCE	4.0	0.62
	7.0	0.14

Analyte	Depth (ft bgs)	Concentration (mg/kg)
TCE	4.0	0.047

Analyte	Depth (ft bgs)	Concentration (mg/kg)
TCE	20.0	0.067

Analyte	Depth (ft bgs)	Concentration (mg/kg)
TCE	4.0	0.61
	10.0	0.075
	20.0	0.058

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Building maps provided by Snohomish County 2020.

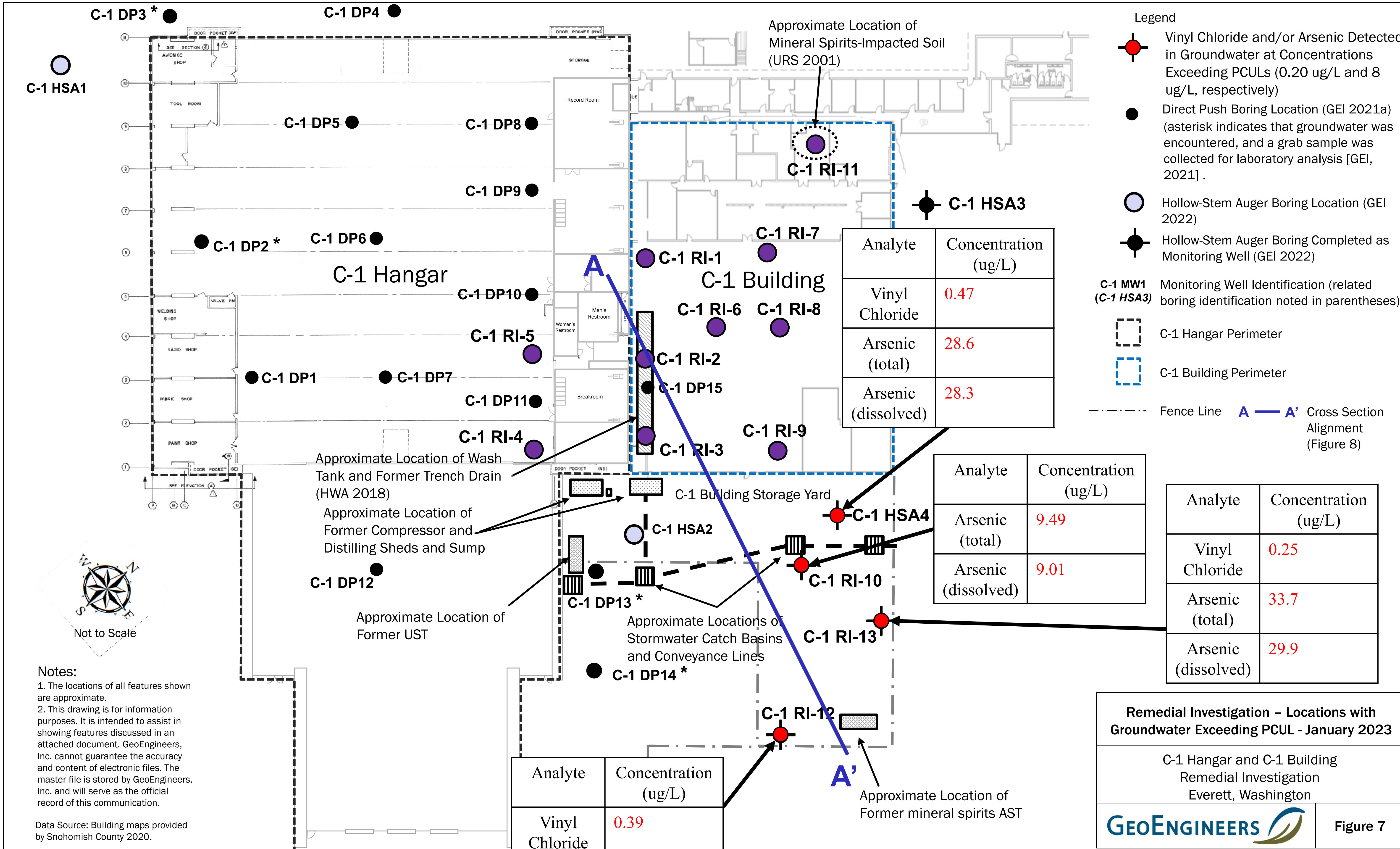
Remedial Investigation – Locations with Soil Exceeding PCUL

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

GEOENGINEERS

Figure 6

5530-014-01



Analyte	Concentration (ug/L)
Vinyl Chloride	0.47
Arsenic (total)	28.6
Arsenic (dissolved)	28.3

Analyte	Concentration (ug/L)
Arsenic (total)	9.49
Arsenic (dissolved)	9.01

Analyte	Concentration (ug/L)
Vinyl Chloride	0.25
Arsenic (total)	33.7
Arsenic (dissolved)	29.9

Analyte	Concentration (ug/L)
Vinyl Chloride	0.39

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Building maps provided by Snohomish County 2020.

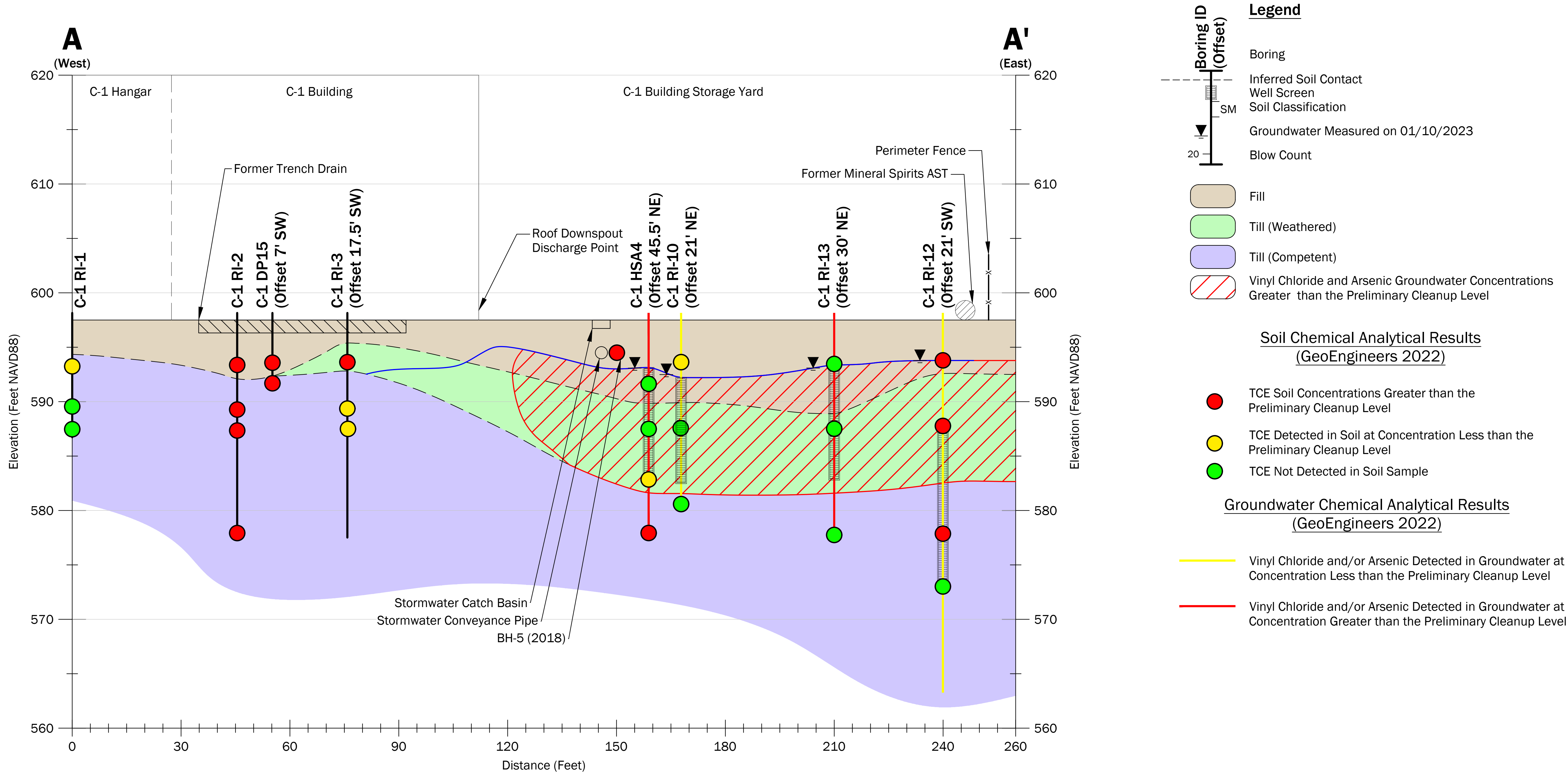
5530-014-01

Remedial Investigation – Locations with Groundwater Exceeding PCUL - January 2023

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

GEOENGINEERS

Figure 7



Notes:
1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Datum: NAVD 88, unless otherwise noted.

30 0 30
Horizontal Scale in Feet
10 0 10
Vertical Scale in Feet
Vertical Exaggeration = 3X

Cross Section A-A'

C-1 Hangar and C-1 Building
Remedial Investigation
Everett, Washington

GEOENGINEERS

Figure 8

\\geoengineers.com\WAN\Projects\5\5530014\CAD\02\RI Report\553001402_F08_A-A'.dwg F08 Date Exported:6/26/2023 3:23 PM - by Michael R. Woods

APPENDICES

APPENDIX A

Excerpts from 2018 Phase I and Phase II Environmental Site Assessment by HWA Geosciences, Inc.

PHASE I AND PHASE II
ENVIRONMENTAL SITE ASSESSMENT

Precision Engines Property
Everett, Washington

HWA Project No. 2018-058-22

Prepared for
Precision Engines, LLC

July 10, 2018

HWA GEOSCIENCES INC.

- Geotechnical Engineering
- Hydrogeology
- Geoenvironmental Services
- Inspection & Testing

Precision Engines

Table 2: Sub-Slab Soil Gas and Indoor Ambient Air Sampling Results

All values in ug/m^3 except as noted

	Sample ID	**SG-1**	**SG-2**	**SG-3**	**SG-4**	**SG-5**	**SG-6**	**Indoor Ambient Air**	**2015 Sub-Slab Soil Gas MTCA Method B Screening Level[1] (Noncancer)**	**2015 Sub-Slab Soil Gas MTCA Method B Screening Level[1] (Cancer)**	**2015 MTCA Method B Indoor Air Cleanup Level (Noncancer)**	**2015 MTCA Method B Indoor Air Cleanup Level (Cancer)**
	Location	**Penetrant Room**	**Wash Tank Area**	**Trench Drain Terminus (in Sand Blast Room)**	**Trench Drain Terminus (in Open Shop Area)**	**Open Shop Area**	**Cleaning Room**	**Wash Tank Area**				
	Sample depth	Sub-Slab	Sub-Slab	Sub-Slab	Sub-Slab	Sub-Slab	Sub-Slab	NA				
	Sample Date	5/22/2018	5/22/2018	5/22/2018	5/22/2018	5/22/2018	5/22/2018	5/22/2018				
Volatile Organic Compounds	**1,1,1-Trichloroethane**	**527**	**18100**	**919**	**58.8**	<2.18	<2.18	<2.18	76190	NE	2286	NE
	1,1,2-Trichloroethane (TCA)	<2.73	**238**	<34.1	<34.1	<2.73	<2.73	<2.73	3.05	5.21	0.09	0.16
	1,1-Dichloroethane	**1.21**	**1350**	**239**	<10.1	<0.810	<0.810	<0.810	NE	52.08	NE	1.56
	1,1-Dichloroethene (DCE)	<1.59	**428**	**206**	<19.8	<1.59	<1.59	<1.59	3048	NE	91	NE
	1,2,4-Trimethylbenzene	**50.1**	**31**	<18.4	**210**	**26.8**	<1.47	<1.47	106.67	NE	3.2	NE
	1,2-Dichlorobenzene	**7.63**	**382**	<30.1	**108**	<2.40	<2.40	<2.40	3048	NE	91	NE
	1,3,5-Trimethylbenzene	**19.2**	**21.3**	<18.4	**54.9**	**7.31**	<1.47	<1.47	NE	NE	NE	NE
	1,3-Butadiene	**2.28**	<13.8	<13.8	<13.8	<1.11	<1.11	<1.11	30.48	2.78	0.91	0.08
	1,3-Dichlorobenzene	<1.80	**50.2**	<22.5	<22.5	<1.80	<1.80	<1.80	NE	NE	NE	NE
	1,4-Dichlorobenzene	**1.83**	**73**	<22.5	<22.5	**4.77**	<1.80	<1.80	12190	7.58	366	0.23
	(MEK) 2-Butanone	**35.7**	<36.9	<36.9	<36.9	**41.7**	**4.1**	**4.01**	76190	NE	2286	NE
	Isopropyl Alcohol	**37.9**	**89.1**	**43**	<30.7	**33.4**	**83.3**	**55.9**	NE	NE	NE	NE
	4-Methyl-2-pentanone (MIBK)	**40.5**	<51.2	<51.2	<51.2	**5.56**	<4.10	<4.10	45714	NE	1371	NE
	Acetone	**271**	**1040**	**985**	**192**	**590**	**203**	**141**	NE	NE	NE	NE
	Acrolein	**3.24**	<14.3	<14.3	<14.3	<1.15	<1.15	<1.15	0.30	NE	0.0091	NE
	Benzene	**12**	**24.2**	**3.97**	**5.43**	**5.33**	<0.286	**0.407**	457.14	10.68	13.71	0.32
	Carbon disulfide	<4.67	<58.4	<58.4	<58.4	**5.37**	<4.67	<4.67	10667	NE	320	NE
	Carbon tetrachloride	<0.413	<5.17	<5.17	<5.17	<0.413	<0.413	**0.445**	1524	13.89	45.71	0.42
	Chloroform	**59.9**	**1160**	**13.1**	<12.2	**4.46**	<0.977	<0.977	1493	3.62	44.80	0.11
	Chloromethane	**1.49**	<12.9	<12.9	<12.9	<1.03	<1.03	<1.03	1371	NE	41.14	NE
	cis-1,2-Dichloroethene	**0.803**	**24.4**	<9.91	<9.91	<0.793	<0.793	<0.793	NE	NE	NE	NE
	Cyclohexane	<1.38	<17.2	<17.2	<17.2	**3.86**	<1.38	**1.91**	NE	NE	NE	NE
	Ethylbenzene	**155**	**219**	**120**	**230**	**173**	<1.74	<1.74	15238	NE	457	NE
	Gasoline Range Organics	**11400**	**77500**	**201000**	**34700**	**8230**	**817**	**5860**	NE	NE	NE	NE
	Heptane	**28.5**	<20.1	<20.1	<20.1	**6.99**	<1.61	<1.61	NE	NE	NE	NE
	m,p-Xylene	**548**	**638**	**439**	**803**	**630**	<3.47	**6.61**	1524	NE	45.71	NE
	Methylene chloride	<6.95	<86.9	<86.9	<86.9	<6.95	**40.3**	<6.95	9143	8333	274	250
	Naphthalene	<0.524	**12**	**18.3**	**9.44**	<0.524	<0.524	<0.524	45.71	2.45	1.37	0.07
	n-Hexane	**36.2**	<17.6	<17.6	<17.6	**7.48**	**1.8**	<1.41	10667	NE	320	NE
	o-Xylene	**147**	**156**	**166**	**163**	**116**	<1.74	<1.74	1524	NE	45.71	NE
	4-Ethyltoluene	**7.77**	<24.6	<24.6	<24.6	<1.97	<1.97	<1.97	NE	NE	NE	NE
	Propylene	**46.4**	**65**	<8.61	<8.61	**13.5**	<0.688	**11.5**	NE	NE	NE	NE
	Tetrachloroethene (PCE)	**172**	**10500**	**920**	**126**	**6.09**	<1.36	<1.36	609.52	320.51	18.29	9.62
	Tetrahydrofuran	<1.18	<14.7	<14.7	<14.7	**15.8**	<1.18	<1.18	NE	NE	NE	NE
	Toluene	**25.4**	**19.6**	<18.8	<18.8	**31.3**	**6.9**	**109**	76190	NE	2286	NE
	Trichloroethene (TCE)	**4910**	**37000**	**3720**	**711**	**15.1**	**19.4**	**1.16**	30.48	12.33	0.91	0.37

Notes:

[1] Ecology MTCA Method B/C sub-slab soil gas screening levels from the updated (2015) Toxicity Values and Sub-Slab Screening Levels of the Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State (Ecology, 2009). The screening levels provided in this document are not site or building-specific and may not apply to the Subject Property and were only utilized as a screening level indication of the sub-slab soil gas conditions at the Subject Property.

ug/m^3 – microgram per cubic meter

NE – Not Established

NA – Not Applicable

< - Analyte not detected at listed reporting limit

Bold – Analyte Detected

Bold / highlighted – Analyte exceeds screening levels provided in the Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State. Analytes did not excced the OSHA recommended TWA PELs for an 8-hour shift of a 40-hour workweek.

Precision Engines
Table 3- Soil Sampling Results
All values in mg/kg except as noted

	Boring	BH-1	BH-2	BH-3		BH-4	BH-5	BH-6	HH-1	BKGD	MTCA Method A/B Cleanup Level[1]
	Location	Within Suspect UST Excavation	Adjacent to Suspect UST Excavation	Sump		Distillery Shed	Storm Water Catch Basin	Mineral Spirits AST / Hazardous Materials Storage Container	Air Compressor Shed		
	Sample interval, ft bgs	5	5	1	3.5	2	3	3	1.5		
Petroleum Hydrocarbons	HCID	ND	TPHo	ND	ND	ND	ND	ND	TPHo	NA	NE
	Gasoline Range									NA	100/30*
	Diesel Range		<40						<27	NA	2,000
	Oil Range		**770**						**220**	NA	2,000
VOCs**	Acetone	**0.01**	**0.029**		<0.0046	<0.0046	**0.084**	**0.096**		NA	72,000 (B)
	1,2-Dichlorobenzene	**0.00096**	<0.00088		<0.00091	<0.00091	<0.0013	<0.00085		NA	7200 (B)
	Vinyl Chloride	<0.00083	<0.00088		<0.00091	<0.00091	**0.0014**	<0.00085		NA	240 (B)
	(trans) 1,2-Dichloroethene	<0.00083	<0.00088		<0.00091	<0.00091	**0.0037**	<0.00085		NA	1,600 (B)
	(cis) 1,2-Dichloroethene	<0.00083	<0.00088		<0.00091	<0.00091	**0.15**	<0.00085		NA	160 (B)
	Trichloroethene (TCE)	<0.00083	<0.00088		<0.00091	<0.00091	**0.12**	<0.00085		NA	0.03
	2-Butanone (MEK)	<0.0042	<0.0044		<0.0046	<0.0046	<0.0064	**0.014**		NA	48,000 (B)
	Naphthalene	**0.0021**	**0.0013**		<0.00091	<0.00091	<0.0013	<0.00085		NA	5
RCRA Metals	Arsenic				<11		<15			7	20
	Barium				**49**		**130**				16,000 (B)
	Cadmium				<0.57		<0.74			1	2
	Chromium				**38**		**59**			48	19/2,000***
	Lead				<5.7		**8**			24	250
	Mercury				<0.28		<0.37			0.07	2
	Selenium				<11		<15				400 (B)
	Silver				<1.1		<1.5				400 (B)

Notes:

[1]MTCA A / B – Ecology MTCA Method A / B soil cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at the Subject Property, and are provided as a screening level indication of the environmental quality of the Subject Property only.
BKGD - Natural Background Soil Metals Concentrations in Washington State (Ecology, 1994)
mg/kg – milligrams per kilogram
TPHo - oil range total petroleum hydrocarbons
NE – Not Established
NA – Not Applicable
< - Analyte not detected at listed reporting limit
Blank – Not Analyzed
ND – None of the selected analytes detected.
Bold – Analyte Detected
Bold / highlighted – Analyte exceeds cleanup level
* - The Method A Soil cleanup levels for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture is 100 mg/kg; all other mixtures are 30 mg/kg
** - Only VOCs with detections above laboratory reporting limits shown (see Appendix C for complete list of compounds analyzed).
*** - The MTCA Method A soil cleanup level for trivalent chromium is 2,000 mg/kg. Geochemical conditions on the Subject Property would not cause oxidation to hexavalent chromium having a cleanup level of 19 mg/kg.

Precision Engines Table 4- Groundwater Sampling Results All values in ug/L except as noted							
	Boring	BH-1	BH-2	BH-5	BH-6	MTCA Method A/B Cleanup Level[1]
	Location	Within Suspect UST Excavation	Adjacent to Suspect UST Excavation	Storm Water Catch Basin	Mineral Spirits AST / Hazardous Materials Storage Container	
Approximate Depth to Water (ft bgs)		4	4.5	5	10	
Petroleum Hydrocarbons	**HCID**	ND	ND	ND	TPHd	NE
	Gasoline Range					800/1000*
	Diesel Range				**410**	500
	Oil Range				<420	500
VOCs**	**Benzene**	<0.20	<0.20	<0.20	**0.3**	5
	Acetone	<5.0	**5.9**	**34**	**5.2**	7,200
	Vinyl Chloride	**0.32**	<0.20	**0.38**	**0.62**	0.2
	Chlorobenzene	**3.0**	<0.20	**1.1**	<0.20	160
	2-Chlorotoluene	**0.22**	<0.20	**0.38**	NE	NE
	(cis) 1,2-Dichloroethene	<0.20	<0.20	**14**	<0.20	16 (B)
	Trichloroethene (TCE)	<0.20	<0.20	**7**	<0.20	5.0
	1,2,4-Trimethylbenzene	<0.20	<0.20	**0.3**	**0.34**	NE
	1,4-Dichlorobenzene	<0.20	<0.20	**0.29**	<0.20	560 (B)
	1,2-Dichlorobenzene	**1.7**	<0.20	**2.2**	<0.20	720 (B)
RCRA Metals (Dissovled)	**Arsenic**			**5.6**		5
	Barium			**74**		3200 (B)
	Cadmium			<4.0		5
	Chromium			<10		50
	Lead			<1.0		15
	Mercury			<0.50		2
	Selenium			<5.0		80 (B)
	Silver			<10		80 (B)

Notes:

[1] MTCA A / B – Ecology MTCA Method A / B ground water cleanup levels, Chapter 173-340 WAC, shown for reference only. These cleanup levels may not apply at the Subject Property, and are provided as a screening level indication of the environmental quality of the Subject Property only.

ug/L- micrograms per liter

TPHd - diesel range total petroleum hydrocarbons

NE – Not Established

< - Analyte not detected at listed reporting limit

Blank – Not Analyzed

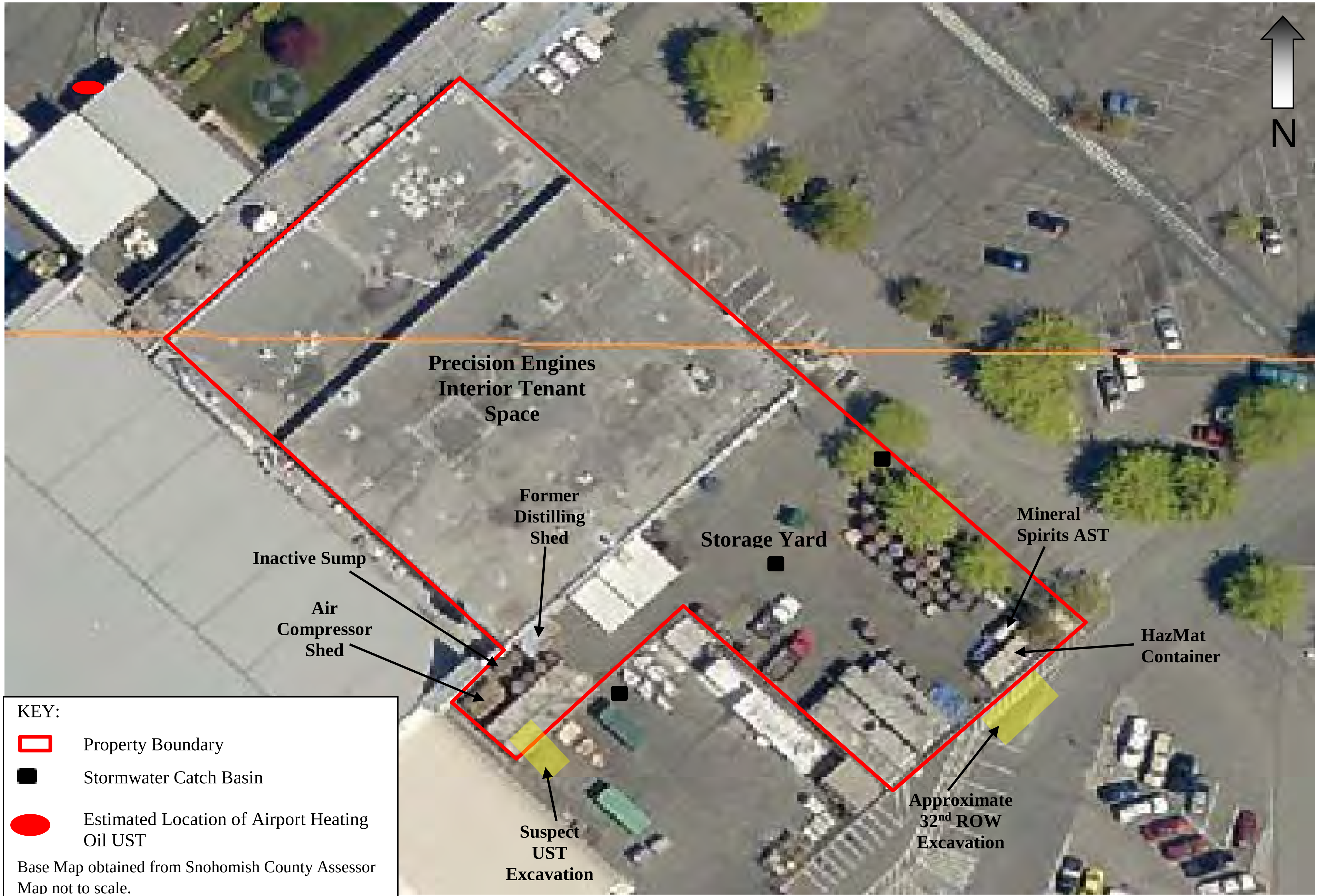
ND – None of the selected analytes detected.

Bold – Analyte Detected

Bold / highlighted – Analyte exceeds cleanup level

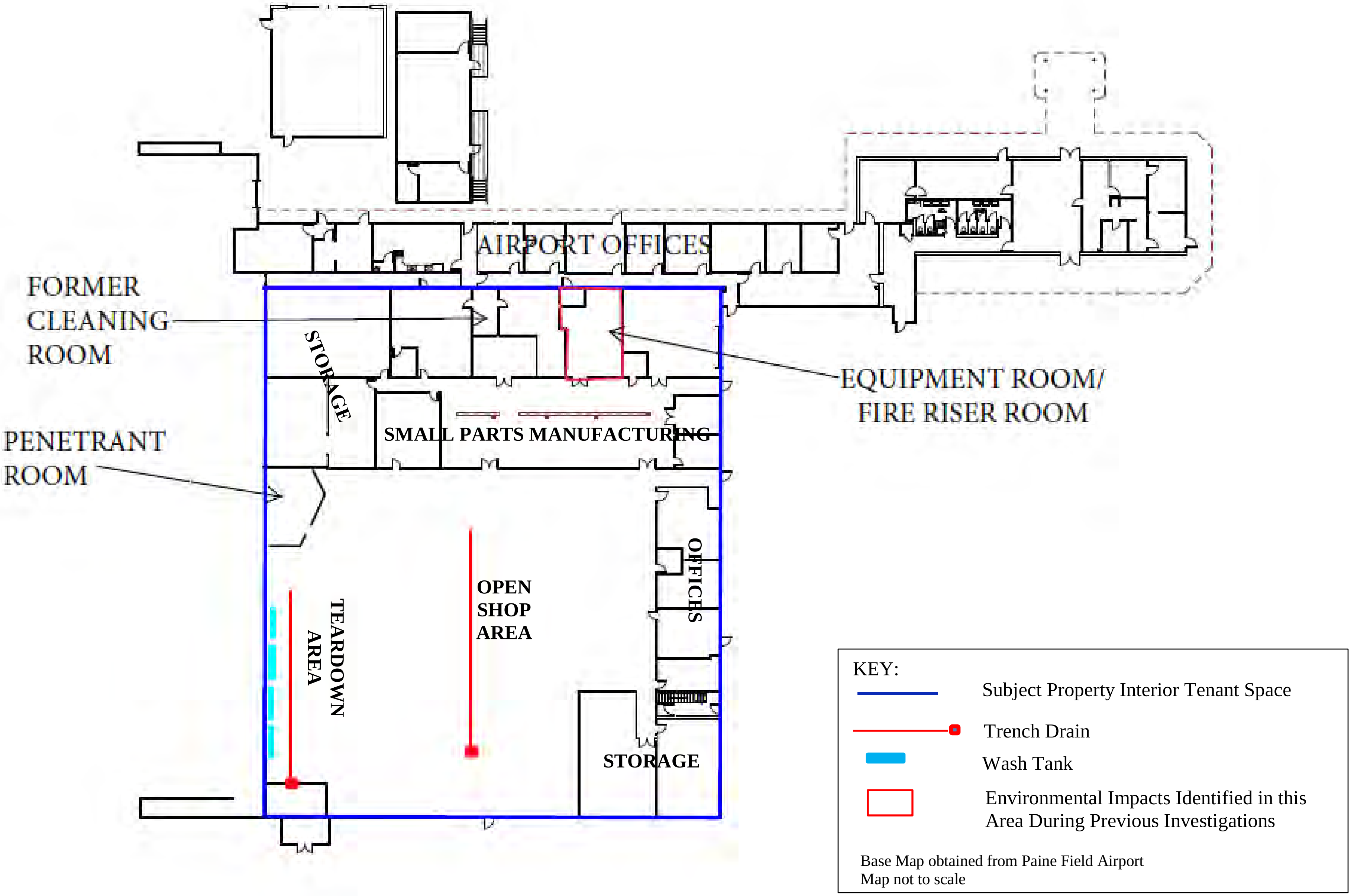
* - The Method A Ground Water cleanup levels for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture is 800 ug/L; all other mixtures are 1000 ug/L

** - Only VOCs with detections above laboratory reporting limits shown (see Appendix M for complete list of compounds analyzed).



HWA GEOSCIENCES INC.

SUBJECT PROPERTY DETAILS	FIGURE 3
PHASE I AND II ESA PRECISION ENGINES PROPERTY EVERETT, WASHINGTON	PROJECT NO. 2018-058



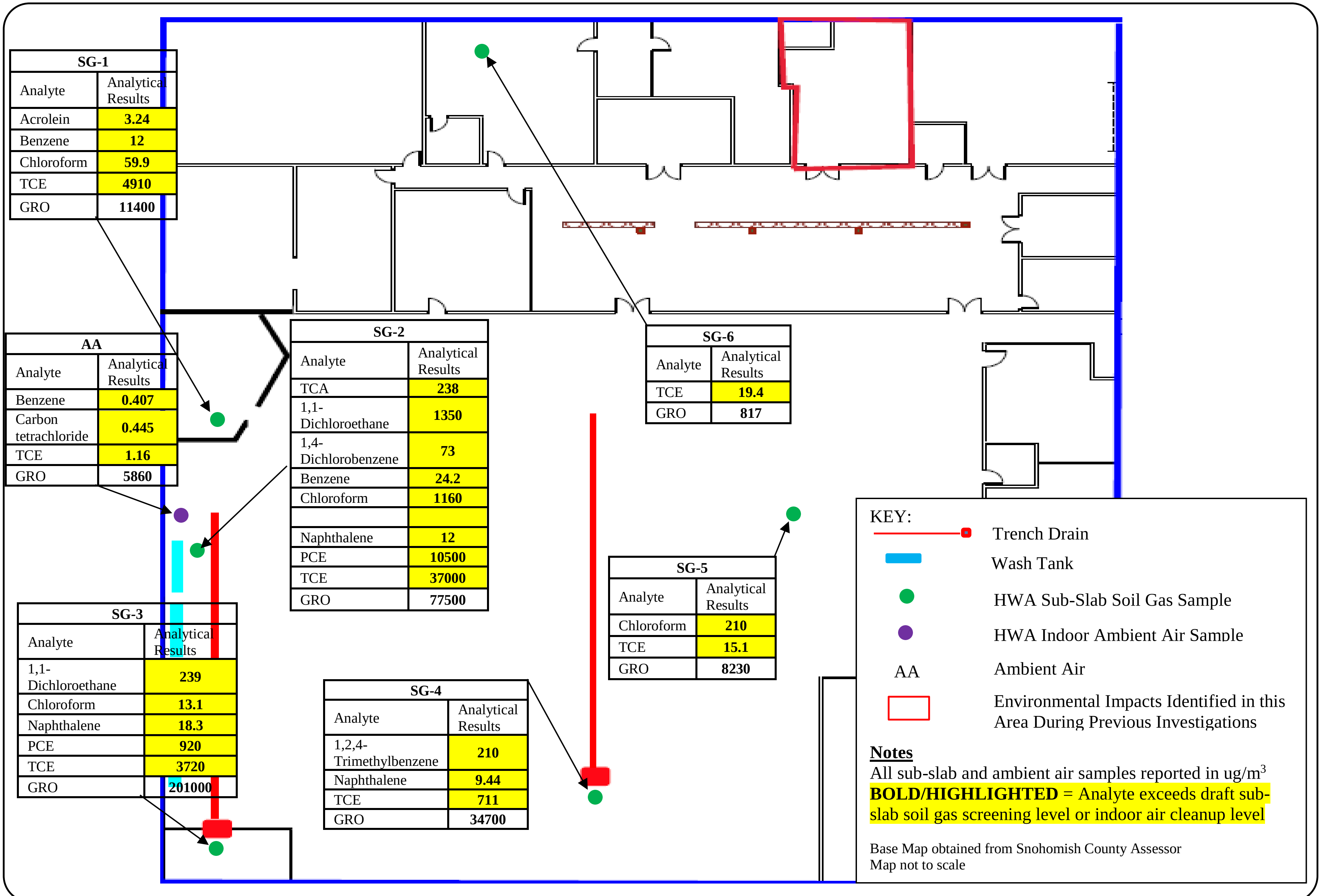
HWA GEOSCIENCES INC.

INTERIOR SUBJECT PROPERTY DETAILS

PHASE I AND II ESA
PRECISION ENGINES PROPERTY
EVERETT, WASHINGTON

FIGURE 4

PROJECT NO. 2018-058



SG-1	
Analyte	Analytical Results
Acrolein	**3.24**
Benzene	**12**
Chloroform	**59.9**
TCE	**4910**
GRO	11400

AA	
Analyte	Analytical Results
Benzene	**0.407**
Carbon tetrachloride	**0.445**
TCE	**1.16**
GRO	5860

SG-2	
Analyte	Analytical Results
TCA	**238**
1,1-Dichloroethane	**1350**
1,4-Dichlorobenzene	**73**
Benzene	**24.2**
Chloroform	**1160**
Naphthalene	**12**
PCE	**10500**
TCE	**37000**
GRO	77500

SG-6	
Analyte	Analytical Results
TCE	**19.4**
GRO	817

SG-3	
Analyte	Analytical Results
1,1-Dichloroethane	**239**
Chloroform	**13.1**
Naphthalene	**18.3**
PCE	**920**
TCE	**3720**
GRO	201000

SG-4	
Analyte	Analytical Results
1,2,4-Trimethylbenzene	**210**
Naphthalene	**9.44**
TCE	**711**
GRO	34700

SG-5	
Analyte	Analytical Results
Chloroform	**210**
TCE	**15.1**
GRO	8230

KEY:

- Trench Drain
- Wash Tank
- HWA Sub-Slab Soil Gas Sample
- HWA Indoor Ambient Air Sample
- AA — Ambient Air
- Environmental Impacts Identified in this Area During Previous Investigations

Notes

All sub-slab and ambient air samples reported in ug/m^3

BOLD/HIGHLIGHTED = Analyte exceeds draft sub-slab soil gas screening level or indoor air cleanup level

Base Map obtained from Snohomish County Assessor
Map not to scale

HWA GEOSCIENCES INC.

SUB-SLAB & AMBIENT AIR SAMPLE RESULTS

PHASE I AND II ESA
PRECISION ENGINES PROPERTY
EVERETT, WASHINGTON

FIGURE 5

PROJECT NO. 2018-058

KEY:

Property Boundary

Stormwater Catch Basin

Direct Push Boring Location

Hand Auger Boring Location

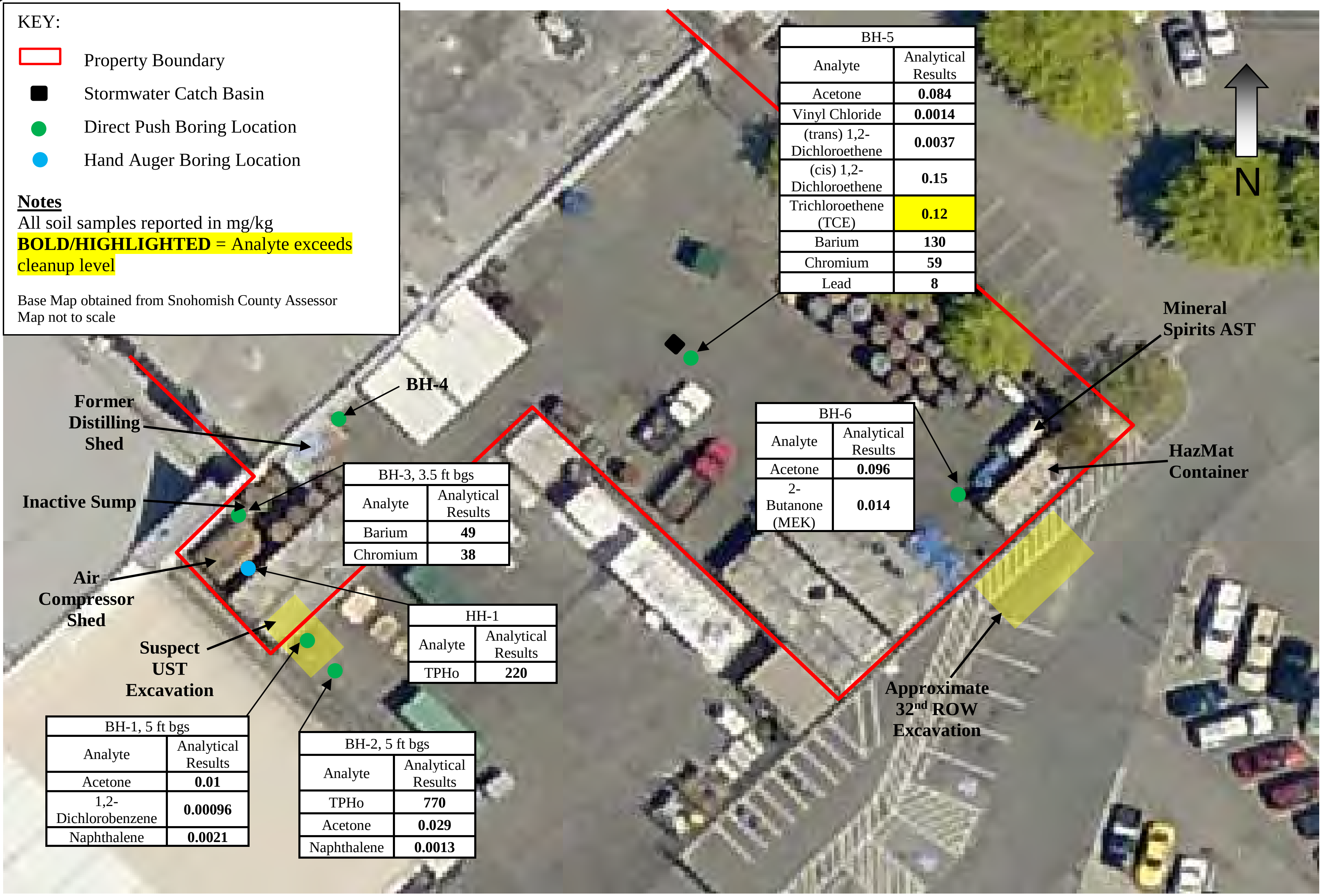
Notes

All soil samples reported in mg/kg

BOLD/HIGHLIGHTED = Analyte exceeds cleanup level

Base Map obtained from Snohomish County Assessor

Map not to scale



BH-5	
Analyte	Analytical Results
Acetone	**0.084**
Vinyl Chloride	**0.0014**
(trans) 1,2-Dichloroethene	**0.0037**
(cis) 1,2-Dichloroethene	**0.15**
Trichloroethene (TCE)	**0.12**
Barium	**130**
Chromium	**59**
Lead	**8**

BH-6	
Analyte	Analytical Results
Acetone	**0.096**
2-Butanone (MEK)	**0.014**

BH-3, 3.5 ft bgs	
Analyte	Analytical Results
Barium	**49**
Chromium	**38**

HH-1	
Analyte	Analytical Results
TPHo	**220**

BH-1, 5 ft bgs	
Analyte	Analytical Results
Acetone	**0.01**
1,2-Dichlorobenzene	**0.00096**
Naphthalene	**0.0021**

BH-2, 5 ft bgs	
Analyte	Analytical Results
TPHo	**770**
Acetone	**0.029**
Naphthalene	**0.0013**

HWA GEOSCIENCES INC.

SOIL ANALYTICAL RESULTS

PHASE I AND II ESA
PRECISION ENGINES PROPERTY
EVERETT, WASHINGTON

FIGURE 6

PROJECT NO. 2018-058

KEY:

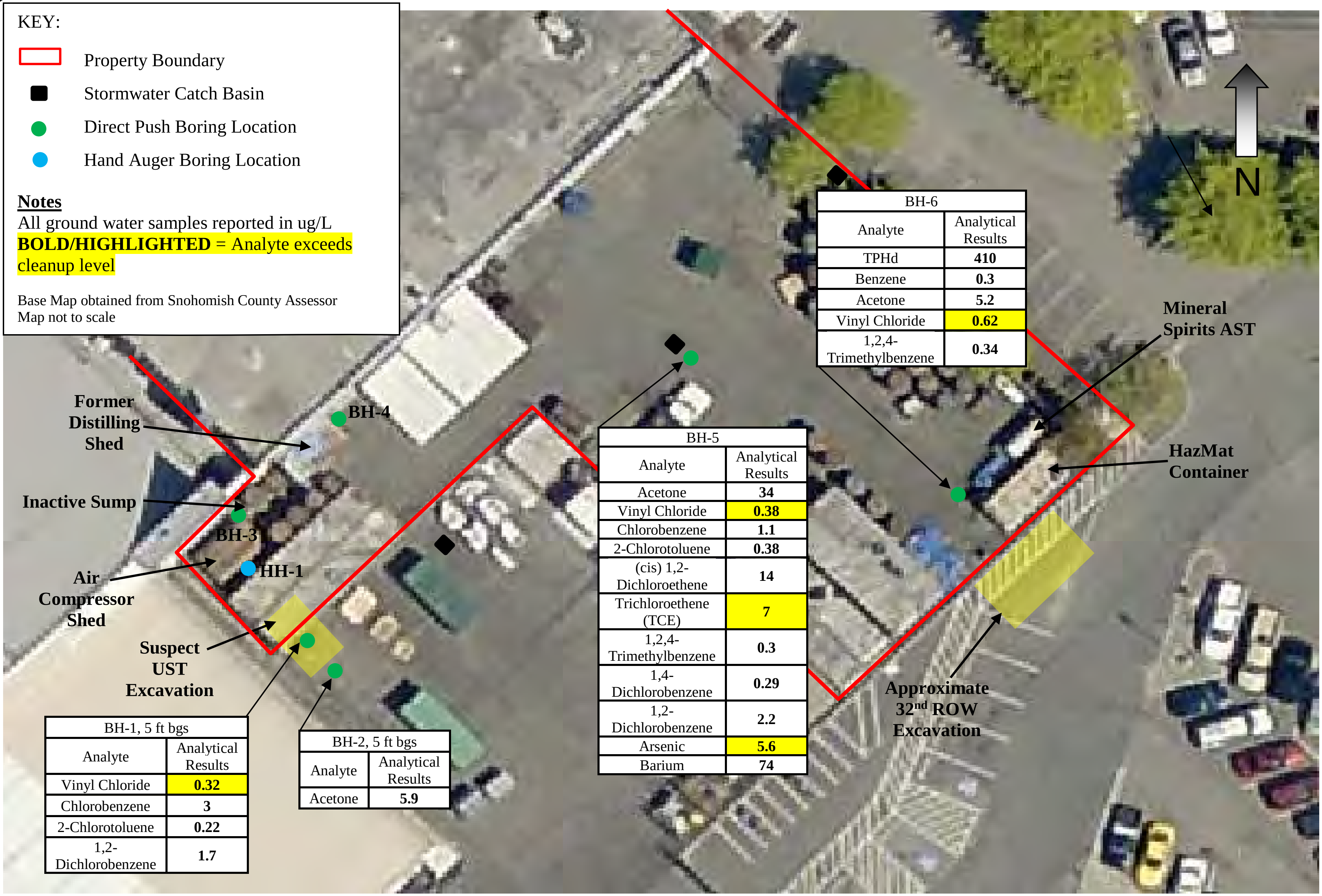
- Property Boundary
- Stormwater Catch Basin
- Direct Push Boring Location
- Hand Auger Boring Location

Notes

All ground water samples reported in ug/L

BOLD/HIGHLIGHTED = Analyte exceeds cleanup level

Base Map obtained from Snohomish County Assessor
Map not to scale



BH-1, 5 ft bgs	
Analyte	Analytical Results
Vinyl Chloride	**0.32**
Chlorobenzene	3
2-Chlorotoluene	0.22
1,2-Dichlorobenzene	1.7

BH-2, 5 ft bgs	
Analyte	Analytical Results
Acetone	5.9

BH-5	
Analyte	Analytical Results
Acetone	34
Vinyl Chloride	**0.38**
Chlorobenzene	1.1
2-Chlorotoluene	0.38
(cis) 1,2-Dichloroethene	14
Trichloroethene (TCE)	**7**
1,2,4-Trimethylbenzene	0.3
1,4-Dichlorobenzene	0.29
1,2-Dichlorobenzene	2.2
Arsenic	**5.6**
Barium	74

BH-6	
Analyte	Analytical Results
TPHd	410
Benzene	0.3
Acetone	5.2
Vinyl Chloride	**0.62**
1,2,4-Trimethylbenzene	0.34

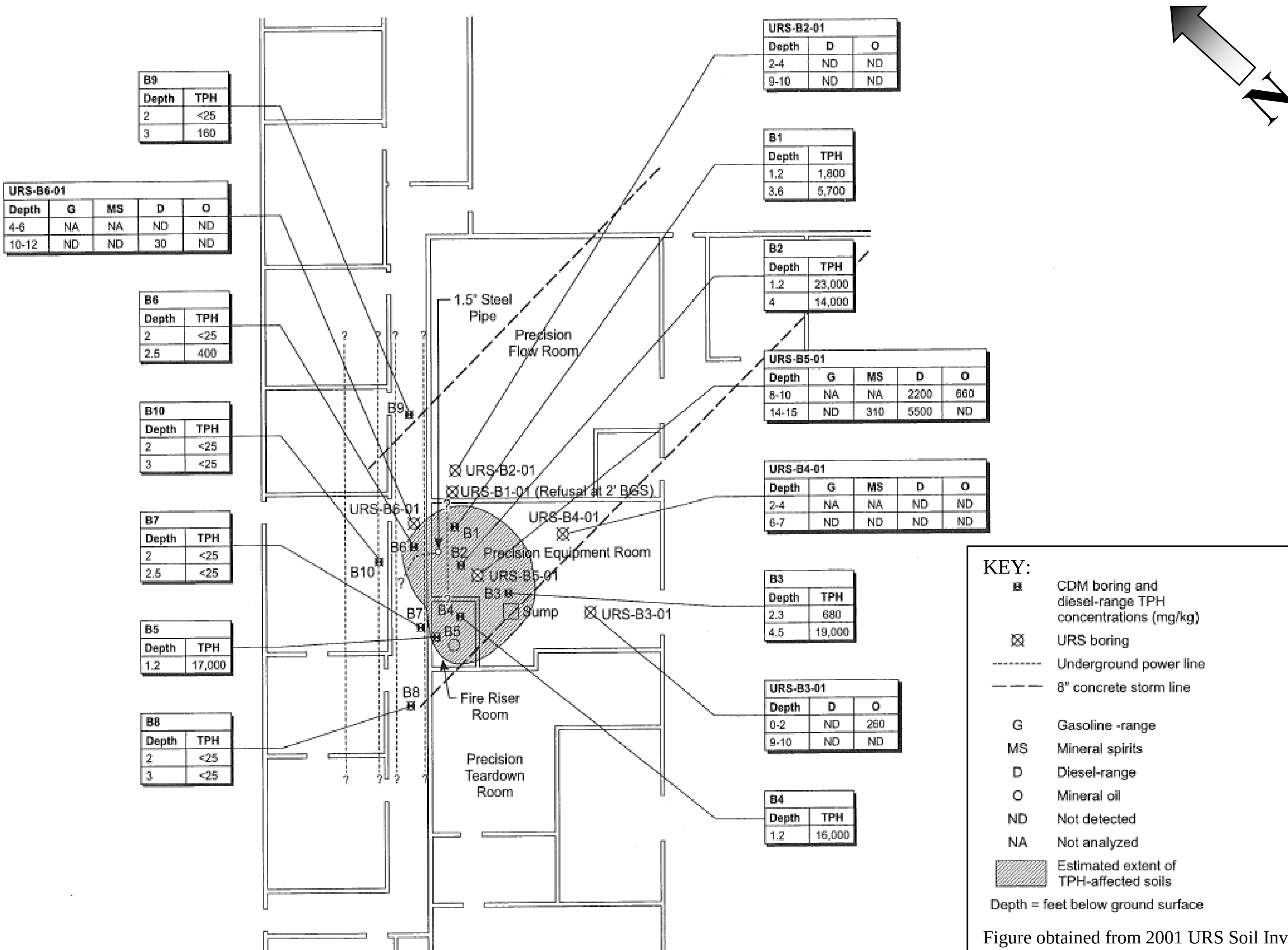
HWA GEOSCIENCES INC.

GROUNDWATER ANALYTICAL RESULTS

PHASE I AND II ESA
PRECISION ENGINES PROPERTY
EVERETT, WASHINGTON

FIGURE 7

PROJECT NO. 2018-058



B9	
Depth	TPH
2	<25
3	160

URS-B6-01				
Depth	G	MS	D	O
4-6	NA	NA	ND	ND
10-12	ND	ND	30	ND

B6	
Depth	TPH
2	<25
2.5	400

B10	
Depth	TPH
2	<25
3	<25

B7	
Depth	TPH
2	<25
2.5	<25

B5	
Depth	TPH
1.2	17,000

B8	
Depth	TPH
2	<25
3	<25

URS-B2-01		
Depth	D	O
2-4	ND	ND
9-10	ND	ND

B1	
Depth	TPH
1.2	1,800
3.6	5,700

B2	
Depth	TPH
1.2	23,000
4	14,000

URS-B5-01				
Depth	G	MS	D	O
8-10	NA	NA	2200	660
14-15	ND	310	5500	ND

URS-B4-01				
Depth	G	MS	D	O
2-4	NA	NA	ND	ND
6-7	ND	ND	ND	ND

B3	
Depth	TPH
2.3	680
4.5	19,000

URS-B3-01		
Depth	D	O
0-2	ND	260
9-10	ND	ND

B4	
Depth	TPH
1.2	16,000

KEY:

⊠ (small)	CDM boring and diesel-range TPH concentrations (mg/kg)
⊠	URS boring
- - - - - - -	Underground power line
— — —	8" concrete storm line
G	Gasoline -range
MS	Mineral spirits
D	Diesel-range
O	Mineral oil
ND	Not detected
NA	Not analyzed
(hatched)	Estimated extent of TPH-affected soils

Depth = feet below ground surface

Figure obtained from 2001 URS Soil Investigation
Not to scale.

HWA GEOSCIENCES INC.

INTERIOR SOIL ANALYSIS RESULTS

PHASE I AND II ESA
PRECISION ENGINES PROPERTY
EVERETT, WASHINGTON

FIGURE
8

PROJECT NO.
2018-058

APPENDIX B
C-1 Hangar and C-1 Building
Vapor Intrusion Evaluation Report

GeoEngineers
2101 4th Avenue, Suite 950
Seattle, Washington 98121
206.728.2674

April 27, 2021

Paine Field/Snohomish County Airport
3220 – 100th Street SW, Suite A
Everett, Washington 98204-1303

Attention: Andrew Rardin

Subject: C-1 Hangar and C-1 Building Vapor Intrusion Evaluation – December 2020
Paine Field/Snohomish County Airport
Former ATS Hangar Property and Former Prevision Engines Property
Everett, Washington
File No. 5530-014-00

INTRODUCTION, BACKGROUND AND PURPOSE

This report presents the results of the November and December 2020 focused sub-slab and indoor air vapor intrusion (VI) evaluation for the C-1 Hangar and C-1 Building Properties (site) at Paine Field/Snohomish County Airport (Paine Field) in Everett, Washington (Figure 1). Paine Field is conducting a MTCA-compliant Remedial Investigation (RI) as part of planning for future cleanup of the site through the Washington State Department of Ecology's (Ecology's) Voluntary Cleanup Program (VCP). The VI evaluation is being conducted as part of characterization of the site conditions, and the results will be included in the RI report.

The C-1 Hangar Property is approximately 1.5-acres in area and is developed with an approximately 53,000 square-foot aircraft hangar and an adjacent covered outdoor space. The C-1 Hangar Property was most recently occupied by Aviation Technical Services (ATS). The C-1 Building Property is located adjacent to the east-northeast of the C-1 Hangar and is approximately 0.85-acres and consists of one approximately 25,000 square-foot building and an adjacent 12,000 square-foot exterior storage yard. The C-1 Building Property was most recently occupied by Precision Engines, LLC. The site is shown on Figure 2.

The C-1 Building Property is listed by Ecology as the Precision Engines LLC site (Cleanup Site ID: 3526; Facility/Site ID: 84613634) with status listed as "cleanup started" and has been the subject of investigations and focused remedial actions since at least 1998. The results of the investigations conducted to date have identified the presence of petroleum hydrocarbons, mineral spirits, chlorinated solvents and/or arsenic in soil, groundwater, soil vapor and ambient indoor air at concentrations greater than the applicable MTCA screening/cleanup levels (HWA 2018). The C-1 Hangar Property is not listed in Ecology's contaminated sites database; however, previous investigation findings suggest that contamination in soil, groundwater, and soil vapor may exist at the C-1 Hangar Property.

1.0 VAPOR INTRUSION (VI) EVALUATION

Overview and Scope

The VI evaluation for the site was conducted in accordance with Ecology's "Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action," updated April 2018 (Ecology 2018a) and Ecology's Implementation Memoranda #18, #21 and #22 (Ecology 2018b, 2018c and 2019).

The scope of services for the November and December 2020 VI evaluation was as follows:

- Conduct a physical survey of the C-1 Hangar and C-1 Building characteristics and building interior to identify features relevant to indoor air quality, air circulation, and potential indoor sources for the contaminants of concern.
- Install vapor pins for the sampling of sub-slab soil vapor and collect sub-slab soil vapor samples to help estimate the vapor intrusion contribution to measured indoor air concentrations.
- Collect indoor and background (ambient) outdoor air samples.
- Submit the samples for laboratory analysis for volatile organic compounds (VOCs) and air-phase petroleum hydrocarbons (APH).
- Background (ambient) outdoor air samples were collected, consistent with Ecology guidance, to assist in identifying whether outdoor air may be a source of VOCs or APH if detected in the indoor air samples. Per the guidance, the minimum concentrations of each analyte detected in the outdoor air samples are subtracted from the indoor air sample results account for background conditions. The resulting indoor air concentrations are referred to as the "adjusted indoor air concentrations."
- Interpret the findings of the building survey and the sample analytical data in accordance with Ecology guidance. The VI evaluation was performed, and the conclusions developed, following the Ecology "lines-of-evidence" approach described in Implementation Memorandum #21 (Ecology 2018c). Per Ecology guidance, when adjusted indoor air concentrations are less than applicable air cleanup or screening levels, "it is reasonable to conclude that vapor intrusion is not currently posing a problem requiring action."

Cleanup and Screening Levels

The sub-slab soil vapor sampling results were compared to the Model Toxics Control Act (MTCA) Method B soil vapor screening levels for residential exposure (cancer or non-cancer, whichever is lower) published in Ecology's updated Cleanup Levels and Risk Calculation (CLARC) database (Ecology 2021) and to commercial exposure soil vapor screening levels. The commercial exposure soil vapor screening levels were calculated by dividing the MTCA Method B commercial exposure indoor air screening levels (described below) by the Ecology sub-slab vapor intrusion attenuation factor of 0.03 (see Ecology Implementation Memorandum #21; "Frequently Asked Question No. 3."). Ecology used this same approach to calculate the MTCA Method B soil vapor screening levels. The screening levels are included in Table 1.

Indoor air sample analytical results were evaluated by comparison to the MTCA Method B indoor air cleanup levels for residential exposure and to the MTCA Method B commercial exposure screening levels. The trichloroethylene (TCE) results for the indoor air samples were also compared to the Short-Term Commercial Worker Indoor Air Action Level for TCE published in Ecology Implementation Memo 22 (Ecology 2018d).

The respective cleanup and screening levels are shown in Table 2. The commercial exposure screening levels were calculated according to Ecology Implementation Memorandum #21 (see "Frequently Asked Question No. 17").

A comparison of the exposure assumptions for the MTCA Method B indoor air cleanup levels for residential exposure and for the MTCA Method B indoor air commercial exposure screening levels is included below:

MTCA Method B Indoor Air Cleanup Levels for Residential Exposure	MTCA Method B Indoor Air Commercial Exposure Screening Levels
365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic chemicals)	250 days/year, 10 hours/day for 20 years

Building Survey

Ecology guidance for indoor air VI evaluation acknowledges that indoor air quality can be affected by volatiles emitted from materials or products stored indoors (Ecology 2018a). Following Ecology guidance, and before sample collection, GeoEngineers completed a building interior survey on November 30, 2020 to observe and document building conditions and identify potential indoor sources for contaminants to indoor air. The building survey was completed for both the C-1 Hangar Property and the C-1 Building Property. A copy of the completed building survey form is included in Appendix A.

Field Investigation

Utilities and Concrete Survey

Prior to sampling, a subcontracted private utility locate and concrete survey were completed for the proposed sample locations to identify below-grade utilities and determine the thickness of the concrete slab for sample planning purposes. The results of the concrete survey indicate that the concrete floor in the C-1 Hangar is comprised of two or more separate, overlying concrete slabs and ranges between 4 and 16 inches in thickness. A copy of the concrete survey report is included as Appendix B.

Sample Collection

GeoEngineers collected three sub-slab soil vapor samples (SV-1 through SV-3) on November 30, 2020, and nine sub-slab soil vapor samples (SV-4 through SV-12), thirteen indoor air samples (IA-1 through IA-13), and two ambient outdoor air samples (OA-1 and OA-2) on December 1, 2020. The approximate sample locations are shown on Figure 2.

- **Sub-Slab Soil Vapor Samples.** Twelve sub-slab soil vapor samples were collected throughout the C-1 Hangar, with additional sample density on the side of the hangar adjacent to the C-1 Building to assess soil vapor in areas closest to the C-1 Building where previous soil vapor sampling identified contaminant concentrations greater than the MTCA Method B soil vapor screening levels. Sub-slab soil vapor sampling was not conducted in the C-1 Building during the current VI evaluation because sub-slab soil vapor samples were collected in the building during the 2018 investigation(HWA 2018).
- **Indoor Air Samples.**
  - Two indoor air samples were collected from locations within the open space of the C-1 Hangar, and five indoor air samples were collected from locations within perimeter offices and

workshop spaces. The perimeter rooms were previously used for tool storage, as paint/fabric shops, a break room, and for general storage.

- Four indoor air samples were collected at locations within the open space of the C-1 Building, and two indoor air samples were collected from locations within the segregated shop spaces and office areas. Sample location IA-9 was collected at the location where previous sample analytical results in 2001 indicated total petroleum hydrocarbons (TPH) in soil (URS 2001). Sample location IA-13 was collected at the location where a 2018 indoor air sample indicated concentrations of benzene and TCE greater than the MTCA screening levels (HWA 2018). Three sample locations within the open space of the building (IA-8, IA-11, and IA-12) corresponded to locations where 2018 sub-slab soil vapor samples indicated concentrations of one or more contaminant of concern greater than the MTCA screening levels (HWA 2018).

- **Outdoor Air Samples.** Ecology's Draft VI Guidance indicates that building-specific ambient (outdoor) air samples are to be collected as part of the Tier II VI evaluation at the same time indoor air samples are collected. Outdoor air sample results are used to assess how background outdoor air conditions can influence indoor air quality. Ecology guidance allows outdoor air results to be evaluated in conjunction with indoor air sampling to better estimate whether contaminants detected in indoor air are likely, or not likely, to be due to vapor intrusion (Ecology 2018a). The minimum detected outdoor air sample concentrations for each analyte are subtracted from the indoor air sample results to account for background conditions. The December 2020 outdoor air sample locations were at the north end of the Badging office and at the south end of the C-1 Hangar, both downwind and upwind on the day of sampling.

Weather and Building Conditions

The weather on December 1, 2020, at the time of indoor and outdoor air sampling at the site ranged between 37- and 43-degrees Fahrenheit. Wind speed during the sampling was reported at about 7 miles per hour to the north. Over the three days leading up to the December 1, 2020 sampling, barometric pressures ranged from 29.81 to 30.63 inches of mercury with pressures decreasing slightly over time (Weather Spark, Inc., Snohomish County Airport Station 2020).

Indoor air sampling was conducted under conservative building operational conditions to the extent practicable. The sampling was performed during the day from 8 AM to 4 PM. During this time, the HVAC systems for the buildings were operational, bay doors for both buildings were kept closed, and ingress and egress activities during sampling activities were minimized. The intent was to obtain indoor air samples that were representative of normal conditions, but to reduce potential interferences by collecting samples when few to no building occupants are present and when exterior doors are not regularly opening and closing.

Sampling Procedures

Sampling procedures are described in Appendix A. A summary of the procedures is provided below.

- **Sub-Slab Soil Vapor Samples.** Following utility clearance and determining concrete thickness, soil Vapor Pins™ (Pins) were installed into the concrete flooring. The Pins were capped and allowed to equilibrate with the subsurface soil vapor for a minimum of two hours before sampling. Soil vapor samples were collected from the Pins directly into the laboratory-provided 1-liter vacuum Summa canisters.

- **Indoor and Outdoor Air Samples.** Indoor and outdoor air samples were obtained over an approximately 8-hour period using 6-liter Summa with flow controllers and sorbent tubes connected to personal sampling pumps. Tubing was connected to each canister and sorbent tube to elevate the sample intake into the breathing zone at approximately 3 to 5 feet above the floor surface.

The Summa canister samples were submitted on December 1, 2020 to Friedman and Bruya, Inc. in Seattle, Washington for chemical analysis for petroleum hydrocarbons (C5-C8 Aliphatics, C9-C12 Aliphatics and C9-C10 Aromatics) Massachusetts Department of Environmental Protection (Massachusetts DEP) APH Method, VOCs by United States Environmental Protection Agency (EPA) Method TO-15, and helium (sub-slab soil vapor samples only) by American Society for Testing and Materials (ASTM) Method D1946.

The sorbent tube samples were submitted on December 1, 2020 to Friedman and Bruya, Inc. in Seattle, Washington for chemical analysis for naphthalene by EPA Method TO-17.

Comprehensive laboratory reports are presented in Appendix C.

Chemical Analytical Results

The November and December 2020 sub-slab soil vapor and indoor and outdoor air chemical analytical results for analytes with detected concentrations greater than cleanup or screening levels are presented in Tables 1 and 2, respectively. The indoor air sample results shown in Table 2 are values that have been adjusted to account for influences due to outdoor air (ambient air).[1] The adjustment calculations are consistent with the Ecology Draft VI Guidance (Ecology 2018a).

Chemical analytical results for all analytes are presented in Tables 3 and 4 for sub-slab soil vapor and indoor and outdoor air samples, respectively. The indoor air concentrations in Table 4 were not adjusted for contributions from outdoor air.

Sub-Slab Soil Vapor Results

As shown in Table 1, 1,1-dichloroethane (1,1-DCA), chloroform, naphthalene, tetrachloroethene (PCE), trichloroethylene (TCE), and Total TPH (the sum of individual petroleum fractions, benzene, toluene, ethylbenzene, xylene and naphthalene) were detected in at least one soil vapor sample at a concentration greater than the MTCA Method B soil vapor screening level for residential exposure. Only 1,1-DCA, chloroform, naphthalene, and TCE were detected at concentrations greater than the MTCA Method B soil vapor screening level for commercial exposure.

Indoor Air Sample Results

As shown in Table 2, chloroform, naphthalene, TCE and Total TPH were detected in at least one indoor air sample at a concentration greater than the MTCA Method B indoor air cleanup level for residential exposure. No analytes were detected at concentrations greater than the MTCA Method B indoor air screening level for commercial exposure.

[1] Two outdoor air samples were obtained (OA-1 and OA-2). As noted in Table 2, the adjusted indoor air concentration equals the raw (or original) indoor air concentration minus the minimum outdoor air concentration.

Benzene and carbon tetrachloride were detected at concentrations greater than the MTCA Method B indoor air cleanup level in the outdoor air samples. Adjusted indoor air concentrations for these two analytes were less than the MTCA Method B indoor air cleanup level.

DISCUSSION AND CONCLUSIONS

The C-1 Hangar and C-1 Building are commercial workspaces; therefore, in accordance with Ecology guidance, the commercial worker screening and action levels are considered appropriate for comparison purposes for this evaluation. Specifically, the November and December 2020 VI results were evaluated relative to the MTCA Method B indoor air and soil vapor commercial exposure screening levels; we also note that the findings were compared to the MTCA Method B indoor air cleanup levels and soil vapor screening levels for residential (unrestricted) exposure.

As noted earlier, adjusted indoor air concentrations are used to conclude whether "vapor intrusion is currently posing a problem requiring action." Sub-slab soil vapor concentrations are another line of evidence that are used to estimate the vapor intrusion contribution to the concentrations measured in indoor air.

- **Commercial Exposure.** No analytes were detected in indoor air at concentrations greater than the MTCA Method B indoor air screening level for commercial exposure. 1,1-DCA, chloroform, naphthalene, and TCE were detected in soil vapor at concentrations greater than the MTCA Method B soil vapor screening level for commercial exposure.
- **Residential Exposure.** Chloroform, naphthalene, TCE and Total TPH were detected in indoor air at concentrations greater than the MTCA Method B indoor air cleanup level for residential exposure. 1,1-DCA, chloroform, naphthalene, PCE, TCE, and Total TPH were detected in soil vapor at concentrations greater than the MTCA Method B soil vapor screening level for residential exposure.

The presence of chloroform, naphthalene, TCE and Total TPH in soil vapor and indoor air at concentrations greater than residential regulatory criteria indicate that there is a potential pathway for soil vapor to indoor air for the C-1 Hangar and C-1 Buildings. However, while the results indicate that the detected concentrations of these four analytes are greater than the MTCA Method B indoor air cleanup levels for residential exposure, the detected concentrations are not greater than the MTCA Method B indoor air screening levels for commercial exposure which are applicable at this facility. Therefore, based on the results of the November and December 2020 VI evaluation and in accordance with Ecology's VI guidance, the detected concentrations of chlorinated and petroleum-related VOCs in indoor air at the C-1 Hangar and C-1 Building are less than the applicable regulatory screening levels. The results of the VI evaluation indicate that vapor intrusion is not occurring at levels of regulatory concern for a commercial building, and that the hangar and building are suitable for commercial uses.

LIMITATIONS

We have prepared this letter for the exclusive use of the Snohomish County Airport. No other party may place reliance on the product of our services unless we agree in advance and in writing to such reliance. Our services were provided in accordance with our agreement with the Snohomish County Airport, dated December 24, 2018.

This report is based on conditions that existed at the time our site studies were performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Our interpretations are based on field observations and chemical analytical data from widely spaced sampling locations. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion. Our report, conclusions and interpretations should not be construed as a warranty of contaminant conditions. Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

REFERENCES

Ecology 2018a. Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action. Publication No. 09-09-047. Review Draft, Updated April 2018.

Ecology 2018b. Petroleum Vapor Intrusion (PVI): Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings - Implementation Memo No. 18. January 10, 2018.

Ecology 2018c. Frequently Asked Questions (FAQs) Regarding Vapor Intrusion (VI) and Ecology's 2009 Draft VI Guidance - Implementation Memo No. 21. November 15, 2018.

Ecology 2019. Vapor Intrusion (VI) Investigations and Short-term Trichloroethene (TCE) Toxicity - Implementation Memo No. 22. October 1, 2019.

HWA Geosciences, Inc. (HWA) 2018. Phase I and Phase II Environmental Site Assessment: Precision Engines Property, Everett, Washington. July 10, 2018.

URS 2001. Soil Investigation Report, Precision Engines Facility, Everett, Washington. November 15, 2001.

Washington State Department of Ecology (Ecology). 2021. Cleanup Levels and Risk Calculation Master Spreadsheet. 2021. Updated February 2021.

Weather Spark, Inc. 2020. Historical Weather. Accessed on Internet on December 2020. https://weatherspark.com/y/145237/Average-Weather-at-Snohomish-County-Airport-(Paine-Field)-Washington-United-States-Year-Round

If you have any questions about this letter, please let us know. Thank you.

Sincerely,
GeoEngineers, Inc.

Jacob Letts, LHG
Project Manager

Neil Morton
Project Manager

Tim Syverson, LHG
Associate

JML:TLS:lw

Attachments:

Table 1. Soil Vapor Sample Chemical Analytical Results Exceeding MTCA Criteria

Table 2. Indoor and Outdoor Air Sample Chemical Analytical Results Exceeding MTCA Criteria

Table 3. Soil Vapor Sample Chemical Analytical Results (All Analytes)

Table 4. Indoor and Outdoor Air Sample Chemical Analytical Results (All Analytes)

Figure 1. Vicinity Map

Figure 2. Site Plan with Sample Locations

Appendix A. Field Procedures and Building Survey

Appendix B. Concrete Survey Report

Appendix C. Data Validation and Chemical Analytical Laboratory Reports

Table 1

Soil Vapor Sample Chemical Analytical Results Exceeding MTCA Criteria*
C-1 Hangar, Paine Field, Snohomish County Airport
Everett, Washington

Analyte	Method	Units	MTCA Method B Soil Vapor Screening Level for Residential Exposure [2,3]	MTCA Method B Soil Vapor Screening Levels for Commercial Exposure [3,4]	Sample ID and Sample Date [1]											
					SV-1 11/30/20	SV-2 11/30/20	SV-3 11/30/20	SV-4 12/01/20	SV-5 12/01/20	SV-6 12/01/20	SV-7 12/01/20	SV-8 12/01/20	SV-9 12/01/20	SV-10 12/01/20	SV-11 12/01/20	SV-12 12/01/20
1,1-Dichloroethane	EPA-TO-15	μg/m^3	52	270	2.2 U	1.5 U	2.3 U	2.1 U	1.4 U	3.3 U	2.2 U	1.4 U	2.3 U	2.3 U	2.5 U	**530**
Chloroform	EPA-TO-15	μg/m^3	3.6	19	0.27 U	**0.51**	0.28 U	0.26 U	0.17 U	0.40 U	0.27 U	**0.55**	0.28 U	0.28 U	0.30 U	**170**
Naphthalene	EPA-TO-15	μg/m^3	2.5	13	1.4 U	**5.5**	**4.8**	**2.9**	**2.1**	**6.5**	**31**	**6.7**	**6.2**	**8.8**	**2.0**	**12**
Tetrachloroethylene	EPA-TO-15	μg/m^3	320	1,700	37 U	24 U	39 U	36 U	23 U	**93**	37 U	23 U	39 U	39 U	41 U	**740**
Trichloroethylene	EPA-TO-15	μg/m^3	11	110	0.59 U	**0.58**	**0.64**	**0.83**	**0.37**	0.87 U	**0.74**	**0.38**	**2.8**	**22**	0.66 U	**30,000 J**
Total TPH [5]	Calculated	μg/m^3	4,700 [4]	33,000 [4]	**800**	**1,300**	**2,600**	**3,000**	**970**	**25,000**	**4,700**	**390**	**3,600**	**2,000**	**1,900**	**5,400**

Notes:

[1] All constituents analyzed using United States Environmental Protection Agency (EPA) Method TO-15.

[2] Model Toxics Control Act (MTCA) Method B soil vapor screening levels for residential exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated August 2020. Residential exposure scenario assumes 365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic chemicals).

[3] MTCA Method B soil vapor screening levels for commercial workers assume an exposure scenario of 250 days/year, 10 hours/day for 20 years. See Ecology's Implementation Memorandum #21; "Frequently Asked Question No. 17."

[4] Soil vapor screening levels were calculated by dividing air cleanup or screening levels by Ecology's sub-slab vapor intrusion attenuation factor of 0.03. See Ecology's Implementation Memorandum #21; "Frequently Asked Question No. 3."

[5] Total TPH results were calculated by summing results for individual petroleum fractions, benzene, toluene, ethylbenzene, xylene and napthalene.

μg/m^3 = micrograms per cubic meter

U = Constituent not detected above the laboratory reporting limit

Bold font type indicates the analyte was detected at a concentration greater than the laboratory reporting limit.

Gray shaded value indicates the detected concentration in soil vapor is greater than the MTCA Method B soil vapor screening level for residential exposure.

Orange shading indicates the detected concentration is greater than the MTCA Method B soil vapor screening levels for residential exposrue and commercial workers.

* - Analytes detected with one or more concentration greater than the MTCA screening level.

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Table 2

Indoor and Outdoor Air Sample Chemical Analytical Results Exceeding MTCA Criteria
C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport
Everett, Washington

Analyte	Method	Units	MTCA Method B Indoor Air Cleanup Level for Residential Exposure [2]	MTCA Method B Indoor Air Screening levels for Commercial Exposure [3]	Sample ID and Sample Date [1]													Minimum Outdoor Air
					IA-1 12/01/20	IA-2 12/01/20	IA-3 12/01/20	IA-4 12/01/20	IA-5 12/01/20	IA-6 12/01/20	IA-7 12/01/20	IA-8 12/01/20	IA-9 12/01/20	IA-10 12/01/20	IA-11 12/01/20	IA-12 12/01/20	IA-13 12/01/20	
Benzene	EPA-TO-15	μg/m^3	0.32	1.7	**0.03**	**0.21**	**0.21**	**0.09**	**0.23**	**0.16**	**0.02**	**0.17**	**0.17**	**0.21**	**0.26**	**0.21**	**0.13**	**0.42**
Carbon Tetrachloride	EPA-TO-15	μg/m^3	0.42	2.2	**-0.07**	**-0.01**	**0**	**0**	**-0.03**	**-0.01**	**-0.04**	**-0.02**	**-0.05**	**0.01**	**0.06**	**0**	**-0.07**	**0.47**
Chloroform	EPA-TO-15	μg/m^3	0.11	0.57	**0.017**	**0.017**	**0.005**	**0.007**	**0.017**	**0.007**	**0.027**	**0.057**	**0.057**	**0.127**	**0.157**	**0.067**	**0.097**	**0.093**
Naphthalene	EPA-TO-15	μg/m^3	0.074	0.39	**0.153**	**0.123**	**0.143**	**0.213**	**0.083**	**0.133**	**0**	**0.037**	**0.073**	**0.093**	**0.027**	**0.027**	**0.073**	**0.057**
Naphthalene	EPA-TO-17	μg/m^3	0.074	0.39	**0.052**	**0.052**	**0.052**	**0.042**	**0.062**	**0.052**	**0.042**	**0.062**	**0.092**	**0.082**	**0.072**	**0.062**	**0.072**	**0.058**
Trichloroethylene	EPA-TO-15	μg/m^3	0.33	3.2	**0.15**	**0.14**	**0.13**	**0.13**	**0.12**	**0.19**	**1.1**	**0.37**	**0.31**	**0.44**	**0.41**	**0.70**	**0.60**	0.11 U
Total TPH [4]	Calculated	μg/m^3	140	1,000	**188**	**133**	**226**	**176**	**99**	**143**	**0.54**	**139**	**201**	**162**	**144**	**141**	**155**	**0.481**

Notes:

[1] All constituents analyzed using United States Environmental Protection Agency (EPA) Method TO-15, except where noted. Following Ecology's draft vapor intrusion guidance (Ecology 2018a), indoor air sample results have been adjusted for background contributions using the December 1, 2020 outdoor air sample results.

[2] Model Toxics Control Act (MTCA) Method B indoor air cleanup levels for residential exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated February 2021. Residential exposure scenario assumes 365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic chemicals).

[3] MTCA Method B indoor air screening levels for commercial workers assume an exposure scenario of 250 days/year, 10 hours/day for 20 years. See Ecology's Implementation Memorandum #21; "Frequently Asked Question No. 17."

[4] Sum of TPH/BTEXN results were calculated by summing results for individual petroleum fractions, benzene, toluene, ethylbenzene, xylene and napthalene.

μg/m^3 = micrograms per cubic meter

U = Constituent not detected above the laboratory reporting limit

Bold font type indicates the analyte was detected at a concentration greater than the laboratory reporting limit.

Gray shaded value indicates the detected concentration in an indoor air sample is greater than the MTCA Method B indoor air cleanup level for residential exposure.

Orange shading indicates the detected concentration is greater than the MTCA Method B indoor air cleanup level for residental exposure and screening level for commercial workers.

* - Analytes detected with one or more concentration greater than the MTCA screening level.

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Table 3

Soil Vapor Sample Chemical Analytical Results (All Analytes)

C-1 Hangar, Paine Field, Snohomish County Airport

Everett, Washington

Analyte	MTCA Method B Soil Vapor Screening Level [2,3]	Sample ID and Sample Date [1]											
		SV-1 11/30/20	SV-2 11/30/20	SV-3 11/30/20	SV-4 12/01/20	SV-5 12/01/20	SV-6 12/01/20	SV-7 12/01/20	SV-8 12/01/20	SV-9 12/01/20	SV-10 12/01/20	SV-11 12/01/20	SV-12 12/01/20
Air-Phase Petroleum Hydrocarbons (APH) (µg/m³) by Method MA-APH													
APH C5-C8 Aliphatics	NE	**750 J+**	**380 J+**	**2,000 J+**	**3,000 J+**	**370 J+**	**22,000 J+**	**2,300 J+**	**200 J+**	**2,400 J+**	**1,300 J+**	**1,400 J+**	**4,600 J+**
APH C9-C12 Aliphatics	NE	270 U	**290**	**310**	260 U	**240**	**1,800**	**390**	170 U	**910**	**480**	**510**	850 U
APH C9-C10 Aromatics	NE	140 U	**590**	**220**	130 U	**310**	**460**	**1,400**	**180**	**210**	**220**	150 U	**800**
Volatile Organic Compounds (µg/m³) by Method EPA TO-15													
1,1,1-Trichloroethane	76,000	**3.6**	**8.7**	3.1 U	2.9 U	1.9 U	**32**	3.0 U	1.9 U	**6.5**	3.2 U	**13**	**7,900 J**
1,1,2,2-Tetrachloroethane	1.4	0.76 U	0.49 U	0.78 U	0.73 U	0.47 U	1.1 U	0.76 U	0.47 U	0.78 U	0.80 U	0.84 U	2.3 U
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	76,000	4.2 U	**8.4**	4.4 U	**4.8**	2.6 U	**340**	**260**	2.6 U	**54**	**28**	**16**	13 U
1,1,2-Trichloroethane	3	0.30 U	0.20 U	0.31 U	0.29 U	0.19 U	0.44 U	0.30 U	0.19 U	0.31 U	0.32 U	0.33 U	**1.8**
1,1-Dichloroethane	52	2.2 U	1.5 U	2.3 U	2.1 U	1.4 U	3.3 U	2.2 U	1.4 U	2.3 U	2.3 U	2.5 U	**530**
1,1-Dichloroethylene	3,000	2.2 U	1.4 U	2.3 U	2.1 U	1.3 U	3.2 U	**4.5**	1.3 U	2.3 U	2.3 U	2.4 U	**930**
1,2,4-Trimethylbenzene	910	14 U	8.8 U	14 U	13 U	**11**	**43**	**95**	8.4 U	**18**	14 U	15 U	42 U
1,2-Dibromoethane	0.14	0.42 U	0.28 U	0.44 U	0.41 U	0.26 U	0.62 U	0.42 U	0.26 U	0.44 U	0.45 U	0.47 U	1.3 U
1,3,5-Trimethylbenzene	900	14 U	8.8 U	14 U	13 U	8.4 U	20 U	**16**	8.4 U	14 U	14 U	15 U	42 U
1,4-Dioxane	17	2.0 U	1.3 U	2.1 U	1.9 U	1.2 U	**5.5**	2.0 U	1.2 U	2.1 U	2.1 U	2.2 U	6.1 U
1-Propene	NE	6.6 U	4.3 U	6.9 U	6.4 U	4.1 U	**65**	**100**	4.1 U	6.9 U	7.0 U	7.3 U	20 U
2,2,4-Trimethylpentane	NE	26 U	17 U	27 U	25 U	16 U	**40**	26 U	16 U	27 U	27 U	28 U	79 U
Acetone	470,000	**510 J**	**360 J**	**1,200 J**	**2,000 J**	**410 J**	**2,000 J**	**580 J**	**240 J**	**430 J**	**460 J**	**220**	**190**
Acrolein	0.3	11 U	7.4 U	12 U	11 U	7.0 U	17 U	11 U	7.0 U	12 U	12 U	13 U	35 U
Allyl Chloride (3-Chloropropene)	14	8.6 U	5.6 U	8.9 U	8.3 U	5.3 U	13 U	8.6 U	5.3 U	8.9 U	9.1 U	9.5 U	27 U
Benzene	11	**2.4**	**3.7**	1.8 U	1.7 U	**2.6**	2.6 U	**4.7**	1.1 U	1.8 U	1.9 U	1.9 U	5.4 U
Butane	NE	13 U	**36**	**15**	13 U	8.1 U	**29**	**36**	8.1 U	14 U	14 U	15 U	40 U
Carbon Tetrachloride	14	1.7 U	1.1 U	1.8 U	1.7 U	1.1 U	2.5 U	**7.5**	1.1 U	1.8 U	1.8 U	1.9 U	5.3 U
Chloroform	3.6	0.27 U	**0.51**	0.28 U	0.26 U	0.17 U	0.40 U	0.27 U	**0.55**	0.28 U	0.28 U	0.30 U	**170**
cis-1,2-Dichloroethylene	NE	2.2 U	1.4 U	2.3 U	2.1 U	1.3 U	3.2 U	2.2 U	1.3 U	2.3 U	2.3 U	2.4 U	**20**
Dichlorodifluoromethane	1,500	2.7 U	**3.1**	**3.0**	**2.9**	**2.5**	4.0 U	**3.2**	**2.8**	2.8 U	2.9 U	3.0 U	8.4 U
Ethanol	NE	**180**	**220 J**	**150**	**270 J**	**210 J**	**640 J**	**400 J**	**490 J**	**370 J**	**240**	**260**	**150**
Ethylbenzene	15,000	2.4 U	1.6 U	**3.1**	2.3 U	**7.4**	**51**	**27**	1.5 U	**12**	**6.1**	2.6 U	7.4 U
Isopropyl Alcohol	NE	**670 J**	**97**	**270**	**3,600 J**	**120**	**1,000 J**	**320**	**67**	**110**	**83**	**200**	150 U
Methyl ethyl ketone (MEK)	76,000	16 U	**11**	**42**	16 U	10 U	**140**	**41**	10 U	17 U	17 U	18 U	50 U
Naphthalene	2.5	1.4 U	**5.5**	**4.8**	**2.9**	**2.1**	**6.5**	**31**	**6.7**	**6.2**	**8.8**	**2.0**	**12**
Pentane	NE	16 U	**18**	17 U	16 U	10 U	24 U	**28**	10 U	17 U	17 U	18 U	50 U
Tetrachloroethylene	320	37 U	24 U	39 U	36 U	23 U	**93**	37 U	23 U	39 U	39 U	41 U	**740**
Tetrahydrofuran	30,000	1.6 U	1.1 U	**2.5**	**2.0**	**15**	**26**	**18**	**1.4**	**2.6**	**13**	**7.1**	5.0 U
Toluene	76,000	100 U	68 U	110 U	100 U	64 U	150 U	**390**	64 U	110 U	110 U	110 U	320 U
Trichloroethylene	11	0.59 U	**0.58**	**0.64**	**0.83**	**0.37**	0.87 U	**0.74**	**0.38**	**2.8**	**22**	0.66 U	**30,000 J**
Vinyl Bromide	2.6	2.4 U	1.6 U	2.5 U	2.3 U	1.5 U	3.5 U	2.4 U	1.5 U	2.5 U	2.5 U	2.7 U	7.4 U
Xylene, m-,p-	1,500	4.8 U	**6.1**	**12**	**6.7**	**29**	**180**	**98**	**5.6**	**44**	**24**	**6.4**	**17**
Xylene, o-	1,500	2.4 U	**1.8**	**3.7**	2.3 U	**6.9**	**49**	**37**	**2.2**	**16**	**7.7**	**2.6**	7.4 U
Total Xylenes	1,500	4.8 U	**7.9**	**16**	**6.7**	**36**	**230**	**140**	**7.8**	**60**	**32**	**9.0**	**17**

Notes:

[1] All constituents analyzed using United States Environmental Protection Agency (EPA) Method TO-15.

[2] Model Toxics Control Act (MTCA) Method B soil vapor screening levels for residential exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated February 2021. Residential exposure scenario assumes 365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic chemicals).

[3] Soil vapor screening levels were calculated by dividing air cleanup or screening levels by Ecology's sub-slab vapor intrusion attenuation factor of 0.03. See Ecology's Implementation Memorandum #21; "Frequently Asked Question No. 3."

µg/m³ = micrograms per cubic meter

NE = not established

U = Constituent not detected above the laboratory reporting limit

Bold font type indicates the analyte was detected at a concentration greater than the laboratory reporting limit.

Gray shaded value indicates the detected concentration in soil vapor is greater than the MTCA Method B soil vapor screening level for residential exposure.

Blue shading indicates the non-detect concentration was greater than the MTCA Method B soil vapor screening level.

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Table 4

Indoor and Outdoor Air Sample Chemical Analytical Results (All Analytes)
C-1 Hangar and C-1 Building, Paine Field, Snohomish County Airport
Everett, Washington

Analyte	MTCA Method B Indoor Air Cleanup Level [2]	Sample ID and Sample Date [1]														
		IA-1_120120 12/01/20	IA-2_120120 12/01/20	IA-3_120120 12/01/20	IA-4_120120 12/01/20	IA-5_120120 12/01/20	IA-6_120120 12/01/20	IA-7_120120 12/01/20	IA-8_120120 12/01/20	IA-9_120120 12/01/20	IA-10_120120 12/01/20	IA-11_120120 12/01/20	IA-12_120120 12/01/20	IA-13_120120 12/01/20	OA-1_120120 12/01/20	OA-2_120120 12/01/20
Air-Phase Petroleum Hydrocarbons (APH) (µg/m^3) by Method MA-APH																
APH C5-C8 Aliphatics	NE	**45**	40 U	**43**	**43**	40 U	40 U	40 U	**45**	**67**	**58**	**42**	**65**	**51**	40 U	**59**
APH C9-C12 Aliphatics	NE	**140**	**130**	**180**	**130**	**96**	**140**	50 U	**90**	**130**	**99**	**98**	**72**	**100**	50 U	**52**
Volatile Organic Compounds (µg/m^3) by Method EPA TO-15 and TO-17																
1,1,2,2-Tetrachloroethane	0.043	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,2-Dibromoethane	0.0042	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,2-Dichloroethane	0.096	**0.061**	**0.077**	**0.077**	**0.069**	**0.077**	**0.077**	**0.073**	**0.073**	**0.073**	**0.081**	**0.069**	**0.10**	**0.061**	**0.073**	**0.097**
1-Propene	NE	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	**1.6**	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	**4.4**
Acetone	14000	**7.5**	**10**	**11**	**9.6**	**7.6**	**10**	**6.0**	**8.2**	**13**	**9.7**	**9.9**	**15**	**7.5**	**5.0**	**37**
Acrolein	0.0091	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Allyl Chloride (3-Chloropropene)	0.42	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Benzene	0.32	**0.45**	**0.63**	**0.63**	**0.51**	**0.65**	**0.58**	**0.44**	**0.59**	**0.59**	**0.63**	**0.68**	**0.63**	**0.55**	**0.42**	**0.59**
Benzyl chloride	0.051	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U
Butane	NE	**3.4**	**3.1**	**4.2**	**3.6**	**3.9**	**3.8**	2.4 U	**3.1**	**9.2**	**3.6**	**3.7**	**4.2**	**4.0**	2.4 U	2.4 U
Carbon Tetrachloride	0.42	**0.40**	**0.46**	**0.47**	**0.47**	**0.44**	**0.46**	**0.43**	**0.45**	**0.42**	**0.48**	**0.53**	**0.47**	**0.40**	**0.47**	**0.52**
Chloroform	0.11	**0.11**	**0.11**	**0.098**	**0.10**	**0.11**	**0.10**	**0.12**	**0.15**	**0.15**	**0.22**	**0.25**	**0.16**	**0.19**	**0.093**	**0.098**
Dichlorodifluoromethane	46	**2.4**	**2.3**	**2.7**	**2.8**	**3.0**	**2.9**	**2.9**	**2.2**	**2.5**	**2.9**	**2.8**	**2.9**	**2.5**	**2.9**	**3.0**
Ethanol	NE	7.5 U	7.5 U	7.5 U	7.5 U	**9.8**	7.5 U	7.5 U	**16**	**11**	**84 J**	**95 J**	**37**	**25**	7.5 U	7.5 U
Ethylbenzene	460	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	**0.48**	**0.48**	**0.60**	**0.57**	**0.46**	**0.51**	0.43 U	0.43 U
Hexachlorobutadiene	0.11	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Hexane	320	**4.0**	3.5 U	**3.6**	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	**7.3**	3.5 U	3.5 U	**3.9**
Methyl ethyl ketone (MEK)	2300	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	**16**
Methylene Chloride	66	60 U	35 U	65 U	35 U	35 U	35 U	41 U	35 U	35 U	40 U	35 U	110 U	47 U	35 U	64 U
Naphthalene	0.074	**0.21**	**0.18**	**0.20**	**0.27**	**0.14**	**0.19**	**0.057 J**	**0.094**	**0.13**	**0.15**	**0.084**	**0.084**	**0.13**	**0.057 J**	**0.079**
Naphthalene[3]	0.074	**0.11**	**0.11**	**0.11**	**0.10**	**0.12**	**0.11**	**0.10**	**0.12**	**0.15**	**0.14**	**0.13**	**0.12**	**0.13**	**0.061**	**0.058**
Pentane	NE	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**7.4**	**29**	**13**	**12**	**7.3**	**7.9**	3.0 U	3.0 U
Tetrahydrofuran	910	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	**0.31**	0.29 U	**0.31**	0.29 U	**0.31**	0.29 U	0.29 U	0.29 U
Trichloroethylene	0.33	**0.15**	**0.14**	**0.13**	**0.13**	**0.12**	**0.19**	**1.1**	**0.37**	**0.31**	**0.44**	**0.41**	**0.70**	**0.60**	0.11 U	0.11 U
Vinyl Bromide	0.078	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
Xylene, m-,p-	46	**1.4**	**1.6**	**1.5**	**1.5**	**1.3**	**1.6**	0.87 U	**1.7**	**1.8**	**2.3**	**2.1**	**1.7**	**1.9**	0.87 U	**0.91**
Xylene, o-	46	**0.63**	**0.72**	**0.66**	**0.66**	**0.55**	**0.70**	0.43 U	**0.66**	**0.73**	**0.79**	**0.77**	**0.60**	**0.67**	0.43 U	0.43 U
Total Xylenes	46	**2.0**	**2.3**	**2.2**	**2.2**	**1.8**	**2.3**	0.87 U	**2.4**	**2.5**	**3.1**	**2.9**	**2.3**	**2.6**	0.87 U	**0.91**

Notes:

[1] All constituents analyzed using United States Environmental Protection Agency (EPA) Method TO-15, except where noted. Indoor air data are not adjusted to account for contributions from outdoor air.

[2] Model Toxics Control Act (MTCA) Method B indoor air cleanup levels for residential exposure are from Ecology's "CLARC Master Spreadsheet.xlsx" dated February 2021. Residential exposure scenario assumes 365 days/year, 24 hours/day for 30 years (carcinogenic chemicals) or for 6 years (non-carcinogenic chemicals).

[3] Naphthalene analyzed using EPA Method TO-17.

µg/m3 = micrograms per cubic meter

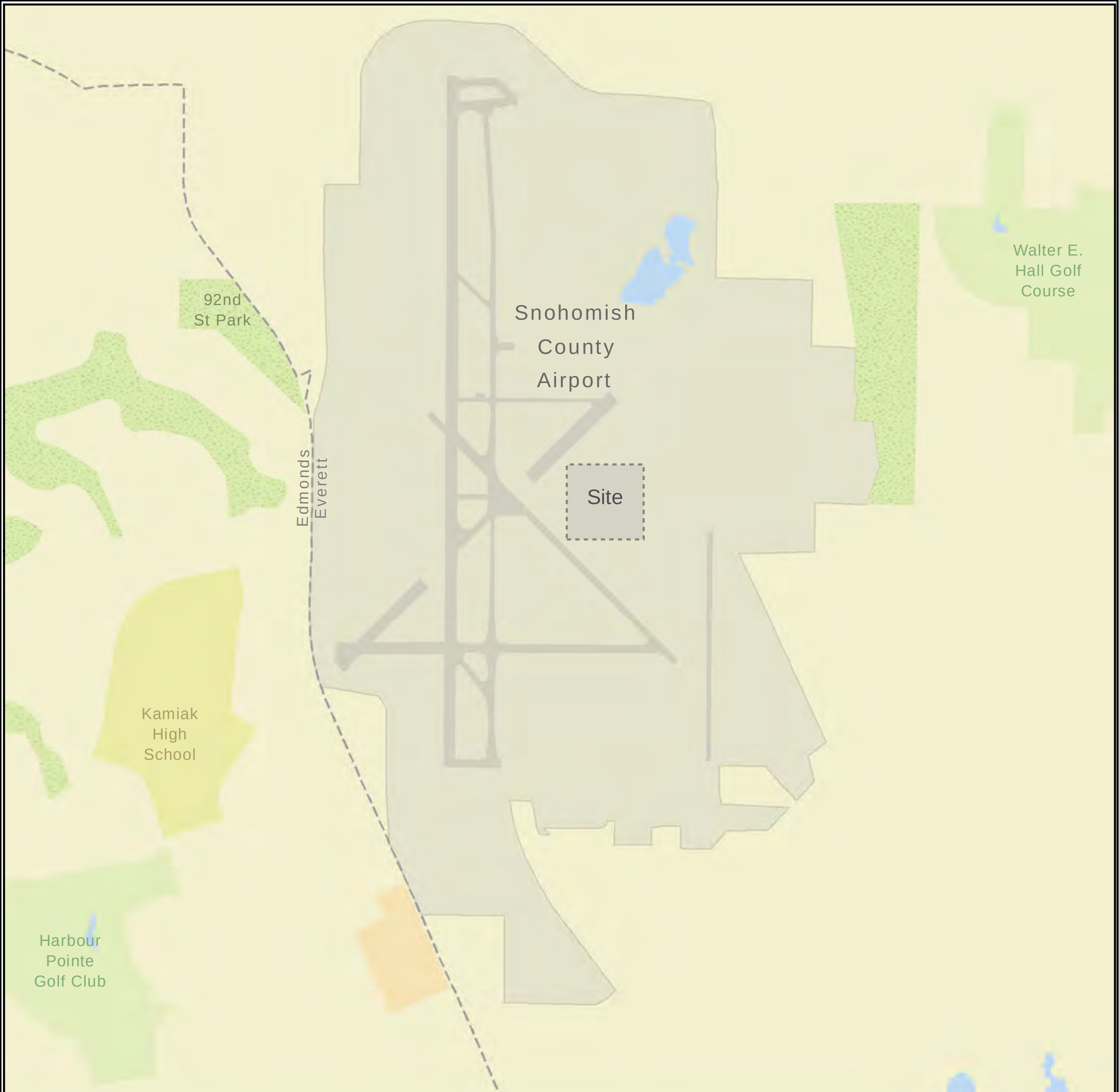
NE = not established

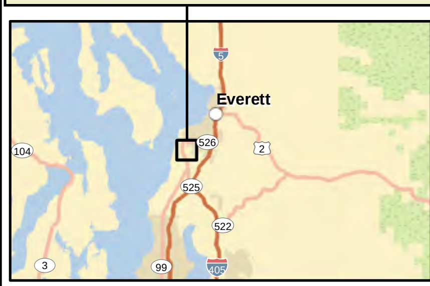
U = Constituent not detected above the laboratory reporting limit

Bold font type indicates the analyte was detected at a concentration greater than the laboratory reporting limit.

Gray shaded value indicates the detected concentration in soil vapor is greater than the MTCA Method B indoor air cleanup level for residential exposure.

Blue shading indicates the non-detect concentration was greater than the MTCA Method B indoor air cleanup level for residential exposure.





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Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: ESRI Data & Maps, Street Maps 2005

Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Vicinity Map

C-1 Hangar and C-1 Building
Paine Field/Snohomish County Airport
Everett, Washington

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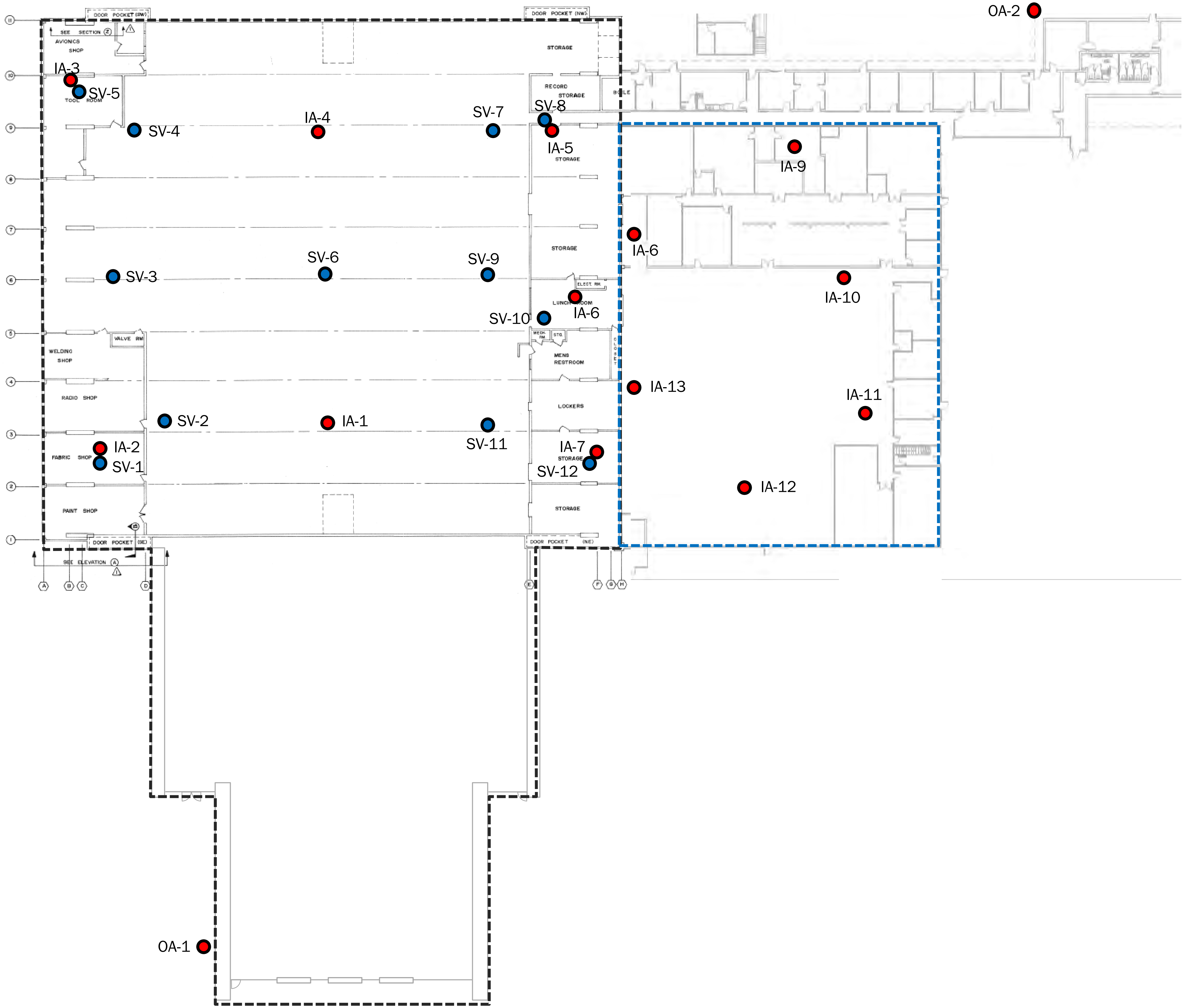
Figure 1

Map Revised: 2/26/2021
Path: \\red\projects\5\553001401\GIS\553001401_F1_VicinityMap.mxd
Office: Tacoma



Legend

- Sub-slab Soil Vapor Sample Location
- Indoor/Outdoor Air Sample Location
- C-1 Hangar Perimeter
- C-1 Building Perimeter

Not to Scale

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Building maps provided by Snohomish County 2020.

Site Plan with Sample Locations

C-1 Hangar and C-1 Building
Paine Field/Snohomish County Airport
Everett, Washington

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Figure 2

APPENDIX A
Field Procedures and Building Survey

APPENDIX A
FIELD PROCEDURES AND BUILDING SURVEY

General

Sub-slab soil vapor, indoor air, and outdoor air samples were collected.

Meteorological Data

Relevant meteorological data that can influence vapor intrusion was recorded prior to and during sampling. Barometric pressure data over a 2-week time span around the sampling event were reviewed, based on data from readily available data sources (e.g., regional weather stations). General weather conditions such as wind speed, snow or ice cover, significant precipitation was noted at the time of sampling based on direct observation (e.g., for snow or ice cover) or readily available data sources (e.g., regional weather stations).

Sub-Slab Soil Vapor Probe Installation

Sub-slab soil vapor samples were collected inside the building using Vapor Pin™ sampling devices. The Vapor Pins™ were installed following the manufacturers' standard operating procedures (SOPs) attached to this appendix.

General installation procedures for the sub-slab sampling device were as follows:

- Checked for buried obstacles (pipes, electrical lines, etc.) prior to proceeding. Applied Professional Services, Inc. completed a private utility locate and cleared the sub-slab soil vapor sample locations.
- Set up vacuum to collect drill cuttings.
- Drilled a ⅝-inch-diameter hole through the slab and approximately 1 inch into the underlying soil to form a void.
- Removed the drill bit, brushed the hole with the bottle brush and removed the loose cuttings with the vacuum.
- Placed the lower end of sampling device assembly into the drilled hole. Placed the small hole located in the handle of the extraction/installation tool over the sampling device to protect the barb fitting and cap and tapped the sampling device into place using a dead-blow hammer. Aligned the extraction/installation tool parallel to the sampling device to avoid damaging the barb fitting.
- The silicone sleeve formed a slight bulge between the slab and the sample device shoulder during installation. Placed the protective cap on sampling device to prevent vapor loss prior to sampling.
- Allowed at least 2 hours for the sub-slab soil vapor conditions to equilibrate prior to sampling.

Sub-Slab Soil Vapor Sampling Procedure

The following procedure was followed to collect sub-slab soil vapor samples:

- New fluoropolymer (Teflon®) tubing was connected to the sub-slab soil vapor probe using the barb fitting on the top of the sampling device.
- The tubing (aboveground) was connected to a sampling manifold.

- The sampling manifold was vacuum-tested (shut-in test) by introducing a vacuum to the aboveground portion of the sampling train and checking for loss of vacuum after 5 minutes. If vacuum loss was observed, connections and fittings in the sample train were checked and adjusted followed by another vacuum test. This test was repeated until the sampling train demonstrated that tightness was achieved.
- A tracer gas shroud (clear plastic bag) was placed around the entire sample train (that is, the sub-slab soil vapor probe where it enters the ground surface, the 1-liter Summa canister and associated tubing and manifold).
  - The shroud was charged (filled) with a tracer gas (spec-grade 99.995 percent helium gas) and the tracer gas concentration within the shroud was measured using a hand-held monitor (Dielectric MGD-2002 Multi-Gas Leak Detector). The hand-held monitor is capable of measuring helium in air to a concentration of 0.5 percent) prior to, during and after completion of the sampling event. A Teflon tube with a ball valve was inserted under the shroud to connect with the compressed helium bottle to charge the shroud. This same tube was used to monitor the helium concentration within the shroud periodically throughout the sampling process. The purpose of the periodic monitoring is to make sure helium is in contact with the sample train and the ground surface while the sub-slab vapor sample is collected.
- The sampling train (aboveground and belowground components) was purged using a vacuum purge pump or a multi-gas meter. Purge volumes were calculated based on the flow rate of the purge pump and the volume of the soil vapor probe and sample train. The helium concentration within the sampling train was measured and recorded after purging three sampling train volumes. If the helium concentration in the sample train is greater than or equal to 5 percent of the helium concentration in the shroud, the bentonite seal was re-applied, fittings were tightened, and the previous purging and measurement tests was repeated (Cal-EPA/DTSC 2015).
- The soil vapor samples were obtained using a 1-liter evacuated Summa canister (with approximately 30 inches of mercury vacuum set by the laboratory) and tedlar bag (helium analysis) with a regulated flow rate of less than or equal to approximately 150 milliliters per minute (DTSC/Cal-EPA 2015). The canister was filled with soil vapor for approximately 5 minutes or until a vacuum equivalent of approximately 5 inches of mercury remains in the Summa canister, whichever comes first. The initial and final canister vacuums were recorded on a soil vapor sampling field form. Canisters were then prepared and delivered to the laboratory under chain-of-custody procedures.

Air Sampling Methodology

The following methods were used to collect the indoor air and outdoor air samples.

- Indoor and outdoor air samples were obtained at the same time over an 8-hour period using laboratory-prepared evacuated 6-Liter Summa canisters and sorbent tubes (for naphthalene analysis only). Sorbent tube samples were obtained to achieve reporting limits for naphthalene that are less than the MTCA Method B indoor air cleanup level.
- Summa canister samples were obtained using a vacuum gauge and an 8-hour flow controller. Sorbent tube samples were collected using calibrated personal sampling pumps.
- The canisters and sorbent tubes for indoor air samples were placed on the building floor and the sample intakes were situated approximately 4- to 5-feet aboveground to collect samples representative of the breathing zone for future building occupants.

- Initial canister pressure, start date and start time were recorded on a field data form. The inlet valve on the canister was opened to collect the sample. The canisters were filled until a vacuum equivalent of approximately 5 inches of mercury remained in each canister. At that time, the inlet valve was closed and the canister pressure, stop date and stop time were recorded on the field data form. Canisters were then prepared and delivered to the laboratory under chain-of-custody procedures.
- Air sampling using sorbent tubes followed laboratory recommended procedures. Tubing was connected to the sorbent tubes and the calibrated personal sampling pumps. The start date and start time was recorded on the field data form. The pump was calibrated to collect the laboratory recommended volume of air over the 8-hour period. Sorbent tubes were stored and shipped following laboratory recommended procedures and delivered to the laboratory under chain-of-custody procedures for chemical analysis of naphthalene only.
- Outdoor air samples were collected using methodology similar to the indoor air sampling described above. Outdoor samples were collected upwind of the building, based on meteorological observations at the time of sampling, and on the building roof above the showroom/office areas adjacent to the HVAC intake.
- Indoor air sampling was conducted under conservative (i.e., “worst case”) conditions as recommended by Ecology guidance. Specifically, windows were kept closed and ingress and egress activities were minimized to the extent possible during sampling. As noted previously, indoor air samples were collected prior to building occupancy; however, the HVAC system operated for approximately 1 week prior and during the sampling period as if the building were occupied to maintain normal indoor air temperatures. The intent was to obtain indoor air samples that are representative of normal conditions, but sample when few to no building occupants are present and few windows and exterior doors are opening and closing, to reduce potential interferences.

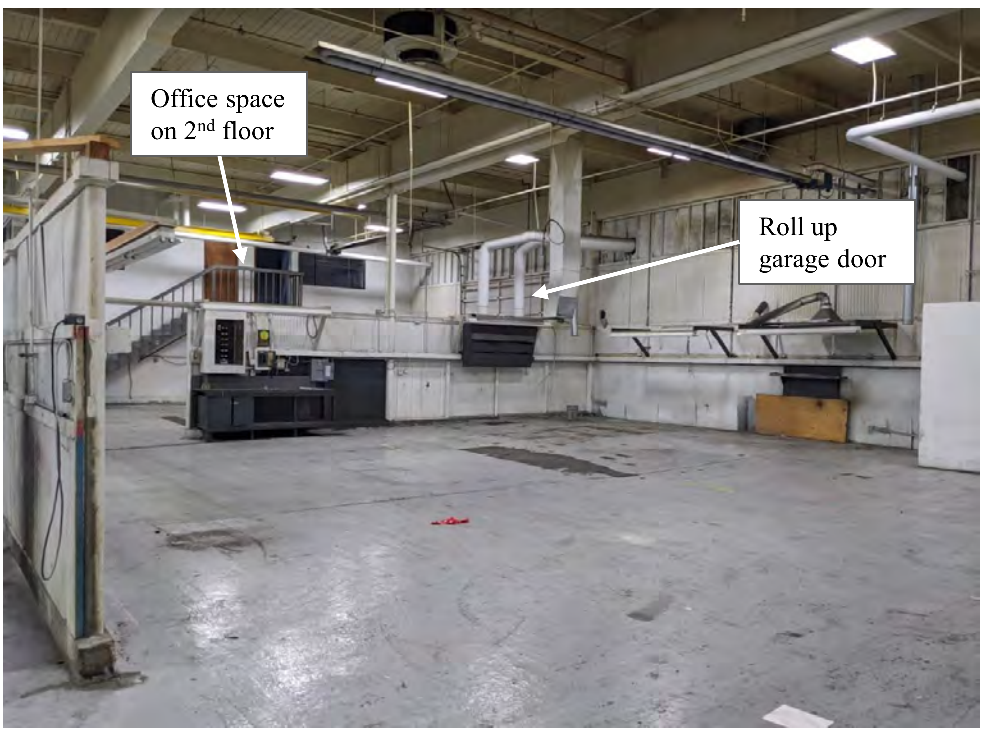
Photograph 1. Inside C-1 Building at sample location IA-13 along the shared wall with C-1 Hangar to the south. Multiple hood vents are present with adjoining roof outlets as viewed in Photograph 2.

Photograph 2. C-1 Building roof vents above the equipment workshop area. Small metal shed attached to building also pictured.

Building Survey Photographs	
C-1 Hangar and C-1 Building Paine Field/Snohomish County Airport Everett, Washington	
GeoEngineers	Figure A-1

5530-014-00

Photograph 3. Floor drain identified in C-1 Building near in office areas near sample location IA-9. No strong odors were observed.



Photograph 4. Main workshop area in C-1 Building with view of 2nd floor office space. Sample location for IA-12. Roll up garage doors lead to outdoor, gated parking lot.

Building Survey Photographs

C-1 Hangar and C-1 Building
Paine Field/Snohomish County Airport
Everett, Washington

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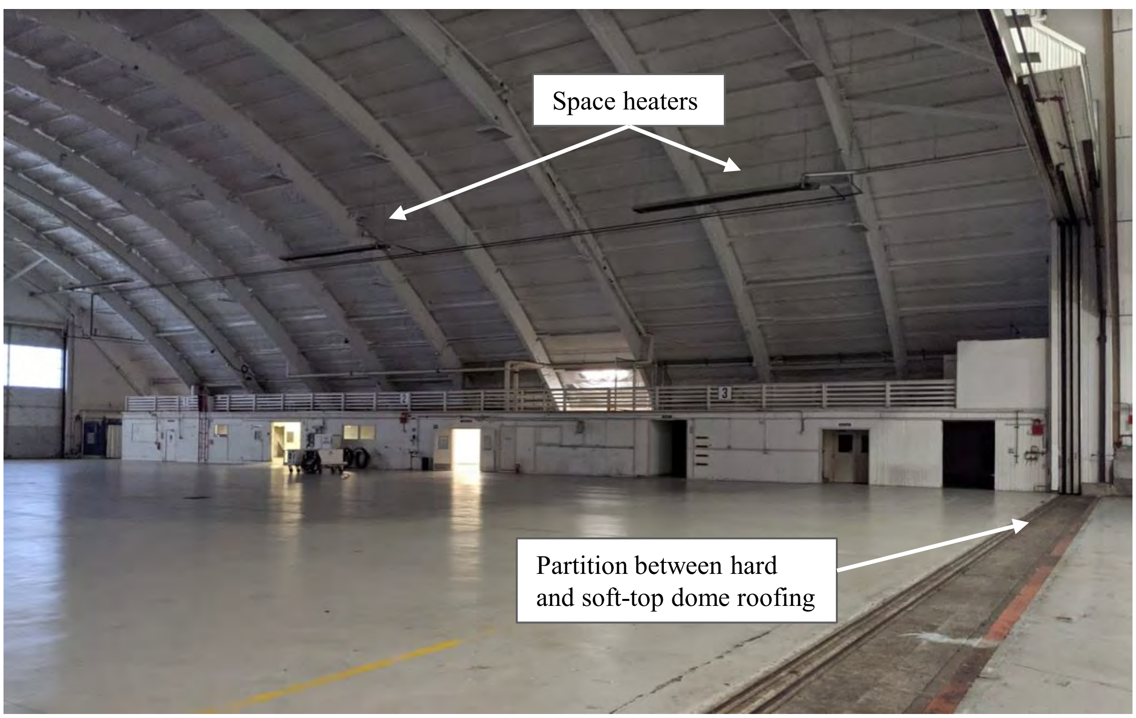
Figure A-2

5530-014-00

Photograph 5. C-1 Hangar offices located on west-southwest side of building. Sample locations SS-1, -2, -3, IA-2, and DP-2 were located in this area.



Photograph 6. North side of C-1 Hangar with internal office spaces, workshops, restrooms, and breakrooms pictured.

Building Survey Photographs

C-1 Hangar and C-1 Building
Paine Field/Snohomish County Airport
Everett, Washington

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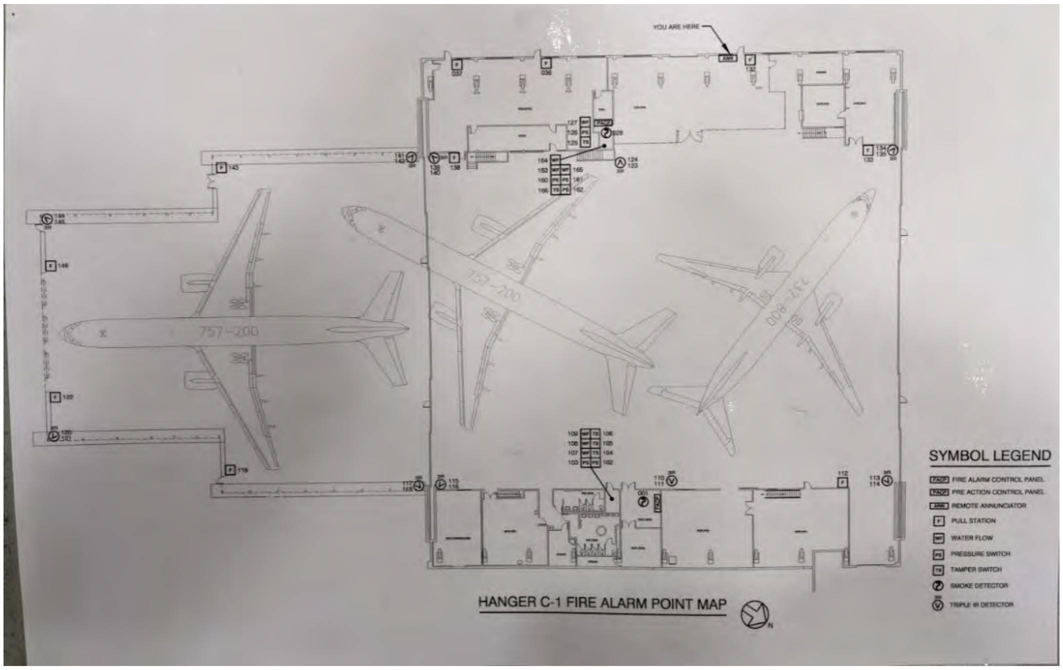
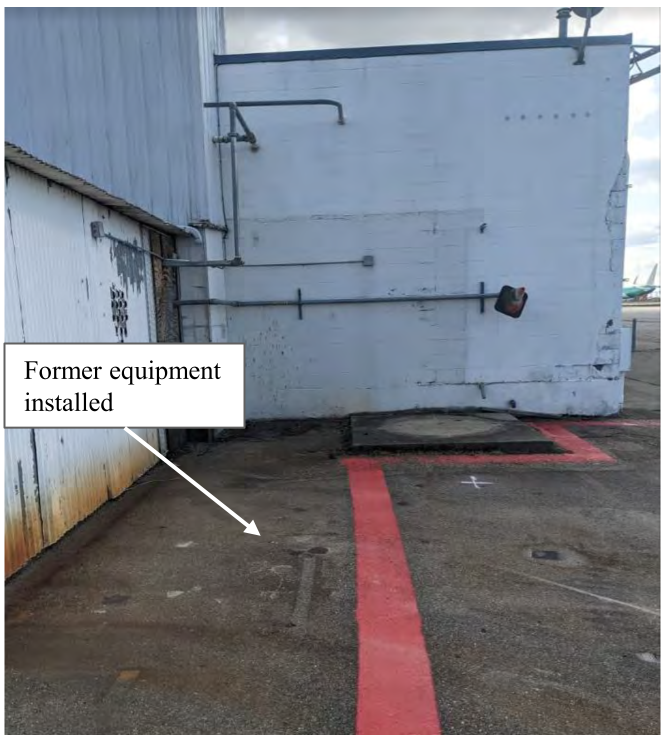
Figure A-3

5530-014-00



Photograph 7. C-1 Hangar layout posted at fire alarm service point.



Photograph 8. Exterior corner at west end of C-1 Hangar. Metal-sided workshop imaged on left with outlines of former equipment anchored to asphalt.

Building Survey Photographs

C-1 Hangar and C-1 Building
Paine Field/Snohomish County Airport
Everett, Washington

GeoEngineers

Figure A-4

5530-014-00

C-1 BUILDING SURVEY FORM

This form must be completed for each building involved in indoor air testing.

Preparer's Name __Katy Atakturk________________ Date/Time Prepared _11/30/2020_________

Preparer's Affiliation __Environmental Consultant___________ Phone No.___(206)419-4290_____

Purpose of Investigation__Environmental Investigation________________________________

1. OCCUPANT:

Interviewed: Y / N

Last Name: ___________________________ First Name: ___________________________

Address: ____

County: __________________

Home Phone: _____________________ Office Phone: _____________________

Number of Occupants/persons at this location _______ Age of Occupants ________________________

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: ____Rardin______________________ First Name: ___Andrew_________________

Address: ____(On Site)____

County: _Snohomish________________

Home Phone: _____________________ Office Phone: _____________________

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential Commercial/Multi-use Other: __________________

If the property is residential, type? (Circle appropriate response)

2-Family	3-Family	
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Other:________________	

If multiple units, how many? ________

If the property is commercial, type?

Business Type(s) __Aviation company_(former tenant); vacant at time of investigation

Does it include residences (i.e., multi-use)? Y / N If yes, how many? ______

Other characteristics:

Number of floors_2_ Building age______

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

Above grade construction: wood frame concrete stone brick

Foundation type: crawlspace slab-on-grade other ________________

Foundation walls: poured block stone other ________

Foundation walls: unsealed sealed sealed with ________________

If building has a crawlspace, please answer the following questions:

1) Does the crawlspace have air vents leading out of the house or building? Y / N
2) **Crawl space vents:** always open always closed open/closed based on season
3) **Crawlspace floor:** N/A dirt concrete other ________
4) Is the crawlspace lined with a plastic liner (vapor barrier)? Y / N
5) **Position of the liner:** On ground Attached to floor joist Attached to foundation
6) **Condition of liner:** whole partial torn
7) **Crawlspace is:** wet damp dry moldy

If house or building is slab-on-grade, please answer the following questions:

1) **Concrete floor:** unsealed sealed sealed with ________________
2) **Concrete floor:** uncovered covered covered with _Vinyl tiling and uncovered____

If the house or building has a sump, please answer the following questions:

1) **Water in sump?** Y / N / not applicable
2) **Sump lined?** Y / N / not applicable lined with ________________

Lowest level depth below grade: ________(feet)

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

Cracks in concrete are prevalent in the workshop space. Occasional drains are present through out the workshop. Utility Ports are sparse but present in the workshop and office space.

5. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in the house or building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other ___________

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: Natural gas

Where is Boiler/furnace/air conditioning located: Equipment Shop and Janitor room first floor office space.

Are there air distribution ducts present? Y / N

Describe the air intakes (where applicable), supply and cold air return ductwork, and their condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

Air intake vents observed at parking lot on NE side of building and gated parking lot on SE side of building in okay condition. Chemical hood vents present in the workshop space along the C-1 Hangar wall in dirty condition. Spilled substance observed on surface near air vent with moderate odor.

6. OCCUPANCY

Is lowest level occupied? Full-time Occasionally Seldom Almost Never

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

1st Floor Equipment workshop and office space.

2nd Floor Office space only

7. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA
Please specify Aviation engine workshop

d. Has the building ever had a fire? Y / N When?__________________

e. Is a kerosene or unvented gas space heater present? Y / N Where? _________________

f. Is there a workshop or hobby/craft area? Y / N Where & Type? 1st floor

g. Is there smoking in the building? Y / N How frequently? ______________

h. Have cleaning products been used recently? Y / N When & Type? _______________

i. Have cosmetic products been used recently? Y / N When & Type? _________________

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ________________

k. Is there new carpet, drapes or other textiles? Y / N Where & When? ________________

l. Have air fresheners been used recently? Y / N When & Type? _________________

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?_____________

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?_____________

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?__________________

Are there odors in the house or building? Y / N

If yes, please describe: Yes, solvent and/or petroleum odors in workshop.

Do any of the house or building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? Aviation engine solvents used by former tenant

If yes, are their clothes washed at work? Y/N

Do any of the house or building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

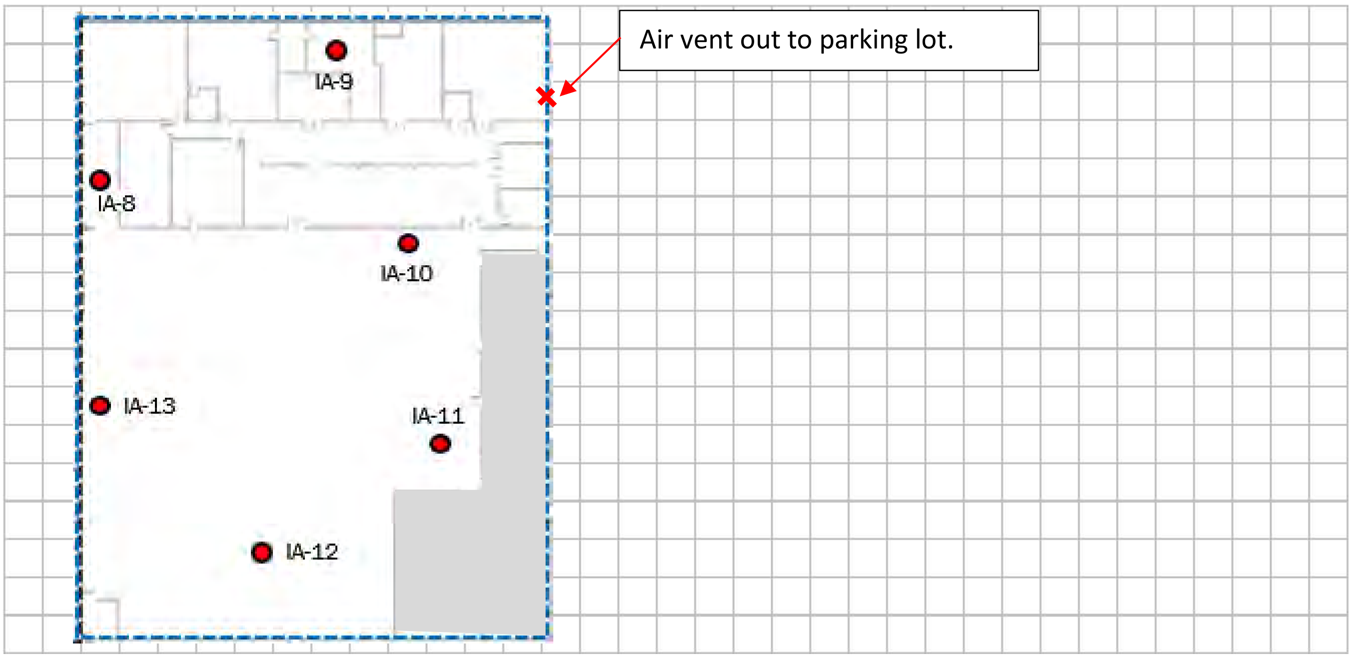
Is there a radon mitigation system for the house/building? Y / N Date of Installation: __________

Is the system active or passive? Active/Passive

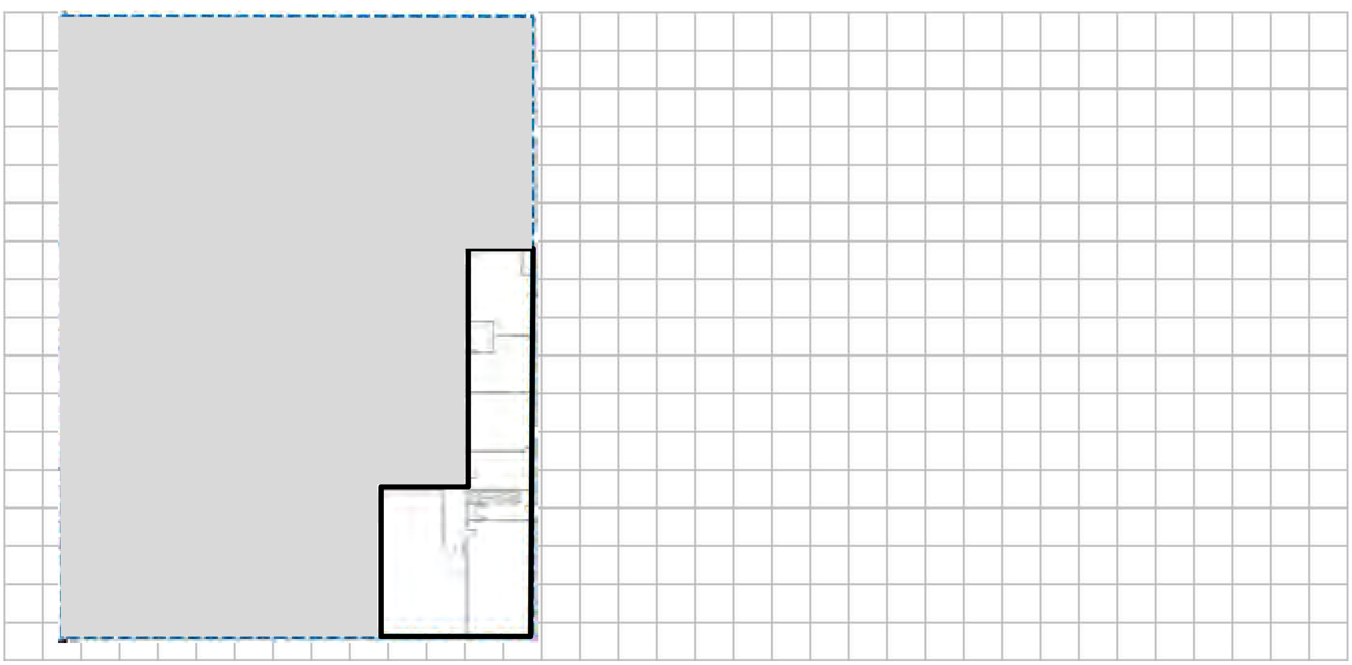
8. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the house/building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the house/building does not have a basement, please note.

First Floor:

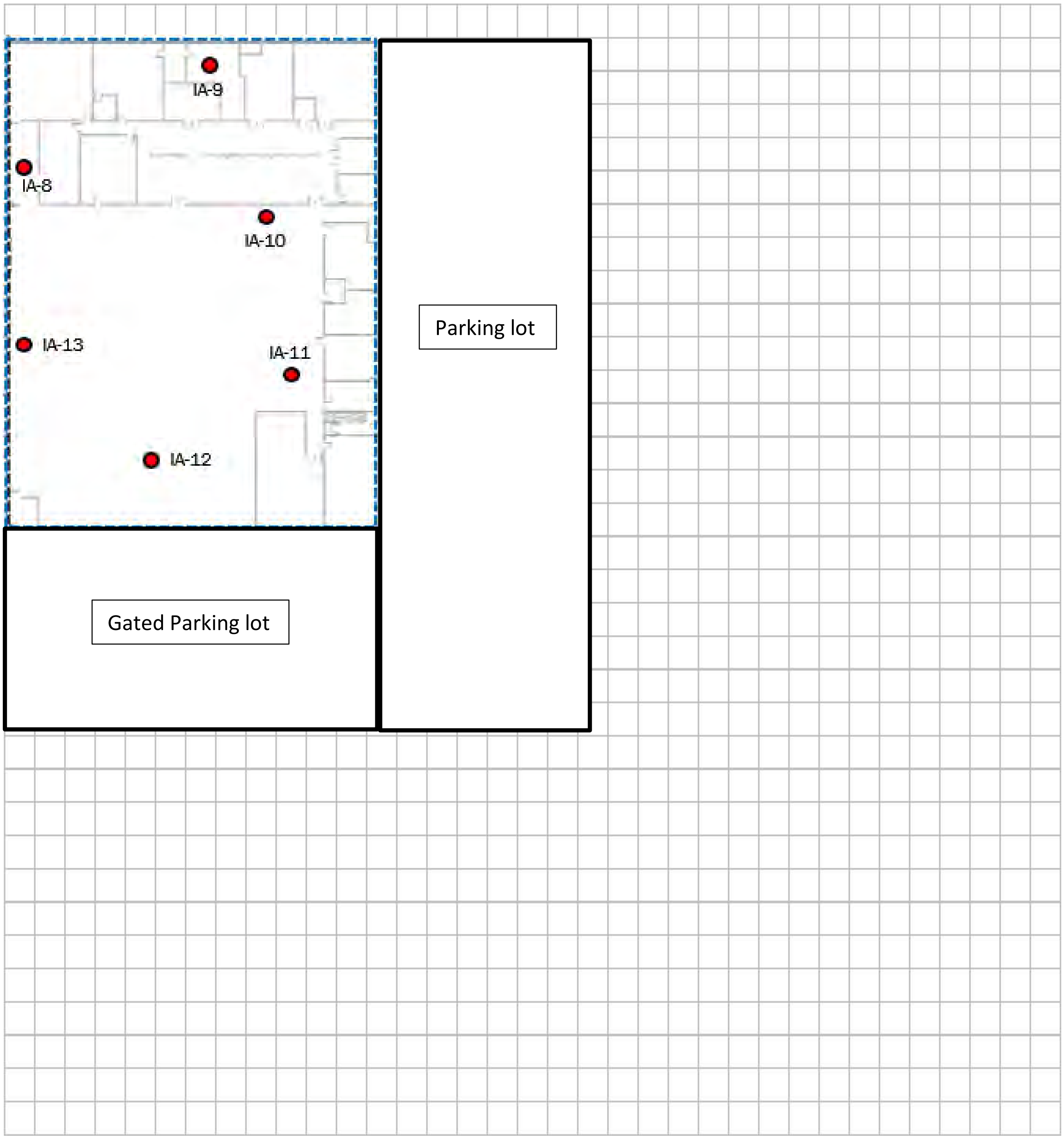


Second Floor:



9. OUTDOOR PLOT (Draw a sketch of the area surrounding the house/building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.)

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



10. PRODUCT INVENTORY FORM Make & Model of field instrument used: Not available. Space is vacant.

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description*	Comments	PID Reading
NA			

* 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.

C-1 HANGAR SURVEY FORM

This form must be completed for each building involved in indoor air testing.

Preparer's Name __Katy Atakturk________________ Date/Time Prepared _11/30/2020_________

Preparer's Affiliation __Environmental Consultant___________ Phone No.___(206)419-4290_____

Purpose of Investigation__Environmental Investigation________________________________

1. OCCUPANT:

Interviewed: Y / N

Last Name: _________________________ First Name: _________________________

Address: ____

County: _________________

Home Phone: ____________________ Office Phone: ____________________

Number of Occupants/persons at this location _______ Age of Occupants ______________________

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: ____Rardin_____________________ First Name: ___Andrew_________________

Address: ____(On Site)____

County: _Snohomish________________

Home Phone: ____________________ Office Phone: ____________________

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential Commercial/Multi-use Other: _________________

If the property is residential, type? (Circle appropriate response)

2-Family	3-Family	
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Other:_______________	

If multiple units, how many? ________

If the property is commercial, type?

Business Type(s) __Aviation Hangar________________________________

Does it include residences (i.e., multi-use)? Y / N If yes, how many? ______

Other characteristics:

Number of floors_2_ Building age______

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

Above grade construction:	wood frame	concrete	stone	brick
Foundation type:	crawlspace	slab-on-grade	other ________________	
Foundation walls:	poured	block	stone	other ________
Foundation walls:	unsealed	sealed	sealed with ________________	

If building has a crawlspace, please answer the following questions:

8) Does the crawlspace have air vents leading out of the house or building? Y / N

9) **Crawl space vents:** always open always closed open/closed based on season

10) **Crawlspace floor:** N/A dirt concrete other ________

11) Is the crawlspace lined with a plastic liner (vapor barrier)? Y / N

12) **Position of the liner:** On ground Attached to floor joist Attached to foundation

13) **Condition of liner:** whole partial torn

14) **Crawlspace is:** wet damp dry moldy

If house or building is slab-on-grade, please answer the following questions:

3) **Concrete floor:** unsealed sealed sealed with ________________

4) **Concrete floor:** uncovered covered covered with _Vinyl tiling and uncovered____

If the house or building has a sump, please answer the following questions:

3) **Water in sump?** Y / N / not applicable

4) **Sump lined?** Y / N / not applicable lined with ________________

Lowest level depth below grade: 1.5 (feet)

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

Break room sink along shared wall with C-1 building. Trench stormwater drains throughout hangar space (2 indoors) and 1 immediately outdoors. No visible cracks in concrete of hangar space.

5. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in the house or building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other ___________

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: Natural gas

Where is Boiler/furnace/air conditioning located: Not identified.

Are there air distribution ducts present? Y / N

Describe the air intakes (where applicable), supply and cold air return ductwork, and their condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

Air ducts observed above office buildings within hangar running to exterior of hangar to SE end of building by soft-top hangar transition in good shape.

6. OCCUPANCY

Is lowest level occupied? Full-time Occasionally Seldom Almost Never

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

1st Floor Hangar, workshops, and office space.

2nd Floor ___Office space only________________________________

7. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA Please specify_Planes when in use__

d. Has the building ever had a fire? Y / N When?_______________

e. Is a kerosene or unvented gas space heater present? Y / N Where? _______________

f. Is there a workshop or hobby/craft area? Y / N Where & Type? 1st floor workshops in N corner

g. Is there smoking in the building? Y / N How frequently? ____________

h. Have cleaning products been used recently? Y / N When & Type? _____________

i. Have cosmetic products been used recently? Y / N When & Type? _______________

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ______________

k. Is there new carpet, drapes or other textiles? Y / N Where & When? ______________

l. Have air fresheners been used recently? Y / N When & Type? _______________

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?___________

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?___________

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?________________

Are there odors in the house or building? Y / N

If yes, please describe: ___________________________________

Do any of the house or building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? _Paint workshop and general workshop spaces______________

If yes, are their clothes washed at work? Y / N

Do any of the house or building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No

Yes, use dry-cleaning infrequently (monthly or less)   Unknown

Yes, work at a dry-cleaning service

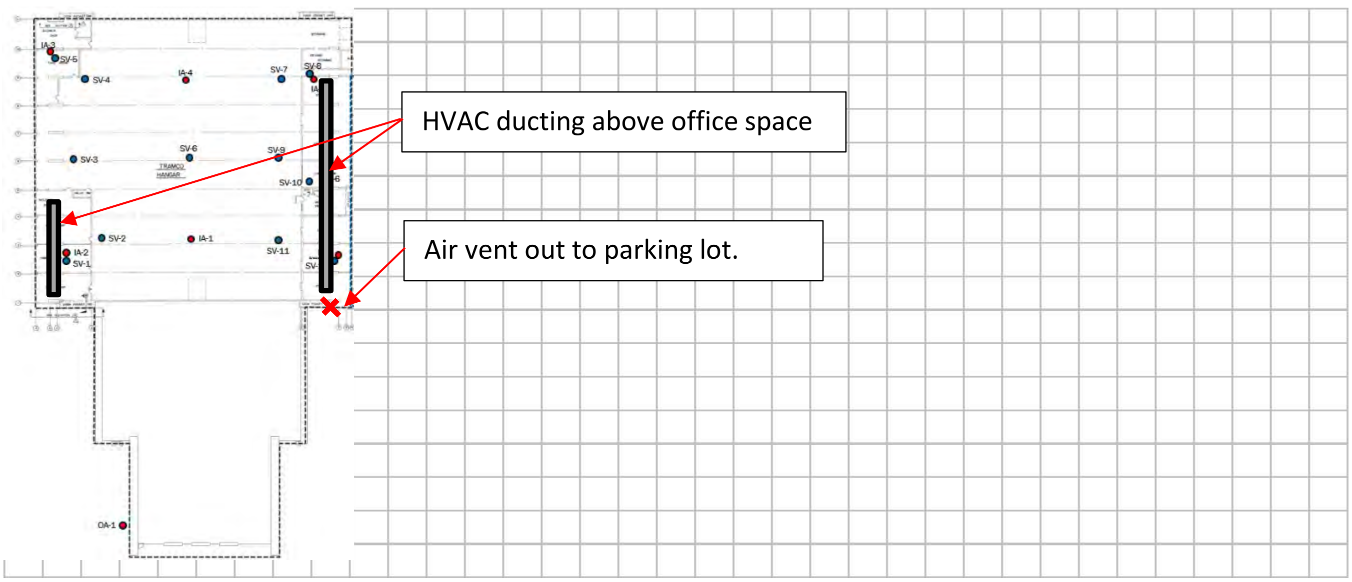
Is there a radon mitigation system for the house/building? Y / N Date of Installation: _________

Is the system active or passive?   Active/Passive

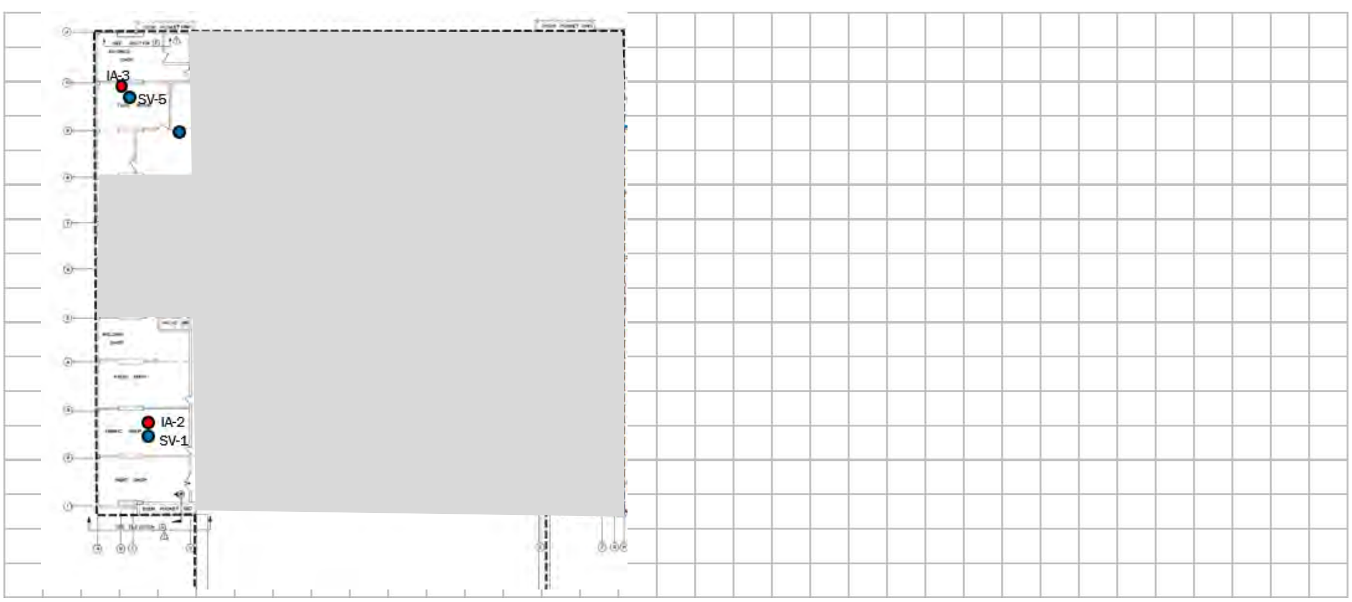
8. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the house/building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the house/building does not have a basement, please note.

First Floor:

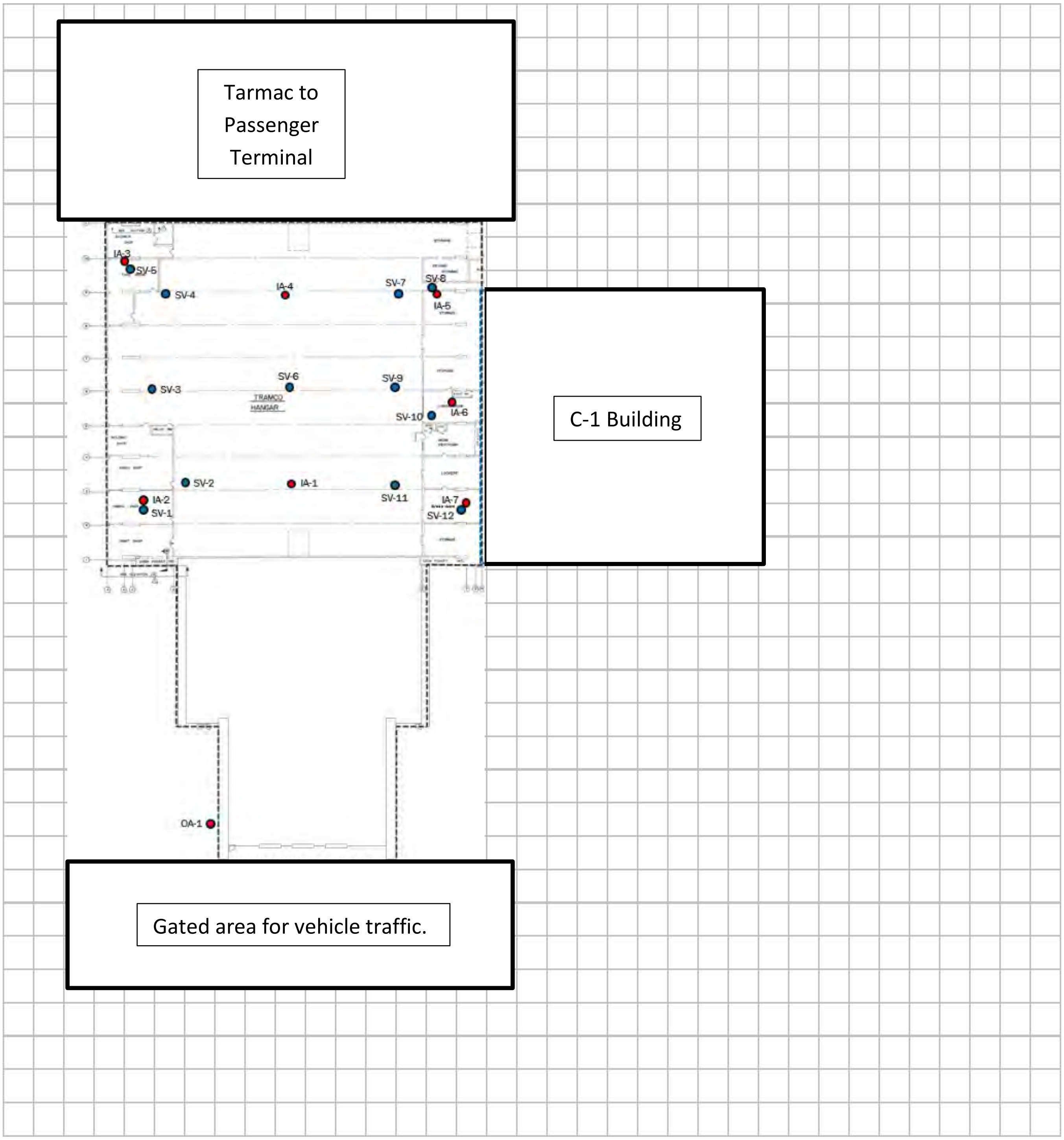


Second Floor:



9. OUTDOOR PLOT (Draw a sketch of the area surrounding the house/building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.)

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



10. PRODUCT INVENTORY FORM Make & Model of field instrument used: Not available. Space is vacant.

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description*	Comments	PID Reading
NA			

* 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.

APPENDIX B
Concrete Survey Report

UNDERGROUND UTILITY DETECTION
& INSPECTION SERVICES

Concrete Scanning Report

<u>Project:</u>
3220 100th St SW
Everett, WA 98204

<u>Prepared For:</u>
Geo Engineers

<u>Prepared By:</u>
C-N-I Locates Ltd.
EM & GPR Technicians
PO Box 7740
Bonney Lake, WA 98391
Ph: 253-826-1177 Fax: 253-826-2232

INTRODUCTION

C-N-I Locates Ltd. was hired by Geo Engineers to concrete scan the reinforcement in 12 areas for avoidance for vapor pin installations throughout the Western half of an aircraft hangar.

GEOPHYSICAL METHODOLOGY AND EQUIPMENT

The Geophysical Survey Systems SIR 3000 Concrete Scanner with the 2000 MHz palm antenna was used to identify the variations in subsurface conditions that indicate a significant change in material.

GPR is a non-destructive geophysical device used for subsurface exploration and operates by transmitting an electromagnetic pulse from an antenna into the ground and then capturing the partial reflections from subsurface layers. Any other material of carried density will either speed up the signal creating a hyperbola trail. This is similar to a rock in a creek, the water bends around the rock leaving a tail wake.

SITE AREA

The work area consisted of 12 locations that were adjusted based on varying slab conditions inside the Western half of the hangar. The hangar in question presented unique conditions with layers of concrete constructed on top of the initial slab at different times.

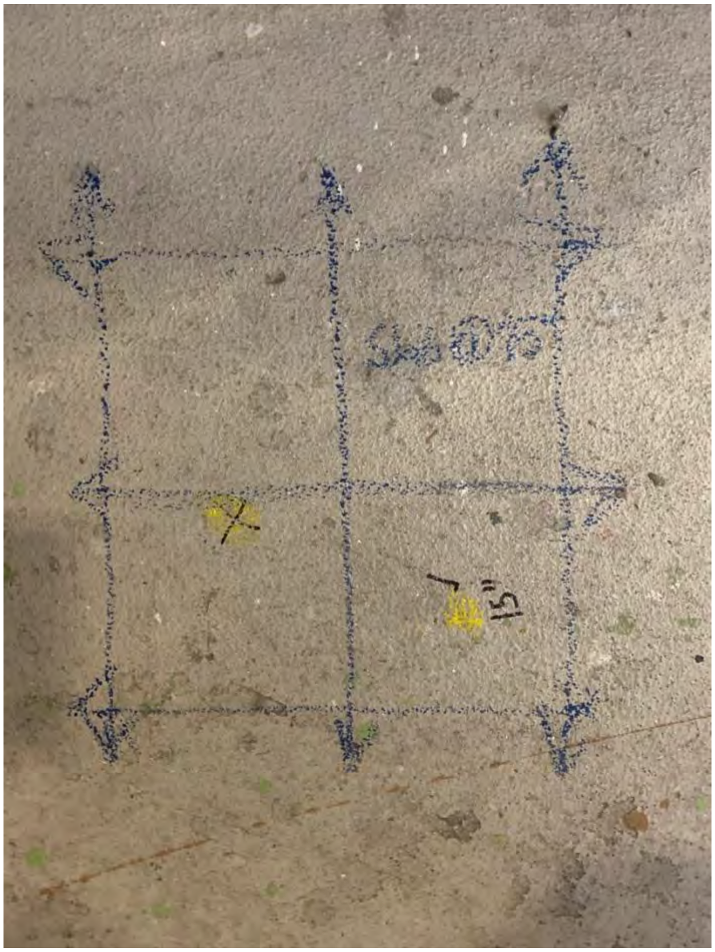
ANALYSES / INTERPRETATIONS AND FINDINGS

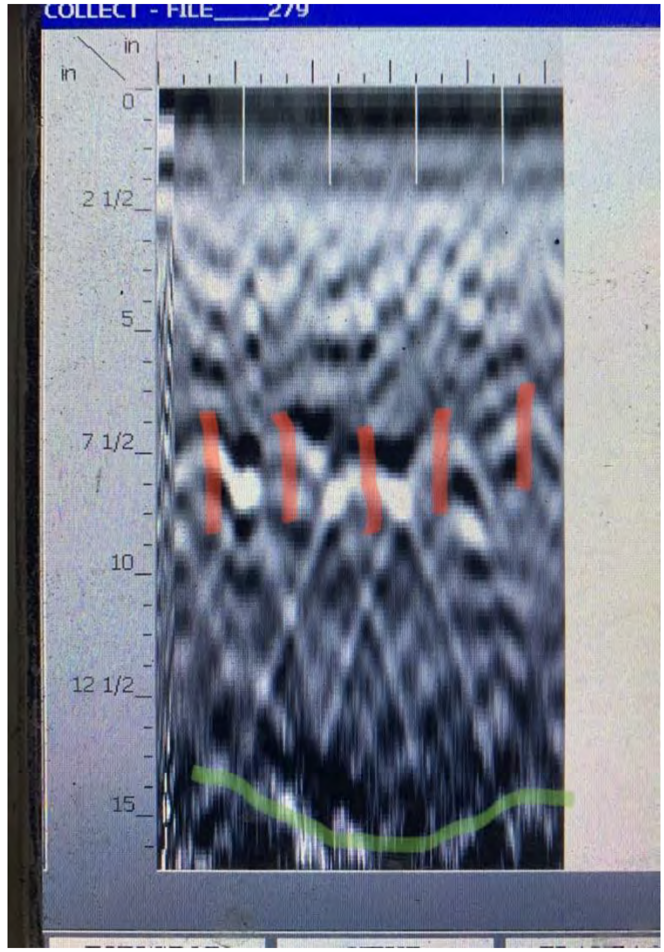
The hangar, most likely due to it's age, presented unique scanning conditions. The hangar appeared to have been renovated at one point in time, with some areas having new concrete and reinforcement placed directly on top of the original slab, potentially up to 14" of new concrete in some areas.

This made determining the slab depth with certainty very difficult and in some areas impossible, resulting in some areas having to be adjusted to new locations. As can be seen in the images below, the slab depth varies widely from location to location and an unusual separation layer can be seen at one of the reinforcement mats in certain locations.

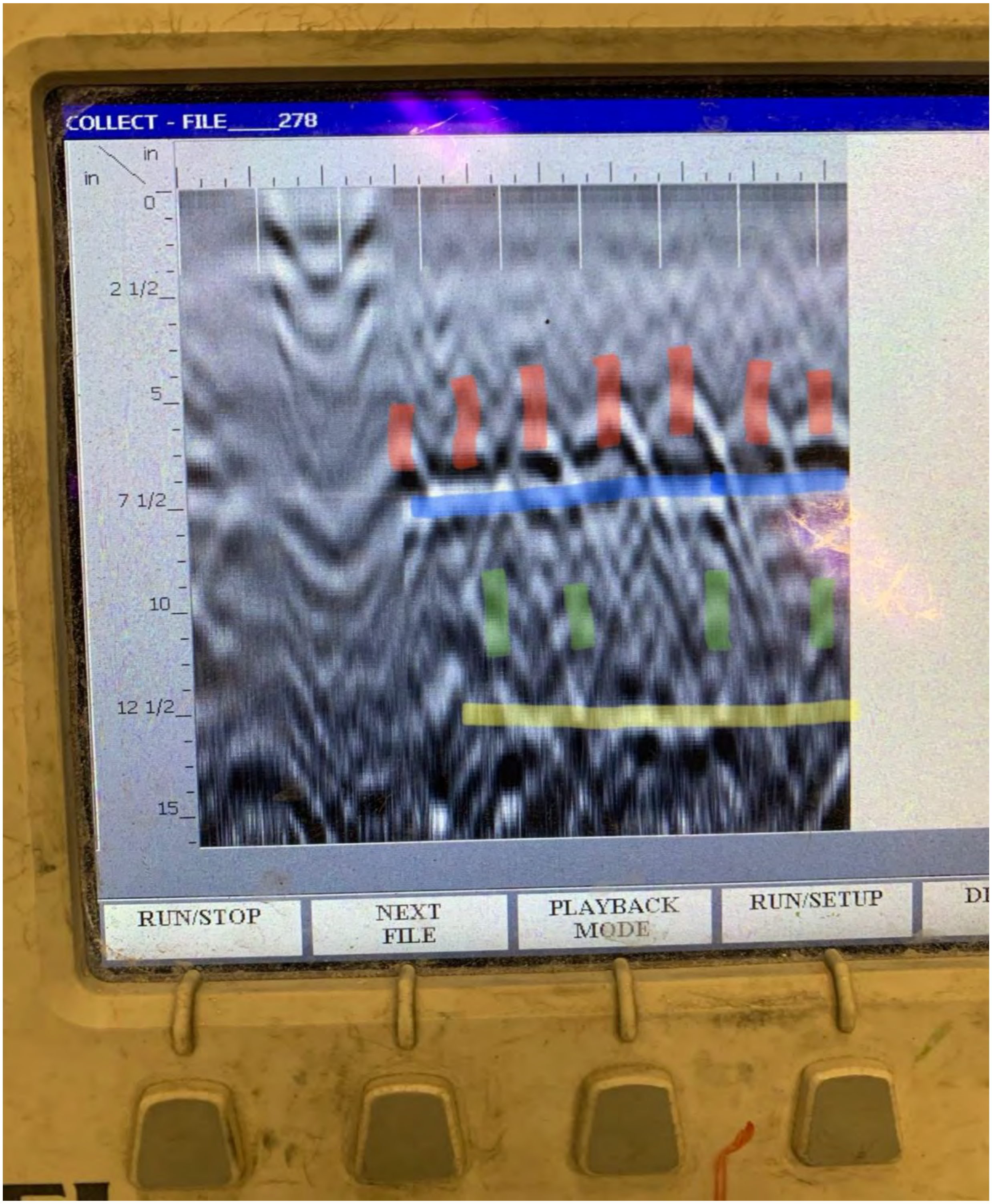
However, despite all of the difficulties in determining the slab depth, the reinforcement was otherwise fairly standard and unremarkable with a regular pattern throughout the hangar.

Pictures Below….

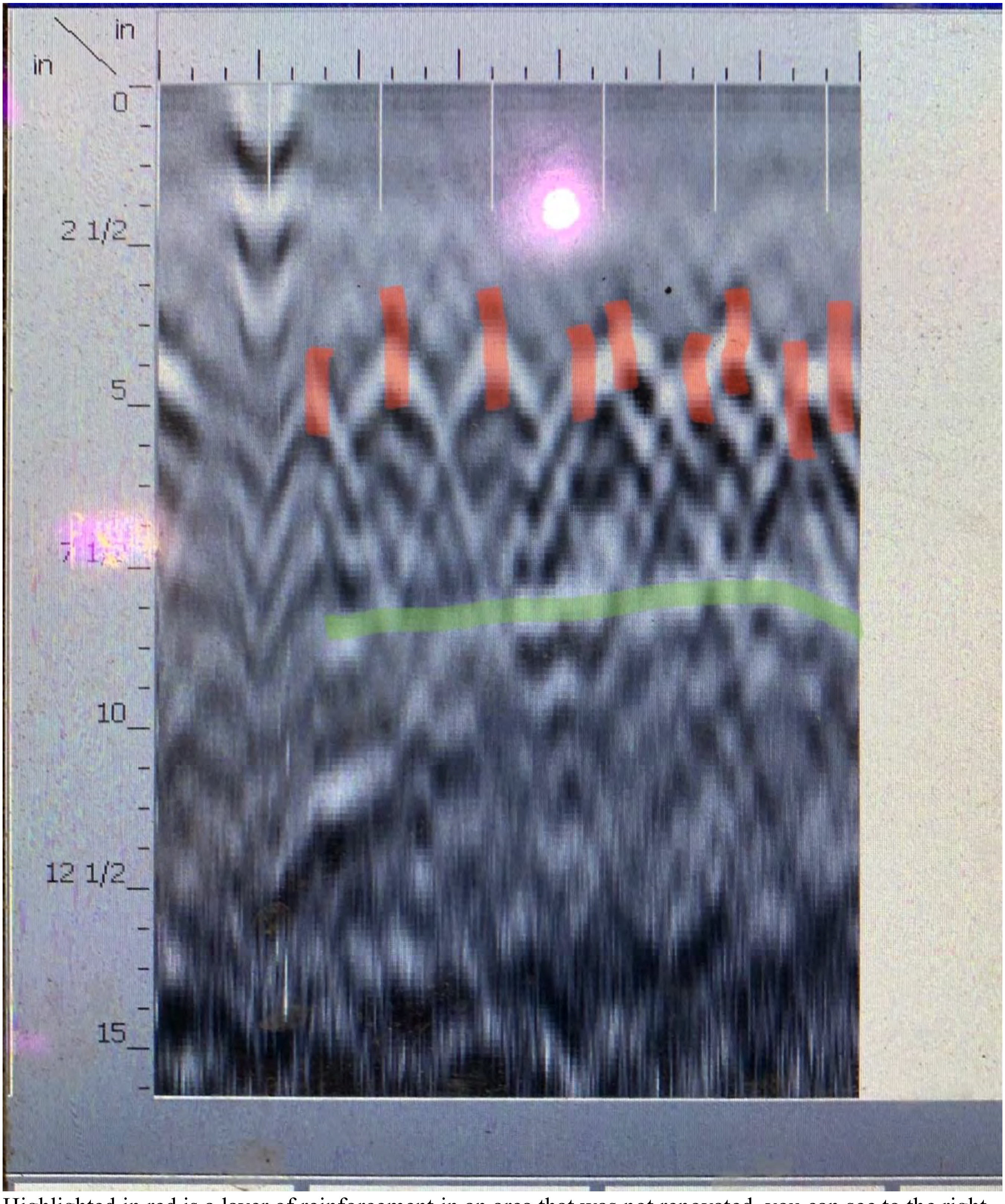




Highlighted in green on the right is a representation of the lower limit of the scan, i.e. the lowest point in which the frequency of radio pulses can penetrate. In red, rebar matting at 7”. This is a good example of the difficulties encountered in the area in trying to determine slab depth as the depth here appears to be very near the edge of the scan limit.



Highlighted in yellow is the base of the original slab. In green is the reinforcement of the original slab, barely visible. In blue is presumed to be a separation layer between the two pours. In red is the top reinforcement mat.



Highlighted in red is a layer of reinforcement in an area that was not renovated, you can see to the right of the scan where the two mats double at the beginning of a new reinforcement mat. In green, the bottom of the slab is clearly visible at 8".

APPENDIX C
Data Validation and
Chemical Analytical Laboratory Reports

Data Validation Report

2101 4th Avenue, Suite 950, Seattle, Washington 98121, Telephone: 206.239.3242, Fax: 206.728.2732 www.geoengineers.com

Project:	Snohomish County Airports – Paine Field C-1 Hangar and Building Regulatory Support November/December 2020 Samples
GEI File No:	05530-014-00
Date:	December 16, 2020

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Guidance on Environmental Data Verification and Validation (EPA-240-R-02-004, USEPA 2002) and Guidance for Labeling Validated Analytical Data for Superfund Use (EPA-R-541-08-005; USEPA 2009) of chemical analytical data from the analyses of air samples collected as part of the November 2020 soil vapor intrusion sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Paine Field C-1 Hanger and Building in Everett, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with Petroleum Vapor Intrusion (PVI): Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings # 18 (Ecology 2018), guidance in the USEPA Contract Laboratory Program *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA 2017), and USEPA Methods TO-15 and TO-17 (USEPA 1999), as appropriate, for the GC/MS analyses of Summa cannisters. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide detection and reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Field Sampling Plan, ATS Hangar Shop_GEI Proposed VI, IA and DP Locations (GeoEngineers 2020), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times
- Surrogate Recoveries
- Method Blanks
- Matrix Spikes/Matrix Spike Duplicates

- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Field Duplicates (FDs)
- Reporting Limits

VALIDATED SAMPLE DELIVERY GROUPS

This data validation summary included review of the sample delivery groups (SDGs) listed below in Table 1.

Table 1: Summary of Validated Sample Delivery Groups

Laboratory SDG	Samples Validated
012022	IA-1_120120, IA-2_120120, IA-3_120120, IA-4_120120, IA-5_120120, IA-6_120120, IA-7_120120, IA-8_120120, IA-9_120120, IA-10_120120, IA-11_120120, IA-12_120120, IA-13_120120, OA-1_120120, OA-2_120120, SV-1_113020, SV-2_113020, SV-3_113020, SV-4_113020, SV-5_113020, SV-6_113020, SV-7_113020, SV-8_113020, SV-9_113020, SV-10_113020, SV-11_113020, SV-12_113020
012023 Naphthalene ONLY	IA-1_120120, IA-2_120120, IA-3_120120, IA-4_120120, IA-5_120120, IA-6_120120, IA-7_120120, IA-8_120120, IA-9_120120, IA-10_120120, IA-11_120120, IA-12_120120, IA-13_120120, OA-1_120120, OA-2_120120

CHEMICAL ANALYSIS PERFORMED

Friedman & Bruya, Inc. (FBI) located in Seattle, Washington, performed laboratory analysis on the air samples using the following methods:

- Air-phase Petroleum Hydrocarbons by Massachusetts Department of Environmental Protection as Footnoted in Ecology 2018 document
- Volatile Organic Compounds (VOCs) by Modified EPA Method TO-15 using GC/MS in full scan mode; and EPA Method TO-17 using GC/MS in full scan mode.
- Helium by Modified ASTM Method D-1946 using GC/TCD.

DATA VALIDATION SUMMARY

The results for each of the QC elements are summarized below.

DATA PACKAGE COMPLETENESS

FBI analyzed the air samples evaluated as part of this data validation. The laboratory provided all required deliverables for the data validation. The laboratory followed adequate corrective action processes and all identified anomalies were discussed in the case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. All COC documentation parameters were met.

Holding Times

The holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection.

Established holding times were met for the requested analyses.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in any environmental sample. Surrogates are used for organic analyses and are added to all samples, standards and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added at a known concentration and percent recoveries are calculated following analysis.

All surrogate recoveries for field samples were within the laboratory control limits.

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. Method blanks were analyzed with each batch of samples, at a frequency of 1 per 20 samples.

For the sample batches, method blanks were analyzed at the required frequency. None of the analytes of interest were detected above the reporting limits in the method blanks; however, the laboratory noted in the case narrative that the samples below may have been affected by method blank contamination.

SDG 012022: The positive results for methylene chloride in the Samples IA-1_120120, IA-3_120120, IA-7_120120, IA-10_120120, IA-12_120120, IA-13_120120, OA-2_120120 were qualified as not detected (U) because of possible method blank contamination. The reporting limits were also raised to the levels of reported concentrations by the laboratory.

Matrix Spikes/Matrix Spike Duplicates (MS/MSD)

The laboratory did not perform any MS/MSD sample sets because the air sampling methods obtain measurements of accuracy and precision from the laboratory control sample/laboratory control sample duplicate sample set.

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. As there is no actual sample matrix (such as soil or groundwater) in the analysis, the analytical expectations for accuracy and precision are usually more rigorous and qualification would apply to all samples in the batch, instead of the parent sample only.

Laboratory control sample analyses should be performed once per analytical batch or every 20 field samples, whichever is more frequent. The recovery criteria for laboratory control samples are specified in the laboratory documents, as are the relative percent difference (RPD) control limits for LCS/LCSD sample sets.

The frequency requirements were met for all analyses, and the percent recovery and RPD values were within the proper control limits.

Laboratory Duplicates

Internal laboratory duplicate samples were analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. The RPD control limit is 30 percent for all parameters, unless one or more of the samples has a result that is less than five times the lowest reporting limits. In this case, the absolute difference is used to measure precision instead of the RPD. The absolute difference control limit in air samples is equivalent to the lowest reporting limit of the parent and duplicate samples.

The frequency requirements were met for all analyses, and the RPD and absolute difference values were within the proper control limits.

Field Duplicates (FDs)

No field duplicates were planned or used for this sampling event.

Reporting Limits and Miscellaneous

SDG 012022:

(TO-15): The sample concentrations of several target analytes (ethanol, acetone, 1,1,1-Trichloroethane, isopropyl alcohol, trichloroethylene) exceeded the linear calibration range of the instrument. The positive results of one or more of these analytes were qualified as estimated (J) in Samples IA-10_120120, IA-11_120120, SV-1_113020, SV-2_113020, SV-3_113020, SV-4_113020, SV-5_113020, SV-6_113020, SV-7_113020, SV-8_113020, SV-9_113020, SV-10_113020, and SV-12_113020.

(MA-APH): The sample concentration of APH EC5-8 Aliphatic range in Sample SV-6_113020 exceeded the linear calibration range of the instrument. The positive result of this aliphatic range was qualified as estimated (J) in Sample SV-6_113020.

Also, the chromatographic patterns for APH EC5-8 Aliphatic range in all of the ‘SV’ samples did not adequately match the standard chromatography used in the initial calibration standards for the instrument. The positive results for this hydrocarbon range in the Soil Vapor samples were found to be biased high and qualified as estimated (J+) in these samples.

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD percent recovery values. Precision was acceptable, as demonstrated by the internal laboratory duplicates RPD and absolute difference values.

Data were qualified as not-detected because of Method Blank contamination.

Data were qualified as estimated because of analytes exceeding the linear calibration range of the instrument, and chromatography not matching the calibration standards.

The data, as qualified, are considered acceptable for the intended use.

REFERENCES

U.S. Environmental Protection Agency (USEPA). 1999. "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, 2^{nd} edition," EPA-625-R-96-010b. January 1999.

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U.S. Environmental Protection Agency (USEPA). 2009. "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA). 2017. "Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review," EPA-540-R-2017-002. January 2017.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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December 11, 2020

Jacob Letts, Project Manager
GeoEngineers, Inc
1101 Fawcett Ave 200
Tacoma, WA 98402

Dear Mr Letts:

Included are the results from the testing of material submitted on December 1, 2020 from the C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022 project. There are 74 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR1211R.DOC

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CASE NARRATIVE

This case narrative encompasses samples received on December 1, 2020 by Friedman & Bruya, Inc. from the GeoEngineers, Inc C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers, Inc
012022 -01	IA-1_120120
012022 -02	IA-2_120120
012022 -03	IA-3_120120
012022 -04	IA-4_120120
012022 -05	IA-5_120120
012022 -06	IA-6_120120
012022 -07	IA-7_120120
012022 -08	IA-8_120120
012022 -09	IA-9_120120
012022 -10	IA-10_120120
012022 -11	IA-11_120120
012022 -12	IA-12_120120
012022 -13	IA-13_120120
012022 -14	OA-1_120120
012022 -15	OA-2_120120
012022 -16	SV-1_113020
012022 -17	SV-2_113020
012022 -18	SV-3_113020
012022 -19	SV-4_120120
012022 -20	SV-5_120120
012022 -21	SV-6_120120
012022 -22	SV-7_120120
012022 -23	SV-8_120120
012022 -24	SV-9_120120
012022 -25	SV-10_120120
012022 -26	SV-11_120120
012022 -27	SV-12_120120

CASE NARRATIVE (continued)

APH (air) - Analysis Method MA-APH
Non-petroleum compounds identified in the air phase hydrocarbon ranges were subtracted per the MA-APH method.

The APH EC5-8 aliphatics concentration in sample SV-6_120120 exceeded the calibration range of the instrument. The data were flagged accordingly. All quality control requirements were acceptable.

The APH EC5-8 concentrations reported in the SV samples (012022-16 through 012022-27) show the presence of a possible non-petroleum interferent. The compound was tentatively identified as 1-butanol. The GC/MS tentative identification quality score did not meet the method criteria for subtraction. Affected concentrations were reported with an x qualifier.

Volatiles (air) - Analysis Method TO-15
The concentration of several analytes exceeded the calibration range of the instrument. The data were flagged accordingly. All quality control requirements were acceptable.

The methylene chloride concentrations present in the IA and OA samples (012022-01 through 012022-15) were flagged as possibly due to laboratory contamination.

Helium (air) - Analysis Method ASTM D1946
All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-01
Date Analyzed:	12/04/20	Data File:	120420.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	45
APH EC9-12 aliphatics	140
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-02
Date Analyzed:	12/04/20	Data File:	120422.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	130
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-3_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-03
Date Analyzed:	12/04/20	Data File:	120423.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	43
APH EC9-12 aliphatics	180
APH EC9-10 aromatics	<25

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Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-04
Date Analyzed:	12/04/20	Data File:	120424.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	43
APH EC9-12 aliphatics	130
APH EC9-10 aromatics	<25

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Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-05
Date Analyzed:	12/05/20	Data File:	120425.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	96
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-06
Date Analyzed:	12/05/20	Data File:	120426.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	140
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-07
Date Analyzed:	12/05/20	Data File:	120427.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-08
Date Analyzed:	12/05/20	Data File:	120428.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	45
APH EC9-12 aliphatics	90
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-09
Date Analyzed:	12/05/20	Data File:	120429.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	67
APH EC9-12 aliphatics	130
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-10
Date Analyzed:	12/05/20	Data File:	120430.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	58
APH EC9-12 aliphatics	99
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-11
Date Analyzed:	12/05/20	Data File:	120431.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	118	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	42
APH EC9-12 aliphatics	98
APH EC9-10 aromatics	<25

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Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-12
Date Analyzed:	12/05/20	Data File:	120432.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	65
APH EC9-12 aliphatics	72
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-13_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-13
Date Analyzed:	12/05/20	Data File:	120433.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	51
APH EC9-12 aliphatics	100
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	OA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-14
Date Analyzed:	12/05/20	Data File:	120434.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	OA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-15
Date Analyzed:	12/05/20	Data File:	120435.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	112	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	59
APH EC9-12 aliphatics	52
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-1_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-16 1/5.5
Date Analyzed:	12/03/20	Data File:	120311.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	750 x
APH EC9-12 aliphatics	<270
APH EC9-10 aromatics	<140

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-2_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-17 1/3.6
Date Analyzed:	12/03/20	Data File:	120313.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	380 x
APH EC9-12 aliphatics	290
APH EC9-10 aromatics	590

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-3_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-18 1/5.7
Date Analyzed:	12/03/20	Data File:	120314.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,000 x
APH EC9-12 aliphatics	310
APH EC9-10 aromatics	220

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-19 1/5.3
Date Analyzed:	12/03/20	Data File:	120315.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	109	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,000 x
APH EC9-12 aliphatics	<260
APH EC9-10 aromatics	<130

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Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-20 1/3.4
Date Analyzed:	12/03/20	Data File:	120316.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	370 x
APH EC9-12 aliphatics	240
APH EC9-10 aromatics	310

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-21 1/8.1
Date Analyzed:	12/03/20	Data File:	120317.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	89	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	22,000 ve x
APH EC9-12 aliphatics	1,800
APH EC9-10 aromatics	460

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-22 1/5.5
Date Analyzed:	12/03/20	Data File:	120318.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	112	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,300 x
APH EC9-12 aliphatics	390
APH EC9-10 aromatics	1,400

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-23 1/3.4
Date Analyzed:	12/03/20	Data File:	120319.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	200 x
APH EC9-12 aliphatics	<170
APH EC9-10 aromatics	180

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-24 1/5.7
Date Analyzed:	12/03/20	Data File:	120320.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,400 x
APH EC9-12 aliphatics	910
APH EC9-10 aromatics	210

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-25 1/5.8
Date Analyzed:	12/03/20	Data File:	120321.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,300 x
APH EC9-12 aliphatics	480
APH EC9-10 aromatics	220

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-26 1/6.1
Date Analyzed:	12/03/20	Data File:	120322.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,400 x
APH EC9-12 aliphatics	510
APH EC9-10 aromatics	<150

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-27 1/17
Date Analyzed:	12/03/20	Data File:	120323.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	4,600 x
APH EC9-12 aliphatics	<850
APH EC9-10 aromatics	800

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2756 MB
Date Analyzed:	12/04/20	Data File:	120419.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2554 MB
Date Analyzed:	12/03/20	Data File:	120310.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-01
Date Analyzed:	12/04/20	Data File:	120420.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

	Concentration			Concentration	
Compounds:	ug/m3	ppbv	Compounds:	ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.4	0.49	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.4	1.4	Trichloroethene	0.15	0.028
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	7.5	3.2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	60 lc	17 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.4	0.33
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.63	0.14
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	4.0	1.1	Bromoform	<2.1	<0.2
Chloroform	0.11	0.022	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.061	0.015	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.40	0.063	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.45	0.14	Naphthalene	0.21	0.04
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-02
Date Analyzed:	12/04/20	Data File:	120422.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.3	0.47	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.1	1.3	Trichloroethene	0.14	0.026
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	10	4.3	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.6	0.36
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.72	0.17
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.11	0.022	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.46	0.073	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.18	0.034
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-3_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-03
Date Analyzed:	12/04/20	Data File:	120423.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.7	0.54	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	4.2	1.8	Trichloroethene	0.13	0.024
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	11	4.7	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	65 lc	19 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.5	0.34
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.66	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	3.6	1.0	Bromoform	<2.1	<0.2
Chloroform	0.098	0.020	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.075	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.2	0.038
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-04
Date Analyzed:	12/04/20	Data File:	120424.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.8	0.56	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	0.13	0.024
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	9.6	4.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.5	0.35
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.66	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.075	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.51	0.16	Naphthalene	0.27	0.052
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-05
Date Analyzed:	12/05/20	Data File:	120425.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.9	1.6	Trichloroethene	0.12	0.022
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	9.8	5.2	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	7.6	3.2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.3	0.30
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.55	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.11	0.022	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.65	0.20	Naphthalene	0.14	0.026
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-06
Date Analyzed:	12/05/20	Data File:	120426.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.59	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.8	1.6	Trichloroethene	0.19	0.035
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	10	4.3	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.6	0.37
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.70	0.16
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.46	0.073	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.58	0.18	Naphthalene	0.19	0.037
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-07
Date Analyzed:	12/05/20	Data File:	120427.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	1.6	0.91	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.59	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	1.1	0.20
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	6.0	2.5	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	41 lc	12 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.12	0.024	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.43	0.069	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.44	0.14	Naphthalene	<0.057 j	<0.011 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-08
Date Analyzed:	12/05/20	Data File:	120428.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.2	0.44	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.1	1.3	Trichloroethene	0.37	0.068
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	16	8.5	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	7.4	2.5	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	8.2	3.5	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.48	0.11
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.7	0.40
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.66	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.031	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.31	0.10	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.072	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.59	0.18	Naphthalene	0.094 j	0.018 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-09
Date Analyzed:	12/05/20	Data File:	120429.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

	Concentration			Concentration	
Compounds:	ug/m3	ppbv	Compounds:	ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.5	0.50	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	9.2	3.9	Trichloroethene	0.31	0.057
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	11	5.9	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	29	9.8	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	13	5.6	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.48	0.11
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.8	0.42
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.73	0.17
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.59	0.18	Naphthalene	0.13	0.025
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-10
Date Analyzed:	12/05/20	Data File:	120430.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.58	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	0.44	0.081
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	84 ve	44 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	13	4.3	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	9.7	4.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.60	0.14
Methylene chloride	40 lc	12 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.3	0.52
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.79	0.18
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.22	0.045	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.31	0.10	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.081	0.020	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.48	0.076	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.15	0.028
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-11
Date Analyzed:	12/05/20	Data File:	120431.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	113	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.8	0.58	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.7	1.6	Trichloroethene	0.41	0.076
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	95 ve	50 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	12	4.1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	9.9	4.2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.57	0.13
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.1	0.48
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.77	0.18
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.25	0.052	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.53	0.084	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.68	0.21	Naphthalene	0.084 j	0.016 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-12
Date Analyzed:	12/05/20	Data File:	120432.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.59	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	4.2	1.8	Trichloroethene	0.70	0.13
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	37	19	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	7.3	2.5	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	15	6.5	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.46	0.10
Methylene chloride	110 ve lc	32 ve lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.7	0.38
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.60	0.14
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	7.3	2.1	Bromoform	<2.1	<0.2
Chloroform	0.16	0.033	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.31	0.11	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.10	0.025	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.075	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.084 j	0.016 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-13_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-13
Date Analyzed:	12/05/20	Data File:	120433.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.5	0.51	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	4.0	1.7	Trichloroethene	0.60	0.11
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	25	13	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	7.9	2.7	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	7.5	3.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.51	0.12
Methylene chloride	47 lc	13 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.9	0.44
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.67	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.19	0.038	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.061	0.015	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.40	0.063	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.55	0.17	Naphthalene	0.13	0.024
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	OA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-14
Date Analyzed:	12/05/20	Data File:	120434.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.58	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	5.0	2.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.093	0.019	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.074	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.42	0.13	Naphthalene	<0.057 j	<0.011 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	OA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-15
Date Analyzed:	12/05/20	Data File:	120435.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	4.4	2.6	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	37	16	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	64 lc	19 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	0.91	0.21
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	3.9	1.1	Bromoform	<2.1	<0.2
Chloroform	0.098	0.020	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	16	5.4	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.097	0.024	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.52	0.082	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.59	0.18	Naphthalene	0.079 j	0.015 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-1_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-16 1/5.5
Date Analyzed:	12/03/20	Data File:	120311.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<6.6	<3.8	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.7	<0.55	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	<26	<5.5
F-114	<3.8	<0.55	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	<0.24	<0.11	Bromodichloromethane	<0.37	<0.055
Butane	<13	<5.5	Trichloroethene	<0.59	<0.11
Bromomethane	<13	<3.3	cis-1,3-Dichloropropene	<2.5	<0.55
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	<23	<5.5
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	180	97	Toluene	<100	<27
Acrolein	<11	<4.9	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	<16	<5.5	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	510 ve	210 ve	Dibromochloromethane	<0.47	<0.055
2-Propanol	670 ve	270 ve	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	<2.2	<0.55	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	<2.4	<0.55
Methylene chloride	<190	<55	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	<29	<5.5
3-Chloropropene	<8.6	<2.7	Isopropylbenzene	<14	<2.7
CFC-113	<4.2	<0.55	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<14	<2.7
Methyl t-butyl ether (MTBE)	<9.9	<2.7	4-Ethyltoluene	<14	<2.7
Vinyl acetate	<39	<11	m,p-Xylene	<4.8	<1.1
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	<2.4	<0.55
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	<0.27	<0.055	Benzyl chloride	<0.28	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.7
Tetrahydrofuran	<1.6	<0.55	1,2,4-Trimethylbenzene	<14	<2.7
2-Butanone (MEK)	<16	<5.5	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	3.6	0.65	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	<1.7	<0.28	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	2.4	0.74	Naphthalene	<1.4	<0.28
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-2_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-17 1/3.6
Date Analyzed:	12/03/20	Data File:	120313.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4.3	<2.5	1,2-Dichloropropane	<0.83	<0.18
Dichlorodifluoromethane	3.1	0.62	1,4-Dioxane	<1.3	<0.36
Chloromethane	<13	<6.5	2,2,4-Trimethylpentane	<17	<3.6
F-114	<2.5	<0.36	Methyl methacrylate	<15	<3.6
Vinyl chloride	<0.92	<0.36	Heptane	<15	<3.6
1,3-Butadiene	<0.16	<0.072	Bromodichloromethane	<0.24	<0.036
Butane	36	15	Trichloroethene	0.58	0.11
Bromomethane	<8.4	<2.2	cis-1,3-Dichloropropene	<1.6	<0.36
Chloroethane	<9.5	<3.6	4-Methyl-2-pentanone	<15	<3.6
Vinyl bromide	<1.6	<0.36	trans-1,3-Dichloropropene	<1.6	<0.36
Ethanol	220 ve	110 ve	Toluene	<68	<18
Acrolein	<7.4	<3.2	1,1,2-Trichloroethane	<0.2	<0.036
Pentane	18	6.1	2-Hexanone	<15	<3.6
Trichlorofluoromethane	<8.1	<1.4	Tetrachloroethene	<24	<3.6
Acetone	360 ve	150 ve	Dibromochloromethane	<0.31	<0.036
2-Propanol	97	39	1,2-Dibromoethane (EDB)	<0.28	<0.036
1,1-Dichloroethene	<1.4	<0.36	Chlorobenzene	<1.7	<0.36
trans-1,2-Dichloroethene	<1.4	<0.36	Ethylbenzene	<1.6	<0.36
Methylene chloride	<130	<36	1,1,2,2-Tetrachloroethane	<0.49	<0.072
t-Butyl alcohol (TBA)	<44	<14	Nonane	<19	<3.6
3-Chloropropene	<5.6	<1.8	Isopropylbenzene	<8.8	<1.8
CFC-113	8.4	1.1	2-Chlorotoluene	<19	<3.6
Carbon disulfide	<22	<7.2	Propylbenzene	<8.8	<1.8
Methyl t-butyl ether (MTBE)	<6.5	<1.8	4-Ethyltoluene	<8.8	<1.8
Vinyl acetate	<25	<7.2	m,p-Xylene	6.1	1.4
1,1-Dichloroethane	<1.5	<0.36	o-Xylene	1.8	0.41
cis-1,2-Dichloroethene	<1.4	<0.36	Styrene	<3.1	<0.72
Hexane	<13	<3.6	Bromoform	<7.4	<0.72
Chloroform	0.51	0.10	Benzyl chloride	<0.19	<0.036
Ethyl acetate	<26	<7.2	1,3,5-Trimethylbenzene	<8.8	<1.8
Tetrahydrofuran	<1.1	<0.36	1,2,4-Trimethylbenzene	<8.8	<1.8
2-Butanone (MEK)	11	3.9	1,3-Dichlorobenzene	<2.2	<0.36
1,2-Dichloroethane (EDC)	<0.15	<0.036	1,4-Dichlorobenzene	<0.83	<0.14
1,1,1-Trichloroethane	8.7	1.6	1,2-Dichlorobenzene	<2.2	<0.36
Carbon tetrachloride	<1.1	<0.18	1,2,4-Trichlorobenzene	<2.7	<0.36
Benzene	3.7	1.2	Naphthalene	5.5	1.0
Cyclohexane	<25	<7.2	Hexachlorobutadiene	<0.77	<0.072

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-3_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-18 1/5.7
Date Analyzed:	12/03/20	Data File:	120314.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.9	<4	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<2.1	<0.57
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<27	<5.7
F-114	<4	<0.57	Methyl methacrylate	<23	<5.7
Vinyl chloride	<1.5	<0.57	Heptane	<23	<5.7
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.057
Butane	15	6.1	Trichloroethene	0.64	0.12
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.6	<0.57
Chloroethane	<15	<5.7	4-Methyl-2-pentanone	<23	<5.7
Vinyl bromide	<2.5	<0.57	trans-1,3-Dichloropropene	<2.6	<0.57
Ethanol	150	79	Toluene	<110	<28
Acrolein	<12	<5.1	1,1,2-Trichloroethane	<0.31	<0.057
Pentane	<17	<5.7	2-Hexanone	<23	<5.7
Trichlorofluoromethane	<13	<2.3	Tetrachloroethene	<39	<5.7
Acetone	1,200 ve	500 ve	Dibromochloromethane	<0.49	<0.057
2-Propanol	270	110	1,2-Dibromoethane (EDB)	<0.44	<0.057
1,1-Dichloroethene	<2.3	<0.57	Chlorobenzene	<2.6	<0.57
trans-1,2-Dichloroethene	<2.3	<0.57	Ethylbenzene	3.1	0.71
Methylene chloride	<200	<57	1,1,2,2-Tetrachloroethane	<0.78	<0.11
t-Butyl alcohol (TBA)	<69	<23	Nonane	<30	<5.7
3-Chloropropene	<8.9	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	<4.4	<0.57	2-Chlorotoluene	<30	<5.7
Carbon disulfide	<36	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<40	<11	m,p-Xylene	12	2.8
1,1-Dichloroethane	<2.3	<0.57	o-Xylene	3.7	0.85
cis-1,2-Dichloroethene	<2.3	<0.57	Styrene	<4.9	<1.1
Hexane	<20	<5.7	Bromoform	<12	<1.1
Chloroform	<0.28	<0.057	Benzyl chloride	<0.3	<0.057
Ethyl acetate	<41	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	2.5	0.84	1,2,4-Trimethylbenzene	<14	<2.8
2-Butanone (MEK)	42	14	1,3-Dichlorobenzene	<3.4	<0.57
1,2-Dichloroethane (EDC)	<0.23	<0.057	1,4-Dichlorobenzene	<1.4	<0.22
1,1,1-Trichloroethane	<3.1	<0.57	1,2-Dichlorobenzene	<3.4	<0.57
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.57
Benzene	<1.8	<0.57	Naphthalene	4.8	0.92
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-19 1/5.3
Date Analyzed:	12/03/20	Data File:	120315.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.4	<3.7	1,2-Dichloropropane	<1.2	<0.26
Dichlorodifluoromethane	2.9	0.58	1,4-Dioxane	<1.9	<0.53
Chloromethane	<20	<9.5	2,2,4-Trimethylpentane	<25	<5.3
F-114	<3.7	<0.53	Methyl methacrylate	<22	<5.3
Vinyl chloride	<1.4	<0.53	Heptane	<22	<5.3
1,3-Butadiene	<0.23	<0.11	Bromodichloromethane	<0.36	<0.053
Butane	<13	<5.3	Trichloroethene	0.83	0.15
Bromomethane	<12	<3.2	cis-1,3-Dichloropropene	<2.4	<0.53
Chloroethane	<14	<5.3	4-Methyl-2-pentanone	<22	<5.3
Vinyl bromide	<2.3	<0.53	trans-1,3-Dichloropropene	<2.4	<0.53
Ethanol	270 ve	140 ve	Toluene	<100	<26
Acrolein	<11	<4.8	1,1,2-Trichloroethane	<0.29	<0.053
Pentane	<16	<5.3	2-Hexanone	<22	<5.3
Trichlorofluoromethane	<12	<2.1	Tetrachloroethene	<36	<5.3
Acetone	2,000 ve	820 ve	Dibromochloromethane	<0.45	<0.053
2-Propanol	3,600 ve	1,500 ve	1,2-Dibromoethane (EDB)	<0.41	<0.053
1,1-Dichloroethene	<2.1	<0.53	Chlorobenzene	<2.4	<0.53
trans-1,2-Dichloroethene	<2.1	<0.53	Ethylbenzene	<2.3	<0.53
Methylene chloride	<180	<53	1,1,2,2-Tetrachloroethane	<0.73	<0.11
t-Butyl alcohol (TBA)	<64	<21	Nonane	<28	<5.3
3-Chloropropene	<8.3	<2.6	Isopropylbenzene	<13	<2.6
CFC-113	4.8	0.63	2-Chlorotoluene	<27	<5.3
Carbon disulfide	<33	<11	Propylbenzene	<13	<2.6
Methyl t-butyl ether (MTBE)	<9.6	<2.6	4-Ethyltoluene	<13	<2.6
Vinyl acetate	<37	<11	m,p-Xylene	6.7	1.5
1,1-Dichloroethane	<2.1	<0.53	o-Xylene	<2.3	<0.53
cis-1,2-Dichloroethene	<2.1	<0.53	Styrene	<4.5	<1.1
Hexane	<19	<5.3	Bromoform	<11	<1.1
Chloroform	<0.26	<0.053	Benzyl chloride	<0.27	<0.053
Ethyl acetate	<38	<11	1,3,5-Trimethylbenzene	<13	<2.6
Tetrahydrofuran	2.0	0.68	1,2,4-Trimethylbenzene	<13	<2.6
2-Butanone (MEK)	<16	<5.3	1,3-Dichlorobenzene	<3.2	<0.53
1,2-Dichloroethane (EDC)	<0.21	<0.053	1,4-Dichlorobenzene	<1.3	<0.2
1,1,1-Trichloroethane	<2.9	<0.53	1,2-Dichlorobenzene	<3.2	<0.53
Carbon tetrachloride	<1.7	<0.26	1,2,4-Trichlorobenzene	<3.9	<0.53
Benzene	<1.7	<0.53	Naphthalene	2.9	0.56
Cyclohexane	<36	<11	Hexachlorobutadiene	<1.1	<0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-20 1/3.4
Date Analyzed:	12/03/20	Data File:	120316.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4.1	<2.4	1,2-Dichloropropane	<0.79	<0.17
Dichlorodifluoromethane	2.5	0.50	1,4-Dioxane	<1.2	<0.34
Chloromethane	<13	<6.1	2,2,4-Trimethylpentane	<16	<3.4
F-114	<2.4	<0.34	Methyl methacrylate	<14	<3.4
Vinyl chloride	<0.87	<0.34	Heptane	<14	<3.4
1,3-Butadiene	<0.15	<0.068	Bromodichloromethane	<0.23	<0.034
Butane	<8.1	<3.4	Trichloroethene	0.37	0.068
Bromomethane	<7.9	<2	cis-1,3-Dichloropropene	<1.5	<0.34
Chloroethane	<9	<3.4	4-Methyl-2-pentanone	<14	<3.4
Vinyl bromide	<1.5	<0.34	trans-1,3-Dichloropropene	<1.5	<0.34
Ethanol	210 ve	110 ve	Toluene	<64	<17
Acrolein	<7	<3.1	1,1,2-Trichloroethane	<0.19	<0.034
Pentane	<10	<3.4	2-Hexanone	<14	<3.4
Trichlorofluoromethane	<7.6	<1.4	Tetrachloroethene	<23	<3.4
Acetone	410 ve	170 ve	Dibromochloromethane	<0.29	<0.034
2-Propanol	120	48	1,2-Dibromoethane (EDB)	<0.26	<0.034
1,1-Dichloroethene	<1.3	<0.34	Chlorobenzene	<1.6	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34	Ethylbenzene	7.4	1.7
Methylene chloride	<120	<34	1,1,2,2-Tetrachloroethane	<0.47	<0.068
t-Butyl alcohol (TBA)	<41	<14	Nonane	<18	<3.4
3-Chloropropene	<5.3	<1.7	Isopropylbenzene	<8.4	<1.7
CFC-113	<2.6	<0.34	2-Chlorotoluene	<18	<3.4
Carbon disulfide	<21	<6.8	Propylbenzene	<8.4	<1.7
Methyl t-butyl ether (MTBE)	<6.1	<1.7	4-Ethyltoluene	<8.4	<1.7
Vinyl acetate	<24	<6.8	m,p-Xylene	29	6.8
1,1-Dichloroethane	<1.4	<0.34	o-Xylene	6.9	1.6
cis-1,2-Dichloroethene	<1.3	<0.34	Styrene	<2.9	<0.68
Hexane	<12	<3.4	Bromoform	<7	<0.68
Chloroform	<0.17	<0.034	Benzyl chloride	<0.18	<0.034
Ethyl acetate	<25	<6.8	1,3,5-Trimethylbenzene	<8.4	<1.7
Tetrahydrofuran	15	5.1	1,2,4-Trimethylbenzene	11	2.2
2-Butanone (MEK)	<10	<3.4	1,3-Dichlorobenzene	<2	<0.34
1,2-Dichloroethane (EDC)	<0.14	<0.034	1,4-Dichlorobenzene	<0.79	<0.13
1,1,1-Trichloroethane	<1.9	<0.34	1,2-Dichlorobenzene	<2	<0.34
Carbon tetrachloride	<1.1	<0.17	1,2,4-Trichlorobenzene	<2.5	<0.34
Benzene	2.6	0.81	Naphthalene	2.1	0.41
Cyclohexane	<23	<6.8	Hexachlorobutadiene	<0.73	<0.068

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-21 1/8.1
Date Analyzed:	12/03/20	Data File:	120317.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	65	38	1,2-Dichloropropane	<1.9	<0.4
Dichlorodifluoromethane	<4	<0.81	1,4-Dioxane	5.5	1.5
Chloromethane	<30	<15	2,2,4-Trimethylpentane	40	8.7
F-114	<5.7	<0.81	Methyl methacrylate	<33	<8.1
Vinyl chloride	<2.1	<0.81	Heptane	<33	<8.1
1,3-Butadiene	<0.36	<0.16	Bromodichloromethane	<0.54	<0.081
Butane	29	12	Trichloroethene	<0.87	<0.16
Bromomethane	<19	<4.9	cis-1,3-Dichloropropene	<3.7	<0.81
Chloroethane	<21	<8.1	4-Methyl-2-pentanone	<33	<8.1
Vinyl bromide	<3.5	<0.81	trans-1,3-Dichloropropene	<3.7	<0.81
Ethanol	640 ve	340 ve	Toluene	<150	<40
Acrolein	<17	<7.3	1,1,2-Trichloroethane	<0.44	<0.081
Pentane	<24	<8.1	2-Hexanone	<33	<8.1
Trichlorofluoromethane	<18	<3.2	Tetrachloroethene	93	14
Acetone	2,000 ve	830 ve	Dibromochloromethane	<0.69	<0.081
2-Propanol	1,000 ve	410 ve	1,2-Dibromoethane (EDB)	<0.62	<0.081
1,1-Dichloroethene	<3.2	<0.81	Chlorobenzene	<3.7	<0.81
trans-1,2-Dichloroethene	<3.2	<0.81	Ethylbenzene	51	12
Methylene chloride	<280	<81	1,1,2,2-Tetrachloroethane	<1.1	<0.16
t-Butyl alcohol (TBA)	<98	<32	Nonane	<42	<8.1
3-Chloropropene	<13	<4	Isopropylbenzene	<20	<4
CFC-113	340	45	2-Chlorotoluene	<42	<8.1
Carbon disulfide	<50	<16	Propylbenzene	<20	<4
Methyl t-butyl ether (MTBE)	<15	<4	4-Ethyltoluene	<20	<4
Vinyl acetate	<57	<16	m,p-Xylene	180	43
1,1-Dichloroethane	<3.3	<0.81	o-Xylene	49	11
cis-1,2-Dichloroethene	<3.2	<0.81	Styrene	<6.9	<1.6
Hexane	<29	<8.1	Bromoform	<17	<1.6
Chloroform	<0.4	<0.081	Benzyl chloride	<0.42	<0.081
Ethyl acetate	<58	<16	1,3,5-Trimethylbenzene	<20	<4
Tetrahydrofuran	26	8.8	1,2,4-Trimethylbenzene	43	8.7
2-Butanone (MEK)	140	46	1,3-Dichlorobenzene	<4.9	<0.81
1,2-Dichloroethane (EDC)	<0.33	<0.081	1,4-Dichlorobenzene	<1.9	<0.31
1,1,1-Trichloroethane	32	5.9	1,2-Dichlorobenzene	<4.9	<0.81
Carbon tetrachloride	<2.5	<0.4	1,2,4-Trichlorobenzene	<6	<0.81
Benzene	<2.6	<0.81	Naphthalene	6.5	1.2
Cyclohexane	<56	<16	Hexachlorobutadiene	<1.7	<0.16

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-22 1/5.5
Date Analyzed:	12/03/20	Data File:	120318.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	100	59	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	3.2	0.65	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	<26	<5.5
F-114	<3.8	<0.55	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	<0.24	<0.11	Bromodichloromethane	<0.37	<0.055
Butane	36	15	Trichloroethene	0.74	0.14
Bromomethane	<13	<3.3	cis-1,3-Dichloropropene	<2.5	<0.55
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	<23	<5.5
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	400 ve	210 ve	Toluene	390	100
Acrolein	<11	<4.9	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	28	9.5	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	580 ve	250 ve	Dibromochloromethane	<0.47	<0.055
2-Propanol	320	130	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	4.5	1.1	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	27	6.1
Methylene chloride	<190	<55	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	<29	<5.5
3-Chloropropene	<8.6	<2.7	Isopropylbenzene	<14	<2.7
CFC-113	260	33	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<14	<2.7
Methyl t-butyl ether (MTBE)	<9.9	<2.7	4-Ethyltoluene	<14	<2.7
Vinyl acetate	<39	<11	m,p-Xylene	98	22
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	37	8.5
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	<0.27	<0.055	Benzyl chloride	<0.28	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	16	3.3
Tetrahydrofuran	18	5.9	1,2,4-Trimethylbenzene	95	19
2-Butanone (MEK)	41	14	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3	<0.55	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	7.5	1.2	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	4.7	1.5	Naphthalene	31	5.9
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-23 1/3.4
Date Analyzed:	12/03/20	Data File:	120319.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4.1	<2.4	1,2-Dichloropropane	<0.79	<0.17
Dichlorodifluoromethane	2.8	0.56	1,4-Dioxane	<1.2	<0.34
Chloromethane	<13	<6.1	2,2,4-Trimethylpentane	<16	<3.4
F-114	<2.4	<0.34	Methyl methacrylate	<14	<3.4
Vinyl chloride	<0.87	<0.34	Heptane	<14	<3.4
1,3-Butadiene	<0.15	<0.068	Bromodichloromethane	<0.23	<0.034
Butane	<8.1	<3.4	Trichloroethene	0.38	0.071
Bromomethane	<7.9	<2	cis-1,3-Dichloropropene	<1.5	<0.34
Chloroethane	<9	<3.4	4-Methyl-2-pentanone	<14	<3.4
Vinyl bromide	<1.5	<0.34	trans-1,3-Dichloropropene	<1.5	<0.34
Ethanol	490 ve	260 ve	Toluene	<64	<17
Acrolein	<7	<3.1	1,1,2-Trichloroethane	<0.19	<0.034
Pentane	<10	<3.4	2-Hexanone	<14	<3.4
Trichlorofluoromethane	<7.6	<1.4	Tetrachloroethene	<23	<3.4
Acetone	240 ve	100 ve	Dibromochloromethane	<0.29	<0.034
2-Propanol	67	27	1,2-Dibromoethane (EDB)	<0.26	<0.034
1,1-Dichloroethene	<1.3	<0.34	Chlorobenzene	<1.6	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34	Ethylbenzene	<1.5	<0.34
Methylene chloride	<120	<34	1,1,2,2-Tetrachloroethane	<0.47	<0.068
t-Butyl alcohol (TBA)	<41	<14	Nonane	<18	<3.4
3-Chloropropene	<5.3	<1.7	Isopropylbenzene	<8.4	<1.7
CFC-113	<2.6	<0.34	2-Chlorotoluene	<18	<3.4
Carbon disulfide	<21	<6.8	Propylbenzene	<8.4	<1.7
Methyl t-butyl ether (MTBE)	<6.1	<1.7	4-Ethyltoluene	<8.4	<1.7
Vinyl acetate	<24	<6.8	m,p-Xylene	5.6	1.3
1,1-Dichloroethane	<1.4	<0.34	o-Xylene	2.2	0.51
cis-1,2-Dichloroethene	<1.3	<0.34	Styrene	<2.9	<0.68
Hexane	<12	<3.4	Bromoform	<7	<0.68
Chloroform	0.55	0.11	Benzyl chloride	<0.18	<0.034
Ethyl acetate	<25	<6.8	1,3,5-Trimethylbenzene	<8.4	<1.7
Tetrahydrofuran	1.4	0.46	1,2,4-Trimethylbenzene	<8.4	<1.7
2-Butanone (MEK)	<10	<3.4	1,3-Dichlorobenzene	<2	<0.34
1,2-Dichloroethane (EDC)	<0.14	<0.034	1,4-Dichlorobenzene	<0.79	<0.13
1,1,1-Trichloroethane	<1.9	<0.34	1,2-Dichlorobenzene	<2	<0.34
Carbon tetrachloride	<1.1	<0.17	1,2,4-Trichlorobenzene	<2.5	<0.34
Benzene	<1.1	<0.34	Naphthalene	6.7	1.3
Cyclohexane	<23	<6.8	Hexachlorobutadiene	<0.73	<0.068

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-24 1/5.7
Date Analyzed:	12/03/20	Data File:	120320.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.9	<4	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.8	<0.57	1,4-Dioxane	<2.1	<0.57
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<27	<5.7
F-114	<4	<0.57	Methyl methacrylate	<23	<5.7
Vinyl chloride	<1.5	<0.57	Heptane	<23	<5.7
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.057
Butane	<14	<5.7	Trichloroethene	2.8	0.52
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.6	<0.57
Chloroethane	<15	<5.7	4-Methyl-2-pentanone	<23	<5.7
Vinyl bromide	<2.5	<0.57	trans-1,3-Dichloropropene	<2.6	<0.57
Ethanol	370 ve	200 ve	Toluene	<110	<28
Acrolein	<12	<5.1	1,1,2-Trichloroethane	<0.31	<0.057
Pentane	<17	<5.7	2-Hexanone	<23	<5.7
Trichlorofluoromethane	<13	<2.3	Tetrachloroethene	<39	<5.7
Acetone	430 ve	180 ve	Dibromochloromethane	<0.49	<0.057
2-Propanol	110	43	1,2-Dibromoethane (EDB)	<0.44	<0.057
1,1-Dichloroethene	<2.3	<0.57	Chlorobenzene	<2.6	<0.57
trans-1,2-Dichloroethene	<2.3	<0.57	Ethylbenzene	12	2.7
Methylene chloride	<200	<57	1,1,2,2-Tetrachloroethane	<0.78	<0.11
t-Butyl alcohol (TBA)	<69	<23	Nonane	<30	<5.7
3-Chloropropene	<8.9	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	54	7.0	2-Chlorotoluene	<30	<5.7
Carbon disulfide	<36	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<40	<11	m,p-Xylene	44	10
1,1-Dichloroethane	<2.3	<0.57	o-Xylene	16	3.6
cis-1,2-Dichloroethene	<2.3	<0.57	Styrene	<4.9	<1.1
Hexane	<20	<5.7	Bromoform	<12	<1.1
Chloroform	<0.28	<0.057	Benzyl chloride	<0.3	<0.057
Ethyl acetate	<41	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	2.6	0.87	1,2,4-Trimethylbenzene	18	3.6
2-Butanone (MEK)	<17	<5.7	1,3-Dichlorobenzene	<3.4	<0.57
1,2-Dichloroethane (EDC)	<0.23	<0.057	1,4-Dichlorobenzene	<1.4	<0.22
1,1,1-Trichloroethane	6.5	1.2	1,2-Dichlorobenzene	<3.4	<0.57
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.57
Benzene	<1.8	<0.57	Naphthalene	6.2	1.2
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-25 1/5.8
Date Analyzed:	12/03/20	Data File:	120321.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<7	<4.1	1,2-Dichloropropane	<1.3	<0.29
Dichlorodifluoromethane	<2.9	<0.58	1,4-Dioxane	<2.1	<0.58
Chloromethane	<22	<10	2,2,4-Trimethylpentane	<27	<5.8
F-114	<4.1	<0.58	Methyl methacrylate	<24	<5.8
Vinyl chloride	<1.5	<0.58	Heptane	<24	<5.8
1,3-Butadiene	<0.26	<0.12	Bromodichloromethane	<0.39	<0.058
Butane	<14	<5.8	Trichloroethene	22	4.1
Bromomethane	<14	<3.5	cis-1,3-Dichloropropene	<2.6	<0.58
Chloroethane	<15	<5.8	4-Methyl-2-pentanone	<24	<5.8
Vinyl bromide	<2.5	<0.58	trans-1,3-Dichloropropene	<2.6	<0.58
Ethanol	240	130	Toluene	<110	<29
Acrolein	<12	<5.2	1,1,2-Trichloroethane	<0.32	<0.058
Pentane	<17	<5.8	2-Hexanone	<24	<5.8
Trichlorofluoromethane	<13	<2.3	Tetrachloroethene	<39	<5.8
Acetone	460 ve	190 ve	Dibromochloromethane	<0.49	<0.058
2-Propanol	83	34	1,2-Dibromoethane (EDB)	<0.45	<0.058
1,1-Dichloroethene	<2.3	<0.58	Chlorobenzene	<2.7	<0.58
trans-1,2-Dichloroethene	<2.3	<0.58	Ethylbenzene	6.1	1.4
Methylene chloride	<200	<58	1,1,2,2-Tetrachloroethane	<0.8	<0.12
t-Butyl alcohol (TBA)	<70	<23	Nonane	<30	<5.8
3-Chloropropene	<9.1	<2.9	Isopropylbenzene	<14	<2.9
CFC-113	28	3.6	2-Chlorotoluene	<30	<5.8
Carbon disulfide	<36	<12	Propylbenzene	<14	<2.9
Methyl t-butyl ether (MTBE)	<10	<2.9	4-Ethyltoluene	<14	<2.9
Vinyl acetate	<41	<12	m,p-Xylene	24	5.5
1,1-Dichloroethane	<2.3	<0.58	o-Xylene	7.7	1.8
cis-1,2-Dichloroethene	<2.3	<0.58	Styrene	<4.9	<1.2
Hexane	<20	<5.8	Bromoform	<12	<1.2
Chloroform	<0.28	<0.058	Benzyl chloride	<0.3	<0.058
Ethyl acetate	<42	<12	1,3,5-Trimethylbenzene	<14	<2.9
Tetrahydrofuran	13	4.6	1,2,4-Trimethylbenzene	<14	<2.9
2-Butanone (MEK)	<17	<5.8	1,3-Dichlorobenzene	<3.5	<0.58
1,2-Dichloroethane (EDC)	<0.23	<0.058	1,4-Dichlorobenzene	<1.4	<0.22
1,1,1-Trichloroethane	<3.2	<0.58	1,2-Dichlorobenzene	<3.5	<0.58
Carbon tetrachloride	<1.8	<0.29	1,2,4-Trichlorobenzene	<4.3	<0.58
Benzene	<1.9	<0.58	Naphthalene	8.8	1.7
Cyclohexane	<40	<12	Hexachlorobutadiene	<1.2	<0.12

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-26 1/6.1
Date Analyzed:	12/03/20	Data File:	120322.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<7.3	<4.3	1,2-Dichloropropane	<1.4	<0.3
Dichlorodifluoromethane	<3	<0.61	1,4-Dioxane	<2.2	<0.61
Chloromethane	<23	<11	2,2,4-Trimethylpentane	<28	<6.1
F-114	<4.3	<0.61	Methyl methacrylate	<25	<6.1
Vinyl chloride	<1.6	<0.61	Heptane	<25	<6.1
1,3-Butadiene	<0.27	<0.12	Bromodichloromethane	<0.41	<0.061
Butane	<15	<6.1	Trichloroethene	<0.66	<0.12
Bromomethane	<14	<3.7	cis-1,3-Dichloropropene	<2.8	<0.61
Chloroethane	<16	<6.1	4-Methyl-2-pentanone	<25	<6.1
Vinyl bromide	<2.7	<0.61	trans-1,3-Dichloropropene	<2.8	<0.61
Ethanol	260	140	Toluene	<110	<30
Acrolein	<13	<5.5	1,1,2-Trichloroethane	<0.33	<0.061
Pentane	<18	<6.1	2-Hexanone	<25	<6.1
Trichlorofluoromethane	<14	<2.4	Tetrachloroethene	<41	<6.1
Acetone	220	93	Dibromochloromethane	<0.52	<0.061
2-Propanol	200	80	1,2-Dibromoethane (EDB)	<0.47	<0.061
1,1-Dichloroethene	<2.4	<0.61	Chlorobenzene	<2.8	<0.61
trans-1,2-Dichloroethene	<2.4	<0.61	Ethylbenzene	<2.6	<0.61
Methylene chloride	<210	<61	1,1,2,2-Tetrachloroethane	<0.84	<0.12
t-Butyl alcohol (TBA)	<74	<24	Nonane	<32	<6.1
3-Chloropropene	<9.5	<3	Isopropylbenzene	<15	<3
CFC-113	16	2.1	2-Chlorotoluene	<32	<6.1
Carbon disulfide	<38	<12	Propylbenzene	<15	<3
Methyl t-butyl ether (MTBE)	<11	<3	4-Ethyltoluene	<15	<3
Vinyl acetate	<43	<12	m,p-Xylene	6.4	1.5
1,1-Dichloroethane	<2.5	<0.61	o-Xylene	2.6	0.61
cis-1,2-Dichloroethene	<2.4	<0.61	Styrene	<5.2	<1.2
Hexane	<22	<6.1	Bromoform	<13	<1.2
Chloroform	<0.3	<0.061	Benzyl chloride	<0.32	<0.061
Ethyl acetate	<44	<12	1,3,5-Trimethylbenzene	<15	<3
Tetrahydrofuran	7.1	2.4	1,2,4-Trimethylbenzene	<15	<3
2-Butanone (MEK)	<18	<6.1	1,3-Dichlorobenzene	<3.7	<0.61
1,2-Dichloroethane (EDC)	<0.25	<0.061	1,4-Dichlorobenzene	<1.5	<0.23
1,1,1-Trichloroethane	13	2.5	1,2-Dichlorobenzene	<3.7	<0.61
Carbon tetrachloride	<1.9	<0.3	1,2,4-Trichlorobenzene	<4.5	<0.61
Benzene	<1.9	<0.61	Naphthalene	2.0	0.38
Cyclohexane	<42	<12	Hexachlorobutadiene	<1.3	<0.12

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-27 1/17
Date Analyzed:	12/03/20	Data File:	120323.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<20	<12	1,2-Dichloropropane	<3.9	<0.85
Dichlorodifluoromethane	<8.4	<1.7	1,4-Dioxane	<6.1	<1.7
Chloromethane	<63	<31	2,2,4-Trimethylpentane	<79	<17
F-114	<12	<1.7	Methyl methacrylate	<70	<17
Vinyl chloride	<4.3	<1.7	Heptane	<70	<17
1,3-Butadiene	<0.75	<0.34	Bromodichloromethane	<1.1	<0.17
Butane	<40	<17	Trichloroethene	30,000 ve	5,600 ve
Bromomethane	<40	<10	cis-1,3-Dichloropropene	<7.7	<1.7
Chloroethane	<45	<17	4-Methyl-2-pentanone	<70	<17
Vinyl bromide	<7.4	<1.7	trans-1,3-Dichloropropene	<7.7	<1.7
Ethanol	150	77	Toluene	<320	<85
Acrolein	<35	<15	1,1,2-Trichloroethane	1.8	0.32
Pentane	<50	<17	2-Hexanone	<70	<17
Trichlorofluoromethane	<38	<6.8	Tetrachloroethene	740	110
Acetone	190	78	Dibromochloromethane	<1.4	<0.17
2-Propanol	<150	<59	1,2-Dibromoethane (EDB)	<1.3	<0.17
1,1-Dichloroethene	930	240	Chlorobenzene	<7.8	<1.7
trans-1,2-Dichloroethene	<6.7	<1.7	Ethylbenzene	<7.4	<1.7
Methylene chloride	<590	<170	1,1,2,2-Tetrachloroethane	<2.3	<0.34
t-Butyl alcohol (TBA)	<210	<68	Nonane	<89	<17
3-Chloropropene	<27	<8.5	Isopropylbenzene	<42	<8.5
CFC-113	<13	<1.7	2-Chlorotoluene	<88	<17
Carbon disulfide	<110	<34	Propylbenzene	<42	<8.5
Methyl t-butyl ether (MTBE)	<31	<8.5	4-Ethyltoluene	<42	<8.5
Vinyl acetate	<120	<34	m,p-Xylene	17	3.9
1,1-Dichloroethane	530	130	o-Xylene	<7.4	<1.7
cis-1,2-Dichloroethene	20	5.0	Styrene	<14	<3.4
Hexane	<60	<17	Bromoform	<35	<3.4
Chloroform	170	35	Benzyl chloride	<0.88	<0.17
Ethyl acetate	<120	<34	1,3,5-Trimethylbenzene	<42	<8.5
Tetrahydrofuran	<5	<1.7	1,2,4-Trimethylbenzene	<42	<8.5
2-Butanone (MEK)	<50	<17	1,3-Dichlorobenzene	<10	<1.7
1,2-Dichloroethane (EDC)	<0.69	<0.17	1,4-Dichlorobenzene	<4	<0.65
1,1,1-Trichloroethane	7,900 ve	1,400 ve	1,2-Dichlorobenzene	<10	<1.7
Carbon tetrachloride	<5.3	<0.85	1,2,4-Trichlorobenzene	<13	<1.7
Benzene	<5.4	<1.7	Naphthalene	12	2.2
Cyclohexane	<120	<34	Hexachlorobutadiene	<3.6	<0.34

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2756 MB
Date Analyzed:	12/04/20	Data File:	120419.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	81	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.057 j	<0.011 j

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2554 MB
Date Analyzed:	12/03/20	Data File:	120310.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022
Date Extracted: 12/08/20
Date Analyzed: 12/08/20

RESULTS FROM THE ANALYSIS OF AIR SAMPLES
FOR HELIUM USING METHOD ASTM D1946
Results Reported as % Helium

Sample ID Laboratory ID	Helium
SV-1_113020 012022-16	<0.6
SV-2_113020 012022-17	<0.6
SV-3_113020 012022-18	<0.6
SV-4_120120 012022-19	<0.6
SV-5_120120 012022-20	<0.6
SV-6_120120 012022-21	<0.6
SV-7_120120 012022-22	<0.6
SV-8_120120 012022-23	<0.6
SV-9_120120 012022-24	<0.6
SV-10_120120 012022-25	<0.6
SV-11_120120 012022-26	<0.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022
Date Extracted: 12/08/20
Date Analyzed: 12/08/20

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Results Reported as % Helium

Sample ID Laboratory ID	Helium
SV-12_120120 012022-27	<0.6
Method Blank 00-2803 MB	<0.6

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 012022-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	45	46	2
APH EC9-12 aliphatics	ug/m3	140	160	13
APH EC9-10 aromatics	ug/m3	<25	<25	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	67	79	70-130
APH EC9-12 aliphatics	ug/m3	67	104	70-130
APH EC9-10 aromatics	ug/m3	67	96	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 012022-16 1/5.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	750	890	17
APH EC9-12 aliphatics	ug/m3	<270	280	nm
APH EC9-10 aromatics	ug/m3	<140	<140	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	67	83	70-130
APH EC9-12 aliphatics	ug/m3	67	102	70-130
APH EC9-10 aromatics	ug/m3	67	99	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<1.2	<1.2	nm
Dichlorodifluoromethane	ug/m3	2.4	2.9	19
Chloromethane	ug/m3	<3.7	<3.7	nm
F-114	ug/m3	<0.7	<0.7	nm
Vinyl chloride	ug/m3	<0.26	<0.26	nm
1,3-Butadiene	ug/m3	<0.044	<0.044	nm
Butane	ug/m3	3.4	4.8	34 vo
Bromomethane	ug/m3	<2.3	<2.3	nm
Chloroethane	ug/m3	<2.6	<2.6	nm
Vinyl bromide	ug/m3	<0.44	<0.44	nm
Ethanol	ug/m3	<7.5	<7.5	nm
Acrolein	ug/m3	<2.1	<2.1	nm
Pentane	ug/m3	<3	<3	nm
Trichlorofluoromethane	ug/m3	<2.2	<2.2	nm
Acetone	ug/m3	7.5	11	38 vo
2-Propanol	ug/m3	<8.6	<8.6	nm
1,1-Dichloroethene	ug/m3	<0.4	<0.4	nm
trans-1,2-Dichloroethene	ug/m3	<0.4	<0.4	nm
Methylene chloride	ug/m3	60	81	30
t-Butyl alcohol (TBA)	ug/m3	<12	<12	nm
3-Chloropropene	ug/m3	<1.6	<1.6	nm
CFC-113	ug/m3	<0.77	<0.77	nm
Carbon disulfide	ug/m3	<6.2	<6.2	nm
Methyl t-butyl ether (MTBE)	ug/m3	<1.8	<1.8	nm
Vinyl acetate	ug/m3	<7	<7	nm
1,1-Dichloroethane	ug/m3	<0.4	<0.4	nm
cis-1,2-Dichloroethene	ug/m3	<0.4	<0.4	nm
Hexane	ug/m3	4.0	4.6	14
Chloroform	ug/m3	0.11	0.11	0
Ethyl acetate	ug/m3	<7.2	<7.2	nm
Tetrahydrofuran	ug/m3	<0.29	<0.29	nm
2-Butanone (MEK)	ug/m3	<2.9	<2.9	nm
1,2-Dichloroethane (EDC)	ug/m3	0.061	0.077	23
1,1,1-Trichloroethane	ug/m3	<0.55	<0.55	nm
Carbon tetrachloride	ug/m3	0.40	0.43	7
Benzene	ug/m3	0.45	0.53	16
Cyclohexane	ug/m3	<6.9	<6.9	nm
1,2-Dichloropropane	ug/m3	<0.23	<0.23	nm
1,4-Dioxane	ug/m3	<0.36	<0.36	nm
2,2,4-Trimethylpentane	ug/m3	<4.7	<4.7	nm

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-01 (Duplicate) (continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<4.1	<4.1	nm
Heptane	ug/m3	<4.1	<4.1	nm
Bromodichloromethane	ug/m3	<0.067	<0.067	nm
Trichloroethene	ug/m3	0.15	0.19	24
cis-1,3-Dichloropropene	ug/m3	<0.45	<0.45	nm
4-Methyl-2-pentanone	ug/m3	<4.1	<4.1	nm
trans-1,3-Dichloropropene	ug/m3	<0.45	<0.45	nm
Toluene	ug/m3	<19	<19	nm
1,1,2-Trichloroethane	ug/m3	<0.055	<0.055	nm
2-Hexanone	ug/m3	<4.1	<4.1	nm
Tetrachloroethene	ug/m3	<6.8	<6.8	nm
Dibromochloromethane	ug/m3	<0.085	<0.085	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.077	<0.077	nm
Chlorobenzene	ug/m3	<0.46	<0.46	nm
Ethylbenzene	ug/m3	<0.43	<0.43	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.14	<0.14	nm
Nonane	ug/m3	<5.2	<5.2	nm
Isopropylbenzene	ug/m3	<2.5	<2.5	nm
2-Chlorotoluene	ug/m3	<5.2	<5.2	nm
Propylbenzene	ug/m3	<2.5	<2.5	nm
4-Ethyltoluene	ug/m3	<2.5	<2.5	nm
m,p-Xylene	ug/m3	1.4	1.7	19
o-Xylene	ug/m3	0.63	0.73	15
Styrene	ug/m3	<0.85	<0.85	nm
Bromoform	ug/m3	<2.1	<2.1	nm
Benzyl chloride	ug/m3	<0.052	<0.052	nm
1,3,5-Trimethylbenzene	ug/m3	<2.5	<2.5	nm
1,2,4-Trimethylbenzene	ug/m3	<2.5	<2.5	nm
1,3-Dichlorobenzene	ug/m3	<0.6	<0.6	nm
1,4-Dichlorobenzene	ug/m3	<0.23	<0.23	nm
1,2-Dichlorobenzene	ug/m3	<0.6	<0.6	nm
1,2,4-Trichlorobenzene	ug/m3	<0.74	<0.74	nm
Naphthalene	ug/m3	<0.26	<0.26	nm
Hexachlorobutadiene	ug/m3	<0.21	<0.21	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	113	70-130
Dichlorodifluoromethane	ug/m3	67	109	70-130
Chloromethane	ug/m3	28	117	70-130
F-114	ug/m3	94	108	70-130
Vinyl chloride	ug/m3	35	118	70-130
1,3-Butadiene	ug/m3	30	105	70-130
Butane	ug/m3	32	99	70-130
Bromomethane	ug/m3	52	100	70-130
Chloroethane	ug/m3	36	95	70-130
Vinyl bromide	ug/m3	59	114	70-130
Ethanol	ug/m3	25	85	70-130
Acrolein	ug/m3	31	123	70-130
Pentane	ug/m3	40	99	70-130
Trichlorofluoromethane	ug/m3	76	103	70-130
Acetone	ug/m3	32	109	70-130
2-Propanol	ug/m3	33	104	70-130
1,1-Dichloroethene	ug/m3	54	106	70-130
trans-1,2-Dichloroethene	ug/m3	54	98	70-130
Methylene chloride	ug/m3	94	91	70-130
t-Butyl alcohol (TBA)	ug/m3	41	108	70-130
3-Chloropropene	ug/m3	42	93	70-130
CFC-113	ug/m3	100	99	70-130
Carbon disulfide	ug/m3	42	94	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	101	70-130
Vinyl acetate	ug/m3	48	115	70-130
1,1-Dichloroethane	ug/m3	55	109	70-130
cis-1,2-Dichloroethene	ug/m3	54	102	70-130
Hexane	ug/m3	48	83	70-130
Chloroform	ug/m3	66	100	70-130
Ethyl acetate	ug/m3	49	101	70-130
Tetrahydrofuran	ug/m3	40	95	70-130
2-Butanone (MEK)	ug/m3	40	120	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	99	70-130
1,1,1-Trichloroethane	ug/m3	74	99	70-130
Carbon tetrachloride	ug/m3	85	99	70-130
Benzene	ug/m3	43	95	70-130
Cyclohexane	ug/m3	46	92	70-130
1,2-Dichloropropane	ug/m3	62	96	70-130
1,4-Dioxane	ug/m3	49	105	70-130
2,2,4-Trimethylpentane	ug/m3	63	99	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	106	70-130
Heptane	ug/m3	55	103	70-130
Bromodichloromethane	ug/m3	90	106	70-130
Trichloroethene	ug/m3	73	106	70-130
cis-1,3-Dichloropropene	ug/m3	61	109	70-130
4-Methyl-2-pentanone	ug/m3	55	106	70-130
trans-1,3-Dichloropropene	ug/m3	61	96	70-130
Toluene	ug/m3	51	103	70-130
1,1,2-Trichloroethane	ug/m3	74	107	70-130
2-Hexanone	ug/m3	55	101	70-130
Tetrachloroethene	ug/m3	92	113	70-130
Dibromochloromethane	ug/m3	120	120	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	128	70-130
Chlorobenzene	ug/m3	62	126	70-130
Ethylbenzene	ug/m3	59	113	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	110	70-130
Nonane	ug/m3	71	106	70-130
Isopropylbenzene	ug/m3	66	110	70-130
2-Chlorotoluene	ug/m3	70	110	70-130
Propylbenzene	ug/m3	66	112	70-130
4-Ethyltoluene	ug/m3	66	110	70-130
m,p-Xylene	ug/m3	120	113	70-130
o-Xylene	ug/m3	59	112	70-130
Styrene	ug/m3	58	108	70-130
Bromoform	ug/m3	140	118	70-130
Benzyl chloride	ug/m3	70	118	70-130
1,3,5-Trimethylbenzene	ug/m3	66	110	70-130
1,2,4-Trimethylbenzene	ug/m3	66	115	70-130
1,3-Dichlorobenzene	ug/m3	81	117	70-130
1,4-Dichlorobenzene	ug/m3	81	107	70-130
1,2-Dichlorobenzene	ug/m3	81	108	70-130
1,2,4-Trichlorobenzene	ug/m3	100	83	70-130
Naphthalene	ug/m3	71	88	70-130
Hexachlorobutadiene	ug/m3	140	112	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-16 1/5.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6.6	<6.6	nm
Dichlorodifluoromethane	ug/m3	<2.7	<2.7	nm
Chloromethane	ug/m3	<20	<20	nm
F-114	ug/m3	<3.8	<3.8	nm
Vinyl chloride	ug/m3	<1.4	<1.4	nm
1,3-Butadiene	ug/m3	<0.24	<0.24	nm
Butane	ug/m3	<13	<13	nm
Bromomethane	ug/m3	<13	<13	nm
Chloroethane	ug/m3	<15	<15	nm
Vinyl bromide	ug/m3	<2.4	<2.4	nm
Ethanol	ug/m3	180	190	5
Acrolein	ug/m3	<11	<11	nm
Pentane	ug/m3	<16	<16	nm
Trichlorofluoromethane	ug/m3	<12	<12	nm
Acetone	ug/m3	510	500	2
2-Propanol	ug/m3	670	670	0
1,1-Dichloroethene	ug/m3	<2.2	<2.2	nm
trans-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Methylene chloride	ug/m3	<190	<190	nm
t-Butyl alcohol (TBA)	ug/m3	<67	<67	nm
3-Chloropropene	ug/m3	<8.6	<8.6	nm
CFC-113	ug/m3	<4.2	<4.2	nm
Carbon disulfide	ug/m3	<34	<34	nm
Methyl t-butyl ether (MTBE)	ug/m3	<9.9	<9.9	nm
Vinyl acetate	ug/m3	<39	<39	nm
1,1-Dichloroethane	ug/m3	<2.2	<2.2	nm
cis-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Hexane	ug/m3	<19	<19	nm
Chloroform	ug/m3	<0.27	<0.27	nm
Ethyl acetate	ug/m3	<40	<40	nm
Tetrahydrofuran	ug/m3	<1.6	<1.6	nm
2-Butanone (MEK)	ug/m3	<16	<16	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.22	<0.22	nm
1,1,1-Trichloroethane	ug/m3	3.6	3.5	3
Carbon tetrachloride	ug/m3	<1.7	<1.7	nm
Benzene	ug/m3	2.4	2.3	4
Cyclohexane	ug/m3	<38	<38	nm
1,2-Dichloropropane	ug/m3	<1.3	<1.3	nm
1,4-Dioxane	ug/m3	<2	<2	nm
2,2,4-Trimethylpentane	ug/m3	<26	<26	nm

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-16 1/5.5 (Duplicate) (continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<23	<23	nm
Heptane	ug/m3	<23	<23	nm
Bromodichloromethane	ug/m3	<0.37	<0.37	nm
Trichloroethene	ug/m3	<0.59	<0.59	nm
cis-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
4-Methyl-2-pentanone	ug/m3	<23	<23	nm
trans-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
Toluene	ug/m3	<100	<100	nm
1,1,2-Trichloroethane	ug/m3	<0.3	<0.3	nm
2-Hexanone	ug/m3	<23	<23	nm
Tetrachloroethene	ug/m3	<37	<37	nm
Dibromochloromethane	ug/m3	<0.47	<0.47	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.42	<0.42	nm
Chlorobenzene	ug/m3	<2.5	<2.5	nm
Ethylbenzene	ug/m3	<2.4	<2.4	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.76	<0.76	nm
Nonane	ug/m3	<29	<29	nm
Isopropylbenzene	ug/m3	<14	<14	nm
2-Chlorotoluene	ug/m3	<28	<28	nm
Propylbenzene	ug/m3	<14	<14	nm
4-Ethyltoluene	ug/m3	<14	<14	nm
m,p-Xylene	ug/m3	<4.8	<4.8	nm
o-Xylene	ug/m3	<2.4	<2.4	nm
Styrene	ug/m3	<4.7	<4.7	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.28	<0.28	nm
1,3,5-Trimethylbenzene	ug/m3	<14	<14	nm
1,2,4-Trimethylbenzene	ug/m3	<14	<14	nm
1,3-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,4-Dichlorobenzene	ug/m3	<1.3	<1.3	nm
1,2-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,2,4-Trichlorobenzene	ug/m3	<4.1	<4.1	nm
Naphthalene	ug/m3	<1.4	<1.4	nm
Hexachlorobutadiene	ug/m3	<1.2	<1.2	nm

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	94	70-130
Dichlorodifluoromethane	ug/m3	67	94	70-130
Chloromethane	ug/m3	28	82	70-130
F-114	ug/m3	94	79	70-130
Vinyl chloride	ug/m3	35	80	70-130
1,3-Butadiene	ug/m3	30	82	70-130
Butane	ug/m3	32	78	70-130
Bromomethane	ug/m3	52	84	70-130
Chloroethane	ug/m3	36	78	70-130
Vinyl bromide	ug/m3	59	89	70-130
Ethanol	ug/m3	25	70	70-130
Acrolein	ug/m3	31	95	70-130
Pentane	ug/m3	40	114	70-130
Trichlorofluoromethane	ug/m3	76	101	70-130
Acetone	ug/m3	32	97	70-130
2-Propanol	ug/m3	33	98	70-130
1,1-Dichloroethene	ug/m3	54	110	70-130
trans-1,2-Dichloroethene	ug/m3	54	103	70-130
Methylene chloride	ug/m3	94	99	70-130
t-Butyl alcohol (TBA)	ug/m3	41	111	70-130
3-Chloropropene	ug/m3	42	110	70-130
CFC-113	ug/m3	100	104	70-130
Carbon disulfide	ug/m3	42	102	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	101	70-130
Vinyl acetate	ug/m3	48	113	70-130
1,1-Dichloroethane	ug/m3	55	114	70-130
cis-1,2-Dichloroethene	ug/m3	54	108	70-130
Hexane	ug/m3	48	98	70-130
Chloroform	ug/m3	66	110	70-130
Ethyl acetate	ug/m3	49	128	70-130
Tetrahydrofuran	ug/m3	40	114	70-130
2-Butanone (MEK)	ug/m3	40	115	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	110	70-130
1,1,1-Trichloroethane	ug/m3	74	105	70-130
Carbon tetrachloride	ug/m3	85	100	70-130
Benzene	ug/m3	43	102	70-130
Cyclohexane	ug/m3	46	93	70-130
1,2-Dichloropropane	ug/m3	62	89	70-130
1,4-Dioxane	ug/m3	49	95	70-130
2,2,4-Trimethylpentane	ug/m3	63	93	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	98	70-130
Heptane	ug/m3	55	96	70-130
Bromodichloromethane	ug/m3	90	98	70-130
Trichloroethene	ug/m3	73	98	70-130
cis-1,3-Dichloropropene	ug/m3	61	100	70-130
4-Methyl-2-pentanone	ug/m3	55	101	70-130
trans-1,3-Dichloropropene	ug/m3	61	85	70-130
Toluene	ug/m3	51	96	70-130
1,1,2-Trichloroethane	ug/m3	74	98	70-130
2-Hexanone	ug/m3	55	88	70-130
Tetrachloroethene	ug/m3	92	97	70-130
Dibromochloromethane	ug/m3	120	101	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	101	70-130
Chlorobenzene	ug/m3	62	124	70-130
Ethylbenzene	ug/m3	59	110	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	112	70-130
Nonane	ug/m3	71	109	70-130
Isopropylbenzene	ug/m3	66	113	70-130
2-Chlorotoluene	ug/m3	70	114	70-130
Propylbenzene	ug/m3	66	117	70-130
4-Ethyltoluene	ug/m3	66	111	70-130
m,p-Xylene	ug/m3	120	116	70-130
o-Xylene	ug/m3	59	114	70-130
Styrene	ug/m3	58	112	70-130
Bromoform	ug/m3	140	121	70-130
Benzyl chloride	ug/m3	70	115	70-130
1,3,5-Trimethylbenzene	ug/m3	66	113	70-130
1,2,4-Trimethylbenzene	ug/m3	66	117	70-130
1,3-Dichlorobenzene	ug/m3	81	116	70-130
1,4-Dichlorobenzene	ug/m3	81	107	70-130
1,2-Dichlorobenzene	ug/m3	81	108	70-130
1,2,4-Trichlorobenzene	ug/m3	100	80	70-130
Naphthalene	ug/m3	71	84	70-130
Hexachlorobutadiene	ug/m3	140	111	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Laboratory Code: 011481-01 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	<0.6	nm	0-20

Laboratory Code: 012022-20 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	<0.6	nm	0-20

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

012022

SAMPLE CHAIN OF CUSTODY ME 12-01-20

Page # 1 of 4

Report To Jacob Letts

Company GEI

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geiengineers.com

SAMPLERS (signature)	
PROJECT NAME & ADDRESS: C-1 Hangar & Precision Reg. Support (NO-CO)	PO #: 5531-014-01
NOTES:	INVOICE TO

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH ______
- Rush charges authorized by: ______

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-1_120120	01	20546	—	IA / SG	12/1/20	30	811	5	1622	X			X			
IA-2_120120	02	21437	—	IA / SG		30	806	6	1637	X			X			
IA-3_120120	03	18572	—	IA / SG		30	823	6	1626	X			X			
IA-4_120120	04	23229	—	IA / SG		30	820	6	1633	X			X			
IA-5_120120	05	32100	—	IA / SG		30	830	5	1615	X			X			
IA-6_120120	06	18562	—	IA / SG		29	834	7	1648	X			X			
IA-7_120120	07	18566	—	IA / SG		28	843	8	1651	X			X			
IA-8_120120	08	23230	6607	IA / SG		30	851	10	1609	X			X			

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

EWB

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Atakturk	GEI	12/1/20	1845
Received by:	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

012022

SAMPLE CHAIN OF CUSTODY ME 12-01-20

Page # 2 of 4

Report To Jacob Letts

Company

Address

City, State, ZIP See Pg 1.

Phone Email

SAMPLERS (signature) KRA	
PROJECT NAME & ADDRESS	PO #
C Hangar & Precision Reg. Support (SNOCO)	5531-004-01
NOTES:	INVOICE TO

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-9_120120	09	18577	7845	IA / SG	12/1/20	30	845	11	1606	X			X			
IA-10_120120	10	20543	7850	IA / SG		30	840	9	1605	X			X			
IA-11_120120	11	23231	7848	IA / SG		30	824	8	1600	X			X			
IA-12_120120	12	18568	7870	IA / SG		30	901	9	1616	X			X			
IA-13_120120	13	21453	7871	IA / SG		30	855	8	1614	X			X			
OA-1_120120	14	23233	—	IA / SG		30	921	8	1642	X			X			
OA-2_120120	15	18569	7847	IA / SG		30	912	9	1630	X			X			
SV-1_113020	16	3312	230	IA / SG	11/30/20	30	1340	5	1347	X			X	X		

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Seattle, WA 98119-2029
Ph. (206) 285-8282
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	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Katy Ataturk	GEI	12/1/20	1845
Received by:		BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:					
Received by:					

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

012022

SAMPLE CHAIN OF CUSTODY ME 12-01-20

Page # 3 of 4

Report To J. Letts

Company

Address See pg 1

City, State, ZIP

Phone Email

SAMPLERS (signature)	
PROJECT NAME & ADDRESS C-1 Hangar & Precision Reg Support (SNO-CO)	PO # 5531-014-01
NOTES:	INVOICE TO

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	MA-APH	Helium		Notes
SV-2_113020	17	3311	228	IA / SG	11/30/20	29	1442	5	1448	X			X	X		
SV-3_113020	18	3674	240	IA / SG	11/30/20	30	1506	5	1513	X			X	X		
SV-4_120120	19	2432	222	IA / SG	12/01/20	30	1040	5	1046	X			X	X		
SV-5_120120	20	3251	221	IA / SG		30	1057	5	1103	X			X	X		
SV-6_120120	21	3664	281	IA / SG		30	1114	5	1120	X			X	X		
SV-7_120120	22	3667	220	IA / SG		30	1135	5	1140	X			X	X		
SV-8_120120	23	3260	224	IA / SG		30	1157	5	1203	X			X	X		
SV-9_120120	24	2294	225	IA / SG		30	1232	5	1238	X			X	X		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ataktuk	GEI	12/1/20	1845
Received by:	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

012022
[redacted]

SAMPLE CHAIN OF CUSTODY ME 12-01-20
[redacted]

Page # 4 of 4

Report To J. Letts

Company

Address Seep 1.

City, State, ZIP

Phone ______ Email ______

SAMPLERS (signature) KRA

PROJECT NAME & ADDRESS	PO #
C-1 Hangar & Precision Reg. Support (SND-CO)	5531-014-01
NOTES:	INVOICE TO

TURNAROUND TIME
☑ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
SV-10_120120	25	4176	204	IA / SG	12/1/20	29	1331	5	1337	X			X	X		
SV-11_120120	26	3388	203	IA / SG	↓	27	1425	5	1431	X			X	X		
SV-12_120120	27	3254	206	IA / SG	↓	29	1514	4	1520	X			X	X		
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

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Seattle, WA 98119-2029
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SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Atakturk	GEI	12/1/20	1845
Received by:	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 012022 CLIENT GeoEngineers INITIALS/DATE: [initials] 12/01/20

If custody seals are present on cooler, are they intact? ☑ NA ☐ YES ☐ NO

Cooler/Sample temperature 16 °C

Were samples received on ice/cold packs? ☐ YES ☑ NO

How did samples arrive?

☑ Over the Counter
☐ Picked up by F&BI
☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0-1 days

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☑ YES ☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☑ Yes	☐ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☑ Yes	☐ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? (explain "no" answer below) ☑ YES ☐ NO

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☑ NA ☐ YES ☐ NO

Air Samples: Were any additional canisters received? ☐ NA ☑ YES ☐ NO

If Yes, number of unused 1L canisters ____

number of unused 6L canisters 1 (Can ID: 20549)

Explain "no" items from above (use the back if needed)

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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fbi@isomedia.com
www.friedmanandbruya.com

December 14, 2020

Jacob Letts, Project Manager
GeoEngineers
2101 4th Ave, Suite 950
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on December 1, 2020 from the C-1 Hangar&Precision Reg. Support (SNO-CO) PO 5530-014-01, F&BI 012023 project. There are 19 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR1214R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 1, 2020 by Friedman & Bruya, Inc. from the GeoEngineers C-1 Hangar&Precision Reg. Support (SNO-CO) PO 5530-014-01, F&BI 012023 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
012023 -01	IA-1_120120
012023 -02	IA-2_120120
012023 -03	IA-3_120120
012023 -04	IA-4_120120
012023 -05	IA-5_120120
012023 -06	IA-6_120120
012023 -07	IA-7_120120
012023 -08	IA-8_120120
012023 -09	IA-9_120120
012023 -10	IA-10_120120
012023 -11	IA-11_120120
012023 -12	IA-12_120120
012023 -13	IA-13_120120
012023 -14	OA-1_120120
012023 -15	OA-2_120120

Naphthalene (air) - Analysis Method TO-17

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-1_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-01 1/0.047
Date Analyzed:	12/08/20	Data File:	120819.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-2_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-02 1/0.034
Date Analyzed:	12/08/20	Data File:	120820.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-3_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-03 1/0.035
Date Analyzed:	12/08/20	Data File:	120821.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-4_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-04 1/0.036
Date Analyzed:	12/08/20	Data File:	120822.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.10

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-5_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-05 1/0.038
Date Analyzed:	12/08/20	Data File:	120823.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.12

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-6_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-06 1/0.039
Date Analyzed:	12/09/20	Data File:	120824.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-7_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-07 1/0.041
Date Analyzed:	12/09/20	Data File:	120825.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.10

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-8_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-08 1/0.039
Date Analyzed:	12/09/20	Data File:	120826.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.12

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-9_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-09 1/0.038
Date Analyzed:	12/09/20	Data File:	120827.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.15

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-10_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-10 1/0.038
Date Analyzed:	12/09/20	Data File:	120828.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.14

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-11_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-11 1/0.036
Date Analyzed:	12/09/20	Data File:	120829.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.13

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-12_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-12 1/0.040
Date Analyzed:	12/09/20	Data File:	120830.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-13_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-13 1/0.039
Date Analyzed:	12/09/20	Data File:	120831.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.13

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	OA-1_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-14 1/0.043
Date Analyzed:	12/09/20	Data File:	120832.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.061

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	OA-2_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-15 1/0.041
Date Analyzed:	12/09/20	Data File:	120833.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.058

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	5530-014-01, F&BI 012023
Date Collected:	Not Applicable	Lab ID:	00-2765 mb
Date Analyzed:	12/08/20	Data File:	120810.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	<1

Date of Report: 12/14/20
Date Received: 12/01/20
Project: C-1 Hangar&Precision Reg. Support (SNO-CO) PO 5530-014-01, F&BI 012023

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	ng/tube	50	101	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

012023

SAMPLE CHAIN OF CUSTODY ME 12-01-20

CI2

Page # 1 of 2

Report To Jacob Letts

Company GeoEngineers

Address 2101 4th Ave suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geoengineers.com

SAMPLERS (signature) [signature]

PROJECT NAME	PO #
G1 Hangar & Precision Reg. support (SND-CO)	5530-014-01
REMARKS	INVOICE TO

TURNAROUND TIME
- ☑ Standard Turnaround
- ☐ RUSH______
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other______

Sample Name	Lab ID	Tube ID	Collection Information: Sample Date	Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	(L) Volume Sampled	TO-17 Analytes Requested: Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	TPH-DRO	2-Propanol		Notes
1A-1_120120	01	311365	12/1/20	100	100	~~811~~ 925	1300	21.5					X				
1A-2_120120	02	309148	↓	100	100	806	1303	29.7					X				
1A-3_120120	03	311347		100	100	823	1306	28.3					X				
1A-4_120120	04	322155		100	100	820	1256	27.6					X				
1A-5_120120	05	311344		100	100	830	1254	26.4					X				
1A-6_120120	06	309141		100	100	834	1252	25.8					X				
1A-7_120120	07	322173		100	100	843	1245	24.2					X				
1A-8_120120	08	311345		100	100	851	1310	25.9					X				
1A-9_120120	09	322157	↓	100	100	845	1305	26.0					X				

AP

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Katy Ataktürk	GEI	12/1/20	1845
Received by:	[signature]	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Samples received at 4 °C

012023

SAMPLE CHAIN OF CUSTODY ME 12-01-20

Page # 2 of 2 C12

Report To Jacob Letts

Company GEI

Address See pg 1.

City, State, ZIP

Phone Email JLetts@geiengineers.com

SAMPLERS (signature)

PROJECT NAME	PO #
C-1 Hangar & Precision Reg. support (SNO-CO)	5530-014-01
REMARKS	INVOICE TO

TURNAROUND TIME
- ☑ Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

			Collection Information						TO-17 Analytes Requested								
Sample Name	Lab ID	Tube ID	Sample Date	Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	(L) Volume Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	TPH-DRO	2-Propanol		Notes
1A-10_120120	10	435241	12/1/20	100	100	840	1302	26.2					X				
1A-11_120120	11	453004		100	100	824	1258	27.4					X				
1A-12_120120	12	333885		100	100	901	1312	25.1					X				
1A-13_120120	13	311363		100	100	855	1310	25.5					X				
OA-1_120120	14	309143		100	100	921	1311	23.0					X				
OA-2_120120	15	333889		100	100	912	1318	24.6					X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ataleturk	GEI	12/1/20	1845
Received by:	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 012023 CLIENT Geo Engineers INITIALS/DATE: R 12/01/20

If custody seals are present on cooler, are they intact? ☑ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C

Were samples received on ice/cold packs? ☑ YES ☐ NO

How did samples arrive?
- ☑ Over the Counter
- ☐ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0 days

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☑ YES ☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☑ Yes	☐ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☑ Yes	☐ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? (explain "no" answer below) ☑ YES ☐ NO

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☑ NA ☐ YES ☐ NO

Air Samples: Were any additional canisters received? ☐ NA ~~☐ YES~~ AWB 12/2 ☑ NO

If Yes, number of unused 1L canisters ______

number of unused 6L canisters ______

Explain "no" items from above (use the back if needed)

2 extra tubes not used

APPENDIX C
Phase II Environmental Site Assessment Report

Phase II Environmental Site Assessment

Snohomish County Airport – C-1 Hangar and C1 Building
3220 -- 100th Street SW, Suite A
Everett, Washington

for
Snohomish County Airport

June 1, 2021

GeoEngineers
Earth Science + Technology

Phase II Environmental Site Assessment

Snohomish County Airport – C-1 Hangar and C1 Building
3220 – 100th Street SW, Suite A
Everett, Washington

for
Snohomish County Airport

June 1, 2021

GeoEngineers

1101 Fawcett Ave, Suite 200
Tacoma, Washington 98402
253.383.4940

Phase II Environmental Site Assessment

Snohomish County Airport – C-1 Hangar and C-1 Building
3220 100th Street SW

Everett, Washington

File No. 5530-014-01

June 1, 2021

Prepared for:

Snohomish County Airport
3220 – 100th Street SW, Suite A
Everett, Washington 98204-1303

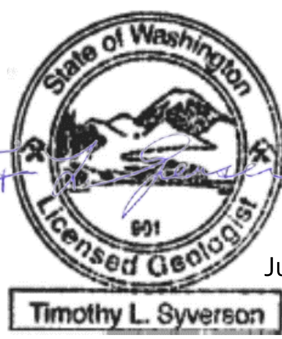
Attention: Andrew Rardin

Prepared by:

GeoEngineers, Inc.
1101 Fawcett Ave, Suite 200
Tacoma, Washington 98402
253.383.4940

Jacob Letts, LG, LHG
Project Manager

Tim Syverson, LHG
Associate Environmental Geologist



June 1, 2021

KRA:JML:TS:lw:leh

GeoEngineers

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1.0 INTRODUCTION

This report presents the results of the Phase II Environmental Site Assessment (ESA) completed in May 2021 for the Snohomish County Airport at Paine Field's C-1 Hangar and C-1 Building (Site) located at 3200 – 100th Street SW in Everett, Washington (Figure 1). The purpose of the Phase II ESA was to evaluate soil and groundwater conditions at the C-1 Hangar and C-1 Building properties, including locations where contaminants of concern were detected in soil vapor during the Vapor Intrusion (VI) Evaluation completed in 2020 (GeoEngineers, 2021), in accordance with applicable Model Toxics Control Act (MTCA) regulatory criteria and guidance. The building layout and Phase II ESA sample locations are shown on Figure 2.

The C-1 Hangar is approximately 1.5-acres and developed with an approximately 53,000 square-foot aircraft hangar and adjacent covered outdoor space referenced as the Hangar Annex. The C-1 Hangar was last leased to Aviation Technical Services, Inc. (ATS) starting on April 1, 1999. The Hangar Annex was constructed and added to the lease in September 2011, and both leases were terminated on December 31, 2020. The space was used for airplane storage, general workshop, and office spaces during the time of the lease. The C-1 Hangar Property is not listed in Ecology's contaminated sites database.

The C-1 Building property is located adjacent to the C-1 Hangar and is approximately 0.85-acres and consists of one approximately 25,000 square-foot building and an adjacent 12,000 square-foot exterior storage yard. The C-1 Building was last occupied by Precision Engines starting in 1997. The C-1 Building Property is listed by Ecology as the Precision Engines LLC site (Cleanup Site ID: 3526; Facility/Site ID: 84613634) with status listed as "cleanup started" and has been the subject of investigations and focused remedial actions since at least 1998 (AGI, 1998; URS, 2001; HWA, 2018). The C-1 Building is currently vacant with remnant equipment left in place from the previous tenants (i.e., HVAC infrastructure such as vent hoods, general plumbing fixtures, and work benches).

2.0 POTENTIAL CHEMICALS OF CONCERN AND SCREENING LEVELS

Based on the findings of prior investigations and applicable MTCA criteria, the chemicals of concern (COCs) identified for evaluation during this Phase II ESA included petroleum hydrocarbons, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and metals. The media evaluated for the Phase II ESA were soil and groundwater. MTCA Method A cleanup levels for unrestricted land use were used for screening purposes for the Phase II ESA; published values for natural background metals concentrations in Puget Sound soils were also used for comparison purposes. Where no MTCA Method A values exist, Method B cleanup levels were used when available. The corresponding MTCA cleanup levels are presented in Tables 1 through 4. The MTCA cleanup levels are considered appropriate and conservative screening levels for the purpose of this Phase II ESA to evaluate and document Site conditions and assess the potential need for further action relative to protection of human health and the environment. Final applicable cleanup standards will be determined in accordance with MTCA requirements including consideration of the historical and current industrial setting and use of the Site.

3.0 PHASE II ESA SCOPE OF SERVICES

A total of 15 explorations (soil borings [C-1 DP-1 through DP-15]) were completed in March 2021 to assess potential impacts to soil and groundwater at the Site. In addition, a focused geophysical (i.e., ground-penetrating radar [GPR]) survey was conducted to assess the potential presence of underground utilities and other potential physical obstructions at the selected sample locations.

The Phase II ESA scope included the following:

1. Communications with Paine Field relative to project background, Site access, and schedule.
2. Prepare a sampling and analysis plan (SAP) and site health and safety plan prior to the start of field work and submit to the County for review and comment.
3. Mark proposed exploration locations and notify service providers to mark utilities in the vicinity of the proposed exploration locations. Subcontract a private utility locate service to locate underground utilities on the property using GPR technologies.
4. Subcontract a concrete coring company to core 4-inch holes in the C-1 Hangar and C-1 Building concrete slabs at each exploration location.
5. Observe direct-push drilling of 15 borings to depths up to 15 feet or to refusal and obtain continuous core soil samples.
6. Field screen soil samples from the borings for evidence of petroleum hydrocarbons and VOCs using visual, water sheen and headspace vapor screening methods. Visually classify the samples in general accordance with ASTM D 2488 and maintain a detailed log of each boring.
7. Submit selected soil samples for laboratory chemical analysis for the following analyses: gasoline-range total petroleum hydrocarbons by NWTPH-Gx (including mineral spirits); diesel- and heavy oil-range total petroleum hydrocarbons by NWTPH-Dx Method; VOCs by EPA 8260; PCBs by EPA 8082; and metals (RCRA 8) by EPA Method 6000/7000 series.
8. Collect grab groundwater samples from the direct-push borings if sufficient groundwater is encountered during drilling. Submit groundwater samples for the following analyses: gasoline-range total petroleum hydrocarbons by NWTPH-Gx (including mineral spirits); diesel- and heavy oil-range total petroleum hydrocarbons by NWTPH-Dx Method; VOCs by EPA 8260; PCBs by EPA 8082; and total and dissolved metals (RCRA 8) by EPA Method 6000/7000 series.
9. Observe the restoration of the concrete slab by the subcontracted concrete coring company.
10. Temporarily store investigation-derived wastes on site pending characterization and appropriate off-site disposal at a permitted facility.

4.0 PHASE II ESA FINDINGS

4.1. General

The Phase II ESA investigation was conducted in March 2021. The focused GPR survey was completed on March 29, 2021 prior to concrete coring and exploratory drilling. The Phase II ESA explorations consisted of 15 direct push explorations completed at the approximate locations shown on Figure 2 on March 30 and 31, 2021. A representative of GeoEngineers observed and documented subsurface conditions during drilling and obtained soil and groundwater samples for field screening and chemical analysis. Exploration and sampling field procedures and the exploration logs are presented in Appendix A.

4.2. Focused Concrete Survey

C-N-I Locates, Ltd. performed the focused GPR survey to identify possible underground piping, rebar, and estimate concrete thickness for coring purposes. Each proposed boring location was also cleared for conductible utilities using a hand-held radio detector prior to concrete coring and drilling activities.

No GPR responses indicative of subsurface structures were observed in the survey areas. The only GPR response observed in this area was attributed to a subsurface stormwater drain that is portrayed on historic utility maps.

4.3. Phase II Environmental Site Assessment

Direct-push borings C-1 DP-1 through DP-15 were completed on March 30 and 31, 2021. Two borings (C-1 DP-10 and DP-11) were completed to approximately 4 feet below ground surface (bgs); the remaining borings hit refusal at depths ranging between 7 and 15 feet bgs. Soil and groundwater conditions encountered in the explorations are described below. The exploration locations were targeted based on the findings of prior investigations and distributed to assess the footprint of the property. Phase II ESA field procedures are described in Appendix A. Copies of the chemical analytical laboratory reports are provided in Appendix C. The following matrix presents the soil and groundwater sampling and analysis rationale for the Phase II ESA.

Direct Push (DP) Boring ID	General Description of Exploration Location	Sampling Rationale	Contaminants of Concern (COCs) and Chemical Analyses
C-1 DP-1 through DP-4	Western portion of the Site within the C-1 Hangar.	Evaluate soil and groundwater where COCs were detected in soil vapor in 2020 and adjacent to a storm drain and compressor shed north of the C-1 Hangar.	▪ Petroleum hydrocarbons by NWTPH-Gx and NWTPH-Dx ▪ VOCs by EPA Method 8260 ▪ Metals (MTCA 5) by EPA 6000/7000 series ▪ PCBs by EPA Method 8082
C-1 DP-5 through DP-11	Central C-1 Hangar spatially distributed locations.	Evaluate soil and groundwater in areas where COCs were detected in soil vapor in 2020 and for lateral coverage across the central and eastern portion of the C-1 Hangar.	▪ Petroleum hydrocarbons by NWTPH-Gx and NWTPH-Dx ▪ VOCs by EPA Method 8260 ▪ Metals (MTCA 5) by EPA 6000/7000 series ▪ PCBs by EPA Method 8082
C-1 DP-12 through DP-14	Southeast portion of the Site downgradient of C-1 Building	Evaluate soil and groundwater in the Hangar Annex and in outside areas adjacent to locations where COCs were detected in soil and/or groundwater outside the C-1 Building.	▪ Petroleum hydrocarbons by NWTPH-Gx and NWTPH-Dx ▪ VOCs by EPA Method 8260 ▪ Metals (MTCA 5) by EPA 6000/7000 series ▪ PCBs by EPA Method 8082
C-1 DP-15	Northeastern portion of the Site within C-1 Building footprint	Evaluate soil and groundwater in the area where COCs were detected in soil vapor at the C-1 Building (HWA, 2018).	▪ Petroleum hydrocarbons by NWTPH-Gx and NWTPH-Dx ▪ VOCs by EPA Method 8260 ▪ Metals (MTCA 5) by EPA 6000/7000 series ▪ PCBs by EPA Method 8082

4.3.1. Soil Conditions

Soil conditions encountered at the Site generally consisted of a fill layer up to approximately 4 to 10 feet thick overlying dense glacial deposits to the total depths explored. The fill consisted of sand, silty sand or sand with silt, with varying amounts of gravel. The fill is underlain by native soil consisting of sand with interbedded silt and varying gravel to the maximum depth explored of 15 feet bgs. Exploration logs are presented in Appendix A.

4.3.2. Groundwater Conditions

At locations where groundwater was encountered (only in borings C-1 DP2, C-1 DP3, C-1 DP13, and C-1 DP14), a grab groundwater sample was collected for laboratory chemical analysis as part of a screening-level evaluation of groundwater quality beneath the Site. No evidence of groundwater was observed in the remaining borings. Based on available information, the area/regional groundwater flow direction at the Site is to the west toward Puget Sound (HWA, 2018), and the occurrence and flow of shallow perched water varies locally.

4.4. Soil Field Screening

Soil from the explorations was field screened for physical evidence of petroleum hydrocarbons and VOCs using visual, water sheen and headspace vapor screening methods. In general field screening did not indicate evidence of potential contamination with the exception of soil headspace measurements using a photoionizing detector (PID) at varying depths in 2 of the 15 explorations (C-1 DP-4 and DP-15). Soil samples that exhibited possible field screening evidence of potential contamination were selected for chemical analysis. Field screening results are shown on the exploration logs and field screening results for samples that were chemically analyzed are presented in Table 1.

4.5. Soil Chemical Analytical Results

Twenty-nine soil samples from the Phase II ESA explorations were submitted for laboratory chemical analysis for petroleum hydrocarbons, VOCs, PCBs, and RCRA metals. The only soil sample locations with detected concentrations of COCs exceeding the applicable MTCA Cleanup Levels (C-1 DP-15-4 and -7) are shown on Figure 2. A summary of the soil analytical data is presented below and the data are included in Tables 1 through 3.

4.5.1. Petroleum Hydrocarbons and BTEX (Table 1)

- Gasoline-range total petroleum hydrocarbons were detected in 2 of 29 soil samples obtained from the western portion of the C-1 Hangar and from within the C-1 Building at concentrations of 7.50 and 51.0 milligrams per kilogram [mg/kg]. The detected gasoline-range total petroleum hydrocarbons were all less than the MTCA cleanup level of 100 mg/kg when benzene is not present. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected at concentrations greater than the laboratory reporting limits in any of the soil samples.
- Diesel- and Heavy oil-range total petroleum hydrocarbons were not detected at concentrations greater than the laboratory reporting limits in any of soil samples.

4.5.2. VOCs and PCBs (Table 2)

- Trichloroethylene (TCE) was detected in soil samples from C-1 DP-15, located within the C-1 Building, at depths of 4 feet and 7 feet bgs. The detected concentrations in the two samples were 0.140 and 0.620, and both exceed the MTCA Method B Cleanup Level of 0.03 mg/kg.
- Tetrachloroethylene (PCE) was detected in the soil sample from C-1 DP-15 at 4 feet bgs at a concentration of 0.0280 mg/kg, which is less than the MTCA Method B Cleanup Level of 0.05 mg/kg.
- The following VOCs were detected in the sample from C-1 DP-15 at 4 feet bgs at concentrations less than the MTCA Method A or B Cleanup Levels: 1,1,1-Trichloroethane, 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, and 2-Chlorotoluene.
- The following VOCs were detected in the sample from C-1 DP-4 at 7 feet bgs at concentrations less than the MTCA Method A or B Cleanup Levels: 1,2,4-Trimethylbenzene, 1,2-Dichloroethane, and 1,3,5-Trimethylbenzene.

4.5.3. Metals (Table 3)

- Arsenic, barium, chromium, and lead were detected in all 29 soil samples at concentrations less than the MTCA Method A or B cleanup levels and the detected concentrations were generally near or below naturally occurring background metals concentrations in Puget Sound Soils (Ecology, 1994). The soil sample from C-1 DP-1 at 11 feet bgs, contained a chromium concentration of 65.7 mg/kg, which is approximately 1.4 times the natural background concentration in Puget Sound Soils; a follow-up analysis was completed for hexavalent chromium, which was not detected in the sample.
- Cadmium, mercury, selenium, and silver were not detected at concentrations greater than the laboratory reporting limits in the 29 soil samples analyzed.

4.6. Groundwater Chemical Analytical Results (Table 4)

Grab groundwater samples were collected from the four boring (C-1 DP-2, C-1 DP-3, C-1 DP-13, and C-1 DP-14) where groundwater was encountered during drilling. The grab groundwater samples were collected using low-flow sampling methods and submitted for laboratory chemical analysis for the following: petroleum hydrocarbons, VOCs, PCBs, and Total and Dissolved RCRA metals. A summary of COCs detected in groundwater is presented below and in Table 4. The detected concentrations of COCs in groundwater exceeding the applicable MTCA Cleanup Levels are shown on Figure 2.

- Diesel- and heavy oil-range total petroleum hydrocarbons were detected at concentrations greater than the laboratory reporting limits in the groundwater sample obtained from boring C-1 DP-3 at concentrations of 110 micrograms per liter (µg/L) and 330 µg/L, respectively. The detected concentrations were less than the MTCA Method A cleanup levels for diesel and heavy oil (500 µg/L).
- VOCs were not detected in any of the groundwater samples at concentrations greater than the laboratory reporting limits with the exception of Methylene Chloride, which was detected in the groundwater sample obtained from boring C-1 DP2; however, the detection of methylene chloride in this sample was the result of laboratory contamination, as qualified by the analytical laboratory (Appendix A).

- Dissolved arsenic was detected in the groundwater sample from boring C-1 DP14 at a concentration of 9.53 µg/L, which exceeds the MTCA Method B cleanup level of 5 µg/L. Total arsenic concentrations exceeded the MTCA Method B cleanup level in all four groundwater grab samples with concentrations ranging from 6.62 to 34.7 µg/L; however, turbidity levels were greater than 100 NTU in each sample, which is common for grab samples collected of shallow perched groundwater.
- Total chromium was detected in the groundwater samples collected from borings C-1 DP-2, C-1 DP-3, and C-1 DP14 at concentrations ranging from 69.2 to 210 µg/L, which exceed the MTCA Method B cleanup level of 50 µg/L.
- Total lead was detected in the groundwater samples obtained from borings C-1 DP-2 and C-1 DP-3 at concentrations of 24.6 and 120 µg/L, which exceed the MTCA Method B cleanup level of 15 µg/L.

5.0 LIMITATIONS

This report has been prepared for use by Snohomish County Airport and their authorized agents. This report may be provided to regulatory agencies for review. No third parties should place legal reliance on this report. GeoEngineers has performed this Phase II ESA in accordance with the scope and limitations of our Agreement with Snohomish County dated February 2, 2021. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix C titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

6.0 REFERENCES

AGI Technologies (AGI), 1998. Findings Update, Phase 2 Environmental Site Assessment, Precision Aviation Products Corporation, dated August 31, 1998.

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TABLES

Table 1

Soil Chemical Analytical Results[1]

Petroleum Hydrocarbons and BTEX

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	Field Screening Results[3]		BTEX[4] (mg/kg)				Total Petroleum Hydrocarbons (mg/kg)[6]		
			Headspace Vapors (ppm)	Sheen	Benzene	Toluene	Ethylbenzene	Xylenes[5]	Gasoline Range	Diesel Range	Lube Oil Range
C-1 DP1-3.5	3/31/2021	3.5	3.1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP1-11.0	3/31/2021	11.0	8.9	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP2-5.0	3/31/2021	5.0	3.8	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP2-11.0	3/31/2021	11.0	4.3	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP3-4.0	3/30/2021	4.0	0.7	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP3-7.0	3/30/2021	7.0	1,684	MS	0.005 U	0.005 U	0.005 U	0.01 U	**7.5**	50 U	250 U
C-1 DP4-3.5	3/30/2021	3.5	<1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP4-5.0	3/30/2021	5.0	3.7	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP4-7.0	3/30/2021	7.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP5-3.0	3/30/2021	3.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP5-6.0	3/30/2021	6.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP6-3.0	3/31/2021	3.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP6-6.0	3/31/2021	6.0	<1	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP7-4.0	3/31/2021	4.0	3.0	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP7-9.0	3/31/2021	9.0	4.6	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP8-4.5	3/31/2021	4.5	1.9	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP8-9.0	3/31/2021	9.0	4.9	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP9-3.0	3/31/2021	3.0	3.4	NS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP9-7.5	3/31/2021	7.5	4.8	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP10-4.0	3/31/2021	4.0	3.7	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP11-4.0	3/31/2021	4.0	2.6	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP12-3.0	3/31/2021	3.0	2.2	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP12-8.0	3/31/2021	8.0	1.1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP13-2.0	3/30/2021	2.0	2.5	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP13-5.0	3/30/2021	5.0	2.3	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP14-5.0	3/30/2021	5.0	<1	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP14-10.0	3/30/2021	10.0	2.3	MS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
C-1 DP15-4.0	3/30/2021	4.0	218	MS	0.005 U	0.005 U	0.005 U	0.01 U	**51**	50 U	250 U
C-1 DP15-7.0	3/30/2021	7.0	1.9	SS	0.005 U	0.005 U	0.005 U	0.01 U	5 U	50 U	250 U
MTCA Method A Cleanup Level for Unrestricted Land Use					0.03	7	6	9	100[7]	2,000[8]	

Notes:

[1] Chemical analyses performed by Friedman and Bruya, Inc. of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix B.

[2] The approximate sample locations are shown in Figure 2.

[3] Field screening methods are described in Appendix A.

[4] BTEX compounds were analyzed by EPA Method 8260C.

[5] Sum of m,p-xylene and o-xylene. Where xylenes are non-detect, the highest laboratory reporting limit is shown.

[6] Petroleum hydrocarbons analyzed by NWTPH-Gx and NWTPH-Dx.

[7] Cleanup level when benzene is not present.

[8] Cleanup level is the sum of diesel- and oil-range petroleum hydrocarbons.

bgs = below ground surface

mg/kg = milligrams per kilogram

U = Analyte not detected at a concentration greater than the listed reporting limit.

NS = No sheen

SS = Slight sheen

MS = Moderate sheen

ppm = parts per million

Bolded value indicates analyte detected at the concentration shown.

Table 2

Soil Chemical Analytical Results[1]

Volatile Organic Compounds (VOCs) and Polychlorinated Biphenyls (PCBs)

C-1 Hangar and Building, Snohomish County Airport
Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	VOCs[3] (mg/kg)												Polychlorinated Biphenyls[4] (mg/kg)
			1,1,1-Trichloroethane	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichlorobenzene	1,2-Dichloroethane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chlorotoluene	Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	
C-1 DP1-3.5	03/31/21	3.5	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP1-11.0	03/31/21	11.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP2-5.0	03/31/21	5.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP2-11.0	03/31/21	11.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP3-4.0	03/30/21	4.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP3-7.0	03/30/21	7.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP4-3.5	03/30/21	3.5	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP4-5.0	03/30/21	5.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP4-7.0	03/30/21	7.0	0.005 U	0.025 U	0.025 U	**0.027**	0.005 U	**0.013**	**0.022**	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP5-3.0	03/30/21	3.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP5-6.0	03/30/21	6.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP6-3.0	03/31/21	3.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP6-6.0	03/31/21	6.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP7-4.0	03/31/21	4.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP7-9.0	03/31/21	9.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP8-4.5	03/31/21	4.5	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP8-9.0	03/31/21	9.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP9-3.0	03/31/21	3.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP9-7.5	03/31/21	7.5	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP10-4.0	03/31/21	4.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP11-4.0	03/31/21	4.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP12-3.0	03/31/21	3.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP12-8.0	03/31/21	8.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP13-2.0	03/30/21	2.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP13-5.0	03/30/21	5.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP14-5.0	03/30/21	5.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP14-10.0	03/30/21	10.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.02 U
C-1 DP15-4.0	03/30/21	4.0	**0.04**	**0.038**	**0.055**	0.005 U	**0.04**	0.01 U	0.005 U	**0.65**	**1.7**	**0.052**	**0.028**	**0.620**	0.02 U
C-1 DP15-7.0	03/30/21	7.0	0.005 U	0.025 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.140**	0.02 U
MTCA Method A or B Cleanup Level for Unrestricted Land Use[5]			2	NE	34.0	NE	7200	11	800	NE	190	1600	0.05	0.03	1

Notes:

[1] Chemical analyses performed by Friedman and Bruya, Inc. of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix B.

[2] The approximate exploration locations are shown in Figure 2.

[3] Volatiles were analyzed by EPA Method 8260C. Only volatiles that were detected are listed; all other volatiles are non-detect for all samples. BTEX results are presented in Table 1.

[4] PCBs analyzed by EPA Method 8082A.

[5] Cleanup level shown is the MTCA Method A cleanup level for unrestricted land use. If no MTCA Method A value is available, the most conservative MTCA Method B cleanup level is presented.

bgs = below ground surface

mg/kg = milligrams per kilogram

U = Analyte not detected at a concentration greater than the listed reporting limit.

NA = Not available

Bolded value indicates analyte detected at the concentration shown.

Gray shaded value indicates the detected concentration exceeded the applicable cleanup level.

Table 3

Soil Chemical Analytical Results[1]

Metals

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

Sample Identification[2]	Sample Date	Sample Depth (feet bgs)	Total Metals[3] (mg/kg)							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
C-1 DP1-3.5	3/31/2021	3.5	**2.69**	**42.7**	1.00 U	**19.1**	**2.0**	1.00 U	1.00 U	1.00 U
C-1 DP1-11.0	3/31/2021	11.0	**2.92**	**50.5**	1.00 U	**65.7** [4]	**2.5**	1.00 U	1.00 U	1.00 U
C-1 DP2-5.0	3/31/2021	5.0	**4.74**	**34.5**	1.00 U	**21.1**	**1.74**	1.00 U	1.00 U	1.00 U
C-1 DP2-11.0	3/31/2021	11.0	**2.31**	**36.0**	1.00 U	**21.1**	**1.69**	1.00 U	1.00 U	1.00 U
C-1 DP3-4.0	3/30/2021	4.0	**2.25**	**26.0**	1.00 U	**23.3**	**4.86**	1.00 U	1.00 U	1.00 U
C-1 DP3-7.0	3/30/2021	7.0	**1.83**	**41.6**	1.00 U	**22.4**	**2.39**	1.00 U	1.00 U	1.00 U
C-1 DP4-3.5	3/30/2021	3.5	**1.78**	**50.1**	1.00 U	**20.3**	**2.14**	1.00 U	1.00 U	1.00 U
C-1 DP4-5.0	3/30/2021	5.0	**2.59**	**44.6**	1.00 U	**21.9**	**2.09**	1.00 U	1.00 U	1.00 U
C-1 DP4-7.0	3/30/2021	7.0	**1.83**	**35.6**	1.00 U	**19.4**	**1.62**	1.00 U	1.00 U	1.00 U
C-1 DP5-3.0	3/30/2021	3.0	**1.79**	**40.5**	1.00 U	**18.0**	**1.71**	1.00 U	1.00 U	1.00 U
C-1 DP5-6.0	3/30/2021	6.0	**2.08**	**48.0**	1.00 U	**24.6**	**2.37**	1.00 U	1.00 U	1.00 U
C-1 DP6-3.0	3/31/2021	3.0	**2.49**	**42.3**	1.00 U	**16.0**	**1.83**	1.00 U	1.00 U	1.00 U
C-1 DP6-6.0	3/31/2021	6.0	**2.63**	**48.0**	1.00 U	**20.0**	**2.13**	1.00 U	1.00 U	1.00 U
C-1 DP7-4.0	3/31/2021	4.0	**3.01**	**40.5**	1.00 U	**18.2**	**1.95**	1.00 U	1.00 U	1.00 U
C-1 DP7-9.0	3/31/2021	9.0	**2.01**	**38.3**	1.00 U	**18.2**	**1.75**	1.00 U	1.00 U	1.00 U
C-1 DP8-4.5	3/31/2021	4.5	**2.1**	**41.0**	1.00 U	**20.4**	**2.05**	1.00 U	1.00 U	1.00 U
C-1 DP8-9.0	3/31/2021	9.0	**2.93**	**47.2**	1.00 U	**18.8**	**2.22**	1.00 U	1.00 U	1.00 U
C-1 DP9-3.0	3/31/2021	3.0	**2.96**	**44.7**	1.00 U	**18.3**	**2.09**	1.00 U	1.00 U	1.00 U
C-1 DP9-7.5	3/31/2021	7.5	**2.36**	**44.2**	1.00 U	**20.8**	**2.36**	1.00 U	1.00 U	1.00 U
C-1 DP10-4.0	3/31/2021	4.0	**3.27**	**43.6**	1.00 U	**19.7**	**2.04**	1.00 U	1.00 U	1.00 U
C-1 DP11-4.0	3/31/2021	4.0	**2.98**	**46.5**	1.00 U	**18.3**	**2.22**	1.00 U	1.00 U	1.00 U
C-1 DP12-3.0	3/31/2021	3.0	**2.97**	**44.9**	1.00 U	**21.5**	**2.31**	1.00 U	1.00 U	1.00 U
C-1 DP12-8.0	3/31/2021	8.0	**3.02**	**39.3**	1.00 U	**21.4**	**2.11**	1.00 U	1.00 U	1.00 U
C-1 DP13-2.0	3/30/2021	2.0	**3.11**	**82.9**	1.00 U	**19.2**	**1.9**	1.00 U	1.00 U	1.00 U
C-1 DP13-5.0	3/30/2021	5.0	**3.35**	**40.7**	1.00 U	**14.7**	**1.59**	1.00 U	1.00 U	1.00 U
C-1 DP14-5.0	3/30/2021	5.0	**3.02**	**68.0**	1.00 U	**22.5**	**2.43**	1.00 U	1.00 U	1.00 U
C-1 DP14-10.0	3/30/2021	10.0	**1.71**	**32.5**	1.00 U	**16.4**	**1.31**	1.00 U	1.00 U	1.00 U
C-1 DP15-4.0	3/30/2021	4.0	**3.33**	**61.4**	1.00 U	**25.8**	**2.44**	1.00 U	1.00 U	1.00 U
C-1 DP15-7.0	3/30/2021	7.0	**3.24**	**56.5**	1.00 U	**19.6**	**2.15**	1.00 U	1.00 U	1.00 U
MTCA Method A or B Cleanup Level			20	1,600 [5]	2	2,000 [5]	250	2	400 [5]	400 [5]
Naturally occurring background metals in Puget Sound Soils[6]			7	NA	1	48	24	0.07	NA	NA

Notes:

[1] Chemical analyses performed by Friedman and Bruya, Inc. of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix B.

[2] The approximate exploration locations are shown in Figure 2.

[3] Metals analyzed by EPA Method 6020B.

[4] Sample was analyzed for hexavalent chromium using EPA method 7196; hexavalent chromium was not detected and the cleanup level presented is for chromium III, which is the most common form of chromium.

[5] Cleanup level shown is the most conservative MTCA Method B cleanup level available for protection of groundwater; if no cleanup level is available for protection of groundwater, the MTCA Method B cleanup level for direct contact is shown.

[6] 90^{th} Percentile for natural background soil metals concentrations in Puget Sound region, Department of Ecology, publication #94-115, dated October 1994.

bgs = below ground surface

mg/kg = milligrams per kilogram

U = Analyte not detected at a concentration greater than the listed reporting limit.

NA = Not available

Bolded value indicates analyte has been detected at the concentration shown.

Table 4

Groundwater Chemical Analytical Results[1]

Petroleum Hydrocarbons, VOCs, PCBs and Metals

C-1 Hangar and Building, Snohomish County Airport

Everett, Washington

Exploration Identification[2]	Sample Date	Total Petroleum Hydrocarbons[3] (µg/L)			Volatile Organic Compounds[4] (VOCs) (µg/L)	PCBs[5] (µg/L)	Dissolved Metals[6] (µg/L)															
							Arsenic		Barium		Cadmium		Chromium		Lead		Mercury		Selenium		Silver	
		Gasoline Range	Diesel Range	Lube Oil Range	Methylene Chloride		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
C-1 DP2-033121W	3/31/2021	100 U	50.0 U	250 U	**12.0** [7]	0.100 U	**3.48**	**29.5**	**16.7**	**539**	1.00 U	**1.08**	**4.57**	**187**	**1.98**	**24.6**	1.00 U	1.00 U	1.00 U	**1.55**	**6.28**	1.00 U
C-1 DP3-033021W	3/30/2021	100 U	**110**	**330**	5.00 U	0.100 U	**2.68**	**34.7**	**8.11**	**752**	1.00 U	**4.46**	**1.41**	**210**	**1.13**	**120**	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
C-1 DP13-033121W	3/31/2021	100 U	50.0 U	250 U	5.00 U	0.100 U	1.00 U	**6.62**	**14.7**	**129**	1.00 U	1.00 U	1.00 U	**24.7**	1.00 U	**2.99**	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
C-1 DP14-033121W	3/31/2021	100 U	50.0 U	250 U	5.00 U	0.100 U	**9.53**	**30.8**	**48.3**	**595**	1.00 U	1.00 U	1.00 U	**69.2**	1.00 U	**10.9**	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
MTCA Method A or B Cleanup Level		1,000 [8]	500		5	0.1	5		3,200 [9]		5		50 [10]		15		2		80 [9]		80 [9]	

Notes:

[1] Chemical analyses performed by Friedman & Bruya of Seattle, Washington. Chemical analytical laboratory reports are included in Appendix B.

[2] The approximate exploration locations are shown in Figure 2.

[3] Petroleum hydrocarbons analyzed by NWTPH-Gx and NWTPH-Dx.

[4] Volatiles were analyzed by EPA Method 8260C. Only volatiles that were detected or not detected above cleanup levels in one or more samples are presented in this table. TCE, PCE and vinyl chloride were not detected in the samples.

[5] PCBs analyzed by EPA Method 8082A.

[6] Metals analyzed by EPA Method 6020B.

[7] The detected concentration was qualified by the analytical laboratory as the result of laboratory contamination.See Appendix B.

[8] Cleanup level when no benzene is present.

[9] Cleanup levels are presented for Method B carcinogenic values, which are the most conservative cleanup levels available.

[10] Cleanup levels are presented for Total Chromium.

bgs = below ground surface (pre-construction)

µg/L = micrograms per liter

U = Analyte not detected at a concentration greater than the listed reporting limit.

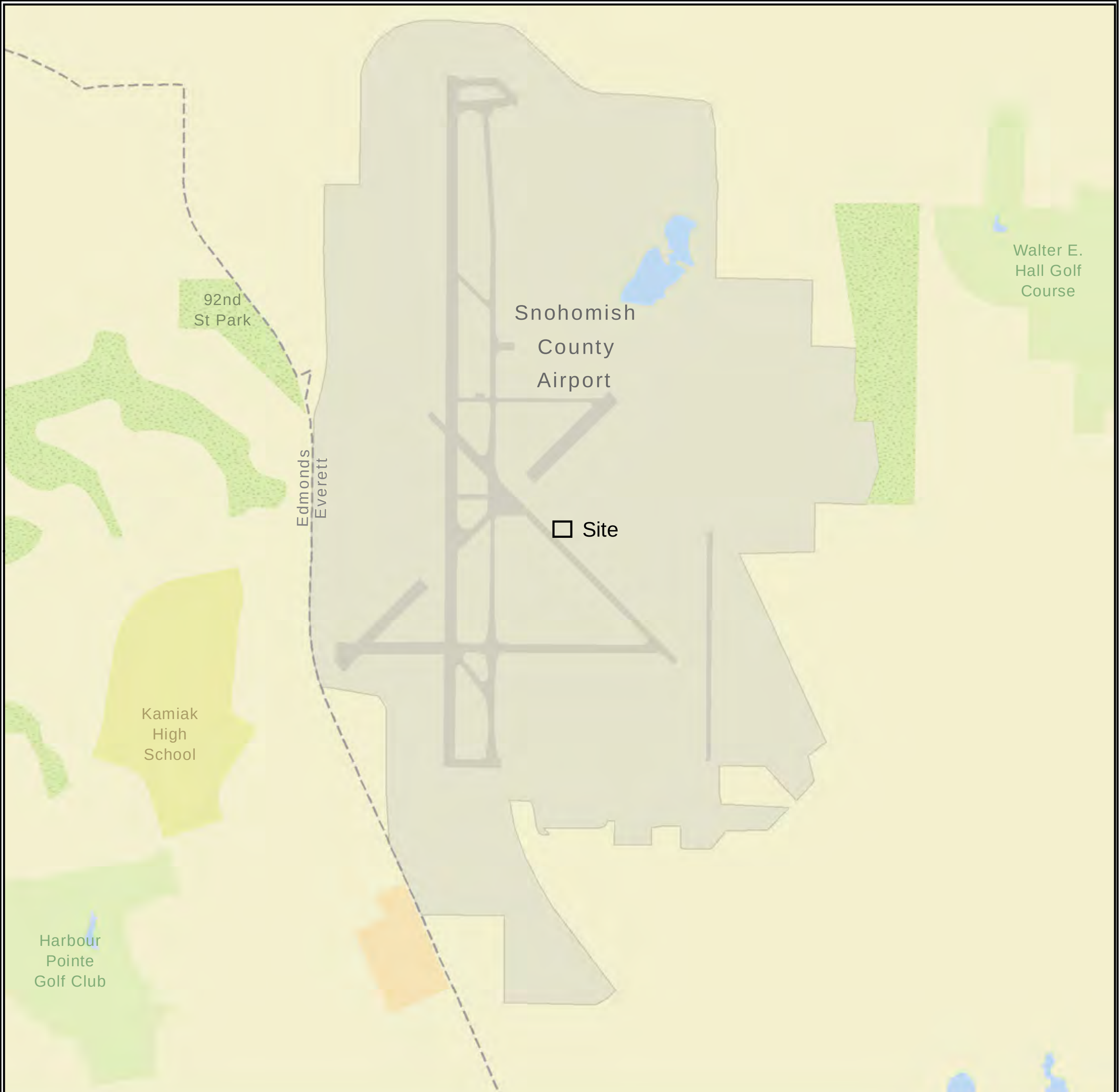
NA = Not Available

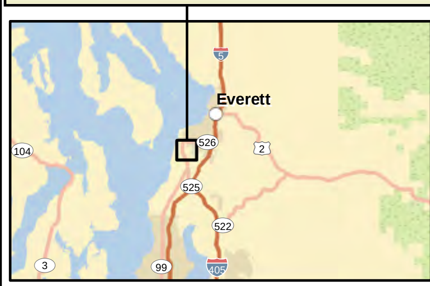
Bolded value indicates analyte detected at the concentration shown.

Gray shaded value indicates the detected concentration exceeded the applicable cleanup level.

FIGURES

Office: Tacoma Path: \\red\projects\5\553001401\GIS\553001401_F1_VicinityMap.mxd Map Revised: 5/14/2021





2,000 0 2,000

Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: ESRI Data & Maps, Street Maps 2005

Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Vicinity Map

C-1 Hangar and C-1 Building Phase II ESA
Paine Field/Snohomish County Airport
Everett, Washington

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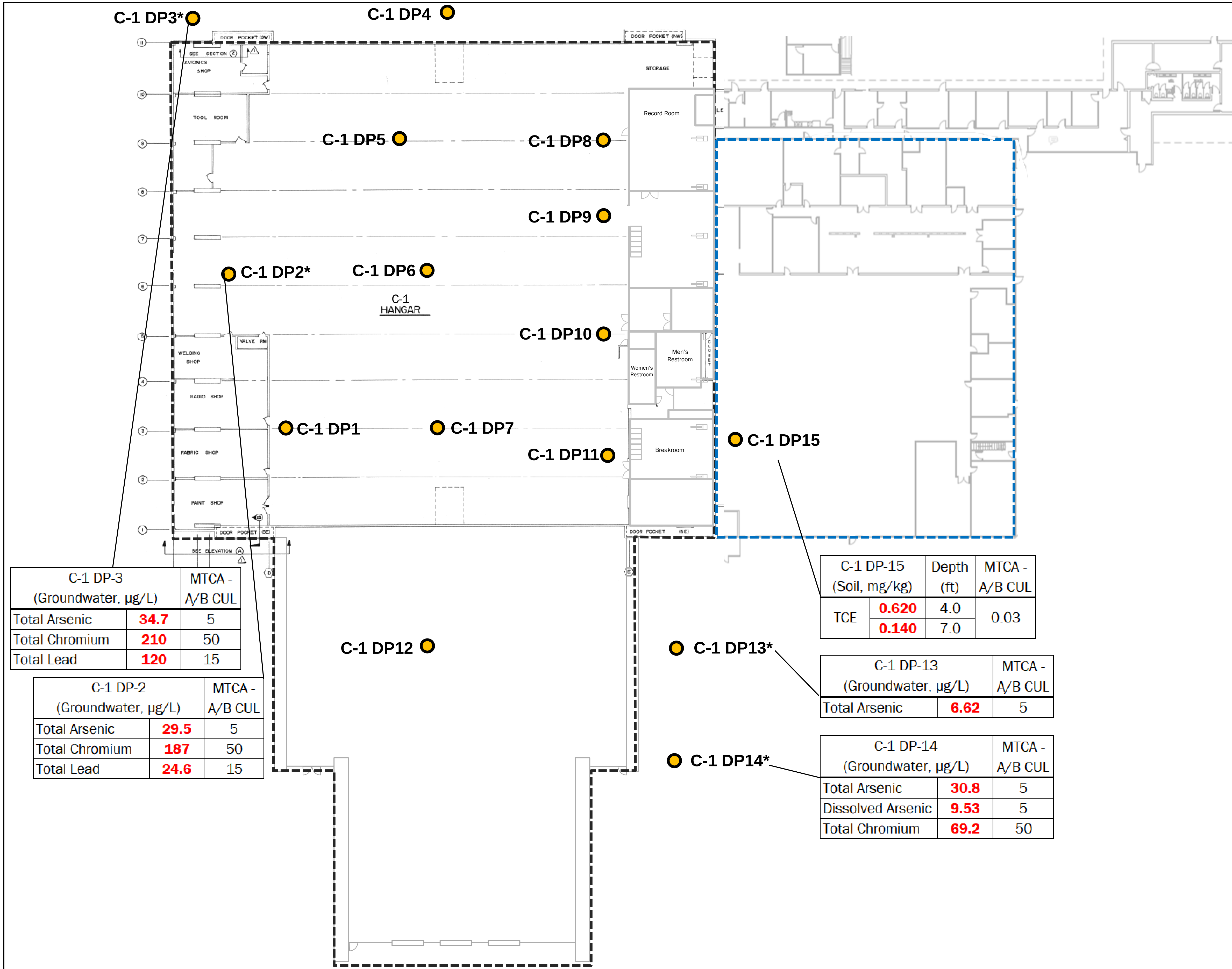
Figure 1



C-1 DP-3 (Groundwater, µg/L)		MTCA - A/B CUL
Total Arsenic	**34.7**	5
Total Chromium	**210**	50
Total Lead	**120**	15

C-1 DP-2 (Groundwater, µg/L)		MTCA - A/B CUL
Total Arsenic	**29.5**	5
Total Chromium	**187**	50
Total Lead	**24.6**	15

C-1 DP-15 (Soil, mg/kg)		Depth (ft)	MTCA - A/B CUL
TCE	**0.620**	4.0	0.03
	0.140	7.0	

C-1 DP-13 (Groundwater, µg/L)		MTCA - A/B CUL
Total Arsenic	**6.62**	5

C-1 DP-14 (Groundwater, µg/L)		MTCA - A/B CUL
Total Arsenic	**30.8**	5
Dissolved Arsenic	**9.53**	5
Total Chromium	**69.2**	50

Legend

Direct Push Boring Location (GEI, 2021)

C-1 DP3* Sample Identification (asterisk indicates that groundwater was encountered; a grab sample was collected for laboratory analysis [GEI, 2021] at all locations where groundwater was encountered)

C-1 Hangar Perimeter

C-1 Building Perimeter

Sample identification (Media, units)

C-1 DP-15 (Soil, mg/kg)		Depth (ft)	MTCA - A/B CUL
TCE	**0.620**	4.0	0.03
	0.140	7.0	

MTCA Method A or B cleanup level

Sample depth (soil only)

Contaminant concentration

Red highlighted concentrations indicate the detected concentration exceeded the MTCA Method A or B cleanup level for listed contaminant of concern.

W N S E

Not to Scale

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Building maps provided by Snohomish County 2020.

Site Plan with Soil and Groundwater Sample Results Exceeding MTCA Cleanup Levels

Snohomish County Phase II ESA
C-1 Hangar and C-1 Building
Everett, Washington

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Figure 2

5530-014-01

APPENDICES

GeoEngineers

APPENDIX A
Field Procedures and Exploration Logs

APPENDIX A
FIELD PROCEDURES AND EXPLORATION LOGS

Underground Utility Locate

Prior to drilling activities, an underground utility locate was conducted in the area of the proposed boring locations to identify subsurface utilities and/or potential underground physical hazards. The underground utility check consisted of contacting a local utility alert service (1-call) and hiring a private utility locating service to use conductible and GPR technologies.

Soil Sampling

The Phase II Environmental Site Assessment (ESA) was completed using direct-push drilling equipment operated by Cascade Drilling of Woodinville, Washington. Continuous soil cores were obtained from the direct push borings using 1.5-inch diameter, 4-foot-long stainless steel sampler rods driven with a pneumatic hammer. The borings extended to depths ranging between approximately 4 and 15 feet below ground surface (bgs). Soil samples were collected in clean, plastic 1.5-inch diameter disposable liners. Soil samples were collected from the center of backhoe bucket using new disposable gloves.

A representative from our staff observed and classified the soil encountered during explorations. Soil in the explorations was visually classified in general accordance with ASTM International (ASTM) D 2488-94. The exploration logs are presented in Figures A-2 through A-16. A portion of each sample was placed in laboratory-prepared sample jars for possible chemical analysis. The remaining portion of each sample was used for field screening.

Selected samples from the borings were submitted for chemical analysis based on field screening results. The soil samples were placed in a cooler with ice for transport to Friedman and Bruya, Inc. laboratory in Seattle, Washington. Standard chain-of-custody procedures were followed in transporting the soil samples to the laboratory.

Drill cuttings and decontamination/purge water generated during drilling activities were temporarily stored at the Site in 55-gallon drums at a location designated by the property owner pending waste characterization and transportation for off-site disposal.

Sample Identification Scheme

Each soil sample obtained during the investigation was identified by a unique sample designation. The sample designation was documented in the field report and exploration log, and included on the sample container label and laboratory chain-of-custody. The soil sample designation scheme is as follows:

- Direct-push borings: Boring number C-1 DP-1 etc., followed by the depth from which the soil sample was collected, to the nearest 0.1 foot. For example, sample C-1 DP-1-12.5 is from boring number DP-1 from a depth of 12.5 feet bgs.

Groundwater Sample Collection and Handling

Discrete groundwater samples were obtained at the time of drilling by pushing an approximately 1.25-inch diameter stainless steel rod approximately two feet below the water table. The steel rod was then pulled back to expose a temporary stainless steel screen.

Groundwater samples were collected from the temporary wells using a peristaltic pump with dedicated Teflon tubing at low-flow sampling rates. The groundwater was pumped at approximately 0.5 liter per minute until the water purged clear if adequate groundwater volume was available, after which samples were collected at a flow rate of approximately 0.5 liter per minute (low-flow). Purging generated wastewater which was drummed and temporarily stored on the property pending off-site disposal.

Groundwater samples were transferred directly from the tubing outlet to laboratory-prepared sample containers. New nitrile gloves were worn when collecting each groundwater sample. The sample containers were filled completely and placed in a cooler with ice pending transport to the analytical laboratory. Sample labels were completed for each sample. Chain-of-custody procedures were followed in transporting the samples to the laboratory.

Field Screening of Soil Samples

Soil samples obtained from the borings were screened in the field for evidence of contamination using: (1) visual examination; (2) sheen screening and (3) vapor headspace screening with a photoionization detector (PID). The results of headspace and sheen screening are included in the boring logs and in Table 1 for soil samples tested by chemical analysis.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons, such as motor oil or hydraulic oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines. Sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen classifications are as follows:

No Sheen (NS):	No visible sheen on water surface.
Slight Sheen (SS):	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly.
Moderate Sheen (MS):	Light to heavy sheen, may have some color/iridescence; spread is irregular to flowing; few remaining areas of no sheen on water surface.
Heavy Sheen (HS):	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted in the bag and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in ppm (parts per million) and is calibrated to isobutylene. The PID is designed to quantify combustible gas and organic vapor concentrations up to 2,500 ppm. A lower threshold of significance of 1 ppm was used in this application. Field screening results are Site-specific and vary with soil type, soil moisture content, temperature, and type of contaminant.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

- 2.4-inch I.D. split barrel
- Standard Penetration Test (SPT)
- Shelby tube
- Piston
- Direct-Push
- Bulk or grab
- Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

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Figure A-1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft)	15	Logged By KRA / Checked By	Driller	Holocene Drilling, Inc.	Drilling Method	Direct-Push

Surface Elevation (ft) / Vertical Datum	Undetermined	Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) / Northing (Y)		System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					CC	Approximately 8 inches of portland concrete cement			
								SP-SM	Brown fine to coarse sand with silt and occasional gravel (loose, moist) (fill)			
						C-1 DP1-3.5				SS	3.1	
	5		60					SM	Dark gray silty sand with occasional gravel (medium dense, moist) (native)			
										SS	3.5	
	10		60									
						C-1 DP1-11				MS	8.9	
									Becomes dry			
										NS	<1	
	15											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-1

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-2
Sheet 1 of 1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 15	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) / Northing (Y)	System / Datum	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					CC	Approximately 8 inches of portland concrete cement			
								SP	Brown sand with occasional gravel (loose, moist) (fill)			
	5		36			C-1 DP2-5.0				SS	3.8	
								SM	Dark gray silty sand with occasional gravel (medium dense, moist) (native)			
	10		60									
						C-1 DP2-11			Becomes wet	MS	4.3	Groundwater observed at approximately 11 feet below ground surface during drilling Groundwater sample collected on 3/31/21. (turbidity >1,000 NTU)
										SS	1.9	
	15											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-2

GEOENGINEERS

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-3
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 10	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push
Surface Elevation (ft) Vertical Datum	Undetermined		Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) Northing (Y)			System Datum		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					AC	Approximately 3 inches of asphalt concrete pavement			
								SP-SM	Dark brown sand with silt (loose, dry) (fill)			
								SP	Light brown sand with gravel (loose, wet) (fill)			Groundwater observed at approximately 4 feet below ground surface during drilling Groundwater sample collected on 3/30/21. (turbidity >100 NTU)
			60			C-1 DP3-4.0				MS	<1	
	5											
									Becomes medium dense			
						C-1 DP3-7.0		SM	Gray silty sand with occasional gravel (dense, moist) (native)	MS	1084	
										NS	<1	
	10											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/29/21 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 DP-3

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-4
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 7	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							AC	Approximately 4 inches of asphalt concrete pavement			
								SP-SM	Gray sand with silt and gravel (loose, dry) (fill?)			
						C-1 DP4-3.5				SS	<1	
								SP-SM	Brown sand with silt and gravel (loose, dry) (fill?)			
	5					C-1 DP4-5.0		SP	Gray-brown sand with silt (medium dense, moist) (fill?)	MS	3.7	
						C-1 DP4-7.0		SM	Dark gray silty sand with gravel (dense, moist) (native)	NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-4

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 8	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) / Northing (Y)	System / Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					SP	Light brown fine to coarse sand (loose, dry) (fill)	NS	<1	
						C-1 DP5-3.0		SP-SM	Gray sand with silt (medium dense, moist) (native?)	NS	<1	
	5		36			C-1 DP5-6.0				NS	<1	
								SM	Gray silty sand with occasional gravel (dense, moist) (native)	NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-5

GEOENGINEERS

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-6
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 9	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) / Northing (Y)	System / Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 12 inches of portland concrete cement			
								SP-SM	Brown sand with silt and occasional subrounded gravel (loose, dry) (fill)			
						C-1 DP6-3.0				NS	<1	
										NS	<1	
	5		48					SP-SM	Gray sand with silt and occasional angular gravel (medium dense, dry) (native)			
						C-1 DP6-6.0				NS	<1	
										NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/29/21 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 DP-6

GEOENGINEERS

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-7
Sheet 1 of 1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 9	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push
Surface Elevation (ft) Vertical Datum	Undetermined		Hammer Data N/A		Drilling Equipment Geoprobe (7822DT)	
Easting (X) Northing (Y)			System Datum		Groundwater not observed at time of exploration	
Notes:						

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 8 inches of portland concrete cement			
								SP	Brown fine to coarse sand with mottled red stain with occasional gravel (loose, moist) (fill)			
						C-1 DP7-4.0		SP-SM	Dark gray-brown sand with silt and occasional gravel (loose to medium dense, moist) (native?)	SS	3.0	
	5		48									
						C-1 DP7-9.0			Becomes medium dense	SS	4.6	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-7

GEOENGINEERS

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Date:4/29/21 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 9	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) / Northing (Y)	System / Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 8 inches of portland concrete cement			
								SP	Brown fine to coarse sand with occasional rounded gravel (loose, dry) (fill)	NS	1.0	
								SP-SM	Brown fine to coarse sand with silt and occasional gravel (loose, dry) (fill?)			
						C-1 DP8-4.5				NS	1.9	
	5		48									
						C-1 DP8-9.0		SP-SM	Dark brown fine to coarse sand with silt and occasional gravel (medium dense, moist) (fill?)	SS	4.9	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/29/21 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 DP-8

GEOENGINEERS

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 10	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	FIELD DATA: Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 8 inches of portland concrete cement			
								SP	Light brown sand with occasional gravel (loose, dry) (fill)			
						C-1 DP9-3.0				NS	3.4	
	5		60					SP-SM	Brown fine to coarse sand with silt and occasional gravel (loose, moist) (fill?)			
						C-1 DP9-7.5				SS	4.8	
								SM	Dark gray silty fine to coarse sand with occasional gravel (medium dense, moist) (native)			
										SS	<1	
	10											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-9

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-10
Sheet 1 of 1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 4	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push
Surface Elevation (ft) / Vertical Datum	Undetermined		Hammer Data N/A		Drilling Equipment Geoprobe (7822DT)	
Easting (X) / Northing (Y)			System / Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48					CC	Approximately 6 inches of portland concrete cement			
								SP-SM	Brown fine to coarse sand with silt and occasional gravel (medium dense, dry) (fill)	SS	4.0	
	4					C-1 DP10-4.0		SM	Dark gray silty fine to coarse sand with occasional gravel (medium dense, dry) (native)	SS	3.7	

Boring terminated at approximately 4 feet below ground surface due to refusal on hard ground

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-10

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-11

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft)	4	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							CC	Portland concrete cement			
								SP-SM	Brown sand with silt (loose, dry) (fill)	NS	1.3	
								SP-SM	Brown sand with silt and occasional gravel (medium dense, moist) (fill)	SS	2.6	
	4					C-1 DP11-4.0						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-11

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft)	9.5	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration
Notes:		

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					AC	Approximately 8 inches of asphalt concrete pavement			
								SP	Brown sand with occasional gravel (loose, dry) (fill)	NS	1.7	
						C-1 DP12-3.0		SP-SM	Brown with mottled red coloring fine to coarse sand with silt and occasional gravel (medium dense, moist) (fill)	SS	2.2	
	5		54									
						C-1 DP12-8.0				SS	1.1	
								SM	Dark gray silty sand with occasional gravel (medium dense, moist) (native)	NS	1.0	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-12

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-13
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft)	10	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) Northing (Y)		System Datum		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		42					AC	Approximately 6 inches of asphalt concrete pavement			
								SP	Brown sand with occasional gravel (loose, dry) (fill)			
						C-1 DP13-2.0				SS	2.5	
												Groundwater observed at approximately 4 feet below ground surface during drilling Groundwater sample collected on 3/31/21. (turbidity >1,000 NTU)
	5		60			C-1 DP13-5.0			Becomes wet	SS	2.3	
									Becomes medium dense	NS	<1	
									Gray silty sand (dense, moist) (native)	NS	<1	
	10											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-13

GEOENGINEERS

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 15	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					AC	Approximately 6 inches of asphalt concrete pavement			
								SP-SM	Dark brown fine to coarse sand with silt (loose, moist) (fill)			
								SP	Gray sand with occasional gravel (loose, moist) (fill?)			
	5		60			C-1 DP14-5.0				SS	<1	
								SP	Brown sand with gravel (loose, wet) (fill?)			
	10		60			C-1 DP14-10.0				MS	2.3	Groundwater observed at approximately 10 feet below ground surface during drilling Groundwater sample collected on 3/31/21. (turbidity >1,000 NTU)
								SM	Dark gray silt with sand (dense, moist) (native)			
										NS	<1	
	15											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-14

GEOENGINEERS

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft)	7	Logged By KRA	Checked By	Driller	Holocene Drilling, Inc.	Drilling Method	Direct-Push

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	FIELD DATA: Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 6 inches of portland concrete cement			
								SP-SM	Brown silt with fine to coarse sand and occasional gravel (medium dense, moist) (fill)			
						C-1 DP15-4.0				MS	218	
	5		24									
						C-1 DP15-7.0				SS	1.9	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/29/21 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 DP-15

GeoEngineers

Project: Snohomish County - C-1 Hangar and C-1 Building Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-16
Sheet 1 of 1

APPENDIX B
Laboratory Chemical Analytical Data Report

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 19, 2021

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included is the amended report from the testing of material submitted on March 31, 2021 from the Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. Per your request, the reporting limits for several 8260D volatile organic compounds in water were lowered and a qualifier was added to the methylene chloride detection in sample C-1 DP2-033121w.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR0409R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

April 9, 2021

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on March 31, 2021 from the Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. There are 153 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR0409R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2021 by Friedman & Bruya, Inc. from the GeoEngineers Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
103585 -01	C-1 DP4-3.5
103585 -02	C-1 DP4-5.0
103585 -03	C-1 DP4-7.0
103585 -04	C-1 DP3-4.0
103585 -05	C-1 DP3-7.0
103585 -06	C-1 DP3-033021w
103585 -07	C-1 DP5-3.0
103585 -08	C-1 DP5-6.0
103585 -09	C-1 DP15-4.0
103585 -10	C-1 DP15-7.0
103585 -11	C-1 DP14-5.0
103585 -12	C-1 DP14-10.0
103585 -13	C-1 DP13-2.0
103585 -14	C-1 DP13-5.0
103585 -15	C-1 DP13-033121w
103585 -16	C-1 DP14-033121w
103585 -17	C-1 DP8-4.5
103585 -18	C-1 DP8-9.0
103585 -19	C-1 DP9-3.0
103585 -20	C-1 DP9-7.5
103585 -21	C-1 DP10-4.0
103585 -22	C-1 DP11-4.0
103585 -23	C-1 DP2-5.0
103585 -24	C-1 DP2-11.0
103585 -25	C-1 DP1-3.5
103585 -26	C-1 DP1-11.0
103585 -27	C-1 DP2-033121w
103585 -28	C-1 DP7-4.0
103585 -29	C-1 DP7-9.0
103585 -30	C-1 DP12-3.0
103585 -31	C-1 DP12-8.0
103585 -32	C-1 DP6-3.0
103585 -33	C-1 DP6-6.0
103585 -34	Trip Blank 1
103585 -35	Trip Blank 2
103585 -36	Trip Blank 3

CASE NARRATIVE (continued)

Laboratory ID	GeoEngineers
103585 -37	Trip Blank 4
103585 -38	Trip Blank 5

Gasoline by NWTPH-Gx (water)
All quality control requirements were acceptable.

Diesel and Motor Oil by NWTPH-Dx (water)
All quality control requirements were acceptable.

VOCs by 8260D (water)
All quality control requirements were acceptable.

PCBs by 8082A (water)
All quality control requirements were acceptable.

Total Metals by 6020B (water)
All quality control requirements were acceptable.

Dissolved Metals by 6020B (water)
A 6020B internal standard failed the acceptance criteria for sample C-1 DP14-033121w. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported. All other quality control requirements were acceptable.

Gasoline by NWTPH-Gx (soil)
All quality control requirements were acceptable.

Diesel and Motor Oil by NWTPH-Dx (soil)
All quality control requirements were acceptable.

VOCs by 8260D (soil)
The 8260D matrix spike and matrix spike duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable. All other quality control requirements were acceptable.

PCBs by 8082A (soil)
For PCB samples analyzed on GC9, the time of analysis in the EQUIS electronic data file is inaccurate due to a software error. All quality control requirements were acceptable.

Total Metals by 6020B (soil)
All quality control requirements were acceptable.

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/02/21, 04/05/21 and 04/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 DP4-3.5 103585-01	<5	75
C-1 DP4-5.0 103585-02	<5	73
C-1 DP4-7.0 103585-03	<5	75
C-1 DP3-4.0 103585-04	<5	75
C-1 DP3-7.0 103585-05	7.5	79
C-1 DP5-3.0 103585-07	<5	73
C-1 DP5-6.0 103585-08	<5	77
C-1 DP15-4.0 103585-09	51	78
C-1 DP15-7.0 103585-10	<5	65
C-1 DP14-5.0 103585-11	<5	69
C-1 DP14-10.0 103585-12	<5	72

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/02/21, 04/05/21 and 04/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 DP13-2.0 103585-13	<5	65
C-1 DP13-5.0 103585-14	<5	67
C-1 DP8-4.5 103585-17	<5	68
C-1 DP8-9.0 103585-18	<5	67
C-1 DP9-3.0 103585-19	<5	64
C-1 DP9-7.5 103585-20	<5	68
C-1 DP10-4.0 103585-21	<5	68
C-1 DP11-4.0 103585-22	<5	61
C-1 DP2-5.0 103585-23	<5	71
C-1 DP2-11.0 103585-24	<5	69
C-1 DP1-3.5 103585-25	<5	63

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/02/21, 04/05/21 and 04/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 DP1-11.0 103585-26	<5	62
C-1 DP7-4.0 103585-28	<5	62
C-1 DP7-9.0 103585-29	<5	64
C-1 DP12-3.0 103585-30	<5	63
C-1 DP12-8.0 103585-31	<5	60
C-1 DP6-3.0 103585-32	<5	68
C-1 DP6-6.0 103585-33	<5	66
Method Blank 01-598 MB	<5	71
Method Blank 01-599 MB	<5	69

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/05/21
Date Analyzed: 04/06/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
C-1 DP3-033021w 103585-06	<100	89
C-1 DP13-033121w 103585-15	<100	88
C-1 DP14-033121w 103585-16	<100	87
C-1 DP2-033121w 103585-27	<100	88
Method Blank 01-601 MB	<100	90

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
C-1 DP4-3.5 103585-01	<50	<250	101
C-1 DP4-5.0 103585-02	<50	<250	101
C-1 DP4-7.0 103585-03	<50	<250	103
C-1 DP3-4.0 103585-04	<50	<250	89
C-1 DP3-7.0 103585-05	<50	<250	88
C-1 DP5-3.0 103585-07	<50	<250	91
C-1 DP5-6.0 103585-08	<50	<250	96
C-1 DP15-4.0 103585-09	<50	<250	91
C-1 DP15-7.0 103585-10	<50	<250	100
C-1 DP14-5.0 103585-11	<50	<250	102

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
C-1 DP14-10.0 103585-12	<50	<250	103
C-1 DP13-2.0 103585-13	<50	<250	102
C-1 DP13-5.0 103585-14	<50	<250	103
C-1 DP8-4.5 103585-17	<50	<250	99
C-1 DP8-9.0 103585-18	<50	<250	91
C-1 DP9-3.0 103585-19	<50	<250	90
C-1 DP9-7.5 103585-20	<50	<250	92
C-1 DP10-4.0 103585-21	<50	<250	100
C-1 DP11-4.0 103585-22	<50	<250	100
C-1 DP2-5.0 103585-23	<50	<250	102

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
C-1 DP2-11.0 103585-24	<50	<250	89
C-1 DP1-3.5 103585-25	<50	<250	89
C-1 DP1-11.0 103585-26	<50	<250	90
C-1 DP7-4.0 103585-28	<50	<250	100
C-1 DP7-9.0 103585-29	<50	<250	101
C-1 DP12-3.0 103585-30	<50	<250	91
C-1 DP12-8.0 103585-31	<50	<250	99
C-1 DP6-3.0 103585-32	<50	<250	103
C-1 DP6-6.0 103585-33	<50	<250	100
Method Blank 01-772 MB	<50	<250	99
Method Blank 01-774 MB	<50	<250	90

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Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/02/21
Date Analyzed: 04/02/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
C-1 DP3-033021w 103585-06	110 x	330	49
C-1 DP13-033121w 103585-15	<50	<250	118
C-1 DP14-033121w 103585-16	<50	<250	82
C-1 DP2-033121w 103585-27	<50	<250	ip
Method Blank 01-778 MB	<50	<250	128

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-06
Date Analyzed:	04/05/21	Data File:	103585-06.131
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.68
Barium	8.11
Cadmium	<1
Chromium	1.41
Lead	1.13
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-15
Date Analyzed:	04/05/21	Data File:	103585-15.132
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	14.7
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16
Date Analyzed:	04/05/21	Data File:	103585-16.133
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.53
Barium	48.3
Cadmium	<1
Chromium	<1 J
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16 x5
Date Analyzed:	04/06/21	Data File:	103585-16 x5.081
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-27
Date Analyzed:	04/05/21	Data File:	103585-27.134
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.48
Barium	16.7
Cadmium	<1
Chromium	4.57
Lead	1.98
Mercury	<1
Selenium	<1
Silver	6.28

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	I1-215 mb
Date Analyzed:	04/05/21	Data File:	I1-215 mb.085
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/08/21	Lab ID:	103585-06
Date Analyzed:	04/08/21	Data File:	103585-06.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	4.46
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-06 x20
Date Analyzed:	04/06/21	Data File:	103585-06 x20.085
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	34.7
Barium	752
Chromium	210
Lead	120

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-15
Date Analyzed:	04/05/21	Data File:	103585-15.147
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Barium	129
Cadmium	<1
Lead	2.99
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-15 x10
Date Analyzed:	04/06/21	Data File:	103585-15 x10.086
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.62
Chromium	24.7

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Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16
Date Analyzed:	04/05/21	Data File:	103585-16.148
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<1
Lead	10.9
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16 x10
Date Analyzed:	04/05/21	Data File:	103585-16 x10.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	30.8
Barium	595
Chromium	69.2

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-27
Date Analyzed:	04/05/21	Data File:	103585-27.149
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	1.08
Lead	24.6
Mercury	<1
Selenium	1.55
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-27 x10
Date Analyzed:	04/05/21	Data File:	103585-27 x10.122
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	29.5
Barium	539
Chromium	187

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	I1-214 mb
Date Analyzed:	04/05/21	Data File:	I1-214 mb.083
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/08/21	Lab ID:	I1-220 mb2
Date Analyzed:	04/08/21	Data File:	I1-220 mb2.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP4-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-01
Date Analyzed:	04/02/21	Data File:	103585-01.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.78
Barium	50.1
Cadmium	<1
Chromium	20.3
Lead	2.14
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP4-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-02
Date Analyzed:	04/02/21	Data File:	103585-02.064
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.59
Barium	44.6
Cadmium	<1
Chromium	21.9
Lead	2.09
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP4-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-03
Date Analyzed:	04/02/21	Data File:	103585-03.068
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.83
Barium	35.6
Cadmium	<1
Chromium	19.4
Lead	1.62
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-04
Date Analyzed:	04/02/21	Data File:	103585-04.071
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.25
Barium	26.0
Cadmium	<1
Chromium	23.3
Lead	4.86
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-05
Date Analyzed:	04/02/21	Data File:	103585-05.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.83
Barium	41.6
Cadmium	<1
Chromium	22.4
Lead	2.39
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP5-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-07
Date Analyzed:	04/02/21	Data File:	103585-07.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.79
Barium	40.5
Cadmium	<1
Chromium	18.0
Lead	1.71
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP5-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-08
Date Analyzed:	04/02/21	Data File:	103585-08.074
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.08
Barium	48.0
Cadmium	<1
Chromium	24.6
Lead	2.37
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP15-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-09
Date Analyzed:	04/02/21	Data File:	103585-09.075
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.33
Barium	61.4
Cadmium	<1
Chromium	25.8
Lead	2.44
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP15-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-10
Date Analyzed:	04/02/21	Data File:	103585-10.076
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.24
Barium	56.5
Cadmium	<1
Chromium	19.6
Lead	2.15
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-11
Date Analyzed:	04/02/21	Data File:	103585-11.077
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.02
Barium	68.0
Cadmium	<1
Chromium	22.5
Lead	2.43
Mercury	<1
Selenium	<1
Silver	<1

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Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-10.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-12
Date Analyzed:	04/02/21	Data File:	103585-12.078
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.71
Barium	32.5
Cadmium	<1
Chromium	16.4
Lead	1.31
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-2.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-13
Date Analyzed:	04/05/21	Data File:	103585-13.093
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.11
Barium	82.9
Cadmium	<1
Chromium	19.2
Lead	1.90
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-14
Date Analyzed:	04/05/21	Data File:	103585-14.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.35
Barium	40.7
Cadmium	<1
Chromium	14.7
Lead	1.59
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP8-4.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-17
Date Analyzed:	04/05/21	Data File:	103585-17.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.10
Barium	41.0
Cadmium	<1
Chromium	20.4
Lead	2.05
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP8-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-18
Date Analyzed:	04/05/21	Data File:	103585-18.096
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.93
Barium	47.2
Cadmium	<1
Chromium	18.8
Lead	2.22
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP9-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-19
Date Analyzed:	04/05/21	Data File:	103585-19.097
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.96
Barium	44.7
Cadmium	<1
Chromium	18.3
Lead	2.09
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP9-7.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-20
Date Analyzed:	04/05/21	Data File:	103585-20.098
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.36
Barium	44.2
Cadmium	<1
Chromium	20.8
Lead	2.36
Mercury	<1
Selenium	<1
Silver	<1

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Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP10-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-21
Date Analyzed:	04/05/21	Data File:	103585-21.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.27
Barium	43.6
Cadmium	<1
Chromium	19.7
Lead	2.04
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP11-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-22
Date Analyzed:	04/05/21	Data File:	103585-22.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.98
Barium	46.5
Cadmium	<1
Chromium	18.3
Lead	2.22
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-23
Date Analyzed:	04/05/21	Data File:	103585-23.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.74
Barium	34.5
Cadmium	<1
Chromium	21.1
Lead	1.74
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-24
Date Analyzed:	04/05/21	Data File:	103585-24.102
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.31
Barium	36.0
Cadmium	<1
Chromium	21.1
Lead	1.69
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP1-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-25
Date Analyzed:	04/05/21	Data File:	103585-25.112
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.69
Barium	42.7
Cadmium	<1
Chromium	19.1
Lead	2.00
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP1-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-26
Date Analyzed:	04/05/21	Data File:	103585-26.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.92
Barium	50.5
Cadmium	<1
Chromium	65.7
Lead	2.50
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP7-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-28
Date Analyzed:	04/05/21	Data File:	103585-28.114
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.01
Barium	40.5
Cadmium	<1
Chromium	18.2
Lead	1.95
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP7-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-29
Date Analyzed:	04/05/21	Data File:	103585-29.115
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.01
Barium	38.3
Cadmium	<1
Chromium	18.2
Lead	1.75
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-30
Date Analyzed:	04/02/21	Data File:	103585-30.170
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.97
Barium	44.9
Cadmium	<1
Chromium	21.5
Lead	2.31
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-30
Date Analyzed:	04/05/21	Data File:	103585-30.125
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-31
Date Analyzed:	04/02/21	Data File:	103585-31.171
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.02
Barium	39.3
Cadmium	<1
Chromium	21.4
Lead	2.11
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-31
Date Analyzed:	04/05/21	Data File:	103585-31.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP6-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-32
Date Analyzed:	04/05/21	Data File:	103585-32.127
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.49
Barium	42.3
Cadmium	<1
Chromium	16.0
Lead	1.83
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP6-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-33
Date Analyzed:	04/05/21	Data File:	103585-33.128
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.63
Barium	48.0
Cadmium	<1
Chromium	20.0
Lead	2.13
Mercury	<1
Selenium	<1
Silver	<1

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Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	I1-209 mb2
Date Analyzed:	04/02/21	Data File:	I1-209 mb2.037
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	I1-211 mb
Date Analyzed:	04/02/21	Data File:	I1-211 mb.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP4-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-01 1/0.5
Date Analyzed:	04/01/21	Data File:	040127.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	84	118
Toluene-d8	96	86	117
4-Bromofluorobenzene	98	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP4-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-02 1/0.5
Date Analyzed:	04/01/21	Data File:	040128.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	118
Toluene-d8	92	86	117
4-Bromofluorobenzene	109	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP4-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-03 1/0.5
Date Analyzed:	04/01/21	Data File:	040129.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	111	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	0.022
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	0.013	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	0.027
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP3-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-04 1/0.5
Date Analyzed:	04/01/21	Data File:	040130.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	84	118
Toluene-d8	96	86	117
4-Bromofluorobenzene	103	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

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Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP3-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-05 1/0.5
Date Analyzed:	04/01/21	Data File:	040131.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP5-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-07 1/0.5
Date Analyzed:	04/01/21	Data File:	040132.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	118
Toluene-d8	94	86	117
4-Bromofluorobenzene	112	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP5-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-08 1/0.5
Date Analyzed:	04/01/21	Data File:	040133.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP15-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-09 1/0.5
Date Analyzed:	04/01/21	Data File:	040114.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	97	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	0.028
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	0.052
1,1,1-Trichloroethane	0.040	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	0.62	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	0.65
Bromodichloromethane	<0.01	1,4-Dichlorobenzene	1.7
Dibromomethane	<0.025	1,2-Dichlorobenzene	0.040
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	0.055
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	0.038
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP15-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-10 1/0.5
Date Analyzed:	04/02/21	Data File:	040224.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	84	118
Toluene-d8	100	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	0.14	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP14-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-11 1/0.5
Date Analyzed:	04/01/21	Data File:	040116.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	104	86	117
4-Bromofluorobenzene	97	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP14-10.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-12 1/0.5
Date Analyzed:	04/01/21	Data File:	040117.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	103	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP13-2.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-13 1/0.5
Date Analyzed:	04/01/21	Data File:	040118.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	107	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP13-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-14 1/0.5
Date Analyzed:	04/01/21	Data File:	040119.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	104	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP8-4.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-17 1/0.5
Date Analyzed:	04/01/21	Data File:	040120.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	118
Toluene-d8	91	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

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Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP8-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-18 1/0.5
Date Analyzed:	04/01/21	Data File:	040121.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	109	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP9-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-19 1/0.5
Date Analyzed:	04/01/21	Data File:	040122.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	84	118
Toluene-d8	100	86	117
4-Bromofluorobenzene	111	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP9-7.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-20 1/0.5
Date Analyzed:	04/01/21	Data File:	040134.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP10-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-21 1/0.5
Date Analyzed:	04/01/21	Data File:	040135.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	84	118
Toluene-d8	105	86	117
4-Bromofluorobenzene	101	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP11-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-22 1/0.5
Date Analyzed:	04/02/21	Data File:	040136.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	116	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	94	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP2-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-23 1/0.5
Date Analyzed:	04/02/21	Data File:	040137.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	105	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP2-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-24 1/0.5
Date Analyzed:	04/02/21	Data File:	040138.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	118
Toluene-d8	92	86	117
4-Bromofluorobenzene	105	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP1-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-25 1/0.5
Date Analyzed:	04/02/21	Data File:	040139.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	84	118
Toluene-d8	95	86	117
4-Bromofluorobenzene	113	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP1-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-26 1/0.5
Date Analyzed:	04/02/21	Data File:	040140.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	106	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP7-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-28 1/0.5
Date Analyzed:	04/02/21	Data File:	040141.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	84	118
Toluene-d8	92	86	117
4-Bromofluorobenzene	111	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP7-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-29 1/0.5
Date Analyzed:	04/02/21	Data File:	040142.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	115	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-30 1/0.5
Date Analyzed:	04/02/21	Data File:	040143.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	105	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-31 1/0.5
Date Analyzed:	04/02/21	Data File:	040144.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	87	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP6-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-32 1/0.5
Date Analyzed:	04/02/21	Data File:	040145.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	118
Toluene-d8	100	86	117
4-Bromofluorobenzene	104	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP6-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-33 1/0.5
Date Analyzed:	04/02/21	Data File:	040146.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	84	118
Toluene-d8	99	86	117
4-Bromofluorobenzene	100	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-679 mb 1/0.5
Date Analyzed:	04/01/21	Data File:	040125.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	118
Toluene-d8	94	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-756 mb 1/0.5
Date Analyzed:	04/01/21	Data File:	040126.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	86	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	109	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-06
Date Analyzed:	04/02/21	Data File:	040216.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	85	117
Toluene-d8	94	88	112
4-Bromofluorobenzene	113 vo	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-15
Date Analyzed:	04/02/21	Data File:	040217.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	114 vo	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-16
Date Analyzed:	04/02/21	Data File:	040218.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	93	88	112
4-Bromofluorobenzene	112 vo	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-27
Date Analyzed:	04/02/21	Data File:	040219.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	85	117
Toluene-d8	94	88	112
4-Bromofluorobenzene	110	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	12 lc	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank 1	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-34
Date Analyzed:	04/02/21	Data File:	040215.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	85	117
Toluene-d8	94	88	112
4-Bromofluorobenzene	105	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	01-757 mb
Date Analyzed:	04/02/21	Data File:	040211.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	86	113
Toluene-d8	97	88	114
4-Bromofluorobenzene	99	88	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10 ca	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP4-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-01 1/6
Date Analyzed:	04/02/21	Data File:	040206.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	60	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP4-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-02 1/6
Date Analyzed:	04/02/21	Data File:	040218.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP4-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-03 1/6
Date Analyzed:	04/02/21	Data File:	040217.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	67	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP3-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-04 1/6
Date Analyzed:	04/02/21	Data File:	040207.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	59	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP3-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-05 1/6
Date Analyzed:	04/02/21	Data File:	040208.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	59	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP5-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-07 1/6
Date Analyzed:	04/02/21	Data File:	040209.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP5-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-08 1/6
Date Analyzed:	04/02/21	Data File:	040210.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	48	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP15-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-09 1/6
Date Analyzed:	04/02/21	Data File:	040216.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	62	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP15-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-10 1/6
Date Analyzed:	04/02/21	Data File:	040211.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP14-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-11 1/6
Date Analyzed:	04/02/21	Data File:	040212.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	47	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP14-10.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-12 1/6
Date Analyzed:	04/02/21	Data File:	040222.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	60	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP13-2.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-13 1/6
Date Analyzed:	04/02/21	Data File:	040213.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	100	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP13-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-14 1/6
Date Analyzed:	04/02/21	Data File:	040205.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP8-4.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-17 1/6
Date Analyzed:	04/02/21	Data File:	040206.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	75	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP8-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-18 1/6
Date Analyzed:	04/02/21	Data File:	040215.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	53	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP9-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-19 1/6
Date Analyzed:	04/02/21	Data File:	040216.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	59	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP9-7.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-20 1/6
Date Analyzed:	04/02/21	Data File:	040217.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	52	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP10-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-21 1/6
Date Analyzed:	04/02/21	Data File:	040215.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	62	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP11-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-22 1/6
Date Analyzed:	04/02/21	Data File:	040221.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	52	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP2-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-23 1/6
Date Analyzed:	04/02/21	Data File:	040207.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	51	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP2-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-24 1/6
Date Analyzed:	04/02/21	Data File:	040208.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	60	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP1-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-25 1/6
Date Analyzed:	04/02/21	Data File:	040209.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP1-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-26 1/6
Date Analyzed:	04/02/21	Data File:	040218.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	58	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP7-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-28 1/6
Date Analyzed:	04/02/21	Data File:	040219.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	57	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP7-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-29 1/6
Date Analyzed:	04/02/21	Data File:	040220.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	64	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-30 1/6
Date Analyzed:	04/02/21	Data File:	040210.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	68	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-31 1/6
Date Analyzed:	04/02/21	Data File:	040211.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP6-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-32 1/6
Date Analyzed:	04/02/21	Data File:	040212.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	76	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP6-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-33 1/6
Date Analyzed:	04/02/21	Data File:	040213.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-751 mb2 1/6
Date Analyzed:	04/02/21	Data File:	040204.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	81	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-773 mb 1/6
Date Analyzed:	04/02/21	Data File:	040204.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	79	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-06
Date Analyzed:	04/06/21	Data File:	040613.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	25	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-15
Date Analyzed:	04/06/21	Data File:	040614.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	43	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-16
Date Analyzed:	04/06/21	Data File:	040615.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-27
Date Analyzed:	04/06/21	Data File:	040616.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	8 ip	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	01-791 mb
Date Analyzed:	04/06/21	Data File:	040606.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 103585-12 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	mg/kg (ppm)	20	<5	100	105	50-150	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	105	71-131

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 103585-33 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	110	71-131

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 104046-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	120	130	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	101	69-134

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 103585-12 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	94	86	64-133	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	58-147

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 103585-24 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	96	64-133	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	58-147

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	108	108	63-142	0

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 6020B

Laboratory Code: 104029-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	112	109	75-125	3
Barium	ug/L (ppb)	50	9.89	98	95	75-125	3
Cadmium	ug/L (ppb)	5	<1	96	96	75-125	0
Chromium	ug/L (ppb)	20	1.70	97	97	75-125	0
Lead	ug/L (ppb)	10	<1	91	90	75-125	1
Mercury	ug/L (ppb)	5	<1	91	93	75-125	2
Selenium	ug/L (ppb)	5	<1	115	112	75-125	3
Silver	ug/L (ppb)	5	<1	91	89	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	102	80-120
Barium	ug/L (ppb)	50	97	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	98	80-120
Mercury	ug/L (ppb)	5	97	80-120
Selenium	ug/L (ppb)	5	102	80-120
Silver	ug/L (ppb)	5	92	80-120

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Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 104043-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.36	102	101	75-125	1
Barium	ug/L (ppb)	50	39.2	105	105	75-125	0
Cadmium	ug/L (ppb)	5	<1	97	97	75-125	0
Chromium	ug/L (ppb)	20	1.12	101	101	75-125	0
Lead	ug/L (ppb)	10	<1	85	85	75-125	0
Mercury	ug/L (ppb)	5	<1	89	90	75-125	1
Selenium	ug/L (ppb)	5	2.92	112	107	75-125	5
Silver	ug/L (ppb)	5	<1	85	84	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	103	80-120
Barium	ug/L (ppb)	50	98	80-120
Cadmium	ug/L (ppb)	5	100	80-120
Chromium	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	99	80-120
Mercury	ug/L (ppb)	5	100	80-120
Selenium	ug/L (ppb)	5	105	80-120
Silver	ug/L (ppb)	5	94	80-120

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QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	93	93	80-120	0
Barium	ug/L (ppb)	50	101	100	80-120	1
Cadmium	ug/L (ppb)	5	102	101	80-120	1
Chromium	ug/L (ppb)	20	105	104	80-120	1
Lead	ug/L (ppb)	10	94	94	80-120	0
Mercury	ug/L (ppb)	5	95	96	80-120	1
Selenium	ug/L (ppb)	5	102	97	80-120	5
Silver	ug/L (ppb)	5	92	91	80-120	1

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QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 103552-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	88	83	75-125	6
Barium	mg/kg (ppm)	50	33.7	129 b	114 b	75-125	12 b
Cadmium	mg/kg (ppm)	10	<5	96	95	75-125	1
Chromium	mg/kg (ppm)	50	14.4	101	101	75-125	0
Lead	mg/kg (ppm)	50	13.7	113	97	75-125	15
Mercury	mg/kg (ppm	5	<5	95	84	75-125	12
Selenium	mg/kg (ppm)	5	<5	84	84	75-125	0
Silver	mg/kg (ppm)	10	<5	87	87	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	92	80-120
Barium	mg/kg (ppm)	50	104	80-120
Cadmium	mg/kg (ppm)	10	103	80-120
Chromium	mg/kg (ppm)	50	113	80-120
Lead	mg/kg (ppm)	50	98	80-120
Mercury	mg/kg (ppm)	5	99	80-120
Selenium	mg/kg (ppm)	5	92	80-120
Silver	mg/kg (ppm)	10	96	80-120

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 103585-12 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.54	97	101	75-125	4
Barium	mg/kg (ppm)	50	29.2	127 b	128 b	75-125	1 b
Cadmium	mg/kg (ppm)	10	<1	106	102	75-125	4
Chromium	mg/kg (ppm)	50	14.7	113	111	75-125	2
Lead	mg/kg (ppm)	50	1.18	94	91	75-125	3
Mercury	mg/kg (ppm	5	<1	96	93	75-125	3
Selenium	mg/kg (ppm)	5	<1	97	91	75-125	6
Silver	mg/kg (ppm)	10	<1	99	93	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Barium	mg/kg (ppm)	50	103	80-120
Cadmium	mg/kg (ppm)	10	101	80-120
Chromium	mg/kg (ppm)	50	111	80-120
Lead	mg/kg (ppm)	50	98	80-120
Mercury	mg/kg (ppm)	5	91	80-120
Selenium	mg/kg (ppm)	5	96	80-120
Silver	mg/kg (ppm)	10	96	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 103339-29 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	5 vo	4 vo	10-142	22 vo
Chloromethane	mg/kg (ppm)	1	<0.5	21	21	10-126	0
Vinyl chloride	mg/kg (ppm)	1	<0.005	19	18	10-138	5
Bromomethane	mg/kg (ppm)	1	<0.5	52	38	10-163	31 vo
Chloroethane	mg/kg (ppm)	1	<0.5	30	28	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	17	15	10-176	12
Acetone	mg/kg (ppm)	5	<5	57	53	10-163	7
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	36	33	10-160	9
Hexane	mg/kg (ppm)	1	<0.25	14	12	10-137	15
Methylene chloride	mg/kg (ppm)	1	<0.5	53	50	10-156	6
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	54	50	21-145	8
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	41	39	14-137	5
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	45	42	19-140	7
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	47	42	10-158	11
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	48	45	25-135	6
Chloroform	mg/kg (ppm)	1	<0.05	50	47	21-145	6
2-Butanone (MEK)	mg/kg (ppm)	5	<0.5	56	54	19-147	4
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	52	51	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	44	41	10-156	7
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	44	40	17-140	10
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	43	40	9-164	7
Benzene	mg/kg (ppm)	1	<0.03	49	46	29-129	6
Trichloroethene	mg/kg (ppm)	1	<0.02	48	46	21-139	4
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	50	47	30-135	6
Bromodichloromethane	mg/kg (ppm)	1	<0.05	47	46	23-155	2
Dibromomethane	mg/kg (ppm)	1	<0.05	53	51	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	5	<0.5	58	56	24-155	4
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	52	49	28-144	6
Toluene	mg/kg (ppm)	1	<0.05	55	53	35-130	4
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	52	51	26-149	2
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	58	55	10-205	5
2-Hexanone	mg/kg (ppm)	5	<0.5	61	58	15-166	5
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	57	56	31-137	2
Tetrachloroethene	mg/kg (ppm)	1	<0.025	53	50	20-133	6
Dibromochloromethane	mg/kg (ppm)	1	<0.05	51	49	28-150	4
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	57	56	28-142	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	59	56	32-129	5
Ethylbenzene	mg/kg (ppm)	1	<0.05	56	52	32-137	7
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	55	50	31-143	10
m,p-Xylene	mg/kg (ppm)	2	<0.1	58	53	34-136	9
o-Xylene	mg/kg (ppm)	1	<0.05	57	54	33-134	5
Styrene	mg/kg (ppm)	1	<0.05	56	53	35-137	6
Isopropylbenzene	mg/kg (ppm)	1	<0.05	54	51	31-142	6
Bromoform	mg/kg (ppm)	1	<0.05	50	47	21-156	6
n-Propylbenzene	mg/kg (ppm)	1	<0.05	55	52	23-146	6
Bromobenzene	mg/kg (ppm)	1	<0.05	60	57	34-130	5
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	57	53	18-149	7
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	61	55	28-140	10
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	60	57	25-144	5
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	57	54	31-134	5
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	57	54	31-136	5
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	57	52	30-137	9
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	56	52	10-182	7
sec-Butylbenzene	mg/kg (ppm)	1	0.051	58	52	23-145	11
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	57	51	21-149	11
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	60	56	30-131	7
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	60	56	29-129	7
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	58	56	31-132	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	49	50	11-161	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	54	48	22-142	12
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	53	47	10-142	12
Naphthalene	mg/kg (ppm)	1	<0.05	56	53	14-157	6
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	55	50	20-144	10

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	42	10-146
Chloromethane	mg/kg (ppm)	1	56	27-133
Vinyl chloride	mg/kg (ppm)	1	57	22-139
Bromomethane	mg/kg (ppm)	1	75	38-114
Chloroethane	mg/kg (ppm)	1	59	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	68	10-196
Acetone	mg/kg (ppm)	5	75	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	88	47-128
Hexane	mg/kg (ppm)	1	74	43-142
Methylene chloride	mg/kg (ppm)	1	88	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	91	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	88	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	85	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	85	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	90	72-127
Chloroform	mg/kg (ppm)	1	89	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	84	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	92	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	86	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	88	69-128
Carbon tetrachloride	mg/kg (ppm)	1	90	60-139
Benzene	mg/kg (ppm)	1	91	71-118
Trichloroethene	mg/kg (ppm)	1	91	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	89	72-127
Bromodichloromethane	mg/kg (ppm)	1	85	57-126
Dibromomethane	mg/kg (ppm)	1	91	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	95	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	92	67-122
Toluene	mg/kg (ppm)	1	99	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	95	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	100	64-115
2-Hexanone	mg/kg (ppm)	5	97	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	98	72-130
Tetrachloroethene	mg/kg (ppm)	1	100	72-114
Dibromochloromethane	mg/kg (ppm)	1	93	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	100	74-132
Chlorobenzene	mg/kg (ppm)	1	103	76-111
Ethylbenzene	mg/kg (ppm)	1	97	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	96	64-121
m,p-Xylene	mg/kg (ppm)	2	100	78-122
o-Xylene	mg/kg (ppm)	1	99	77-124
Styrene	mg/kg (ppm)	1	99	74-126
Isopropylbenzene	mg/kg (ppm)	1	95	76-127
Bromoform	mg/kg (ppm)	1	91	56-132
n-Propylbenzene	mg/kg (ppm)	1	96	74-124
Bromobenzene	mg/kg (ppm)	1	102	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	96	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	94	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	95	61-137
2-Chlorotoluene	mg/kg (ppm)	1	96	74-121
4-Chlorotoluene	mg/kg (ppm)	1	97	75-122
tert-Butylbenzene	mg/kg (ppm)	1	96	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	95	76-125
sec-Butylbenzene	mg/kg (ppm)	1	95	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	94	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	99	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	84	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	93	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	92	50-153
Naphthalene	mg/kg (ppm)	1	93	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	95	63-138

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 103585-12 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1.0	<0.05	24	14	10-47	53 vo
Chloromethane	mg/kg (ppm)	1.0	<0.05	48	38	10-88	23 vo
Vinyl chloride	mg/kg (ppm)	1.0	<0.005	58	46	10-79	23 vo
Bromomethane	mg/kg (ppm)	1.0	<0.5	78	71	10-85	9
Chloroethane	mg/kg (ppm)	1.0	<0.05	73	59	11-106	21 vo
Trichlorofluoromethane	mg/kg (ppm)	1.0	<0.05	67	51	10-85	27 vo
Acetone	mg/kg (ppm)	5.0	<5	65	59	10-224	10
1,1-Dichloroethene	mg/kg (ppm)	1.0	<0.005	82	68	11-105	19
Hexane	mg/kg (ppm)	1.0	<0.025	68	62	10-106	9
Methylene chloride	mg/kg (ppm)	1.0	<0.5	77	53	10-139	37 vo
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	<0.005	86	72	18-131	18
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.005	85	70	16-122	19
1,1-Dichloroethane	mg/kg (ppm)	1.0	<0.005	88	74	19-125	17
2,2-Dichloropropane	mg/kg (ppm)	1.0	<0.005	75	63	10-184	17
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.005	87	71	18-129	20
Chloroform	mg/kg (ppm)	1.0	<0.01	85	71	18-126	18
2-Butanone (MEK)	mg/kg (ppm)	5.0	<0.5	70	60	10-190	15
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	<0.005	90	74	19-138	20
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	<0.005	84	71	16-126	17
1,1-Dichloropropene	mg/kg (ppm)	1.0	<0.005	85	70	19-129	19
Carbon tetrachloride	mg/kg (ppm)	1.0	<0.005	84	72	13-125	15
Benzene	mg/kg (ppm)	1.0	<0.005	85	71	15-129	18
Trichloroethene	mg/kg (ppm)	1.0	<0.005	87	73	14-127	17
1,2-Dichloropropane	mg/kg (ppm)	1.0	<0.005	89	75	17-137	17
Bromodichloromethane	mg/kg (ppm)	1.0	<0.025	90	74	24-130	20
Dibromomethane	mg/kg (ppm)	1.0	<0.025	81	66	20-138	20
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	<0.5	85	74	21-139	14
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.005	88	75	17-135	16
Toluene	mg/kg (ppm)	1.0	<0.005	84	77	15-129	9
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.005	88	80	18-130	10
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	<0.005	90	84	29-128	7
2-Hexanone	mg/kg (ppm)	5.0	<0.5	87	80	28-142	8
1,3-Dichloropropane	mg/kg (ppm)	1.0	<0.025	87	76	20-135	13
Tetrachloroethene	mg/kg (ppm)	1.0	<0.005	85	78	20-121	9
Dibromochloromethane	mg/kg (ppm)	1.0	<0.025	86	80	11-138	7
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	<0.005	87	80	21-130	8
Chlorobenzene	mg/kg (ppm)	1.0	<0.005	88	80	19-129	10
Ethylbenzene	mg/kg (ppm)	1.0	<0.005	87	80	23-133	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.005	85	79	16-127	7
m,p-Xylene	mg/kg (ppm)	2.0	<0.01	86	79	19-134	8
o-Xylene	mg/kg (ppm)	1.0	<0.005	86	80	20-132	7
Styrene	mg/kg (ppm)	1.0	<0.005	85	79	23-127	7
Isopropylbenzene	mg/kg (ppm)	1.0	<0.005	86	81	21-134	6
Bromoform	mg/kg (ppm)	1.0	<0.005	83	77	10-142	7
n-Propylbenzene	mg/kg (ppm)	1.0	<0.005	87	80	10-141	8
Bromobenzene	mg/kg (ppm)	1.0	<0.005	81	78	10-135	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	<0.005	84	80	20-136	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.025	85	77	10-234	10
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	<0.025	88	81	10-144	8
2-Chlorotoluene	mg/kg (ppm)	1.0	<0.005	83	79	10-139	5
4-Chlorotoluene	mg/kg (ppm)	1.0	<0.005	87	80	10-139	8
tert-Butylbenzene	mg/kg (ppm)	1.0	<0.005	86	78	10-144	10
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	<0.005	81	77	24-133	5
sec-Butylbenzene	mg/kg (ppm)	1.0	<0.005	88	82	23-134	7
p-Isopropyltoluene	mg/kg (ppm)	1.0	<0.005	86	80	25-131	7
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	<0.005	83	78	10-143	6
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	<0.005	86	79	10-146	8
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	<0.005	85	78	10-144	9
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	<0.5	85	80	10-163	6
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	<0.025	87	84	10-147	4
Hexachlorobutadiene	mg/kg (ppm)	1.0	<0.025	81	75	10-162	8
Naphthalene	mg/kg (ppm)	1.0	<0.005	87	81	30-138	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	<0.025	83	75	10-173	10

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1.0	57	10-93
Chloromethane	mg/kg (ppm)	1.0	78	34-101
Vinyl chloride	mg/kg (ppm)	1.0	97	47-106
Bromomethane	mg/kg (ppm)	1.0	89	38-123
Chloroethane	mg/kg (ppm)	1.0	100	44-123
Trichlorofluoromethane	mg/kg (ppm)	1.0	93	56-108
Acetone	mg/kg (ppm)	5.0	94	70-130
1,1-Dichloroethene	mg/kg (ppm)	1.0	116	61-118
Hexane	mg/kg (ppm)	1.0	125	54-142
Methylene chloride	mg/kg (ppm)	1.0	109	10-213
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	112	70-130
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	113	70-130
1,1-Dichloroethane	mg/kg (ppm)	1.0	116	70-130
2,2-Dichloropropane	mg/kg (ppm)	1.0	123	70-130
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	112	70-130
Chloroform	mg/kg (ppm)	1.0	111	70-130
2-Butanone (MEK)	mg/kg (ppm)	5.0	103	70-130
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	116	66-140
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	113	70-130
1,1-Dichloropropene	mg/kg (ppm)	1.0	111	70-130
Carbon tetrachloride	mg/kg (ppm)	1.0	115	70-130
Benzene	mg/kg (ppm)	1.0	109	70-130
Trichloroethene	mg/kg (ppm)	1.0	110	53-133
1,2-Dichloropropane	mg/kg (ppm)	1.0	114	67-137
Bromodichloromethane	mg/kg (ppm)	1.0	118	70-130
Dibromomethane	mg/kg (ppm)	1.0	106	70-130
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	111	70-130
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	118	70-130
Toluene	mg/kg (ppm)	1.0	107	63-127
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	117	70-130
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	115	70-130
2-Hexanone	mg/kg (ppm)	5.0	112	65-148
1,3-Dichloropropane	mg/kg (ppm)	1.0	109	67-135
Tetrachloroethene	mg/kg (ppm)	1.0	108	66-124
Dibromochloromethane	mg/kg (ppm)	1.0	110	62-139
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	110	70-130
Chlorobenzene	mg/kg (ppm)	1.0	111	70-130
Ethylbenzene	mg/kg (ppm)	1.0	112	70-130
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	109	68-129
m,p-Xylene	mg/kg (ppm)	2.0	111	67-129
o-Xylene	mg/kg (ppm)	1.0	111	70-130
Styrene	mg/kg (ppm)	1.0	109	70-130
Isopropylbenzene	mg/kg (ppm)	1.0	113	70-130
Bromoform	mg/kg (ppm)	1.0	107	63-141
n-Propylbenzene	mg/kg (ppm)	1.0	108	68-125
Bromobenzene	mg/kg (ppm)	1.0	102	70-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	108	66-128
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	106	35-184
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	104	70-130
2-Chlorotoluene	mg/kg (ppm)	1.0	105	70-130
4-Chlorotoluene	mg/kg (ppm)	1.0	108	70-130
tert-Butylbenzene	mg/kg (ppm)	1.0	107	70-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	109	64-133
sec-Butylbenzene	mg/kg (ppm)	1.0	113	70-130
p-Isopropyltoluene	mg/kg (ppm)	1.0	113	70-130
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	104	70-130
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	105	70-130
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	105	70-130
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	112	70-130
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	119	70-130
Hexachlorobutadiene	mg/kg (ppm)	1.0	106	67-140
Naphthalene	mg/kg (ppm)	1.0	116	67-143
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	113	57-161

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 103575-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	95	10-172
Chloromethane	ug/L (ppb)	10	<10	70	25-166
Vinyl chloride	ug/L (ppb)	10	<0.2	79	36-166
Bromomethane	ug/L (ppb)	10	<5	109	47-169
Chloroethane	ug/L (ppb)	10	<1	79	46-160
Trichlorofluoromethane	ug/L (ppb)	10	<1	86	44-165
Acetone	ug/L (ppb)	50	<50	85	10-182
1,1-Dichloroethene	ug/L (ppb)	10	<1	94	58-142
Hexane	ug/L (ppb)	10	<5	89	38-152
Methylene chloride	ug/L (ppb)	10	<5	105	50-145
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	94	61-136
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	94	61-136
1,1-Dichloroethane	ug/L (ppb)	10	<1	89	63-135
2,2-Dichloropropane	ug/L (ppb)	10	<1	91	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	92	63-134
Chloroform	ug/L (ppb)	10	<1	93	61-135
2-Butanone (MEK)	ug/L (ppb)	50	<20	94	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	93	48-149
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	91	60-146
1,1-Dichloropropene	ug/L (ppb)	10	<1	93	69-133
Carbon tetrachloride	ug/L (ppb)	10	<1	95	56-152
Benzene	ug/L (ppb)	10	<0.35	92	57-135
Trichloroethene	ug/L (ppb)	10	<1	92	66-135
1,2-Dichloropropane	ug/L (ppb)	10	<1	90	59-136
Bromodichloromethane	ug/L (ppb)	10	<1	85	61-150
Dibromomethane	ug/L (ppb)	10	<1	96	66-141
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	100	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	91	52-147
Toluene	ug/L (ppb)	10	<1	97	50-137
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	90	53-142
1,1,2-Trichloroethane	ug/L (ppb)	10	<1	97	68-131
2-Hexanone	ug/L (ppb)	50	<10	101	10-185
1,3-Dichloropropane	ug/L (ppb)	10	<1	98	60-135
Tetrachloroethene	ug/L (ppb)	10	<1	104	10-226
Dibromochloromethane	ug/L (ppb)	10	<1	89	52-145
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	100	62-135
Chlorobenzene	ug/L (ppb)	10	<1	102	63-130
Ethylbenzene	ug/L (ppb)	10	<1	96	60-133
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	95	56-143
m,p-Xylene	ug/L (ppb)	20	<2	99	69-135
o-Xylene	ug/L (ppb)	10	<1	100	60-140
Styrene	ug/L (ppb)	10	<1	97	60-133
Isopropylbenzene	ug/L (ppb)	10	<1	95	65-142
Bromoform	ug/L (ppb)	10	<5	84	54-148
n-Propylbenzene	ug/L (ppb)	10	<1	101	58-144
Bromobenzene	ug/L (ppb)	10	<1	107	61-130
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	102	59-134
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	106	53-150
2-Chlorotoluene	ug/L (ppb)	10	<1	100	66-127
4-Chlorotoluene	ug/L (ppb)	10	<1	102	65-130
tert-Butylbenzene	ug/L (ppb)	10	<1	101	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	98	59-146
sec-Butylbenzene	ug/L (ppb)	10	<1	101	64-140
p-Isopropyltoluene	ug/L (ppb)	10	<1	101	65-141
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	104	60-131
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	105	60-129
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	105	60-130
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	92	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	101	52-138
Hexachlorobutadiene	ug/L (ppb)	10	<1	102	60-143
Naphthalene	ug/L (ppb)	10	<1	101	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	104	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	81	85	25-158	5
Chloromethane	ug/L (ppb)	10	68	72	45-156	6
Vinyl chloride	ug/L (ppb)	10	74	77	50-154	4
Bromomethane	ug/L (ppb)	10	99	115	55-143	15
Chloroethane	ug/L (ppb)	10	74	80	58-146	8
Trichlorofluoromethane	ug/L (ppb)	10	78	86	50-150	10
Acetone	ug/L (ppb)	50	79	87	22-155	10
1,1-Dichloroethene	ug/L (ppb)	10	90	93	67-136	3
Hexane	ug/L (ppb)	10	78	80	57-137	3
Methylene chloride	ug/L (ppb)	10	85	91	19-178	7
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	88	93	64-147	6
trans-1,2-Dichloroethene	ug/L (ppb)	10	87	91	68-128	4
1,1-Dichloroethane	ug/L (ppb)	10	85	88	74-135	3
2,2-Dichloropropane	ug/L (ppb)	10	86	91	55-143	6
cis-1,2-Dichloroethene	ug/L (ppb)	10	87	91	74-136	4
Chloroform	ug/L (ppb)	10	88	92	74-134	4
2-Butanone (MEK)	ug/L (ppb)	50	94	97	37-150	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	90	93	66-129	3
1,1,1-Trichloroethane	ug/L (ppb)	10	87	90	74-142	3
1,1-Dichloropropene	ug/L (ppb)	10	87	91	77-129	4
Carbon tetrachloride	ug/L (ppb)	10	90	96	75-158	6
Benzene	ug/L (ppb)	10	89	92	69-134	3
Trichloroethene	ug/L (ppb)	10	88	92	67-133	4
1,2-Dichloropropane	ug/L (ppb)	10	87	91	71-134	4
Bromodichloromethane	ug/L (ppb)	10	82	85	66-126	4
Dibromomethane	ug/L (ppb)	10	92	94	68-132	2
4-Methyl-2-pentanone	ug/L (ppb)	50	98	99	65-138	1
cis-1,3-Dichloropropene	ug/L (ppb)	10	89	91	74-140	2
Toluene	ug/L (ppb)	10	93	95	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	88	90	80-136	2
1,1,2-Trichloroethane	ug/L (ppb)	10	94	96	75-124	2
2-Hexanone	ug/L (ppb)	50	100	102	60-136	2
1,3-Dichloropropane	ug/L (ppb)	10	94	96	76-126	2
Tetrachloroethene	ug/L (ppb)	10	97	99	76-121	2
Dibromochloromethane	ug/L (ppb)	10	89	93	84-133	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	95	99	82-115	4
Chlorobenzene	ug/L (ppb)	10	96	98	83-114	2
Ethylbenzene	ug/L (ppb)	10	93	95	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	92	95	84-127	3
m,p-Xylene	ug/L (ppb)	20	95	97	81-112	2
o-Xylene	ug/L (ppb)	10	94	96	81-121	2
Styrene	ug/L (ppb)	10	92	94	84-119	2
Isopropylbenzene	ug/L (ppb)	10	91	93	80-117	2
Bromoform	ug/L (ppb)	10	89	90	69-121	1
n-Propylbenzene	ug/L (ppb)	10	93	96	74-126	3
Bromobenzene	ug/L (ppb)	10	100	102	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	94	97	78-123	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	95	99	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	10	99	102	67-124	3
2-Chlorotoluene	ug/L (ppb)	10	94	98	77-127	4
4-Chlorotoluene	ug/L (ppb)	10	94	97	78-128	3
tert-Butylbenzene	ug/L (ppb)	10	94	97	80-123	3
1,2,4-Trimethylbenzene	ug/L (ppb)	10	91	96	79-122	5
sec-Butylbenzene	ug/L (ppb)	10	93	96	80-116	3
p-Isopropyltoluene	ug/L (ppb)	10	92	96	81-123	4
1,3-Dichlorobenzene	ug/L (ppb)	10	98	101	83-113	3
1,4-Dichlorobenzene	ug/L (ppb)	10	99	100	81-112	1
1,2-Dichlorobenzene	ug/L (ppb)	10	97	99	84-112	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	92	94	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	10	90	94	72-130	4
Hexachlorobutadiene	ug/L (ppb)	10	88	92	53-141	4
Naphthalene	ug/L (ppb)	10	93	97	64-133	4
1,2,3-Trichlorobenzene	ug/L (ppb)	10	92	96	65-136	4

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 103484-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	108	104	29-125	4
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	332 ip	163 ip	25-137	68 b

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	104	55-137
Aroclor 1260	mg/kg (ppm)	0.25	115	51-150

Date of Report: 04/09/21
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Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 103585-12 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	98	90	44-107	9
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	96	86	38-124	11

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	104	47-158
Aroclor 1260	mg/kg (ppm)	0.25	108	69-147

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	52	50	25-111	4
Aroclor 1260	ug/L (ppb)	0.25	72	66	23-123	9

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

103585

SAMPLE CHAIN OF CUSTODY

03-31-21

BI4/E03/V52/VW5

Page # 1 of 4

Report To: Jacob Letts

Company: GEI

Address: 2101 4th Ave Suite 950

City, State, ZIP: Seattle, WA 98121

Phone: ______ Email: Jletts@geoengineers.com

SAMPLERS (signature): [signature] HE

PROJECT NAME: Snohomish County Airport C1 Hangar

PO #: 5530-014-01

REMARKS: * IF Gx detected, ask PM if he wants to quantify to mineral spirits.

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH ______
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other ______
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	(RCRA 8) Metals	(RCRA 8) Total metals	(RCRA 8) Dissolved metals		Notes
C-1 DP4-3.5	01 A-F	3/30/21	1000	S	6	X	X			X		X	X				
C-1 DP4-5.0	02		1005	S	6	X	X			X		X	X				
C-1 DP4-7.0	03		1010	S	6	X	X			X		X	X				
C-1 DP3-4.0	04		1040	S	6	X	X			X		X	X				
C-1 DP3-7.0	05		1050	S	6	X	X			X		X	X				
C-1 DP3-033021w	06 A-J		1140	gw	10	X	X			X		X		X	X		
C-1 DP5-3.0	07 A-F		1150	S	6	X	X			X		X	X				
C-1 DP5-6.0	08		~~1340~~ 1200	S	6	X	X			X		X	X				
C-1 DP15-4.0	09		1340	S	6	X	X			X		X	X				
C-1 DP15-7.0	10		1350	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
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SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:				

Samples received at 4 °C

103585

Rep[redacted]

Company

Address

City, State, ZIP See pg 1

Phone Email

SAMPLE CHAIN OF CUSTODY ME 03-31-21 [redacted] BI4/E03/VS2/VW5

Page # 2 of 4

SAMPLERS (signature)	
PROJECT NAME	PO # S530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals	Total metals	Diss. metals		Notes
C-1 DP14-5.0	[illegible] A-F	3/30/21	1430	S	6	X	X			X		X	X				
C-1 DP14-10.0	12		1440	S	6	X	X			X		X	X				4 extra VOA's
C-1 DP13-2.0	13		1500	S	6	X	X			X		X	X				labels C-1 DP13-2.5
C-1 DP13-5.0	14		1520	S	6	X	X			X		X	X				
C-1 DP13-033121w	15 A-J	3/31/21	800	gw	10	X	X			X		X		X	X		time on bottle wrong
C-1 DP14-033121w	16		820	gw	10	X	X			X		X		X	X		
C-1 DP8-4.5	17 A-F		900	S	6	X	X			X		X	X				
C-1 DP8-9.0	18		910	S	6	X	X			X		X	X				
C-1 DP9-3.0	19		920	S	6	X	X			X		X	X				
C-1 DP9-7.5	20		930	S	6	X	X			X		X	X				

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SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ataktuk	GEI	3/31/21	16:30
Received by:	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

103585

SAMPLE CHAIN OF CUSTODY 03-31-21 BI4/E03/VS2/VWS

Report To See pg 1

Company

Address

City, State, ZIP

Phone ______ Email

SAMPLERS (signature) ME

Page # 3 of 4

PROJECT NAME	PO #
	5530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
X Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA8 metals	Total metals	Diss. metals	Hex Chrome	Notes
C-1 DP10-4.0	21A-F	3/31/21	1000	S	6	X	X			X		X	X				● -per JL
C-1 DP11-4.0	22		1030	S	6	X	X			X		X	X				4/27/21 ME
C-1 DP2-5.0	23		1100	S	6	X	X			X		X	X				
C-1 DP2-11.0	24		1120	S	6	X	X			X		X	X				
C-1 DP1-3.5	25		1200	S	6	X	X			X		X	X				
C-1 DP1-11.0	26		1220	S	6	X	X			X		X	X			●	
C-1 DP2-033121w	27A-J		1300	gw	10	X	X			X		X		X	X		
C-1 DP7-4.0	28A-F		1300	S	6	X	X			X		X	X				
C-1 DP7-9.0	29		1320	S	6	X	X			X		X	X				
C-1 DP12-3.0	30		1340	S	6	X	X			X		X	X				

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SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBE	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

103585

SAMPLE CHAIN OF CUSTODY ME 03-31-21

BEU/E03/VS2/VWS

Page # 4 of 4

Report To

Company

Address Seepage

City, State, ZIP

Phone ______ Email ______

SAMPLERS (signature)

PROJECT NAME 1

PO # 05530-014-01

REMARKS

INVOICE TO

Project specific RLs? - Yes / No

TURNAROUND TIME

☒ Standard turnaround
☐ RUSH______
Rush charges authorized by:

SAMPLE DISPOSAL

☐ Archive samples
☐ Other______
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals (RCRA 8)				Notes
C1 DP12-8.0	31A-F	3/31/21	1400	S	6	X	X			X		X	X				⊗ per KA 4/1/21 ME
C-1 DPG-3.0	32A-F	03/30/21	1220	soil	5	⊗	⊗			⊗		⊗	⊗				
C-1 DPG-4.0	33	03/30/21	1230	soil	5	⊗	⊗			⊗		⊗	⊗				B4/1
Trip Blank 1	34A-B			water	2					⊗							
Trip Blank 2	35																
Trip Blank 3	36																
Trip Blank 4	37																
Trip Blank 5	38																

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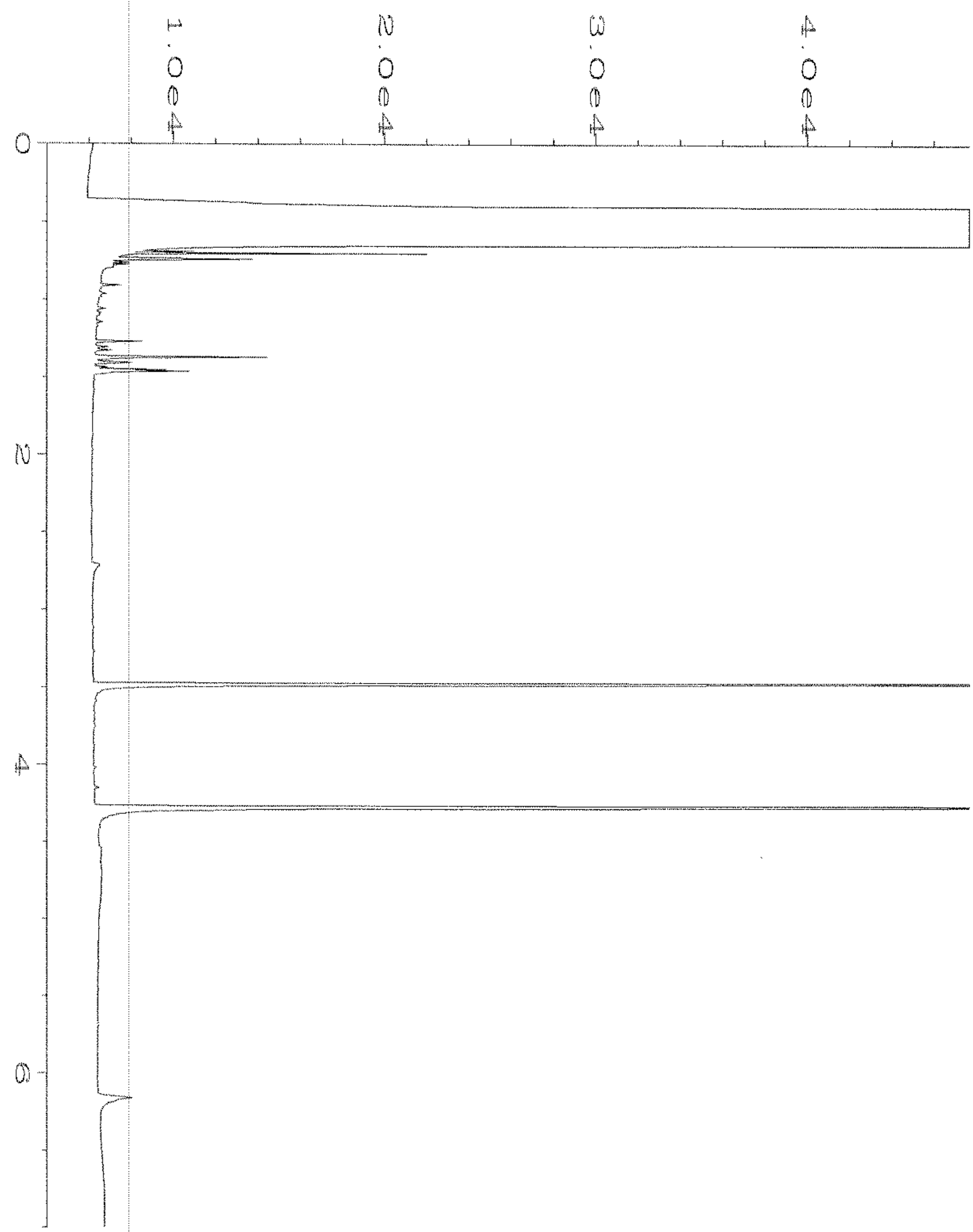
SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	3/31/21	1630
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		



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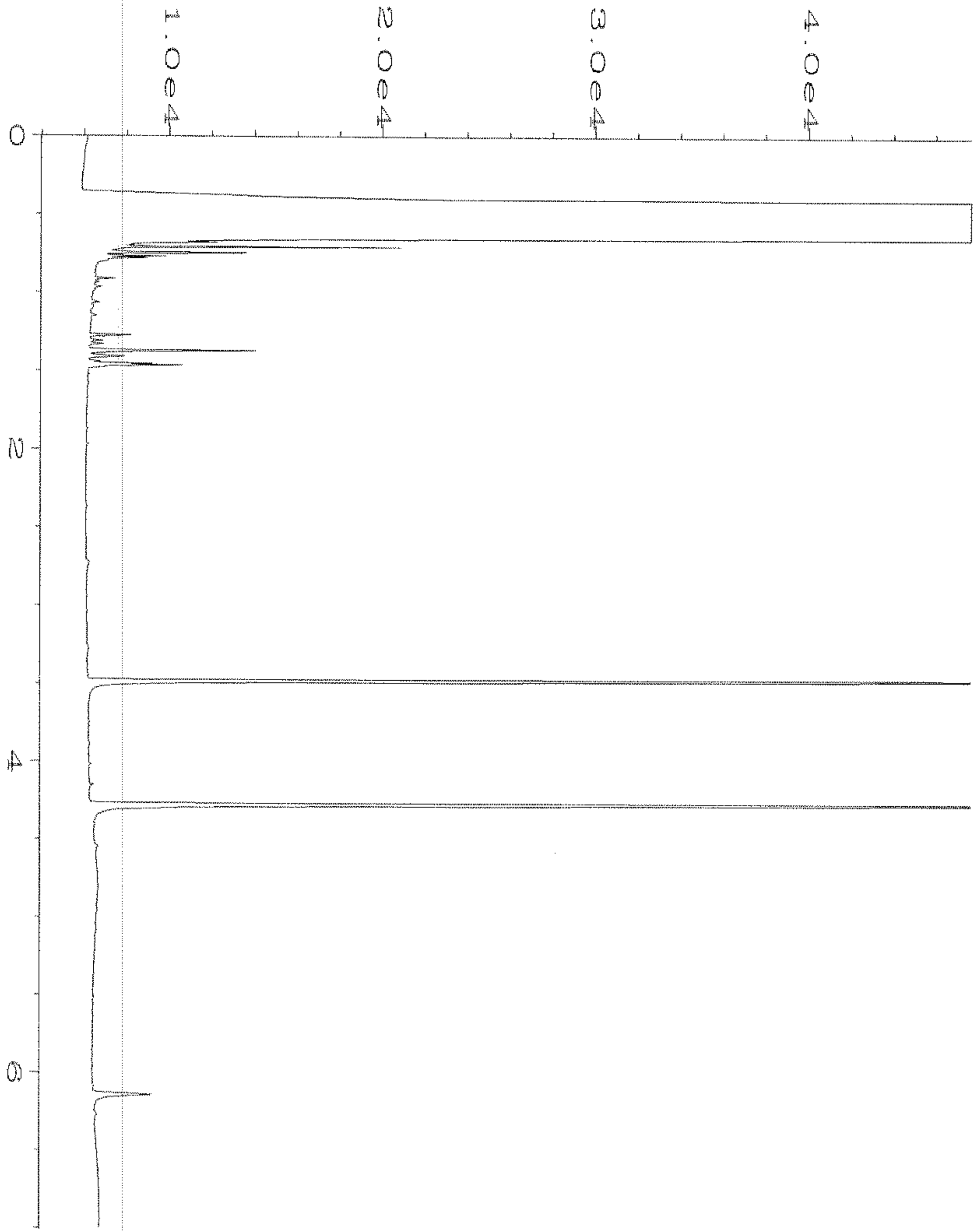
Operator	:	TL	Page Number	:	1
Instrument	:	GC6	Vial Number	:	22
Sample Name	:	103585-01	Injection Number	:	1
Run Time Bar Code	:		Sequence Line	:	6
Acquired on	:	01 Apr 21 03:10 PM	Instrument Method	:	DX.MTH
Report Created on	:	02 Apr 21 07:45 AM	Analysis Method	:	DEFAULT.MTH



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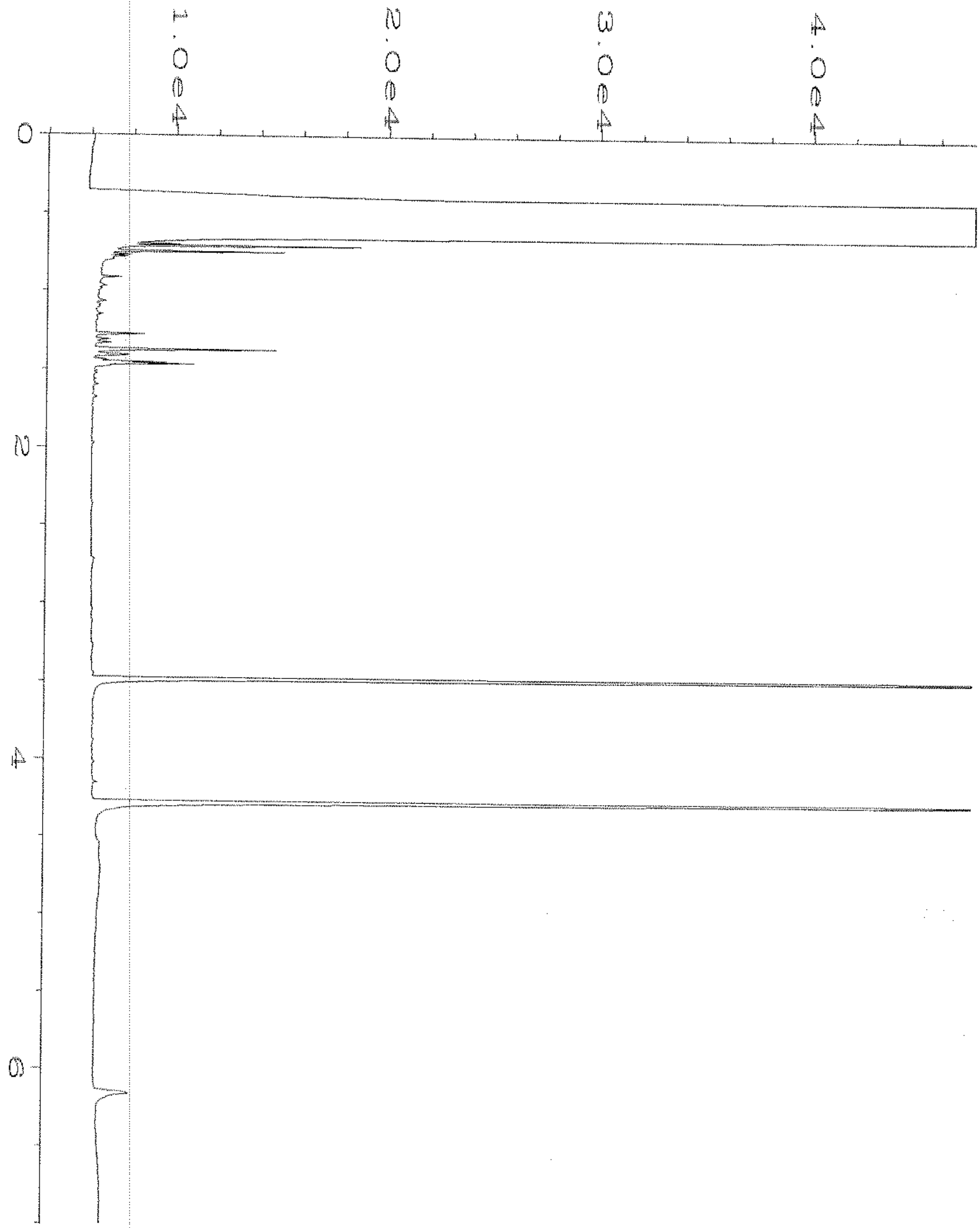
Operator : TL
Instrument : GC6
Sample Name : 103585-02
Run Time Bar Code:
Acquired on : 01 Apr 21 03:21 PM
Report Created on: 02 Apr 21 07:46 AM

Page Number : 1
Vial Number : 23
Injection Number : 1
Sequence Line : 6
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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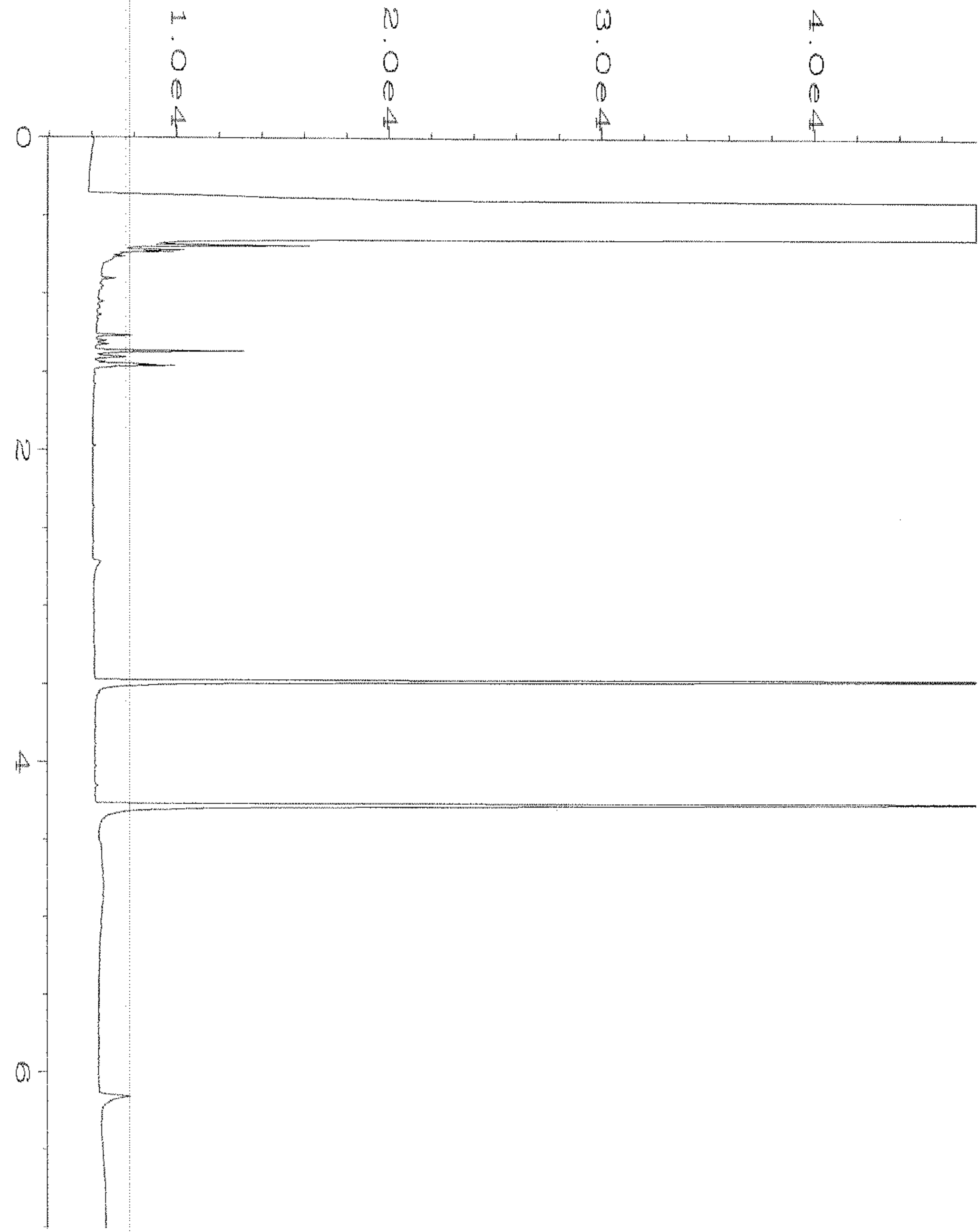
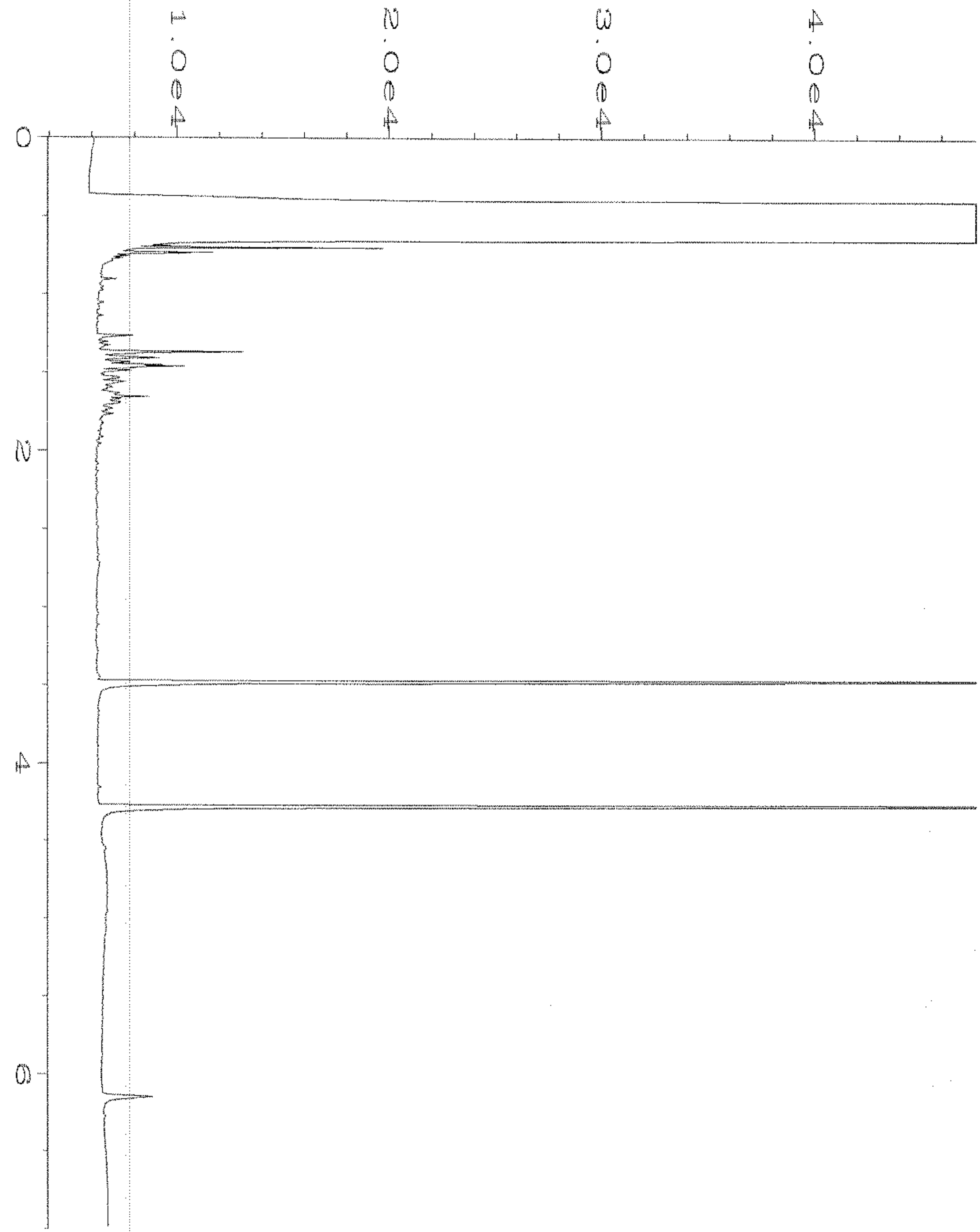
Operator : TL
Instrument : GC6
Sample Name : 103585-03
Run Time Bar Code:
Acquired on : 01 Apr 21 03:32 PM
Report Created on: 02 Apr 21 07:46 AM

Page Number : 1
Vial Number : 24
Injection Number : 1
Sequence Line : 6
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

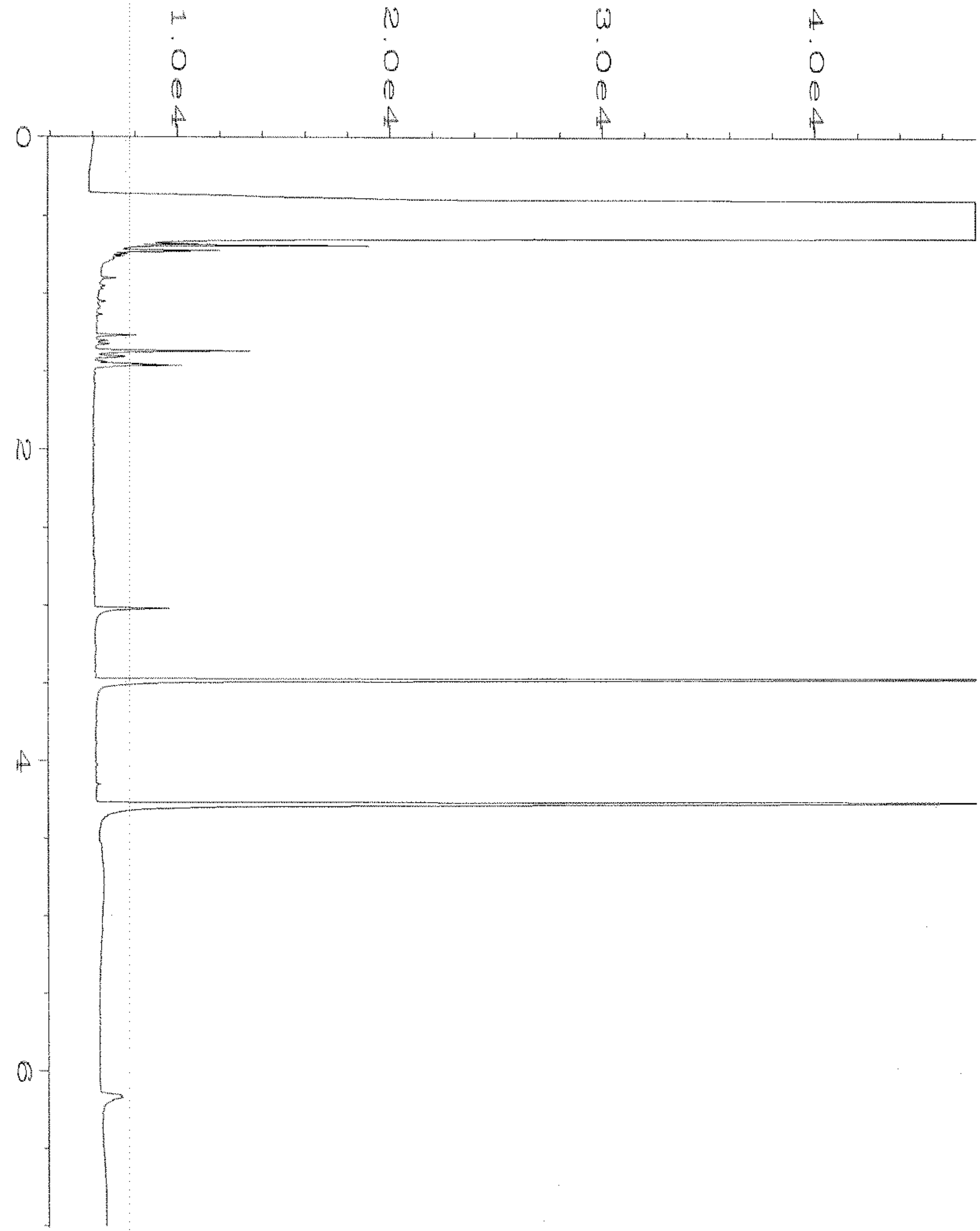


Data File Name   : C:\HPCHEM\6\DATA\04-01-21\025F0601.D
Operator   : TL   Page Number   : 1
Instrument   : GC6   Vial Number   : 25
Sample Name   : 103585-04   Injection Number : 1
Run Time Bar Code: Sequence Line   : 6
Acquired on   : 01 Apr 21   03:43 PM   Instrument Method: DX.MTH
Report Created on: 02 Apr 21   07:46 AM   Analysis Method : DEFAULT.MTH



Data File Name   : C:\HPCHEM\6\DATA\04-01-21\026F0601.D
Operator   : TL
Instrument   : GC6
Sample Name   : 103585-05
Run Time Bar Code:
Acquired on   : 01 Apr 21   03:54 PM
Report Created on: 02 Apr 21   07:46 AM

Page Number   : 1
Vial Number   : 26
Injection Number : 1
Sequence Line   : 6
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



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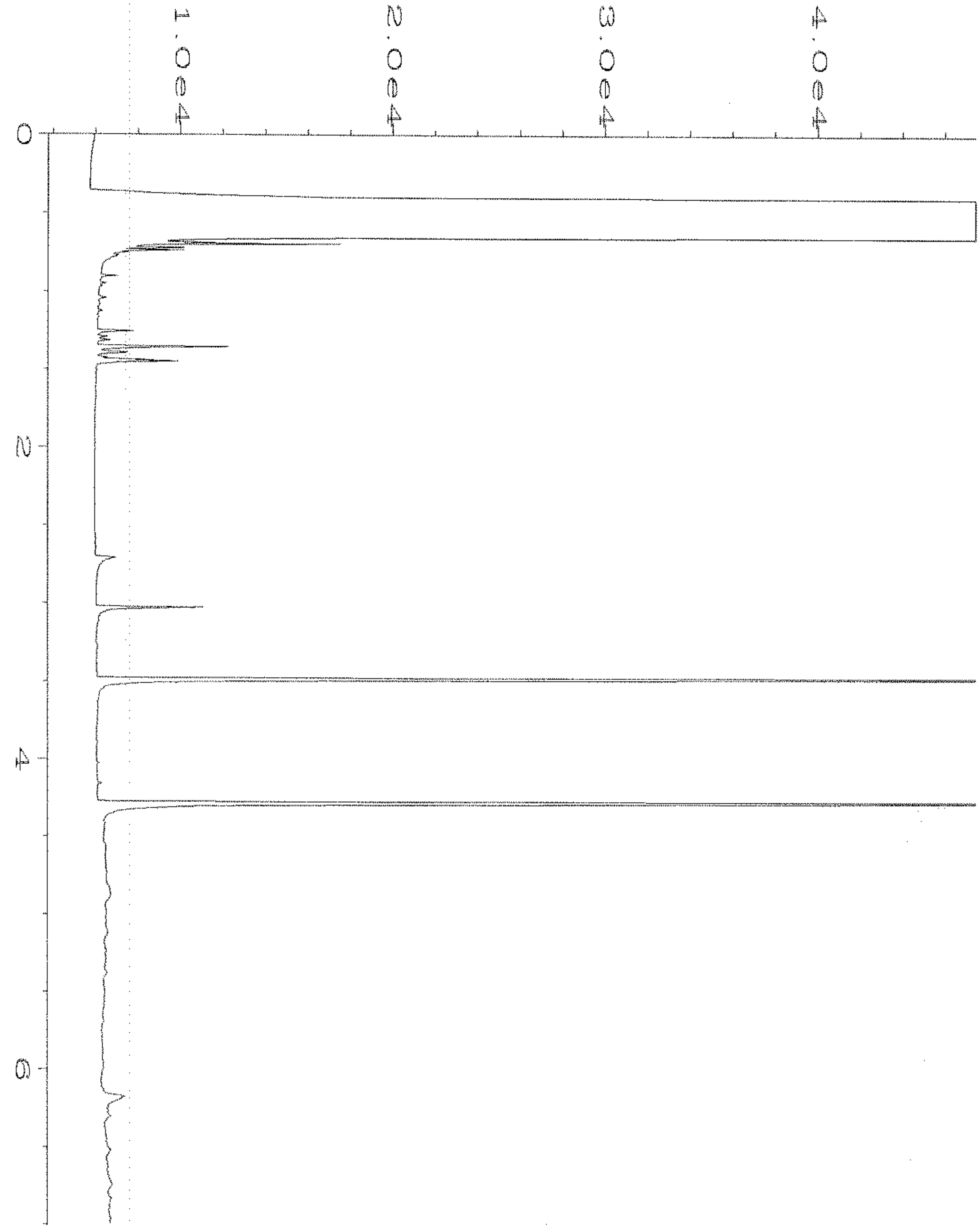
Operator   : TL
Instrument   : GC6
Sample Name   : 103585-07
Run Time Bar Code:
Acquired on   : 01 Apr 21   04:04 PM
Report Created on: 02 Apr 21   07:46 AM

Page Number   : 1
Vial Number   : 27
Injection Number : 1
Sequence Line   : 6
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



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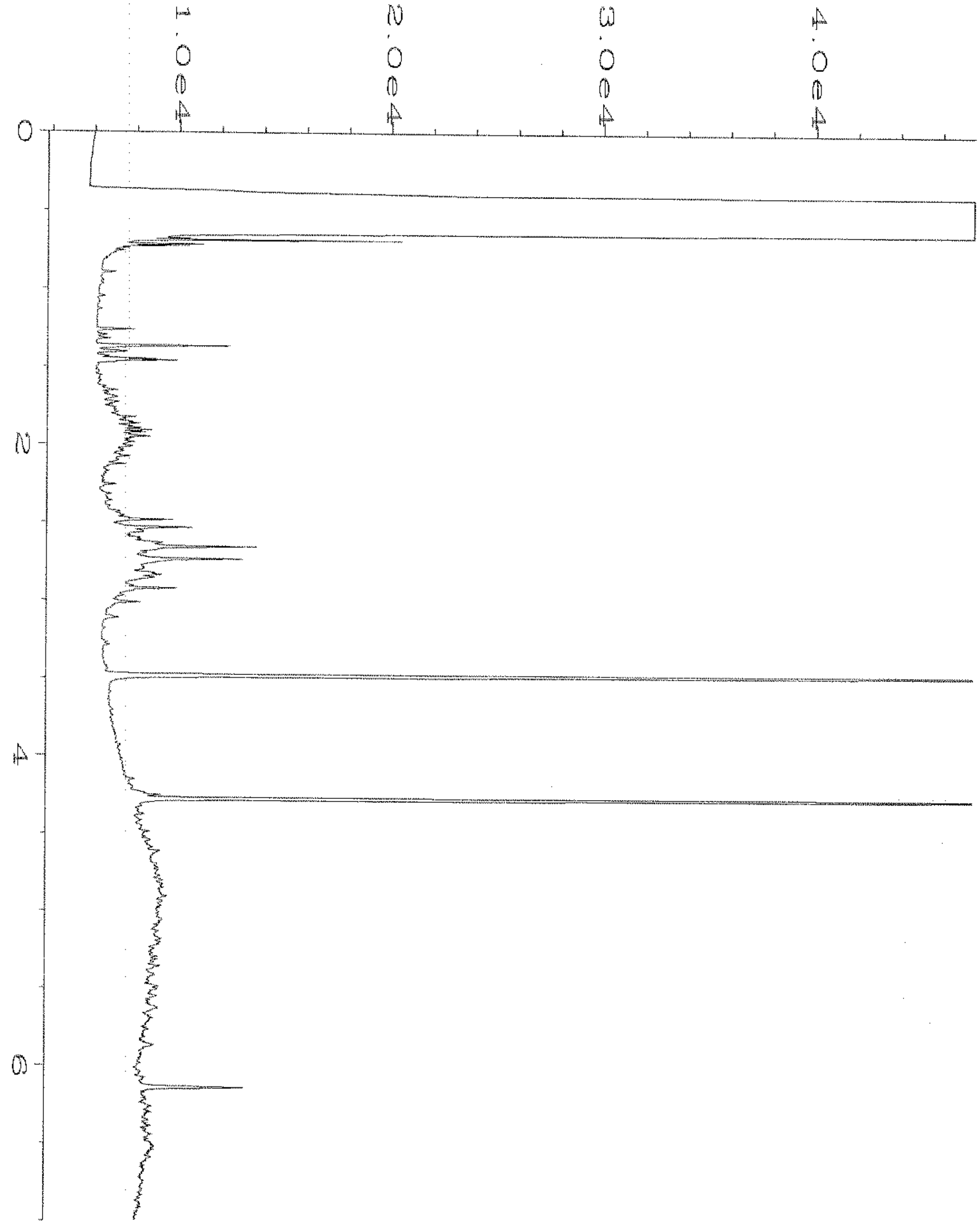
Operator : TL
Instrument : GC6
Sample Name : 103585-08
Run Time Bar Code:
Acquired on : 01 Apr 21 04:45 PM
Report Created on: 02 Apr 21 07:46 AM

Page Number : 1
Vial Number : 28
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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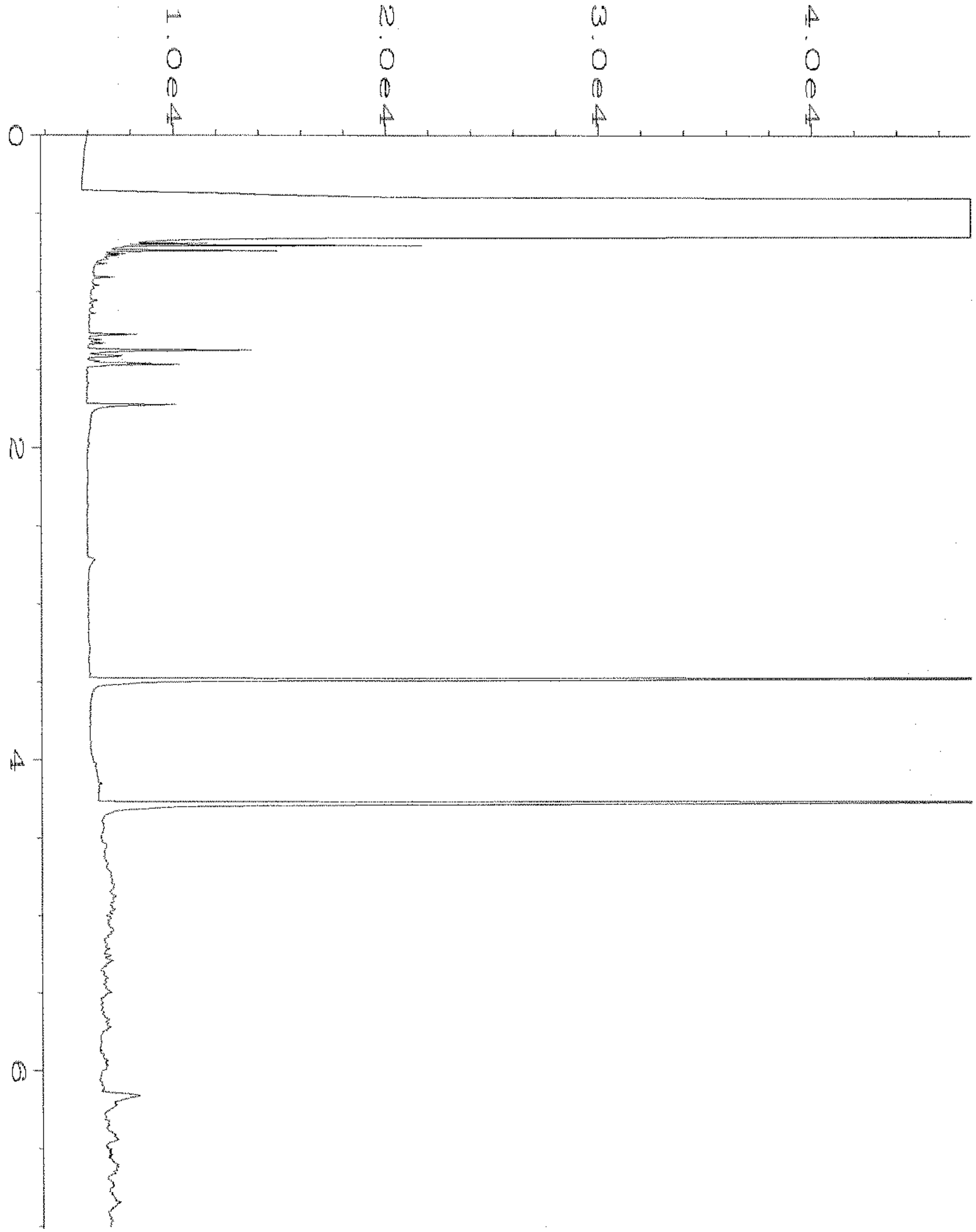
Operator : TL
Instrument : GC6
Sample Name : 103585-09
Run Time Bar Code:
Acquired on : 01 Apr 21 04:53 PM
Report Created on: 02 Apr 21 07:46 AM

Page Number : 1
Vial Number : 29
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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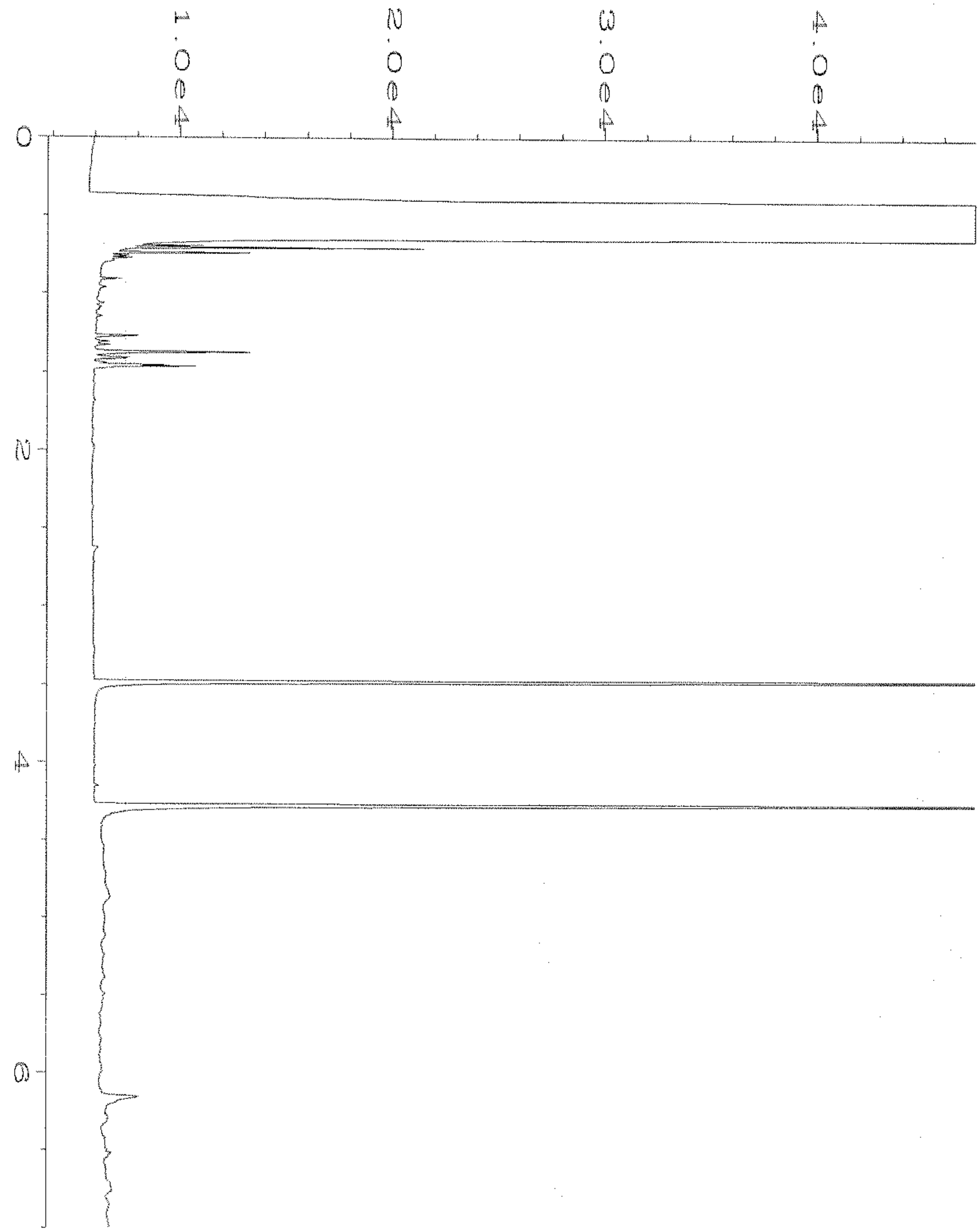
Operator : TL
Instrument : GC6
Sample Name : 103585-10
Run Time Bar Code:
Acquired on : 01 Apr 21 05:04 PM
Report Created on: 02 Apr 21 07:47 AM

Page Number : 1
Vial Number : 30
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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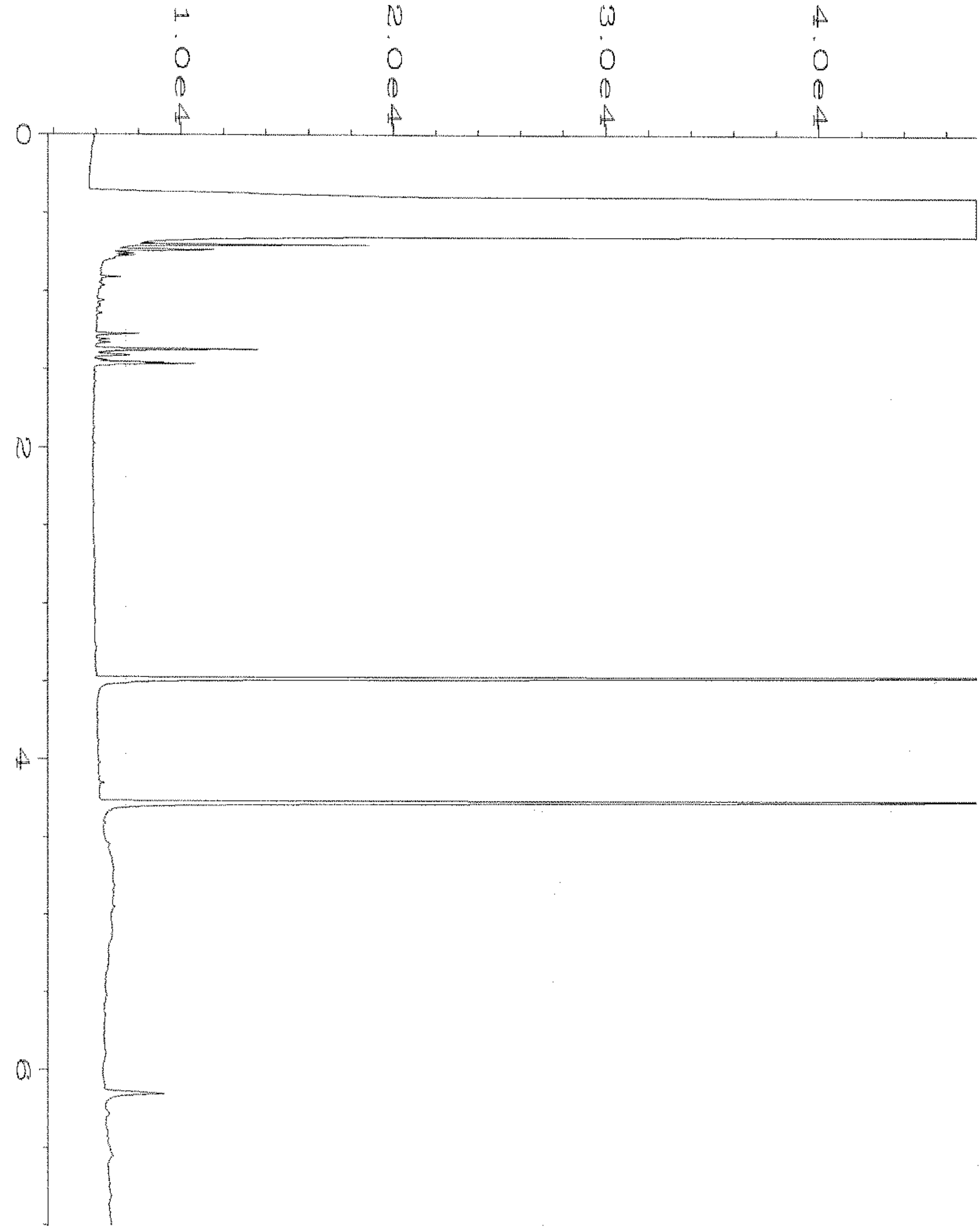
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 31
Sample Name	: 103585-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 8
Acquired on	: 01 Apr 21 05:15 PM	Instrument Method	: DX.MTH
Report Created on	: 02 Apr 21 07:47 AM	Analysis Method	: DEFAULT.MTH



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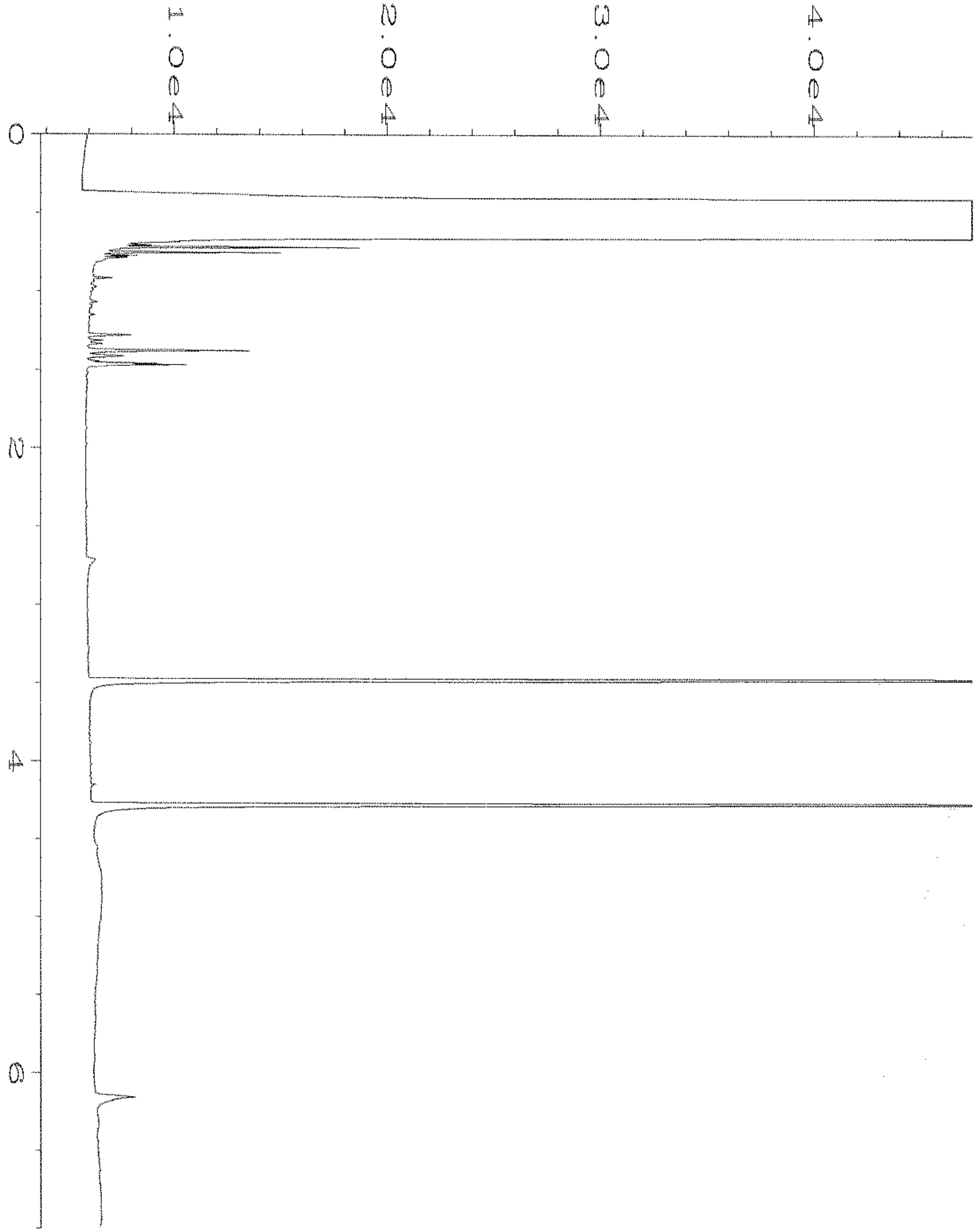
Operator : TL
Instrument : GC6
Sample Name : 103585-12
Run Time Bar Code:
Acquired on : 01 Apr 21 05:26 PM
Report Created on: 02 Apr 21 07:49 AM

Page Number : 1
Vial Number : 32
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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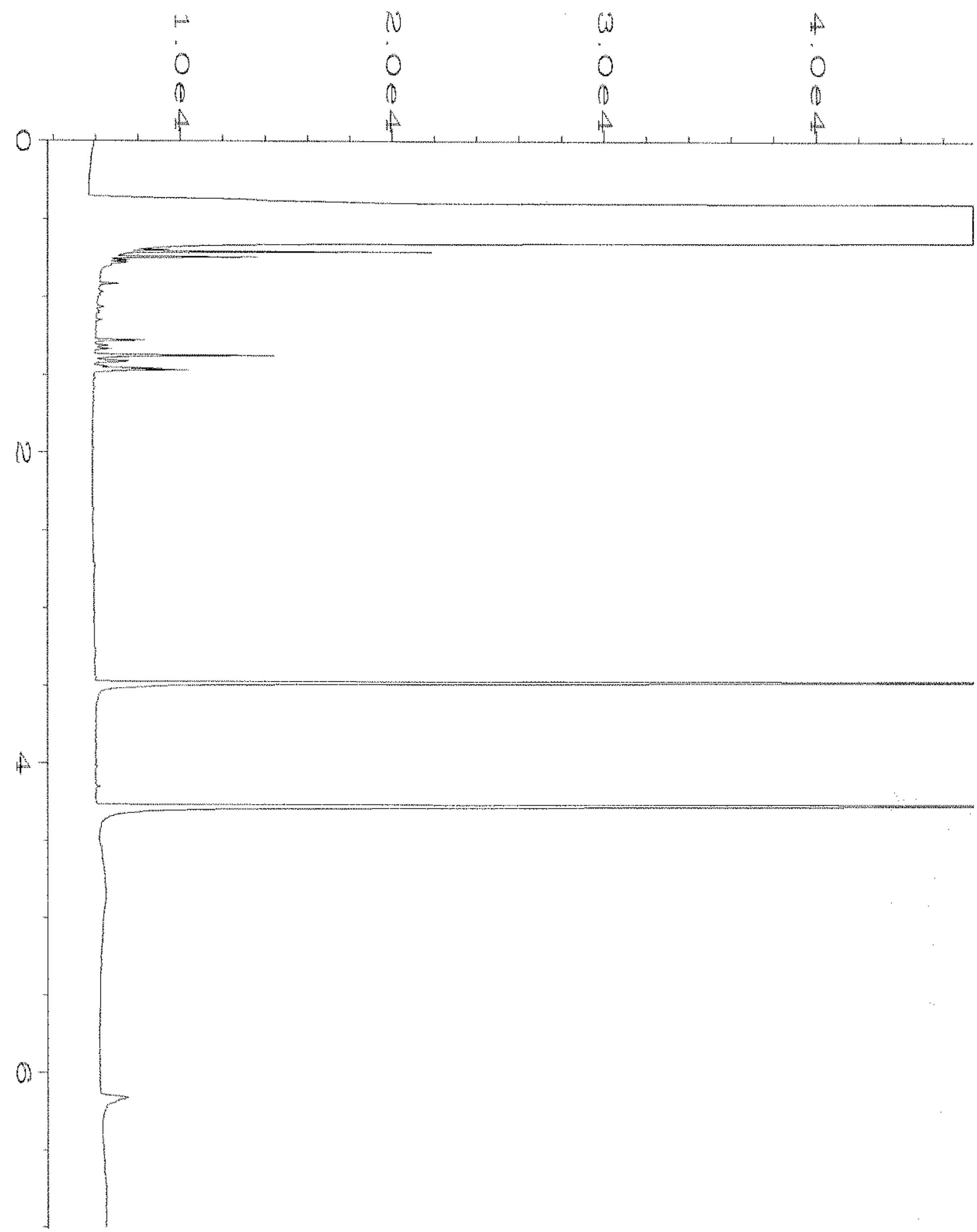
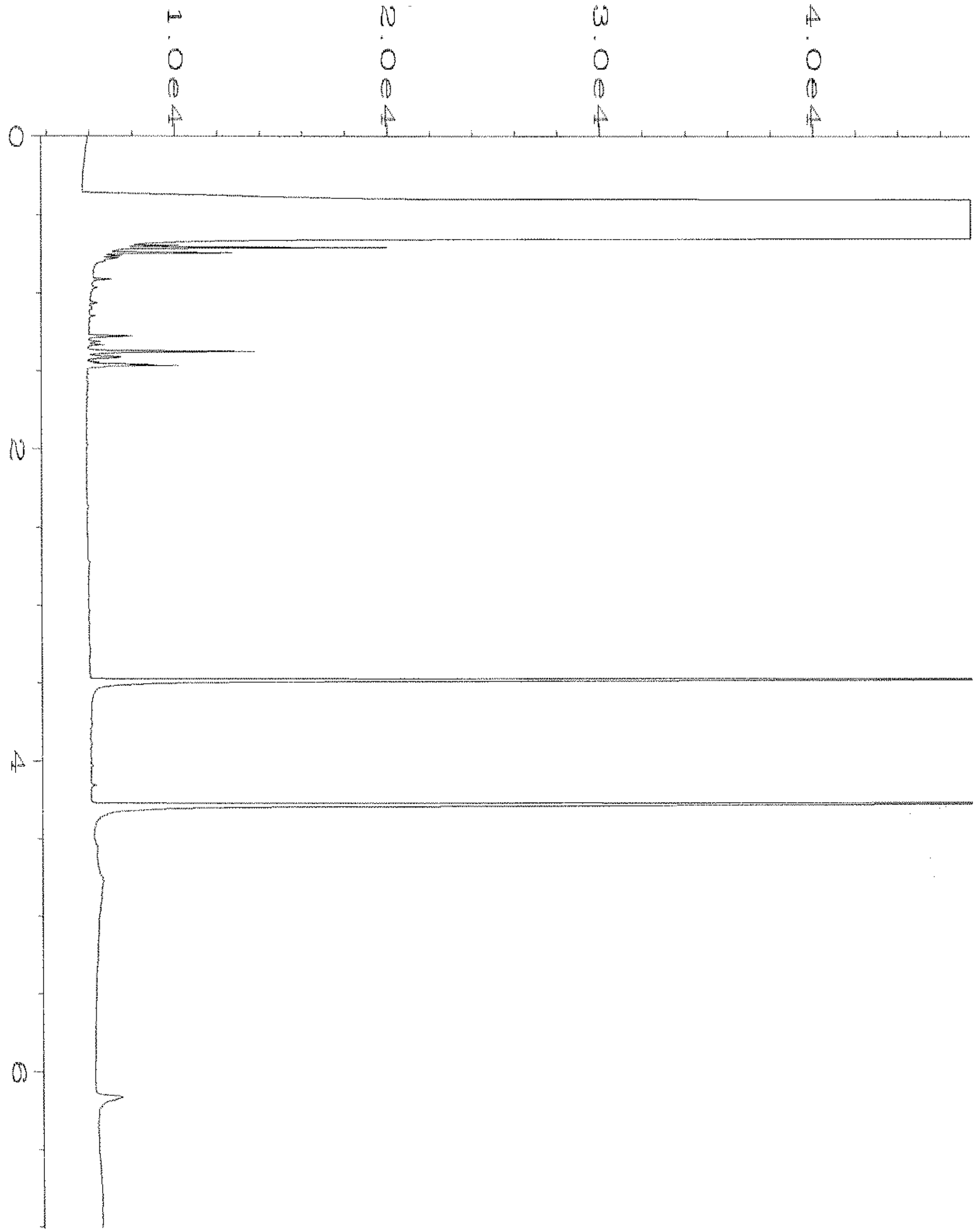
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 33
Sample Name	: 103585-13	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 8
Acquired on	: 01 Apr 21 05:37 PM	Instrument Method	: DX.MTH
Report Created on:	02 Apr 21 07:49 AM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\04-01-21\034F0801.D

Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 34
Sample Name	: 103585-14	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 8
Acquired on	: 01 Apr 21 05:48 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:49 AM	Analysis Method	: DEFAULT.MTH



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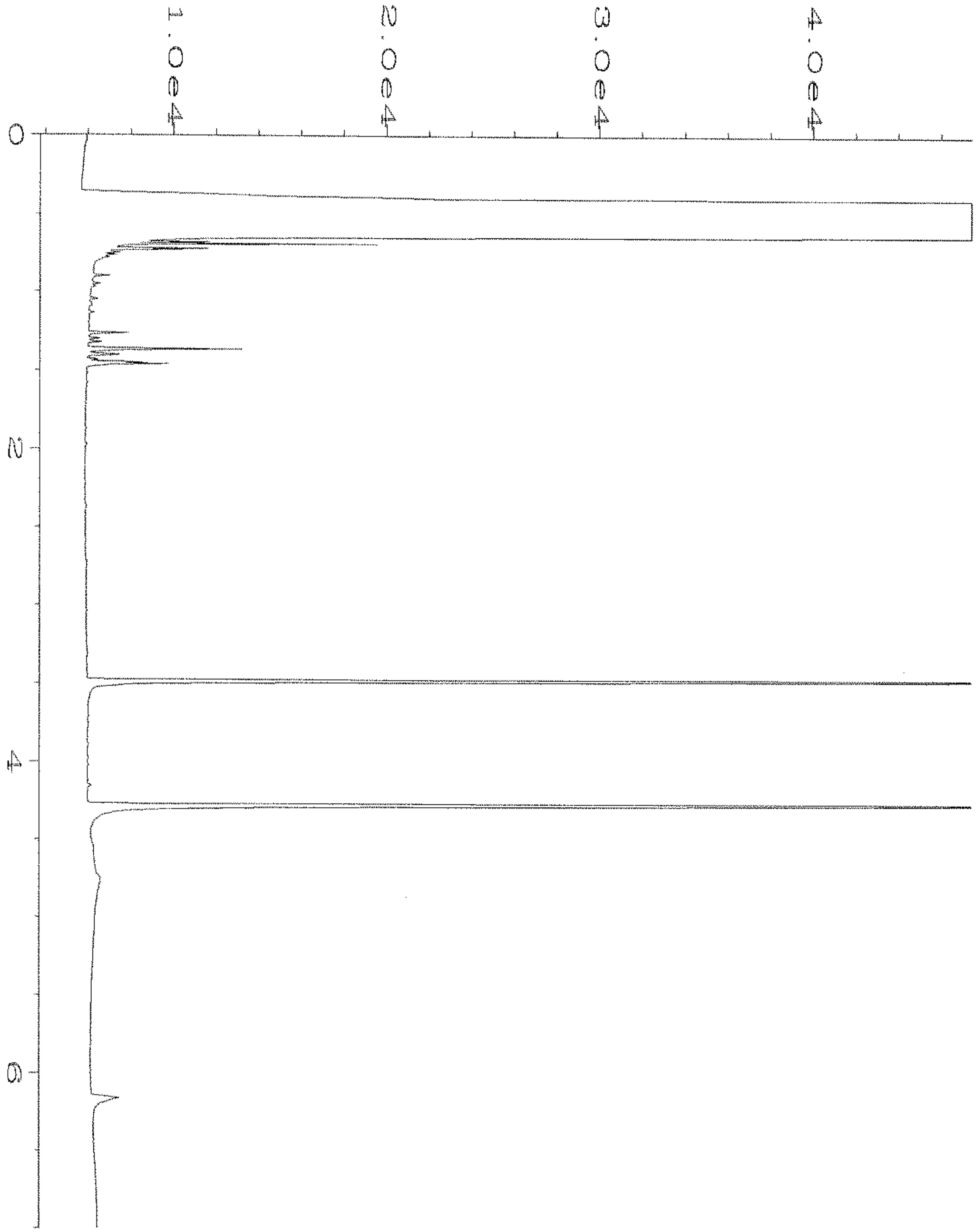
Operator : TL
Instrument : GC6
Sample Name : 103585-17
Run Time Bar Code:
Acquired on : 01 Apr 21 05:59 PM
Report Created on: 02 Apr 21 07:49 AM

Page Number : 1
Vial Number : 35
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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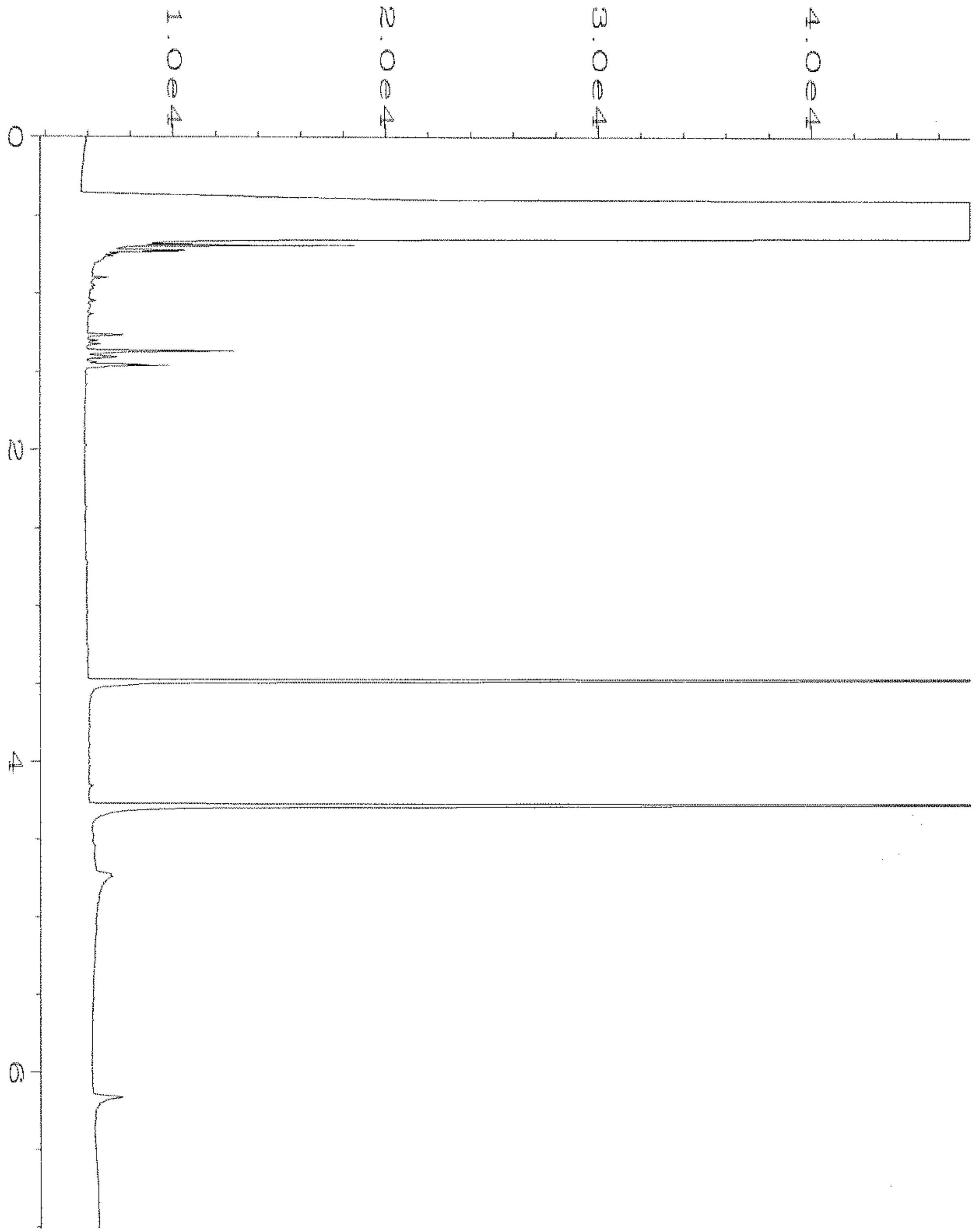
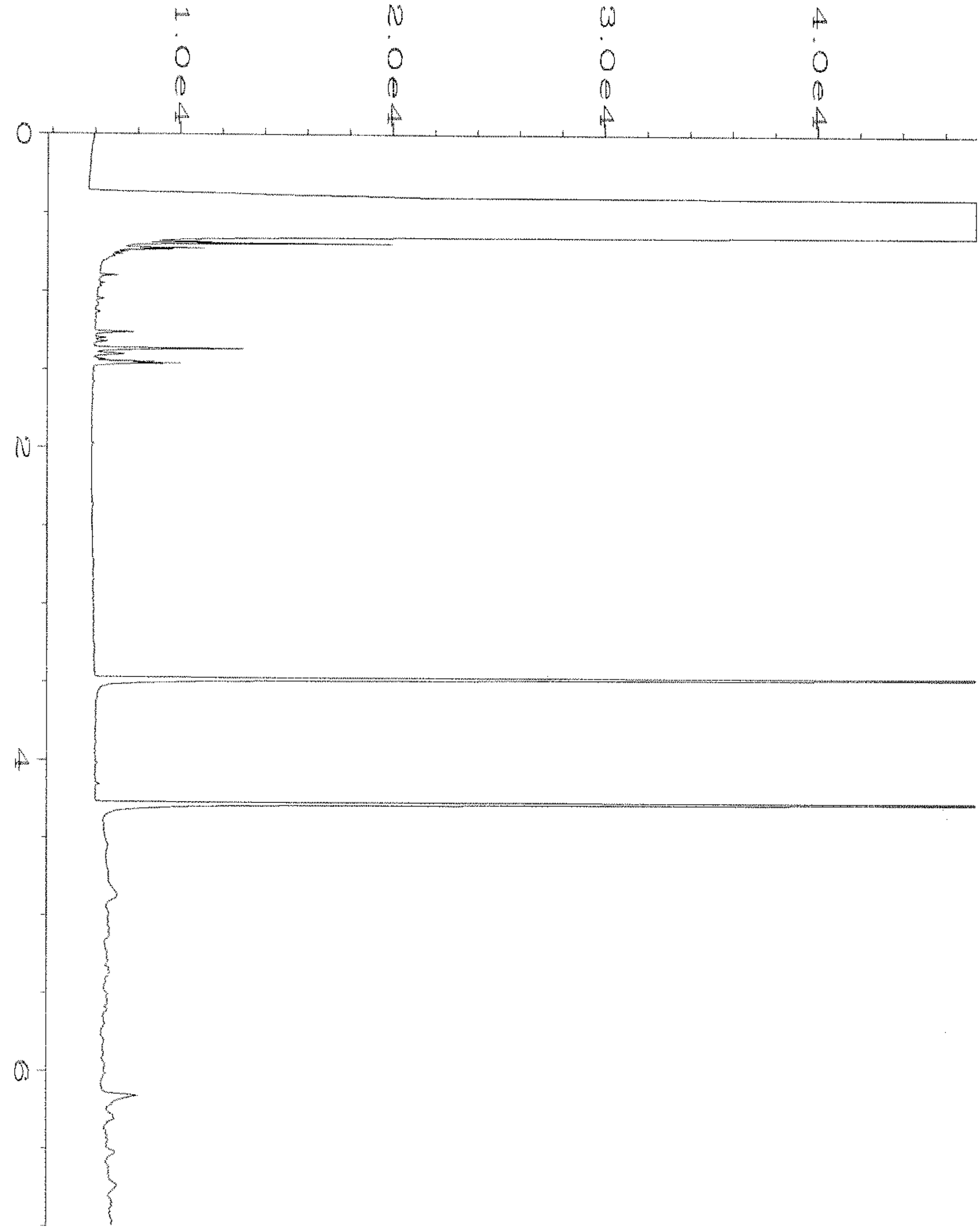
Operator	: TL	Page Number	:	1
Instrument	: GC6	Vial Number	:	36
Sample Name	: 103585-18	Injection Number	:	1
Run Time Bar Code:		Sequence Line	:	8
Acquired on	: 01 Apr 21 06:10 PM	Instrument Method:		DX.MTH
Report Created on:	02 Apr 21 07:49 AM	Analysis Method	:	DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\04-01-21\037F0801.D
Operator : TL
Instrument : GC6
Sample Name : 103585-19
Run Time Bar Code:
Acquired on : 01 Apr 21 06:21 PM
Report Created on: 02 Apr 21 07:49 AM

Page Number : 1
Vial Number : 37
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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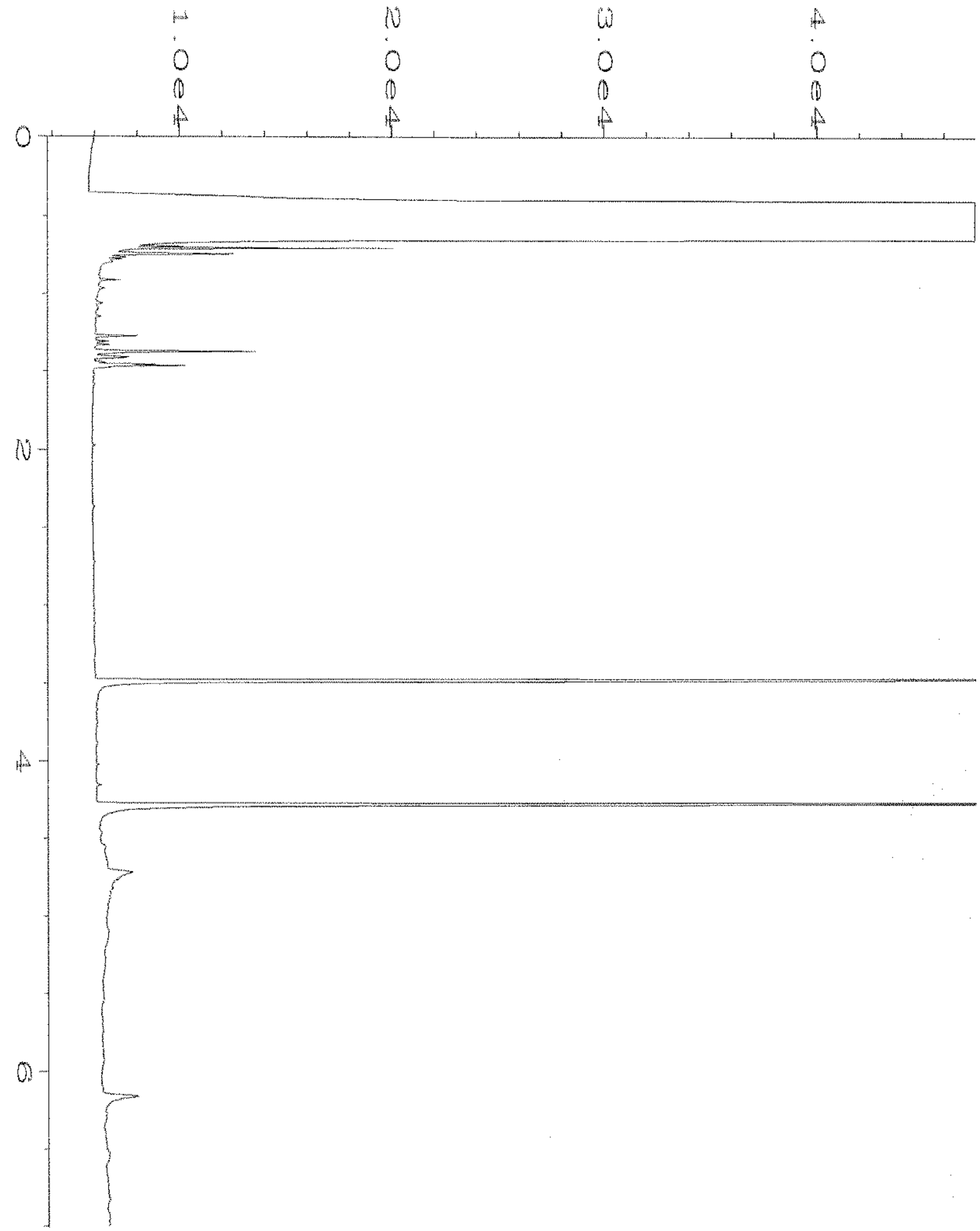
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 38
Sample Name	: 103585-20	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 01 Apr 21 06:54 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:49 AM	Analysis Method	: DEFAULT.MTH

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Operator          : TL                          Page Number      : 1
Instrument        : GC6                         Vial Number      : 39
Sample Name       : 103585-21                   Injection Number : 1
Run Time Bar Code:                              Sequence Line    : 10
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Report Created on: 02 Apr 21   07:49 AM        Analysis Method  : DEFAULT.MTH
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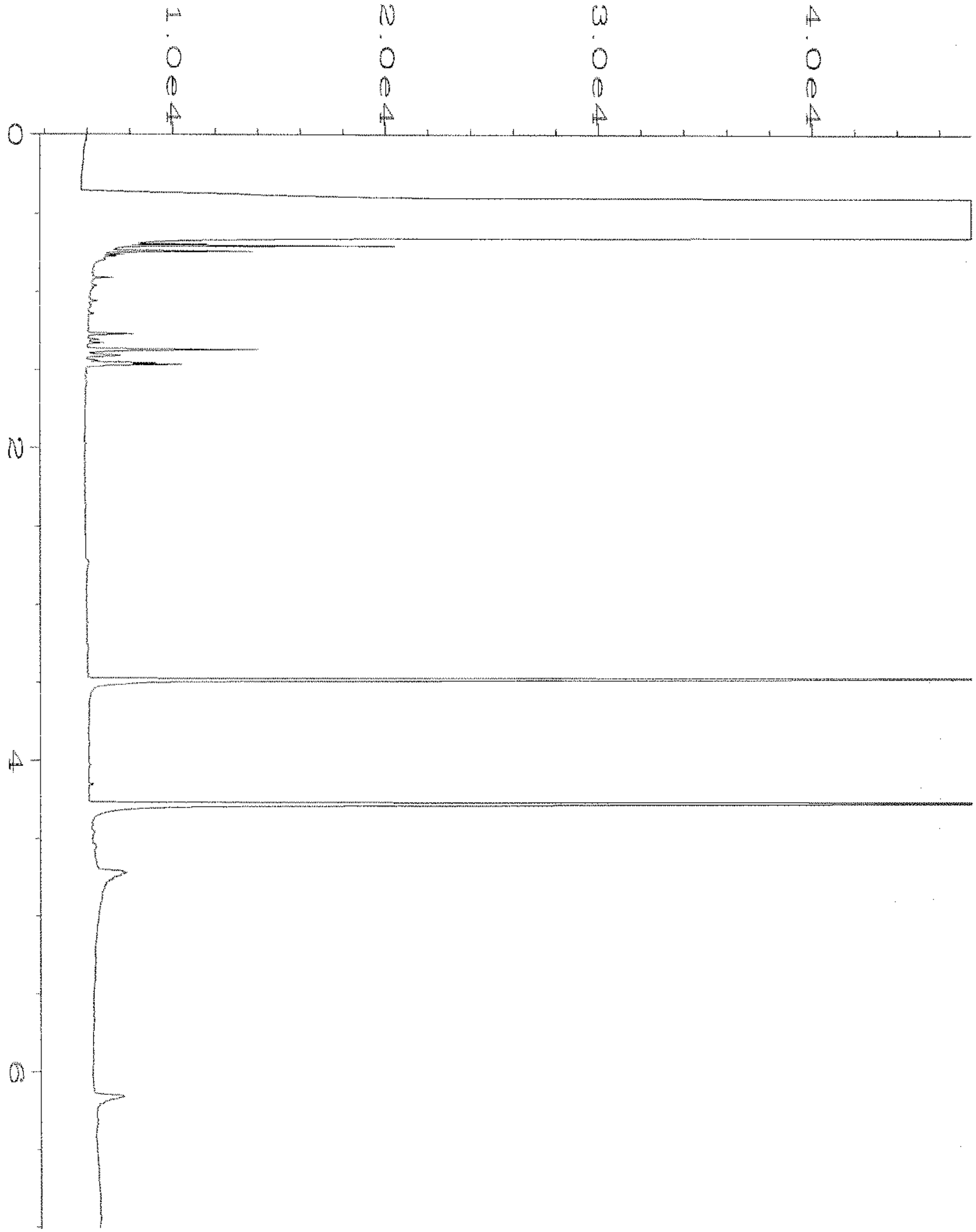

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Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 40
Sample Name	: 103585-22	Injection Number	: 1
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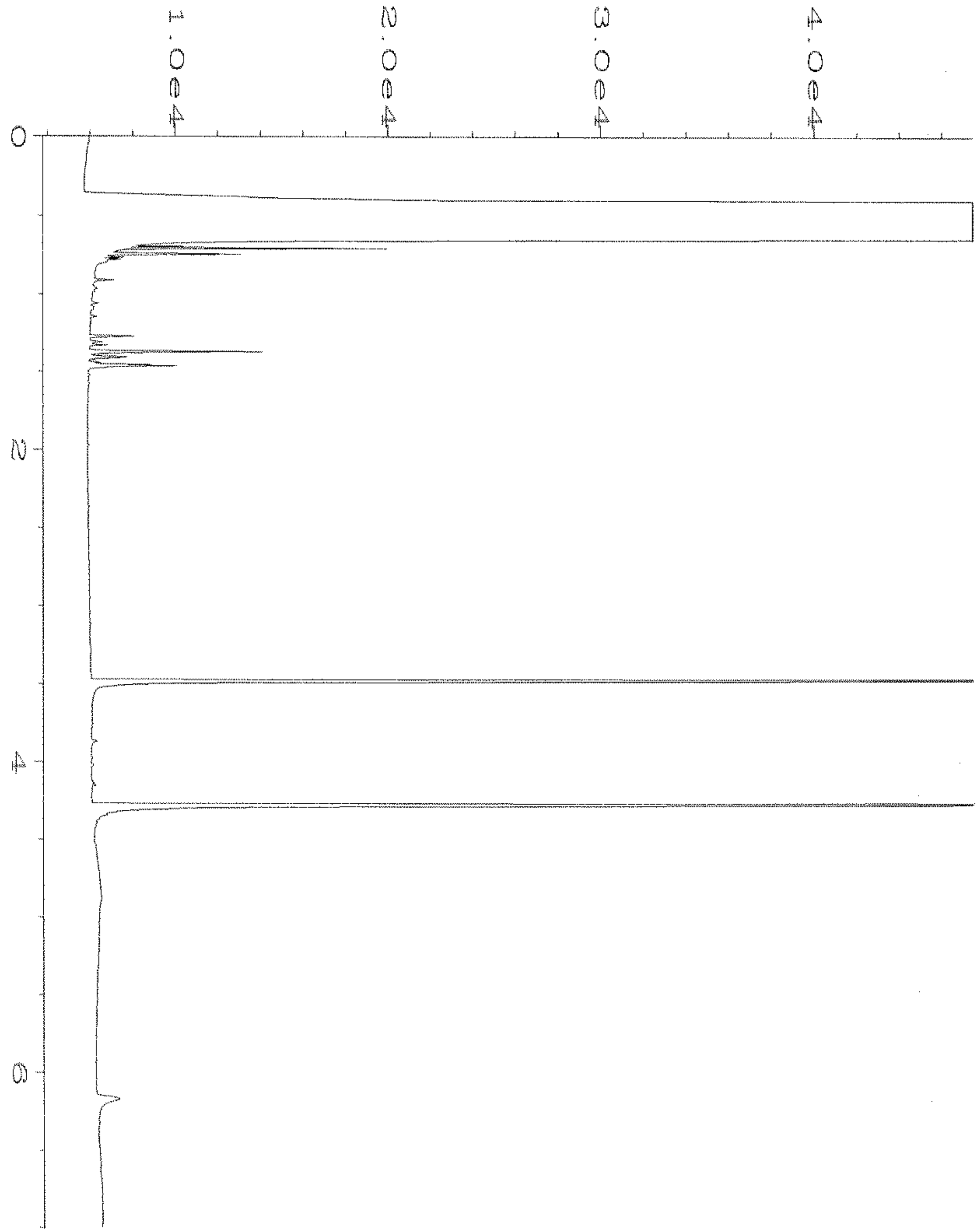
Report Created on:	02 Apr 21 07:50 AM	Analysis Method	: DEFAULT.MTH



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Operator : TL
Instrument : GC6
Sample Name : 103585-23
Run Time Bar Code:
Acquired on : 01 Apr 21 07:27 PM
Report Created on: 02 Apr 21 07:50 AM

Page Number : 1
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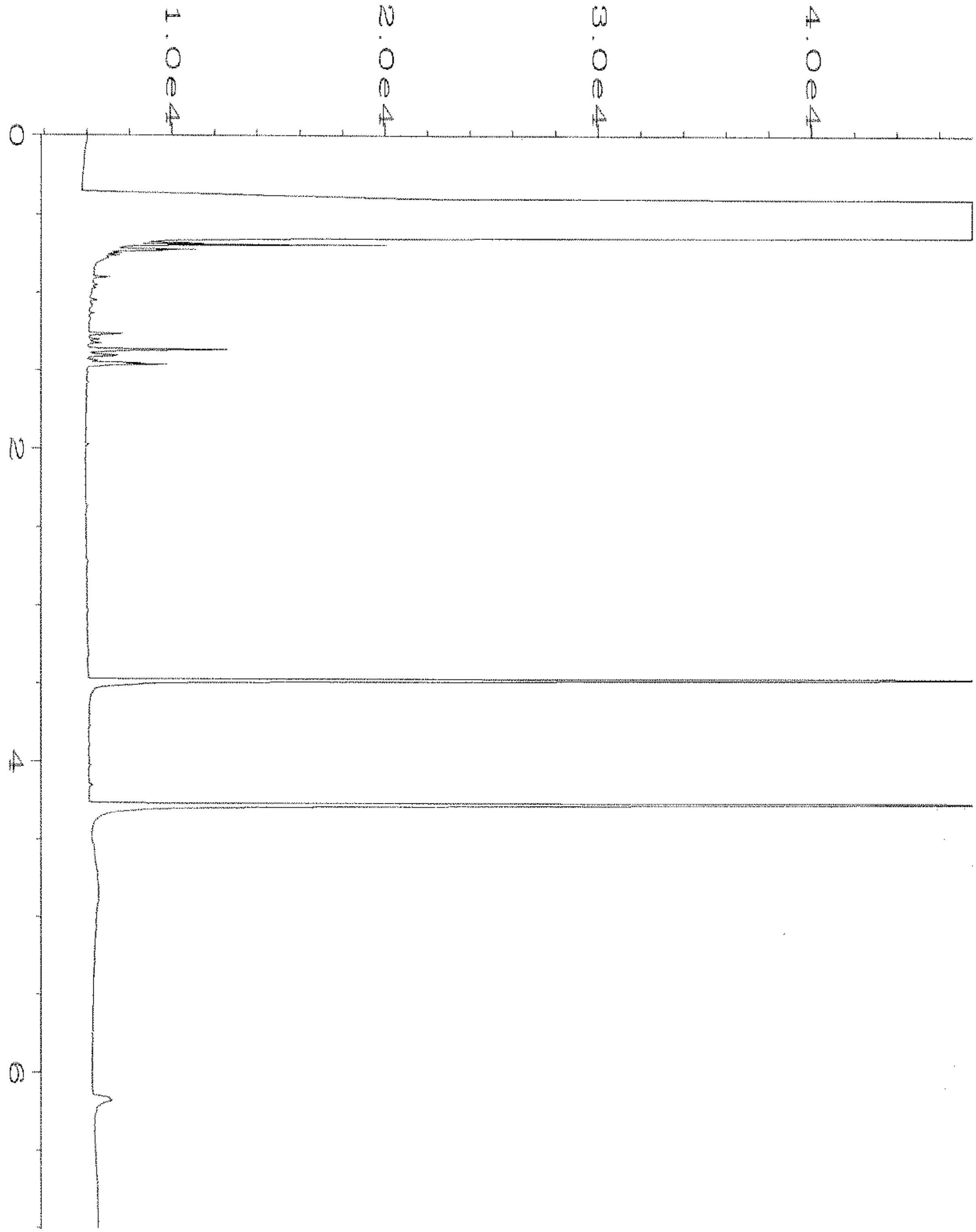
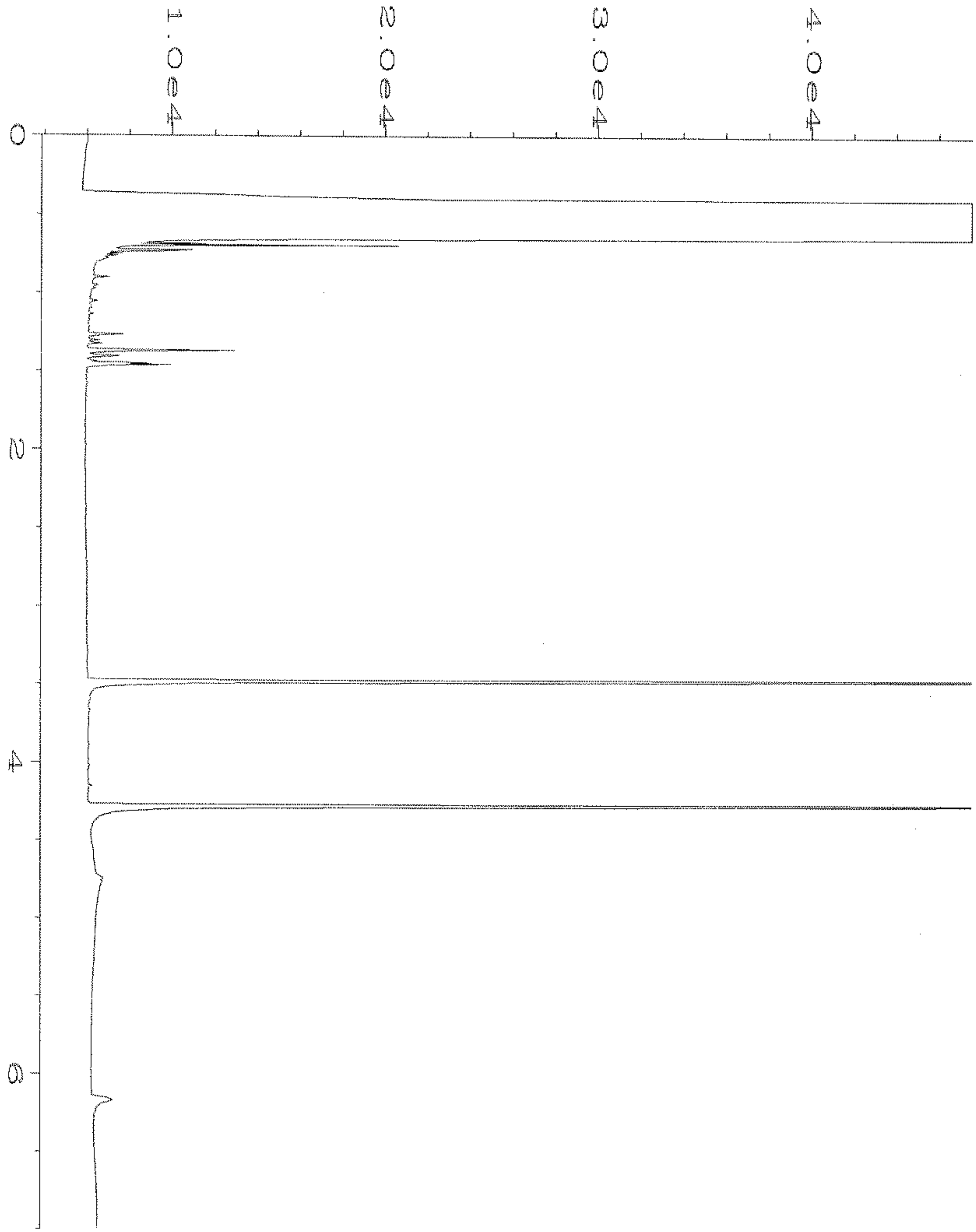
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\04-01-21\046F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-24
Run Time Bar Code:
Acquired on : 01 Apr 21 08:22 PM
Report Created on: 02 Apr 21 07:50 AM

Page Number : 1
Vial Number : 46
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

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Data File Name    : C:\HPCHEM\6\DATA\04-01-21\047F1001.D
Operator          : TL                              Page Number      : 1
Instrument        : GC6                             Vial Number      : 47
Sample Name       : 103585-25                       Injection Number : 1
Run Time Bar Code:                                  Sequence Line    : 10
Acquired on       : 01 Apr 21  08:33 PM             Instrument Method: DX.MTH
Report Created on: 02 Apr 21  07:50 AM              Analysis Method  : DEFAULT.MTH
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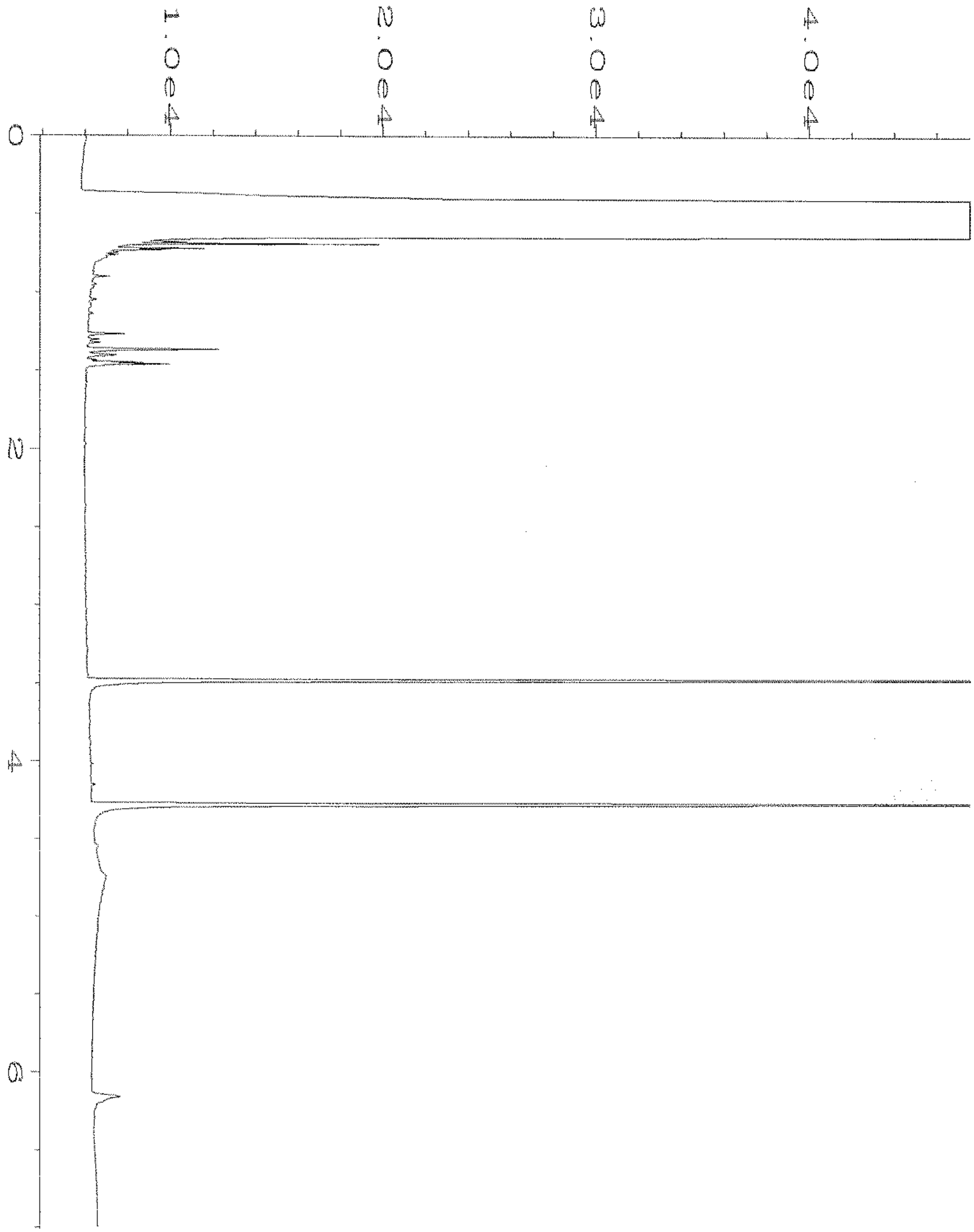
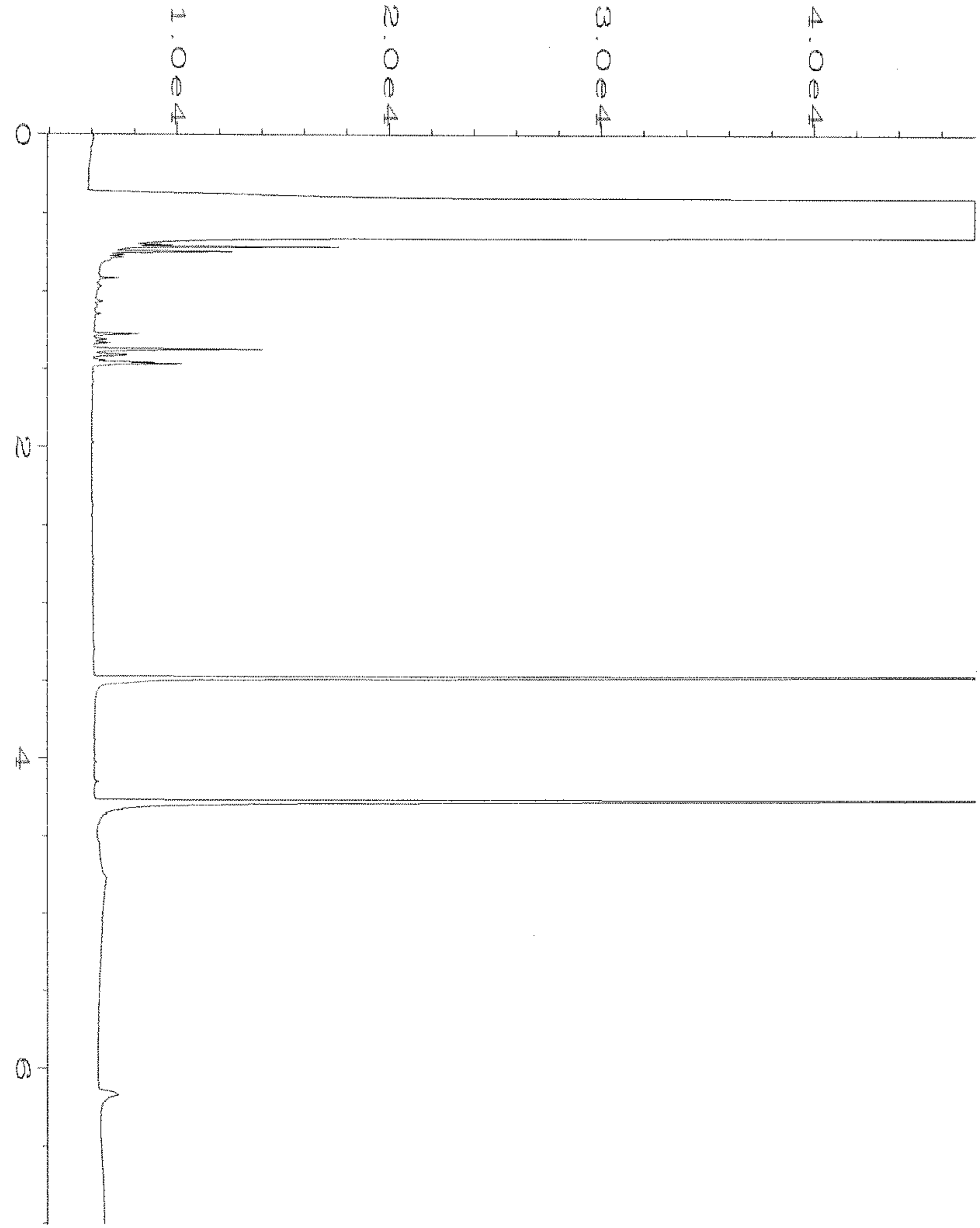


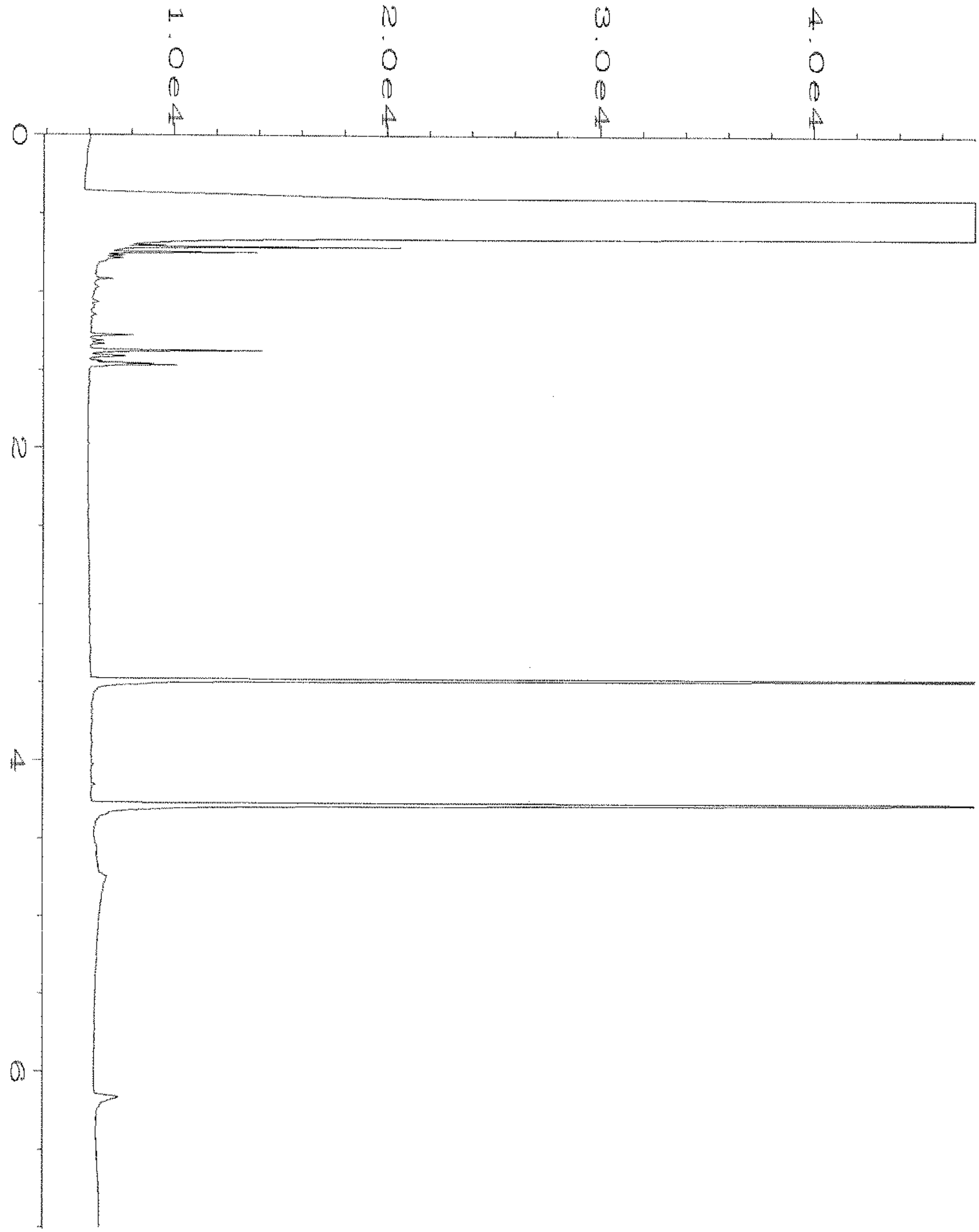
Data File Name : C:\HPCHEM\6\DATA\04-01-21\048F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-26
Run Time Bar Code:
Acquired on : 01 Apr 21 08:44 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 48
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\04-01-21\049F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-28
Run Time Bar Code:
Acquired on : 01 Apr 21 08:55 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 49
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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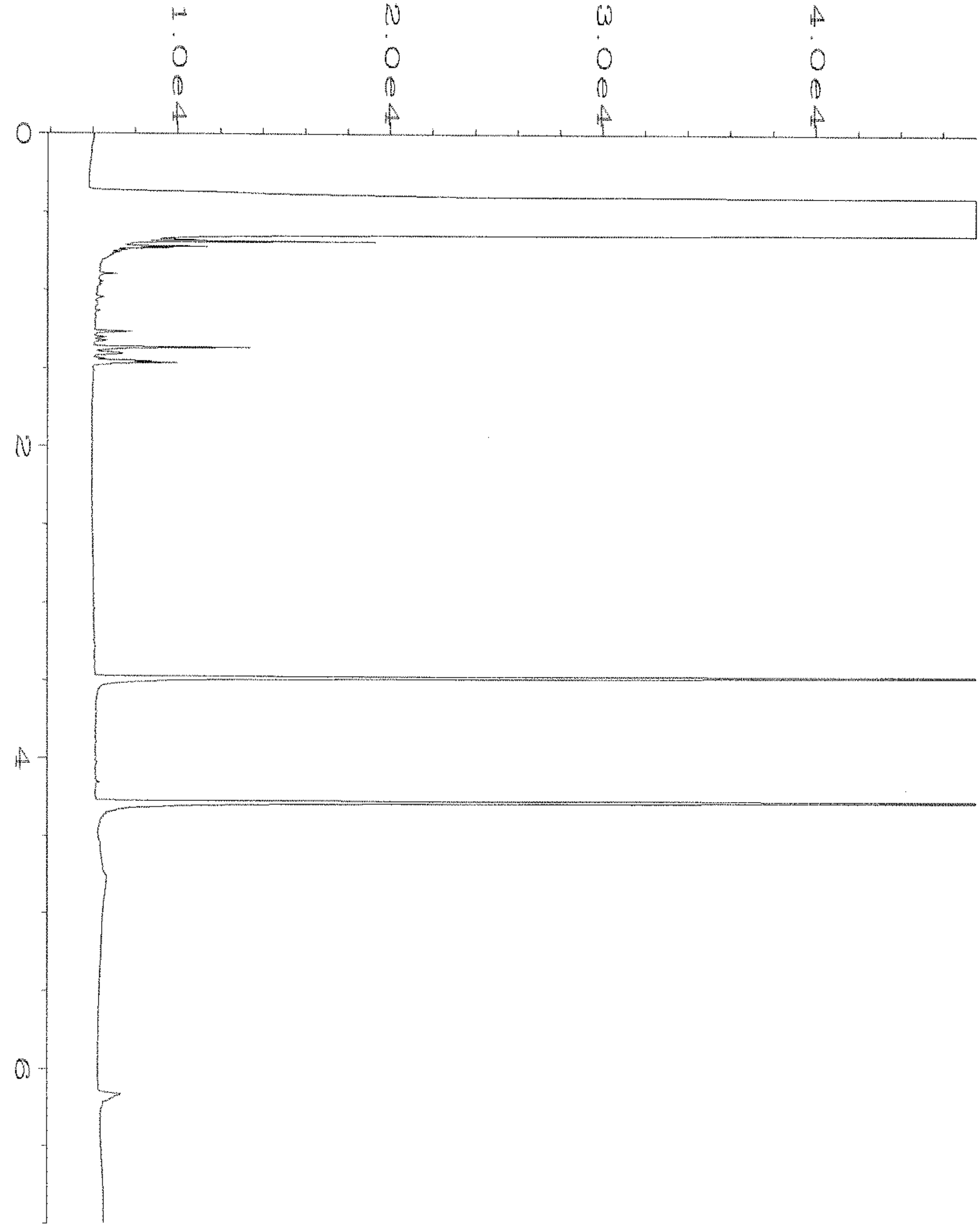
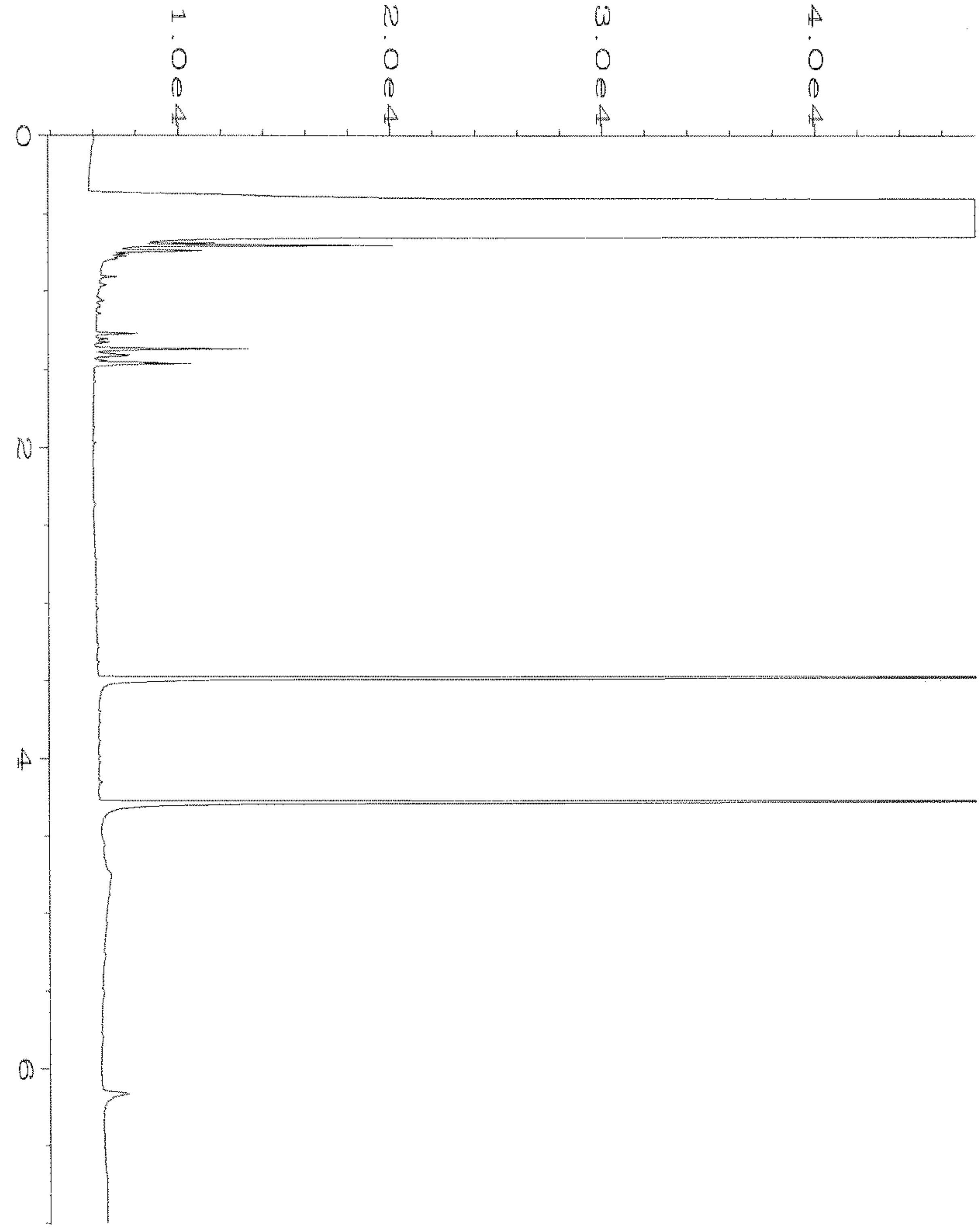
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 50
Sample Name	: 103585-29	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 01 Apr 21 09:06 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:51 AM	Analysis Method	: DEFAULT.MTH

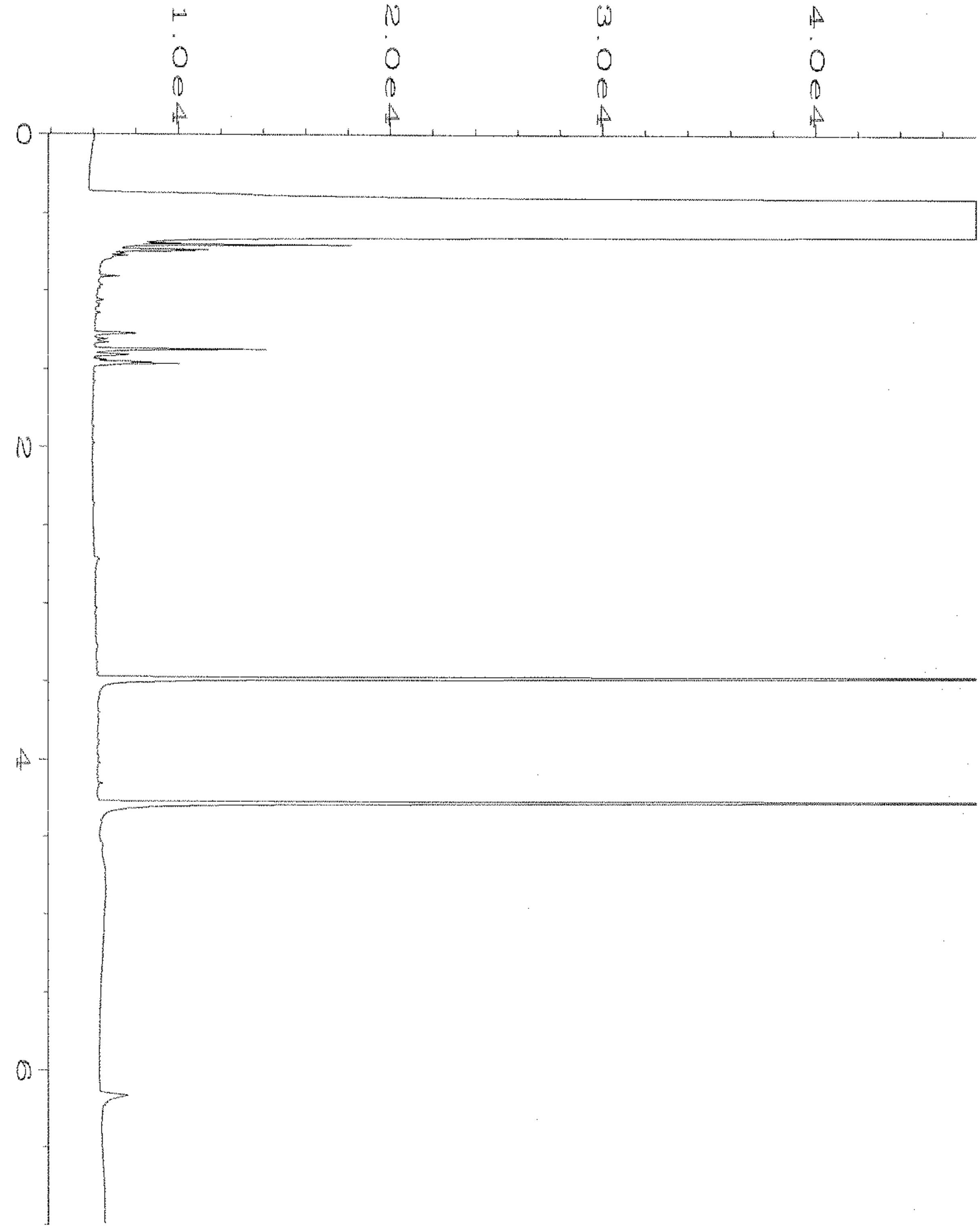


Data File Name	: C:\HPCHEM\6\DATA\04-01-21\051F1001.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 51
Sample Name	: 103585-30	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 01 Apr 21 09:17 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:51 AM	Analysis Method	: DEFAULT.MTH



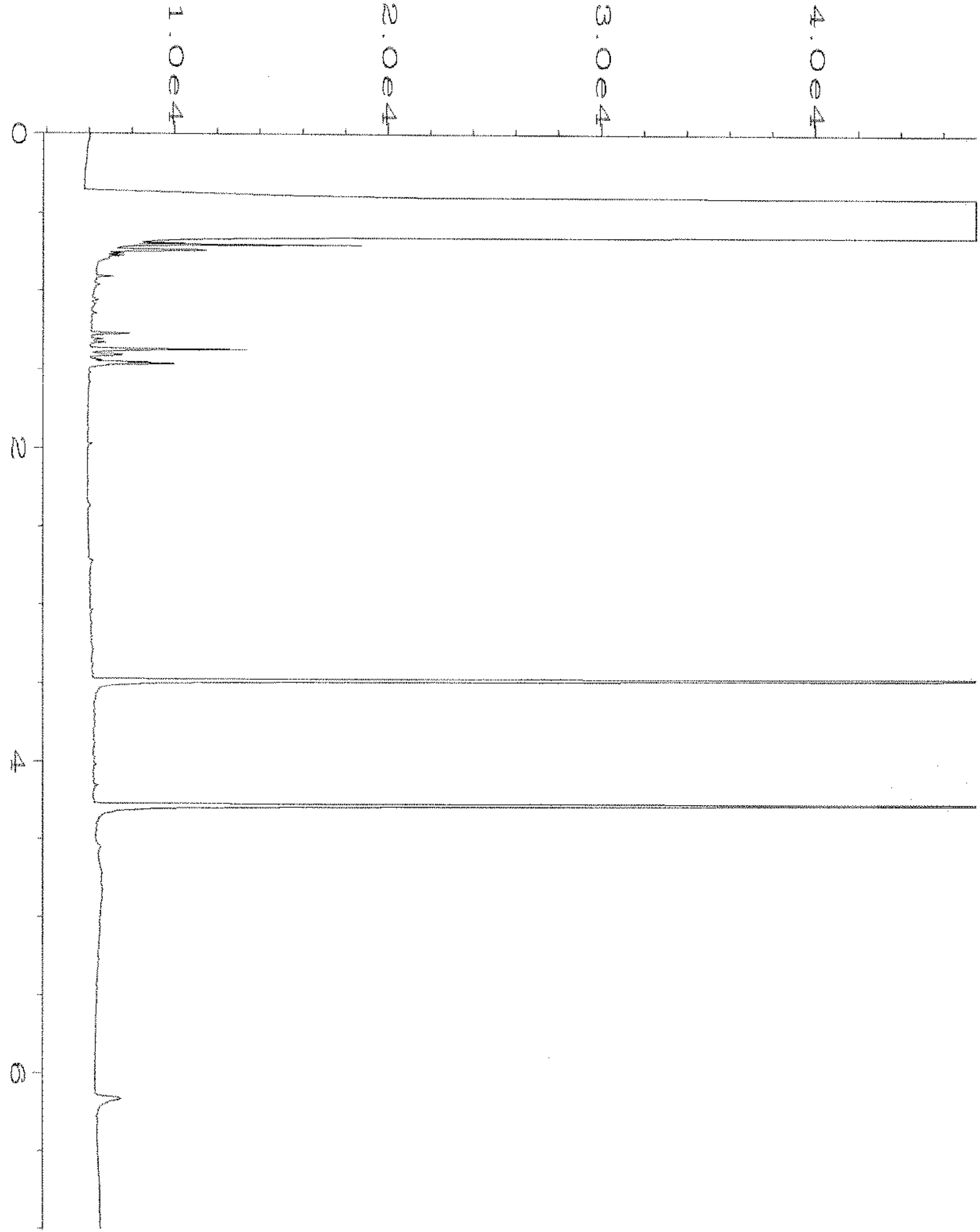
Data File Name : C:\HPCHEM\6\DATA\04-01-21\052F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-31
Run Time Bar Code:
Acquired on : 01 Apr 21 09:28 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 52
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



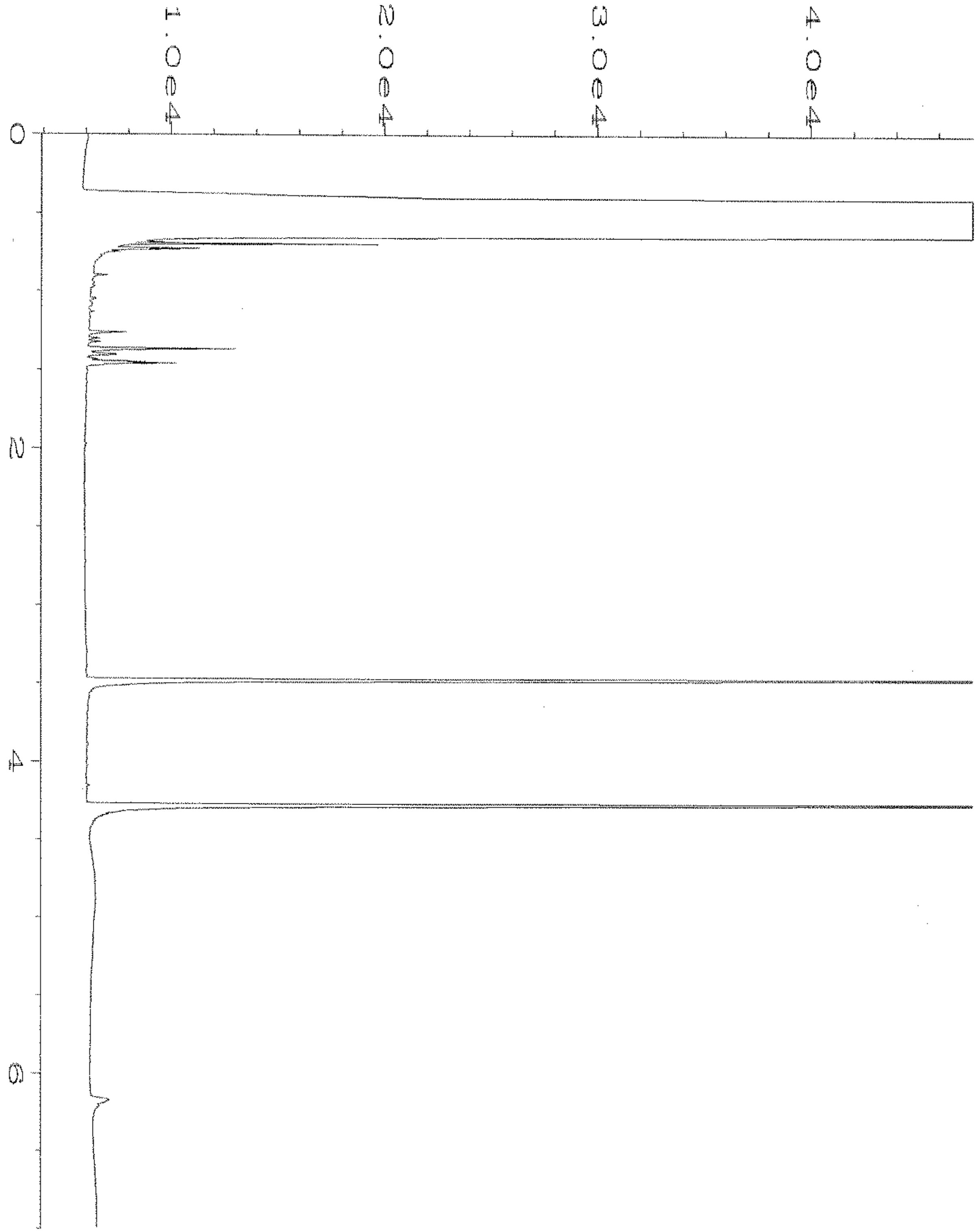
Data File Name : C:\HPCHEM\6\DATA\04-01-21\053F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-32
Run Time Bar Code:
Acquired on : 01 Apr 21 09:38 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 53
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

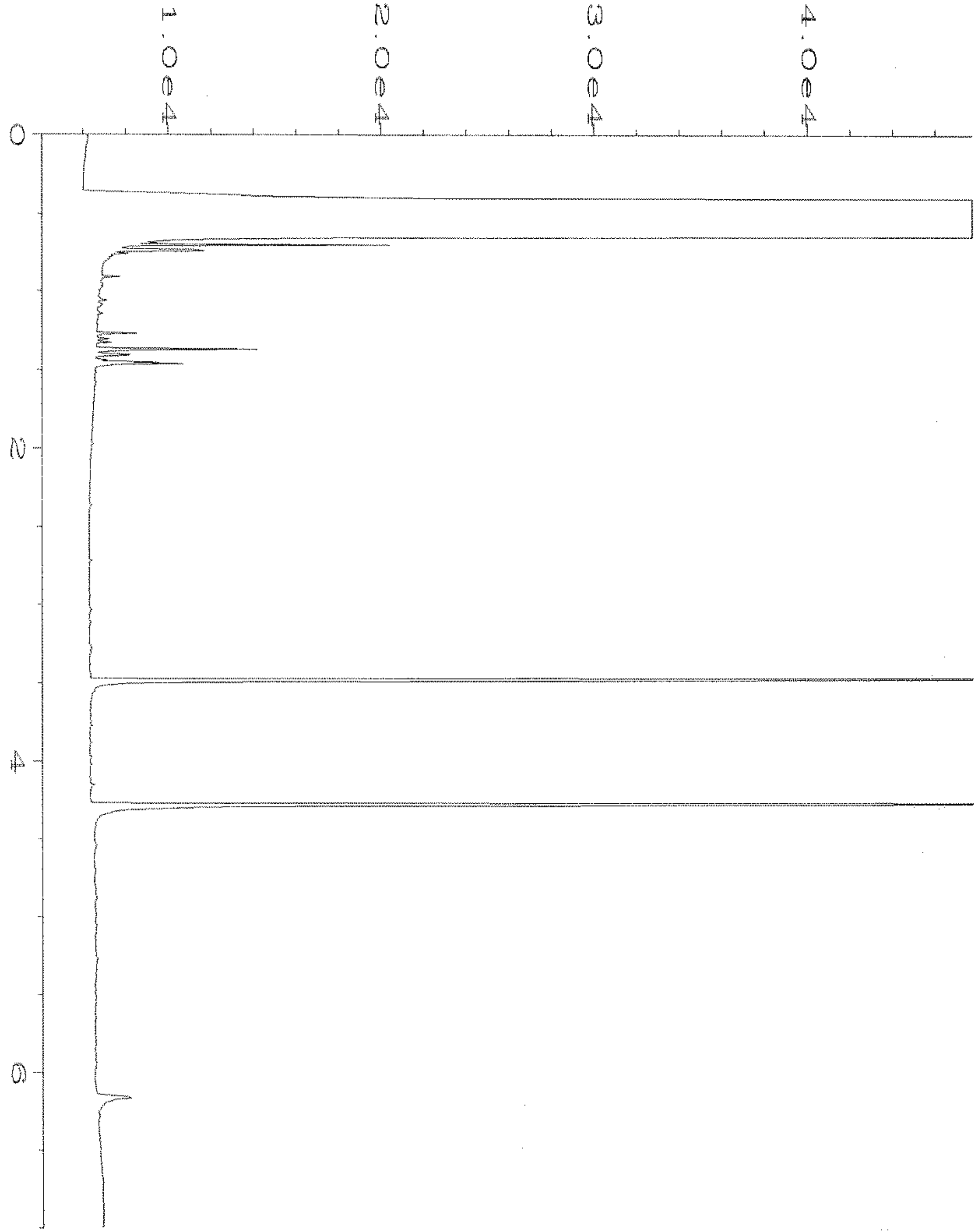


Data File Name : C:\HPCHEM\6\DATA\04-01-21\054F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-33
Run Time Bar Code:
Acquired on : 01 Apr 21 09:49 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 54
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

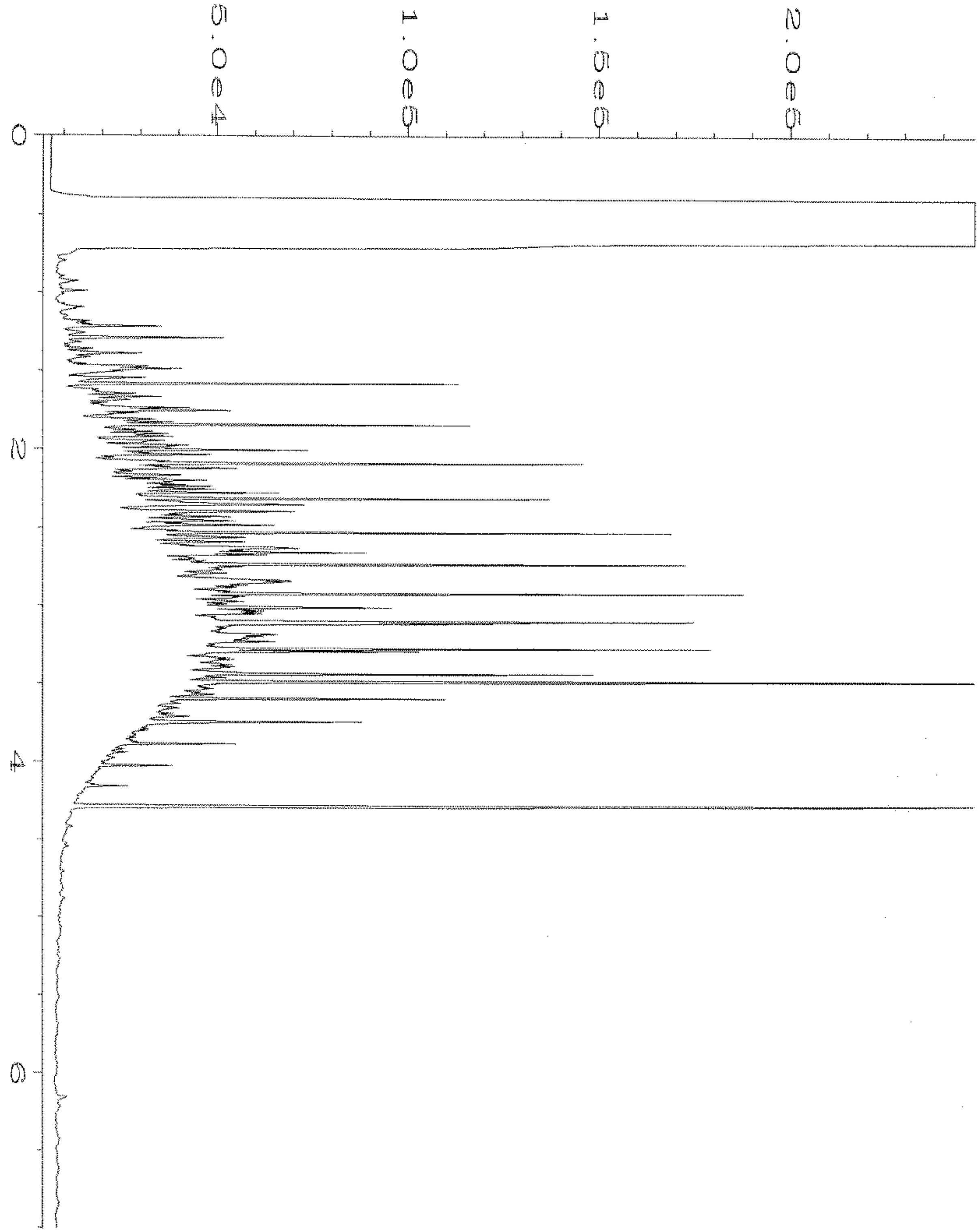



```
Data File Name    : C:\HPCHEM\6\DATA\04-01-21\042F1001.D
Operator          : TL                              Page Number      : 1
Instrument        : GC6                             Vial Number      : 42
Sample Name       : 01-774 mb                       Injection Number : 1
Run Time Bar Code:                                  Sequence Line    : 10
Acquired on       : 01 Apr 21   07:38 PM            Instrument Method: DX.MTH
Report Created on: 02 Apr 21   07:50 AM             Analysis Method  : DEFAULT.MTH
```



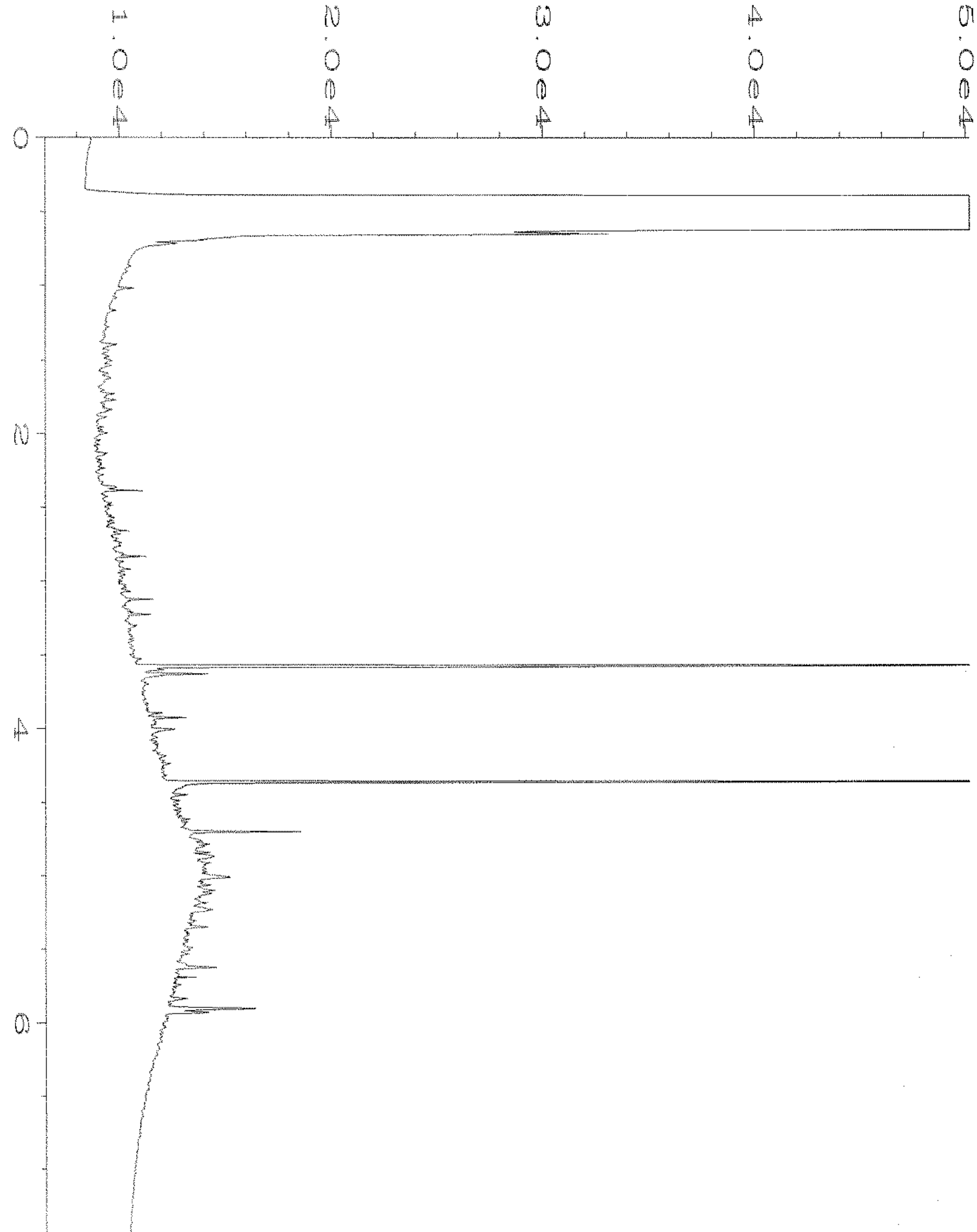
Data File Name : C:\HPCHEM\6\DATA\04-01-21\018F0601.D
Operator : TL
Instrument : GC6
Sample Name : 01-772 mb
Run Time Bar Code:
Acquired on : 01 Apr 21 02:27 PM
Report Created on: 02 Apr 21 07:52 AM

Page Number : 1
Vial Number : 18
Injection Number : 1
Sequence Line : 6
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



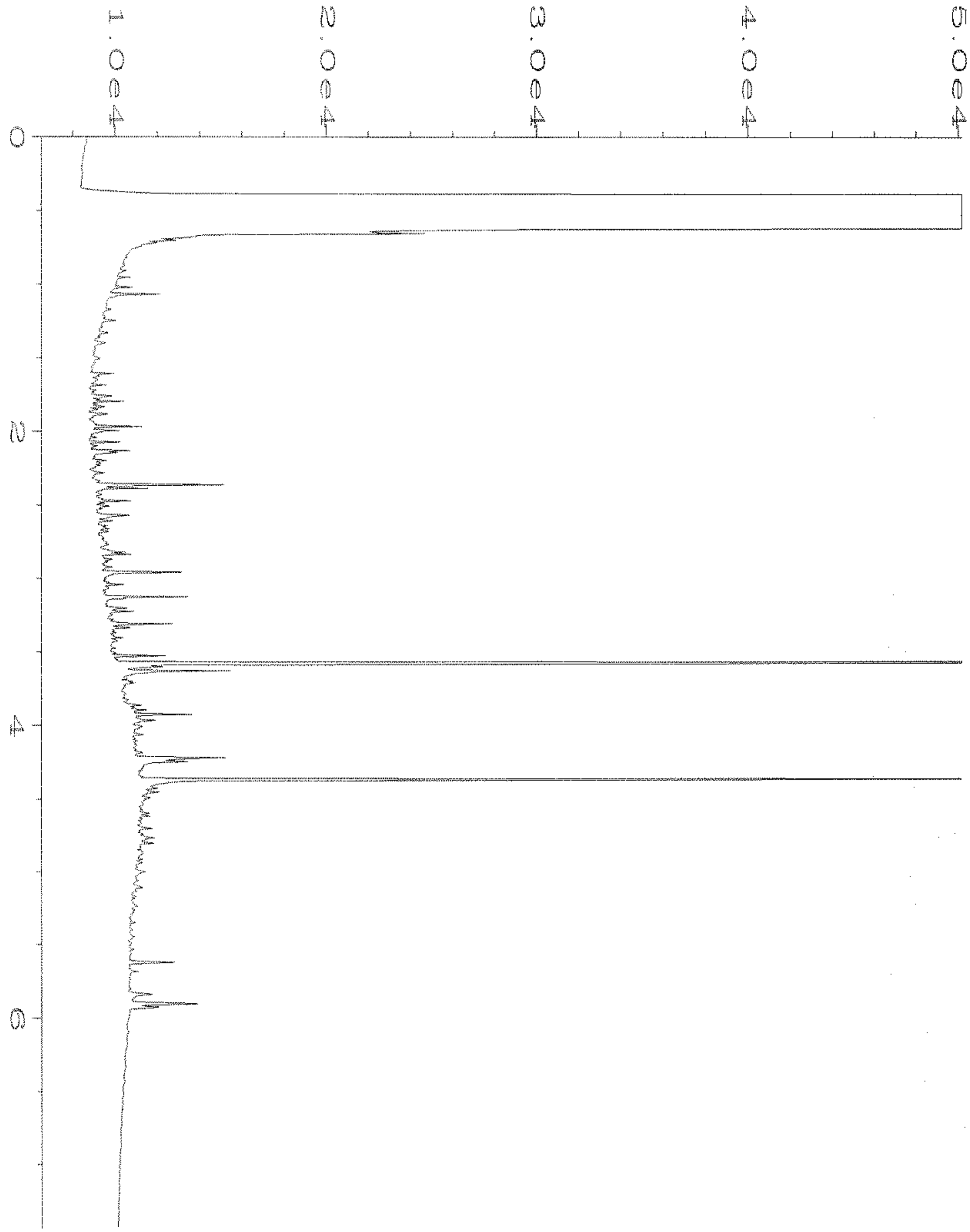
Data File Name   : C:\HPCHEM\6\DATA\04-01-21\003F0201.D
Operator   : TL
Instrument   : GC6
Sample Name   : 500 Dx 62-142D
Run Time Bar Code:
Acquired on   : 01 Apr 21   08:40 AM
Report Created on: 02 Apr 21   07:52 AM

Page Number   : 1
Vial Number   : 3
Injection Number : 1
Sequence Line   : 2
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



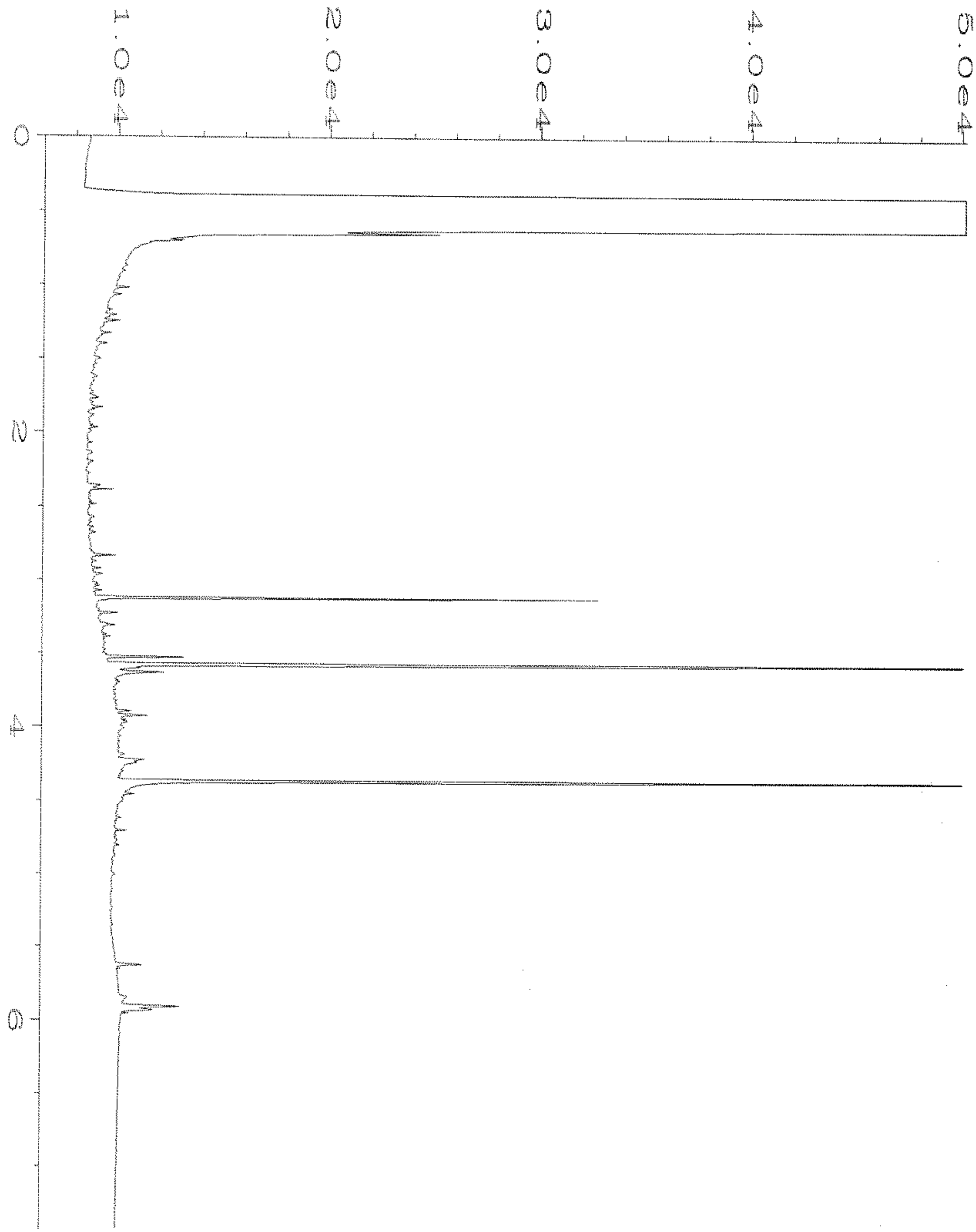
Data File Name : C:\HPCHEM\1\DATA\04-02-21\025F0901.D
Operator : TL
Instrument : GC1
Sample Name : 103585-06
Run Time Bar Code:
Acquired on : 02 Apr 21 02:26 PM
Report Created on: 05 Apr 21 09:11 AM

Page Number : 1
Vial Number : 25
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



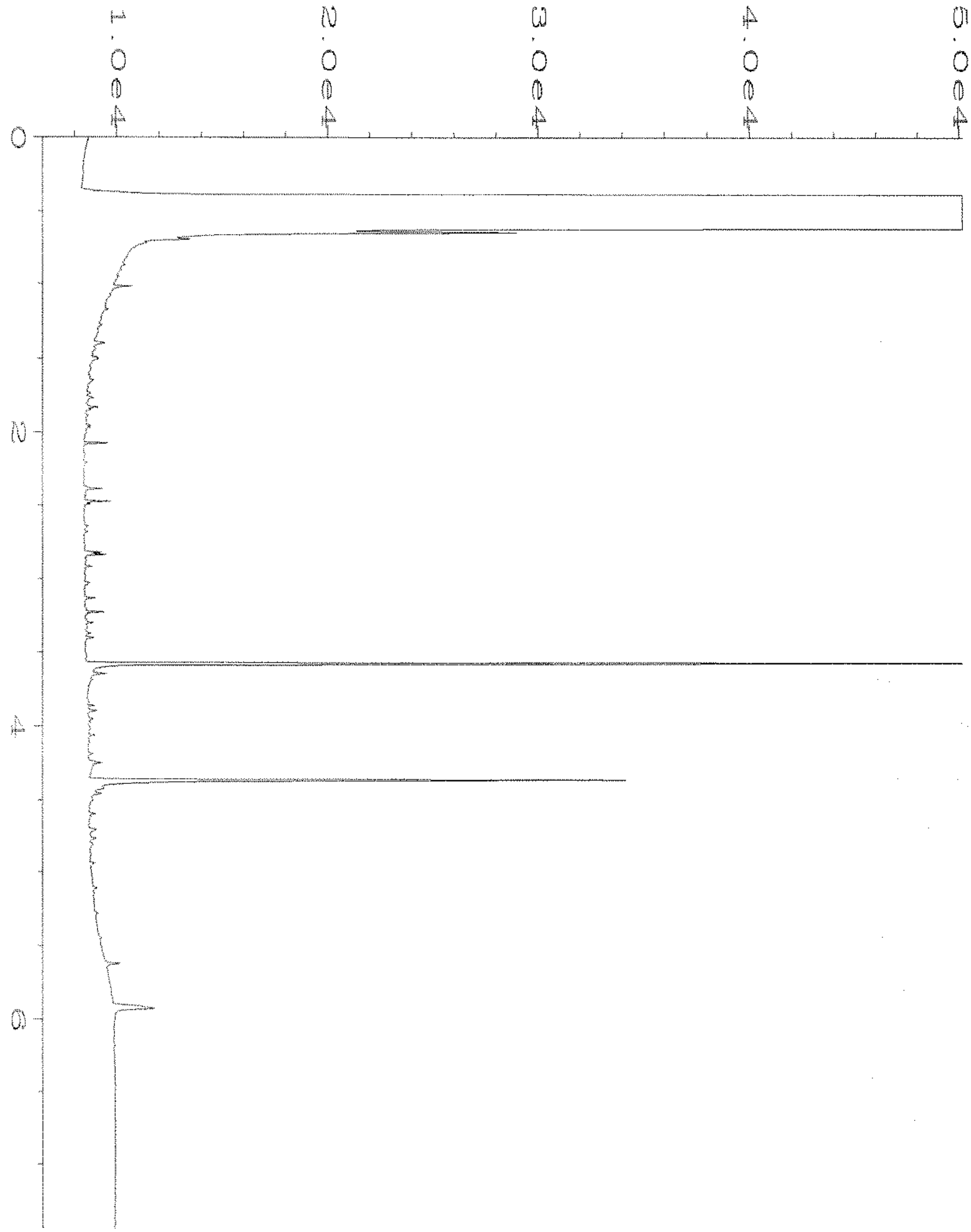
Data File Name : C:\HPCHEM\1\DATA\04-02-21\026F0901.D
Operator : TL
Instrument : GC1
Sample Name : 103585-15
Run Time Bar Code:
Acquired on : 02 Apr 21 02:38 PM
Report Created on: 05 Apr 21 09:11 AM

Page Number : 1
Vial Number : 26
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



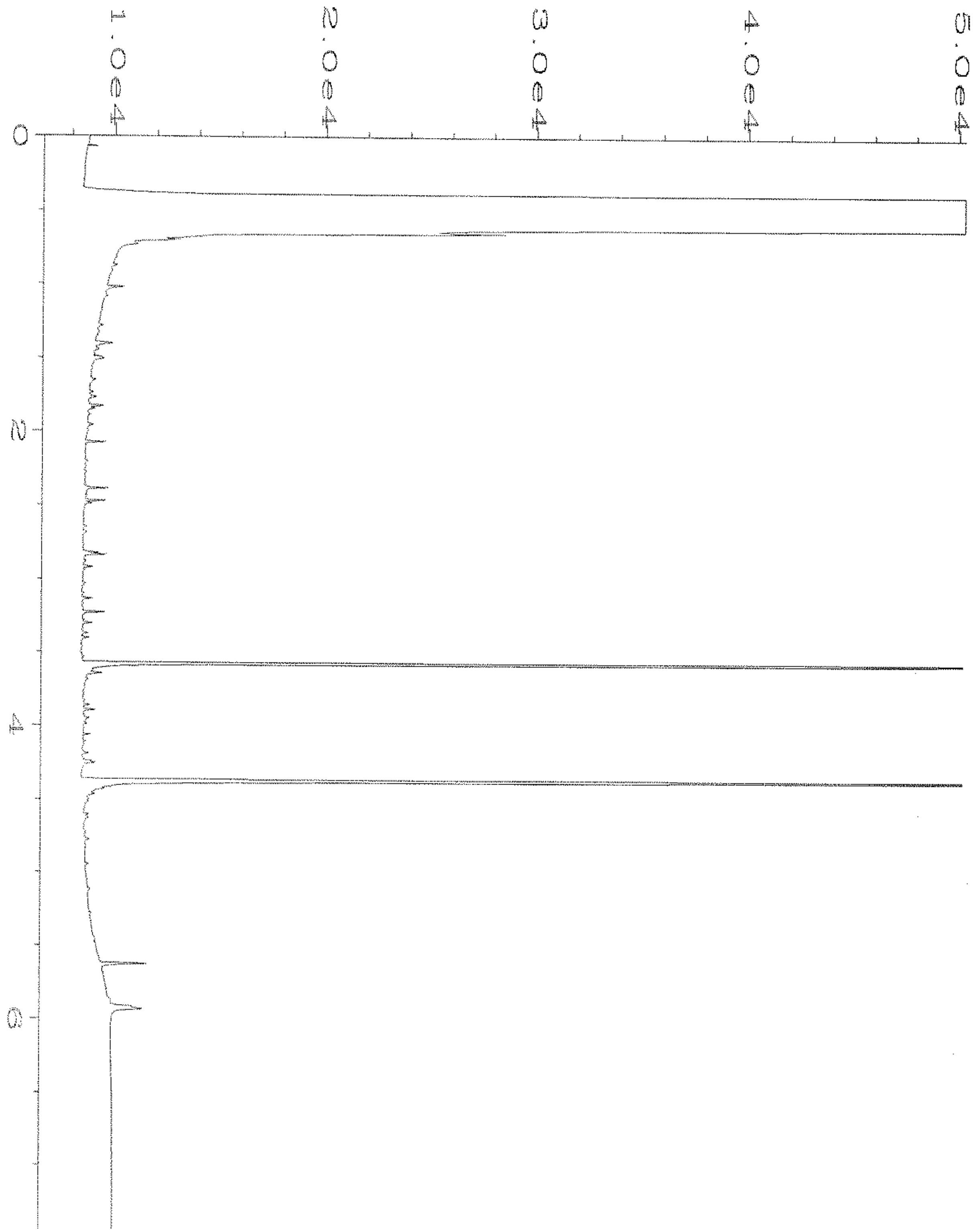
Data File Name : C:\HPCHEM\1\DATA\04-02-21\027F0901.D
Operator : TL
Instrument : GC1
Sample Name : 103585-16
Run Time Bar Code:
Acquired on : 02 Apr 21 02:49 PM
Report Created on: 05 Apr 21 09:11 AM

Page Number : 1
Vial Number : 27
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

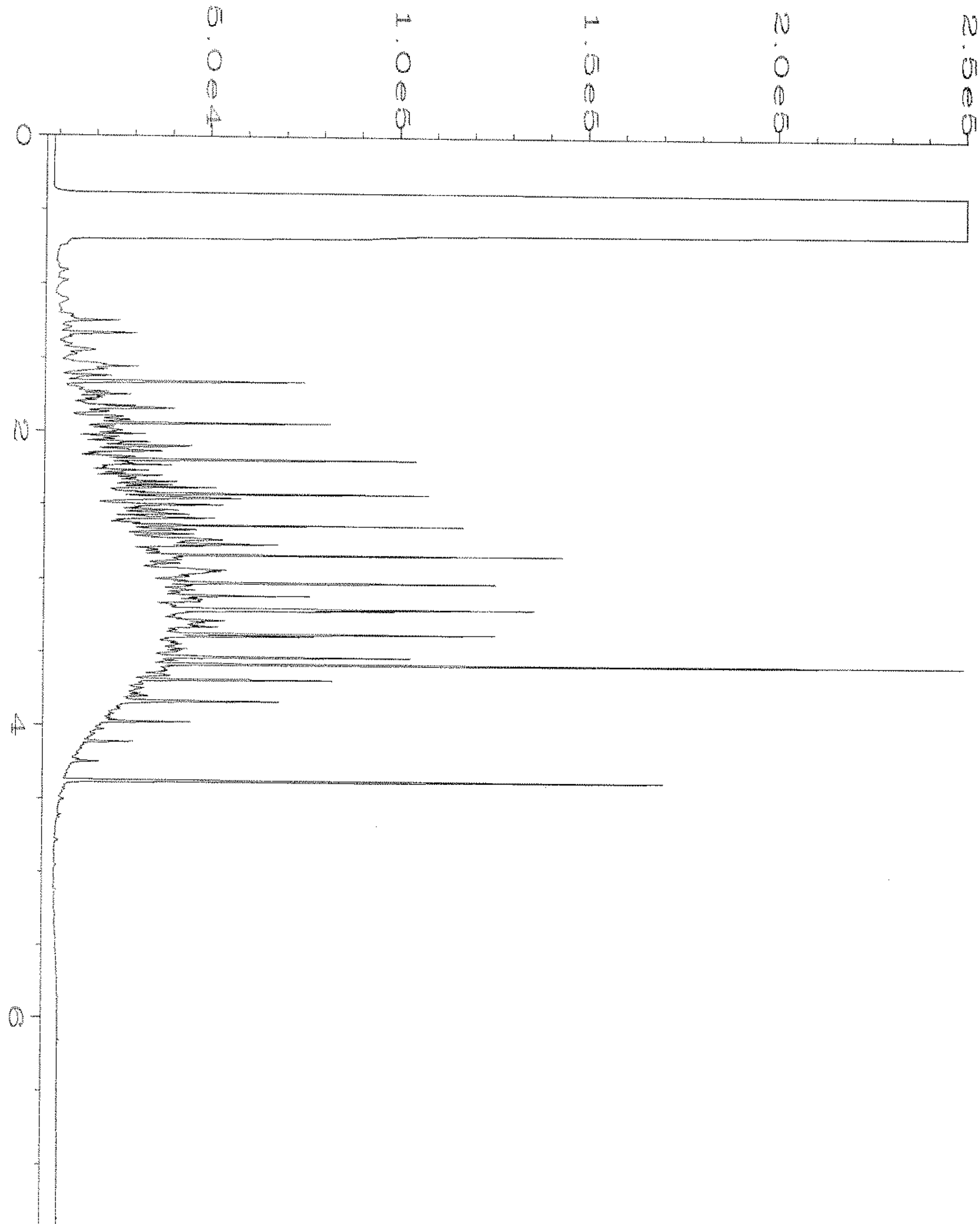


Data File Name : C:\HPCHEM\1\DATA\04-02-21\028F0901.D
Operator : TL
Instrument : GC1
Sample Name : 103585-27
Run Time Bar Code:
Acquired on : 02 Apr 21 03:01 PM
Report Created on: 05 Apr 21 09:12 AM

Page Number : 1
Vial Number : 28
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\04-02-21\018F0701.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 18
Sample Name	: 01-778 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 02 Apr 21 12:38 PM	Instrument Method	: DX.MTH
Report Created on	: 05 Apr 21 09:10 AM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\04-02-21\003F0201.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 62-142D
Run Time Bar Code:
Acquired on : 02 Apr 21 05:43 AM
Report Created on: 05 Apr 21 09:16 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 103585
Work Order Number: 2104392

May 05, 2021

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 4/28/2021 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Date: *05/05/2021*

CLIENT: Friedman & Bruya
Project: 103585
Work Order: 2104392

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2104392-001	C-1 DP1-11.0	03/31/2021 12:20 PM	04/28/2021 1:28 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Fremont Analytical

Case Narrative

WO#: **2104392**

Date: **5/5/2021**

CLIENT: Friedman & Bruya
Project: 103585

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Fremont Analytical

Work Order: **2104392**
Date Reported: **5/5/2021**

Client: Friedman & Bruya
Project: 103585
Lab ID: 2104392-001
Client Sample ID: **C-1 DP1-11.0**

Collection Date: 3/31/2021 12:20:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R66978		Analyst: CJ
Percent Moisture	10.0	0.500		wt%	1	5/4/2021 9:17:29 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 32196		Analyst: LB
Chromium, Hexavalent	ND	0.555	H	mg/Kg-dry	1	5/5/2021 12:53:00 PM

Original

Fremont Analytical

Date: *5/5/2021*

Work Order: 2104392
CLIENT: Friedman & Bruya
Project: 103585

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **MB-32196**	SampType: **MBLK**				Units: **mg/Kg**		Prep Date: **5/5/2021**		RunNo: **67034**		
Client ID: **MBLKS**	Batch ID: **32196**						Analysis Date: **5/5/2021**		SeqNo: **1350324**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-32196**	SampType: **LCS**				Units: **mg/Kg**		Prep Date: **5/5/2021**		RunNo: **67034**		
Client ID: **LCSS**	Batch ID: **32196**						Analysis Date: **5/5/2021**		SeqNo: **1350325**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.19	0.500	2.500	0	87.6	86.5	114				

Sample ID: **2104305-001ADUP**	SampType: **DUP**				Units: **mg/Kg-dry**		Prep Date: **5/5/2021**		RunNo: **67034**		
Client ID: **BATCH**	Batch ID: **32196**						Analysis Date: **5/5/2021**		SeqNo: **1350327**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.532						0		30	

Sample ID: **2104305-001AMS**	SampType: **MS**				Units: **mg/Kg-dry**		Prep Date: **5/5/2021**		RunNo: **67034**		
Client ID: **BATCH**	Batch ID: **32196**						Analysis Date: **5/5/2021**		SeqNo: **1350328**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.53	0.522	2.611	0	96.9	6.79	138				

Sample ID: **2104305-001AMSD**	SampType: **MSD**				Units: **mg/Kg-dry**		Prep Date: **5/5/2021**		RunNo: **67034**		
Client ID: **BATCH**	Batch ID: **32196**						Analysis Date: **5/5/2021**		SeqNo: **1350329**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.57	0.536	2.679	0	95.9	6.79	138	2.531	1.52	30	

Fremont Analytical

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2104392**
Logged by:	**Carissa True**	Date Received:	**4/28/2021 1:28:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☐	No ☑	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	3.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

2104392

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont	
PROJECT NAME/NO. 103585	PO # B-238
REMARKS Please Email Results EQUIS EDD	

TURNAROUND TIME
- [x] Standard TAT
- [ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH	VPH	Hex Chrome							Notes
C-1 DP1-11.0		3/31/21	1220	Soil	1				X							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Michael Erdahl	Friedman & Bruya	4/28/21	0800 AM
Received by: [signature]	Claire Anderson	FAT	4/29/21	1328
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 6, 2021

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the additional results from the testing of material submitted on March 31, 2021 from the Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. There are 2 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR0506R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2021 by Friedman & Bruya, Inc. from the GeoEngineers Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
103585 -01	C-1 DP4-3.5
103585 -02	C-1 DP4-5.0
103585 -03	C-1 DP4-7.0
103585 -04	C-1 DP3-4.0
103585 -05	C-1 DP3-7.0
103585 -06	C-1 DP3-033021w
103585 -07	C-1 DP5-3.0
103585 -08	C-1 DP5-6.0
103585 -09	C-1 DP15-4.0
103585 -10	C-1 DP15-7.0
103585 -11	C-1 DP14-5.0
103585 -12	C-1 DP14-10.0
103585 -13	C-1 DP13-2.0
103585 -14	C-1 DP13-5.0
103585 -15	C-1 DP13-033121w
103585 -16	C-1 DP14-033121w
103585 -17	C-1 DP8-4.5
103585 -18	C-1 DP8-9.0
103585 -19	C-1 DP9-3.0
103585 -20	C-1 DP9-7.5
103585 -21	C-1 DP10-4.0
103585 -22	C-1 DP11-4.0
103585 -23	C-1 DP2-5.0
103585 -24	C-1 DP2-11.0
103585 -25	C-1 DP1-3.5
103585 -26	C-1 DP1-11.0
103585 -27	C-1 DP2-033121w
103585 -28	C-1 DP7-4.0
103585 -29	C-1 DP7-9.0
103585 -30	C-1 DP12-3.0
103585 -31	C-1 DP12-8.0
103585 -32	C-1 DP6-3.0
103585 -33	C-1 DP6-6.0
103585 -34	Trip Blank 1
103585 -35	Trip Blank 2

CASE NARRATIVE (continued)

Laboratory ID	GeoEngineers
103585 -36	Trip Blank 3
103585 -37	Trip Blank 4
103585 -38	Trip Blank 5

Sample C-1 DP1-11.0 was sent to Fremont Analytical for hexavalent chromium analysis. The report is enclosed.

103585

SAMPLE CHAIN OF CUSTODY

HE 03-31-21

BI4 / E03 / V52 / VW5

Page # 1 of 4

Report To Jacob Letts

Company GEI

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geoengineers.com

SAMPLERS (signature) [signature]

PROJECT NAME Snohomish County Airport C1 Hangar

PO # 5530-014-01

REMARKS

*If Gx detected, ask PM if he wants to quantify to mineral spirits.

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME

- X Standard turnaround
- ☐ RUSH ______

Rush charges authorized by:

SAMPLE DISPOSAL

- ☐ Archive samples
- ☐ Other ______

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	(RCRA 8) Metals	(RCRA 8) Total metals	(RCRA 8) Dissolved metals		Notes
C-1 DP4-3.5	01 A-F	3/30/21	1000	S	6	X	X			X		X	X				
C-1 DP4-5.0	02		1005	S	6	X	X			X		X	X				
C-1 DP4-7.0	03		1010	S	6	X	X			X		X	X				
C-1 DP3-4.0	04		1040	S	6	X	X			X		X	X				
C-1 DP3-7.0	05		1050	S	6	X	X			X		X	X				
C-1 DP3-033021w	06 A-J		1140	gw	10	X	X			X		X		X	X		
C-1 DP5-3.0	07 A-F		1150	S	6	X	X			X		X	X				
C-1 DP5-6.0	08		~~1340~~ 1200	S	6	X	X			X		X	X				
C-1 DP15-4.0	09		1340	S	6	X	X			X		X	X				
C-1 DP15-7.0	10		1350	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Akkfurk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:				

Samples received at 4 °C

103585

Report To [redacted]

Company See pg 1

Address

City, State, ZIP

Phone ______ Email

SAMPLE CHAIN OF CUSTODY ME 03-31-21 [redacted] BI4/E03/VS2/VW5

Page # 2 of 4

SAMPLERS (signature)	
PROJECT NAME	PO # S530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH

Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals	Total metals	Diss. metals		Notes
C-1 DP14-5.0	11 A-F	3/30/21	1430	S	6	X	X			X		X	X				
C-1 DP14-10.0	12		1440	S	6	X	X			X		X	X				4 extra VOA's
C-1 DP13-2.0	13		1500	S	6	X	X			X		X	X				labels C-1DP13-2.5
C-1 DP13-5.0	14		1520	S	6	X	X			X		X	X				
C-1 DP13-033121w	15A-J	3/31/21	800	gw	10	X	X			X		X		X	X		time on bottle wrong
C-1DP14-033121w	16		820	gw	10	X	X			X		X		X	X		
C-1DP8-4.5	17A-F		900	S	6	X	X			X		X	X				
C-1DP8-9.0	18		910	S	6	X	X			X		X	X				
C-1DP9-3.0	19		920	S	6	X	X			X		X	X				
C-1DP9-7.5	20		930	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Ataktuk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:				

Samples received at 4 °C

103585

SAMPLE CHAIN OF CUSTODY 03-31-21 BI4/E03/VS2/VWS

Report To See pg 1
Company
Address
City, State, ZIP
Phone Email

SAMPLERS (signature) ME	
PROJECT NAME	PO # 5530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

Page # 3 of 4

TURNAROUND TIME
X Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA8 metals	Total metals	Diss. metals	Hex Chrome	Notes
C-1 DP10-4.0	21A-F	3/31/21	1000	S	6	X	X			X		X	X				● -per JL 4/27/21 ME
C-1 DP11-4.0	22		1030	S	6	X	X			X		X	X				
C-1 DP2-5.0	23		1100	S	6	X	X			X		X	X				
C-1 DP2-11.0	24		1120	S	6	X	X			X		X	X				
C-1 DP1-3.5	25		1200	S	6	X	X			X		X	X				
C-1 DP1-11.0	26		1220	S	6	X	X			X		X	X			●	
C-1 DP2-033121w	27A-J		1300	gw	10	X	X			X		X		X	X		
C-1 DP7-4.0	28A-F		1300	S	6	X	X			X		X	X				
C-1 DP7-9.0	29		1320	S	6	X	X			X		X	X				
C-1 DP12-3.0	30		1340	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

103585

SAMPLE CHAIN OF CUSTODY ME 03-31-21

BEU/E03/VS2/ Page # 4 of 4 VWS

Report To
Company
Address
City, State, ZIP
Phone ______ Email ______

Seepage

SAMPLERS (signature)	
PROJECT NAME: 1	PO #: 05530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH ______

Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other ______

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals (RCRA 8)				Notes
C-1 DP12-8.0	31A-F	3/31/21	1400	S	6	X	X			X		X	X				⊗ per KA 4/1/21 ME
C-1 DPG-3.0	32A-F	03/30/21	1220	soil	5	⊗	⊗			⊗		⊗	⊗				
C-1 DPG-4.0	33	03/30/21	1230	soil	5	⊗	⊗			⊗		⊗	⊗				B 4/1
Trip Blank 1	34A-B			water	2					⊗							
Trip Blank 2	35																
Trip Blank 3	36																
Trip Blank 4	37																
Trip Blank 5	38																

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Atakturk	GEI	3/31/21	1630
Received by:	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 103585
Work Order Number: 2104392

May 05, 2021

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 4/28/2021 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Date: *05/05/2021*

CLIENT:	Friedman & Bruya
Project:	103585
Work Order:	2104392

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2104392-001	C-1 DP1-11.0	03/31/2021 12:20 PM	04/28/2021 1:28 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2104392**

Date: **5/5/2021**

CLIENT: Friedman & Bruya
Project: 103585

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2104392**
Date Reported: **5/5/2021**

Client: Friedman & Bruya
Project: 103585
Lab ID: 2104392-001
Client Sample ID: C-1 DP1-11.0

Collection Date: 3/31/2021 12:20:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R66978		Analyst: CJ
Percent Moisture	10.0	0.500		wt%	1	5/4/2021 9:17:29 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 32196		Analyst: LB
Chromium, Hexavalent	ND	0.555	H	mg/Kg-dry	1	5/5/2021 12:53:00 PM

Date: *5/5/2021*

Work Order: 2104392
CLIENT: Friedman & Bruya
Project: 103585

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **MB-32196**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **5/5/2021**			RunNo: **67034**		
Client ID: **MBLKS**	Batch ID: **32196**					Analysis Date: **5/5/2021**			SeqNo: **1350324**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-32196**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **5/5/2021**			RunNo: **67034**		
Client ID: **LCSS**	Batch ID: **32196**					Analysis Date: **5/5/2021**			SeqNo: **1350325**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.19	0.500	2.500	0	87.6	86.5	114				

Sample ID: **2104305-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **5/5/2021**			RunNo: **67034**		
Client ID: **BATCH**	Batch ID: **32196**					Analysis Date: **5/5/2021**			SeqNo: **1350327**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.532						0		30	

Sample ID: **2104305-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **5/5/2021**			RunNo: **67034**		
Client ID: **BATCH**	Batch ID: **32196**					Analysis Date: **5/5/2021**			SeqNo: **1350328**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.53	0.522	2.611	0	96.9	6.79	138				

Sample ID: **2104305-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **5/5/2021**			RunNo: **67034**		
Client ID: **BATCH**	Batch ID: **32196**					Analysis Date: **5/5/2021**			SeqNo: **1350329**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.57	0.536	2.679	0	95.9	6.79	138	2.531	1.52	30	

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2104392**
Logged by:	**Carissa True**	Date Received:	**4/28/2021 1:28:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☐	No ☑	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	3.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

2104392

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont	
PROJECT NAME/NO. 103585	PO # B-238
REMARKS Please Email Results EQUIS EDD	

TURNAROUND TIME
- [x] Standard TAT
- [ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH	VPH	Hex Chrome							Notes
C-1 DP1-11.0		3/31/21	1220	Soil	1				X							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Michael Erdahl	Friedman & Bruya	4/28/21	0800 AM
Received by: [signature]	Claire Anderson	FAT	4/29/21	1328
Relinquished by:				
Received by:				

APPENDIX C
Report Limitations and Guidelines for Use

APPENDIX C
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geosciences practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of Snohomish County Airport, their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment or remedial action study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except the Snohomish County Airport should rely on this report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

This Environmental Report Is Based on a Unique Set of Project-Specific Factors

This report applies to the C-1 Hangar and C-1 Building located at 3220 100th Street SW in Everett, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

---

[1] Developed based on material provided by ASFE, The GeoProfessional Association; www.asfe.org.

Reliance Conditions for Third Parties

No third party may rely on the product of our services unless GeoEngineers agrees in advance, and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Environmental Regulations Are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Subsurface Conditions Can Change

This report is based on conditions that existed at the time our site studies were performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes and slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

Do Not Redraw the Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

Geotechnical, Geologic and Environmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on Site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject Site to another location or its reuse on site in instances that we were not aware of or could not control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

GeoEngineers

APPENDIX D

Remedial Investigation Boring and Monitoring Well Construction Logs and Groundwater Sampling Field Data

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel / Dames & Moore (D&M)

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

GeoEngineers

Figure A-1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 15	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					CC	Approximately 8 inches of portland concrete cement			
								SP-SM	Brown fine to coarse sand with silt and occasional gravel (loose, moist) (fill)			
						C-1 DP1-3.5				SS	3.1	
	5		60									
								SM	Dark gray silty sand with occasional gravel (medium dense, moist) (native)			
										SS	3.5	
	10		60									
						C-1 DP1-11				MS	8.9	
									Becomes dry			
										NS	<1	
	15											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

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Log of Boring C-1 DP-1

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-2
Sheet 1 of 1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 15	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					CC	Approximately 8 inches of portland concrete cement			
								SP	Brown sand with occasional gravel (loose, moist) (fill)			
	5		36			C-1 DP2-5.0				SS	3.8	
								SM	Dark gray silty sand with occasional gravel (medium dense, moist) (native)			
	10		60			C-1 DP2-11			Becomes wet	MS	4.3	Groundwater observed at approximately 11 feet below ground surface during drilling Groundwater sample collected on 3/31/21. (turbidity >1,000 NTU)
										SS	1.9	
	15											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-2

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 10	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	FIELD DATA: Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					AC	Approximately 3 inches of asphalt concrete pavement			
								SP-SM	Dark brown sand with silt (loose, dry) (fill)			
								SP	Light brown sand with gravel (loose, wet) (fill)			Groundwater observed at approximately 4 feet below ground surface during drilling Groundwater sample collected on 3/30/21. (turbidity >100 NTU)
			60			C-1 DP3-4.0				MS	<1	
	5											
						C-1 DP3-7.0			Becomes medium dense	MS	1084	
								SM	Gray silty sand with occasional gravel (dense, moist) (native)			
										NS	<1	
	10											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

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Log of Boring C-1 DP-3

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-4
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 7	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push
Surface Elevation (ft) Vertical Datum	Undetermined		Hammer Data N/A		Drilling Equipment Geoprobe (7822DT)	
Easting (X) Northing (Y)			System Datum		Groundwater not observed at time of exploration	
Notes:						

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	FIELD DATA: Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							AC	Approximately 4 inches of asphalt concrete pavement			
								SP-SM	Gray sand with silt and gravel (loose, dry) (fill?)			
						C-1 DP4-3.5				SS	<1	
								SP-SM	Brown sand with silt and gravel (loose, dry) (fill?)			
	5					C-1 DP4-5.0		SP	Gray-brown sand with silt (medium dense, moist) (fill?)	MS	3.7	
						C-1 DP4-7.0		SM	Dark gray silty sand with gravel (dense, moist) (native)	NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-4

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-5
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft)	8	Logged By KRA Checked By	Driller	Holocene Drilling, Inc.	Drilling Method	Direct-Push

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A
Drilling Equipment	Geoprobe (7822DT)	Easting (X) Northing (Y)	
System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	FIELD DATA: Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					SP	Light brown fine to coarse sand (loose, dry) (fill)	NS	<1	
						C-1 DP5-3.0		SP-SM	Gray sand with silt (medium dense, moist) (native?)	NS	<1	
	5		36			C-1 DP5-6.0				NS	<1	
								SM	Gray silty sand with occasional gravel (dense, moist) (native)	NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

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Log of Boring C-1 DP-5

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-6
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 9	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 12 inches of portland concrete cement			
								SP-SM	Brown sand with silt and occasional subrounded gravel (loose, dry) (fill)			
						C-1 DP6-3.0				NS	<1	
										NS	<1	
	5		48					SP-SM	Gray sand with silt and occasional angular gravel (medium dense, dry) (native)			
						C-1 DP6-6.0				NS	<1	
										NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-6

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-7
Sheet 1 of 1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 9	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) / Vertical Datum	Undetermined	Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) / Northing (Y)		System / Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 8 inches of portland concrete cement			
								SP	Brown fine to coarse sand with mottled red stain with occasional gravel (loose, moist) (fill)			
						C-1 DP7-4.0		SP-SM	Dark gray-brown sand with silt and occasional gravel (loose to medium dense, moist) (native?)	SS	3.0	
	5		48									
						C-1 DP7-9.0			Becomes medium dense	SS	4.6	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-7

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 9	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration
Notes:		

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 8 inches of portland concrete cement			
								SP	Brown fine to coarse sand with occasional rounded gravel (loose, dry) (fill)	NS	1.0	
						C-1 DP8-4.5		SP-SM	Brown fine to coarse sand with silt and occasional gravel (loose, dry) (fill?)	NS	1.9	
	5		48									
						C-1 DP8-9.0		SP-SM	Dark brown fine to coarse sand with silt and occasional gravel (medium dense, moist) (fill?)	SS	4.9	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-8

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 10	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push
Surface Elevation (ft) / Vertical Datum	Undetermined		Hammer Data N/A		Drilling Equipment Geoprobe (7822DT)	
Easting (X) / Northing (Y)			System / Datum		Groundwater not observed at time of exploration	
Notes:						

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 8 inches of portland concrete cement			
								SP	Light brown sand with occasional gravel (loose, dry) (fill)			
						C-1 DP9-3.0				NS	3.4	
	5		60					SP-SM	Brown fine to coarse sand with silt and occasional gravel (loose, moist) (fill?)			
						C-1 DP9-7.5				SS	4.8	
								SM	Dark gray silty fine to coarse sand with occasional gravel (medium dense, moist) (native)			
										SS	<1	
	10											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-9

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft) 4	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48					CC	Approximately 6 inches of portland concrete cement			
								SP-SM	Brown fine to coarse sand with silt and occasional gravel (medium dense, dry) (fill)	SS	4.0	
	4					C-1 DP10-4.0		SM	Dark gray silty fine to coarse sand with occasional gravel (medium dense, dry) (native)	SS	3.7	

Boring terminated at approximately 4 feet below ground surface due to refusal on hard ground

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-10

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-11
Sheet 1 of 1

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft)	4	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push
Surface Elevation (ft) Vertical Datum	Undetermined		Hammer Data	N/A		Drilling Equipment	Geoprobe (7822DT)
Easting (X) Northing (Y)			System Datum			Groundwater not observed at time of exploration	
Notes:							

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	FIELD DATA: Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							CC	Portland concrete cement			
								SP-SM	Brown sand with silt (loose, dry) (fill)	NS	1.3	
								SP-SM	Brown sand with silt and occasional gravel (medium dense, moist) (fill)			
	4					C-1 DP11-4.0				SS	2.6	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

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Log of Boring C-1 DP-11

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/31/2021	End 3/31/2021	Total Depth (ft)	9.5	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					AC	Approximately 8 inches of asphalt concrete pavement			
								SP	Brown sand with occasional gravel (loose, dry) (fill)	NS	1.7	
						C-1 DP12-3.0		SP-SM	Brown with mottled red coloring fine to coarse sand with silt and occasional gravel (medium dense, moist) (fill)	SS	2.2	
	5		54									
						C-1 DP12-8.0		SM	Dark gray silty sand with occasional gravel (medium dense, moist) (native)	SS	1.1	
										NS	1.0	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-12

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-13
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft)	10	Logged By KRA / Checked By	Driller	Holocene Drilling, Inc.	Drilling Method	Direct-Push

Surface Elevation (ft) / Vertical Datum	Undetermined	Hammer Data	N/A	Drilling Equipment	Geoprobe (7822DT)
Easting (X) / Northing (Y)		System Datum		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		42					AC	Approximately 6 inches of asphalt concrete pavement			
								SP	Brown sand with occasional gravel (loose, dry) (fill)			
						C-1 DP13-2.0				SS	2.5	
												Groundwater observed at approximately 4 feet below ground surface during drilling Groundwater sample collected on 3/31/21. (turbidity >1,000 NTU)
	5		60			C-1 DP13-5.0			Becomes wet	SS	2.3	
									Becomes medium dense	NS	<1	
								SM	Gray silty sand (dense, moist) (native)	NS	<1	
	10											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-13

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-14
Sheet 1 of 1

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft) 15	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct-Push

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: N/A	Drilling Equipment: Geoprobe (7822DT)
Easting (X) / Northing (Y)	System / Datum	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	FIELD DATA: Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36					AC	Approximately 6 inches of asphalt concrete pavement			
								SP-SM	Dark brown fine to coarse sand with silt (loose, moist) (fill)			
								SP	Gray sand with occasional gravel (loose, moist) (fill?)			
	5		60			C-1 DP14-5.0				SS	<1	
	10		60			C-1 DP14-10.0		SP	Brown sand with gravel (loose, wet) (fill?)	MS	2.3	Groundwater observed at approximately 10 feet below ground surface during drilling. Groundwater sample collected on 3/31/21. (turbidity >1,000 NTU)
								SM	Dark gray silt with sand (dense, moist) (native)	NS	<1	
	15											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-14

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 3/30/2021	End 3/30/2021	Total Depth (ft)	7	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method	Direct-Push

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A
Drilling Equipment	Geoprobe (7822DT)		
Easting (X) Northing (Y)		System Datum	
Groundwater not observed at time of exploration			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60					CC	Approximately 6 inches of portland concrete cement			
								SP-SM	Brown silt with fine to coarse sand and occasional gravel (medium dense, moist) (fill)			
						C-1 DP15-4.0				MS	218	
	5		24									
						C-1 DP15-7.0				SS	1.9	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 DP-15

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 4/4/2022	End 4/4/2022	Total Depth (ft)	24	Logged By KRA / Checked By	Driller Holt Drilling	Drilling Method	Hollow-stem Auger

Surface Elevation (ft) / Vertical Datum	Undetermined	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted
Easting (X) / Northing (Y)		System / Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							AC	Asphalt concrete pavement			
								GP	Gravel			
								SP-SM	Dark brown sand with silt (loose, dry) (fill)			
			6	50/6"						SS	<1	
								SP	Brown sand with occasional gravel (loose, dry) (native)			
	5					C-1 HSA1-5						
								SM	Gray silty sand with occasional gravel (medium dense, dry)			
			6	50/6"						NS	<1	
	10					C-1 HSA1-10						
			12	50/3"					Becomes loose, moist	NS	<1	
	15					C-1 HSA1-15						
			6	50/6"						NS	<1	
	20					C-1 HSA1-20						
			6	50/6"						NS	<1	
									Becomes medium dense			
						C-1 HSA1-25						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 HSA-1

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-17
Sheet 1 of 1

Drilled	Start 4/4/2022	End 4/4/2022	Total Depth (ft)	25	Logged By KRA Checked By	Driller Holt Drilling	Drilling Method	Hollow-stem Auger

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop
Drilling Equipment	Truck-mounted		
Easting (X) Northing (Y)		System Datum	
Groundwater not observed at time of exploration			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							AC	Asphalt concrete pavement			
								SP-SM	Light brown sand with silt (medium dense, moist) (fill)			
			18	62		C-1 HSA2-4				NS	<1	
								SP-SM	Brown sand with silt and gravel (loose, moist) (native)			
	5											
			12	74					Becomes dry	SS	<1	
	10					C-1 HSA2-10						
								SM	Gray silty sand with occasional gravel (medium dense, moist)			
			6	55						NS	<1	
	15					C-1 HSA2-15						
			6	53						NS	<1	
	20					C-1 HSA2-20						
			6	53						NS	<1	
	25					C-1 HSA2-25						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 HSA-2

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-18
Sheet 1 of 1

Drilled	Start 4/4/2022	End 4/4/2022	Total Depth (ft) 16.5	Logged By KRA / Checked By	Driller Holt Drilling	Drilling Method Hollow-stem Auger

Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted
Surface Elevation (ft) / Vertical Datum	598.67 / NAVD88	Top of Casing Elevation (ft)	598.67
Easting (X) / Northing (Y)		Horizontal Datum	WA State Plane North NAD83 (feet)

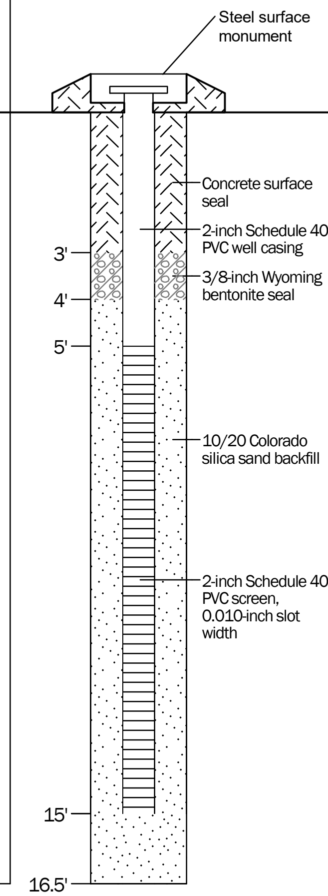
A 2-in well was installed on 4/5/2022 to a depth of 15 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
4/21/2022	12.04	586.63

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0						AC	Asphalt concrete pavement		
							SP	Brown sand with occasional gravel (loose, moist) (fill)		
595		6	50/6"						NS	<1
	5				C-1 HSA3-5					
							SM	Gray silty sand with gravel (medium dense, moist) (native)		
590		18	54						NS	<1
	10				C-1 HSA3-10					
						▼				
585		12	52						NS	<1
	15				C-1 HSA3-15					
							RX	Refusal due to rock		

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Monitoring Well C-1 HSA-3

GeoEngineers

Project: C-1 Building and C-1 Hangar Supplemental Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 4/4/2022	End 4/4/2022	Total Depth (ft)	20	Logged By KRA Checked By	Driller	Holt Drilling	Drilling Method	Hollow-stem Auger

Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted	A 2-in well was installed on 4/5/2022 to a depth of 15 ft.
Surface Elevation (ft) Vertical Datum	598.2 NAVD88	Top of Casing Elevation (ft)	598.20	
Easting (X) Northing (Y)		Horizontal Datum	WA State Plane North NAD83 (feet)	

Groundwater

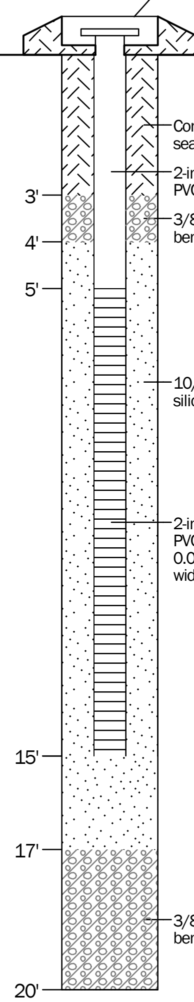
Date Measured	Depth to Water (ft)	Elevation (ft)
4/21/2022	4.32	593.88

Notes:

FIELD DATA

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0						AC	Asphalt concrete pavement		
							SP	Brown sand with gravel (loose, moist) (fill)		
595		12	3						SS	<1
						▼	SM	Gray-blue silty sand (loose, wet) (native)		
	5				C-1 HSA4-5					
590							SP-SM	Gray-blue sand with silt (loose, wet)		
		12	5						MS	<1
	10				C-1 HSA4-10					
585		9						Becomes brown, medium dense, moist to wet	MS	1.5
	15				C-1 HSA4-15					
580							SM	Gray silty sand (medium dense, moist)		
		6							SS	<1
	20				C-1 HSA4-20					

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Monitoring Well C-1 HSA-4

GEOENGINEERS

Project: C-1 Building and C-1 Hangar Supplemental Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/19/2022	End 12/19/2022	Total Depth (ft)	10.5	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger
Surface Elevation (ft) Vertical Datum	Undetermined		Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment	Truck-mounted
Easting (X) Northing (Y)			System Datum			Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							CC	Approximately 8 inches of portland concrete cement			
								SP	Brown fine to coarse sand (very dense, moist) (fill)			
				64		C-1 R-1-4				NS	<1	
								SM	Dark gray-brown silty fine to coarse sand with occasional gravel (very dense, dry) (native)			
	5											
				50/5"		C-1 R-1-8				NS	<1	
	10			50/6"		C-1 R1-10			Becomes moist	NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/19/23 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 RI-1

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/19/2022	End 12/19/2022	Total Depth (ft)	20	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Truck-mounted
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							SP-SM	Brown fine to coarse sand with silt and occasional gravel (dense, dry) (fill)			
				34		C-1 R-2-4				NS	9.1	
	5											
				50/6"		C-1 R-2-8		SM	Gray-brown silty fine to coarse sand (very dense, moist) (native)	NS	4.9	
				50/5"		C-1 R-2-10				NS	6.5	
	10								Becomes dry			
	15											
	20			50/6"		C-1 R-2-20			With occasional gravel	NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/19/23 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 RI-2

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/19/2022	End 12/19/2022	Total Depth (ft) 19	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Truck-mounted
Easting (X) / Northing (Y)	System / Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							CC	Approximately 8 inches of portland concrete cement			
								SP	Brown sand with occasional gravel (very dense, moist) (fill)			
				52		C-1 R-3-4				NS	<1	
								SP-SM	Brown fine to coarse sand with silt and occasional gravel (very dense, moist) (native)			
	5							SM	Gray to brown silty sand (very dense, dry)			
				71		C-1 R-3-8				NS	<1	
	10			60		C-1 R-3-10				NS	<1	
	15											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/19/23 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 RI-3

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/19/2022	End 12/19/2022	Total Depth (ft)	19.5	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							CC	Approximately 8 inches of portland concrete cement			
								SP-SM	Brown fine to coarse sand with silt (very dense, dry) (fill)			
				50/4"		C-1 RI-4-4				NS	<1	
								SM	Dark gray silty fine to coarse sand (very dense, dry) (native)			
	5											
				90		C-1 RI-4-8				NS	1.2	
	10			50/5"		C-1 RI-4-10				NS	1.3	
	15											
				50/5"		C-1 RI-4-20				NS	1.5	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 RI-4

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-24
Sheet 1 of 1

Drilled	Start 12/19/2022	End 12/19/2022	Total Depth (ft) 19	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Truck-mounted
Easting (X) / Northing (Y)	System / Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	Interval / Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						SP-SM	Brown fine to coarse sand with silt and occasional gravel (very dense, dry) (fill)			
			50/5"		C-1 RI-5-4				NS	<1	
							SM	Dark gray silty fine to coarse sand with occasional gravel (very dense, dry) (native)			
	5										
			85		C-1 RI-5-8				NS	1.1	
							SP-SM	Light brown fine to coarse sand with silt (very dense, dry)			
	10		80		C-1 RI-5-10		SM	Dark gray silty fine to coarse sand with occasional gravel (very dense, dry)	NS	<1	
	15										
			50/5"		C-1 RI-5-20				NS	<1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/19/23 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 RI-5

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/20/2022	End 12/20/2022	Total Depth (ft) 9.5	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Truck-mounted
Easting (X) / Northing (Y)	System / Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval / Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						CC	Approximately 8 inches of portland concrete cement			
							SP	Brown fine to coarse sand with occasional gravel (dense, moist) (fill)			
			37		C-1 RI-6-4				SS	121.5	
	5						SM	Gray to brown silty fine to coarse sand with occasional gravel (dense, moist) (native)			
			85		C-1 RI-6-8			Becomes dark gray, very dense, dry	NS	3.1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 RI-6

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/20/2022	End 12/20/2022	Total Depth (ft) 9	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval / Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						CC	Approximately 8 inches of portland concrete cement			
							SP-SM	Brown fine to coarse sand with silt and occasional gravel (very dense, moist) (fill)			
			50/3"		C-1 RI-7-4				NS		
	5						SM	Brown silty fine to coarse sand with gravel (very dense, dry)			
							SM	Dark gray silty fine to coarse sand with occasional gravel (very dense, dry) (native)			
			50/5"		C-1 RI-7-8			Without gravel	SS	1.2	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 RI-7

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/20/2022	End 12/20/2022	Total Depth (ft) 9	Logged By KRA	Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) / Vertical Datum: Undetermined	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Truck-mounted
Easting (X) / Northing (Y)	System / Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval / Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						SP-SM	Brown fine to coarse sand with silt and occasional gravel (very dense, dry) (fill)			
			78		C-1 RI-8-4				SS	13.2	
	5						SM	Brown-gray silty fine to coarse sand with occasional gravel (very dense, dry)			
							SM	Dark gray silty fine to coarse sand with occasional gravel (very dense, dry) (native)			
			50/4"		C-1 RI-8-8				NS	11.1	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:4/19/23 Path:P:\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Log of Boring C-1 RI-8

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-28
Sheet 1 of 1

Drilled	Start 12/20/2022	End 12/20/2022	Total Depth (ft) 9.5	Logged By KRA / Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) / Vertical Datum	Undetermined	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted
Easting (X) / Northing (Y)		System / Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval / Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						CC	Approximately 8 inches of portland concrete cement			
							SP	Brown sand with gravel (dense, moist) (fill)			
			43		C-1 RI-9-4				NS	<1	
	5										
							SM	Brown silty fine to coarse sand with occasional gravel (very dense, moist) (native)			
			83		C-1 RI-9-8				NS	1.2	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 RI-9

GeoEngineers

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

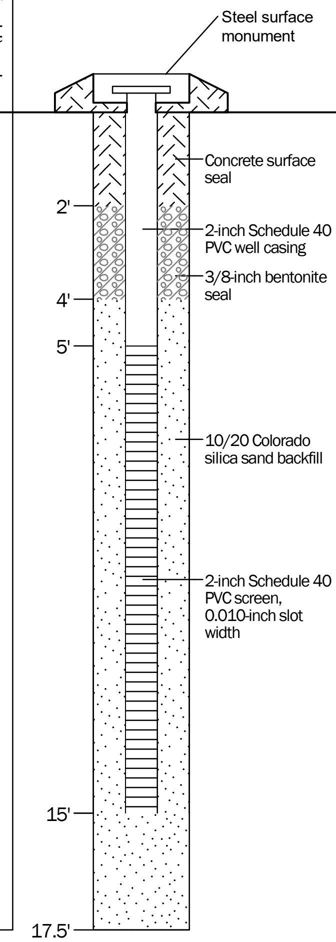
Drilled Start 12/21/2022 End 12/21/2022	Total Depth (ft) 17.5	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger
Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment: Truck-mounted		A 2-in well was installed on 12/21/2022 to a depth of 15 ft.
Surface Elevation (ft) 597.72; Vertical Datum NAVD88		Top of Casing Elevation (ft) 597.72		
Easting (X); Northing (Y)		Horizontal Datum: WA State Plane North NAD83 (feet)		

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1/9/2023	5.01	592.71

Notes:

Elevation (feet)	Depth (feet)	Interval	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0					AC	Approximately 4 inches of asphalt concrete pavement		
						SP-SM	Gray fine to coarse sand with silt and gravel (loose, wet) (fill)		
595									
	4	X	5	C-1 RI-10-4				MS	<1
	5				▼				
590	7					SM	Light brown-gray silty fine to coarse sand with occasional gravel (very dense, moist) (native)		
	10	X	58	C-1 RI-10-10				SS	<1
585									
	15								
	16	X	86	C1 RI-10-17			Becomes gray, increased gravel content	NS	1.4

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Monitoring Well C-1 RI-10

GeoEngineers

Project: C-1 Building and C-1 Hangar Remedial Investigation
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/21/2022	End 12/21/2022	Total Depth (ft) 4	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Direct Push

Surface Elevation (ft) Vertical Datum: Undetermined	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Truck-mounted
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							CC	Approximately 8 inches of portland concrete cement			
			36			C-1 RI-11-2		SP	Brown fine to coarse sand with gravel (loose, dry) (fill)	MS	<1	
						C-1 RI-11-4		SP-SM	Brown fine to coarse sand with silt and gravel (medium dense, dry)	SS	2.4	

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring C-1 RI-11

GEOENGINEERS

Project: Snohomish County - C-1 Building and Hangar Phase II ESA
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Drilled	Start 12/20/2022	End 12/20/2022	Total Depth (ft) 35.5	Logged By KRA Checked By	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted
Surface Elevation (ft) Vertical Datum	598.24 NAVD88	Top of Casing Elevation (ft)	598.25
Easting (X) Northing (Y)		Horizontal Datum	WA State Plane North NAD83 (feet)

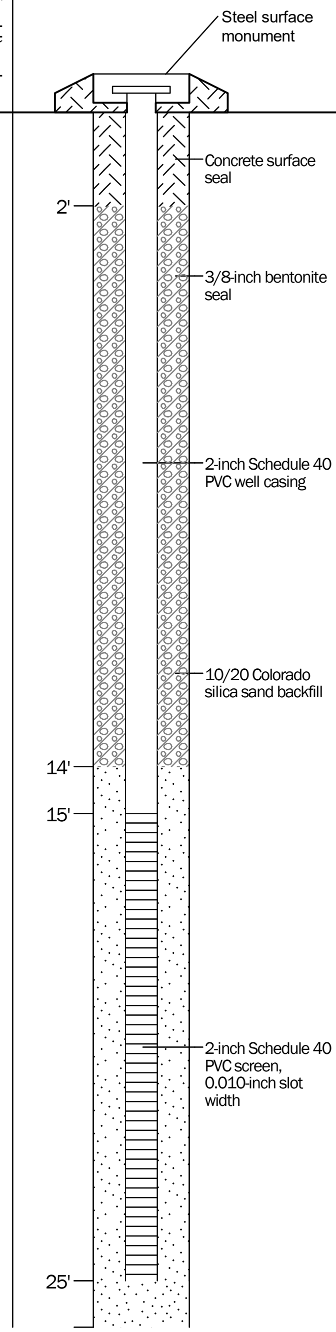
A 2-in well was installed on 12/20/2022 to a depth of 25 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1/9/2023	3.88	594.37

Notes:

Elevation (feet)	Depth (feet)	Blows/foot	Sample Name Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0				AC	Approximately 4 inches of asphalt concrete pavement		
					SP	Brown fine to coarse sand with gravel (very loose, moist) (fill)		
595				▼				
		2	C-1 RI-12-4				MS	2.3
	5				SP-SM	Dark brown-black fine to coarse sand with silt and organic matter (very loose, moist) (native)		
590								
	10	56	C-1 RI-12-10			Burnt wood observed	SS	7.6
					SM	Light brown to gray silty fine to coarse sand (very dense, moist)		
585								
	15							
580								
	20	50/6"	C-1 RI-12-20			Becomes wet	MS/HS	1.3
						Becomes dark gray		
575								
	25	50/6"	C-1 RI-12-25				MS	<1

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:6/23/23 Path:\\GEOENGINEERS.COM\WAN\PROJECTS\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_WELL

Log of Monitoring Well C-1 RI-12

GEOENGINEERS

Project: C-1 Building and C-1 Hangar Remedial Investigation
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Elevation (feet)	Depth (feet)	Interval / Recovered (in)	Blows/foot	Collected Sample / Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	WELL LOG
											26'
570											
	30		50/4"	C-1 RI-12-30					SS	<1	
565											
	35		50/4"	C-1 RI-12-35					NS	<1	35.5'

Log of Monitoring Well C-1 RI-12 (continued)

GEOENGINEERS

Project: C-1 Building and C-1 Hangar Remedial Investigation
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-32
Sheet 2 of 2

Drilled	Start 12/21/2022	End 12/21/2022	Total Depth (ft)	21.5	Logged By KRA	Checked By	Driller	Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger

Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted
Surface Elevation (ft) / Vertical Datum	598.75 / NAVD88	Top of Casing Elevation (ft)	598.75
Easting (X) / Northing (Y)		Horizontal Datum	WA State Plane North NAD83 (feet)

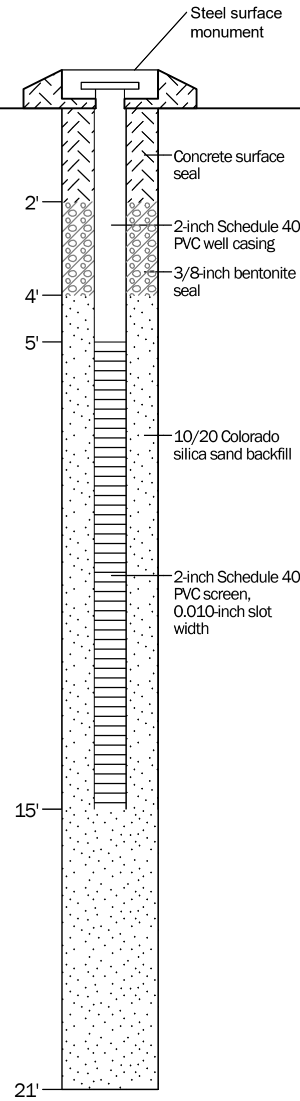
A 2-in well was installed on 12/21/2022 to a depth of 15 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1/10/2023	4.86	593.89

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0								AC	Approximately 4 inches of asphalt concrete pavement		
									SP-SM	Brown fine to coarse sand with silt and gravel (loose, moist) (fill)		
595				6		C-1 RI-13-4					SS	<1
	5						▼					
590										Becomes wet		
	10			46		C-1 RI-13-10			SM	Light brown silty fine to coarse sand with occasional gravel (dense, wet) (native)	SS	<1
585	15											
580	20			50/5"		C-1 RI-13-20				Becomes dark gray, very dense, dry	NS	<1

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Date:6/23/23 Path:\\GEOENGINEERS.COM\WAN\PROJECTS\5\5530014\GINT\553001401.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_ENVIRONMENTAL_WELL

Log of Monitoring Well C-1 RI-13

GEOENGINEERS

Project: C-1 Building and C-1 Hangar Remedial Investigation
Project Location: Snohomish County, Washington
Project Number: 5530-014-01

Figure A-33
Sheet 1 of 1

GROUNDWATER SAMPLE COLLECTION FORM

Project PAE C-1 RI | Job No. 5530-014-02 | Collector KRA | SAMPLE ID: C-1 HSA-3

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage none
(Padlock brand and number)

Depth to Water (from top of well casing) 6.28
Depth to Base of Well 14.83 Height of Water Column ~8
Well Casing Type/Diameter 2"
One Casing Volume (gal.) 1.3 (3x = 4 gal wv)
Purge Method Pump (type) Peristaltic Bailer (type) NA
Gallons Purged 4.0 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.50
0.75	1.050"	0.810"	0.023

V = pi*r in ft ^2*7.48 gal/ft^3 = gal/ft^3

Purge Water Storage/Disposal C-1 drum storage
(Drum identification, sample analysis, sample results, storage location, etc.) Clear, no odor/sheen

SAMPLING DATA

Date Collected (mo/dy/yr) 01/10/2023
Sample Location and Depth Midscreen (~10' bgs) Time Collected 11:00
Tidal Cycle NA [X] High Tide at — Low Tide at — Weather Sunny 45°F
Sample type (Groundwater, Product, Other) Groundwater
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable HDPE [ ] Other
Sampler Decon Procedure Alconox and DI water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, odorless, no sheen

FIELD PARAMETERS

Time	Depth to Water (ft bTOC) +/-0.3ft	Flow Rate (L/min)	Purge Volume (Gallons)	Temperature (F) +/-3%	Turbidity (NTU) +/-10%	ORP (mV) +/- 10 eV	pH +/- 0.1	Dissolved O2 (ppm) +/-10%	Specific Conductance (us/cm) +/-3%	TDS (mg/l)	* Salinity (ppt)
0940	6.28	<0.5	0.3	50.6	11.1	168.0	7.08	1.39	1032	670	0.51
0945	6.31		0.6	50.6	20.5	153.3	7.53	1.36	1055	688	0.52
0950	6.43		0.9	50.7	25.7	149.2	7.75	1.35	1070	696	0.53
0955	6.57		1.2	51.2	20.8	142.2	7.81	1.29	1078	701	0.53
1000	6.70		1.5	51.6	19.3	136.8	7.93	1.26	1086	707	0.54
1005	6.91		1.8	51.4	22.4	131.4	7.94	1.20	1109	721	0.55
1010	7.04		2.1	51.3	20.1	129.3	7.95	1.13	1143	743	0.57
1015	7.21		2.4	51.2	28.4	126.7	7.96	1.05	1155	751	0.58
1020	7.31		2.7	51.1	23.1	123.3	7.97	0.81	1144	744	0.57
1025	7.44		3.0	51.0	20.9	120.9	7.96	0.62	1149	748	0.57
1030	7.50		3.3	51.2	24.3	118.3	7.96	0.69	1142	739	0.56
1035	7.52		3.6	51.3	21.4	116.6	7.96	0.77	1130	734	0.56
1040	7.60		3.9	51.4	20.2	115.8	7.96	0.72	1134	738	0.56

Meters Used for Measurement YSI Pro+, Hach, e-tape
pH/Con./DO Instrument Calibration [X] Yes [ ] No Spectrophotometer NA E-Tape rental FEI

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance NA
Analyses, Number and Volume of Sample Containers 7x
Duplicate Sample Number(s) —
Comments: (Filtered, Not Filtered, Calculations, etc.) FF dissolved metals

Signature [signature] Date 1/10/23 Page 1 of

Check if additional information on back [ ]

(*) Well is placed in parking lot that was de-iced during the last snow/ice storm on 12/20-26/2022

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project PAE C-1 RI   Job No. 5530-014-02   Collector KRA   SAMPLE ID: C-1 HSA-4

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No   Describe Damage None, water in monument, below PVC
(Padlock brand and number) —

Depth to Water (from top of well casing) 4.27
Depth to Base of Well 14.9   Height of Water Column ~10
Well Casing Type/Diameter 2"
One Casing Volume (gal.) 1.7 gal (3x = 5.1 gal)
Purge Method   Pump (type) Peristaltic   Bailer (type) NA
Gallons Purged 3.5 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal C-1 drums
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.50
0.75	1.050"	0.810"	0.023

V = pi*r in ft ^2*7.48 gal/ft^3 = gal/ft^3

SAMPLING DATA

Date Collected (mo/dy/yr) 01/09/2023
Sample Location and Depth Midscreen (~10' bgs)   Time Collected 13:30
Tidal Cycle NA ✓   High Tide at —   Low Tide at —   Weather rainy, 50°F
Sample type (Groundwater, Product, Other) Groundwater
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable HDPE [ ] Other
Sampler Decon Procedure Alconox and DI water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, odorless, no sheen

FIELD PARAMETERS

Time	Depth to Water (ft bTOC) +/-0.3ft	Flow Rate (L/min)	Purge Volume (Gallons) ✓	Temperature (F) +/-3% ✓	Turbidity (NTU) +/-10% ✓	ORP (mV) +/- 10 eV ✓	pH +/- 0.1 ✓	Dissolved O2 (ppm) +/-10% ✓	Specific Conductance (us/cm) +/-3% ✓	TDS (mg/l) ✓	Salinity (ppt) ✓
1220	5.13	<0.5	0.3	54.1	15.4	-41.8	6.58	0.35	686	446.1	0.34
1225	5.17		0.6	54.1	11.8	-48.1	6.58	0.21	686	446.3	0.34
1230	5.21		0.9	54.2	5.44	-54.4	6.57	0.17	687	446.3	0.34
1235	5.23		1.2	54.2	4.83	-62.5	6.57	0.14	687	446.4	0.34
1240	5.25		1.5	54.3	—	-68.3	6.56	0.14	687	446.5	0.34
1245	5.30		1.9	54.4	—	-70.1	6.56	0.13	688	447.1	0.34
1250	5.31		2.2	53.6	—	-71.4	6.55	0.12	689	447.7	0.34
1255	5.30		2.6	52.9	—	-72.1	6.56	0.12	688	447.6	0.34
1300	5.31		2.9	52.9	—	-73.4	6.56	0.11	689	447.6	0.34
1305	5.33		3.2	52.8	—	-74.7	6.57	0.12	688	447.5	0.34
1310	5.35		3.5	52.7	—	-76.8	6.57	0.11	688	447.5	0.34
~~1315~~						KA					
1320											

Meters Used for Measurement YSI Pro, Hach Turb.
pH/Con./DO Instrument Calibration [X] Yes [ ] No   Spectrophotometer NA   E-Tape rental

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance NA
Analyses, Number and Volume of Sample Containers 7x
Duplicate Sample Number(s) —
Comments: (Filtered, Not Filtered, Calculations, etc.) FF diss metals

Signature [signature]   Date 1/9/23   Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project PAE C-1 RI -10 | Job No. 5530-014-02 | Collector KRA | SAMPLE ID: C-1 RI-10

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage none, water in monument above well. That refills when surface stormwater exists
(Padlock brand and number)

Depth to Water (from top of well casing) 5.01'
Depth to Base of Well 14.50' (Hard) Height of Water Column ~9.5'
Well Casing Type/Diameter 2" PVC
One Casing Volume (gal.) 1.6 wv (3x = 4.8 gal)
Purge Method Pump (type) Peristaltic Bailer (type) NA
Gallons Purged 4.1 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal C-1 Hangar (S. drum)
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.50
0.75	1.050"	0.810"	0.023

V = pi*r in ft ^2*7.48 gal/ft^3 = gal/ft^3

SAMPLING DATA

Date Collected (mo/dy/yr) 1/9/23
Sample Location and Depth gw midscreen (~10 bgs) Time Collected 11:30
Tidal Cycle NA [✓] High Tide at — Low Tide at — Weather overcast
Sample type (Groundwater, Product, Other) Groundwater
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable HDPE [ ] Other
Sampler Decon Procedure Alconox and DI water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.) slight yellow - Clear, no odor (*slight sheen in purge water & in voas)

FIELD PARAMETERS

Time	Depth to Water (ft bTOC) +/-0.3ft	Flow Rate (L/min)	Purge Volume (Gallons)	Temperature (F) +/-3%	Turbidity (NTU) +/-10%	ORP (mV) +/- 10 eV	pH +/- 0.1	Dissolved O2 (ppm) +/-10%	Specific Conductance (us/cm) +/-3%	TDS (mg/l)	Salinity (ppt)
1030	5.01	<0.5	0.5	52.9	64.4	-97.0	6.60	0.61	702	457.0	0.34
1035	5.02		0.8	52.4	85.4	-108.3	6.61	0.43	702	456.3	0.34
1040	5.03		1.1	52.0	84.3	-117.3	6.63	0.27	702	456.0	0.34
1045	5.17		1.3	51.6	71.1	-103.4	6.63	0.57	694	453.1	0.34
1050	5.23		1.6	51.4	65.3	-98.7	6.63	0.87	686	446.2	0.34
1055	5.31		1.9	51.3	52.4	-80.3	6.61	0.98	681	442.3	0.34
1100	5.34		2.1	51.4	47.3	-56.1	6.60	1.47	679	439.9	0.33
1105	5.49		2.5	51.4	38.9	-49.1	6.59	2.39	676	439.4	0.33
1110	5.50		2.8	51.5	25.7	-34.4	6.57	2.51	675	439.1	0.33
1115	5.53		3.1	51.6	24.4	-29.3	6.57	2.87	674	438.3	0.33
1120	5.58		3.4	51.7	16.3	-28.1	6.56	3.10	674	438.0	0.33
1125	5.56		3.7	51.5	13.7	-26.0	6.56	3.21	674	437.4	0.33
1130	5.57		4.1	51.2	11.7	-24.1	6.57	3.18	673	437.0	0.33

Sample @ 11:30

Meters Used for Measurement YSI Pro, HACH 2100Q, etape (rental & precalibrated 1/9/23)
pH/Con./DO Instrument Calibration [X] Yes [ ] No Spectrophotometer NA E-Tape rental

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance NA
Analyses, Number and Volume of Sample Containers 7x
Duplicate Sample Number(s) C-1 DUP-1-20230109 * VOC only @ 1/9/23 12:00
Comments: (Filtered, Not Filtered, Calculations, etc.) FF diss metals

Signature [signature] Date 1/9/23 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project PAE C-1 RI   Job No. 5530-014-02   Collector KRA   SAMPLE ID: C-1 RI-12

PURGE DATA

Well Condition: Secure [ ] Yes [ ] No   Describe Damage
(Padlock brand and number)

Depth to Water (from top of well casing) 3.88
Depth to Base of Well 24.55'   Height of Water Column 21'
Well Casing Type/Diameter (2") 3.5 gal (3wv = 10.7 gal)
One Casing Volume (gal.)
Purge Method   Pump (type) Peristaltic   Bailer (type) NA
Gallons Purged 5.4 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal C-1 drum staging area
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.50
0.75	1.050"	0.810"	0.023

V = pi*r in ft ^2*7.48 gal/ft^3 = gal/ft^3

SAMPLING DATA

Date Collected (mo/dy/yr) 1/10/2023
Sample Location and Depth mid screen (~20' bgs)   Time Collected 13:30
Tidal Cycle NA [X]   High Tide at —   Low Tide at —   Weather Sunny 50°F
Sample type (Groundwater, Product, Other) Groundwater
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable HDPE [ ] Other
Sampler Decon Procedure Alconox and DI water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (ft bTOC) +/-0.3ft	Flow Rate (L/min)	Purge Volume (Gallons)	Temperature (F) +/-3%	Turbidity (NTU) +/-10%	ORP (mV) +/- 10 eV	pH +/- 0.1	Dissolved O2 (ppm) +/-10%	Specific Conductance (us/cm) +/-3%	TDS (mg/l)	Salinity (ppt)
1205	3.88	<0.5	0.3	54.5	30.4	61.5	7.40	0.72	920	598	0.46
1210	4.15		0.7	54.8	—	59.4	7.38	0.72	920	598	0.46
1215	4.41		1.1	55.1	—	48.2	7.34	0.72	919	598	0.46
1220	4.82		1.5	55.3	—	41.8	7.31	0.71	919	598	0.46
1225	5.24		2.0	55.8	21.8	33.7	7.29	0.71	919	597	0.46
1230	5.37		2.3	56.5	—	24.6	7.29	0.28	919	598	0.46
1235	5.77		2.6	56.6	—	-14.7	7.27	0.27	919	597	0.46
1240	6.19		2.9	56.7	—	-30.3	7.24	0.25	919	597	0.46
1245	6.43		3.3	56.9	17.1	-40.4	7.22	0.22	919	597	0.46
1250	6.74		3.6	57.4	11.4	-44.9	7.16	0.22	919	598	0.46
1255	6.81		3.9	57.6	5.45	-48.3	7.16	0.23	918	597	0.45
1300	7.13		4.1	57.7	4.13	-50.1	7.15	0.22	917	596	0.45
1305	7.31		4.4	57.8	—	-52.5	7.15	7.18*	916	595	0.45

Meters Used for Measurement
pH/Con./DO Instrument Calibration [X] Yes [ ] No   Spectrophotometer NA   E-Tape rental

Ai bab inc me

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance NA
Analyses, Number and Volume of Sample Containers 7x
Duplicate Sample Number(s) —
Comments: (Filtered, Not Filtered, Calculations, etc.) FF for dissolved metals

Signature [signature]   Date 1/10/23   Page 1 of 2

Check if additional information on back [✓]

GeoEngineers

Project PAE C-1 RI Job No. 5530-014-02 Collector KRA SAMPLE ID: C-1 RI-12

FIELD PARAMETERS

Time	Depth to Water (ft bTOC)	Flow Rate (L/min)	Purge Volume (Gallons)	Temperature (F)	Turbidity (NTU)	ORP (mV)	pH	Dissolved O2 (ppm)	Specific Conductance ( )	TDS (g/l)	Salinity (ppt)
1310	7.41	<0.5	4.7	57.9	—	-58.3	7.13	0.54	915	595	0.45
1315	8.07	↓	5.1	57.9	—	-60.0	7.13	0.20	911	592	0.45
1320	8.13		5.4	57.9	—	-63.4	7.11	0.13	909	591	0.45
						KA					

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project PAE C-1 RI Job No. 5530-014-02 Collector KRA SAMPLE ID: C-1 R1-13

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage none
(Padlock brand and number) —
Depth to Water (from top of well casing) 4.86
Depth to Base of Well 14.5 Height of Water Column ~10
Well Casing Type/Diameter 2"
One Casing Volume (gal.) 1.7 gal (3wv= 5.1 gal)
Purge Method Pump (type) Peristaltic Bailer (type) NA
Gallons Purged ~ 3.1 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal C-1 Hangar drum staging
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.50
0.75	1.050"	0.810"	0.023

V = pi*r in ft ^2*7.48 gal/ft^3 = gal/ft^3

SAMPLING DATA

Date Collected (mo/dy/yr) 1/10/2023
Sample Location and Depth Midscreen (~10' bgs) Time Collected 15:00
Tidal Cycle NA High Tide at — Low Tide at — Weather Sunny 50° F
Sample type (Groundwater, Product, Other) Groundwater
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable HDPE [ ] Other
Sampler Decon Procedure Alconox and DI water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear no odor/no sheen

FIELD PARAMETERS

Time	Depth to Water (ft bTOC) +/-0.3ft	Flow Rate (L/min)	Purge Volume (Gallons)	Temperature (F) +/-3%	Turbidity (NTU) +/-10%	ORP (mV) +/- 10 eV	pH +/- 0.1	Dissolved O2 (ppm) +/-10%	Specific Conductance (us/cm) +/-3%	TDS (mg/l)	Salinity (ppt)
1400	4.86	<0.5	0.3	55.0	54.9	-35.6	6.63	0.42	712	463.0	0.35
1405	4.92		0.6	55.0	24.3	-35.5	6.60	0.38	718	467.7	0.35
1410	5.04		0.9	54.8	20.8	-35.4	6.58	0.32	720	468.3	0.36
1415	5.12		1.2	54.6	16.7	-35.3	6.57	0.24	724	470.0	0.36
1420	5.14		1.5	54.2	10.4	-34.9	6.54	0.13	725	471.1	0.36
1425	5.20		1.8	53.9	8.43	-36.4	6.51	0.09	734	478.4	0.37
1430	5.20		2.2	53.7	5.98	-39.9	6.47	0.06	751	488.1	0.37
1435	5.21		2.5	53.9	4.18	-41.3	6.47	0.07	757	492.1	0.37
1440	5.25		2.8	53.9	—	-42.6	6.48	0.05	759	493.8	0.37
1445	5.30		3.1	53.8	—	-43.4	6.47	0.06	759	494.4	0.37

Meters Used for Measurement YSI Pro+, Hach turbidimeter, etape
pH/Con./DO Instrument Calibration [X] Yes [ ] No Spectrophotometer NA E-Tape rental

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance NA
Analyses, Number and Volume of Sample Containers 7x bottles
Duplicate Sample Number(s) —
Comments: (Filtered, Not Filtered, Calculations, etc.) FF for diss. metals

Signature [signature] Date 1/10/2023 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

SAMPLE CHAIN OF COUSTODY

Report To: Jacob Letts

Company: GeoEngineers

Address: 2101 4th Ave Suite 950

City, State, ZIP: Seattle, WA 98121

Phone: ______ Email: JLetts@geoengineers.com

SAMPLERS (signature): Katy

PROJECT NAME	PO #
C-1 RI GW Monitoring	5530-014-02

REMARKS	INVOICE TO
Dissolved metals were Field Filtered as marked on Bottle & label. Project specific RLs? - Yes / No	

Page # 1 of 1

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH______
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other______
- Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOTAL & Diss. RCRA 8 metals	Gx quantify to Stod. spirits			Notes
C-1 RI-10-20230109	1	1/9/23	1130	W	7	X	X			X			X				
C-1 HSA-4-20230109	2	1/9/23	1330		7	X	X			X			X				
C-1 HSA-3-20230110	3	1/10/23	1100		7	X				X			X	X			
C-1 RI-12-20230110	4	1/10/23	1330		7	X	X			X			X				
C-1 RI-13-20230110	5	1/10/23	1500		7	X	X			X			X				
C-1 DUP-1-20230109	6	1/9/23	1200		4					X							
TB-20230110	7	1/10/23	—		2					X							

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Katy	Katy Ataktürk	GeoEngineers	1/10/23	15:20
Received by:	ANH PHAN	F&B	01/10/23	15:20
Relinquished by:				
Received by:				

APPENDIX E
Remedial Investigation Laboratory Analytical Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

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April 14, 2022

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on April 5, 2022 from the C-1 Hangar Property 5530-014-01, F&BI 204056 project. There are 30 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Atakturk
GNR0414R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 5, 2022 by Friedman & Bruya, Inc. from the GeoEngineers C-1 Hangar Property 5530-014-01, F&BI 204056 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
204056 -01	C-1 HSA1-5
204056 -02	C-1 HSA1-10
204056 -03	C-1 HSA1-15
204056 -04	C-1 HSA1-20
204056 -05	C-1 HSA1-25
204056 -06	C-1 HSA2-4
204056 -07	C-1 HSA2-10
204056 -08	C-1 HSA2-15
204056 -09	C-1 HSA2-20
204056 -10	C-1 HSA2-25
204056 -11	C-1 HSA3-5
204056 -12	C-1 HSA3-10
204056 -13	C-1 HSA3-15
204056 -14	C-1 HSA4-5
204056 -15	C-1 HSA4-10
204056 -16	C-1 HSA4-15
204056 -17	C-1 HSA4-20
204056 -18	TB-040522

Stoddard Solvent by NWTPH-Gx (soil)
All quality control requirements were acceptable.

Diesel and Motor Oil by NWTPH-Dx (soil)
All quality control requirements were acceptable.

VOCs by 8260D (soil)
Several 8260D compounds exceeded the acceptance criteria in the matrix spike sample. The compounds were not detected, therefore the data were acceptable. All other quality control requirements were acceptable.

VOCs by 8260D (water)
The 8260D calibration standard failed the acceptance criteria for bromomethane and chloroethane. The data were flagged accordingly. All other quality control requirements were acceptable.

Total Metals by 6020B (soil)
Selenium in the 6020B matrix spike and matrix spike duplicate failed the acceptance criteria. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect. All other quality control requirements were acceptable.

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056
Date Extracted: 04/06/22
Date Analyzed: 04/06/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
C-1 HSA1-5 204056-01	<50	<250	94
C-1 HSA1-15 204056-03	<50	<250	95
C-1 HSA2-4 204056-06	<50	<250	95
C-1 HSA2-10 204056-07	<50	<250	95
C-1 HSA3-5 204056-11	<50	<250	95
C-1 HSA3-10 204056-12	<50	<250	94
C-1 HSA4-5 204056-14	<50	<250	107
C-1 HSA4-10 204056-15	<50	<250	94
C-1 HSA4-15 204056-16	<50	<250	95
C-1 HSA4-20 204056-17	<50	<250	94
Method Blank 02-849 MB	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056
Date Extracted: 04/07/22
Date Analyzed: 04/07/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS
AS STODDARD SOLVENT
USING METHOD NWTPH-Gx
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Stoddard Solvent Range (C_8-C_{11})	Surrogate (% Recovery) (Limit 50-150)
C-1 HSA1-5 204056-01	<5	86
C-1 HSA1-15 204056-03	<5	74
C-1 HSA2-4 204056-06	<5	88
C-1 HSA2-10 204056-07	<5	82
C-1 HSA3-5 204056-11	<5	80
C-1 HSA3-10 204056-12	<5	57
C-1 HSA4-5 204056-14	<5	85
C-1 HSA4-10 204056-15	<5	81
C-1 HSA4-15 204056-16	<5	77
C-1 HSA4-20 204056-17	<5	82
Method Blank 02-816 MB	<5	84

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA1-5	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/06/22	Lab ID:	204056-01
Date Analyzed:	04/06/22	Data File:	204056-01.111
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.70
Barium	46.2
Cadmium	<1
Chromium	15.9
Lead	1.59
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA1-15	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/06/22	Lab ID:	204056-03
Date Analyzed:	04/06/22	Data File:	204056-03.112
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.14
Barium	48.5
Cadmium	<1
Chromium	22.3
Lead	2.26
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA2-4	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/06/22	Lab ID:	204056-06
Date Analyzed:	04/06/22	Data File:	204056-06.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.36
Barium	43.5
Cadmium	<1
Chromium	19.4
Lead	2.03
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA4-5	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/06/22	Lab ID:	204056-14
Date Analyzed:	04/06/22	Data File:	204056-14.114
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.13
Barium	52.3
Cadmium	<1
Chromium	18.2
Lead	1.90
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/06/22	Lab ID:	I2-266 mb2
Date Analyzed:	04/06/22	Data File:	I2-266 mb2.107
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA1-5	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-01 1/0.25
Date Analyzed:	04/12/22	Data File:	041229.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	95	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA1-15	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-03 1/0.25
Date Analyzed:	04/12/22	Data File:	041230.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	84	118
Toluene-d8	89	86	117
4-Bromofluorobenzene	101	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA2-4	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-06 1/0.25
Date Analyzed:	04/12/22	Data File:	041231.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	84	118
Toluene-d8	88	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA2-10	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-07 1/0.25
Date Analyzed:	04/12/22	Data File:	041232.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	84	118
Toluene-d8	94	86	117
4-Bromofluorobenzene	101	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	0.0026	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA2-15	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-08 1/0.25
Date Analyzed:	04/12/22	Data File:	041233.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	90	86	117
4-Bromofluorobenzene	98	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	0.029	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA3-5	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-11 1/0.25
Date Analyzed:	04/12/22	Data File:	041234.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	99	86	117
4-Bromofluorobenzene	98	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA3-10	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-12 1/0.25
Date Analyzed:	04/12/22	Data File:	041235.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	84	118
Toluene-d8	98	86	117
4-Bromofluorobenzene	96	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA4-5	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-14 1/0.25
Date Analyzed:	04/12/22	Data File:	041236.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	99	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA4-10	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-15 1/0.25
Date Analyzed:	04/12/22	Data File:	041237.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	84	118
Toluene-d8	94	86	117
4-Bromofluorobenzene	99	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA4-15	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-16 1/0.25
Date Analyzed:	04/12/22	Data File:	041238.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0014	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.0022	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 HSA4-20	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	204056-17 1/0.25
Date Analyzed:	04/12/22	Data File:	041239.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	95	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	0.0053
Hexane	<0.25	o-Xylene	0.0011
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	0.0029	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.018	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.067	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	0.0032	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/12/22	Lab ID:	02-802 mb 1/0.25
Date Analyzed:	04/12/22	Data File:	041218.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	118
Toluene-d8	96	86	117
4-Bromofluorobenzene	101	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TB-040522	Client:	GeoEngineers
Date Received:	04/05/22	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/07/22	Lab ID:	204056-18
Date Analyzed:	04/13/22	Data File:	041315.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	85	117
Toluene-d8	98	88	112
4-Bromofluorobenzene	100	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5 ca	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1 ca	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	5530-014-01, F&BI 204056
Date Extracted:	04/13/22	Lab ID:	02-807 mb
Date Analyzed:	04/13/22	Data File:	041307.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	103	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5 ca	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1 ca	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 204063-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	98	98	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	74-139

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR STODDARD SOLVENT USING METHOD NWTPH-Gx

Laboratory Code: 204056-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Stoddard Solvent	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Stoddard Solvent	mg/kg (ppm)	10	90	70-130

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 204011-05 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	82	73 vo	75-125	12
Barium	mg/kg (ppm)	50	155	168 b	116	75-125	37 b
Cadmium	mg/kg (ppm)	10	<5	101	93	75-125	8
Chromium	mg/kg (ppm)	50	7.26	88	81	75-125	8
Lead	mg/kg (ppm)	50	19.9	97	81	75-125	18
Mercury	mg/kg (ppm	5	<5	98	93	75-125	5
Selenium	mg/kg (ppm)	5	<5	74 vo	67 vo	75-125	10
Silver	mg/kg (ppm)	10	<5	101	94	75-125	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	88	80-120
Barium	mg/kg (ppm)	50	100	80-120
Cadmium	mg/kg (ppm)	10	100	80-120
Chromium	mg/kg (ppm)	50	98	80-120
Lead	mg/kg (ppm)	50	99	80-120
Mercury	mg/kg (ppm)	10	93	80-120
Selenium	mg/kg (ppm)	5	89	80-120
Silver	mg/kg (ppm)	10	97	80-120

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 204171-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	19	19	10-142	0
Chloromethane	mg/kg (ppm)	1	<0.5	60	55	10-126	9
Vinyl chloride	mg/kg (ppm)	1	<0.05	71	66	10-138	7
Bromomethane	mg/kg (ppm)	1	<0.5	74	62	10-163	18
Chloroethane	mg/kg (ppm)	1	<0.5	82	77	10-176	6
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	71	66	10-176	7
Acetone	mg/kg (ppm)	5	<5	141	118	10-163	18
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	81	75	10-160	8
Hexane	mg/kg (ppm)	1	<0.25	76	69	10-137	10
Methylene chloride	mg/kg (ppm)	1	<0.5	107	95	10-156	12
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	122	108	21-145	12
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	101	91	14-137	10
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	109	97	19-140	12
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	124	113	10-158	9
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	110	98	25-135	12
Chloroform	mg/kg (ppm)	1	<0.05	106	95	21-145	11
2-Butanone (MEK)	mg/kg (ppm)	5	<1	128	112	19-147	13
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	112	99	12-160	12
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	104	98	10-156	6
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	109	99	17-140	10
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	100	91	9-164	9
Benzene	mg/kg (ppm)	1	<0.03	109	96	29-129	13
Trichloroethene	mg/kg (ppm)	1	<0.02	110	98	21-139	12
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	119	104	30-135	13
Bromodichloromethane	mg/kg (ppm)	1	<0.05	110	97	23-155	13
Dibromomethane	mg/kg (ppm)	1	<0.05	113	101	23-145	11
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	127	111	24-155	13
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	117	101	28-144	15
Toluene	mg/kg (ppm)	1	<0.05	130	112	35-130	15
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	136	118	26-149	14
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	136	116	10-205	16
2-Hexanone	mg/kg (ppm)	5	<0.5	155	131	15-166	17
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	136	118	31-137	14
Tetrachloroethene	mg/kg (ppm)	1	<0.025	129	112	20-133	14
Dibromochloromethane	mg/kg (ppm)	1	<0.05	115	105	28-150	9
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	136	117	28-142	15
Chlorobenzene	mg/kg (ppm)	1	<0.05	131 vo	114	32-129	14
Ethylbenzene	mg/kg (ppm)	1	<0.05	135	116	32-137	15
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	119	105	31-143	12
m,p-Xylene	mg/kg (ppm)	2	<0.1	134	117	34-136	14
o-Xylene	mg/kg (ppm)	1	<0.05	130	114	33-134	13
Styrene	mg/kg (ppm)	1	<0.05	133	115	35-137	15
Isopropylbenzene	mg/kg (ppm)	1	<0.05	135	118	31-142	13
Bromoform	mg/kg (ppm)	1	<0.05	110	96	21-156	14
n-Propylbenzene	mg/kg (ppm)	1	<0.05	145	127	23-146	13
Bromobenzene	mg/kg (ppm)	1	<0.05	139 vo	120	34-130	15
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	145	125	18-149	15
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	144 vo	123	28-140	16
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	138	121	25-144	13
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	142 vo	124	31-134	14
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	142 vo	123	31-136	14
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	145 vo	125	30-137	15
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	143	124	10-182	14
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	146 vo	126	23-145	15
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	144	125	21-149	14
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	136 vo	122	30-131	11
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	135 vo	119	29-129	13
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	140 vo	121	31-132	15
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	128	113	11-161	12
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	136	120	22-142	12
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	137	120	10-142	13
Naphthalene	mg/kg (ppm)	1	<0.05	141	122	14-157	14
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	139	118	20-144	16

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	47	10-146
Chloromethane	mg/kg (ppm)	1	67	27-133
Vinyl chloride	mg/kg (ppm)	1	86	22-139
Bromomethane	mg/kg (ppm)	1	73	38-114
Chloroethane	mg/kg (ppm)	1	78	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	78	10-196
Acetone	mg/kg (ppm)	5	107	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	76	47-128
Hexane	mg/kg (ppm)	1	107	43-142
Methylene chloride	mg/kg (ppm)	1	84	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	98	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	89	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	91	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	105	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	83	72-127
Chloroform	mg/kg (ppm)	1	78	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	97	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	83	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	86	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	86	69-128
Carbon tetrachloride	mg/kg (ppm)	1	85	60-139
Benzene	mg/kg (ppm)	1	82	71-118
Trichloroethene	mg/kg (ppm)	1	85	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	90	72-127
Bromodichloromethane	mg/kg (ppm)	1	85	57-126
Dibromomethane	mg/kg (ppm)	1	86	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	99	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	90	67-122
Toluene	mg/kg (ppm)	1	96	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	105	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	99	64-115
2-Hexanone	mg/kg (ppm)	5	115	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	102	72-130
Tetrachloroethene	mg/kg (ppm)	1	94	72-114
Dibromochloromethane	mg/kg (ppm)	1	92	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	104	74-132
Chlorobenzene	mg/kg (ppm)	1	95	76-111
Ethylbenzene	mg/kg (ppm)	1	97	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	92	64-121
m,p-Xylene	mg/kg (ppm)	2	97	78-122
o-Xylene	mg/kg (ppm)	1	96	77-124
Styrene	mg/kg (ppm)	1	96	74-126
Isopropylbenzene	mg/kg (ppm)	1	97	76-127
Bromoform	mg/kg (ppm)	1	88	56-132
n-Propylbenzene	mg/kg (ppm)	1	106	74-124
Bromobenzene	mg/kg (ppm)	1	104	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	105	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	107	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	106	61-137
2-Chlorotoluene	mg/kg (ppm)	1	103	74-121
4-Chlorotoluene	mg/kg (ppm)	1	104	75-122
tert-Butylbenzene	mg/kg (ppm)	1	105	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	104	76-125
sec-Butylbenzene	mg/kg (ppm)	1	105	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	104	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	99	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	102	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	100	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	97	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	101	50-153
Naphthalene	mg/kg (ppm)	1	100	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	97	63-138

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 204055-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	120	50-150
Chloromethane	ug/L (ppb)	10	<10	97	50-150
Vinyl chloride	ug/L (ppb)	10	<0.02	100	16-176
Bromomethane	ug/L (ppb)	10	<5	112	10-193
Chloroethane	ug/L (ppb)	10	<1	103	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	98	50-150
Acetone	ug/L (ppb)	50	<50	89	15-179
1,1-Dichloroethene	ug/L (ppb)	10	<1	100	50-150
Hexane	ug/L (ppb)	10	<5	99	49-161
Methylene chloride	ug/L (ppb)	10	<5	114	40-143
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	99	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	98	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	96	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	95	10-335
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	95	50-150
Chloroform	ug/L (ppb)	10	<1	99	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	98	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	94	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	98	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	100	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	97	50-150
Benzene	ug/L (ppb)	10	<0.35	98	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	98	43-133
1,2-Dichloropropane	ug/L (ppb)	10	<1	93	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	95	50-150
Dibromomethane	ug/L (ppb)	10	<1	94	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	99	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	95	48-145
Toluene	ug/L (ppb)	10	<1	96	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	93	37-152
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	99	50-150
2-Hexanone	ug/L (ppb)	50	<10	102	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	94	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	98	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	95	33-164
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	98	50-150
Chlorobenzene	ug/L (ppb)	10	<1	102	50-150
Ethylbenzene	ug/L (ppb)	10	<1	101	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	103	50-150
m,p-Xylene	ug/L (ppb)	20	<2	101	50-150
o-Xylene	ug/L (ppb)	10	<1	100	50-150
Styrene	ug/L (ppb)	10	<1	103	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	103	50-150
Bromoform	ug/L (ppb)	10	<5	94	23-161
n-Propylbenzene	ug/L (ppb)	10	<1	99	50-150
Bromobenzene	ug/L (ppb)	10	<1	97	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	100	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	93	10-235
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	96	33-151
2-Chlorotoluene	ug/L (ppb)	10	<1	99	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	99	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	97	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	101	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	99	46-139
p-Isopropyltoluene	ug/L (ppb)	10	<1	102	46-140
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	97	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	99	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	98	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	89	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	98	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	96	42-150
Naphthalene	ug/L (ppb)	10	<1	100	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	98	44-155

Date of Report: 04/14/22
Date Received: 04/05/22
Project: C-1 Hangar Property 5530-014-01, F&BI 204056

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	102	107	70-130	5
Chloromethane	ug/L (ppb)	10	92	98	70-130	6
Vinyl chloride	ug/L (ppb)	10	99	103	70-130	4
Bromomethane	ug/L (ppb)	10	105	107	28-182	2
Chloroethane	ug/L (ppb)	10	95	107	70-130	12
Trichlorofluoromethane	ug/L (ppb)	10	87	97	70-130	11
Acetone	ug/L (ppb)	50	84	96	42-155	13
1,1-Dichloroethene	ug/L (ppb)	10	91	100	70-130	9
Hexane	ug/L (ppb)	10	87	94	50-161	8
Methylene chloride	ug/L (ppb)	10	82	89	29-192	8
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	86	94	70-130	9
trans-1,2-Dichloroethene	ug/L (ppb)	10	87	94	70-130	8
1,1-Dichloroethane	ug/L (ppb)	10	86	93	70-130	8
2,2-Dichloropropane	ug/L (ppb)	10	85	88	70-130	3
cis-1,2-Dichloroethene	ug/L (ppb)	10	86	92	70-130	7
Chloroform	ug/L (ppb)	10	87	96	70-130	10
2-Butanone (MEK)	ug/L (ppb)	50	90	100	50-157	11
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	86	94	70-130	9
1,1,1-Trichloroethane	ug/L (ppb)	10	87	95	70-130	9
1,1-Dichloropropene	ug/L (ppb)	10	90	98	70-130	9
Carbon tetrachloride	ug/L (ppb)	10	84	94	70-130	11
Benzene	ug/L (ppb)	10	89	95	70-130	7
Trichloroethene	ug/L (ppb)	10	88	91	70-130	3
1,2-Dichloropropane	ug/L (ppb)	10	85	91	70-130	7
Bromodichloromethane	ug/L (ppb)	10	86	90	70-130	5
Dibromomethane	ug/L (ppb)	10	87	92	70-130	6
4-Methyl-2-pentanone	ug/L (ppb)	50	86	91	70-130	6
cis-1,3-Dichloropropene	ug/L (ppb)	10	84	86	70-130	2
Toluene	ug/L (ppb)	10	86	94	70-130	9
trans-1,3-Dichloropropene	ug/L (ppb)	10	86	92	70-130	7
1,1,2-Trichloroethane	ug/L (ppb)	10	87	96	70-130	10
2-Hexanone	ug/L (ppb)	50	95	105	69-130	10
1,3-Dichloropropane	ug/L (ppb)	10	88	96	70-130	9
Tetrachloroethene	ug/L (ppb)	10	86	95	70-130	10
Dibromochloromethane	ug/L (ppb)	10	85	90	63-142	6
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	85	95	70-130	11
Chlorobenzene	ug/L (ppb)	10	87	98	70-130	12
Ethylbenzene	ug/L (ppb)	10	88	98	70-130	11
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	85	96	70-130	12
m,p-Xylene	ug/L (ppb)	20	88	98	70-130	11
o-Xylene	ug/L (ppb)	10	87	96	70-130	10
Styrene	ug/L (ppb)	10	88	98	70-130	11
Isopropylbenzene	ug/L (ppb)	10	89	98	70-130	10
Bromoform	ug/L (ppb)	10	80	90	50-157	12
n-Propylbenzene	ug/L (ppb)	10	85	97	70-130	13
Bromobenzene	ug/L (ppb)	10	84	95	70-130	12
1,3,5-Trimethylbenzene	ug/L (ppb)	10	86	96	52-150	11
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	83	94	70-130	12
1,2,3-Trichloropropane	ug/L (ppb)	10	84	96	70-130	13
2-Chlorotoluene	ug/L (ppb)	10	85	98	70-130	14
4-Chlorotoluene	ug/L (ppb)	10	86	95	70-130	10
tert-Butylbenzene	ug/L (ppb)	10	84	95	70-130	12
1,2,4-Trimethylbenzene	ug/L (ppb)	10	87	98	70-130	12
sec-Butylbenzene	ug/L (ppb)	10	85	96	70-130	12
p-Isopropyltoluene	ug/L (ppb)	10	86	98	70-130	13
1,3-Dichlorobenzene	ug/L (ppb)	10	85	96	70-130	12
1,4-Dichlorobenzene	ug/L (ppb)	10	84	94	70-130	11
1,2-Dichlorobenzene	ug/L (ppb)	10	84	96	70-130	13
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	87	95	70-130	9
1,2,4-Trichlorobenzene	ug/L (ppb)	10	82	92	70-130	11
Hexachlorobutadiene	ug/L (ppb)	10	80	91	70-130	13
Naphthalene	ug/L (ppb)	10	85	95	70-130	11
1,2,3-Trichlorobenzene	ug/L (ppb)	10	81	92	69-143	13

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

204056

SAMPLE CHAIN OF CUSTODY 04-05-22

BI3/VSB3/MM

Page # 1 of 2

Report To Jacob Letts

Company GeoEngineers

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geoengineers.com

SAMPLERS (signature)	
[signature]	
PROJECT NAME	PO #
C-1 Hangar Property	5530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH ______
- Rush charges authorized by: ______

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other ______
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	*Q. as Mineral spirit NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Metals				Notes
C-1 HSA1-5	01 A-E	4.4.22		S	5	X	X			X			X				
C-1 HSA1-10	02																
C-1 HSA1-15	03					X	X			X			X				
C-1 HSA1-20	04																
C-1 HSA1-25	05																
C-1 HSA2-4	06					X	X			X			X				
C-1 HSA2-10	07					X	X			X							
C-1 HSA2-15	08									X							
C-1 HSA2-20	09																
C-1 HSA2-25	10																

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	4/5/22	17:45
Received by: Wesley [signature]	Wesley Eand	FBI	04/05/22	17:45
Relinquished by:				
Received by:			Samples received at 3 °C	

MM

204056

[redacted]

SAMPLE CHAIN OF CUSTODY 04-05-22

Page # 2 of 2 BI3/VSB3/VM

Report To: Jacob Letts

Company: See pg 1

Address:

City, State, ZIP:

Phone: Email:

SAMPLERS (*signature*) [redacted]	
PROJECT NAME	PO # 5530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- ☒ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx (RQ as mineral spirits)	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Metals				Notes
C-1 HSA3-5	11 A-B	4.5.22	900	S	5	X	X			X							
C-1 HSA3-10	12		910			X	X			X							
C-1 HSA3-15	13		920														
C-1 HSA4-5	14		1200			X	X			X			X				
C-1 HSA4-10	15		1210			X	X			X							
C-1 HSA4-15	16		1220			X	X			X							
C-1 HSA4-20	17		1230			X	X			X							
TB-040522	18 A-B		—		2					X							

Friedman & Bruya, Inc.
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Katy Atakturk	GEI	4.5.22	1745
Received by:	Wesley	Wesley Eaud	FBI	04-5-22	17:45
Relinquished by:					
Received by:					

Samples received at 3 °C

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 304056 CLIENT GeoEngineers INITIALS/DATE: WE 04/05/22

If custody seals are present on cooler, are they intact?	☒ NA	☐ YES	☐ NO
Cooler/Sample temperature		3 °C	
Were samples received on ice/cold packs?		☒ YES	☐ NO

How did samples arrive?

- ☒ Over the Counter
- ☐ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 07 days

Is there a Chain-of-Custody* (COC)? *or other representative documents, letters, and/or shipping memos	☒ YES	☐ NO
Are the samples clearly identified? (explain "no" answer below)	☒ YES	☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☒ Yes	☐ No	# of Containers	☒ Yes	☐ No
Date Sampled	☒ Yes	☐ No	Relinquished	☒ Yes	☐ No
Time Sampled	☐ Yes	☒ No	Requested analysis	☒ Yes	☐ No

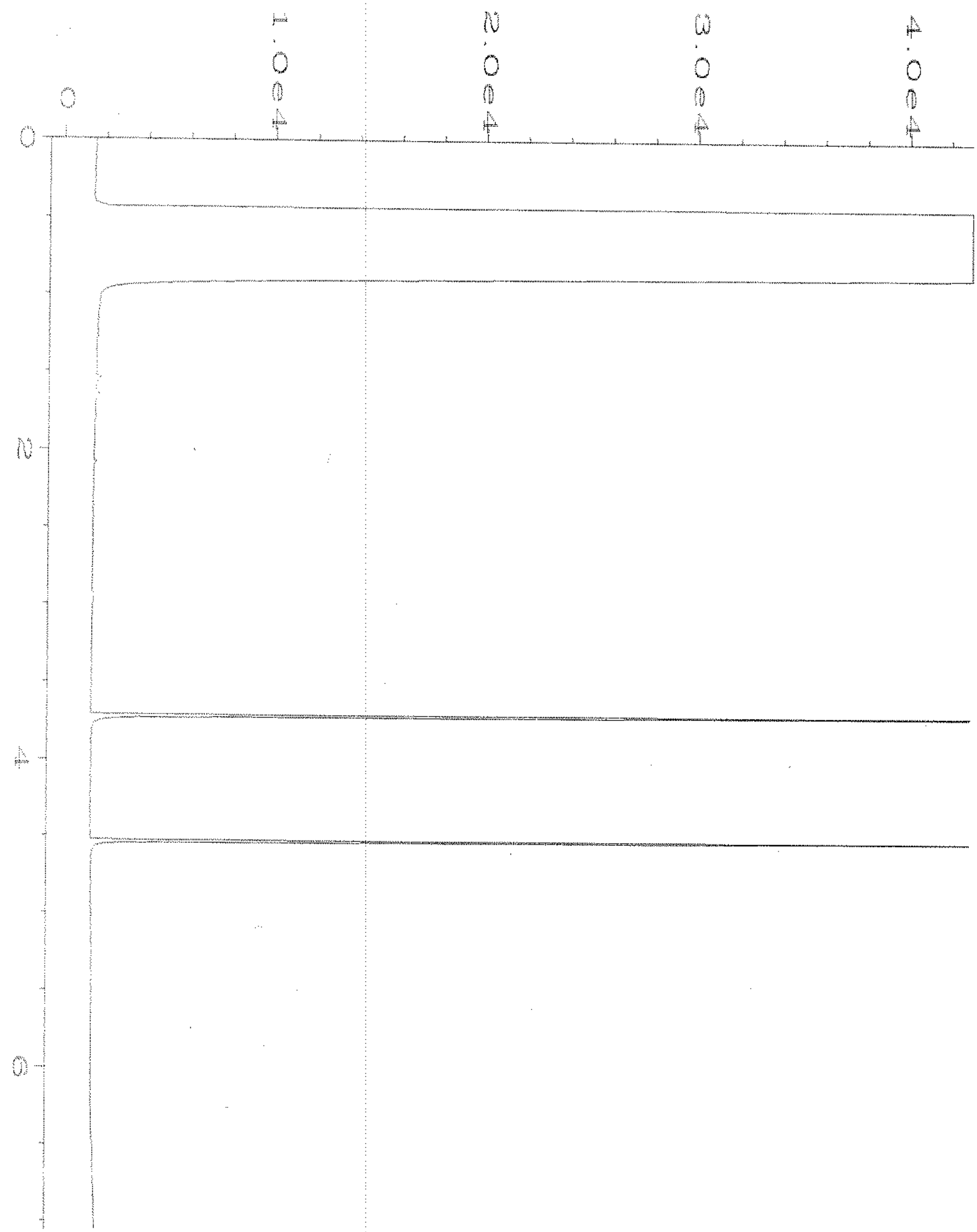
Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below)		☒ YES	☐ NO
Were appropriate sample containers used?	☒ YES	☐ NO	☐ Unknown
If custody seals are present on samples, are they intact?	☒ NA	☐ YES	☐ NO
Are samples requiring no headspace, headspace free?	☒ NA	☐ YES	☐ NO
Air Samples: Were any additional canisters received?	☒ NA	☐ YES	☐ NO

If Yes, number of unused 1L canisters ______

number of unused 6L canisters ______

Explain "no" items from above (use the back if needed)

no time on pg1 of COC



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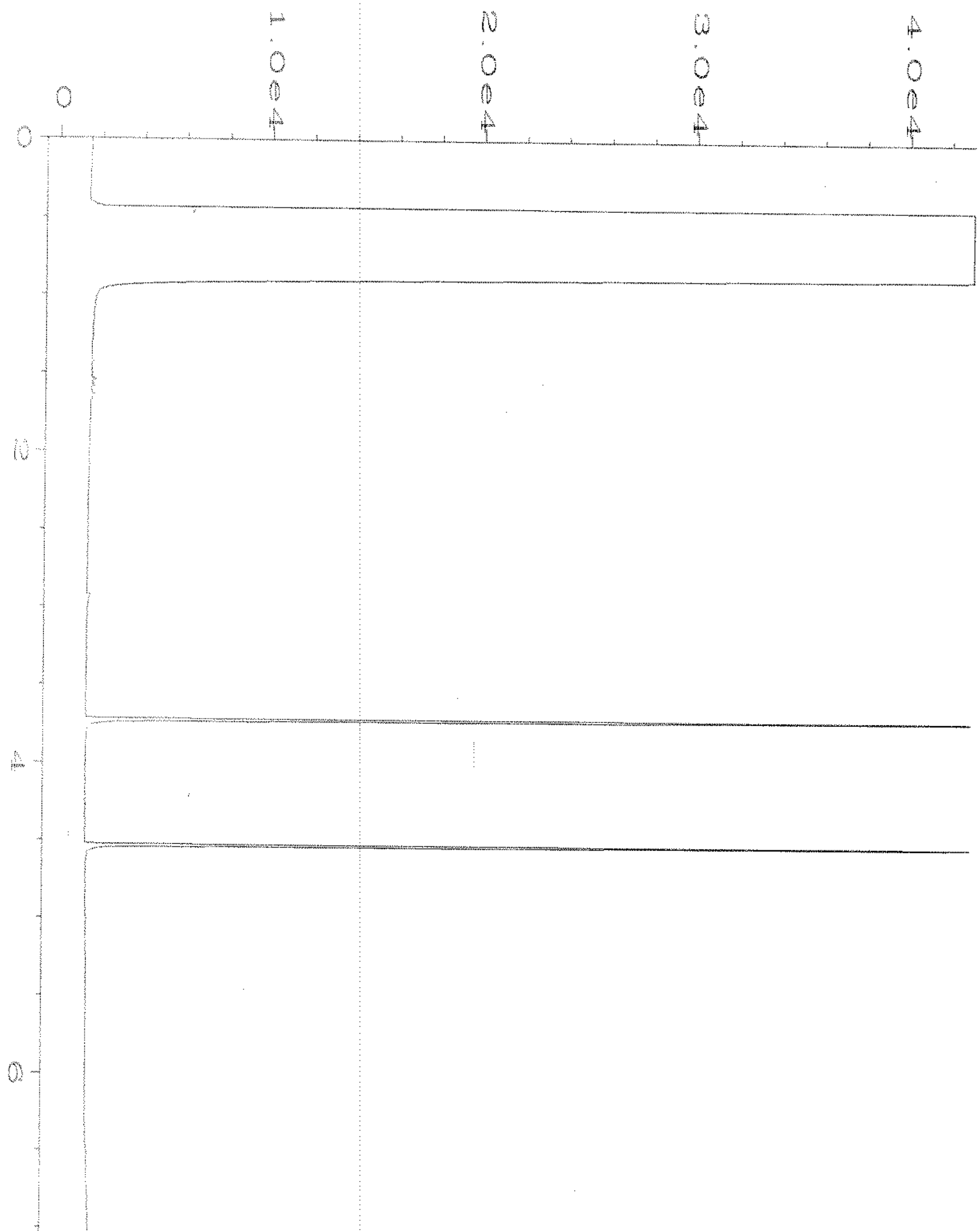
Operator : TL
Instrument : GC#4
Sample Name : 204056-01
Run Time Bar Code:
Acquired on : 06 Apr 22 04:17 PM
Report Created on: 07 Apr 22 07:41 AM

Page Number : 1
Vial Number : 29
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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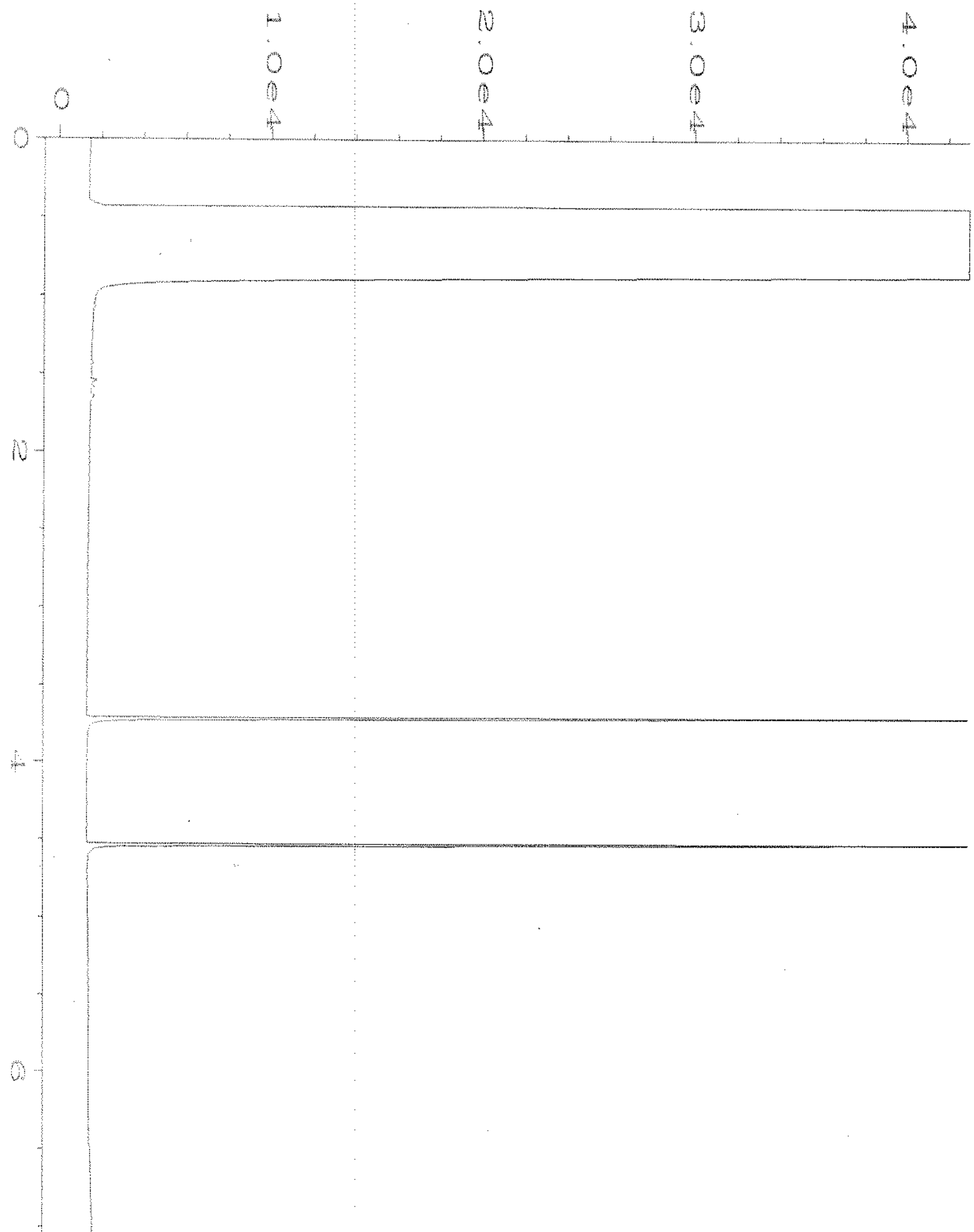
Operator : TL
Instrument : GC#4
Sample Name : 204056-03
Run Time Bar Code:
Acquired on : 06 Apr 22 04:28 PM
Report Created on: 07 Apr 22 07:41 AM

Page Number : 1
Vial Number : 30
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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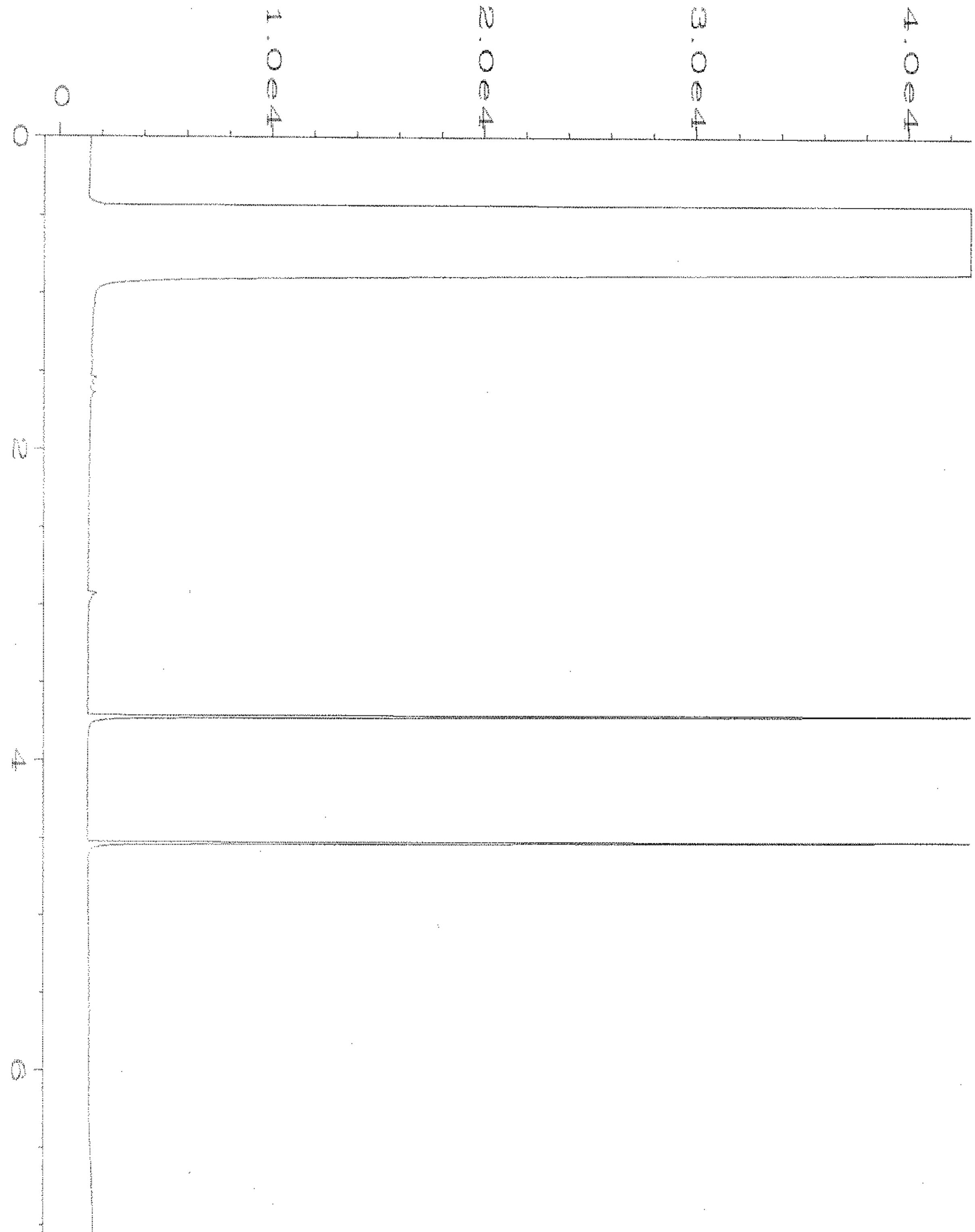
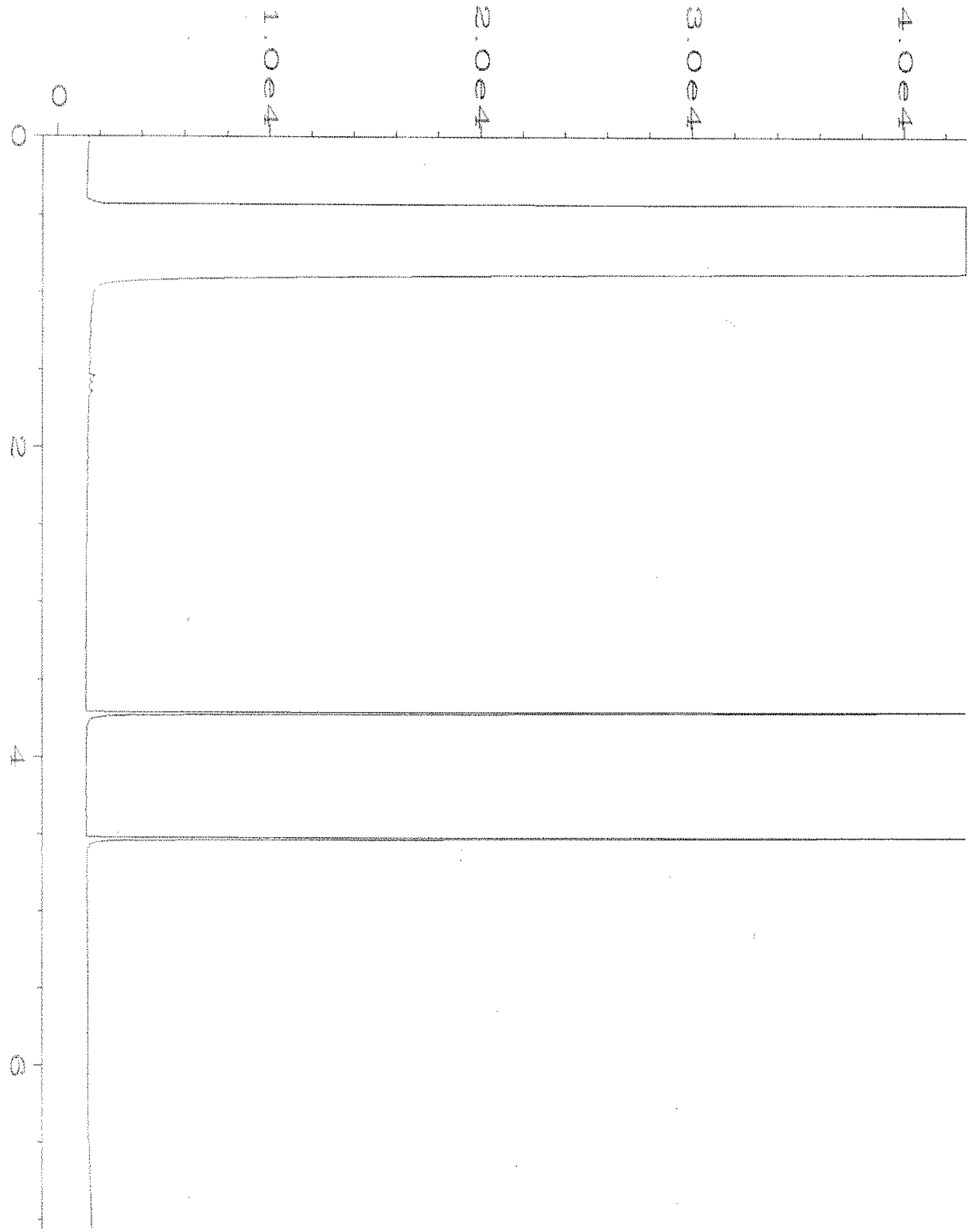
Operator : TL
Instrument : GC#4
Sample Name : 204056-06
Run Time Bar Code:
Acquired on : 06 Apr 22 04:39 PM
Report Created on: 07 Apr 22 07:41 AM

Page Number : 1
Vial Number : 31
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

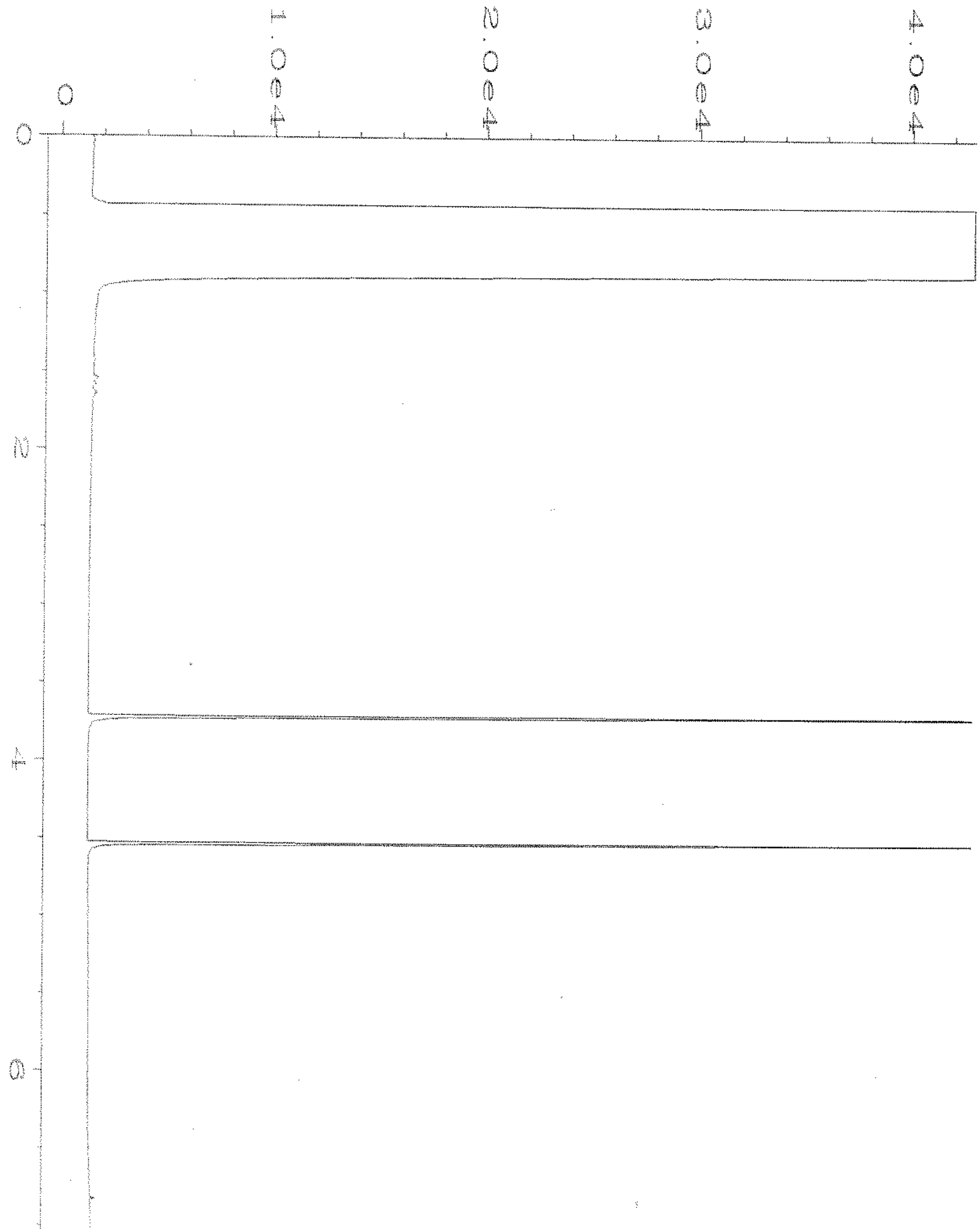



```
Data File Name    : C:\HPCHEM\4\DATA\04-06-22\032F0701.D
Operator          : TL                                      Page Number      : 1
Instrument        : GC#4                                    Vial Number      : 32
Sample Name       : 204056-07                               Injection Number : 1
Run Time Bar Code:                                          Sequence Line    : 7
Acquired on       : 06 Apr 22   04:51 PM                    Instrument Method: DX.MTH
Report Created on: 07 Apr 22   07:41 AM                     Analysis Method  : DEFAULT.MTH
```



Data File Name   : C:\HPCHEM\4\DATA\04-06-22\033F0701.D
Operator   : TL
Instrument   : GC#4
Sample Name   : 204056-11
Run Time Bar Code:
Acquired on   : 06 Apr 22   05:02 PM
Report Created on: 07 Apr 22   07:41 AM

Page Number   : 1
Vial Number   : 33
Injection Number : 1
Sequence Line   : 7
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



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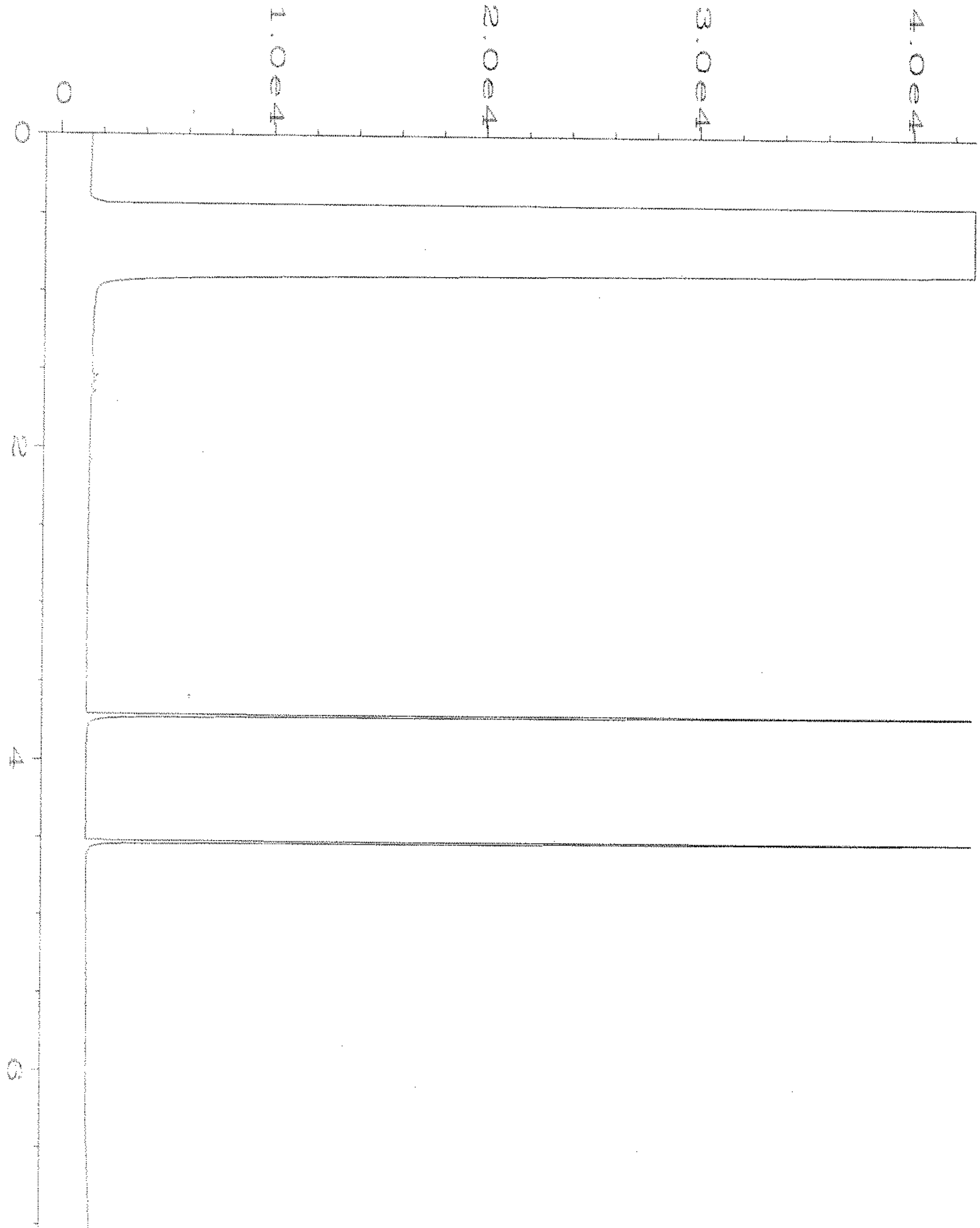
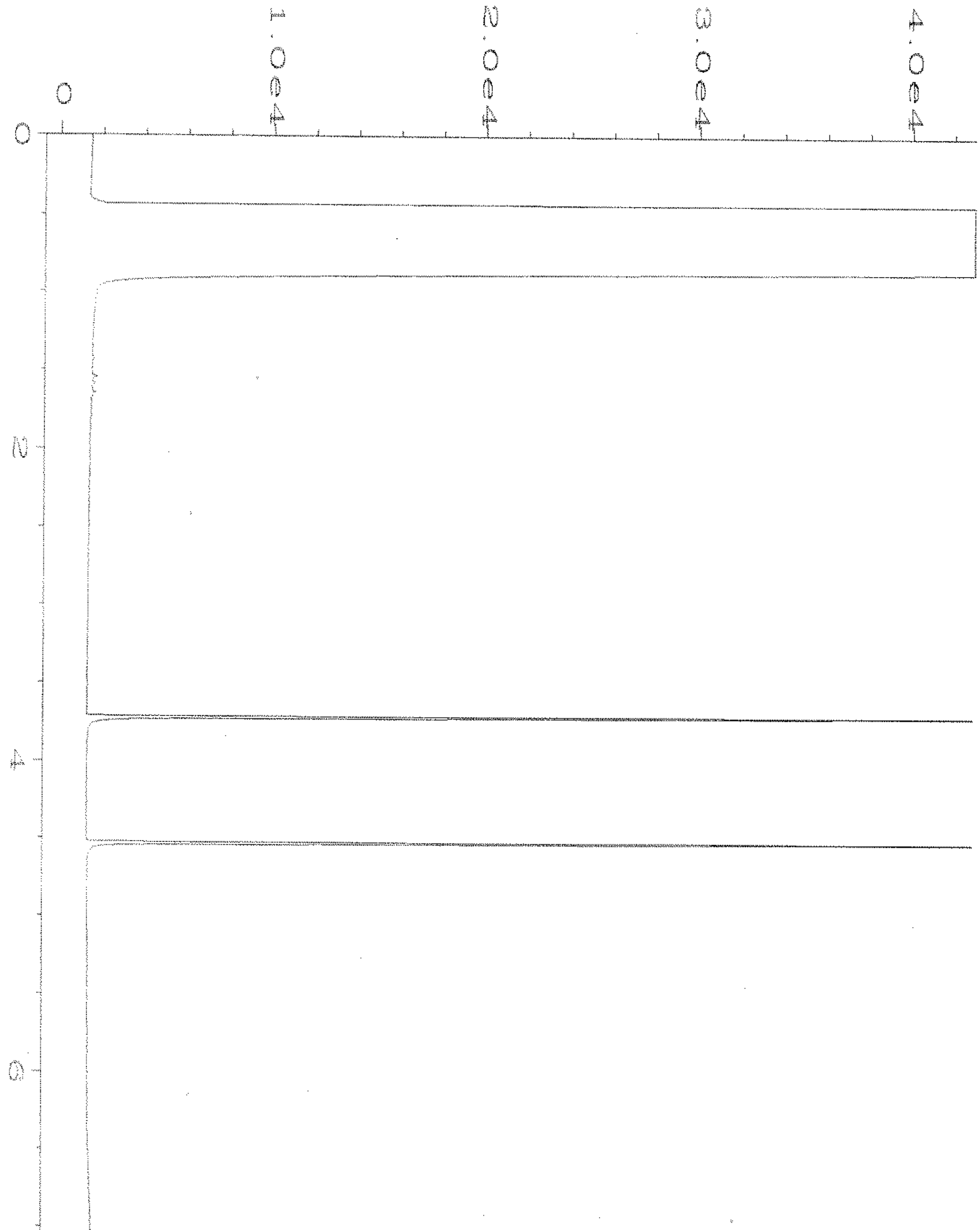
Operator : TL
Instrument : GC#4
Sample Name : 204056-12
Run Time Bar Code:
Acquired on : 06 Apr 22 05:13 PM
Report Created on: 07 Apr 22 07:42 AM

Page Number : 1
Vial Number : 34
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



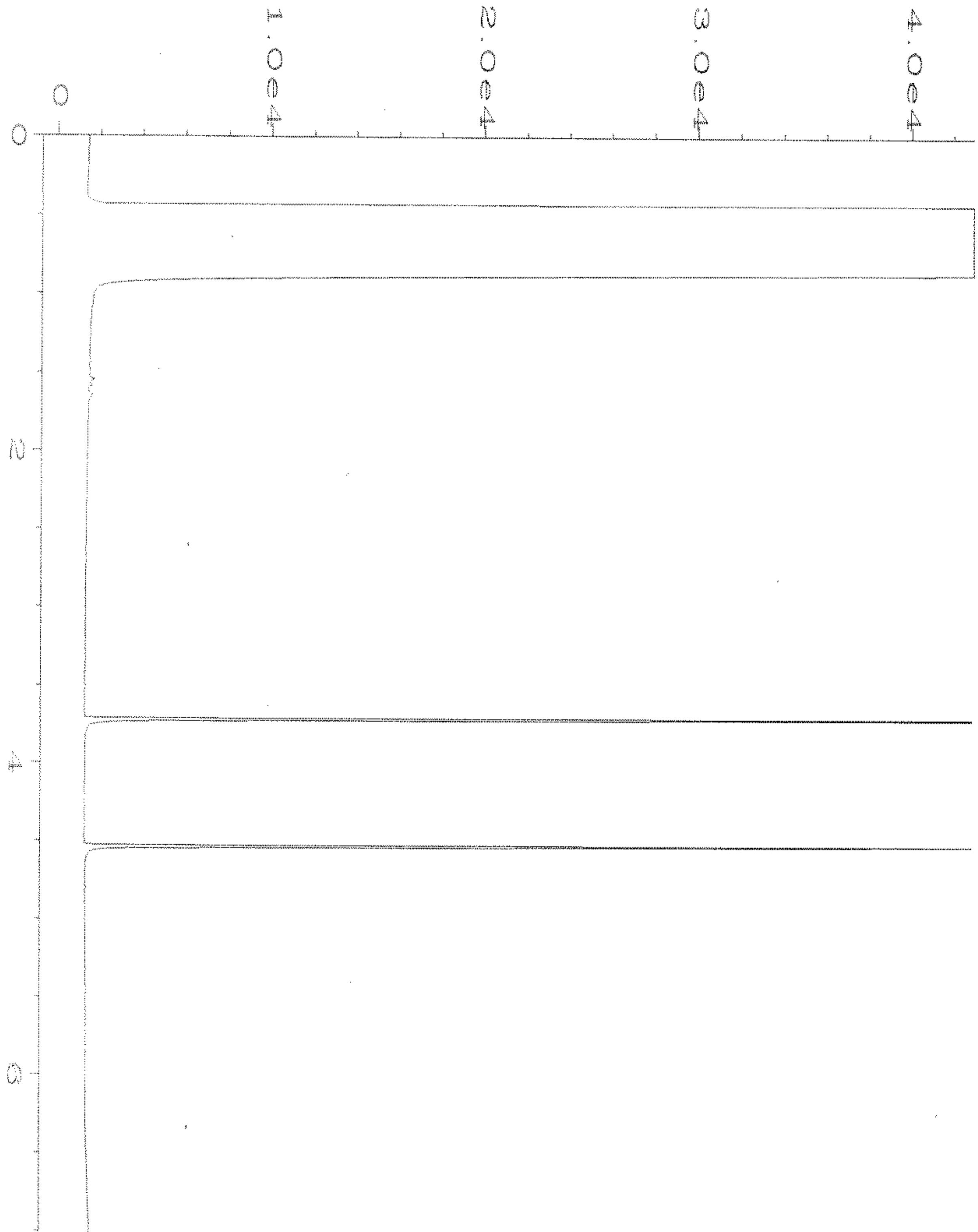
Data File Name : C:\HPCHEM\4\DATA\04-06-22\035F0701.D
Operator : TL
Instrument : GC#4
Sample Name : 204056-14
Run Time Bar Code:
Acquired on : 06 Apr 22 05:24 PM
Report Created on: 07 Apr 22 07:42 AM

Page Number : 1
Vial Number : 35
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\4\DATA\04-06-22\036F0701.D
Operator : TL
Instrument : GC#4
Sample Name : 204056-15
Run Time Bar Code:
Acquired on : 06 Apr 22 05:35 PM
Report Created on: 07 Apr 22 07:42 AM

Page Number : 1
Vial Number : 36
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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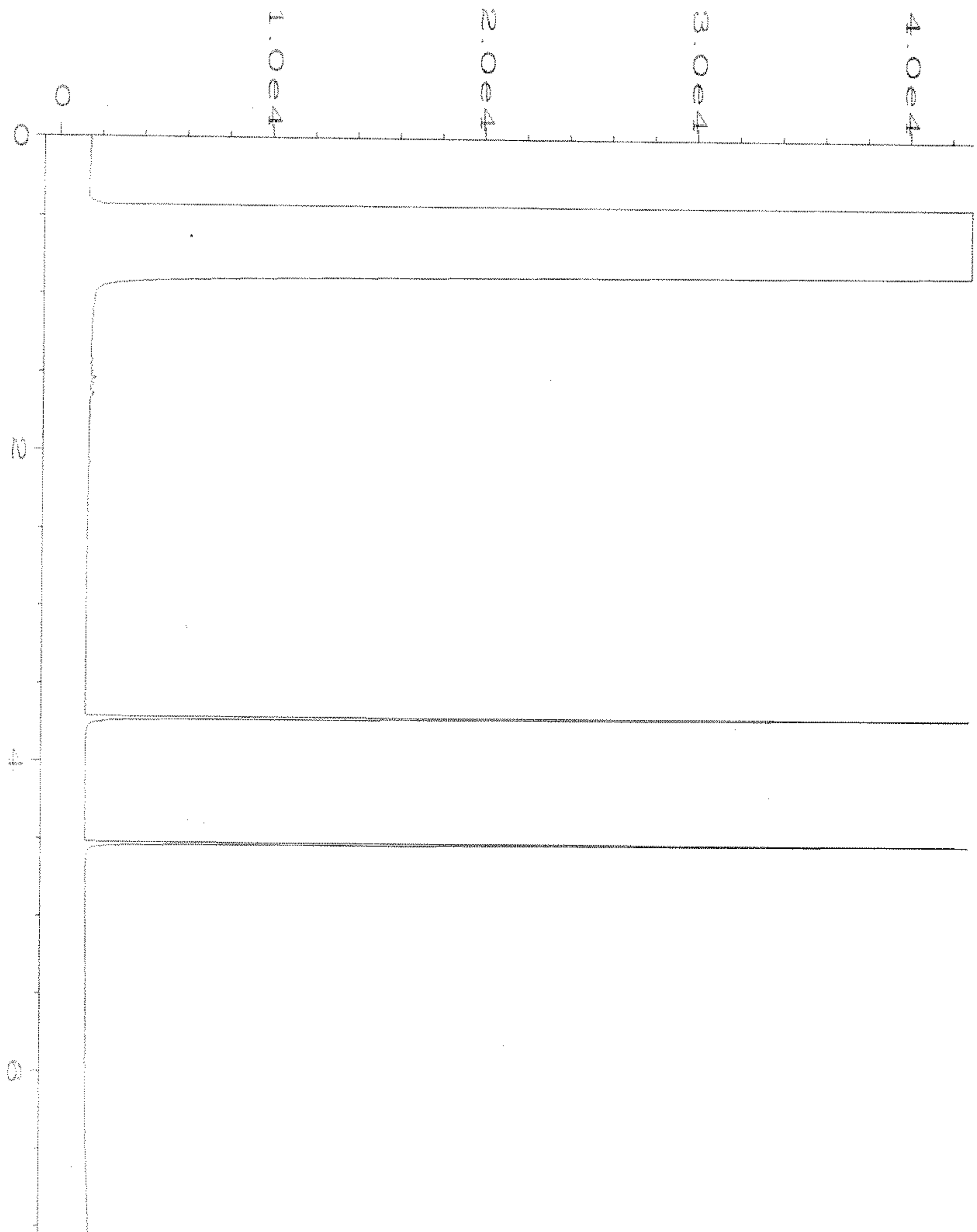
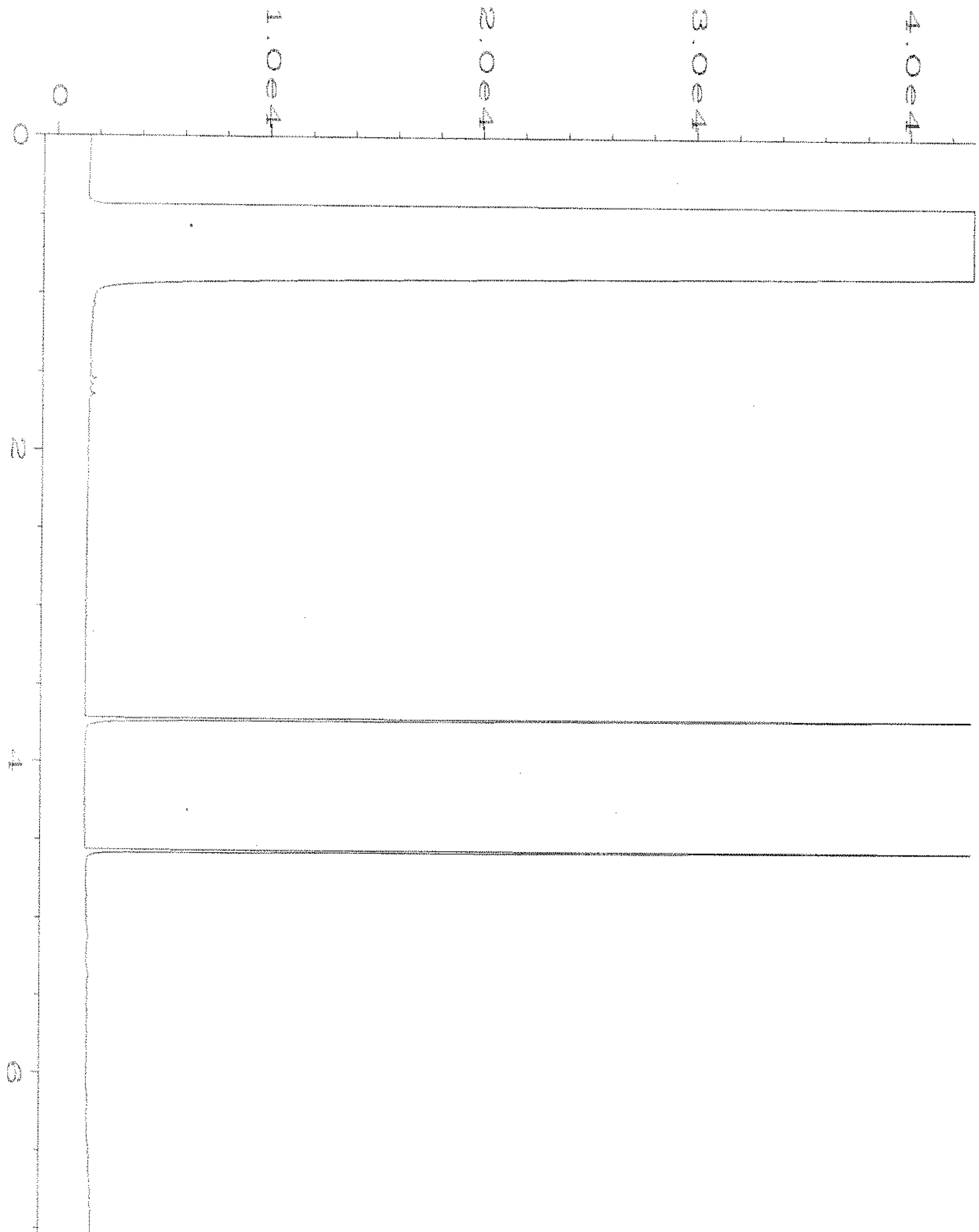
Operator : TL
Instrument : GC#4
Sample Name : 204056-16
Run Time Bar Code:
Acquired on : 06 Apr 22 05:47 PM
Report Created on: 07 Apr 22 07:42 AM

Page Number : 1
Vial Number : 37
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



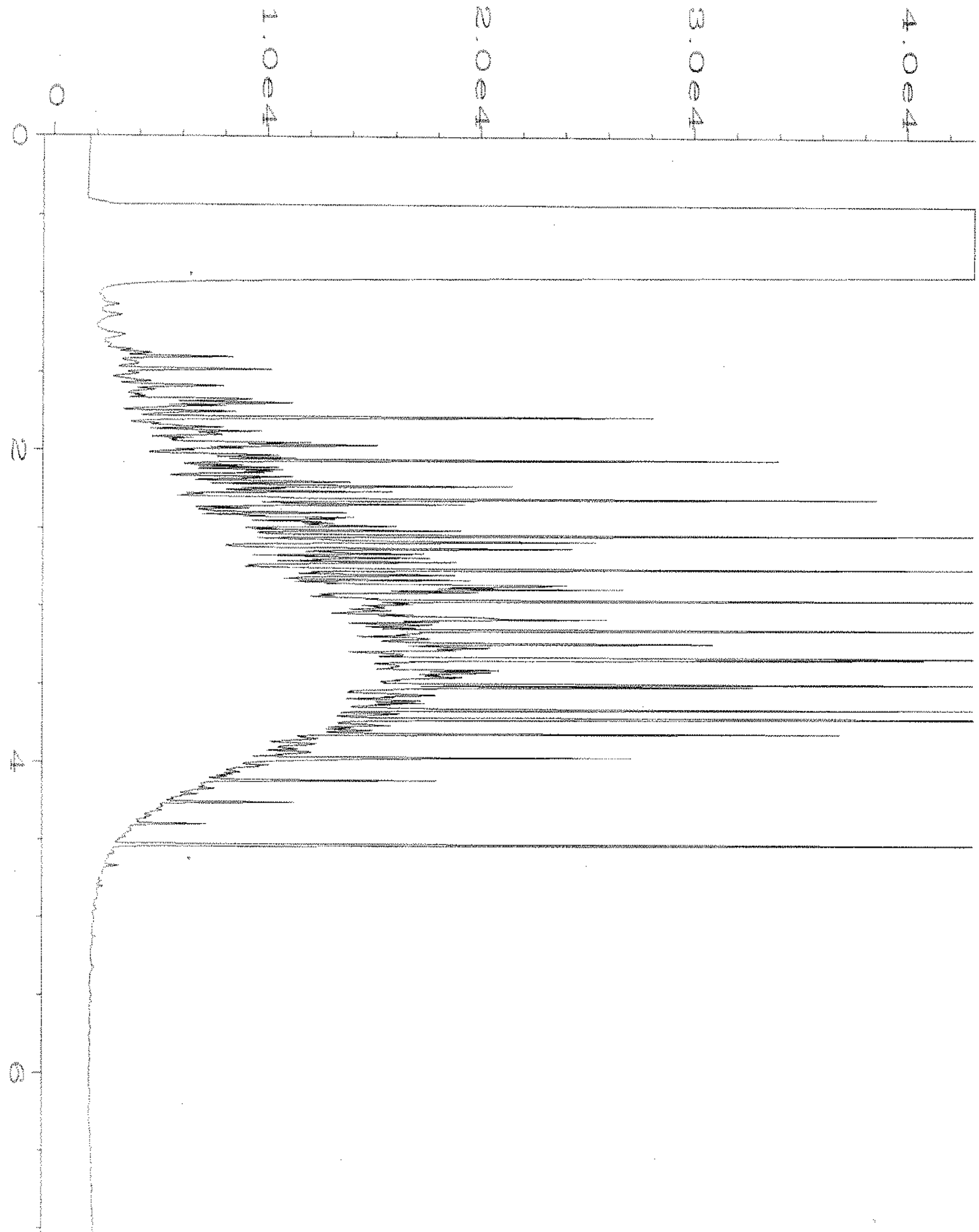
Data File Name : C:\HPCHEM\4\DATA\04-06-22\038F0701.D
Operator : TL
Instrument : GC#4
Sample Name : 204056-17
Run Time Bar Code:
Acquired on : 06 Apr 22 05:58 PM
Report Created on: 07 Apr 22 07:42 AM

Page Number : 1
Vial Number : 38
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\4\DATA\04-06-22\020F0501.D
Operator : TL
Instrument : GC#4
Sample Name : 02-849 mb
Run Time Bar Code:
Acquired on : 06 Apr 22 01:40 PM
Report Created on: 07 Apr 22 07:42 AM

Page Number : 1
Vial Number : 20
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\4\DATA\04-06-22\003F0201.D
Operator : TL
Instrument : GC#4
Sample Name : 500 Dx 65-27F
Run Time Bar Code:
Acquired on : 06 Apr 22 05:53 AM
Report Created on: 07 Apr 22 07:43 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

FRIEDMAN & BRUYA, INC.

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February 14, 2023

Jacob Letts, Project Manager
GeoEngineers, Inc
1101 Fawcett Ave 200
Tacoma, WA 98402

Dear Mr Letts:

Included are the additional results from the testing of material submitted on December 21, 2022 from the C-1 RI 5531-014-02, F&BI 212334 project. There are 5 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Ataturk
GNR0214R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 21, 2022 by Friedman & Bruya, Inc. from the GeoEngineers, Inc C-1 RI 5531-014-02, F&BI 212334 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers, Inc
212334 -01	C-1 RI-5-4
212334 -02	C-1 RI-5-8
212334 -03	C-1 RI-5-10
212334 -04	C-1 RI-5-20
212334 -05	C-1 RI-4-4
212334 -06	C-1 RI-4-8
212334 -07	C-1 RI-4-10
212334 -08	C-1 RI-4-20
212334 -09	C-1 RI-2-4
212334 -10	C-1 RI-2-8
212334 -11	C-1 RI-2-10
212334 -12	C-1 RI-2-20
212334 -13	C-1 RI-3-4
212334 -14	C-1 RI-3-8
212334 -15	C-1 RI-3-10
212334 -16	C-1 RI-1-4
212334 -17	C-1 RI-1-8
212334 -18	C-1 RI-1-10

The 8260D analysis of sample C-1 RI-2-20 was requested outside of the holding time. The sample was kept frozen from receipt until removed for analysis. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-2-20 ht	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	02/08/23	Lab ID:	212334-12 1/0.25
Date Analyzed:	02/08/23	Data File:	020809.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	97	57	146

Compounds:	Concentration mg/kg (ppm)
Trichloroethene	0.044

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	C-1 RI 5531-014-02
Date Extracted:	02/08/23	Lab ID:	03-0271 mb 1/0.25
Date Analyzed:	02/08/23	Data File:	020808.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	93	57	146

Compounds:	Concentration mg/kg (ppm)
Trichloroethene	<0.001

Date of Report: 02/14/23
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 302102-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Trichloroethene	mg/kg (ppm)	2	<0.02	86	86	21-139	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Trichloroethene	mg/kg (ppm)	2	116	63-121

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

2123 34 [redacted]

SAMPLE CHAIN OF CUSTODY

12/21/22 [redacted]

GS / VS-D2

Page # 1 of 2

Report To Jacob Letts

Company GeoEngineers

Address

City, State, ZIP

Phone Email JLetts@geoengineers.com

SAMPLERS (signature) Katy [signature]

PROJECT NAME C-1 RI

PO # 5531-014-02

REMARKS Froze sample, ~~Sensitive extraction~~ time!!! 12/20/22 [initials]

INVOICE TO

Project specific RLs? - Yes / No

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

						ANALYSES REQUESTED											
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA-8 Metals		HOLD		Notes
C-1 RI-~~15~~5-4	1A-E	12/19/22	900	S	5	X	X			X			X				IDs updated per JL
C-1 RI-~~15~~5-8	2		910			X	X			X			X				12/21/22 AE
C-1 RI-~~15~~5-10	3		920			X	X			X			X				
C-1 RI-~~15~~5-20	4		930												X		
C-1 RI-~~14~~4-4	5		1000			X	X			X			X				
C-1 RI-~~14~~4-8	6		1010			X	X			X			X				
C-1 RI-~~14~~4-10	7		1020			X	X			X			X				
C-1 RI-~~14~~4-20	8		1030												X		
C-1 RI-2-4	9		1320			X	X			X			X				
C-1 RI-2-8	10		1340			X	X			X			X				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Katy Ataktürk	GEI	12/20/21	0800
Received by:	[signature]	ANH PHAN	F&B	12/21/22	10:57
Relinquished by:					
Received by:			Samples received at 0 °C		

Av

212334 [redacted]

Report To Jacob Letts

Company GEI

Address

City, State, ZIP

Phone Email

SAMPLE CHAIN OF CUSTODY

12/21/22 [redacted]

~~VA3~~ G5/VS D2

Page # 2 of 2

SAMPLERS (signature)	
PROJECT NAME C-1 RI	PO # 5531-014-02
REMARKS Froze samples 4PM 12/20/22 Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA-8metals		~~HOLD~~	TCE	Notes
C-1 RI-2-10	11A-E	12/19/22	1350	S	5	X	X			X			X				
C-1 RI-2-20	12		1415												~~X~~	X	X per JL 2/7/23 ME
C-1 RI-3-4	13		1440			X	X			X			X				
C-1 RI-3-8	14		1500			X	X			X			X				
C-1 RI-3-10	15		1510			X	X			X			X				
C-1 RI-1-4	16		1600			X	X			X			X				
C-1 RI-1-8	17		1610			X	X			X			X				
C-1 RI-1-10	18	↓	1620	↓	↓	X	X			X			X				
				N/A													

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Katy A	Katy Ataktürk	GEI	12/20/22	0800
Received by: [signature]	ANH PHAN	F&B	12/21/22	10:57
Relinquished by:				
Received by:			Samples received at 0 °C	

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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www.friedmanandbruya.com

July 20, 2022

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on April 21, 2022 from the PAE C-1 Hangar 5530-014-01, F&BI 204363 project. The sample IDs have been amended per your request.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Ataturk
GNR0503R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

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May 3, 2022

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on April 21, 2022 from the PAE C-1 Hangar 5530-014-01, F&BI 204363 project. There are 22 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Ataturk
GNR0503R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 21, 2022 by Friedman & Bruya, Inc. from the GeoEngineers PAE C-1 Hangar 5530-014-01, F&BI 204363 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
204363 -01	C-1 HSA3
204363 -02	C-1 HSA4
204363 -03	TB-04212022

Gasoline by NWTPH-Gx

All quality control requirements were acceptable.

Diesel and Motor Oil by NWTPH-Dx

All quality control requirements were acceptable.

VOCs by 8260D

The 8260D calibration standard failed the acceptance criteria for several analytes. The data were flagged accordingly. All other quality control requirements were acceptable.

Metals by 6020B

Silver in the 6020B matrix spike and the selenium matrix spike and matrix spike duplicate relative percent difference did not meet the acceptance criteria. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect. All other quality control requirements were acceptable.

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363
Date Extracted: 04/26/22
Date Analyzed: 04/27/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
C-1 HSA3 204363-01	<100	89
C-1 HSA4 204363-02	<100	87
Method Blank 02-890 MB	<100	81

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363
Date Extracted: 04/22/22
Date Analyzed: 04/22/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
C-1 HSA3 204363-01	<50	<250	132
C-1 HSA4 204363-02	230 x	<250	128
Method Blank 02-980 MB	<50	<250	126

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA3	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/26/22	Lab ID:	204363-01
Date Analyzed:	04/26/22	Data File:	204363-01.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.99
Barium	71.8
Cadmium	<1
Chromium	2.23
Lead	<1
Mercury	<1
Selenium	3.26
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA4	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/26/22	Lab ID:	204363-02
Date Analyzed:	04/26/22	Data File:	204363-02.045
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	10.2
Barium	55.9
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	1.50
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA4	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/26/22	Lab ID:	204363-02 x5
Date Analyzed:	04/26/22	Data File:	204363-02 x5.060
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/26/22	Lab ID:	I2-308 mb2
Date Analyzed:	04/26/22	Data File:	I2-308 mb2.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 HSA3	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/25/22	Lab ID:	204363-01
Date Analyzed:	04/25/22	Data File:	204363-01.077
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.41
Barium	65.4
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	3.03
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 HSA4	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/25/22	Lab ID:	204363-02
Date Analyzed:	04/25/22	Data File:	204363-02.078
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.62
Barium	52.7
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	1.37
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 HSA4	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/25/22	Lab ID:	204363-02 x5
Date Analyzed:	04/25/22	Data File:	204363-02 x5.106
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/25/22	Lab ID:	I2-308 mb
Date Analyzed:	04/25/22	Data File:	I2-308 mb.064
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 HSA3	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/29/22	Lab ID:	204363-01
Date Analyzed:	04/29/22	Data File:	042926.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	85	117
Toluene-d8	99	88	112
4-Bromofluorobenzene	102	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10 ca	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5 ca	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 HSA4	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/29/22	Lab ID:	204363-02
Date Analyzed:	04/29/22	Data File:	042927.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	85	117
Toluene-d8	101	88	112
4-Bromofluorobenzene	101	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10 ca	Tetrachloroethene	<1
Vinyl chloride	0.36	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	3.0
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5 ca	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	1.4
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TB-04212022	Client:	GeoEngineers
Date Received:	04/21/22	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/29/22	Lab ID:	204363-03
Date Analyzed:	04/29/22	Data File:	042925.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	85	117
Toluene-d8	98	88	112
4-Bromofluorobenzene	104	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10 ca	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5 ca	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	5530-014-01, F&BI 204363
Date Extracted:	04/29/22	Lab ID:	02-1000 MB
Date Analyzed:	04/29/22	Data File:	042907.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	105	88	112
4-Bromofluorobenzene	94	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10 ca	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5 ca	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 204351-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	81	69-134

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	108	63-142	4

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 204333-02 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<10	81	92	75-125	13
Barium	ug/L (ppb)	50	172	87	104	75-125	18
Cadmium	ug/L (ppb)	5	<10	83	96	75-125	15
Chromium	ug/L (ppb)	20	<10	82	88	75-125	7
Lead	ug/L (ppb)	10	<10	78	87	75-125	11
Mercury	ug/L (ppb)	5	<10	79	85	75-125	7
Selenium	ug/L (ppb)	5	<10	80	103	75-125	25 vo
Silver	ug/L (ppb)	5	<10	74 vo	83	75-125	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	85	80-120
Barium	ug/L (ppb)	50	98	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	93	80-120
Mercury	ug/L (ppb)	5	97	80-120
Selenium	ug/L (ppb)	5	88	80-120
Silver	ug/L (ppb)	5	87	80-120

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 204333-02 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<10	81	92	75-125	13
Barium	ug/L (ppb)	50	172	87	104	75-125	18
Cadmium	ug/L (ppb)	5	<10	83	96	75-125	15
Chromium	ug/L (ppb)	20	<10	82	88	75-125	7
Lead	ug/L (ppb)	10	<10	78	87	75-125	11
Mercury	ug/L (ppb)	5	<10	79	85	75-125	7
Selenium	ug/L (ppb)	5	<10	80	103	75-125	25 vo
Silver	ug/L (ppb)	5	<10	74 vo	83	75-125	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	85	80-120
Barium	ug/L (ppb)	50	98	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	93	80-120
Mercury	ug/L (ppb)	5	97	80-120
Selenium	ug/L (ppb)	5	88	80-120
Silver	ug/L (ppb)	5	87	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 204474-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	110	50-150
Chloromethane	ug/L (ppb)	10	<10	87	50-150
Vinyl chloride	ug/L (ppb)	10	<0.02	89	16-176
Bromomethane	ug/L (ppb)	10	<5	106	10-193
Chloroethane	ug/L (ppb)	10	<1	101	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	104	50-150
Acetone	ug/L (ppb)	50	<50	84	15-179
1,1-Dichloroethene	ug/L (ppb)	10	<1	112	50-150
Hexane	ug/L (ppb)	10	<5	71	49-161
Methylene chloride	ug/L (ppb)	10	<5	106	40-143
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	108	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	97	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	99	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	80	10-335
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	98	50-150
Chloroform	ug/L (ppb)	10	<1	104	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	81	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	119	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	112	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	95	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	109	50-150
Benzene	ug/L (ppb)	10	<0.35	96	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	97	43-133
1,2-Dichloropropane	ug/L (ppb)	10	<1	87	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	101	50-150
Dibromomethane	ug/L (ppb)	10	<1	101	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	99	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	85	48-145
Toluene	ug/L (ppb)	10	<1	90	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	83	37-152
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	89	50-150
2-Hexanone	ug/L (ppb)	50	<10	83	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	90	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	98	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	96	33-164
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	96	50-150
Chlorobenzene	ug/L (ppb)	10	<1	96	50-150
Ethylbenzene	ug/L (ppb)	10	<1	104	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	107	50-150
m,p-Xylene	ug/L (ppb)	20	<2	102	50-150
o-Xylene	ug/L (ppb)	10	<1	96	50-150
Styrene	ug/L (ppb)	10	<1	98	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	102	50-150
Bromoform	ug/L (ppb)	10	<5	92	23-161
n-Propylbenzene	ug/L (ppb)	10	<1	88	50-150
Bromobenzene	ug/L (ppb)	10	<1	93	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	92	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	87	10-235
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	84	33-151
2-Chlorotoluene	ug/L (ppb)	10	<1	90	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	90	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	93	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	92	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	90	46-139
p-Isopropyltoluene	ug/L (ppb)	10	<1	94	46-140
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	93	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	92	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	95	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	84	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	90	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	86	42-150
Naphthalene	ug/L (ppb)	10	<1	89	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	90	44-155

Date of Report: 05/03/22
Date Received: 04/21/22
Project: PAE C-1 Hangar 5530-014-01, F&BI 204363

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	90	84	70-130	7
Chloromethane	ug/L (ppb)	10	102	104	70-130	2
Vinyl chloride	ug/L (ppb)	10	110	109	70-130	1
Bromomethane	ug/L (ppb)	10	126	112	28-182	12
Chloroethane	ug/L (ppb)	10	119	117	70-130	2
Trichlorofluoromethane	ug/L (ppb)	10	97	88	70-130	10
Acetone	ug/L (ppb)	50	86	89	42-155	3
1,1-Dichloroethene	ug/L (ppb)	10	94	89	70-130	5
Hexane	ug/L (ppb)	10	82	81	50-161	1
Methylene chloride	ug/L (ppb)	10	97	88	29-192	10
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	98	94	70-130	4
trans-1,2-Dichloroethene	ug/L (ppb)	10	94	88	70-130	7
1,1-Dichloroethane	ug/L (ppb)	10	97	92	70-130	5
2,2-Dichloropropane	ug/L (ppb)	10	94	88	70-130	7
cis-1,2-Dichloroethene	ug/L (ppb)	10	96	90	70-130	6
Chloroform	ug/L (ppb)	10	98	90	70-130	9
2-Butanone (MEK)	ug/L (ppb)	50	94	87	50-157	8
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	95	89	70-130	7
1,1,1-Trichloroethane	ug/L (ppb)	10	97	92	70-130	5
1,1-Dichloropropene	ug/L (ppb)	10	96	88	70-130	9
Carbon tetrachloride	ug/L (ppb)	10	96	88	70-130	9
Benzene	ug/L (ppb)	10	96	93	70-130	3
Trichloroethene	ug/L (ppb)	10	93	87	70-130	7
1,2-Dichloropropane	ug/L (ppb)	10	93	91	70-130	2
Bromodichloromethane	ug/L (ppb)	10	94	85	70-130	10
Dibromomethane	ug/L (ppb)	10	95	89	70-130	7
4-Methyl-2-pentanone	ug/L (ppb)	50	92	93	70-130	1
cis-1,3-Dichloropropene	ug/L (ppb)	10	90	89	70-130	1
Toluene	ug/L (ppb)	10	94	95	70-130	1
trans-1,3-Dichloropropene	ug/L (ppb)	10	96	98	70-130	2
1,1,2-Trichloroethane	ug/L (ppb)	10	95	98	70-130	3
2-Hexanone	ug/L (ppb)	50	95	103	69-130	8
1,3-Dichloropropane	ug/L (ppb)	10	95	100	70-130	5
Tetrachloroethene	ug/L (ppb)	10	94	93	70-130	1
Dibromochloromethane	ug/L (ppb)	10	94	97	63-142	3
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	98	97	70-130	1
Chlorobenzene	ug/L (ppb)	10	97	96	70-130	1
Ethylbenzene	ug/L (ppb)	10	100	99	70-130	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	102	99	70-130	3
m,p-Xylene	ug/L (ppb)	20	100	99	70-130	1
o-Xylene	ug/L (ppb)	10	100	98	70-130	2
Styrene	ug/L (ppb)	10	102	100	70-130	2
Isopropylbenzene	ug/L (ppb)	10	105	101	70-130	4
Bromoform	ug/L (ppb)	10	97	95	50-157	2
n-Propylbenzene	ug/L (ppb)	10	101	99	70-130	2
Bromobenzene	ug/L (ppb)	10	95	94	70-130	1
1,3,5-Trimethylbenzene	ug/L (ppb)	10	102	97	52-150	5
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	104	99	70-130	5
1,2,3-Trichloropropane	ug/L (ppb)	10	96	96	70-130	0
2-Chlorotoluene	ug/L (ppb)	10	100	97	70-130	3
4-Chlorotoluene	ug/L (ppb)	10	100	97	70-130	3
tert-Butylbenzene	ug/L (ppb)	10	101	96	70-130	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	103	98	70-130	5
sec-Butylbenzene	ug/L (ppb)	10	102	98	70-130	4
p-Isopropyltoluene	ug/L (ppb)	10	102	97	70-130	5
1,3-Dichlorobenzene	ug/L (ppb)	10	100	96	70-130	4
1,4-Dichlorobenzene	ug/L (ppb)	10	97	94	70-130	3
1,2-Dichlorobenzene	ug/L (ppb)	10	100	96	70-130	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	99	96	70-130	3
1,2,4-Trichlorobenzene	ug/L (ppb)	10	96	87	70-130	10
Hexachlorobutadiene	ug/L (ppb)	10	93	86	70-130	8
Naphthalene	ug/L (ppb)	10	103	95	70-130	8
1,2,3-Trichlorobenzene	ug/L (ppb)	10	101	91	69-143	10

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

204363

Report To Jacob Letts

Company GeoEngineers

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geoengineers.com

SAMPLE CHAIN OF CUSTODY

04-21-22

Page # 1 of ___ E03/AJ3/VW3

SAMPLERS (signature)	
PROJECT NAME: PAE C-1 Hangar	PO #: 5530-014-01
REMARKS: * Special pricing	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- ☒ Standard turnaround
- ☐ RUSH ______
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other ______
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total & Diss. RCRA Metals				Notes
C-1 ~~MW-1w~~ HSA3	01 A-J	4/21/22	1200	W	10	X	X			X			X				
C-1 ~~MW-2w~~ HSA4	02 ↓	↓	1400	W	10	X	X			X			X				
TB-04212022	03 A,B	↓	—	W	2					X							
IDs updated per JL																	
7/19/22 ME																	

Friedman & Bruya, Inc.
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Katy Atakturk	GEI	4/21/22	16:05
Received by:	VH	Khoi Hoang	FBI	4/21/22	16:05
Relinquished by:					
Received by:			Samples received at 4 °C		

TKw

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 204363 CLIENT Geo Engineers INITIALS/ KH DATE: 4/21/22

If custody seals are present on cooler, are they intact?	☑ NA	☐ YES	☐ NO
Cooler/Sample temperature			4 °C
Were samples received on ice/cold packs?		☑ YES	☐ NO

How did samples arrive?

- ☑ Over the Counter
- ☐ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0 days

Is there a Chain-of-Custody* (COC)? *or other representative documents, letters, and/or shipping memos	☑ YES	☐ NO
Are the samples clearly identified? (explain "no" answer below)	☑ YES	☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

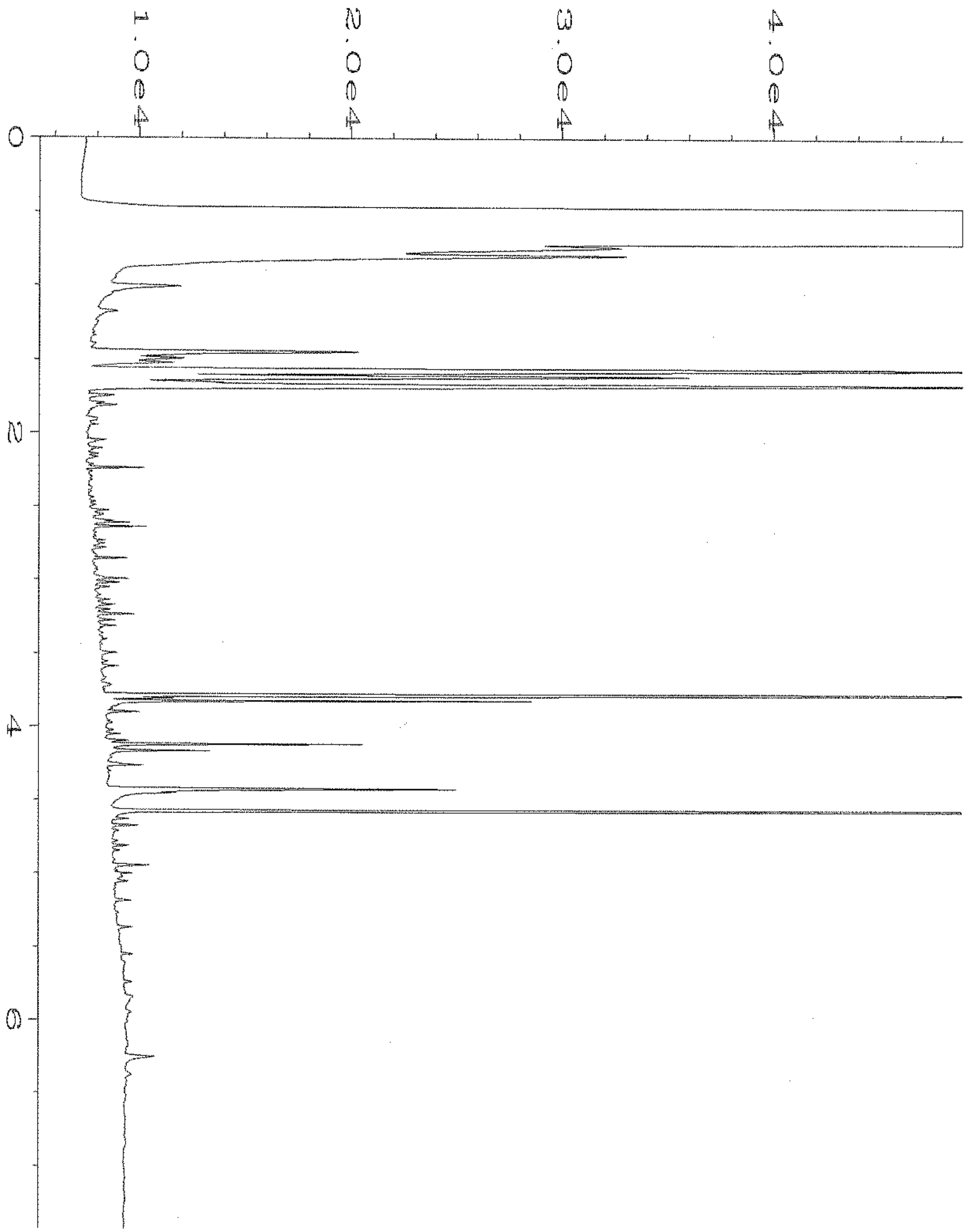
Sample ID's	☑ Yes	☐ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☑ Yes	☐ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below)		☑ YES	☐ NO
Were appropriate sample containers used?	☑ YES	☐ NO	☐ Unknown
If custody seals are present on samples, are they intact?	☑ NA	☐ YES	☐ NO
Are samples requiring no headspace, headspace free?	☐ NA	☑ YES	☐ NO
Air Samples: Were any additional canisters received?	☑ NA	☐ YES	☐ NO

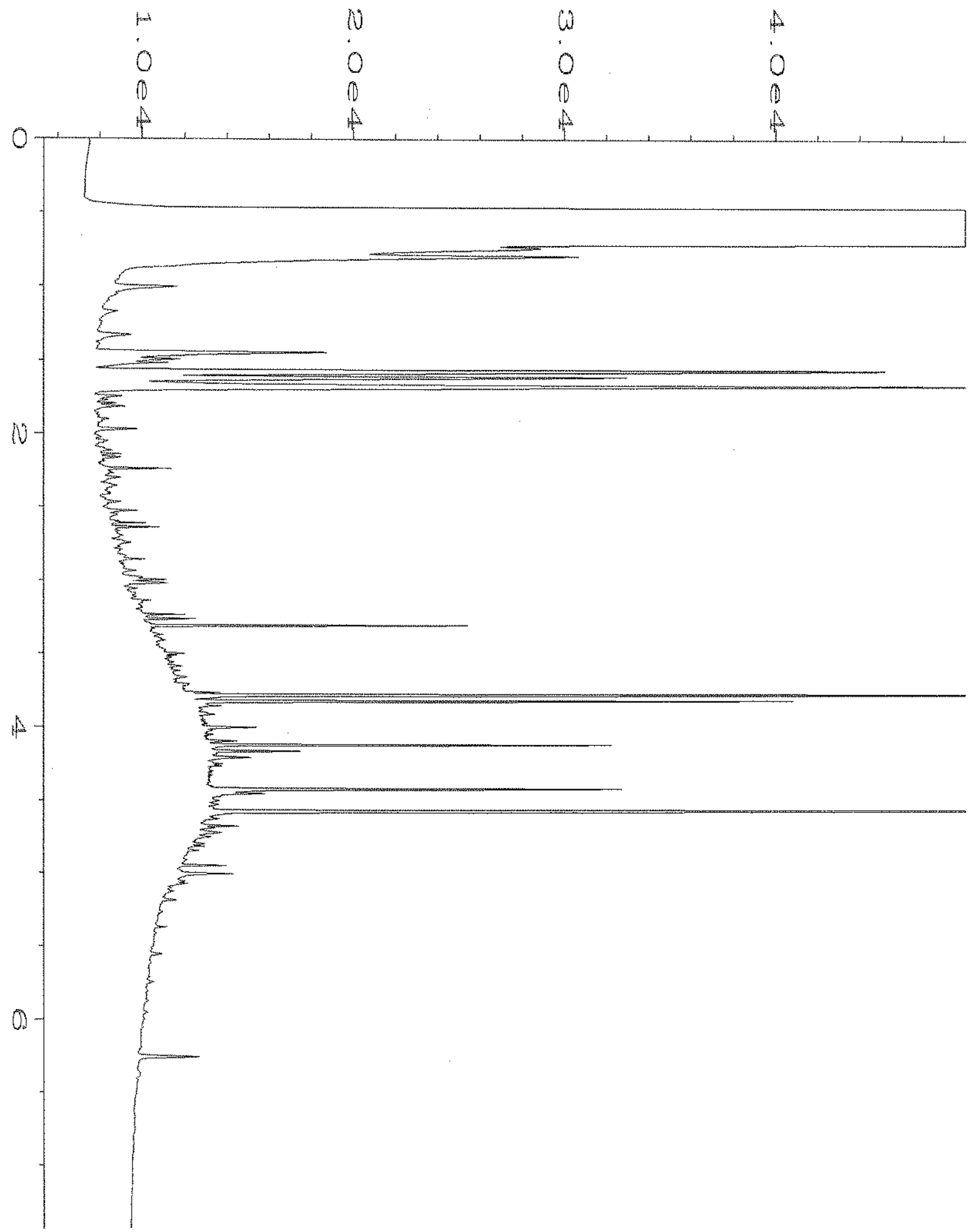
If Yes, number of unused 1L canisters ______

number of unused 6L canisters ______

Explain "no" items from above (use the back if needed)

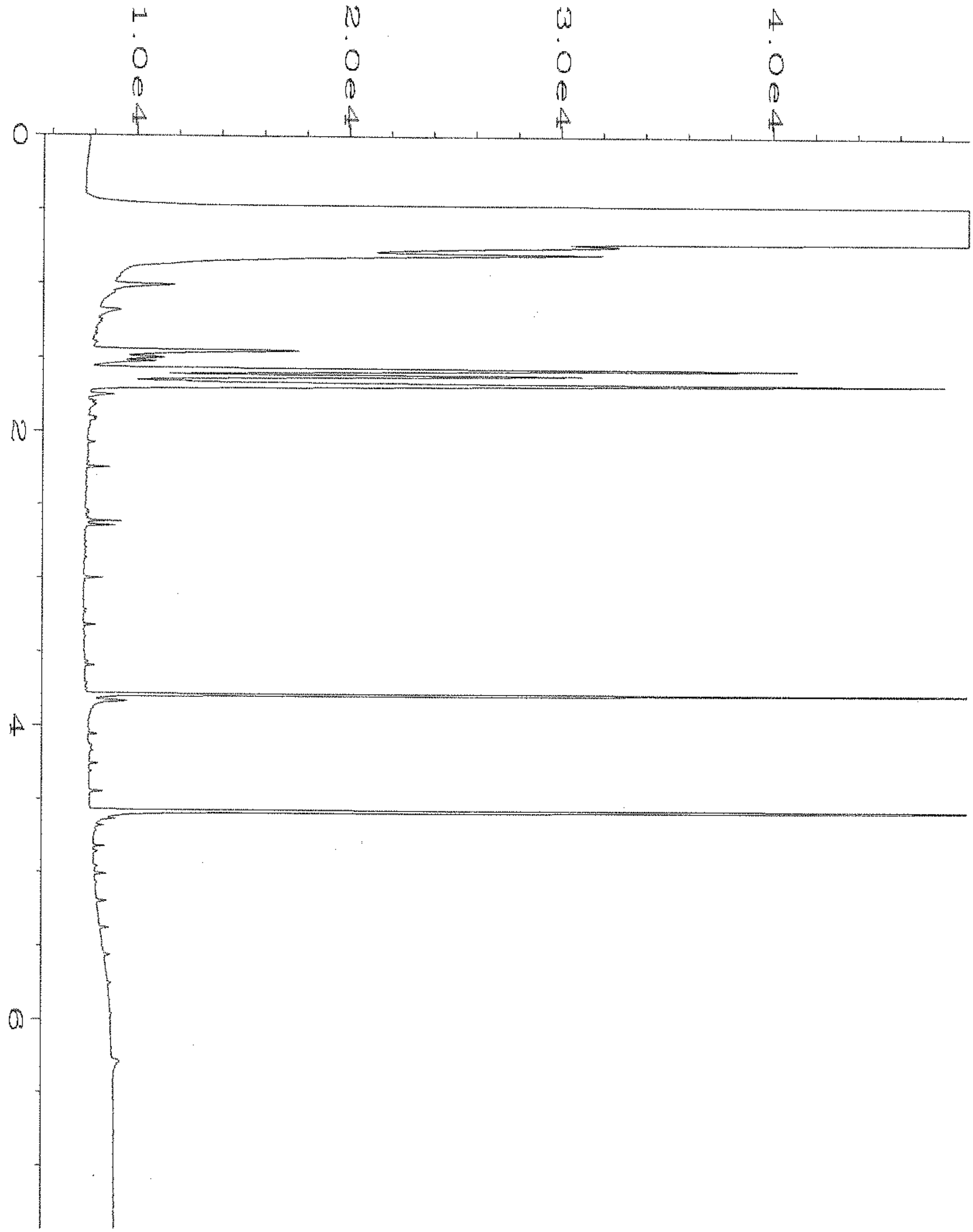


Data File Name	: C:\HPCHEM\1\DATA\04-22-22\058F1601.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 58
Sample Name	: 204363-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 16
Acquired on	: 22 Apr 22 11:53 PM	Instrument Method:	DX.MTH
Report Created on:	25 Apr 22 02:09 PM	Analysis Method	: DX.MTH

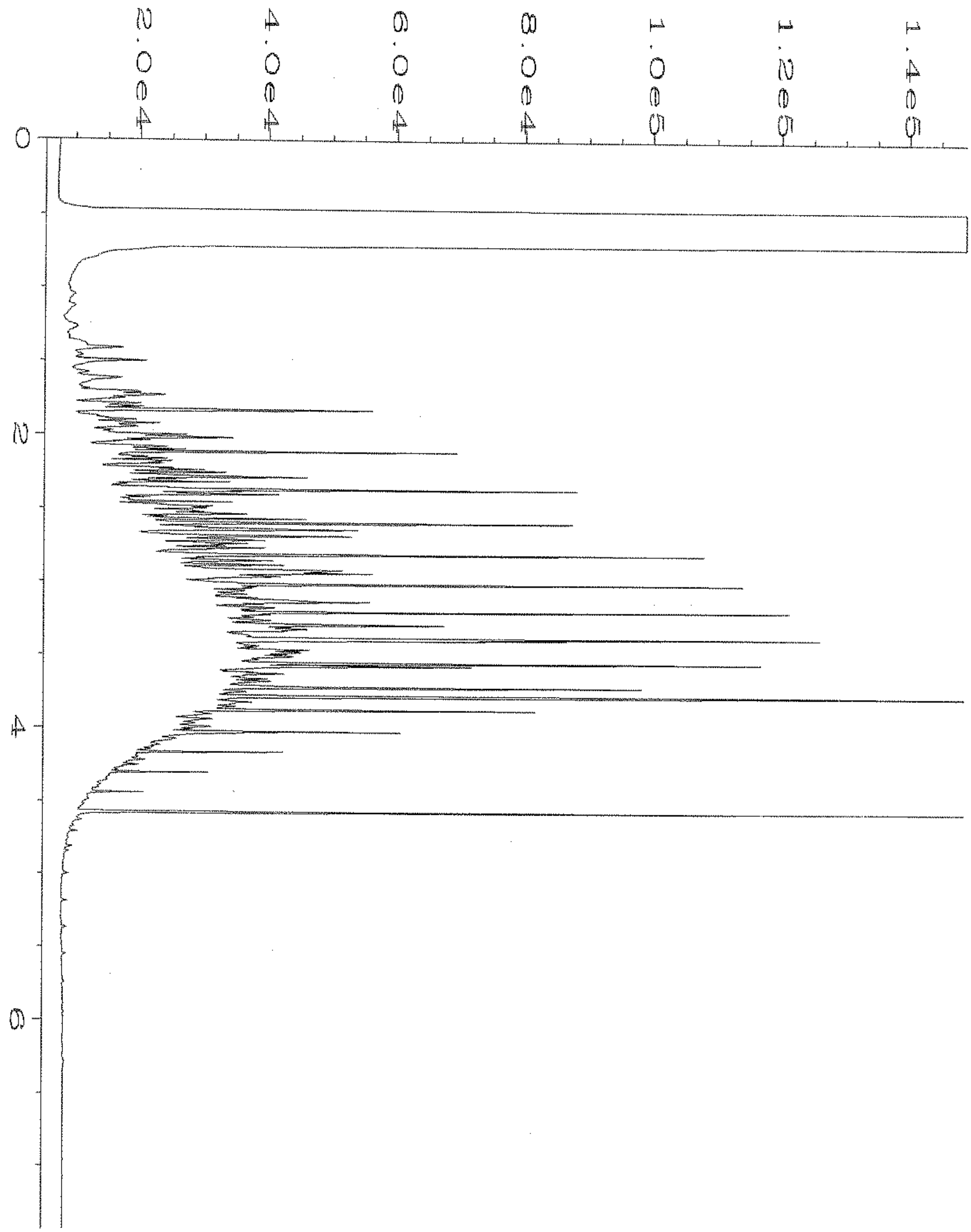


Data File Name   : C:\HPCHEM\1\DATA\04-22-22\059F1601.D
Operator   : TL
Instrument   : GC1
Sample Name   : 204363-02
Run Time Bar Code:
Acquired on   : 23 Apr 22   00:08 AM
Report Created on: 25 Apr 22   10:22 AM

Page Number   : 1
Vial Number   : 59
Injection Number : 1
Sequence Line   : 16
Instrument Method: DX.MTH
Analysis Method   : DX.MTH



Data File Name	: C:\HPCHEM\1\DATA\04-22-22\020F0801.D			
Operator	: TL		Page Number	: 1
Instrument	: GC1		Vial Number	: 20
Sample Name	: 02-980 mb		Injection Number	: 1
Run Time Bar Code:			Sequence Line	: 8
Acquired on	: 22 Apr 22	12:46 PM	Instrument Method:	DX.MTH
Report Created on:	25 Apr 22	02:09 PM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\1\DATA\04-22-22\003F1301.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 65-122D
Run Time Bar Code:
Acquired on : 22 Apr 22 05:15 PM
Report Created on: 25 Apr 22 02:09 PM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 13
Instrument Method: DX.MTH
Analysis Method : DX.MTH

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 19, 2021

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included is the amended report from the testing of material submitted on March 31, 2021 from the Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. Per your request, the reporting limits for several 8260D volatile organic compounds in water were lowered and a qualifier was added to the methylene chloride detection in sample C-1 DP2-033121w.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR0409R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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Seattle, WA 98119-2029
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fbi@isomedia.com
www.friedmanandbruya.com

April 9, 2021

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on March 31, 2021 from the Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. There are 153 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR0409R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2021 by Friedman & Bruya, Inc. from the GeoEngineers Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
103585 -01	C-1 DP4-3.5
103585 -02	C-1 DP4-5.0
103585 -03	C-1 DP4-7.0
103585 -04	C-1 DP3-4.0
103585 -05	C-1 DP3-7.0
103585 -06	C-1 DP3-033021w
103585 -07	C-1 DP5-3.0
103585 -08	C-1 DP5-6.0
103585 -09	C-1 DP15-4.0
103585 -10	C-1 DP15-7.0
103585 -11	C-1 DP14-5.0
103585 -12	C-1 DP14-10.0
103585 -13	C-1 DP13-2.0
103585 -14	C-1 DP13-5.0
103585 -15	C-1 DP13-033121w
103585 -16	C-1 DP14-033121w
103585 -17	C-1 DP8-4.5
103585 -18	C-1 DP8-9.0
103585 -19	C-1 DP9-3.0
103585 -20	C-1 DP9-7.5
103585 -21	C-1 DP10-4.0
103585 -22	C-1 DP11-4.0
103585 -23	C-1 DP2-5.0
103585 -24	C-1 DP2-11.0
103585 -25	C-1 DP1-3.5
103585 -26	C-1 DP1-11.0
103585 -27	C-1 DP2-033121w
103585 -28	C-1 DP7-4.0
103585 -29	C-1 DP7-9.0
103585 -30	C-1 DP12-3.0
103585 -31	C-1 DP12-8.0
103585 -32	C-1 DP6-3.0
103585 -33	C-1 DP6-6.0
103585 -34	Trip Blank 1
103585 -35	Trip Blank 2
103585 -36	Trip Blank 3

CASE NARRATIVE (continued)

Laboratory ID	GeoEngineers
103585 -37	Trip Blank 4
103585 -38	Trip Blank 5

Gasoline by NWTPH-Gx (water)
All quality control requirements were acceptable.

Diesel and Motor Oil by NWTPH-Dx (water)
All quality control requirements were acceptable.

VOCs by 8260D (water)
All quality control requirements were acceptable.

PCBs by 8082A (water)
All quality control requirements were acceptable.

Total Metals by 6020B (water)
All quality control requirements were acceptable.

Dissolved Metals by 6020B (water)
A 6020B internal standard failed the acceptance criteria for sample C-1 DP14-033121w. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported. All other quality control requirements were acceptable.

Gasoline by NWTPH-Gx (soil)
All quality control requirements were acceptable.

Diesel and Motor Oil by NWTPH-Dx (soil)
All quality control requirements were acceptable.

VOCs by 8260D (soil)
The 8260D matrix spike and matrix spike duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable. All other quality control requirements were acceptable.

PCBs by 8082A (soil)
For PCB samples analyzed on GC9, the time of analysis in the EQUIS electronic data file is inaccurate due to a software error. All quality control requirements were acceptable.

Total Metals by 6020B (soil)
All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/02/21, 04/05/21 and 04/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 DP4-3.5 103585-01	<5	75
C-1 DP4-5.0 103585-02	<5	73
C-1 DP4-7.0 103585-03	<5	75
C-1 DP3-4.0 103585-04	<5	75
C-1 DP3-7.0 103585-05	7.5	79
C-1 DP5-3.0 103585-07	<5	73
C-1 DP5-6.0 103585-08	<5	77
C-1 DP15-4.0 103585-09	51	78
C-1 DP15-7.0 103585-10	<5	65
C-1 DP14-5.0 103585-11	<5	69
C-1 DP14-10.0 103585-12	<5	72

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/02/21, 04/05/21 and 04/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 DP13-2.0 103585-13	<5	65
C-1 DP13-5.0 103585-14	<5	67
C-1 DP8-4.5 103585-17	<5	68
C-1 DP8-9.0 103585-18	<5	67
C-1 DP9-3.0 103585-19	<5	64
C-1 DP9-7.5 103585-20	<5	68
C-1 DP10-4.0 103585-21	<5	68
C-1 DP11-4.0 103585-22	<5	61
C-1 DP2-5.0 103585-23	<5	71
C-1 DP2-11.0 103585-24	<5	69
C-1 DP1-3.5 103585-25	<5	63

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/02/21, 04/05/21 and 04/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 DP1-11.0 103585-26	<5	62
C-1 DP7-4.0 103585-28	<5	62
C-1 DP7-9.0 103585-29	<5	64
C-1 DP12-3.0 103585-30	<5	63
C-1 DP12-8.0 103585-31	<5	60
C-1 DP6-3.0 103585-32	<5	68
C-1 DP6-6.0 103585-33	<5	66
Method Blank 01-598 MB	<5	71
Method Blank 01-599 MB	<5	69

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/05/21
Date Analyzed: 04/06/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
C-1 DP3-033021w 103585-06	<100	89
C-1 DP13-033121w 103585-15	<100	88
C-1 DP14-033121w 103585-16	<100	87
C-1 DP2-033121w 103585-27	<100	88
Method Blank 01-601 MB	<100	90

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
C-1 DP4-3.5 103585-01	<50	<250	101
C-1 DP4-5.0 103585-02	<50	<250	101
C-1 DP4-7.0 103585-03	<50	<250	103
C-1 DP3-4.0 103585-04	<50	<250	89
C-1 DP3-7.0 103585-05	<50	<250	88
C-1 DP5-3.0 103585-07	<50	<250	91
C-1 DP5-6.0 103585-08	<50	<250	96
C-1 DP15-4.0 103585-09	<50	<250	91
C-1 DP15-7.0 103585-10	<50	<250	100
C-1 DP14-5.0 103585-11	<50	<250	102

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
C-1 DP14-10.0 103585-12	<50	<250	103
C-1 DP13-2.0 103585-13	<50	<250	102
C-1 DP13-5.0 103585-14	<50	<250	103
C-1 DP8-4.5 103585-17	<50	<250	99
C-1 DP8-9.0 103585-18	<50	<250	91
C-1 DP9-3.0 103585-19	<50	<250	90
C-1 DP9-7.5 103585-20	<50	<250	92
C-1 DP10-4.0 103585-21	<50	<250	100
C-1 DP11-4.0 103585-22	<50	<250	100
C-1 DP2-5.0 103585-23	<50	<250	102

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/01/21
Date Analyzed: 04/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
C-1 DP2-11.0 103585-24	<50	<250	89
C-1 DP1-3.5 103585-25	<50	<250	89
C-1 DP1-11.0 103585-26	<50	<250	90
C-1 DP7-4.0 103585-28	<50	<250	100
C-1 DP7-9.0 103585-29	<50	<250	101
C-1 DP12-3.0 103585-30	<50	<250	91
C-1 DP12-8.0 103585-31	<50	<250	99
C-1 DP6-3.0 103585-32	<50	<250	103
C-1 DP6-6.0 103585-33	<50	<250	100
Method Blank 01-772 MB	<50	<250	99
Method Blank 01-774 MB	<50	<250	90

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585
Date Extracted: 04/02/21
Date Analyzed: 04/02/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
C-1 DP3-033021w 103585-06	110 x	330	49
C-1 DP13-033121w 103585-15	<50	<250	118
C-1 DP14-033121w 103585-16	<50	<250	82
C-1 DP2-033121w 103585-27	<50	<250	ip
Method Blank 01-778 MB	<50	<250	128

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-06
Date Analyzed:	04/05/21	Data File:	103585-06.131
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.68
Barium	8.11
Cadmium	<1
Chromium	1.41
Lead	1.13
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-15
Date Analyzed:	04/05/21	Data File:	103585-15.132
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	14.7
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16
Date Analyzed:	04/05/21	Data File:	103585-16.133
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.53
Barium	48.3
Cadmium	<1
Chromium	<1 J
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16 x5
Date Analyzed:	04/06/21	Data File:	103585-16 x5.081
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-27
Date Analyzed:	04/05/21	Data File:	103585-27.134
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.48
Barium	16.7
Cadmium	<1
Chromium	4.57
Lead	1.98
Mercury	<1
Selenium	<1
Silver	6.28

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	I1-215 mb
Date Analyzed:	04/05/21	Data File:	I1-215 mb.085
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/08/21	Lab ID:	103585-06
Date Analyzed:	04/08/21	Data File:	103585-06.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	4.46
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-06 x20
Date Analyzed:	04/06/21	Data File:	103585-06 x20.085
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	34.7
Barium	752
Chromium	210
Lead	120

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-15
Date Analyzed:	04/05/21	Data File:	103585-15.147
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Barium	129
Cadmium	<1
Lead	2.99
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-15 x10
Date Analyzed:	04/06/21	Data File:	103585-15 x10.086
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.62
Chromium	24.7

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16
Date Analyzed:	04/05/21	Data File:	103585-16.148
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<1
Lead	10.9
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-16 x10
Date Analyzed:	04/05/21	Data File:	103585-16 x10.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	30.8
Barium	595
Chromium	69.2

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-27
Date Analyzed:	04/05/21	Data File:	103585-27.149
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	1.08
Lead	24.6
Mercury	<1
Selenium	1.55
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	103585-27 x10
Date Analyzed:	04/05/21	Data File:	103585-27 x10.122
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	29.5
Barium	539
Chromium	187

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/05/21	Lab ID:	I1-214 mb
Date Analyzed:	04/05/21	Data File:	I1-214 mb.083
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/08/21	Lab ID:	I1-220 mb2
Date Analyzed:	04/08/21	Data File:	I1-220 mb2.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP4-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-01
Date Analyzed:	04/02/21	Data File:	103585-01.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.78
Barium	50.1
Cadmium	<1
Chromium	20.3
Lead	2.14
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP4-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-02
Date Analyzed:	04/02/21	Data File:	103585-02.064
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.59
Barium	44.6
Cadmium	<1
Chromium	21.9
Lead	2.09
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP4-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-03
Date Analyzed:	04/02/21	Data File:	103585-03.068
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.83
Barium	35.6
Cadmium	<1
Chromium	19.4
Lead	1.62
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-04
Date Analyzed:	04/02/21	Data File:	103585-04.071
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.25
Barium	26.0
Cadmium	<1
Chromium	23.3
Lead	4.86
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP3-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-05
Date Analyzed:	04/02/21	Data File:	103585-05.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.83
Barium	41.6
Cadmium	<1
Chromium	22.4
Lead	2.39
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP5-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-07
Date Analyzed:	04/02/21	Data File:	103585-07.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.79
Barium	40.5
Cadmium	<1
Chromium	18.0
Lead	1.71
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP5-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-08
Date Analyzed:	04/02/21	Data File:	103585-08.074
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.08
Barium	48.0
Cadmium	<1
Chromium	24.6
Lead	2.37
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP15-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-09
Date Analyzed:	04/02/21	Data File:	103585-09.075
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.33
Barium	61.4
Cadmium	<1
Chromium	25.8
Lead	2.44
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP15-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-10
Date Analyzed:	04/02/21	Data File:	103585-10.076
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.24
Barium	56.5
Cadmium	<1
Chromium	19.6
Lead	2.15
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-11
Date Analyzed:	04/02/21	Data File:	103585-11.077
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.02
Barium	68.0
Cadmium	<1
Chromium	22.5
Lead	2.43
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP14-10.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-12
Date Analyzed:	04/02/21	Data File:	103585-12.078
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.71
Barium	32.5
Cadmium	<1
Chromium	16.4
Lead	1.31
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-2.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-13
Date Analyzed:	04/05/21	Data File:	103585-13.093
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.11
Barium	82.9
Cadmium	<1
Chromium	19.2
Lead	1.90
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP13-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-14
Date Analyzed:	04/05/21	Data File:	103585-14.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.35
Barium	40.7
Cadmium	<1
Chromium	14.7
Lead	1.59
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP8-4.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-17
Date Analyzed:	04/05/21	Data File:	103585-17.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.10
Barium	41.0
Cadmium	<1
Chromium	20.4
Lead	2.05
Mercury	<1
Selenium	<1
Silver	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP8-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-18
Date Analyzed:	04/05/21	Data File:	103585-18.096
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.93
Barium	47.2
Cadmium	<1
Chromium	18.8
Lead	2.22
Mercury	<1
Selenium	<1
Silver	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP9-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-19
Date Analyzed:	04/05/21	Data File:	103585-19.097
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.96
Barium	44.7
Cadmium	<1
Chromium	18.3
Lead	2.09
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP9-7.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-20
Date Analyzed:	04/05/21	Data File:	103585-20.098
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.36
Barium	44.2
Cadmium	<1
Chromium	20.8
Lead	2.36
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP10-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-21
Date Analyzed:	04/05/21	Data File:	103585-21.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.27
Barium	43.6
Cadmium	<1
Chromium	19.7
Lead	2.04
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP11-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-22
Date Analyzed:	04/05/21	Data File:	103585-22.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.98
Barium	46.5
Cadmium	<1
Chromium	18.3
Lead	2.22
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-23
Date Analyzed:	04/05/21	Data File:	103585-23.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.74
Barium	34.5
Cadmium	<1
Chromium	21.1
Lead	1.74
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP2-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-24
Date Analyzed:	04/05/21	Data File:	103585-24.102
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.31
Barium	36.0
Cadmium	<1
Chromium	21.1
Lead	1.69
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP1-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-25
Date Analyzed:	04/05/21	Data File:	103585-25.112
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.69
Barium	42.7
Cadmium	<1
Chromium	19.1
Lead	2.00
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP1-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-26
Date Analyzed:	04/05/21	Data File:	103585-26.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.92
Barium	50.5
Cadmium	<1
Chromium	65.7
Lead	2.50
Mercury	<1
Selenium	<1
Silver	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP7-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-28
Date Analyzed:	04/05/21	Data File:	103585-28.114
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.01
Barium	40.5
Cadmium	<1
Chromium	18.2
Lead	1.95
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP7-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-29
Date Analyzed:	04/05/21	Data File:	103585-29.115
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.01
Barium	38.3
Cadmium	<1
Chromium	18.2
Lead	1.75
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-30
Date Analyzed:	04/02/21	Data File:	103585-30.170
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.97
Barium	44.9
Cadmium	<1
Chromium	21.5
Lead	2.31
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-30
Date Analyzed:	04/05/21	Data File:	103585-30.125
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-31
Date Analyzed:	04/02/21	Data File:	103585-31.171
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.02
Barium	39.3
Cadmium	<1
Chromium	21.4
Lead	2.11
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-31
Date Analyzed:	04/05/21	Data File:	103585-31.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP6-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-32
Date Analyzed:	04/05/21	Data File:	103585-32.127
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.49
Barium	42.3
Cadmium	<1
Chromium	16.0
Lead	1.83
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 DP6-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-33
Date Analyzed:	04/05/21	Data File:	103585-33.128
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.63
Barium	48.0
Cadmium	<1
Chromium	20.0
Lead	2.13
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	I1-209 mb2
Date Analyzed:	04/02/21	Data File:	I1-209 mb2.037
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	I1-211 mb
Date Analyzed:	04/02/21	Data File:	I1-211 mb.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP4-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-01 1/0.5
Date Analyzed:	04/01/21	Data File:	040127.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	84	118
Toluene-d8	96	86	117
4-Bromofluorobenzene	98	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP4-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-02 1/0.5
Date Analyzed:	04/01/21	Data File:	040128.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	118
Toluene-d8	92	86	117
4-Bromofluorobenzene	109	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP4-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-03 1/0.5
Date Analyzed:	04/01/21	Data File:	040129.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	111	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	0.022
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	0.013	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	0.027
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP3-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-04 1/0.5
Date Analyzed:	04/01/21	Data File:	040130.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	84	118
Toluene-d8	96	86	117
4-Bromofluorobenzene	103	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP3-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-05 1/0.5
Date Analyzed:	04/01/21	Data File:	040131.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP5-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-07 1/0.5
Date Analyzed:	04/01/21	Data File:	040132.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	118
Toluene-d8	94	86	117
4-Bromofluorobenzene	112	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP5-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-08 1/0.5
Date Analyzed:	04/01/21	Data File:	040133.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP15-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-09 1/0.5
Date Analyzed:	04/01/21	Data File:	040114.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	97	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	0.028
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	0.052
1,1,1-Trichloroethane	0.040	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	0.62	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	0.65
Bromodichloromethane	<0.01	1,4-Dichlorobenzene	1.7
Dibromomethane	<0.025	1,2-Dichlorobenzene	0.040
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	0.055
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	0.038
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP15-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-10 1/0.5
Date Analyzed:	04/02/21	Data File:	040224.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	84	118
Toluene-d8	100	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	0.14	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP14-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-11 1/0.5
Date Analyzed:	04/01/21	Data File:	040116.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	118
Toluene-d8	104	86	117
4-Bromofluorobenzene	97	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP14-10.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-12 1/0.5
Date Analyzed:	04/01/21	Data File:	040117.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	103	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP13-2.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-13 1/0.5
Date Analyzed:	04/01/21	Data File:	040118.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	107	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP13-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-14 1/0.5
Date Analyzed:	04/01/21	Data File:	040119.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	118
Toluene-d8	103	86	117
4-Bromofluorobenzene	104	90	112

Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05
Chloromethane	<0.05
Vinyl chloride	<0.005
Bromomethane	<0.5
Chloroethane	<0.05
Trichlorofluoromethane	<0.05
Acetone	<5
1,1-Dichloroethene	<0.005
Hexane	<0.025
Methylene chloride	<0.5
Methyl t-butyl ether (MTBE)	<0.005
trans-1,2-Dichloroethene	<0.005
1,1-Dichloroethane	<0.005
2,2-Dichloropropane	<0.005
cis-1,2-Dichloroethene	<0.005
Chloroform	<0.01
2-Butanone (MEK)	<1
1,2-Dichloroethane (EDC)	<0.01
1,1,1-Trichloroethane	<0.005
1,1-Dichloropropene	<0.005
Carbon tetrachloride	<0.005
Benzene	<0.005
Trichloroethene	<0.005
1,2-Dichloropropane	<0.005
Bromodichloromethane	<0.025
Dibromomethane	<0.025
4-Methyl-2-pentanone	<0.5
cis-1,3-Dichloropropene	<0.005
Toluene	<0.005
trans-1,3-Dichloropropene	<0.005
1,1,2-Trichloroethane	<0.005
2-Hexanone	<0.5
1,3-Dichloropropane	<0.025
Tetrachloroethene	<0.005
Dibromochloromethane	<0.025
1,2-Dibromoethane (EDB)	<0.005
Chlorobenzene	<0.005
Ethylbenzene	<0.005
1,1,1,2-Tetrachloroethane	<0.005
m,p-Xylene	<0.01
o-Xylene	<0.005
Styrene	<0.005
Isopropylbenzene	<0.005
Bromoform	<0.005
n-Propylbenzene	<0.005
Bromobenzene	<0.005
1,3,5-Trimethylbenzene	<0.005
1,1,2,2-Tetrachloroethane	<0.025
1,2,3-Trichloropropane	<0.025
2-Chlorotoluene	<0.005
4-Chlorotoluene	<0.005
tert-Butylbenzene	<0.005
1,2,4-Trimethylbenzene	<0.005
sec-Butylbenzene	<0.005
p-Isopropyltoluene	<0.005
1,3-Dichlorobenzene	<0.005
1,4-Dichlorobenzene	<0.005
1,2-Dichlorobenzene	<0.005
1,2-Dibromo-3-chloropropane	<0.5
1,2,4-Trichlorobenzene	<0.025
Hexachlorobutadiene	<0.025
Naphthalene	<0.005
1,2,3-Trichlorobenzene	<0.025

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP8-4.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-17 1/0.5
Date Analyzed:	04/01/21	Data File:	040120.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	118
Toluene-d8	91	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP8-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-18 1/0.5
Date Analyzed:	04/01/21	Data File:	040121.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	109	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP9-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-19 1/0.5
Date Analyzed:	04/01/21	Data File:	040122.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	84	118
Toluene-d8	100	86	117
4-Bromofluorobenzene	111	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP9-7.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-20 1/0.5
Date Analyzed:	04/01/21	Data File:	040134.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP10-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-21 1/0.5
Date Analyzed:	04/01/21	Data File:	040135.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	84	118
Toluene-d8	105	86	117
4-Bromofluorobenzene	101	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP11-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-22 1/0.5
Date Analyzed:	04/02/21	Data File:	040136.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	116	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	94	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP2-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-23 1/0.5
Date Analyzed:	04/02/21	Data File:	040137.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	105	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP2-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-24 1/0.5
Date Analyzed:	04/02/21	Data File:	040138.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	118
Toluene-d8	92	86	117
4-Bromofluorobenzene	105	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP1-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-25 1/0.5
Date Analyzed:	04/02/21	Data File:	040139.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	84	118
Toluene-d8	95	86	117
4-Bromofluorobenzene	113	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP1-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-26 1/0.5
Date Analyzed:	04/02/21	Data File:	040140.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	118
Toluene-d8	101	86	117
4-Bromofluorobenzene	106	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP7-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-28 1/0.5
Date Analyzed:	04/02/21	Data File:	040141.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	84	118
Toluene-d8	92	86	117
4-Bromofluorobenzene	111	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

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Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP7-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-29 1/0.5
Date Analyzed:	04/02/21	Data File:	040142.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	115	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-30 1/0.5
Date Analyzed:	04/02/21	Data File:	040143.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	118
Toluene-d8	102	86	117
4-Bromofluorobenzene	105	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-31 1/0.5
Date Analyzed:	04/02/21	Data File:	040144.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	87	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	108	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

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Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP6-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-32 1/0.5
Date Analyzed:	04/02/21	Data File:	040145.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	118
Toluene-d8	100	86	117
4-Bromofluorobenzene	104	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP6-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-33 1/0.5
Date Analyzed:	04/02/21	Data File:	040146.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	84	118
Toluene-d8	99	86	117
4-Bromofluorobenzene	100	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-679 mb 1/0.5
Date Analyzed:	04/01/21	Data File:	040125.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	118
Toluene-d8	94	86	117
4-Bromofluorobenzene	102	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-756 mb 1/0.5
Date Analyzed:	04/01/21	Data File:	040126.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	86	84	118
Toluene-d8	93	86	117
4-Bromofluorobenzene	109	90	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.025
Chloromethane	<0.05	Tetrachloroethene	<0.005
Vinyl chloride	<0.005	Dibromochloromethane	<0.025
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.5	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.005	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.01	1,1,2,2-Tetrachloroethane	<0.025
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.025
1,2-Dichloroethane (EDC)	<0.01	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.005	sec-Butylbenzene	<0.005
Trichloroethene	<0.005	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.005	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.025	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.025	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-06
Date Analyzed:	04/02/21	Data File:	040216.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	85	117
Toluene-d8	94	88	112
4-Bromofluorobenzene	113 vo	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-15
Date Analyzed:	04/02/21	Data File:	040217.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	114 vo	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-16
Date Analyzed:	04/02/21	Data File:	040218.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	93	88	112
4-Bromofluorobenzene	112 vo	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-27
Date Analyzed:	04/02/21	Data File:	040219.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	85	117
Toluene-d8	94	88	112
4-Bromofluorobenzene	110	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	12 lc	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank 1	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	103585-34
Date Analyzed:	04/02/21	Data File:	040215.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	85	117
Toluene-d8	94	88	112
4-Bromofluorobenzene	105	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/02/21	Lab ID:	01-757 mb
Date Analyzed:	04/02/21	Data File:	040211.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	86	113
Toluene-d8	97	88	114
4-Bromofluorobenzene	99	88	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10 ca	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01 j
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.072 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.6	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.13 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.7	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP4-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-01 1/6
Date Analyzed:	04/02/21	Data File:	040206.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	60	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP4-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-02 1/6
Date Analyzed:	04/02/21	Data File:	040218.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP4-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-03 1/6
Date Analyzed:	04/02/21	Data File:	040217.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	67	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP3-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-04 1/6
Date Analyzed:	04/02/21	Data File:	040207.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	59	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP3-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-05 1/6
Date Analyzed:	04/02/21	Data File:	040208.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	59	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP5-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-07 1/6
Date Analyzed:	04/02/21	Data File:	040209.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP5-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-08 1/6
Date Analyzed:	04/02/21	Data File:	040210.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	48	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP15-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-09 1/6
Date Analyzed:	04/02/21	Data File:	040216.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	62	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP15-7.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-10 1/6
Date Analyzed:	04/02/21	Data File:	040211.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP14-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-11 1/6
Date Analyzed:	04/02/21	Data File:	040212.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	47	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP14-10.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-12 1/6
Date Analyzed:	04/02/21	Data File:	040222.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	60	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP13-2.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-13 1/6
Date Analyzed:	04/02/21	Data File:	040213.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	100	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP13-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-14 1/6
Date Analyzed:	04/02/21	Data File:	040205.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP8-4.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-17 1/6
Date Analyzed:	04/02/21	Data File:	040206.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	75	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP8-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-18 1/6
Date Analyzed:	04/02/21	Data File:	040215.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	53	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP9-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-19 1/6
Date Analyzed:	04/02/21	Data File:	040216.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	59	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP9-7.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-20 1/6
Date Analyzed:	04/02/21	Data File:	040217.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	52	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP10-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-21 1/6
Date Analyzed:	04/02/21	Data File:	040215.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	62	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP11-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-22 1/6
Date Analyzed:	04/02/21	Data File:	040221.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	52	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP2-5.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-23 1/6
Date Analyzed:	04/02/21	Data File:	040207.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	51	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP2-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-24 1/6
Date Analyzed:	04/02/21	Data File:	040208.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	60	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP1-3.5	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-25 1/6
Date Analyzed:	04/02/21	Data File:	040209.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP1-11.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-26 1/6
Date Analyzed:	04/02/21	Data File:	040218.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	58	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP7-4.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-28 1/6
Date Analyzed:	04/02/21	Data File:	040219.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	57	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP7-9.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-29 1/6
Date Analyzed:	04/02/21	Data File:	040220.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	64	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP12-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-30 1/6
Date Analyzed:	04/02/21	Data File:	040210.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	68	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP12-8.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-31 1/6
Date Analyzed:	04/02/21	Data File:	040211.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP6-3.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-32 1/6
Date Analyzed:	04/02/21	Data File:	040212.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	76	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP6-6.0	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	103585-33 1/6
Date Analyzed:	04/02/21	Data File:	040213.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-751 mb2 1/6
Date Analyzed:	04/02/21	Data File:	040204.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	81	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/01/21	Lab ID:	01-773 mb 1/6
Date Analyzed:	04/02/21	Data File:	040204.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	79	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP3-033021w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-06
Date Analyzed:	04/06/21	Data File:	040613.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	25	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP13-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-15
Date Analyzed:	04/06/21	Data File:	040614.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	43	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP14-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-16
Date Analyzed:	04/06/21	Data File:	040615.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	C-1 DP2-033121w	Client:	GeoEngineers
Date Received:	03/31/21	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	103585-27
Date Analyzed:	04/06/21	Data File:	040616.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	8 ip	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Snohomish C-1 Hangar 5530-014-01
Date Extracted:	04/06/21	Lab ID:	01-791 mb
Date Analyzed:	04/06/21	Data File:	040606.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 103585-12 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	mg/kg (ppm)	20	<5	100	105	50-150	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	105	71-131

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 103585-33 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	110	71-131

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 104046-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	120	130	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	101	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 103585-12 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	94	86	64-133	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	58-147

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 103585-24 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	96	64-133	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	58-147

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	108	108	63-142	0

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 6020B

Laboratory Code: 104029-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	112	109	75-125	3
Barium	ug/L (ppb)	50	9.89	98	95	75-125	3
Cadmium	ug/L (ppb)	5	<1	96	96	75-125	0
Chromium	ug/L (ppb)	20	1.70	97	97	75-125	0
Lead	ug/L (ppb)	10	<1	91	90	75-125	1
Mercury	ug/L (ppb)	5	<1	91	93	75-125	2
Selenium	ug/L (ppb)	5	<1	115	112	75-125	3
Silver	ug/L (ppb)	5	<1	91	89	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	102	80-120
Barium	ug/L (ppb)	50	97	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	98	80-120
Mercury	ug/L (ppb)	5	97	80-120
Selenium	ug/L (ppb)	5	102	80-120
Silver	ug/L (ppb)	5	92	80-120

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 104043-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.36	102	101	75-125	1
Barium	ug/L (ppb)	50	39.2	105	105	75-125	0
Cadmium	ug/L (ppb)	5	<1	97	97	75-125	0
Chromium	ug/L (ppb)	20	1.12	101	101	75-125	0
Lead	ug/L (ppb)	10	<1	85	85	75-125	0
Mercury	ug/L (ppb)	5	<1	89	90	75-125	1
Selenium	ug/L (ppb)	5	2.92	112	107	75-125	5
Silver	ug/L (ppb)	5	<1	85	84	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	103	80-120
Barium	ug/L (ppb)	50	98	80-120
Cadmium	ug/L (ppb)	5	100	80-120
Chromium	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	99	80-120
Mercury	ug/L (ppb)	5	100	80-120
Selenium	ug/L (ppb)	5	105	80-120
Silver	ug/L (ppb)	5	94	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	93	93	80-120	0
Barium	ug/L (ppb)	50	101	100	80-120	1
Cadmium	ug/L (ppb)	5	102	101	80-120	1
Chromium	ug/L (ppb)	20	105	104	80-120	1
Lead	ug/L (ppb)	10	94	94	80-120	0
Mercury	ug/L (ppb)	5	95	96	80-120	1
Selenium	ug/L (ppb)	5	102	97	80-120	5
Silver	ug/L (ppb)	5	92	91	80-120	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 103552-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	88	83	75-125	6
Barium	mg/kg (ppm)	50	33.7	129 b	114 b	75-125	12 b
Cadmium	mg/kg (ppm)	10	<5	96	95	75-125	1
Chromium	mg/kg (ppm)	50	14.4	101	101	75-125	0
Lead	mg/kg (ppm)	50	13.7	113	97	75-125	15
Mercury	mg/kg (ppm	5	<5	95	84	75-125	12
Selenium	mg/kg (ppm)	5	<5	84	84	75-125	0
Silver	mg/kg (ppm)	10	<5	87	87	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	92	80-120
Barium	mg/kg (ppm)	50	104	80-120
Cadmium	mg/kg (ppm)	10	103	80-120
Chromium	mg/kg (ppm)	50	113	80-120
Lead	mg/kg (ppm)	50	98	80-120
Mercury	mg/kg (ppm)	5	99	80-120
Selenium	mg/kg (ppm)	5	92	80-120
Silver	mg/kg (ppm)	10	96	80-120

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 103585-12 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.54	97	101	75-125	4
Barium	mg/kg (ppm)	50	29.2	127 b	128 b	75-125	1 b
Cadmium	mg/kg (ppm)	10	<1	106	102	75-125	4
Chromium	mg/kg (ppm)	50	14.7	113	111	75-125	2
Lead	mg/kg (ppm)	50	1.18	94	91	75-125	3
Mercury	mg/kg (ppm	5	<1	96	93	75-125	3
Selenium	mg/kg (ppm)	5	<1	97	91	75-125	6
Silver	mg/kg (ppm)	10	<1	99	93	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Barium	mg/kg (ppm)	50	103	80-120
Cadmium	mg/kg (ppm)	10	101	80-120
Chromium	mg/kg (ppm)	50	111	80-120
Lead	mg/kg (ppm)	50	98	80-120
Mercury	mg/kg (ppm)	5	91	80-120
Selenium	mg/kg (ppm)	5	96	80-120
Silver	mg/kg (ppm)	10	96	80-120

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 103339-29 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	5 vo	4 vo	10-142	22 vo
Chloromethane	mg/kg (ppm)	1	<0.5	21	21	10-126	0
Vinyl chloride	mg/kg (ppm)	1	<0.005	19	18	10-138	5
Bromomethane	mg/kg (ppm)	1	<0.5	52	38	10-163	31 vo
Chloroethane	mg/kg (ppm)	1	<0.5	30	28	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	17	15	10-176	12
Acetone	mg/kg (ppm)	5	<5	57	53	10-163	7
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	36	33	10-160	9
Hexane	mg/kg (ppm)	1	<0.25	14	12	10-137	15
Methylene chloride	mg/kg (ppm)	1	<0.5	53	50	10-156	6
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	54	50	21-145	8
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	41	39	14-137	5
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	45	42	19-140	7
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	47	42	10-158	11
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	48	45	25-135	6
Chloroform	mg/kg (ppm)	1	<0.05	50	47	21-145	6
2-Butanone (MEK)	mg/kg (ppm)	5	<0.5	56	54	19-147	4
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	52	51	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	44	41	10-156	7
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	44	40	17-140	10
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	43	40	9-164	7
Benzene	mg/kg (ppm)	1	<0.03	49	46	29-129	6
Trichloroethene	mg/kg (ppm)	1	<0.02	48	46	21-139	4
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	50	47	30-135	6
Bromodichloromethane	mg/kg (ppm)	1	<0.05	47	46	23-155	2
Dibromomethane	mg/kg (ppm)	1	<0.05	53	51	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	5	<0.5	58	56	24-155	4
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	52	49	28-144	6
Toluene	mg/kg (ppm)	1	<0.05	55	53	35-130	4
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	52	51	26-149	2
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	58	55	10-205	5
2-Hexanone	mg/kg (ppm)	5	<0.5	61	58	15-166	5
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	57	56	31-137	2
Tetrachloroethene	mg/kg (ppm)	1	<0.025	53	50	20-133	6
Dibromochloromethane	mg/kg (ppm)	1	<0.05	51	49	28-150	4
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	57	56	28-142	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	59	56	32-129	5
Ethylbenzene	mg/kg (ppm)	1	<0.05	56	52	32-137	7
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	55	50	31-143	10
m,p-Xylene	mg/kg (ppm)	2	<0.1	58	53	34-136	9
o-Xylene	mg/kg (ppm)	1	<0.05	57	54	33-134	5
Styrene	mg/kg (ppm)	1	<0.05	56	53	35-137	6
Isopropylbenzene	mg/kg (ppm)	1	<0.05	54	51	31-142	6
Bromoform	mg/kg (ppm)	1	<0.05	50	47	21-156	6
n-Propylbenzene	mg/kg (ppm)	1	<0.05	55	52	23-146	6
Bromobenzene	mg/kg (ppm)	1	<0.05	60	57	34-130	5
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	57	53	18-149	7
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	61	55	28-140	10
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	60	57	25-144	5
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	57	54	31-134	5
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	57	54	31-136	5
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	57	52	30-137	9
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	56	52	10-182	7
sec-Butylbenzene	mg/kg (ppm)	1	0.051	58	52	23-145	11
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	57	51	21-149	11
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	60	56	30-131	7
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	60	56	29-129	7
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	58	56	31-132	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	49	50	11-161	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	54	48	22-142	12
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	53	47	10-142	12
Naphthalene	mg/kg (ppm)	1	<0.05	56	53	14-157	6
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	55	50	20-144	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	42	10-146
Chloromethane	mg/kg (ppm)	1	56	27-133
Vinyl chloride	mg/kg (ppm)	1	57	22-139
Bromomethane	mg/kg (ppm)	1	75	38-114
Chloroethane	mg/kg (ppm)	1	59	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	68	10-196
Acetone	mg/kg (ppm)	5	75	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	88	47-128
Hexane	mg/kg (ppm)	1	74	43-142
Methylene chloride	mg/kg (ppm)	1	88	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	91	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	88	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	85	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	85	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	90	72-127
Chloroform	mg/kg (ppm)	1	89	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	84	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	92	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	86	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	88	69-128
Carbon tetrachloride	mg/kg (ppm)	1	90	60-139
Benzene	mg/kg (ppm)	1	91	71-118
Trichloroethene	mg/kg (ppm)	1	91	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	89	72-127
Bromodichloromethane	mg/kg (ppm)	1	85	57-126
Dibromomethane	mg/kg (ppm)	1	91	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	95	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	92	67-122
Toluene	mg/kg (ppm)	1	99	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	95	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	100	64-115
2-Hexanone	mg/kg (ppm)	5	97	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	98	72-130
Tetrachloroethene	mg/kg (ppm)	1	100	72-114
Dibromochloromethane	mg/kg (ppm)	1	93	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	100	74-132
Chlorobenzene	mg/kg (ppm)	1	103	76-111
Ethylbenzene	mg/kg (ppm)	1	97	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	96	64-121
m,p-Xylene	mg/kg (ppm)	2	100	78-122
o-Xylene	mg/kg (ppm)	1	99	77-124
Styrene	mg/kg (ppm)	1	99	74-126
Isopropylbenzene	mg/kg (ppm)	1	95	76-127
Bromoform	mg/kg (ppm)	1	91	56-132
n-Propylbenzene	mg/kg (ppm)	1	96	74-124
Bromobenzene	mg/kg (ppm)	1	102	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	96	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	94	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	95	61-137
2-Chlorotoluene	mg/kg (ppm)	1	96	74-121
4-Chlorotoluene	mg/kg (ppm)	1	97	75-122
tert-Butylbenzene	mg/kg (ppm)	1	96	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	95	76-125
sec-Butylbenzene	mg/kg (ppm)	1	95	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	94	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	99	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	84	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	93	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	92	50-153
Naphthalene	mg/kg (ppm)	1	93	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	95	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 103585-12 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1.0	<0.05	24	14	10-47	53 vo
Chloromethane	mg/kg (ppm)	1.0	<0.05	48	38	10-88	23 vo
Vinyl chloride	mg/kg (ppm)	1.0	<0.005	58	46	10-79	23 vo
Bromomethane	mg/kg (ppm)	1.0	<0.5	78	71	10-85	9
Chloroethane	mg/kg (ppm)	1.0	<0.05	73	59	11-106	21 vo
Trichlorofluoromethane	mg/kg (ppm)	1.0	<0.05	67	51	10-85	27 vo
Acetone	mg/kg (ppm)	5.0	<5	65	59	10-224	10
1,1-Dichloroethene	mg/kg (ppm)	1.0	<0.005	82	68	11-105	19
Hexane	mg/kg (ppm)	1.0	<0.025	68	62	10-106	9
Methylene chloride	mg/kg (ppm)	1.0	<0.5	77	53	10-139	37 vo
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	<0.005	86	72	18-131	18
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.005	85	70	16-122	19
1,1-Dichloroethane	mg/kg (ppm)	1.0	<0.005	88	74	19-125	17
2,2-Dichloropropane	mg/kg (ppm)	1.0	<0.005	75	63	10-184	17
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.005	87	71	18-129	20
Chloroform	mg/kg (ppm)	1.0	<0.01	85	71	18-126	18
2-Butanone (MEK)	mg/kg (ppm)	5.0	<0.5	70	60	10-190	15
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	<0.005	90	74	19-138	20
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	<0.005	84	71	16-126	17
1,1-Dichloropropene	mg/kg (ppm)	1.0	<0.005	85	70	19-129	19
Carbon tetrachloride	mg/kg (ppm)	1.0	<0.005	84	72	13-125	15
Benzene	mg/kg (ppm)	1.0	<0.005	85	71	15-129	18
Trichloroethene	mg/kg (ppm)	1.0	<0.005	87	73	14-127	17
1,2-Dichloropropane	mg/kg (ppm)	1.0	<0.005	89	75	17-137	17
Bromodichloromethane	mg/kg (ppm)	1.0	<0.025	90	74	24-130	20
Dibromomethane	mg/kg (ppm)	1.0	<0.025	81	66	20-138	20
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	<0.5	85	74	21-139	14
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.005	88	75	17-135	16
Toluene	mg/kg (ppm)	1.0	<0.005	84	77	15-129	9
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.005	88	80	18-130	10
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	<0.005	90	84	29-128	7
2-Hexanone	mg/kg (ppm)	5.0	<0.5	87	80	28-142	8
1,3-Dichloropropane	mg/kg (ppm)	1.0	<0.025	87	76	20-135	13
Tetrachloroethene	mg/kg (ppm)	1.0	<0.005	85	78	20-121	9
Dibromochloromethane	mg/kg (ppm)	1.0	<0.025	86	80	11-138	7
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	<0.005	87	80	21-130	8
Chlorobenzene	mg/kg (ppm)	1.0	<0.005	88	80	19-129	10
Ethylbenzene	mg/kg (ppm)	1.0	<0.005	87	80	23-133	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.005	85	79	16-127	7
m,p-Xylene	mg/kg (ppm)	2.0	<0.01	86	79	19-134	8
o-Xylene	mg/kg (ppm)	1.0	<0.005	86	80	20-132	7
Styrene	mg/kg (ppm)	1.0	<0.005	85	79	23-127	7
Isopropylbenzene	mg/kg (ppm)	1.0	<0.005	86	81	21-134	6
Bromoform	mg/kg (ppm)	1.0	<0.005	83	77	10-142	7
n-Propylbenzene	mg/kg (ppm)	1.0	<0.005	87	80	10-141	8
Bromobenzene	mg/kg (ppm)	1.0	<0.005	81	78	10-135	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	<0.005	84	80	20-136	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.025	85	77	10-234	10
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	<0.025	88	81	10-144	8
2-Chlorotoluene	mg/kg (ppm)	1.0	<0.005	83	79	10-139	5
4-Chlorotoluene	mg/kg (ppm)	1.0	<0.005	87	80	10-139	8
tert-Butylbenzene	mg/kg (ppm)	1.0	<0.005	86	78	10-144	10
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	<0.005	81	77	24-133	5
sec-Butylbenzene	mg/kg (ppm)	1.0	<0.005	88	82	23-134	7
p-Isopropyltoluene	mg/kg (ppm)	1.0	<0.005	86	80	25-131	7
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	<0.005	83	78	10-143	6
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	<0.005	86	79	10-146	8
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	<0.005	85	78	10-144	9
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	<0.5	85	80	10-163	6
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	<0.025	87	84	10-147	4
Hexachlorobutadiene	mg/kg (ppm)	1.0	<0.025	81	75	10-162	8
Naphthalene	mg/kg (ppm)	1.0	<0.005	87	81	30-138	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	<0.025	83	75	10-173	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1.0	57	10-93
Chloromethane	mg/kg (ppm)	1.0	78	34-101
Vinyl chloride	mg/kg (ppm)	1.0	97	47-106
Bromomethane	mg/kg (ppm)	1.0	89	38-123
Chloroethane	mg/kg (ppm)	1.0	100	44-123
Trichlorofluoromethane	mg/kg (ppm)	1.0	93	56-108
Acetone	mg/kg (ppm)	5.0	94	70-130
1,1-Dichloroethene	mg/kg (ppm)	1.0	116	61-118
Hexane	mg/kg (ppm)	1.0	125	54-142
Methylene chloride	mg/kg (ppm)	1.0	109	10-213
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	112	70-130
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	113	70-130
1,1-Dichloroethane	mg/kg (ppm)	1.0	116	70-130
2,2-Dichloropropane	mg/kg (ppm)	1.0	123	70-130
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	112	70-130
Chloroform	mg/kg (ppm)	1.0	111	70-130
2-Butanone (MEK)	mg/kg (ppm)	5.0	103	70-130
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	116	66-140
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	113	70-130
1,1-Dichloropropene	mg/kg (ppm)	1.0	111	70-130
Carbon tetrachloride	mg/kg (ppm)	1.0	115	70-130
Benzene	mg/kg (ppm)	1.0	109	70-130
Trichloroethene	mg/kg (ppm)	1.0	110	53-133
1,2-Dichloropropane	mg/kg (ppm)	1.0	114	67-137
Bromodichloromethane	mg/kg (ppm)	1.0	118	70-130
Dibromomethane	mg/kg (ppm)	1.0	106	70-130
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	111	70-130
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	118	70-130
Toluene	mg/kg (ppm)	1.0	107	63-127
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	117	70-130
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	115	70-130
2-Hexanone	mg/kg (ppm)	5.0	112	65-148
1,3-Dichloropropane	mg/kg (ppm)	1.0	109	67-135
Tetrachloroethene	mg/kg (ppm)	1.0	108	66-124
Dibromochloromethane	mg/kg (ppm)	1.0	110	62-139
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	110	70-130
Chlorobenzene	mg/kg (ppm)	1.0	111	70-130
Ethylbenzene	mg/kg (ppm)	1.0	112	70-130
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	109	68-129
m,p-Xylene	mg/kg (ppm)	2.0	111	67-129
o-Xylene	mg/kg (ppm)	1.0	111	70-130
Styrene	mg/kg (ppm)	1.0	109	70-130
Isopropylbenzene	mg/kg (ppm)	1.0	113	70-130
Bromoform	mg/kg (ppm)	1.0	107	63-141
n-Propylbenzene	mg/kg (ppm)	1.0	108	68-125
Bromobenzene	mg/kg (ppm)	1.0	102	70-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	108	66-128
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	106	35-184
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	104	70-130
2-Chlorotoluene	mg/kg (ppm)	1.0	105	70-130
4-Chlorotoluene	mg/kg (ppm)	1.0	108	70-130
tert-Butylbenzene	mg/kg (ppm)	1.0	107	70-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	109	64-133
sec-Butylbenzene	mg/kg (ppm)	1.0	113	70-130
p-Isopropyltoluene	mg/kg (ppm)	1.0	113	70-130
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	104	70-130
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	105	70-130
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	105	70-130
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	112	70-130
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	119	70-130
Hexachlorobutadiene	mg/kg (ppm)	1.0	106	67-140
Naphthalene	mg/kg (ppm)	1.0	116	67-143
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	113	57-161

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Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 103575-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	95	10-172
Chloromethane	ug/L (ppb)	10	<10	70	25-166
Vinyl chloride	ug/L (ppb)	10	<0.2	79	36-166
Bromomethane	ug/L (ppb)	10	<5	109	47-169
Chloroethane	ug/L (ppb)	10	<1	79	46-160
Trichlorofluoromethane	ug/L (ppb)	10	<1	86	44-165
Acetone	ug/L (ppb)	50	<50	85	10-182
1,1-Dichloroethene	ug/L (ppb)	10	<1	94	58-142
Hexane	ug/L (ppb)	10	<5	89	38-152
Methylene chloride	ug/L (ppb)	10	<5	105	50-145
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	94	61-136
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	94	61-136
1,1-Dichloroethane	ug/L (ppb)	10	<1	89	63-135
2,2-Dichloropropane	ug/L (ppb)	10	<1	91	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	92	63-134
Chloroform	ug/L (ppb)	10	<1	93	61-135
2-Butanone (MEK)	ug/L (ppb)	50	<20	94	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	93	48-149
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	91	60-146
1,1-Dichloropropene	ug/L (ppb)	10	<1	93	69-133
Carbon tetrachloride	ug/L (ppb)	10	<1	95	56-152
Benzene	ug/L (ppb)	10	<0.35	92	57-135
Trichloroethene	ug/L (ppb)	10	<1	92	66-135
1,2-Dichloropropane	ug/L (ppb)	10	<1	90	59-136
Bromodichloromethane	ug/L (ppb)	10	<1	85	61-150
Dibromomethane	ug/L (ppb)	10	<1	96	66-141
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	100	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	91	52-147
Toluene	ug/L (ppb)	10	<1	97	50-137
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	90	53-142
1,1,2-Trichloroethane	ug/L (ppb)	10	<1	97	68-131
2-Hexanone	ug/L (ppb)	50	<10	101	10-185
1,3-Dichloropropane	ug/L (ppb)	10	<1	98	60-135
Tetrachloroethene	ug/L (ppb)	10	<1	104	10-226
Dibromochloromethane	ug/L (ppb)	10	<1	89	52-145
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	100	62-135
Chlorobenzene	ug/L (ppb)	10	<1	102	63-130
Ethylbenzene	ug/L (ppb)	10	<1	96	60-133
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	95	56-143
m,p-Xylene	ug/L (ppb)	20	<2	99	69-135
o-Xylene	ug/L (ppb)	10	<1	100	60-140
Styrene	ug/L (ppb)	10	<1	97	60-133
Isopropylbenzene	ug/L (ppb)	10	<1	95	65-142
Bromoform	ug/L (ppb)	10	<5	84	54-148
n-Propylbenzene	ug/L (ppb)	10	<1	101	58-144
Bromobenzene	ug/L (ppb)	10	<1	107	61-130
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	102	59-134
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	106	53-150
2-Chlorotoluene	ug/L (ppb)	10	<1	100	66-127
4-Chlorotoluene	ug/L (ppb)	10	<1	102	65-130
tert-Butylbenzene	ug/L (ppb)	10	<1	101	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	98	59-146
sec-Butylbenzene	ug/L (ppb)	10	<1	101	64-140
p-Isopropyltoluene	ug/L (ppb)	10	<1	101	65-141
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	104	60-131
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	105	60-129
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	105	60-130
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	92	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	101	52-138
Hexachlorobutadiene	ug/L (ppb)	10	<1	102	60-143
Naphthalene	ug/L (ppb)	10	<1	101	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	104	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	81	85	25-158	5
Chloromethane	ug/L (ppb)	10	68	72	45-156	6
Vinyl chloride	ug/L (ppb)	10	74	77	50-154	4
Bromomethane	ug/L (ppb)	10	99	115	55-143	15
Chloroethane	ug/L (ppb)	10	74	80	58-146	8
Trichlorofluoromethane	ug/L (ppb)	10	78	86	50-150	10
Acetone	ug/L (ppb)	50	79	87	22-155	10
1,1-Dichloroethene	ug/L (ppb)	10	90	93	67-136	3
Hexane	ug/L (ppb)	10	78	80	57-137	3
Methylene chloride	ug/L (ppb)	10	85	91	19-178	7
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	88	93	64-147	6
trans-1,2-Dichloroethene	ug/L (ppb)	10	87	91	68-128	4
1,1-Dichloroethane	ug/L (ppb)	10	85	88	74-135	3
2,2-Dichloropropane	ug/L (ppb)	10	86	91	55-143	6
cis-1,2-Dichloroethene	ug/L (ppb)	10	87	91	74-136	4
Chloroform	ug/L (ppb)	10	88	92	74-134	4
2-Butanone (MEK)	ug/L (ppb)	50	94	97	37-150	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	90	93	66-129	3
1,1,1-Trichloroethane	ug/L (ppb)	10	87	90	74-142	3
1,1-Dichloropropene	ug/L (ppb)	10	87	91	77-129	4
Carbon tetrachloride	ug/L (ppb)	10	90	96	75-158	6
Benzene	ug/L (ppb)	10	89	92	69-134	3
Trichloroethene	ug/L (ppb)	10	88	92	67-133	4
1,2-Dichloropropane	ug/L (ppb)	10	87	91	71-134	4
Bromodichloromethane	ug/L (ppb)	10	82	85	66-126	4
Dibromomethane	ug/L (ppb)	10	92	94	68-132	2
4-Methyl-2-pentanone	ug/L (ppb)	50	98	99	65-138	1
cis-1,3-Dichloropropene	ug/L (ppb)	10	89	91	74-140	2
Toluene	ug/L (ppb)	10	93	95	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	88	90	80-136	2
1,1,2-Trichloroethane	ug/L (ppb)	10	94	96	75-124	2
2-Hexanone	ug/L (ppb)	50	100	102	60-136	2
1,3-Dichloropropane	ug/L (ppb)	10	94	96	76-126	2
Tetrachloroethene	ug/L (ppb)	10	97	99	76-121	2
Dibromochloromethane	ug/L (ppb)	10	89	93	84-133	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	95	99	82-115	4
Chlorobenzene	ug/L (ppb)	10	96	98	83-114	2
Ethylbenzene	ug/L (ppb)	10	93	95	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	92	95	84-127	3
m,p-Xylene	ug/L (ppb)	20	95	97	81-112	2
o-Xylene	ug/L (ppb)	10	94	96	81-121	2
Styrene	ug/L (ppb)	10	92	94	84-119	2
Isopropylbenzene	ug/L (ppb)	10	91	93	80-117	2
Bromoform	ug/L (ppb)	10	89	90	69-121	1
n-Propylbenzene	ug/L (ppb)	10	93	96	74-126	3
Bromobenzene	ug/L (ppb)	10	100	102	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	94	97	78-123	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	95	99	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	10	99	102	67-124	3
2-Chlorotoluene	ug/L (ppb)	10	94	98	77-127	4
4-Chlorotoluene	ug/L (ppb)	10	94	97	78-128	3
tert-Butylbenzene	ug/L (ppb)	10	94	97	80-123	3
1,2,4-Trimethylbenzene	ug/L (ppb)	10	91	96	79-122	5
sec-Butylbenzene	ug/L (ppb)	10	93	96	80-116	3
p-Isopropyltoluene	ug/L (ppb)	10	92	96	81-123	4
1,3-Dichlorobenzene	ug/L (ppb)	10	98	101	83-113	3
1,4-Dichlorobenzene	ug/L (ppb)	10	99	100	81-112	1
1,2-Dichlorobenzene	ug/L (ppb)	10	97	99	84-112	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	92	94	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	10	90	94	72-130	4
Hexachlorobutadiene	ug/L (ppb)	10	88	92	53-141	4
Naphthalene	ug/L (ppb)	10	93	97	64-133	4
1,2,3-Trichlorobenzene	ug/L (ppb)	10	92	96	65-136	4

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 103484-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	108	104	29-125	4
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	332 ip	163 ip	25-137	68 b

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	104	55-137
Aroclor 1260	mg/kg (ppm)	0.25	115	51-150

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 103585-12 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	98	90	44-107	9
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	96	86	38-124	11

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	104	47-158
Aroclor 1260	mg/kg (ppm)	0.25	108	69-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/21
Date Received: 03/31/21
Project: Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	52	50	25-111	4
Aroclor 1260	ug/L (ppb)	0.25	72	66	23-123	9

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

103585

SAMPLE CHAIN OF CUSTODY

HE 03-31-21

BI4/E03/V52/VW5

Page # 1 of 4

Report To Jacob Letts

Company GEI

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geoengineers.com

SAMPLERS (signature)

PROJECT NAME
Snohomish County Airport C1 Hangar

PO #
5530-014-01

REMARKS
* IF Gx detected, ask PM if he wants to quantify to mineral spirits.

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH______
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other______
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	(RCRA 8) Metals	(RCRA 8) Total metals	(RCRA 8) Dissolved metals		Notes
C-1 DP4-3.5	01 A-F	3/30/21	1000	S	6	X	X			X		X	X				
C-1 DP4-5.0	02		1005	S	6	X	X			X		X	X				
C-1 DP4-7.0	03		1010	S	6	X	X			X		X	X				
C-1 DP3-4.0	04		1040	S	6	X	X			X		X	X				
C-1 DP3-7.0	05		1050	S	6	X	X			X		X	X				
C-1 DP3-033021w	06 A-J		1140	gw	10	X	X			X		X		X	X		
C-1 DP5-3.0	07 A-F		1150	S	6	X	X			X		X	X				
C-1 DP5-6.0	08		~~1340~~ 1200	S	6	X	X			X		X	X				
C-1 DP15-4.0	09		1340	S	6	X	X			X		X	X				
C-1 DP15-7.0	10		1350	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Akkfirk	GEI	3/31/21	16:30
Received by:	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:				

Samples received at 4 °C

103585

Report To [redacted]

Company

Address

City, State, ZIP See pg 1

Phone Email

SAMPLE CHAIN OF CUSTODY ME 03-31-21 [redacted] BI4/E03/VS2/VW5

Page # 2 of 4

SAMPLERS (signature)	
PROJECT NAME	PO # S530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals	Total metals	Diss. metals		Notes
C-1 DP14-5.0	11 A-F	3/30/21	1430	S	6	X	X			X		X	X				
C-1 DP14-10.0	12	↓	1440	S	6	X	X			X		X	X				4 extra VOAs
C-1 DP13-2.0	13	↓	1500	S	6	X	X			X		X	X				Labels C-1DP13-2.5
C-1 DP13-5.0	14	↓	1520	S	6	X	X			X		X	X				
C-1 DP13-033121w	15A-J	3/31/21	800	gw	10	X	X			X		X		X	X		time on bottle wrong
C-1DP14-033121w	16	↓	820	gw	10	X	X			X		X		X	X		
C-1DP8-4.5	17A-F	↓	900	S	6	X	X			X		X	X				
C-1DP8-9.0	18	↓	910	S	6	X	X			X		X	X				
C-1DP9-3.0	19	↓	920	S	6	X	X			X		X	X				
C-1DP9-7.5	20	↓	930	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Ataktuk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:				

Samples received at 4 °C

103585

SAMPLE CHAIN OF CUSTODY 03-31-21 BI4/E03/VS2/VWS

Report To ______

Company ______

Address ______ See pg 1

City, State, ZIP ______

Phone ______ Email ______

SAMPLERS (signature) ME

PROJECT NAME

PO # 5530-014-01

REMARKS

INVOICE TO

Project specific RLs? - Yes / No

Page # 3 of 4

TURNAROUND TIME
X Standard turnaround
☐ RUSH
Rush charges authorized by: ______

SAMPLE DISPOSAL
☐ Archive samples
☐ Other ______
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA8 metals	Total metals	Diss. metals	Hex Chrome	Notes
C-1 DP10-4.0	21A-F	3/31/21	1000	S	6	X	X			X		X	X				● -per JL
C-1 DP11-4.0	22		1030	S	6	X	X			X		X	X				4/27/21 ME
C-1 DP2-5.0	23		1100	S	6	X	X			X		X	X				
C-1 DP2-11.0	24		1120	S	6	X	X			X		X	X				
C-1 DP1-3.5	25		1200	S	6	X	X			X		X	X				
C-1 DP1-11.0	26		1220	S	6	X	X			X		X	X			●	
C-1 DP2-033121w	27A-J		1300	gw	10	X	X			X		X		X	X		
C-1 DP7-4.0	28A-F		1300	S	6	X	X			X		X	X				
C-1 DP7-9.0	29		1320	S	6	X	X			X		X	X				
C-1 DP12-3.0	30		1340	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBE	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

103585

SAMPLE CHAIN OF CUSTODY ME 03-31-21

BI4/E03/VS2/ Page # 4 of 4 VWS

Report To

Company

Address Seepy

City, State, ZIP

Phone Email

SAMPLERS (signature)

PROJECT NAME 1

PO # 05530-014-01

REMARKS

INVOICE TO

Project specific RLs? - Yes / No

TURNAROUND TIME
- ☒ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals (RCRA 8)				Notes
C1 DP12-8.0	31A-F	3/31/21	1400	S	6	X	X			X		X	X				⊗ per KA 4/1/21 ME
C-1 DPG-3.0	32A-F	03/30/21	1220	soil	5	⊗	⊗			⊗		⊗	⊗				
C-1 DPG-4.0	33	03/30/21	1230	soil	5	⊗	⊗			⊗		⊗	⊗				B4/1
Trip Blank 1	34 A-B			water	2					⊗							
Trip Blank 2	35																
Trip Blank 3	36																
Trip Blank 4	37																
Trip Blank 5	38																

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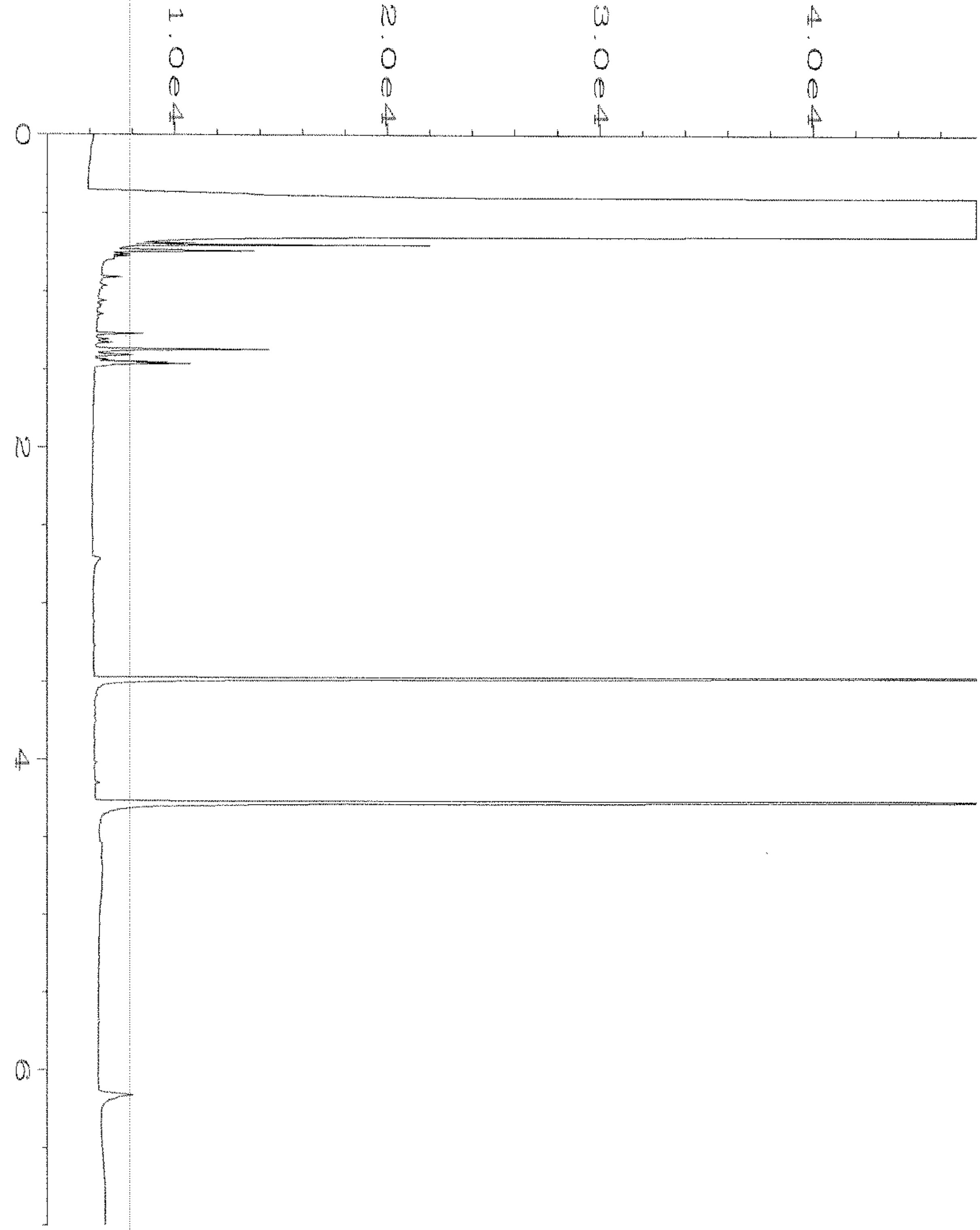
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	3/31/21	1630
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		



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Operator	:	TL	Page Number	:	1
Instrument	:	GC6	Vial Number	:	22
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Run Time Bar Code	:		Sequence Line	:	6
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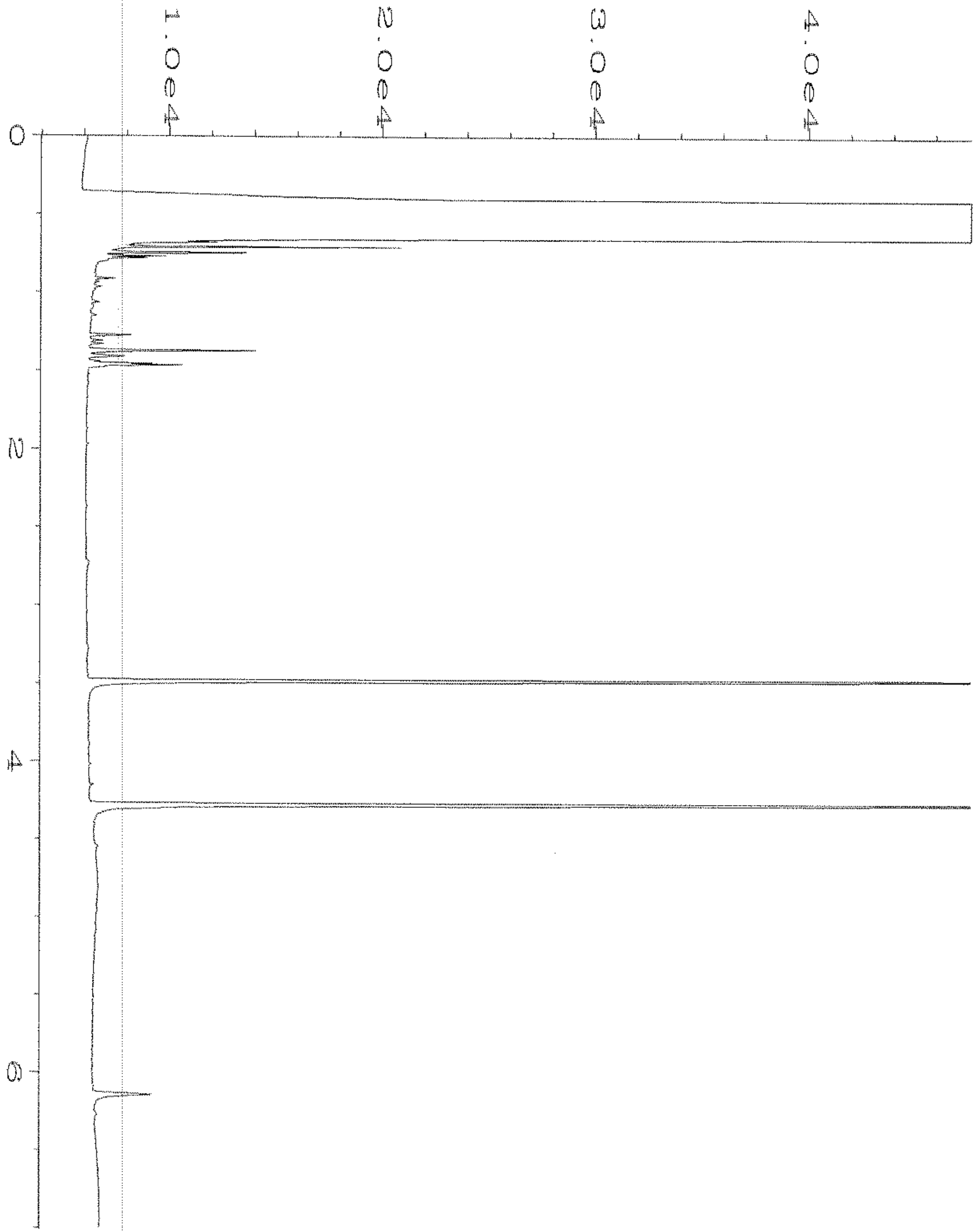
Report Created on	:	02 Apr 21 07:45 AM	Analysis Method	:	DEFAULT.MTH



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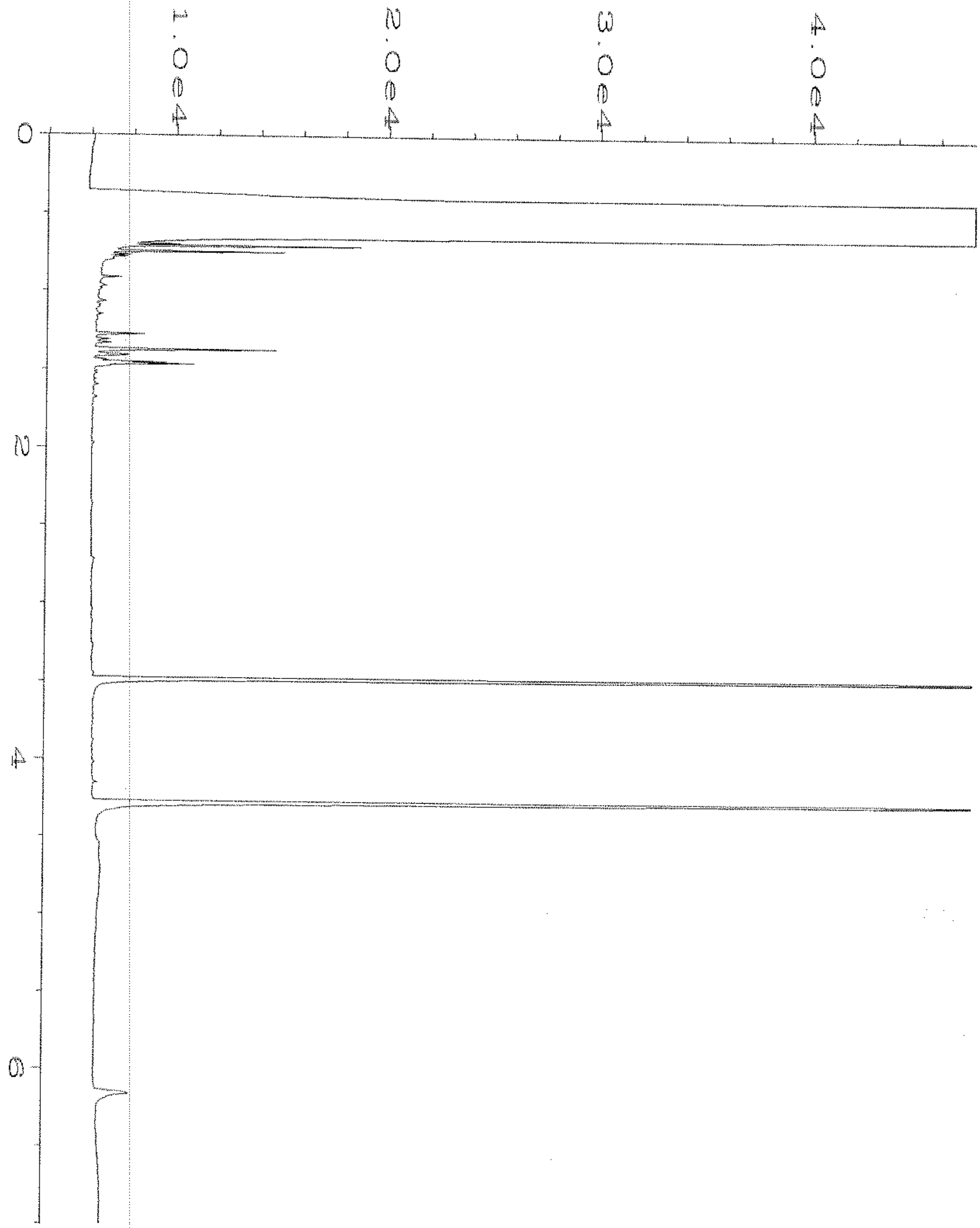
Operator : TL	Page Number : 1
Instrument : GC6	Vial Number : 23
Sample Name : 103585-02	Injection Number : 1
Run Time Bar Code:	Sequence Line : 6
Acquired on : 01 Apr 21 03:21 PM	Instrument Method: DX.MTH
Report Created on: 02 Apr 21 07:46 AM	Analysis Method : DEFAULT.MTH



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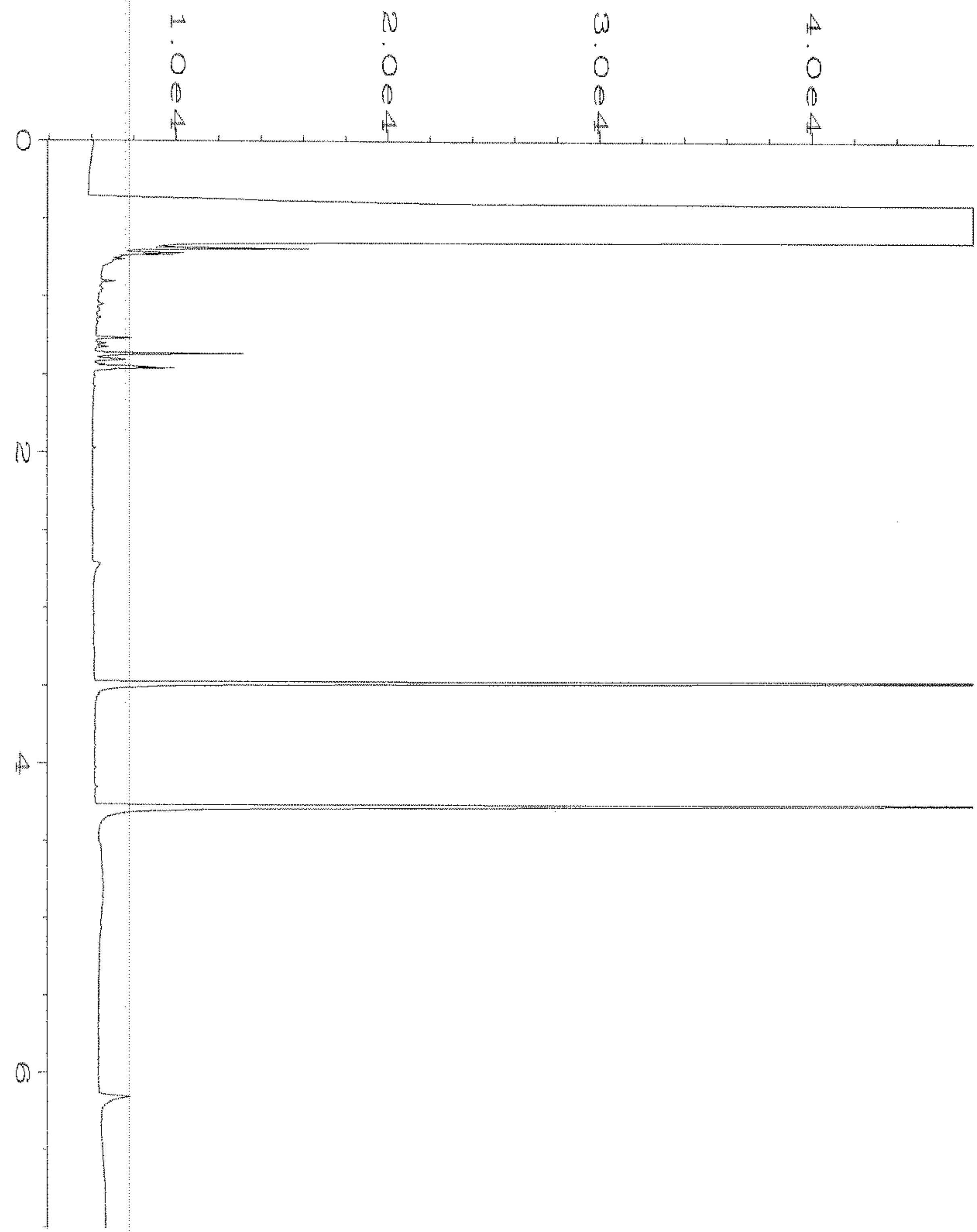
Operator : TL
Instrument : GC6
Sample Name : 103585-03
Run Time Bar Code:
Acquired on : 01 Apr 21 03:32 PM
Report Created on: 02 Apr 21 07:46 AM

Page Number : 1
Vial Number : 24
Injection Number : 1
Sequence Line : 6
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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Operator	:	TL	Page Number	:	1
Instrument	:	GC6	Vial Number	:	25
Sample Name	:	103585-04	Injection Number	:	1
Run Time Bar Code:			Sequence Line	:	6
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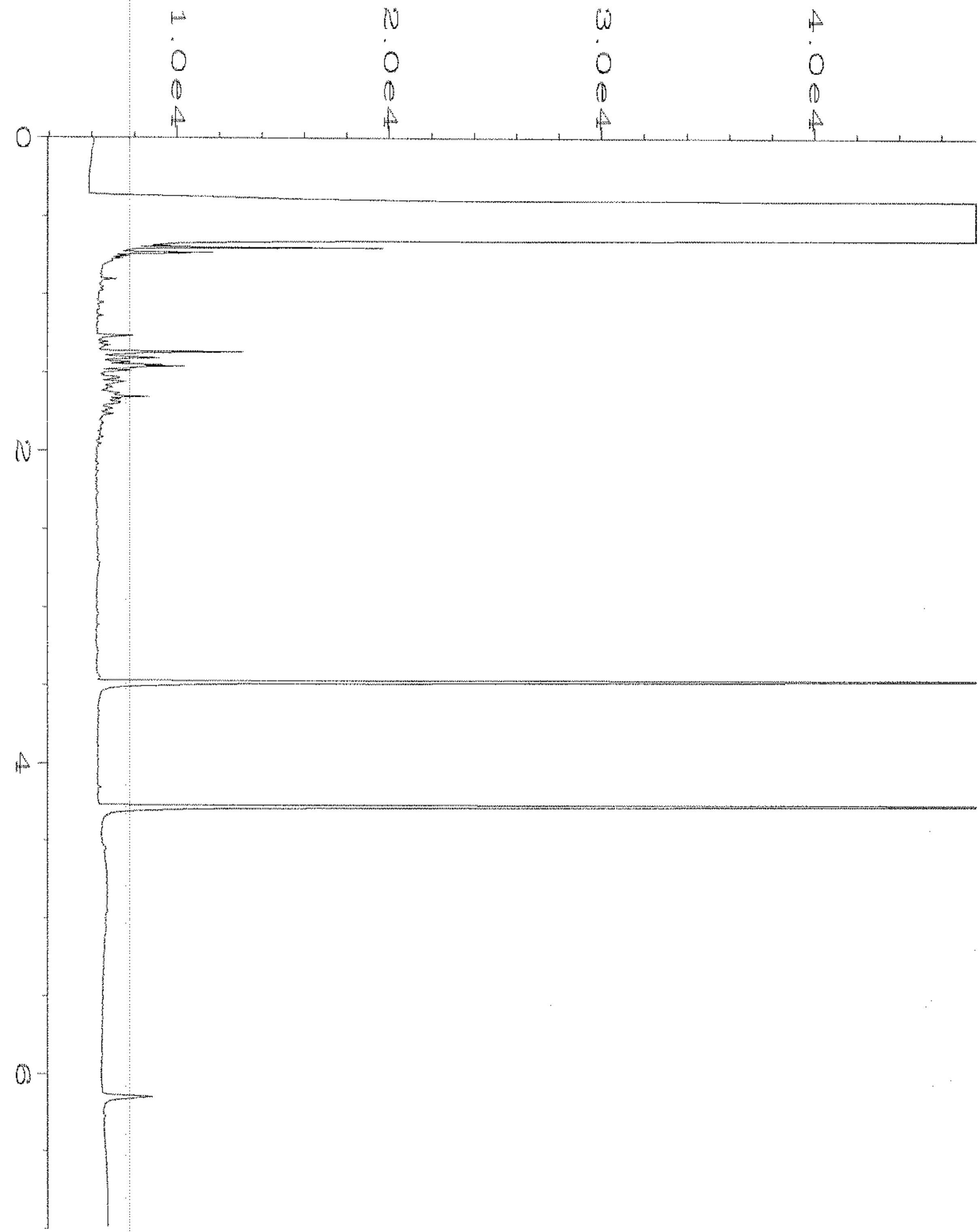

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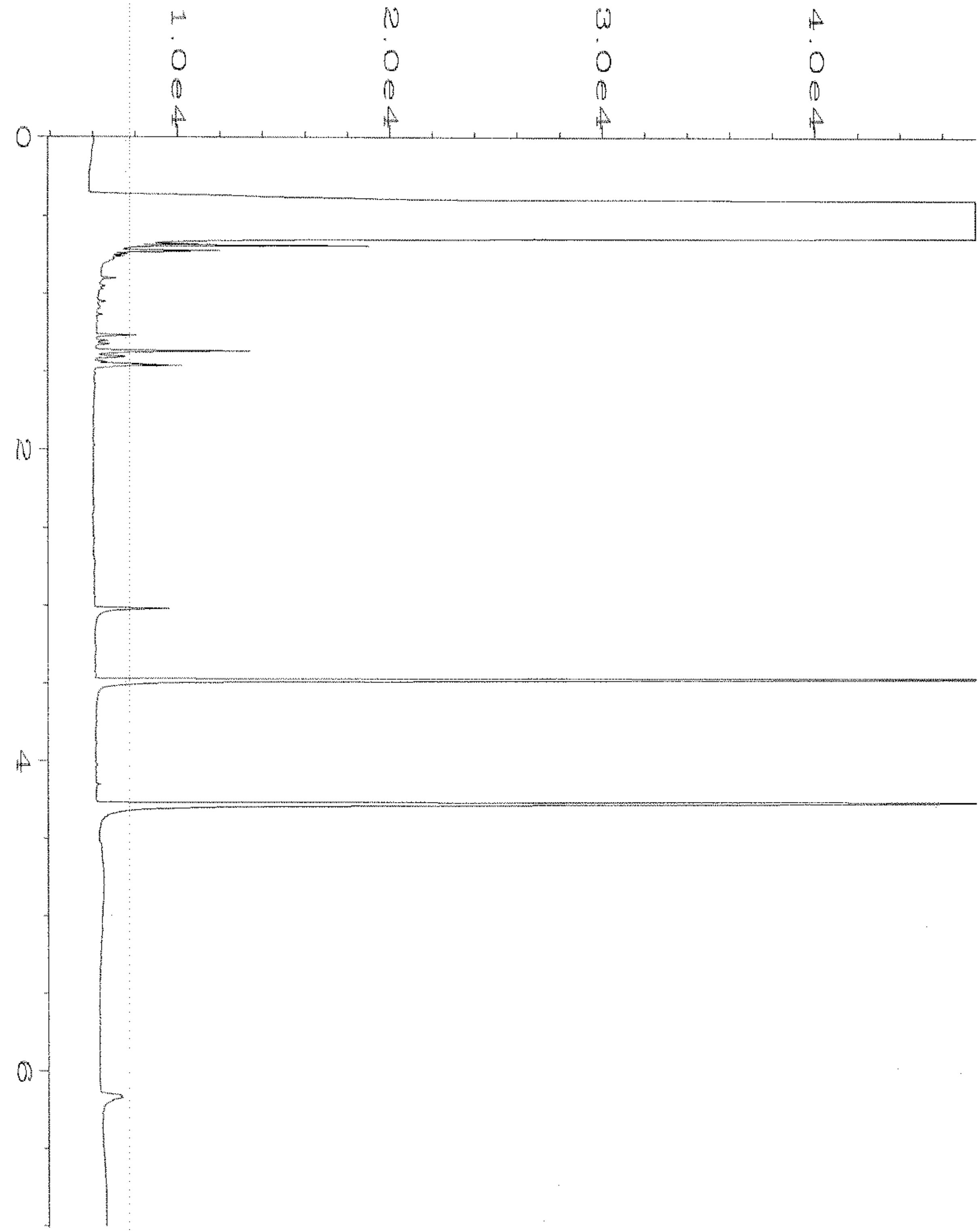
Operator   : TL
Instrument   : GC6
Sample Name   : 103585-05
Run Time Bar Code:
Acquired on   : 01 Apr 21   03:54 PM
Report Created on: 02 Apr 21   07:46 AM

Page Number   : 1
Vial Number   : 26
Injection Number : 1
Sequence Line   : 6
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



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Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 27
Sample Name	: 103585-07	Injection Number	: 1
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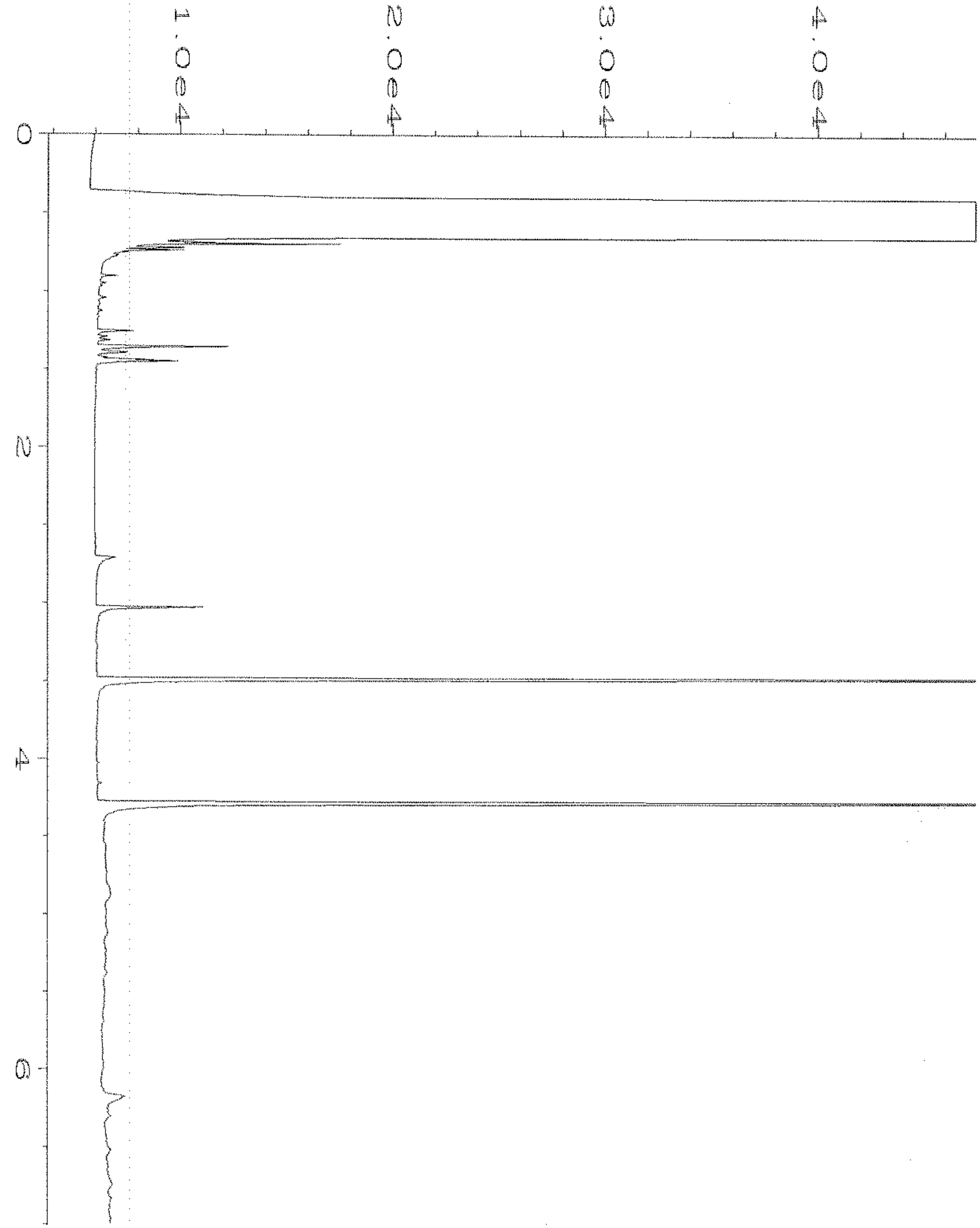
Report Created on	: 02 Apr 21 07:46 AM	Analysis Method	: DEFAULT.MTH



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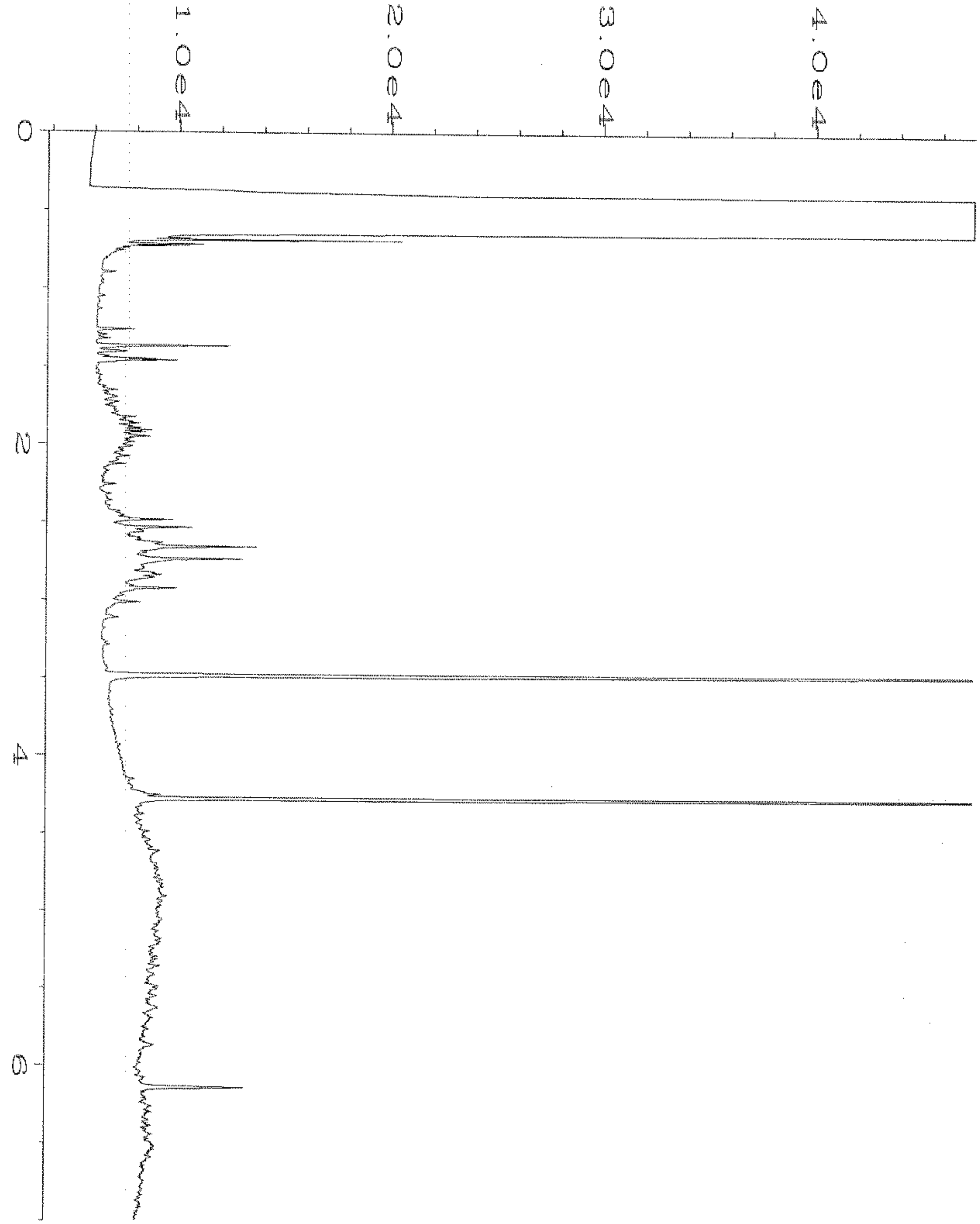
Operator : TL
Instrument : GC6
Sample Name : 103585-08
Run Time Bar Code:
Acquired on : 01 Apr 21 04:45 PM
Report Created on: 02 Apr 21 07:46 AM

Page Number : 1
Vial Number : 28
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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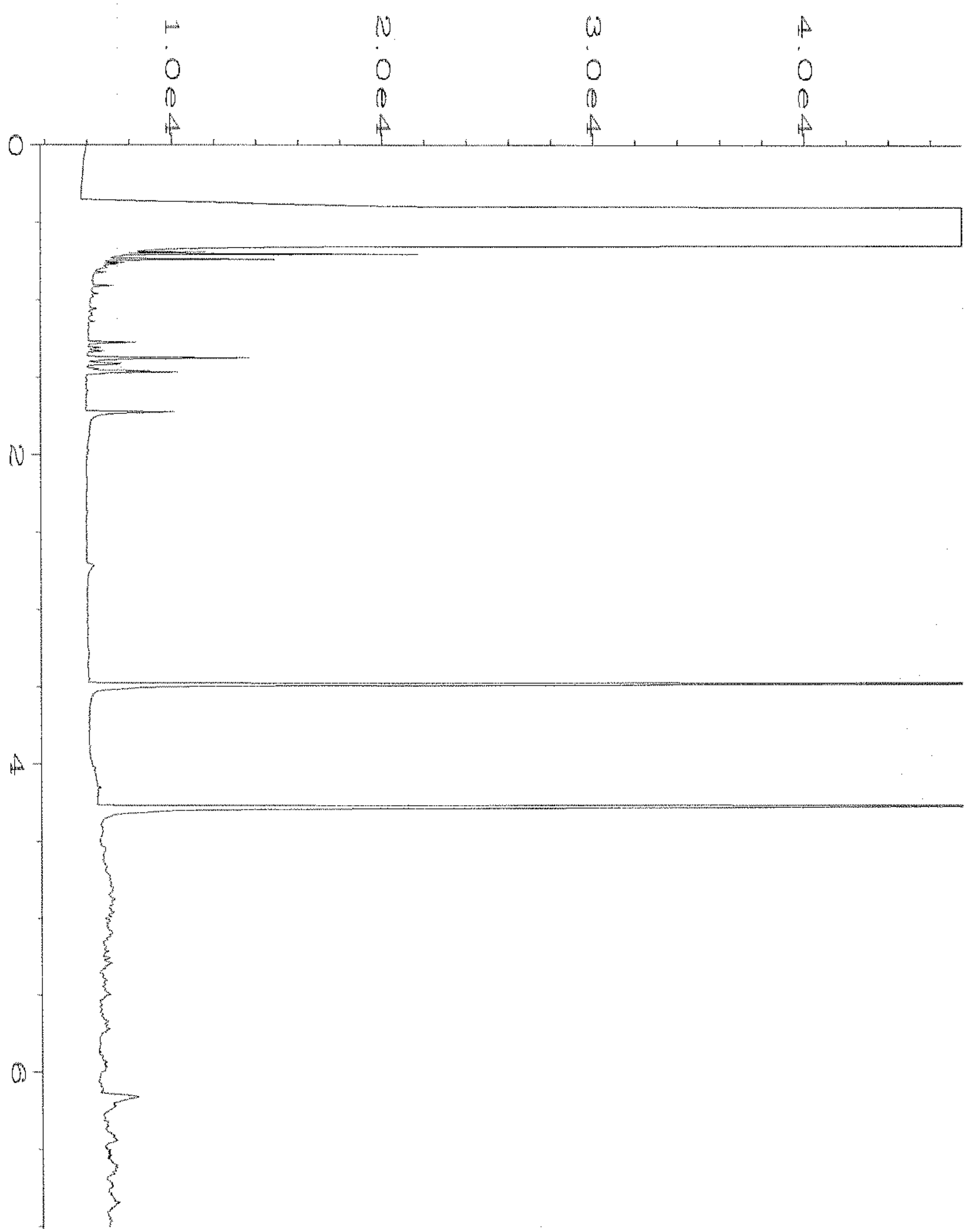
Operator : TL
Instrument : GC6
Sample Name : 103585-09
Run Time Bar Code:
Acquired on : 01 Apr 21 04:53 PM
Report Created on: 02 Apr 21 07:46 AM

Page Number : 1
Vial Number : 29
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\04-01-21\030F0801.D			
Operator	: TL	Page Number	:	1
Instrument	: GC6	Vial Number	:	30
Sample Name	: 103585-10	Injection Number	:	1
Run Time Bar Code:		Sequence Line	:	8
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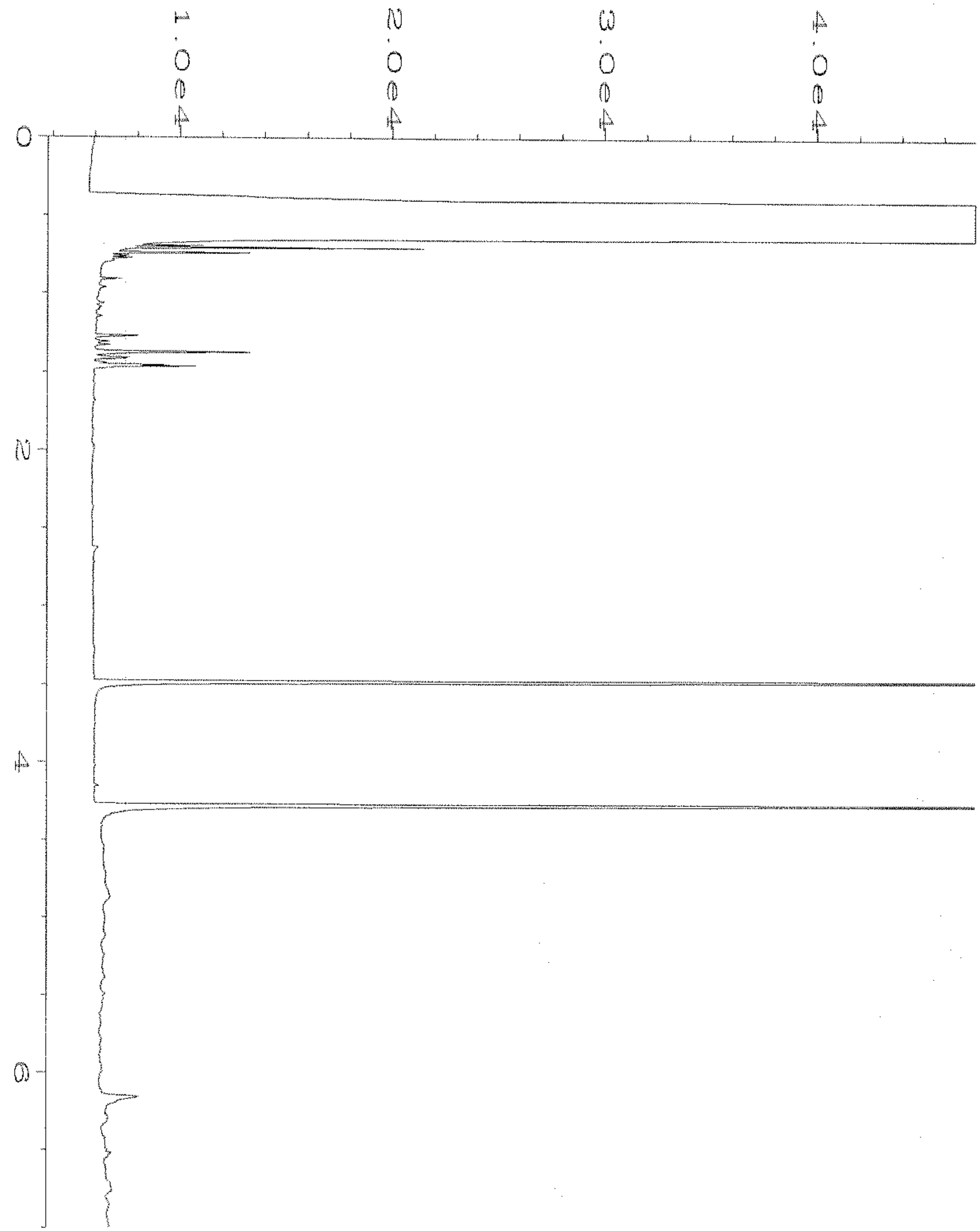
Report Created on:	02 Apr 21 07:47 AM	Analysis Method	:	DEFAULT.MTH



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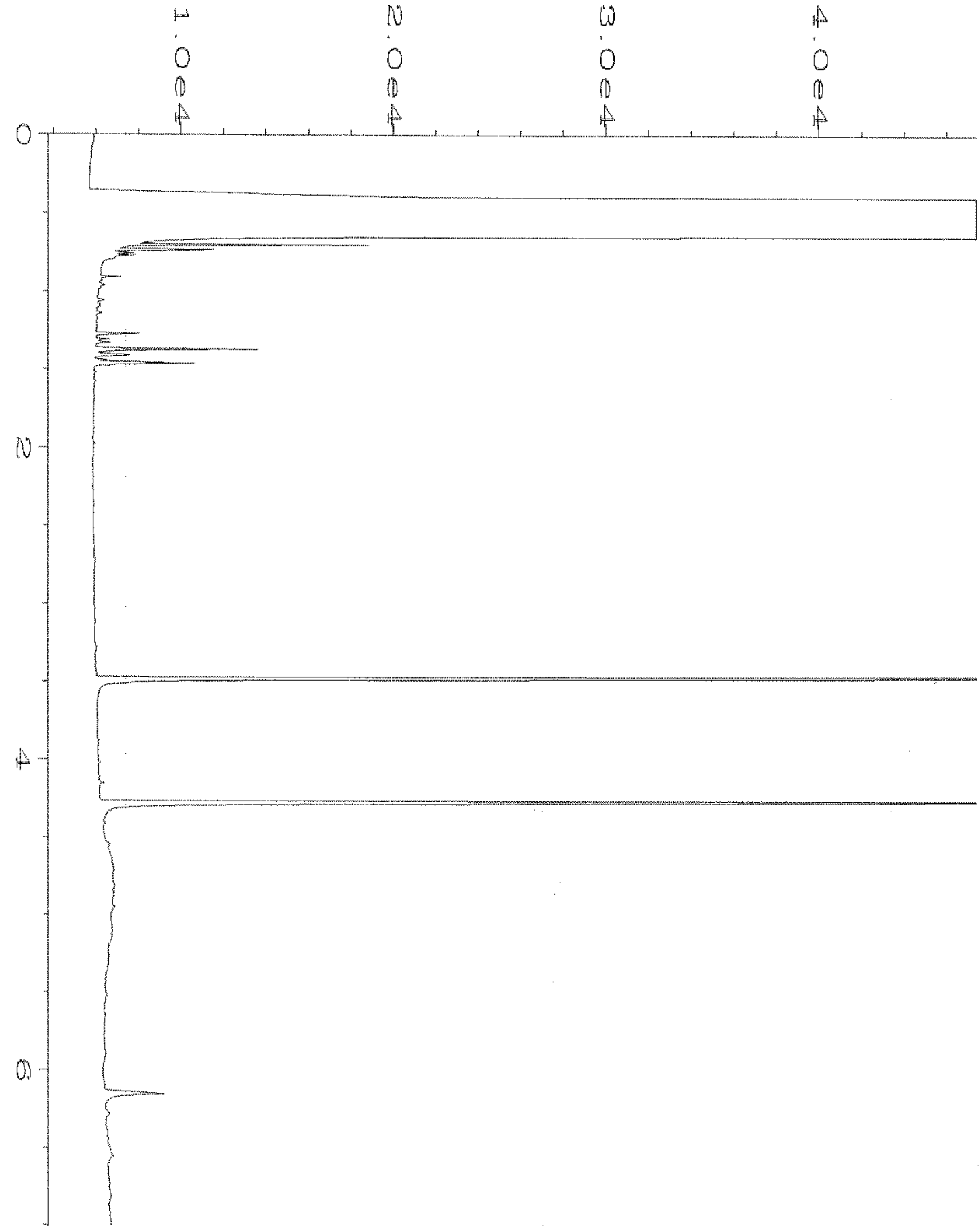
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 31
Sample Name	: 103585-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 8
Acquired on	: 01 Apr 21 05:15 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:47 AM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\04-01-21\032F0801.D

Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 32
Sample Name	: 103585-12	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 8
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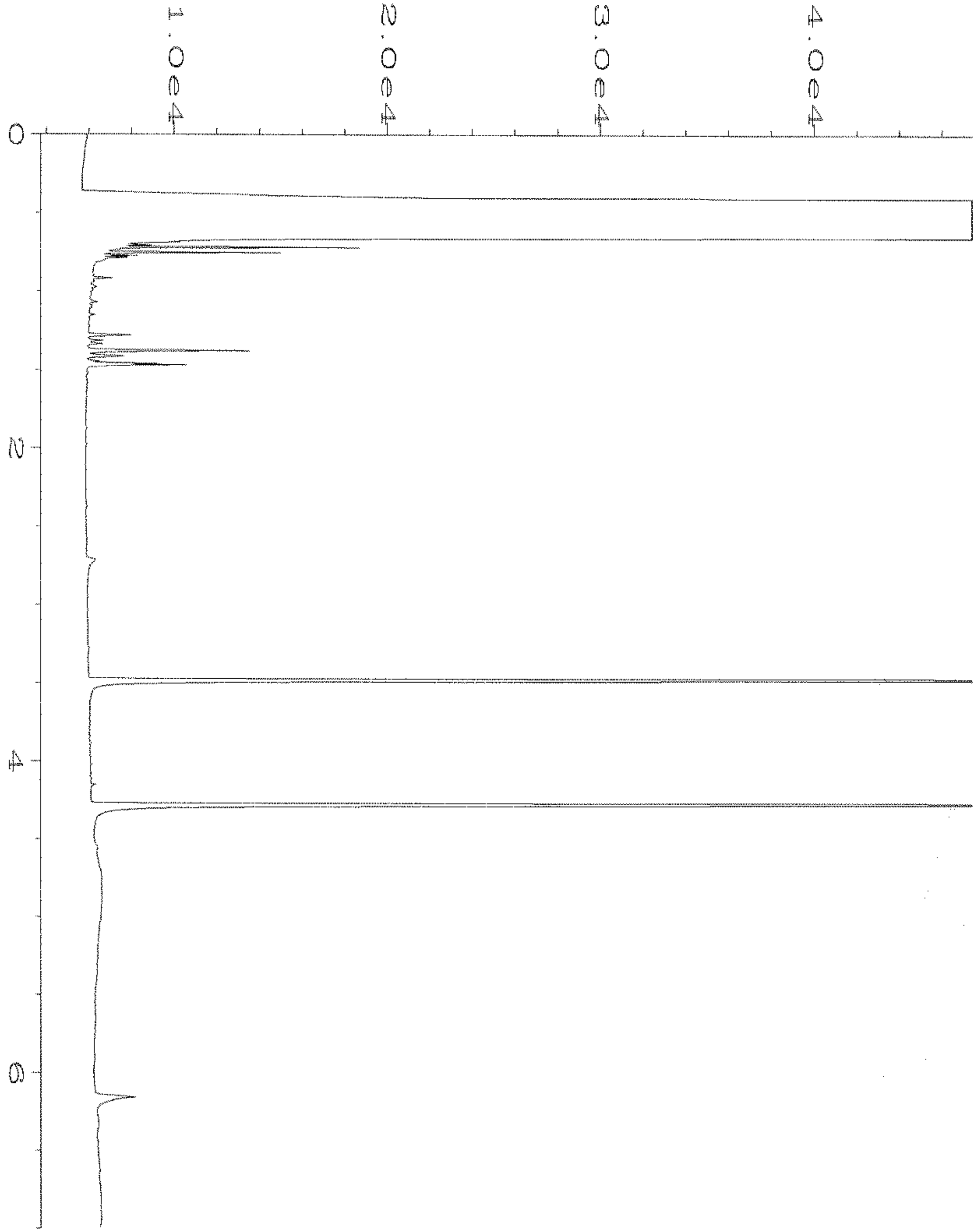
Report Created on:	02 Apr 21 07:49 AM	Analysis Method	: DEFAULT.MTH



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Operator   : TL   Page Number   : 1
Instrument   : GC6   Vial Number   : 33
Sample Name   : 103585-13   Injection Number : 1
Run Time Bar Code: Sequence Line   : 8
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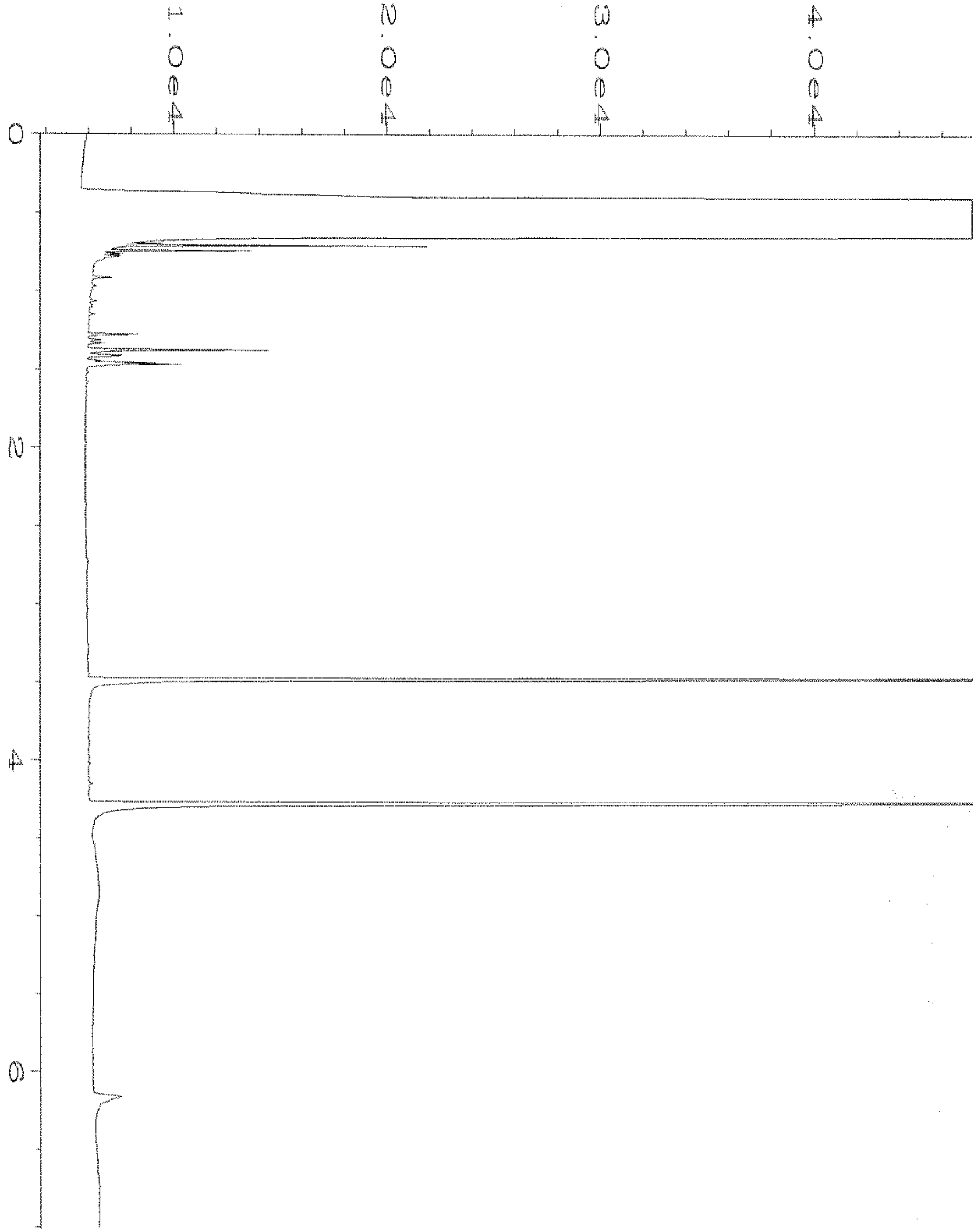
Report Created on: 02 Apr 21   07:49 AM   Analysis Method   : DEFAULT.MTH



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Instrument	: GC6	Vial Number	: 34
Sample Name	: 103585-14	Injection Number	: 1
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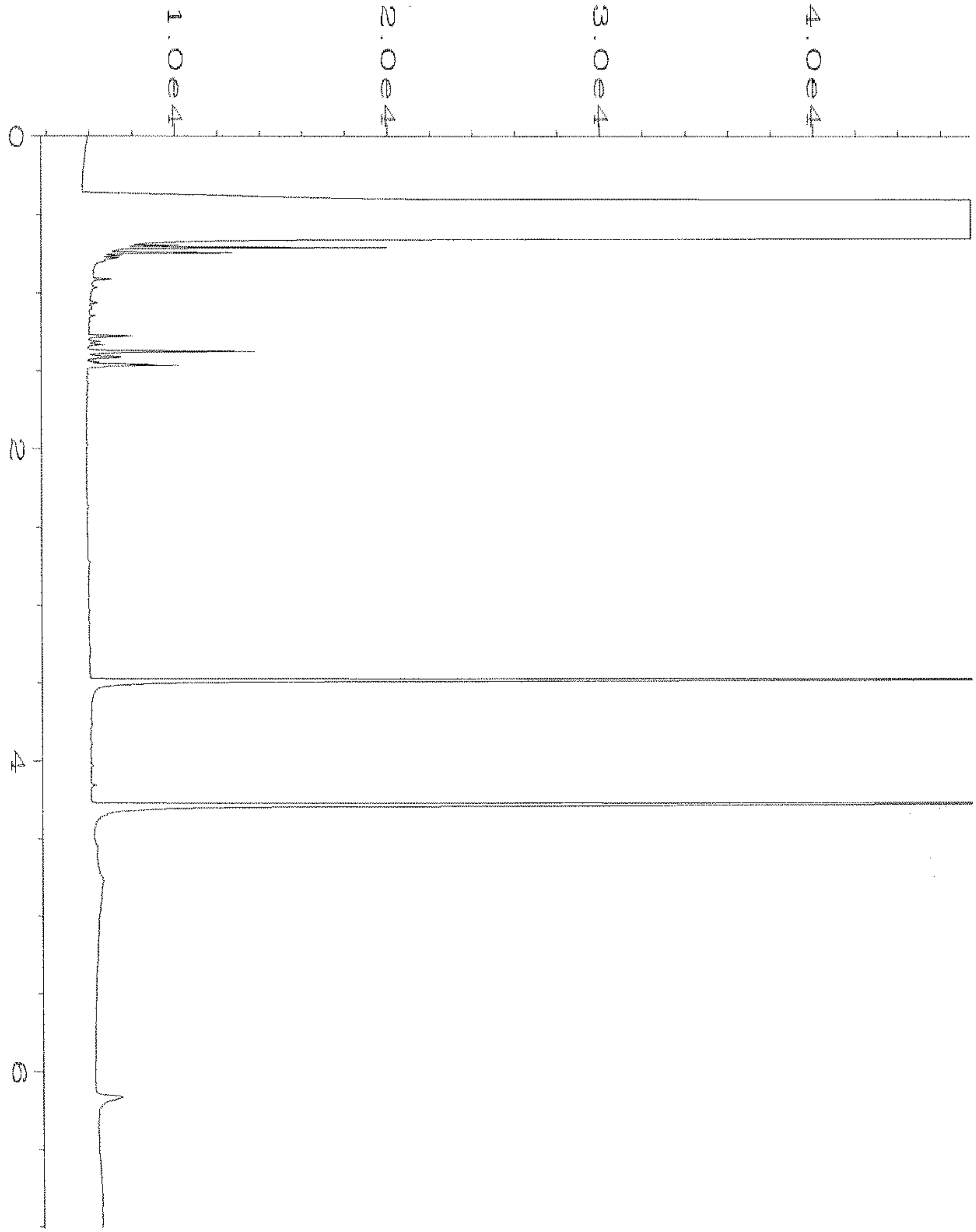
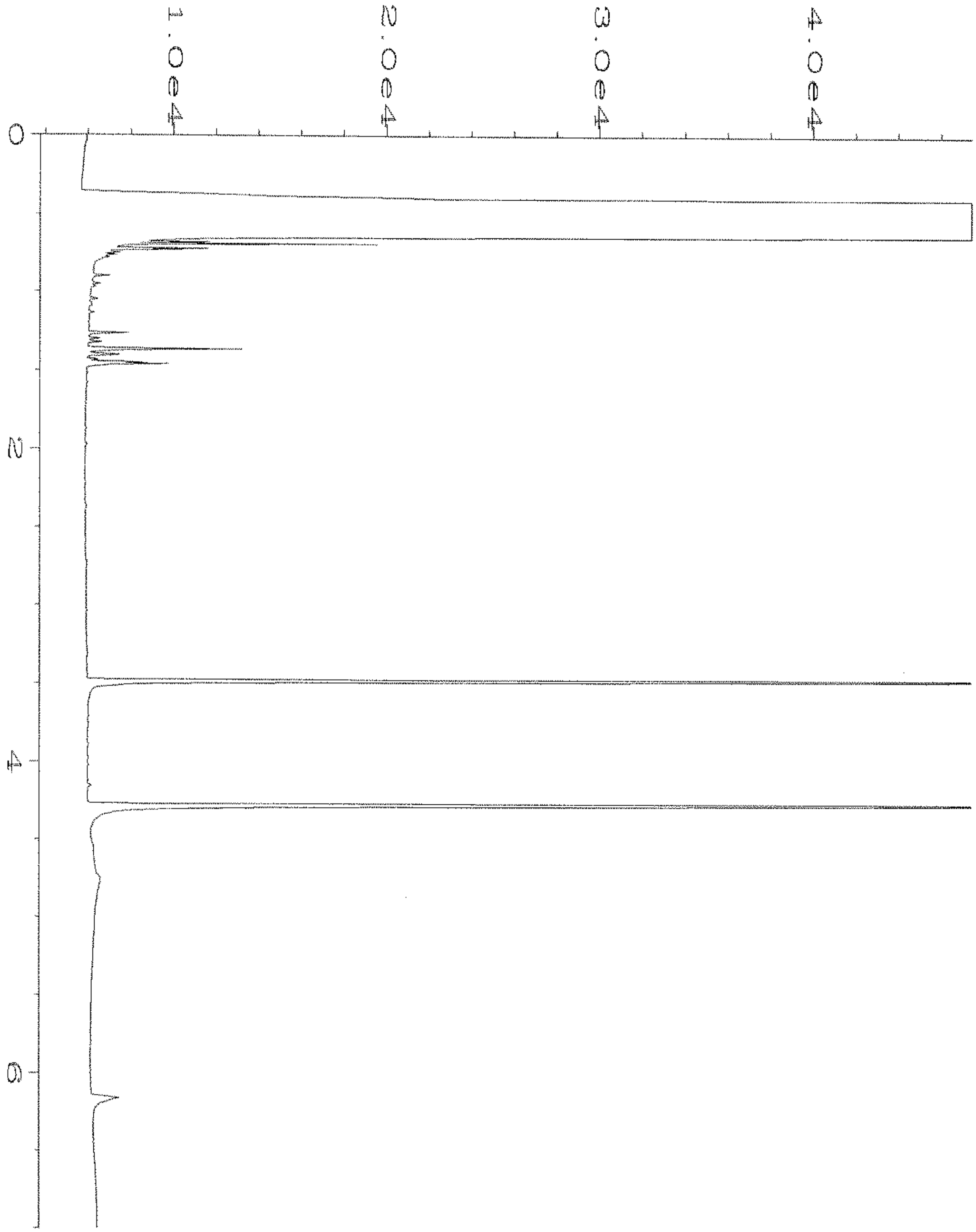
Report Created on:	02 Apr 21 07:49 AM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\04-01-21\035F0801.D
Operator : TL
Instrument : GC6
Sample Name : 103585-17
Run Time Bar Code:
Acquired on : 01 Apr 21 05:59 PM
Report Created on: 02 Apr 21 07:49 AM

Page Number : 1
Vial Number : 35
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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Operator	: TL		Page Number	:	1
Instrument	: GC6		Vial Number	:	36
Sample Name	: 103585-18		Injection Number	:	1
Run Time Bar Code:			Sequence Line	:	8
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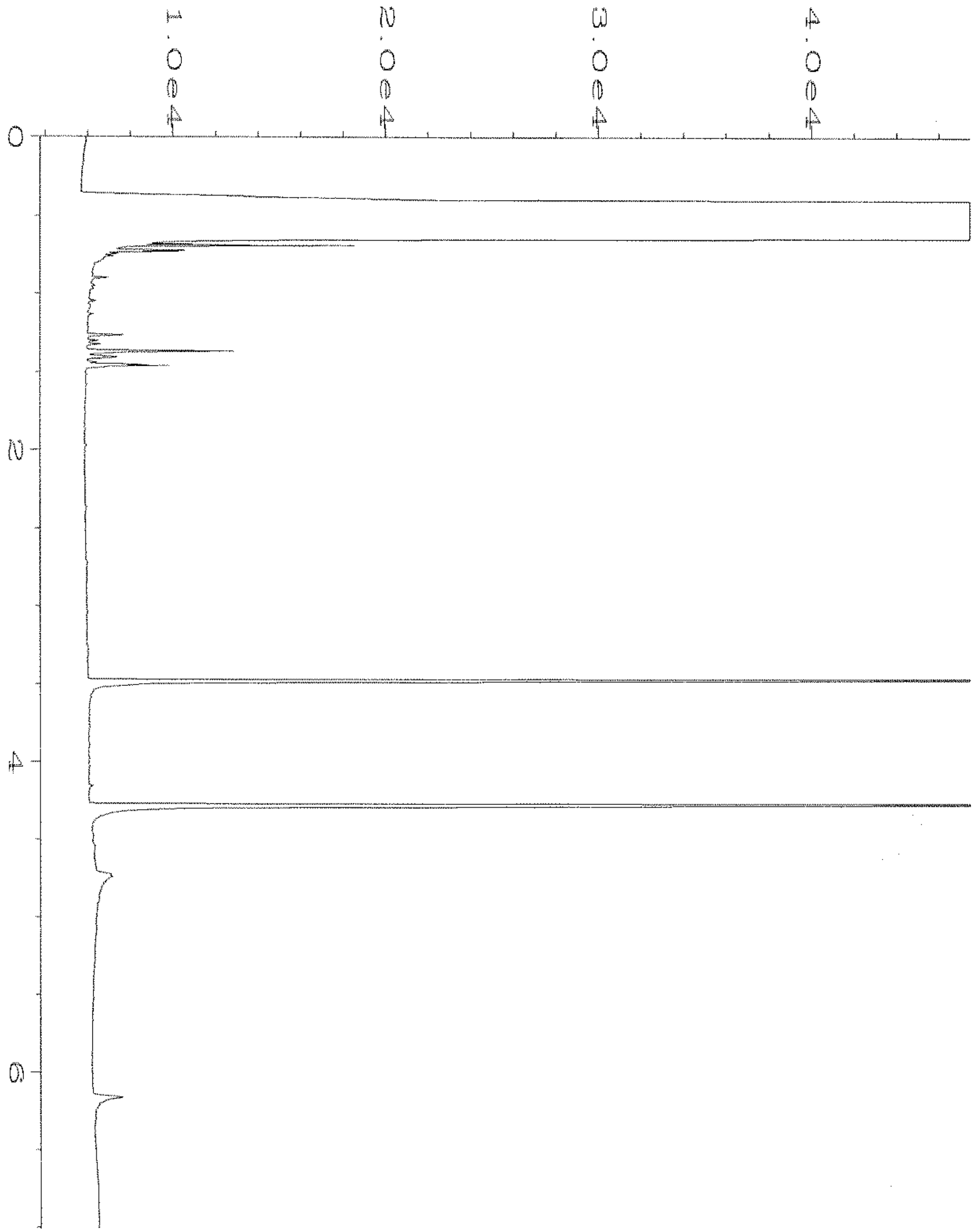
Report Created on:	02 Apr 21	07:49 AM	Analysis Method	:	DEFAULT.MTH



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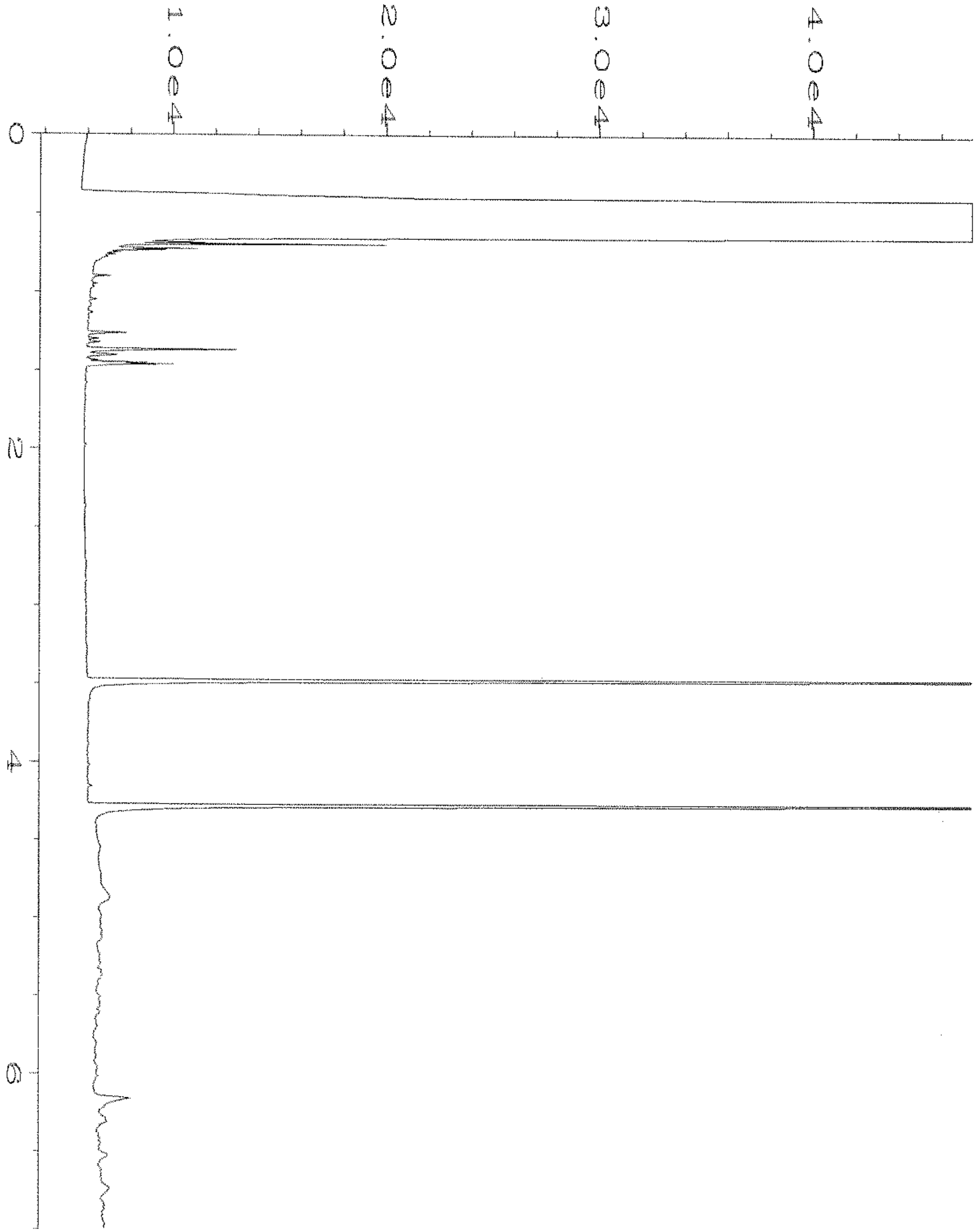
Operator : TL
Instrument : GC6
Sample Name : 103585-19
Run Time Bar Code:
Acquired on : 01 Apr 21 06:21 PM
Report Created on: 02 Apr 21 07:49 AM

Page Number : 1
Vial Number : 37
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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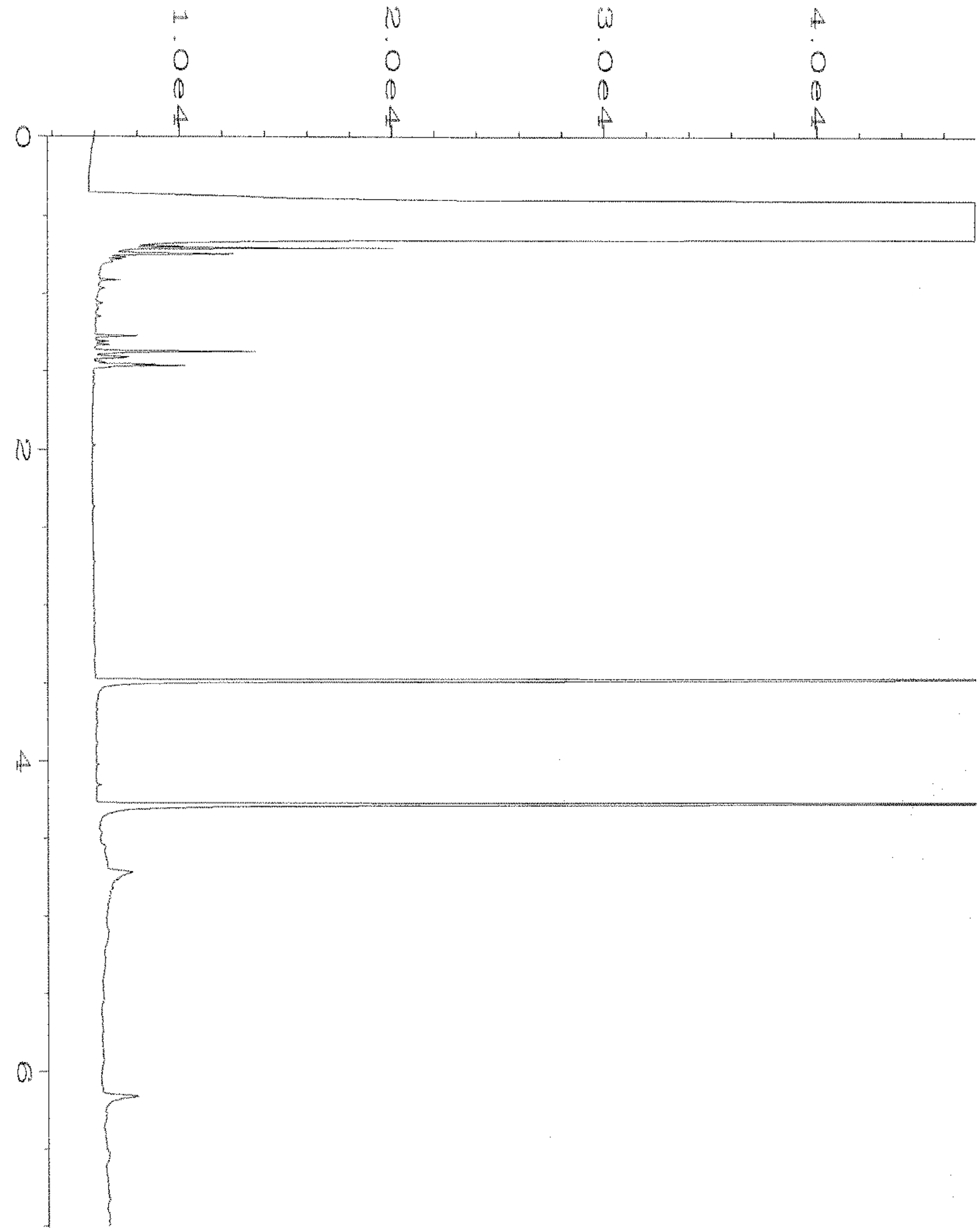
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 38
Sample Name	: 103585-20	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 01 Apr 21 06:54 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:49 AM	Analysis Method	: DEFAULT.MTH



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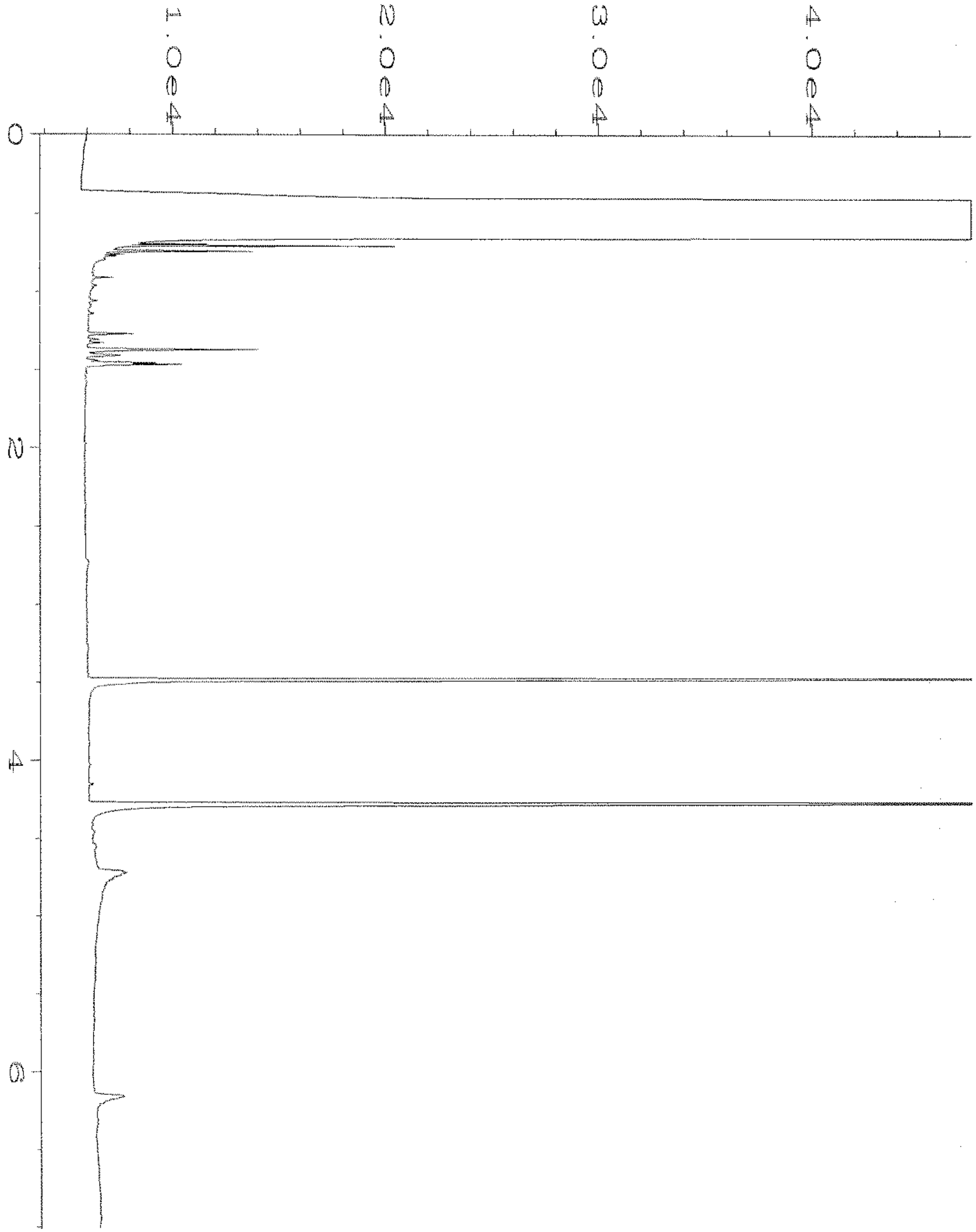
Operator   : TL
Instrument   : GC6
Sample Name   : 103585-21
Run Time Bar Code:
Acquired on   : 01 Apr 21   07:05 PM
Report Created on: 02 Apr 21   07:49 AM

Page Number   : 1
Vial Number   : 39
Injection Number : 1
Sequence Line   : 10
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



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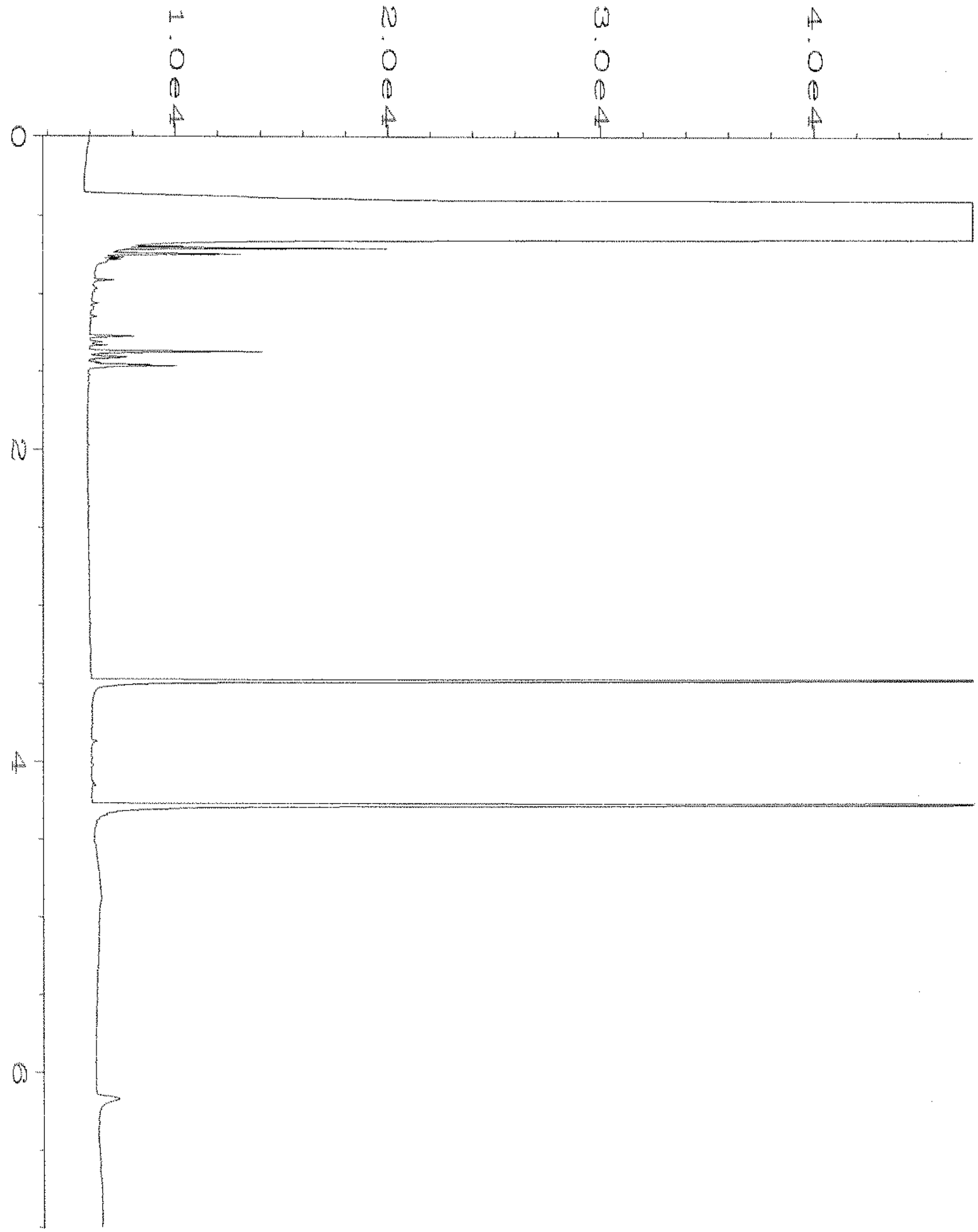
Operator : TL
Instrument : GC6
Sample Name : 103585-22
Run Time Bar Code:
Acquired on : 01 Apr 21 07:16 PM
Report Created on: 02 Apr 21 07:50 AM

Page Number : 1
Vial Number : 40
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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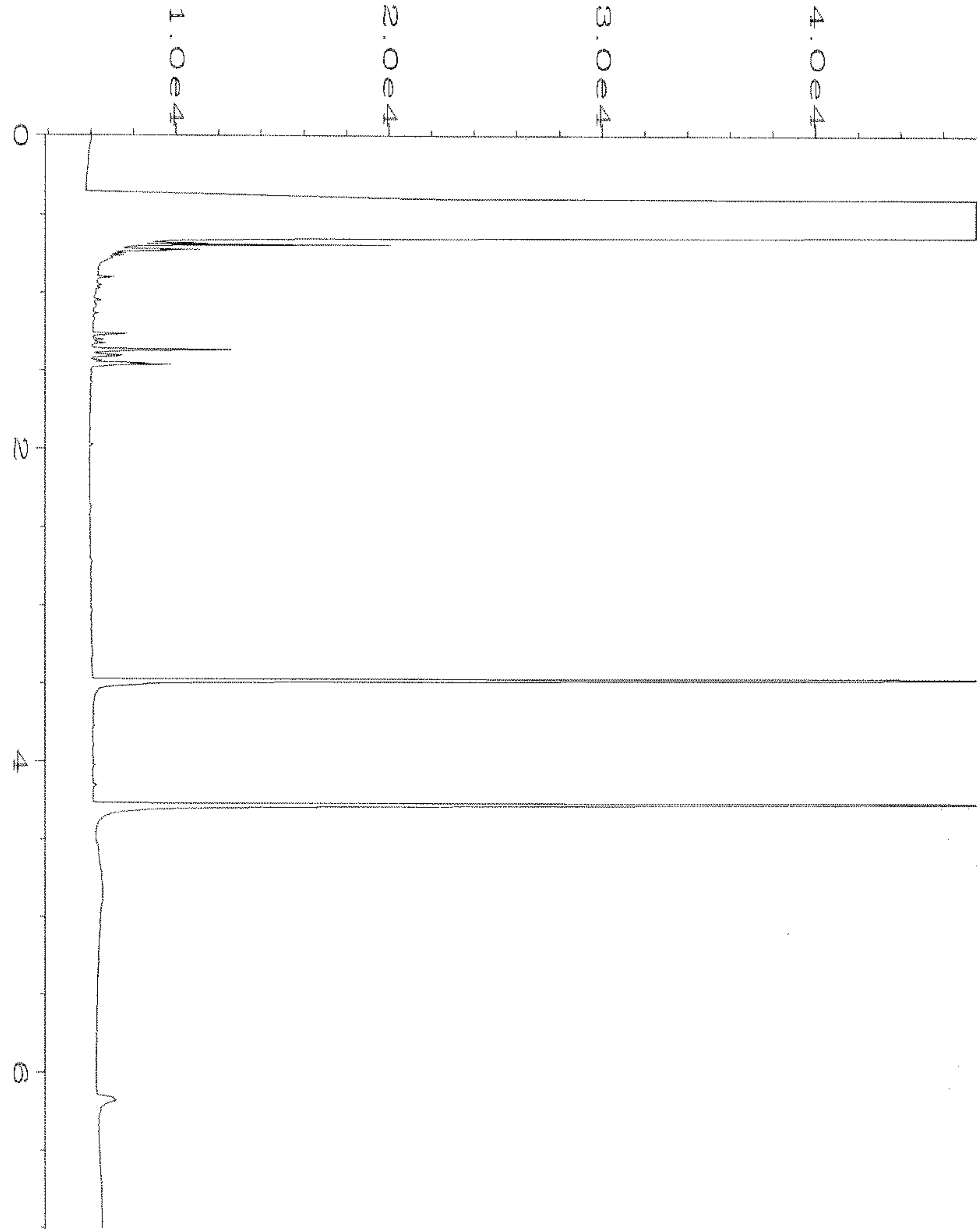
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 41
Sample Name	: 103585-23	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 01 Apr 21 07:27 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:50 AM	Analysis Method	: DEFAULT.MTH



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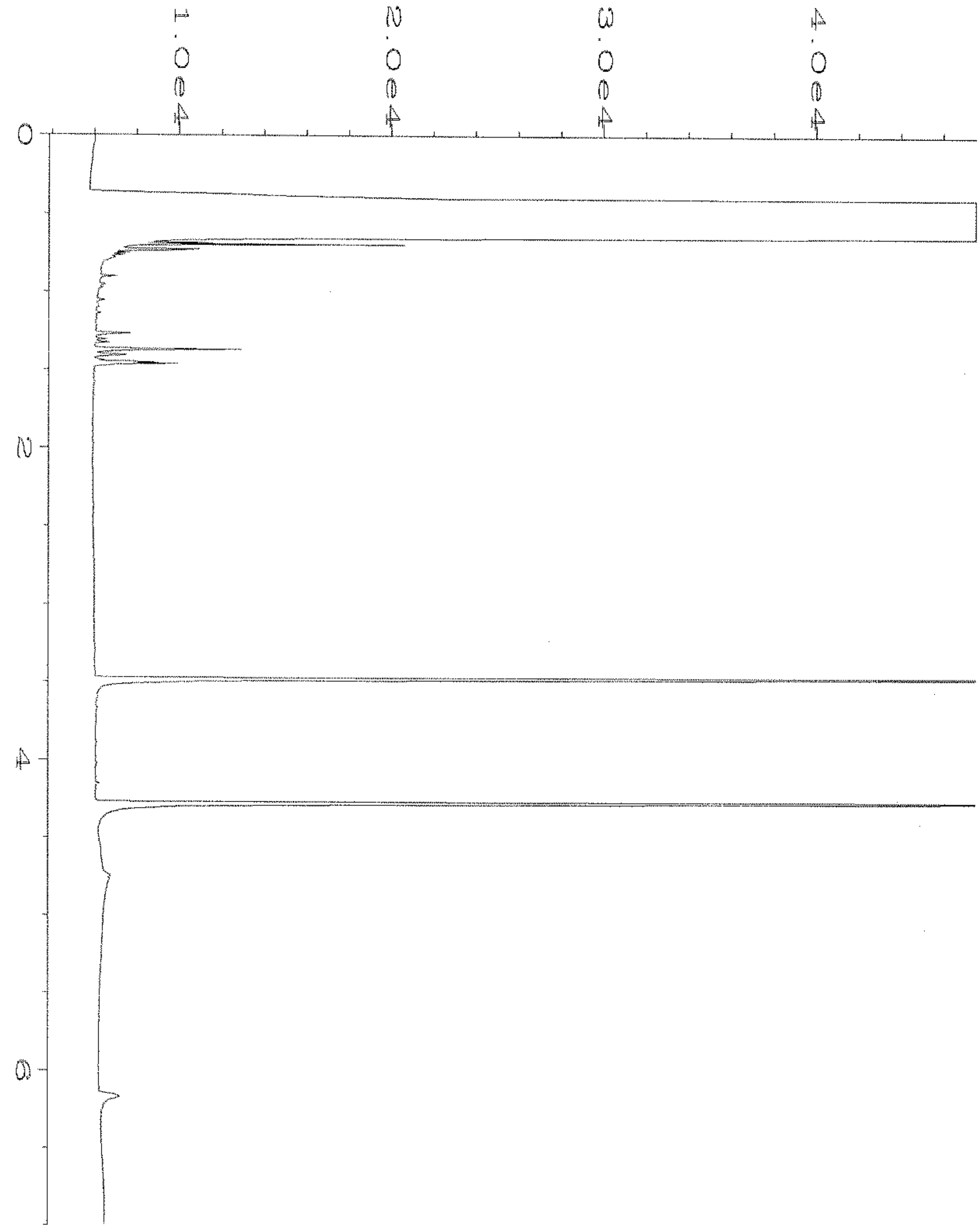
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 46
Sample Name	: 103585-24	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 01 Apr 21 08:22 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:50 AM	Analysis Method	: DEFAULT.MTH



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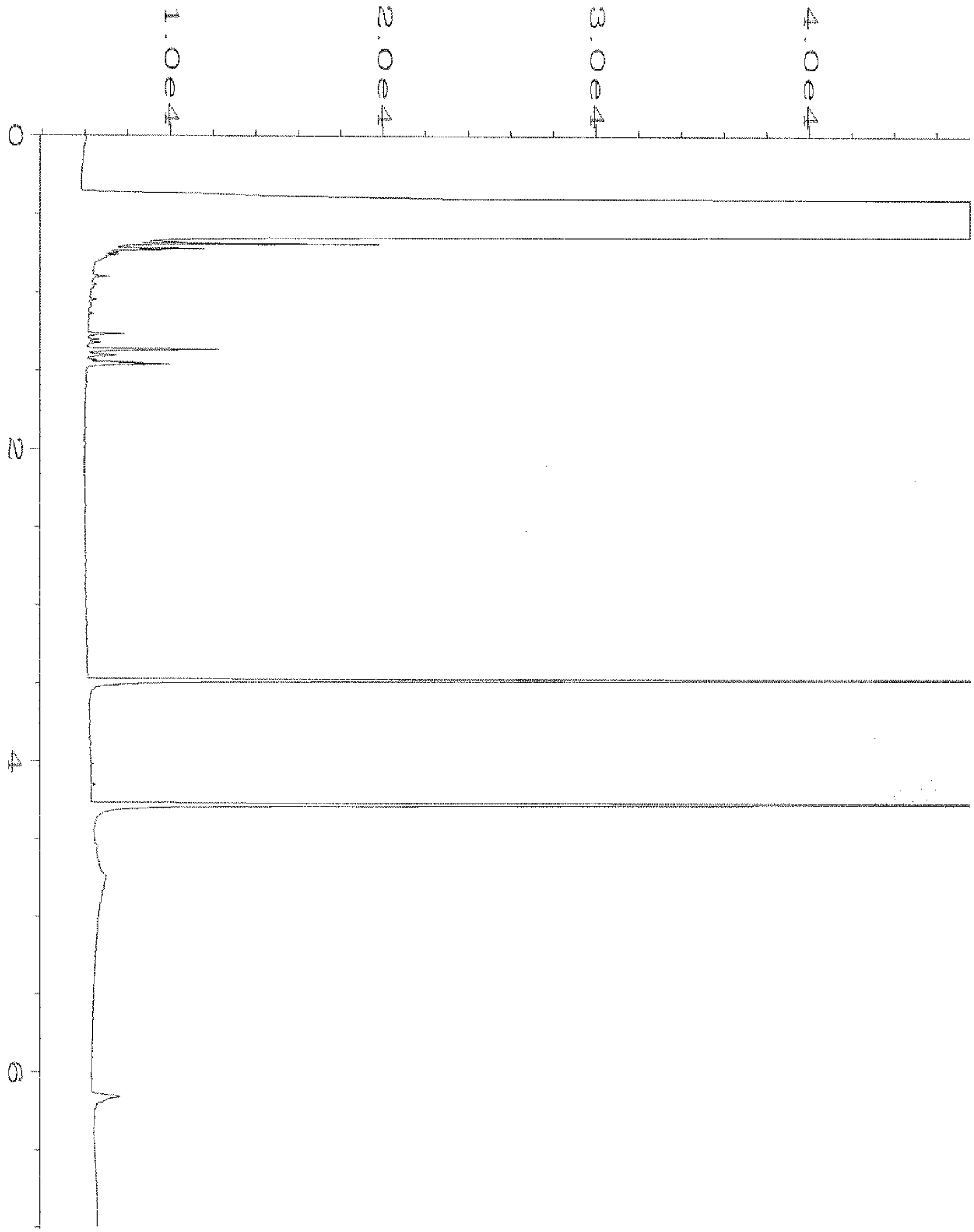
Operator : TL
Instrument : GC6
Sample Name : 103585-25
Run Time Bar Code:
Acquired on : 01 Apr 21 08:33 PM
Report Created on: 02 Apr 21 07:50 AM

Page Number : 1
Vial Number : 47
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 48
Sample Name	: 103585-26	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
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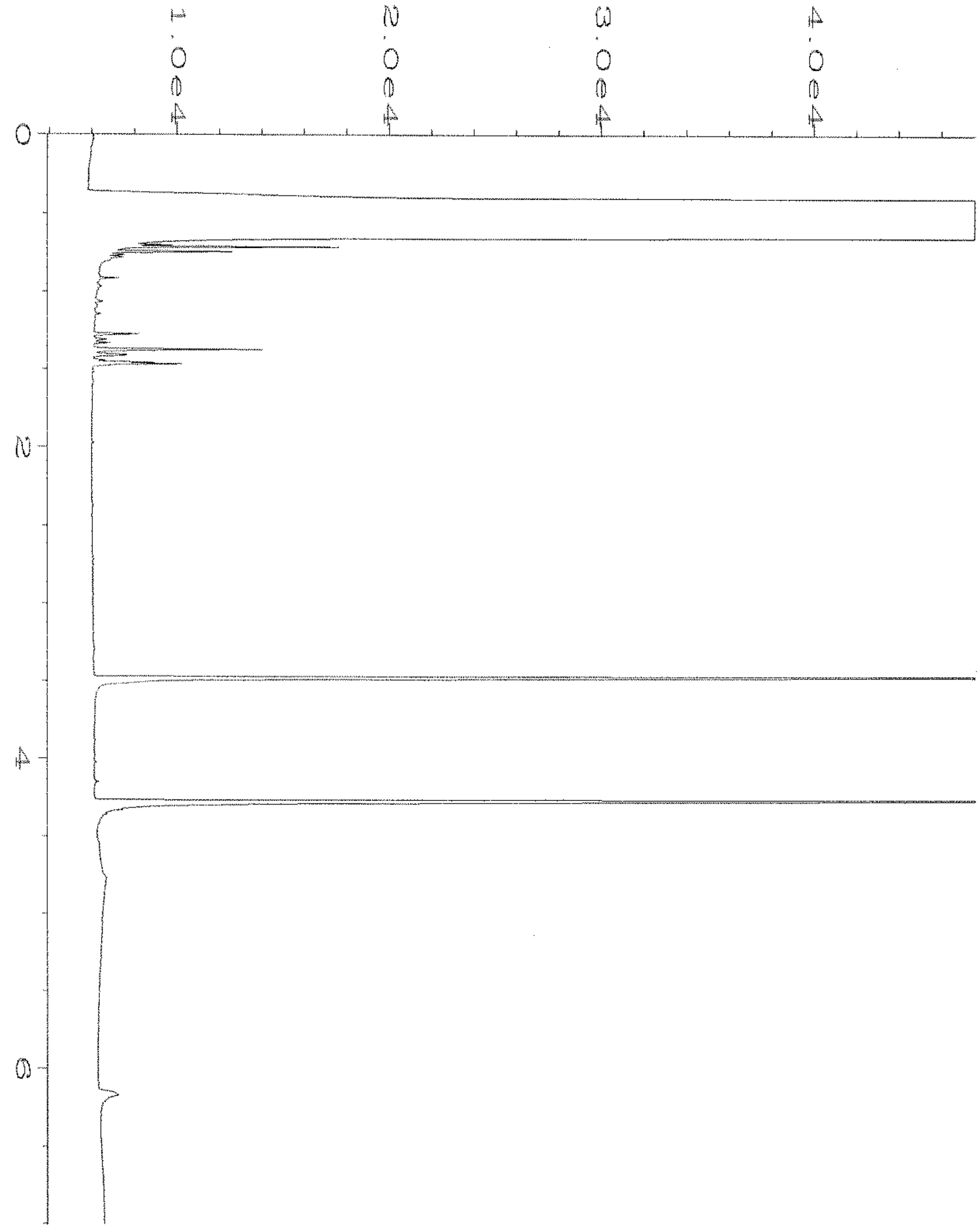

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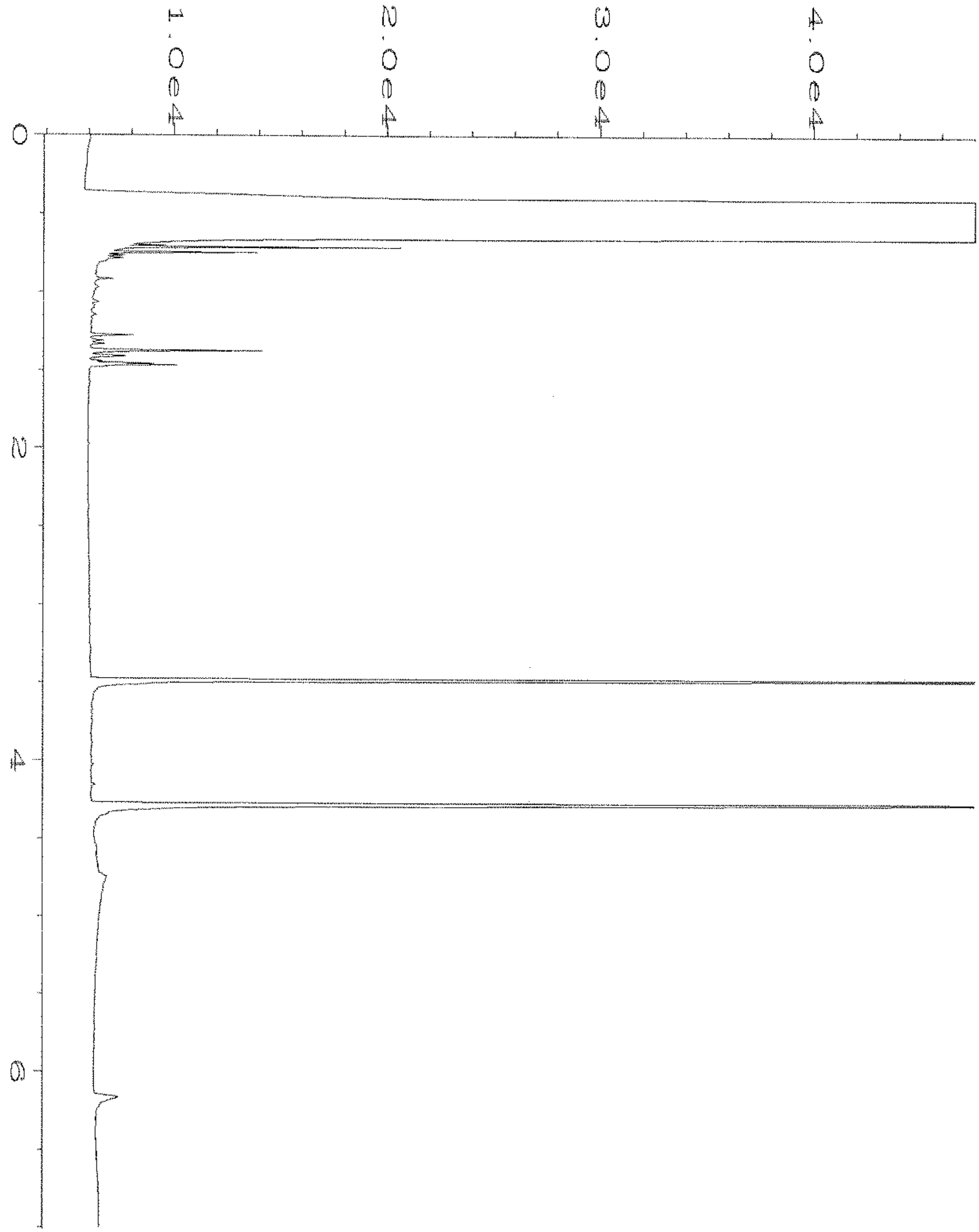
Operator   : TL
Instrument   : GC6
Sample Name   : 103585-28
Run Time Bar Code:
Acquired on   : 01 Apr 21   08:55 PM
Report Created on: 02 Apr 21   07:51 AM

Page Number   : 1
Vial Number   : 49
Injection Number : 1
Sequence Line   : 10
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



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Operator	: TL		Page Number	: 1
Instrument	: GC6		Vial Number	: 50
Sample Name	: 103585-29		Injection Number	: 1
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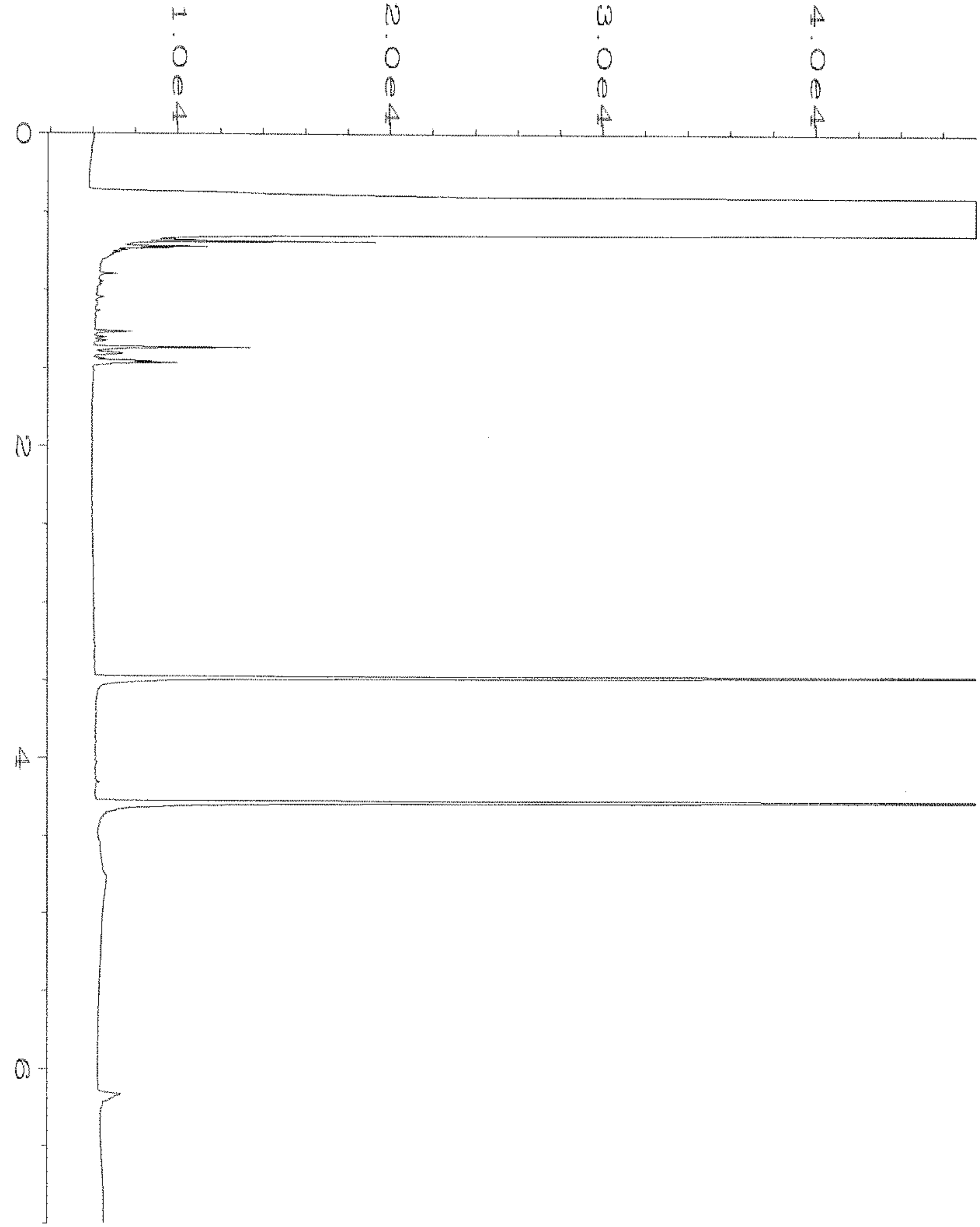
Report Created on:	02 Apr 21	07:51 AM	Analysis Method	: DEFAULT.MTH



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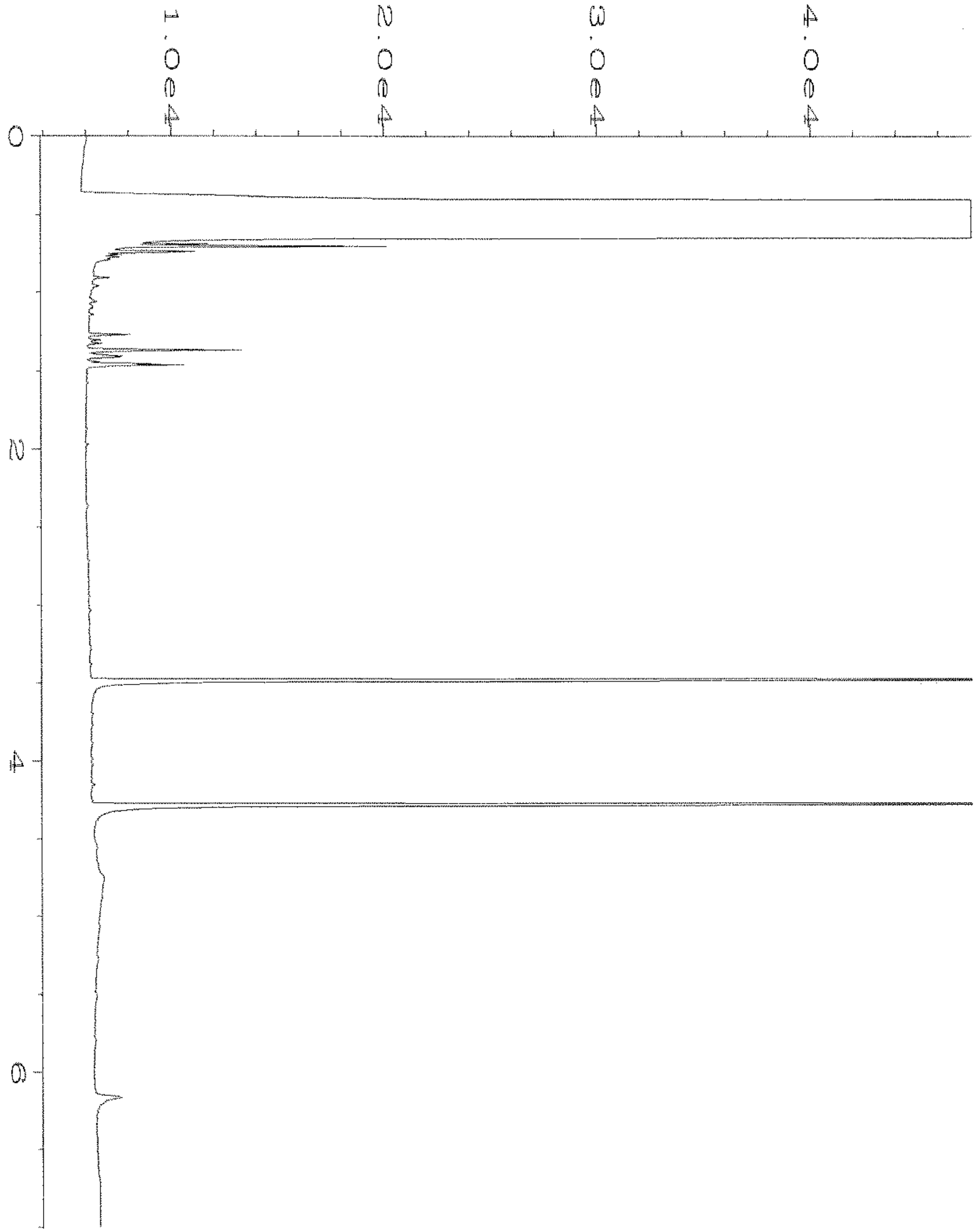
Operator : TL
Instrument : GC6
Sample Name : 103585-30
Run Time Bar Code:
Acquired on : 01 Apr 21 09:17 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 51
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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Operator   : TL
Instrument   : GC6
Sample Name   : 103585-31
Run Time Bar Code:
Acquired on   : 01 Apr 21   09:28 PM
Report Created on: 02 Apr 21   07:51 AM

Page Number   : 1
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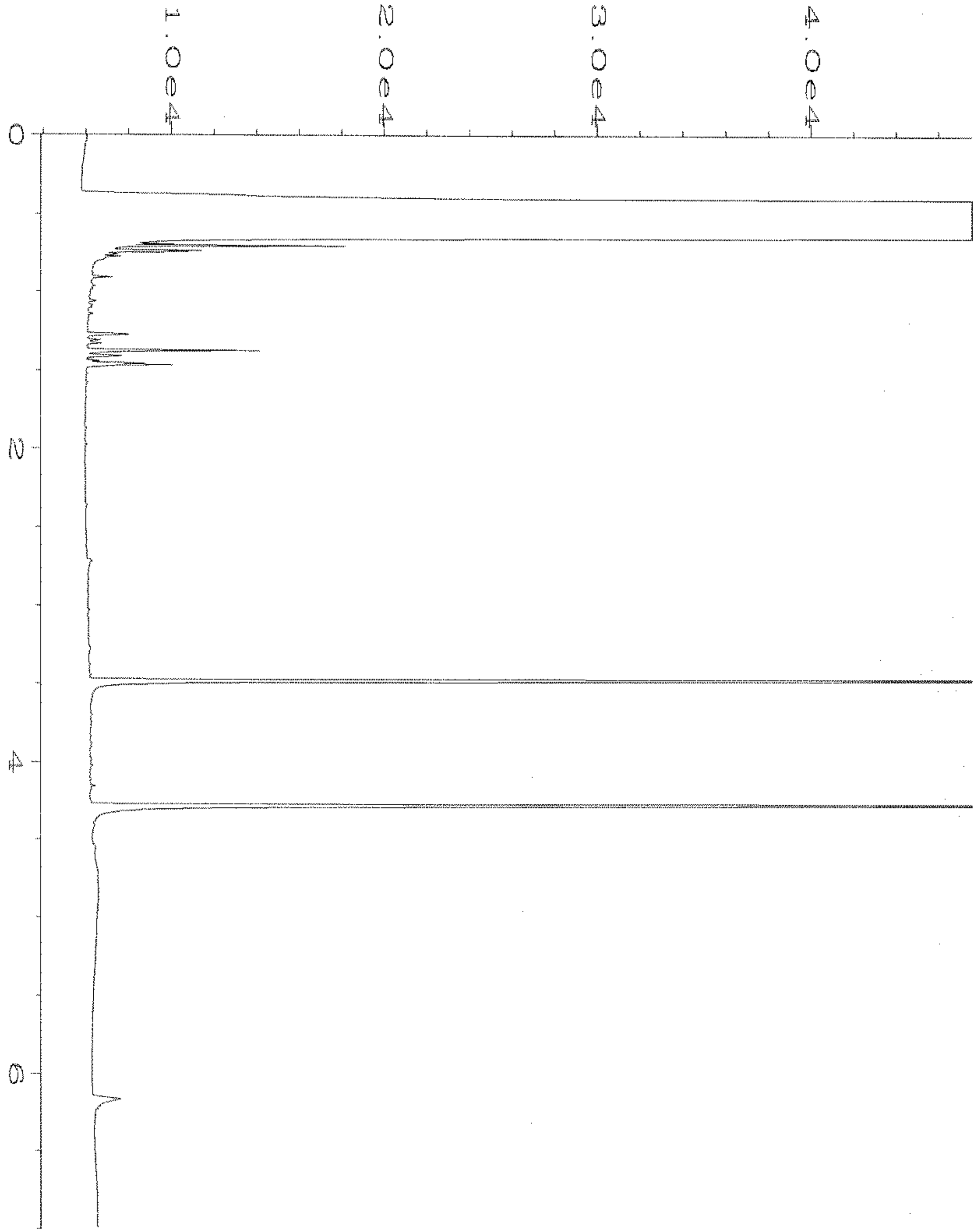
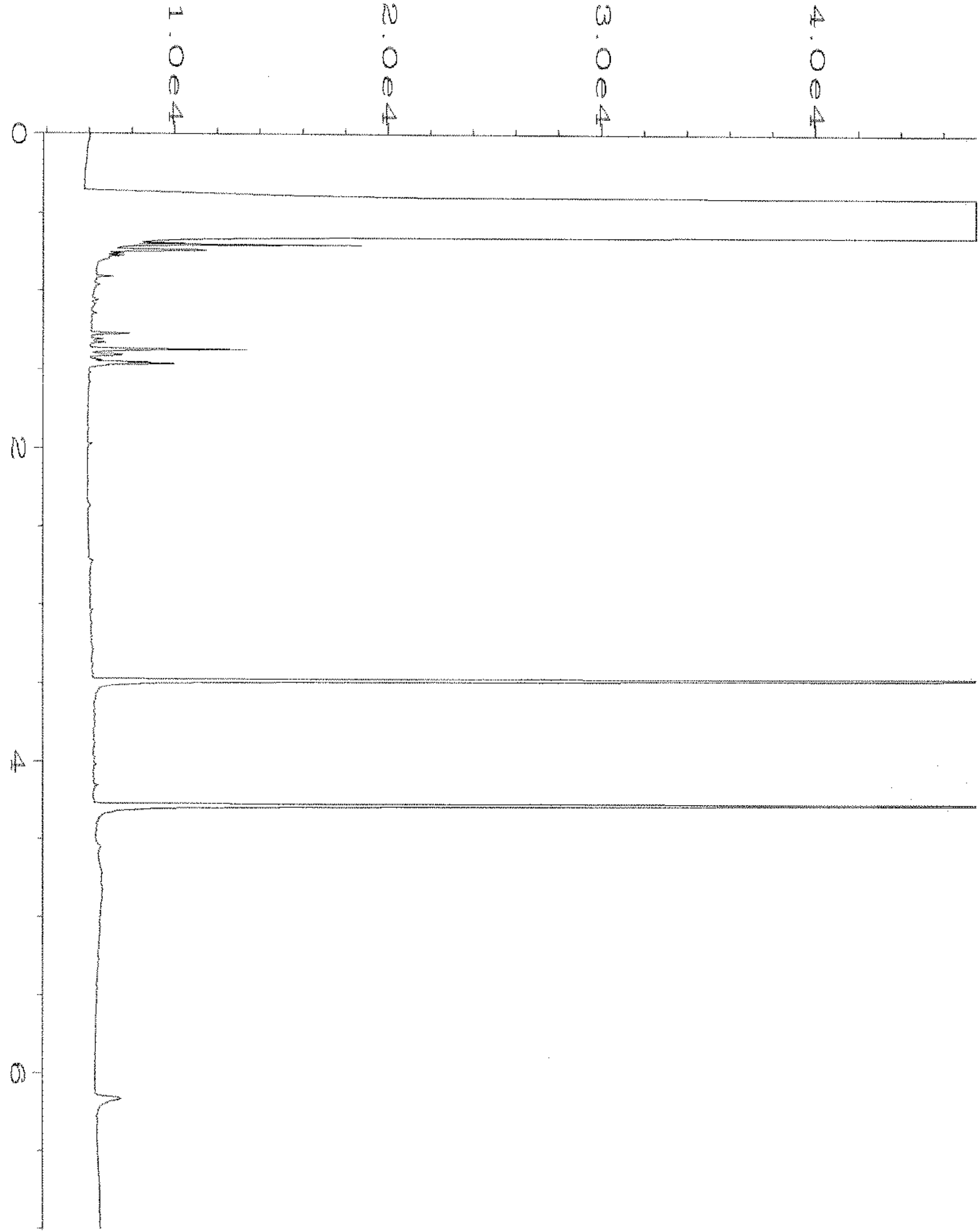
Injection Number : 1
Sequence Line   : 10
Instrument Method: DX.MTH
Analysis Method   : DEFAULT.MTH



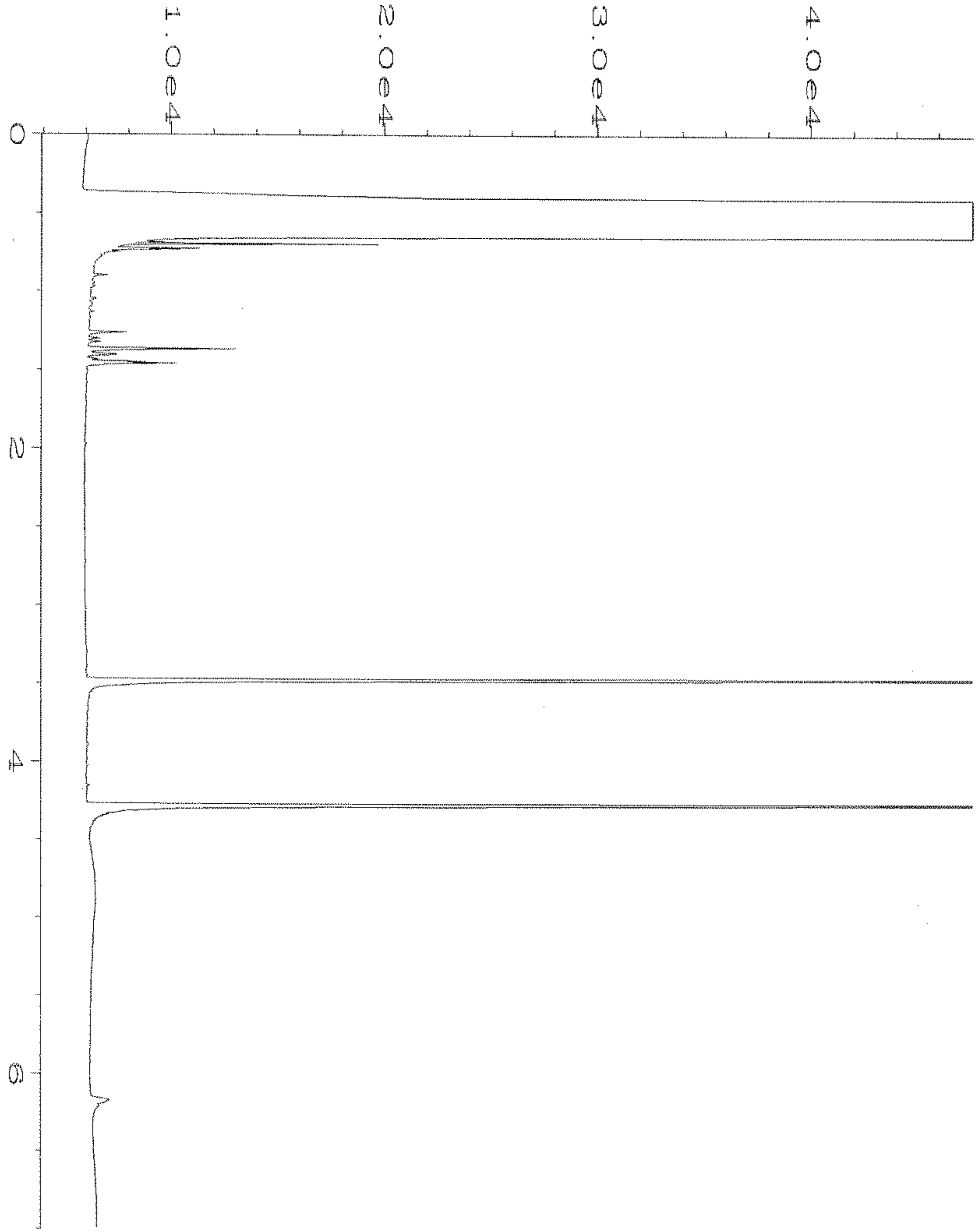
Data File Name : C:\HPCHEM\6\DATA\04-01-21\053F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-32
Run Time Bar Code:
Acquired on : 01 Apr 21 09:38 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 53
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\04-01-21\054F1001.D
Operator : TL
Instrument : GC6
Sample Name : 103585-33
Run Time Bar Code:
Acquired on : 01 Apr 21 09:49 PM
Report Created on: 02 Apr 21 07:51 AM

Page Number : 1
Vial Number : 54
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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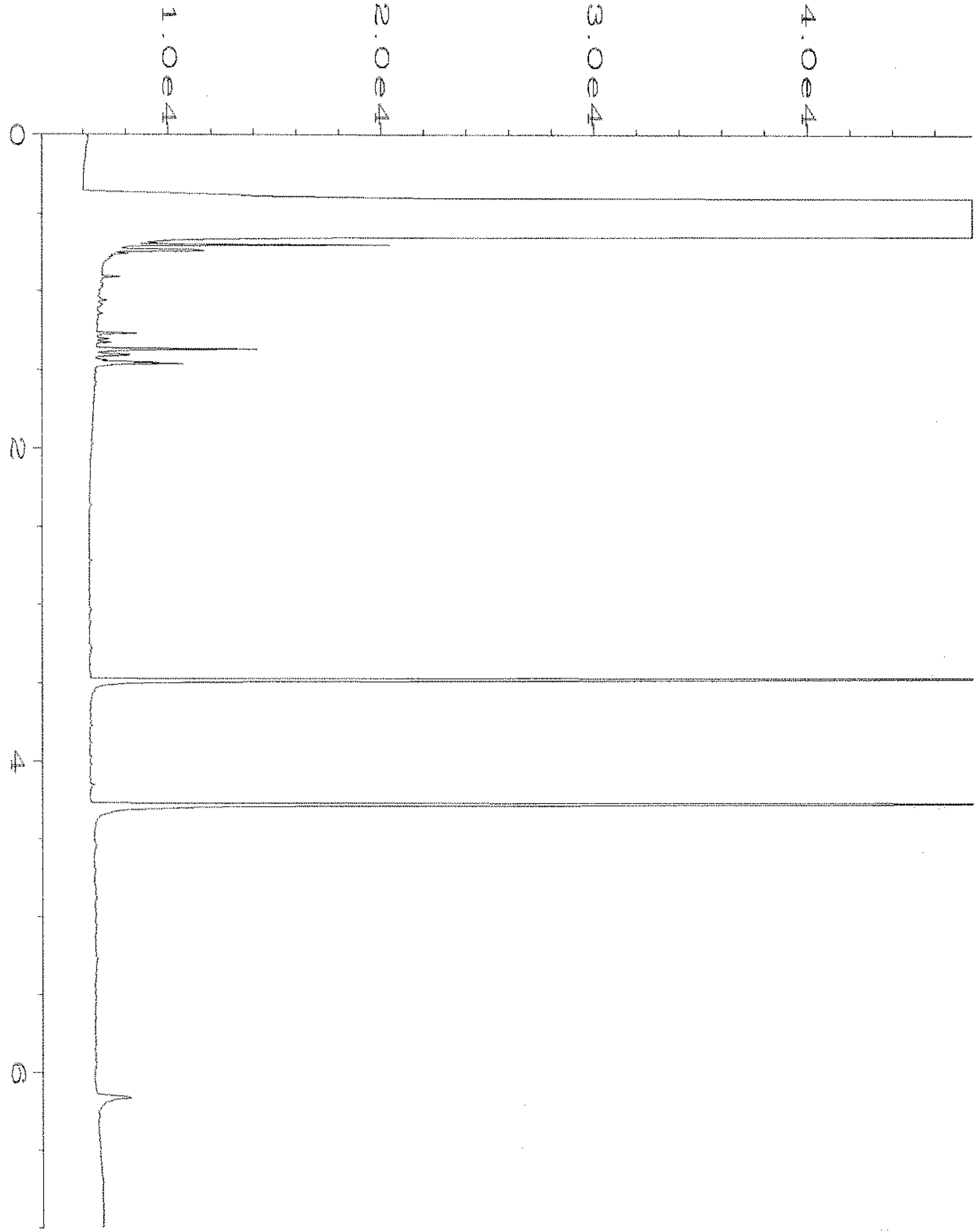
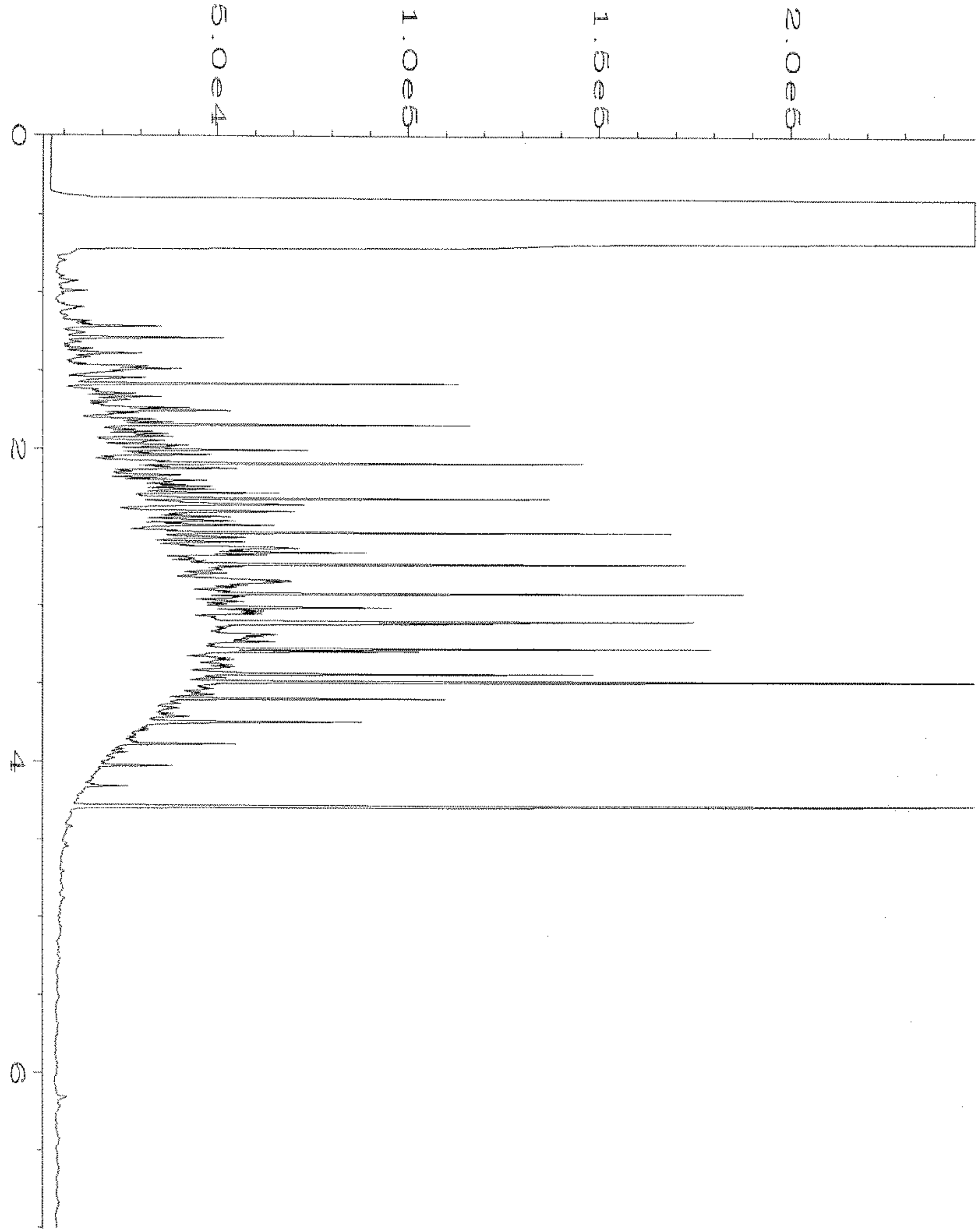
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 42
Sample Name	: 01-774 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 01 Apr 21 07:38 PM	Instrument Method:	DX.MTH
Report Created on:	02 Apr 21 07:50 AM	Analysis Method	: DEFAULT.MTH



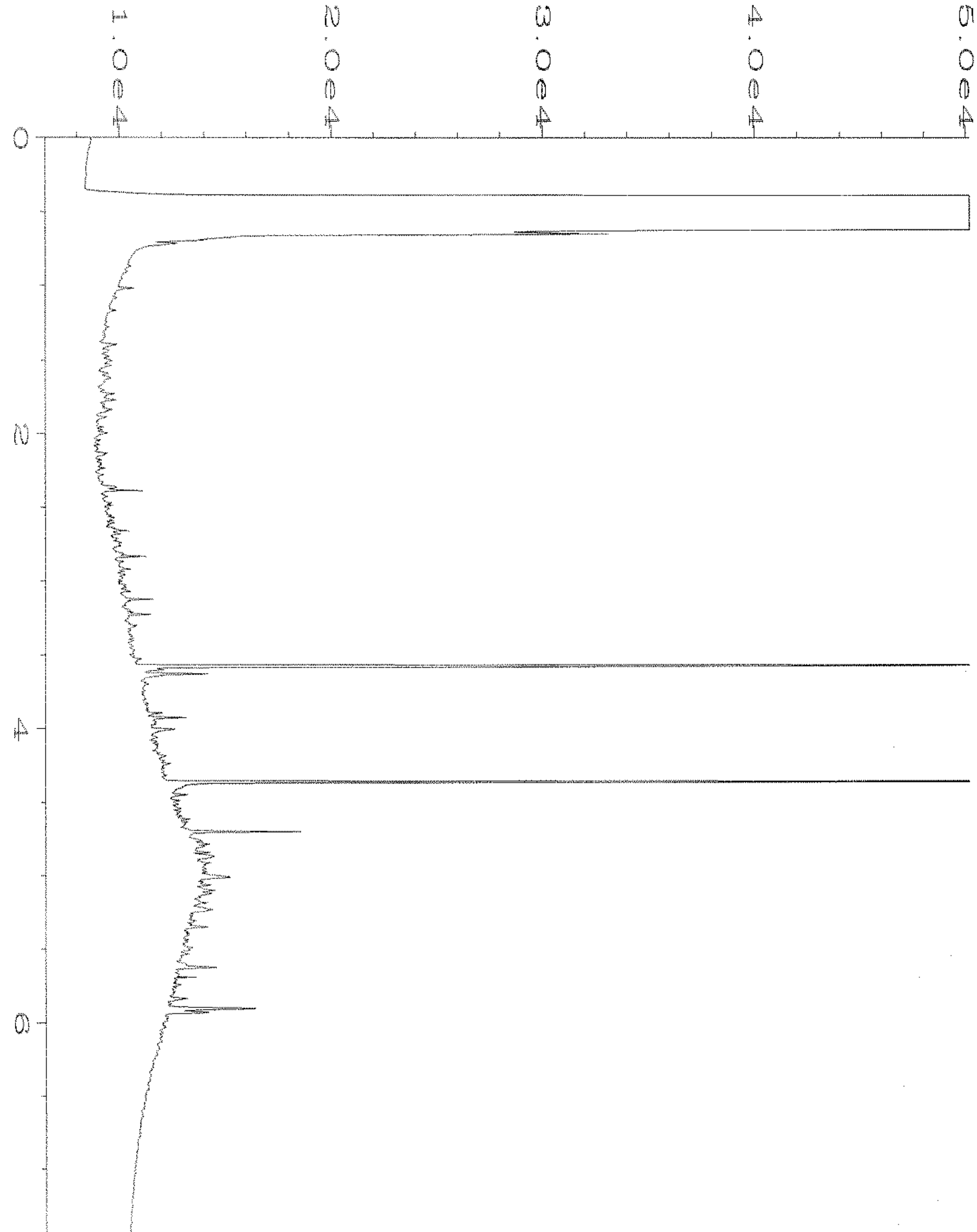
Data File Name : C:\HPCHEM\6\DATA\04-01-21\018F0601.D
Operator : TL
Instrument : GC6
Sample Name : 01-772 mb
Run Time Bar Code:
Acquired on : 01 Apr 21 02:27 PM
Report Created on: 02 Apr 21 07:52 AM

Page Number : 1
Vial Number : 18
Injection Number : 1
Sequence Line : 6
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



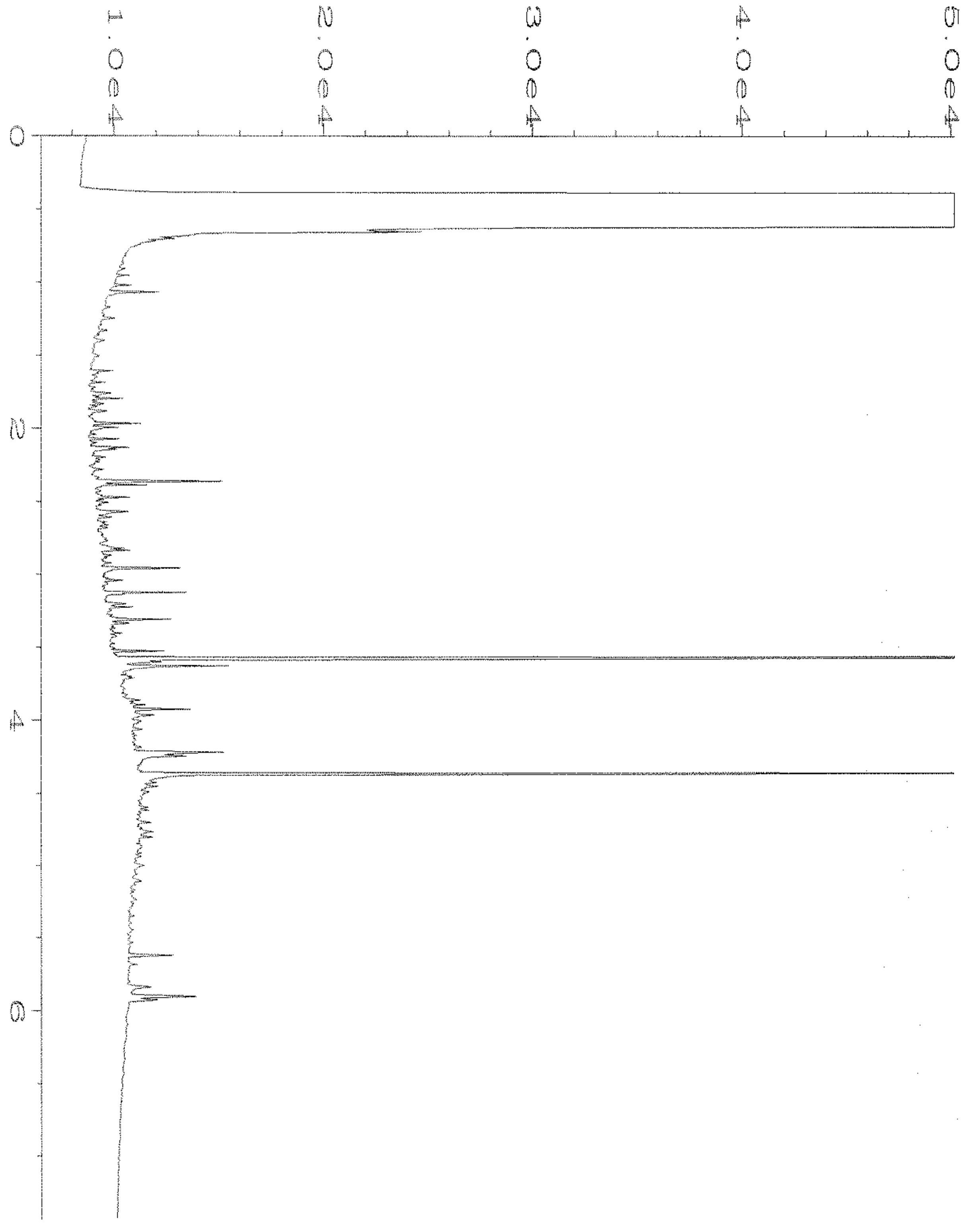
Data File Name : C:\HPCHEM\6\DATA\04-01-21\003F0201.D
Operator : TL
Instrument : GC6
Sample Name : 500 Dx 62-142D
Run Time Bar Code:
Acquired on : 01 Apr 21 08:40 AM
Report Created on: 02 Apr 21 07:52 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

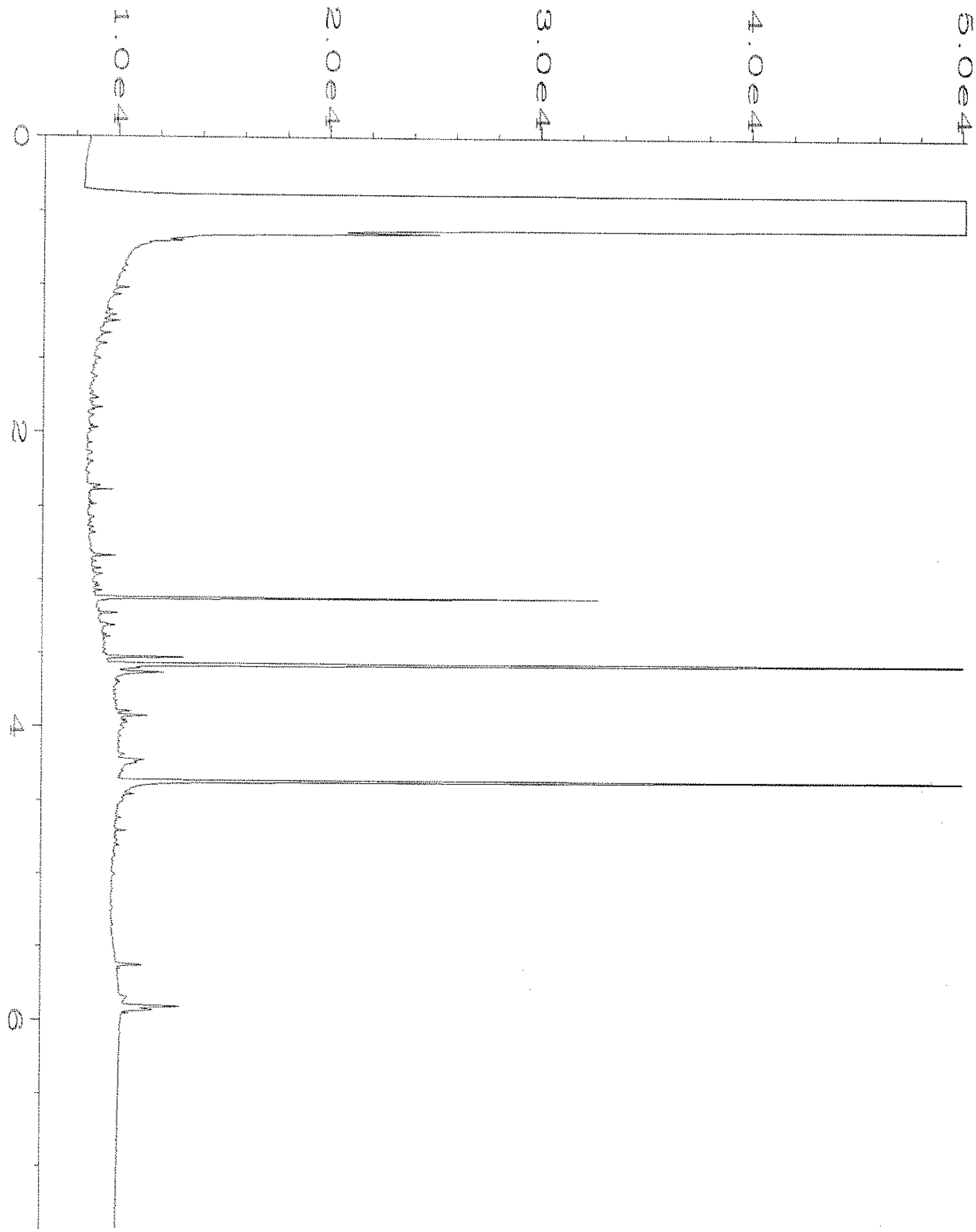


Data File Name : C:\HPCHEM\1\DATA\04-02-21\025F0901.D
Operator : TL
Instrument : GC1
Sample Name : 103585-06
Run Time Bar Code:
Acquired on : 02 Apr 21 02:26 PM
Report Created on: 05 Apr 21 09:11 AM

Page Number : 1
Vial Number : 25
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

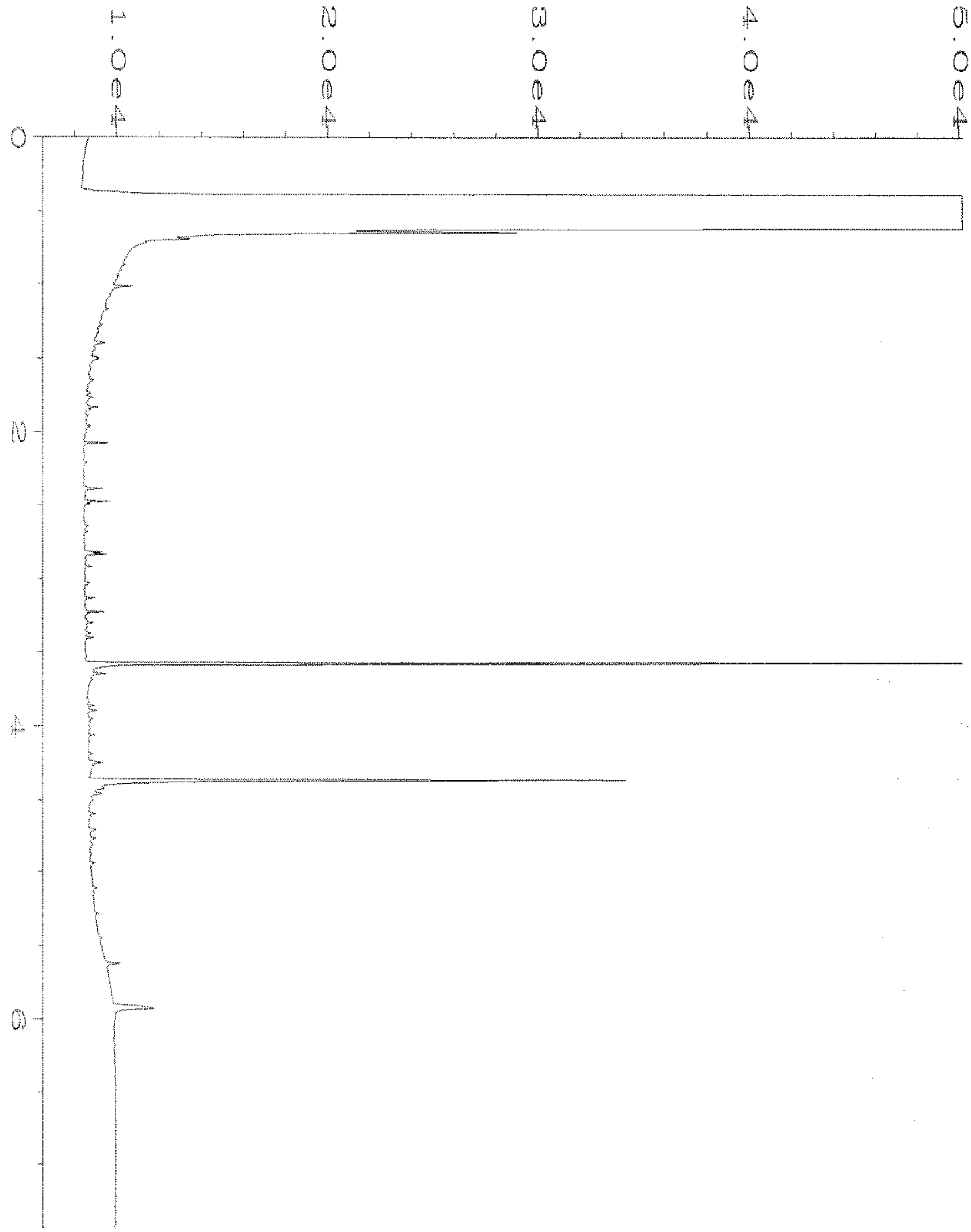


Data File Name	: C:\HPCHEM\1\DATA\04-02-21\026F0901.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 26
Sample Name	: 103585-15	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 02 Apr 21 02:38 PM	Instrument Method:	DX.MTH
Report Created on:	05 Apr 21 09:11 AM	Analysis Method	: DEFAULT.MTH

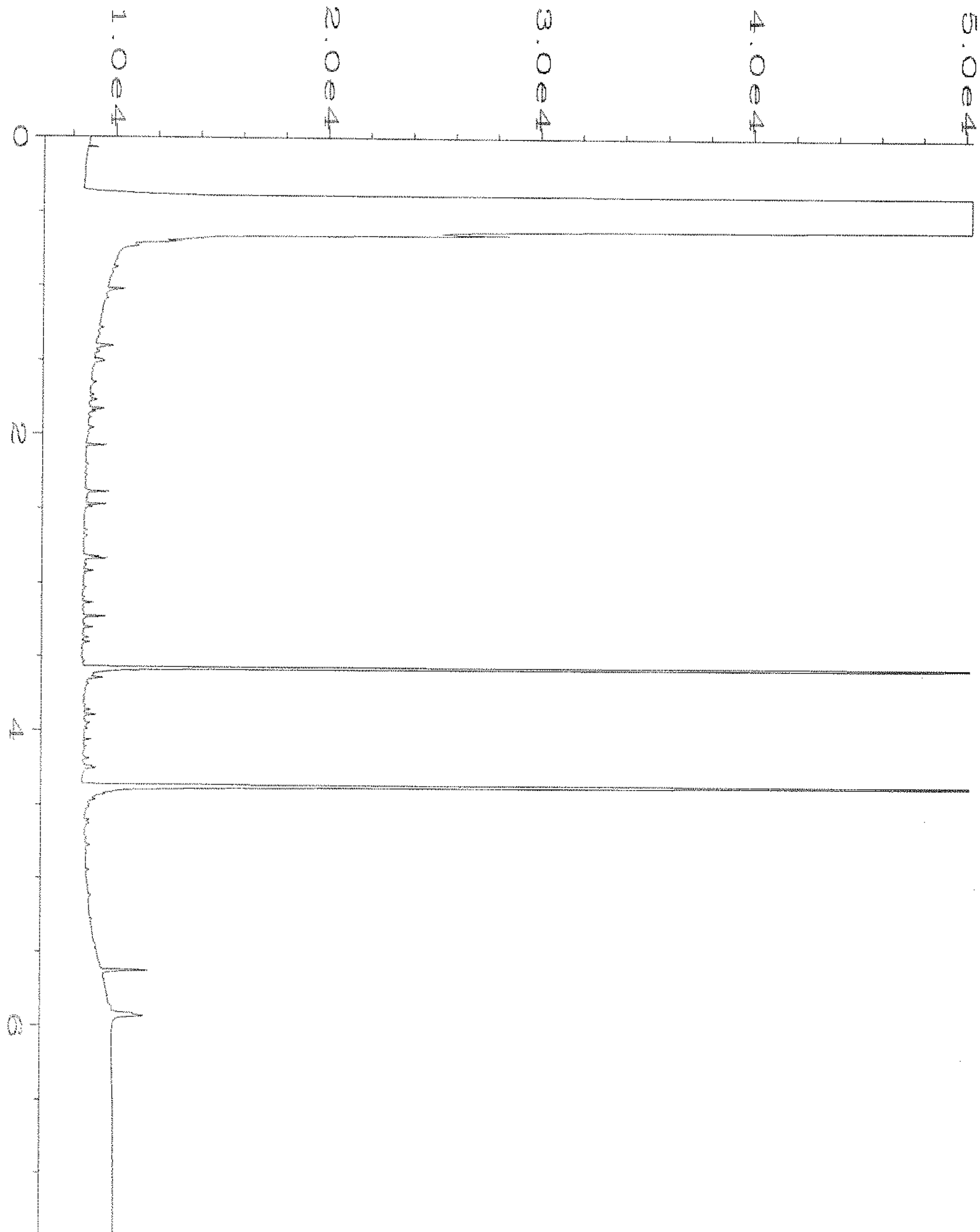


Data File Name : C:\HPCHEM\1\DATA\04-02-21\027F0901.D
Operator : TL
Instrument : GC1
Sample Name : 103585-16
Run Time Bar Code:
Acquired on : 02 Apr 21 02:49 PM
Report Created on: 05 Apr 21 09:11 AM

Page Number : 1
Vial Number : 27
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

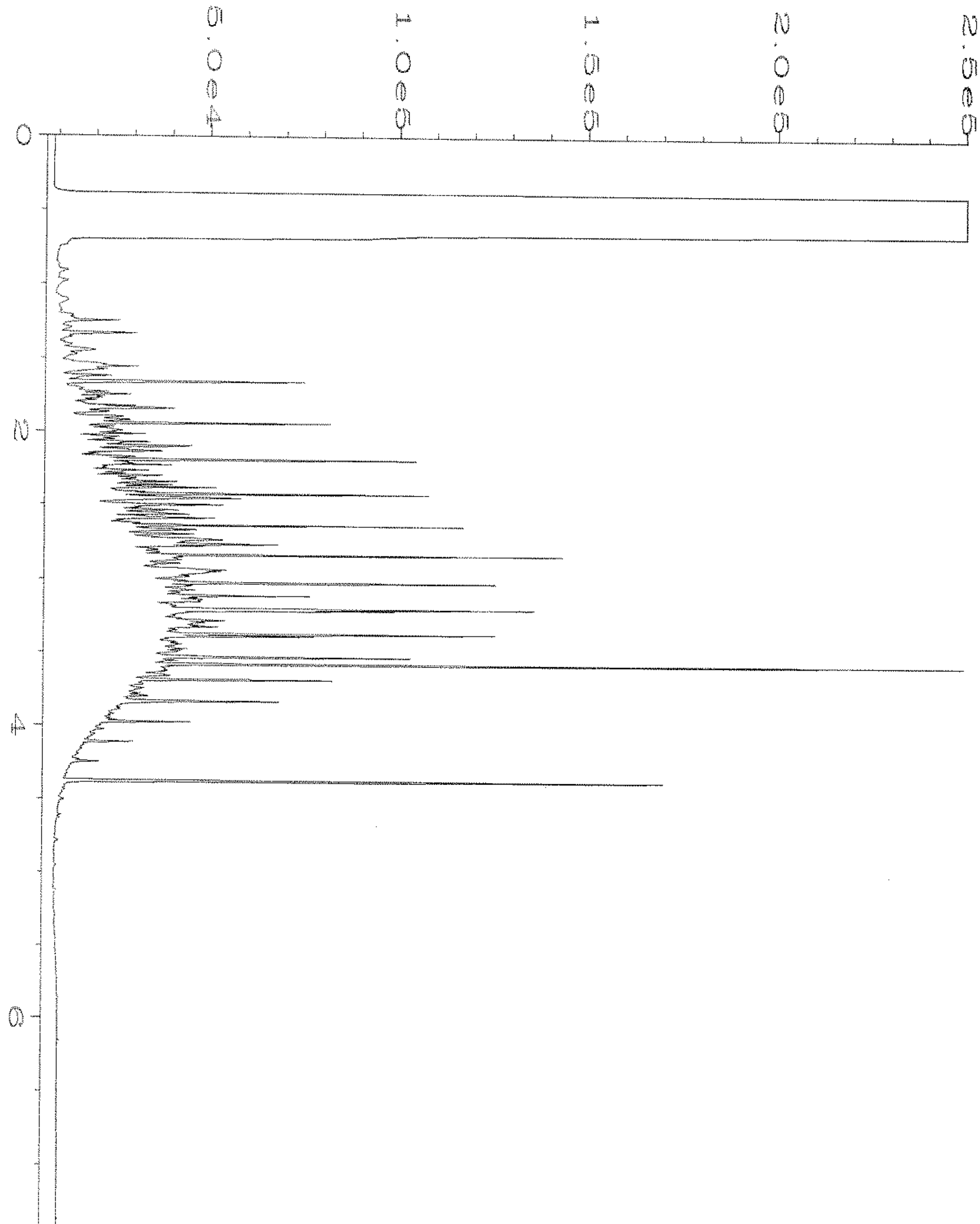


Data File Name	: C:\HPCHEM\1\DATA\04-02-21\028F0901.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 28
Sample Name	: 103585-27	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 02 Apr 21 03:01 PM	Instrument Method:	DX.MTH
Report Created on:	05 Apr 21 09:12 AM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\04-02-21\018F0701.D
Operator : TL
Instrument : GC1
Sample Name : 01-778 mb
Run Time Bar Code:
Acquired on : 02 Apr 21 12:38 PM
Report Created on: 05 Apr 21 09:10 AM

Page Number : 1
Vial Number : 18
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\04-02-21\003F0201.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 62-142D
Run Time Bar Code:
Acquired on : 02 Apr 21 05:43 AM
Report Created on: 05 Apr 21 09:16 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 103585
Work Order Number: 2104392

May 05, 2021

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 4/28/2021 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

CLIENT:	Friedman & Bruya
Project:	103585
Work Order:	2104392

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2104392-001	C-1 DP1-11.0	03/31/2021 12:20 PM	04/28/2021 1:28 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2104392**

Date: **5/5/2021**

CLIENT: Friedman & Bruya

Project: 103585

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2104392**
Date Reported: **5/5/2021**

Client: Friedman & Bruya
Project: 103585
Lab ID: 2104392-001
Client Sample ID: **C-1 DP1-11.0**

Collection Date: 3/31/2021 12:20:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R66978		Analyst: CJ
Percent Moisture	10.0	0.500		wt%	1	5/4/2021 9:17:29 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 32196		Analyst: LB
Chromium, Hexavalent	ND	0.555	H	mg/Kg-dry	1	5/5/2021 12:53:00 PM

Fremont Analytical

Date: *5/5/2021*

Work Order: 2104392
CLIENT: Friedman & Bruya
Project: 103585

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **MB-32196** SampType: **MBLK** Units: **mg/Kg** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **MBLKS** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350324**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-32196** SampType: **LCS** Units: **mg/Kg** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **LCSS** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350325**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.19	0.500	2.500	0	87.6	86.5	114				

Sample ID: **2104305-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **BATCH** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350327**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.532						0		30	

Sample ID: **2104305-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **BATCH** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350328**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.53	0.522	2.611	0	96.9	6.79	138				

Sample ID: **2104305-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **BATCH** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350329**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.57	0.536	2.679	0	95.9	6.79	138	2.531	1.52	30	

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2104392**
Logged by:	**Carissa True**	Date Received:	**4/28/2021 1:28:00 PM**

Chain of Custody

1. Is Chain of Custody complete? — Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? — FedEx

Log In

3. Coolers are present? — Yes ☑ No ☐ NA ☐
4. Shipping container/cooler in good condition? — Yes ☑ No ☐
5. Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact) — Yes ☐ No ☐ Not Present ☑
6. Was an attempt made to cool the samples? — Yes ☑ No ☐ NA ☐
7. Were all items received at a temperature of >2°C to 6°C * — Yes ☑ No ☐ NA ☐
8. Sample(s) in proper container(s)? — Yes ☑ No ☐
9. Sufficient sample volume for indicated test(s)? — Yes ☑ No ☐
10. Are samples properly preserved? — Yes ☑ No ☐
11. Was preservative added to bottles? — Yes ☐ No ☑ NA ☐
12. Is there headspace in the VOA vials? — Yes ☐ No ☐ NA ☑
13. Did all samples containers arrive in good condition(unbroken)? — Yes ☑ No ☐
14. Does paperwork match bottle labels? — Yes ☑ No ☐
15. Are matrices correctly identified on Chain of Custody? — Yes ☑ No ☐
16. Is it clear what analyses were requested? — Yes ☑ No ☐
17. Were all holding times able to be met? — Yes ☐ No ☑

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? — Yes ☐ No ☐ NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	3.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

2104392

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont	
PROJECT NAME/NO. 103585	PO # B-238
REMARKS Please Email Results EQUIS EDD	

TURNAROUND TIME
☒ Standard TAT
☐ RUSH
Rush charges authorized by:
SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH	VPH	Hex Chrome							Notes
C-1 DP1-11.0		3/31/21	1220	Soil	1				X							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Michael Erdahl	Friedman & Bruya	4/28/21	0800 AM
Received by: [signature]	Claire Anderson	FAT	4/29/21	1328
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 19, 2023

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on January 10, 2023 from the C-1 RI GW Monitoring 5530-014-02, F&BI 301128 project. There are 38 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Atakturk
GNR0119R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 10, 2023 by Friedman & Bruya, Inc. from the GeoEngineers C-1 RI GW Monitoring 5530-014-02, F&BI 301128 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
301128 -01	C-1 RI-10-20230109
301128 -02	C-1 HSA-4-20230109
301128 -03	C-1 HSA-3-20230110
301128 -04	C-1 RI-12-20230110
301128 -05	C-1 RI-13-20230110
301128 -06	C-1 DUP-1-20230109
301128 -07	TB-20230110

The 8260D calibration verification was outside of control limits for several analytes. The data were qualified accordingly.

All other quality control requirements were acceptable.

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128
Date Extracted: 01/12/23
Date Analyzed: 01/13/23

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 RI-10-20230109 301128-01	<100	111
C-1 HSA-4-20230109 301128-02	<100	123
C-1 RI-12-20230110 301128-04	<100	111
C-1 RI-13-20230110 301128-05	<100	116
Method Blank 03-0020 MB	<100	117

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128
Date Extracted: 01/11/23
Date Analyzed: 01/11/23

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
C-1 RI-10-20230109 301128-01	210 x	<250	129
C-1 HSA-4-20230109 301128-02	200 x	<250	128
C-1 HSA-3-20230110 301128-03	<50	<250	129
C-1 RI-12-20230110 301128-04	220 x	<250	127
C-1 RI-13-20230110 301128-05	300 x	<250	129
Method Blank 03-133 MB	<50	<250	143

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 RI-10-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-01
Date Analyzed:	01/11/23	Data File:	301128-01.169
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.01
Barium	100
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	1.85
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 RI-10-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-01 x5
Date Analyzed:	01/12/23	Data File:	301128-01 x5.104
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 HSA-4-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-02
Date Analyzed:	01/11/23	Data File:	301128-02.170
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	28.3
Barium	45.0
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	1.87
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 HSA-4-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-02 x5
Date Analyzed:	01/12/23	Data File:	301128-02 x5.107
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 HSA-3-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-03
Date Analyzed:	01/11/23	Data File:	301128-03.171
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.53
Barium	103
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 RI-12-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-04
Date Analyzed:	01/11/23	Data File:	301128-04.172
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.26
Barium	82.2
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	2.71
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 RI-13-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-05
Date Analyzed:	01/11/23	Data File:	301128-05.175
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	29.9
Barium	76.9
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	2.56
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	C-1 RI-13-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-05 x5
Date Analyzed:	01/12/23	Data File:	301128-05 x5.108
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	I3-23 mb
Date Analyzed:	01/11/23	Data File:	I3-23 mb.153
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-10-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-01
Date Analyzed:	01/11/23	Data File:	301128-01.109
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.49
Barium	99.7
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	1.90
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-10-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-01 x5
Date Analyzed:	01/12/23	Data File:	301128-01 x5.100
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SPs

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA-4-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-02
Date Analyzed:	01/11/23	Data File:	301128-02.110
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	28.6
Barium	41.4
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	1.97
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA-4-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-02 x5
Date Analyzed:	01/12/23	Data File:	301128-02 x5.101
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 HSA-3-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-03
Date Analyzed:	01/11/23	Data File:	301128-03.111
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.67
Barium	99.8
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-12-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-04
Date Analyzed:	01/11/23	Data File:	301128-04 .114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.14
Barium	77.0
Cadmium	<1
Chromium	1.10
Lead	<1
Mercury	<1
Selenium	2.35
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-13-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-05
Date Analyzed:	01/11/23	Data File:	301128-05.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	33.7
Barium	78.9
Cadmium	<1
Lead	<1
Mercury	<1
Selenium	2.37
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-13-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-05 x5
Date Analyzed:	01/12/23	Data File:	301128-05 x5.102
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	I3-18 mb2
Date Analyzed:	01/11/23	Data File:	I3-18 mb2.053
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 RI-10-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/12/23	Lab ID:	301128-01
Date Analyzed:	01/12/23	Data File:	011222.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.12	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	1.3
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 HSA-4-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-02
Date Analyzed:	01/11/23	Data File:	011122.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	97	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.47	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	3.6
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	1.5
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 HSA-3-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-03
Date Analyzed:	01/11/23	Data File:	011123.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 RI-12-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-04
Date Analyzed:	01/11/23	Data File:	011124.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca
Chloromethane	<10
Vinyl chloride	0.39
Bromomethane	<5
Chloroethane	<1
Trichlorofluoromethane	<1
Acetone	<50 ca
1,1-Dichloroethene	<1
Hexane	<5
Methylene chloride	<5
Methyl t-butyl ether (MTBE)	<1
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
2,2-Dichloropropane	<1
cis-1,2-Dichloroethene	1.3
Chloroform	<1
2-Butanone (MEK)	<20 ca
1,2-Dichloroethane (EDC)	0.27
1,1,1-Trichloroethane	<1
1,1-Dichloropropene	<1
Carbon tetrachloride	<0.5
Benzene	<0.35
Trichloroethene	<0.5
1,2-Dichloropropane	<1
Bromodichloromethane	<0.5
Dibromomethane	<1
4-Methyl-2-pentanone	<10
cis-1,3-Dichloropropene	<0.4
Toluene	<1
trans-1,3-Dichloropropene	<0.4
1,1,2-Trichloroethane	<0.5
2-Hexanone	<10

Compounds:	Concentration ug/L (ppb)
1,3-Dichloropropane	<1
Tetrachloroethene	<1
Dibromochloromethane	<0.5
1,2-Dibromoethane (EDB)	<1
Chlorobenzene	<1
Ethylbenzene	<1
1,1,1,2-Tetrachloroethane	<1
m,p-Xylene	<2
o-Xylene	<1
Styrene	<1
Isopropylbenzene	<1
Bromoform	<5
n-Propylbenzene	<1
Bromobenzene	<1
1,3,5-Trimethylbenzene	<1
1,1,2,2-Tetrachloroethane	<0.2
1,2,3-Trichloropropane	<1
2-Chlorotoluene	<1
4-Chlorotoluene	<1
tert-Butylbenzene	<1
1,2,4-Trimethylbenzene	<1
sec-Butylbenzene	<1
p-Isopropyltoluene	<1
1,3-Dichlorobenzene	<1
1,4-Dichlorobenzene	<1
1,2-Dichlorobenzene	<1
1,2-Dibromo-3-chloropropane	<10
1,2,4-Trichlorobenzene	<1
Hexachlorobutadiene	<0.5
Naphthalene	<1
1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 RI-13-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-05
Date Analyzed:	01/11/23	Data File:	011125.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.25	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	C-1 DUP-1-20230109	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-06
Date Analyzed:	01/11/23	Data File:	011126.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.13	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	1.3
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TB-20230110	Client:	GeoEngineers
Date Received:	01/10/23	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	301128-07
Date Analyzed:	01/11/23	Data File:	011116.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	96	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	5530-014-02, F&BI 301128
Date Extracted:	01/11/23	Lab ID:	03-0066 mb
Date Analyzed:	01/11/23	Data File:	011120.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128
Date Extracted: 01/16/23
Date Analyzed: 01/17/23

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS
AS STODDARD SOLVENT
USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Stoddard Solvent Range (C_8-C_{11})	Surrogate (% Recovery) (Limit 50-150)
C-1 HSA-3-20230110 301128-03	<100	108
Method Blank 03-025 MB	<100	118

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 301144-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	96	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	100	70-130	4

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF DISSOLVED WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 301134-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	17.6	78	81	75-125	4
Barium	ug/L (ppb)	50	56.2	98	103	75-125	5
Cadmium	ug/L (ppb)	5	<10	92	94	75-125	2
Chromium	ug/L (ppb)	20	<10	90	93	75-125	3
Lead	ug/L (ppb)	10	<10	89	89	75-125	0
Mercury	ug/L (ppb)	5	<10	82	85	75-125	4
Selenium	ug/L (ppb)	5	<10	76	69 vo	75-125	10
Silver	ug/L (ppb)	5	<10	85	89	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	92	80-120
Barium	ug/L (ppb)	50	93	80-120
Cadmium	ug/L (ppb)	5	97	80-120
Chromium	ug/L (ppb)	20	95	80-120
Lead	ug/L (ppb)	10	99	80-120
Mercury	ug/L (ppb)	5	99	80-120
Selenium	ug/L (ppb)	5	99	80-120
Silver	ug/L (ppb)	5	95	80-120

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 301116-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	99	96	70-130	3
Barium	ug/L (ppb)	50	7.31	100	99	70-130	1
Cadmium	ug/L (ppb)	5	<1	98	97	70-130	1
Chromium	ug/L (ppb)	20	<1	96	93	70-130	3
Lead	ug/L (ppb)	10	<1	89	89	70-130	0
Mercury	ug/L (ppb)	5	<1	88	95	70-130	8
Selenium	ug/L (ppb)	5	<1	104	98	70-130	6
Silver	ug/L (ppb)	5	<1	92	92	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	87	85-115
Barium	ug/L (ppb)	50	91	85-115
Cadmium	ug/L (ppb)	5	95	85-115
Chromium	ug/L (ppb)	20	95	85-115
Lead	ug/L (ppb)	10	95	85-115
Mercury	ug/L (ppb)	5	96	85-115
Selenium	ug/L (ppb)	5	93	85-115
Silver	ug/L (ppb)	5	95	85-115

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 301128-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	68	50-150
Chloromethane	ug/L (ppb)	10	<10	80	50-150
Vinyl chloride	ug/L (ppb)	10	<0.02	89	50-150
Bromomethane	ug/L (ppb)	10	<5	97	50-150
Chloroethane	ug/L (ppb)	10	<1	101	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	92	50-150
Acetone	ug/L (ppb)	50	<50	40 vo	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	98	50-150
Hexane	ug/L (ppb)	10	<5	85	50-150
Methylene chloride	ug/L (ppb)	10	<5	87	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	99	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	100	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	100	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	88	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	93	50-150
Chloroform	ug/L (ppb)	10	<1	98	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	72	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	106	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	102	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	95	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	103	50-150
Benzene	ug/L (ppb)	10	<0.35	95	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	93	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<1	99	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	99	50-150
Dibromomethane	ug/L (ppb)	10	<1	98	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	100	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	93	50-150
Toluene	ug/L (ppb)	10	<1	98	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	104	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	99	50-150
2-Hexanone	ug/L (ppb)	50	<10	88	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	100	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	102	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	105	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	103	50-150
Chlorobenzene	ug/L (ppb)	10	<1	101	50-150
Ethylbenzene	ug/L (ppb)	10	<1	98	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	110	50-150
m,p-Xylene	ug/L (ppb)	20	<2	97	50-150
o-Xylene	ug/L (ppb)	10	<1	99	50-150
Styrene	ug/L (ppb)	10	<1	96	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	105	50-150
Bromoform	ug/L (ppb)	10	<5	103	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	103	50-150
Bromobenzene	ug/L (ppb)	10	<1	99	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	102	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	107	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	97	50-150
2-Chlorotoluene	ug/L (ppb)	10	<1	101	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	97	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	103	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	99	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	100	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	100	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	103	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	100	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	104	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	101	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	102	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	97	50-150
Naphthalene	ug/L (ppb)	10	<1	101	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	104	50-150

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	69	71	46-206	3
Chloromethane	ug/L (ppb)	10	85	81	70-142	5
Vinyl chloride	ug/L (ppb)	10	90	88	70-130	2
Bromomethane	ug/L (ppb)	10	101	105	56-197	4
Chloroethane	ug/L (ppb)	10	100	98	70-130	2
Trichlorofluoromethane	ug/L (ppb)	10	93	89	70-130	4
Acetone	ug/L (ppb)	50	48	44	10-140	9
1,1-Dichloroethene	ug/L (ppb)	10	101	99	70-130	2
Hexane	ug/L (ppb)	10	94	89	54-136	5
Methylene chloride	ug/L (ppb)	10	95	98	43-134	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	102	99	70-130	3
trans-1,2-Dichloroethene	ug/L (ppb)	10	103	101	70-130	2
1,1-Dichloroethane	ug/L (ppb)	10	103	100	70-130	3
2,2-Dichloropropane	ug/L (ppb)	10	91	86	70-130	6
cis-1,2-Dichloroethene	ug/L (ppb)	10	95	97	70-130	2
Chloroform	ug/L (ppb)	10	101	98	70-130	3
2-Butanone (MEK)	ug/L (ppb)	50	75	72	17-154	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	110	106	70-130	4
1,1,1-Trichloroethane	ug/L (ppb)	10	104	101	70-130	3
1,1-Dichloropropene	ug/L (ppb)	10	98	95	70-130	3
Carbon tetrachloride	ug/L (ppb)	10	103	102	70-130	1
Benzene	ug/L (ppb)	10	98	94	70-130	4
Trichloroethene	ug/L (ppb)	10	95	93	70-130	2
1,2-Dichloropropane	ug/L (ppb)	10	102	100	70-130	2
Bromodichloromethane	ug/L (ppb)	10	107	99	70-130	8
Dibromomethane	ug/L (ppb)	10	102	92	70-130	10
4-Methyl-2-pentanone	ug/L (ppb)	50	108	102	68-130	6
cis-1,3-Dichloropropene	ug/L (ppb)	10	102	95	69-131	7
Toluene	ug/L (ppb)	10	96	96	70-130	0
trans-1,3-Dichloropropene	ug/L (ppb)	10	102	100	70-130	2
1,1,2-Trichloroethane	ug/L (ppb)	10	97	97	70-130	0
2-Hexanone	ug/L (ppb)	50	91	85	45-138	7
1,3-Dichloropropane	ug/L (ppb)	10	102	103	70-130	1
Tetrachloroethene	ug/L (ppb)	10	99	99	70-130	0
Dibromochloromethane	ug/L (ppb)	10	108	105	60-148	3
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	103	101	70-130	2
Chlorobenzene	ug/L (ppb)	10	99	101	70-130	2
Ethylbenzene	ug/L (ppb)	10	97	97	70-130	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	105	110	70-130	5
m,p-Xylene	ug/L (ppb)	20	95	96	70-130	1
o-Xylene	ug/L (ppb)	10	97	97	70-130	0
Styrene	ug/L (ppb)	10	101	98	70-130	3
Isopropylbenzene	ug/L (ppb)	10	100	104	70-130	4
Bromoform	ug/L (ppb)	10	98	97	69-138	1
n-Propylbenzene	ug/L (ppb)	10	102	102	70-130	0
Bromobenzene	ug/L (ppb)	10	99	104	70-130	5
1,3,5-Trimethylbenzene	ug/L (ppb)	10	102	102	70-130	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	107	106	70-130	1
1,2,3-Trichloropropane	ug/L (ppb)	10	96	98	70-130	2
2-Chlorotoluene	ug/L (ppb)	10	101	101	70-130	0
4-Chlorotoluene	ug/L (ppb)	10	100	97	70-130	3
tert-Butylbenzene	ug/L (ppb)	10	102	101	70-130	1
1,2,4-Trimethylbenzene	ug/L (ppb)	10	102	99	70-130	3
sec-Butylbenzene	ug/L (ppb)	10	99	99	70-130	0
p-Isopropyltoluene	ug/L (ppb)	10	103	102	70-130	1
1,3-Dichlorobenzene	ug/L (ppb)	10	101	100	70-130	1
1,4-Dichlorobenzene	ug/L (ppb)	10	105	102	70-130	3
1,2-Dichlorobenzene	ug/L (ppb)	10	103	104	70-130	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	105	104	70-130	1
1,2,4-Trichlorobenzene	ug/L (ppb)	10	102	103	70-130	1
Hexachlorobutadiene	ug/L (ppb)	10	101	100	70-130	1
Naphthalene	ug/L (ppb)	10	101	101	70-130	0
1,2,3-Trichlorobenzene	ug/L (ppb)	10	101	104	70-130	3

Date of Report: 01/19/23
Date Received: 01/10/23
Project: C-1 RI GW Monitoring 5530-014-02, F&BI 301128

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS STODDARD SOLVENT USING NWTPH-Gx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Stoddard Solvent	ug/L (ppb)	500	87	87	70-130	0

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

301128

SAMPLE CHAIN OF CUSTODY

01/10/23 J2/C3/VW2

Page # 1 of 1

Report To Jacob Letts

Company GeoEngineers

Address 2101 4th Ave, Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geoengineers.com

SAMPLERS (signature) Katy

PROJECT NAME: C-1 RI GW Monitoring

PO #: 5530-014-02

REMARKS: Dissolved metals were Field filtered as marked on Bottle & label.

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☒ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

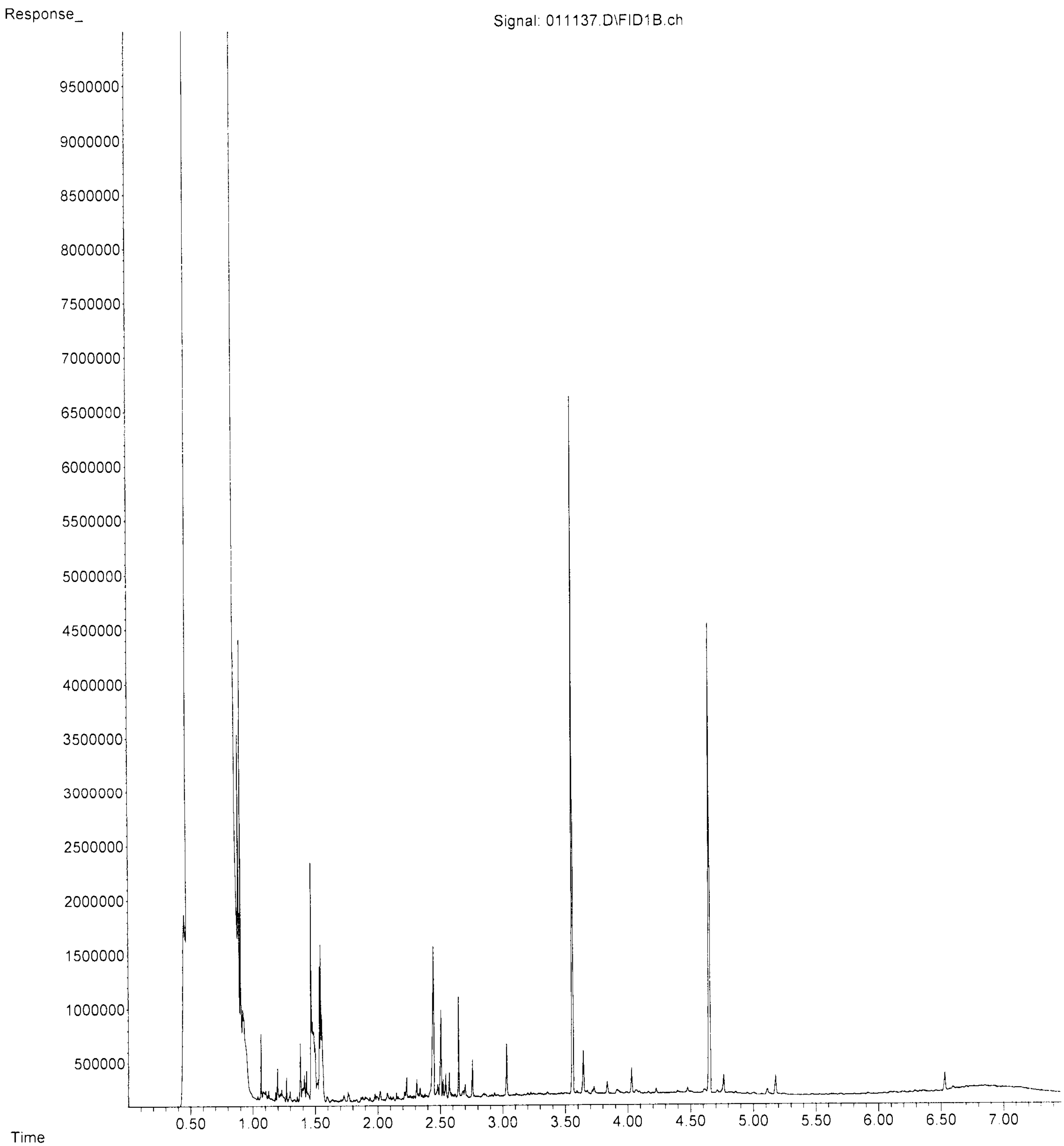
ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total & Diss RCRA 8 metals	Gx quantify to Stod. spirit			Notes
C-1 RI-10-20230109	1 A-G	1/9/23	1130	w	7	X	X			X			X				
C-1 HSA-4-20230109	2	1/9/23	1330		7	X	X			X			X				
C-1 HSA-3-20230110	3	1/10/23	1100		7	X				X			X	X			
C-1 RI-12-20230110	4	1/10/23	1330		7	X	X			X			X				
C-1 RI-13-20230110	5	1/10/23	1500		7	X	X			X			X				
C-1 DUP-1-20230109	6 A-D	1/9/23	1200		4					X							
TB-20230110	7 A-B	1/10/23	—		2					X							

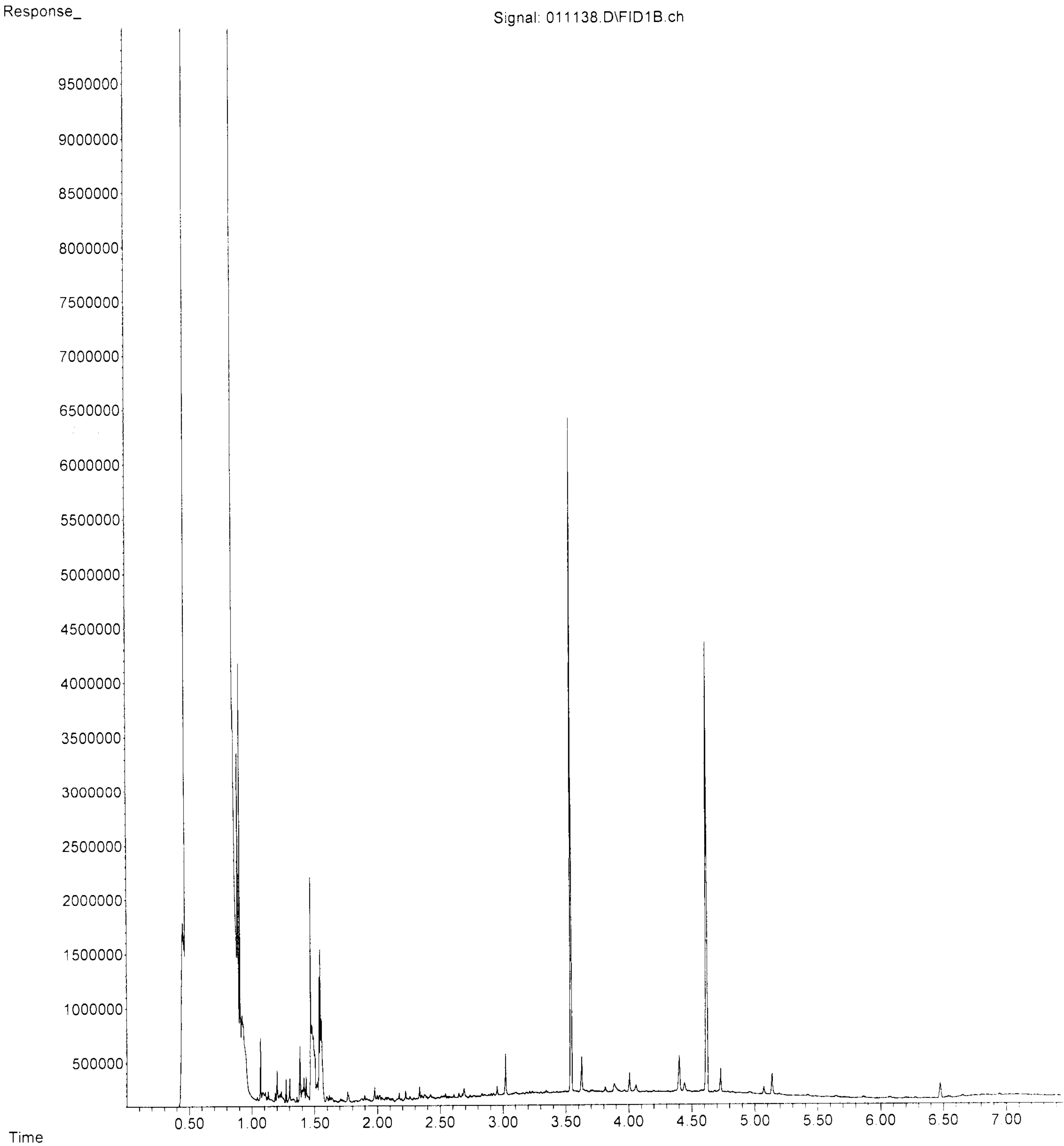
Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Katy	Katy Ataktürk	GeoEngineers	1/10/23	15:20
Received by: [signature]	ANH PHAN	F&B	01/10/23	15:20
Relinquished by:				
Received by:		Samples received at Ø °C		

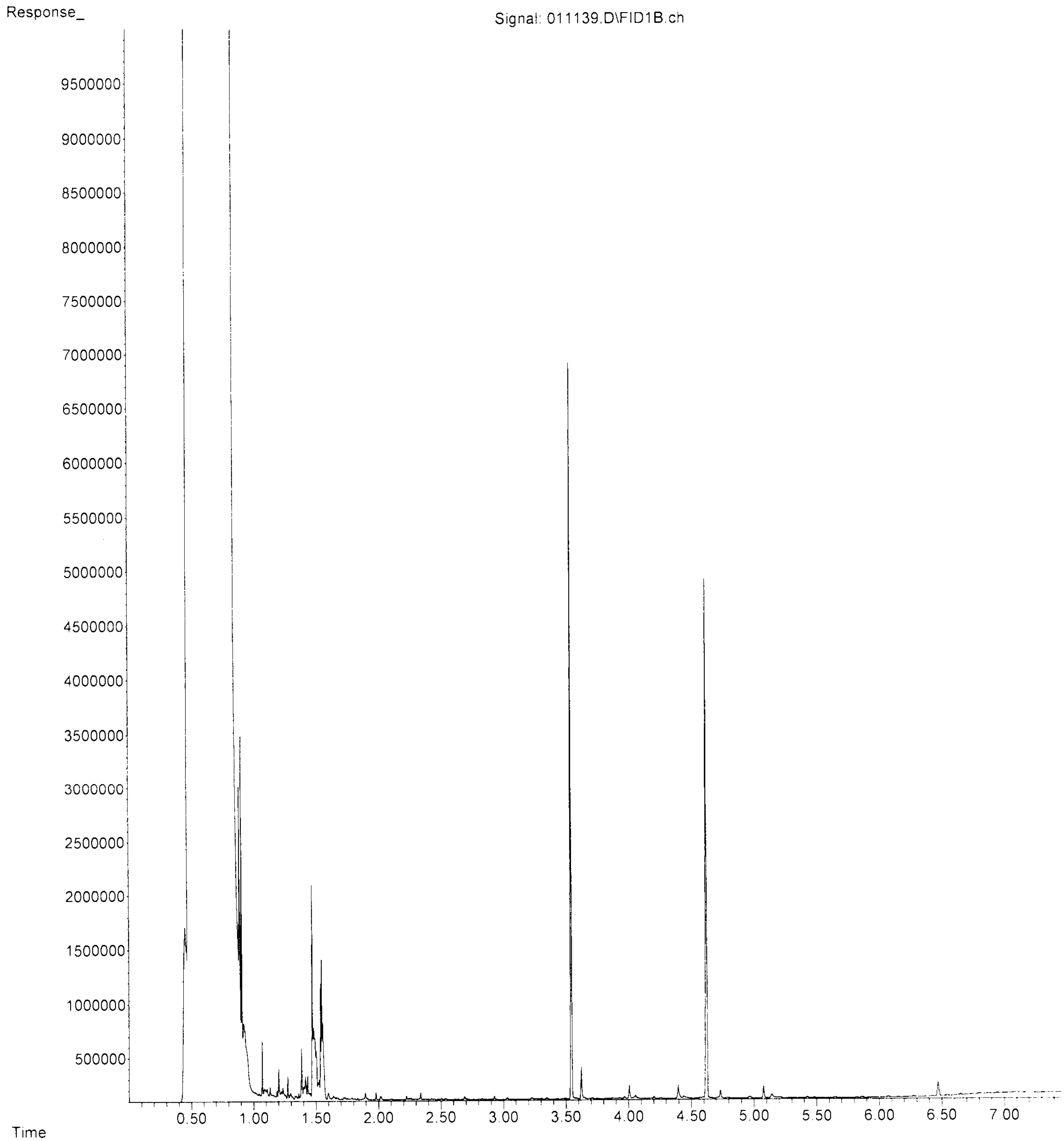
File :P:\Proc_GC10\01-11-23\011137.D
Operator : TL
Acquired : 11 Jan 2023 04:34 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 301128-01
Misc Info :
Vial Number: 29



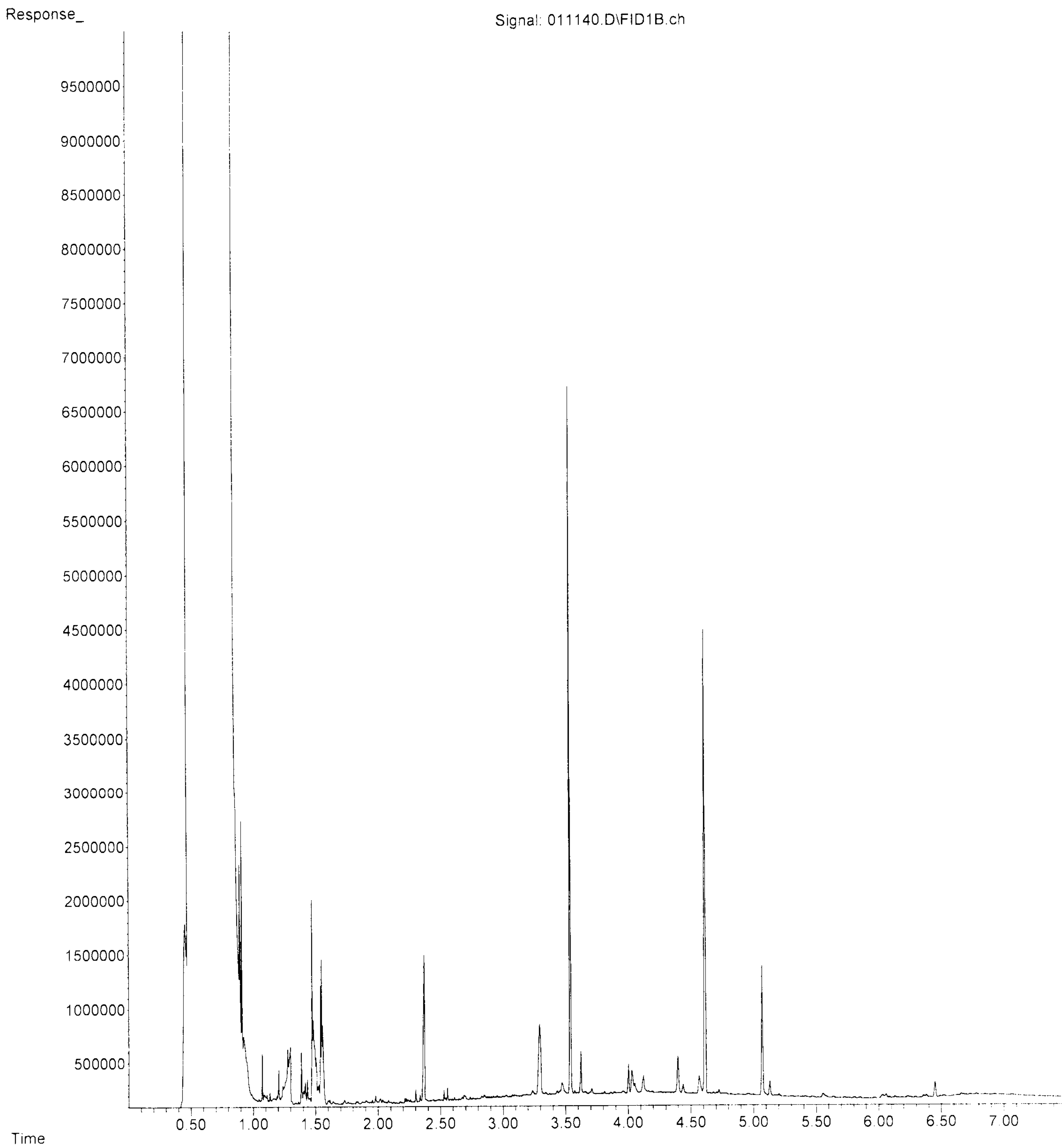
File   :P:\Proc_GC10\01-11-23\011138.D
Operator   : TL
Acquired   : 11 Jan 2023 04:46 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 301128-02
Misc Info   :
Vial Number: 30



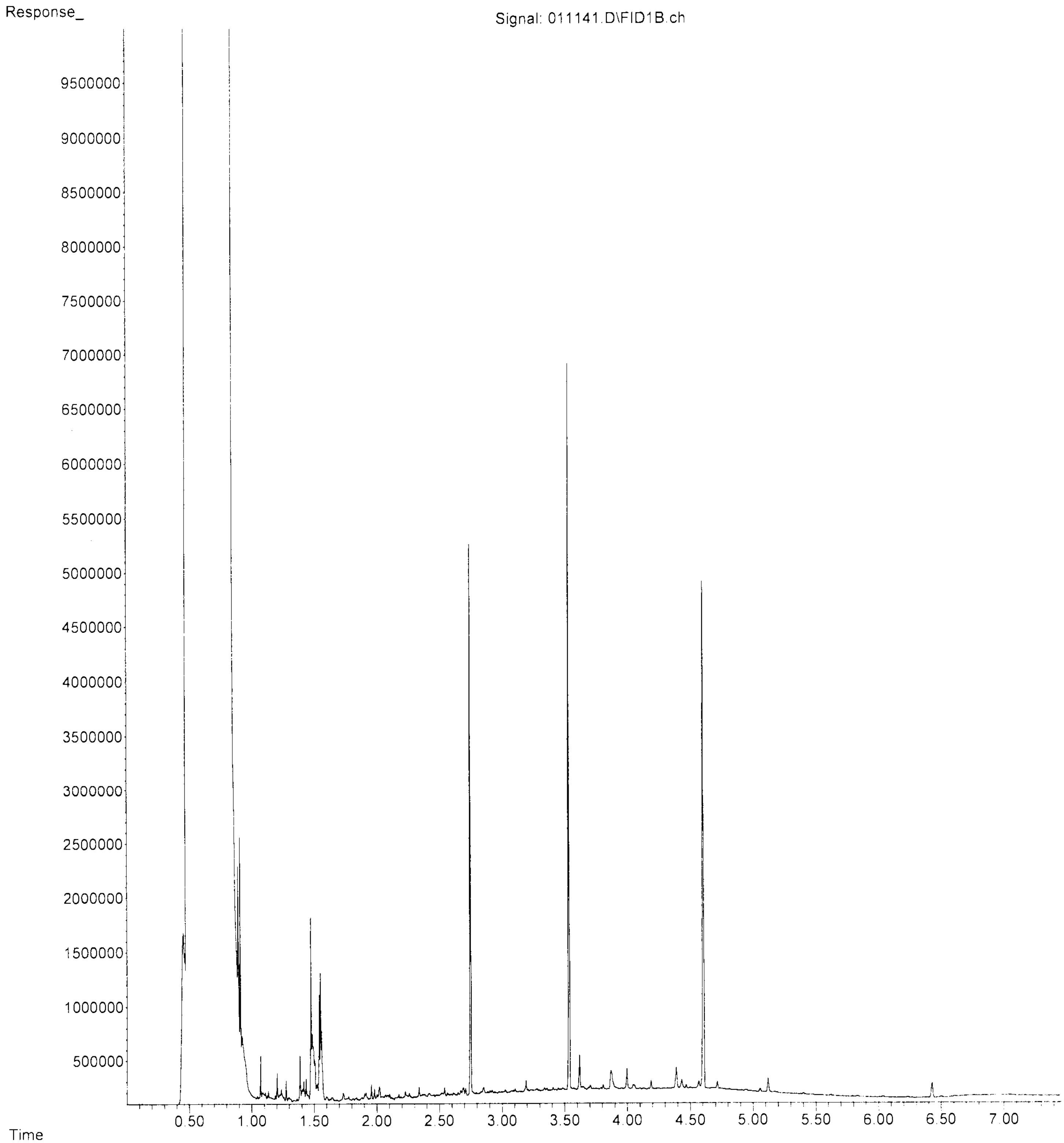
File   :P:\Proc_GC10\01-11-23\011139.D
Operator   : TL
Acquired   : 11 Jan 2023 04:57 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 301128-03
Misc Info :
Vial Number: 31



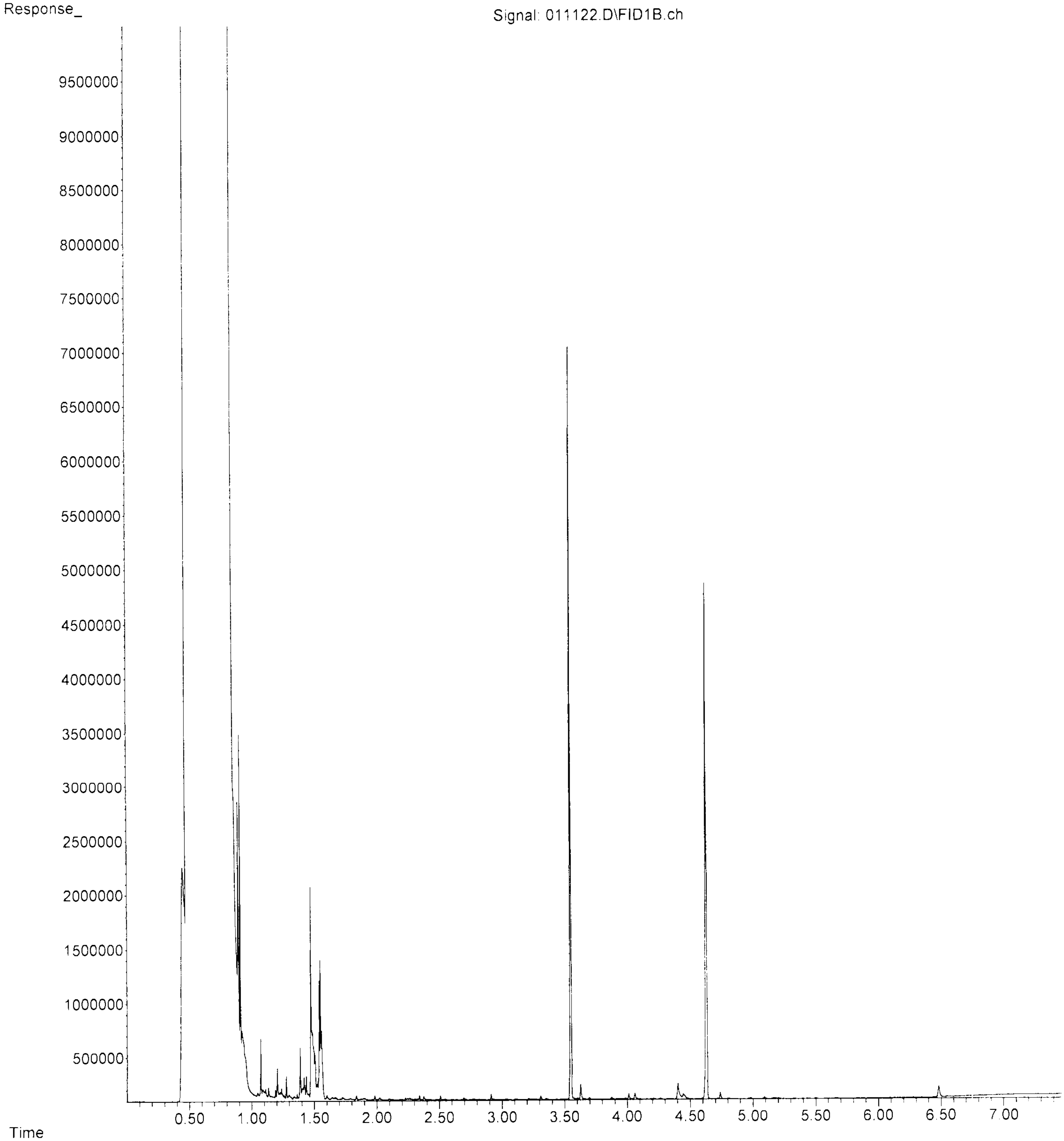
File :P:\Proc_GC10\01-11-23\011140.D
Operator : TL
Acquired : 11 Jan 2023 05:09 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 301128-04
Misc Info :
Vial Number: 32



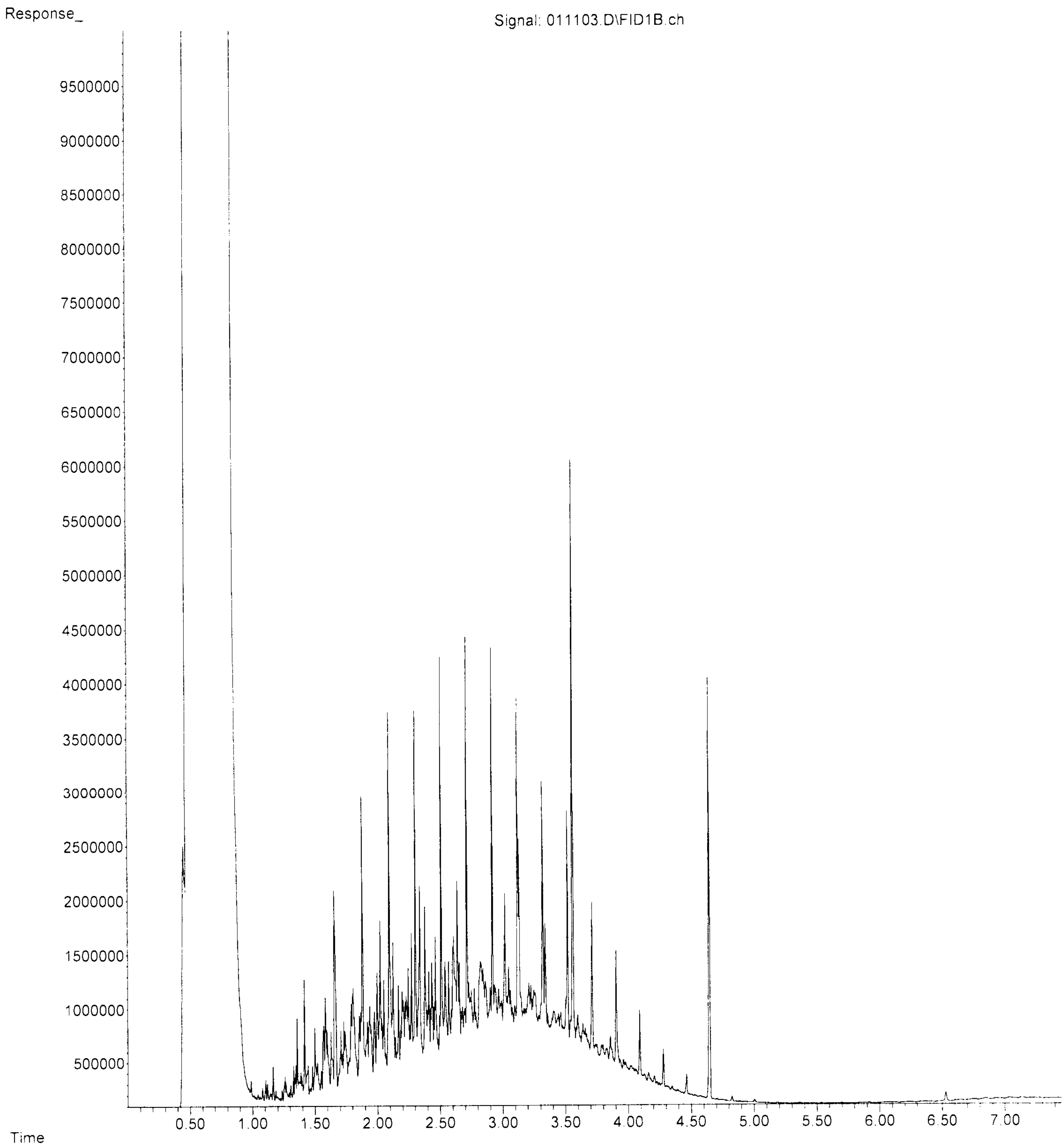
File   :P:\Proc_GC10\01-11-23\011141.D
Operator   : TL
Acquired   : 11 Jan 2023 05:21 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 301128-05
Misc Info   :
Vial Number: 33



File   :P:\Proc_GC10\01-11-23\011122.D
Operator   : TL
Acquired   : 11 Jan 2023 01:10 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 03-133 mb
Misc Info :
Vial Number: 105



File   :P:\Proc_GC10\01-11-23\011103.D
Operator   : TL
Acquired   : 11 Jan 2023 09:24 am using AcqMethod DX.M
Instrument :   GC10
Sample Name: 500 DX 67-143B
Misc Info :
Vial Number: 3



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 6, 2021

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the additional results from the testing of material submitted on March 31, 2021 from the Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. There are 2 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR0506R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2021 by Friedman & Bruya, Inc. from the GeoEngineers Snohomish County Airport C-1 Hangar 5530-014-01, F&BI 103585 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
103585 -01	C-1 DP4-3.5
103585 -02	C-1 DP4-5.0
103585 -03	C-1 DP4-7.0
103585 -04	C-1 DP3-4.0
103585 -05	C-1 DP3-7.0
103585 -06	C-1 DP3-033021w
103585 -07	C-1 DP5-3.0
103585 -08	C-1 DP5-6.0
103585 -09	C-1 DP15-4.0
103585 -10	C-1 DP15-7.0
103585 -11	C-1 DP14-5.0
103585 -12	C-1 DP14-10.0
103585 -13	C-1 DP13-2.0
103585 -14	C-1 DP13-5.0
103585 -15	C-1 DP13-033121w
103585 -16	C-1 DP14-033121w
103585 -17	C-1 DP8-4.5
103585 -18	C-1 DP8-9.0
103585 -19	C-1 DP9-3.0
103585 -20	C-1 DP9-7.5
103585 -21	C-1 DP10-4.0
103585 -22	C-1 DP11-4.0
103585 -23	C-1 DP2-5.0
103585 -24	C-1 DP2-11.0
103585 -25	C-1 DP1-3.5
103585 -26	C-1 DP1-11.0
103585 -27	C-1 DP2-033121w
103585 -28	C-1 DP7-4.0
103585 -29	C-1 DP7-9.0
103585 -30	C-1 DP12-3.0
103585 -31	C-1 DP12-8.0
103585 -32	C-1 DP6-3.0
103585 -33	C-1 DP6-6.0
103585 -34	Trip Blank 1
103585 -35	Trip Blank 2

CASE NARRATIVE (continued)

Laboratory ID	GeoEngineers
103585 -36	Trip Blank 3
103585 -37	Trip Blank 4
103585 -38	Trip Blank 5

Sample C-1 DP1-11.0 was sent to Fremont Analytical for hexavalent chromium analysis. The report is enclosed.

103585

SAMPLE CHAIN OF CUSTODY

HE 03-31-21

BI4 / E03 / V52 / VW5

Page # 1 of 4

Report To Jacob Letts

Company GEI

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geiengineers.com

SAMPLERS (signature)

PROJECT NAME
Snohomish County Airport C1 Hangar

PO #
5530-014-01

REMARKS
* IF Gx detected, ask PM if he wants to quantify to mineral spirits.

INVOICE TO

Project specific RLs? - Yes / No

TURNAROUND TIME
X Standard turnaround
☐ RUSH ______
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other ______
Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	(RCRA 8) Metals	(RCRA 8) Total metals	(RCRA 8) Dissolved metals		Notes
C-1 DP4-3.5	01 A-F	3/30/21	1000	S	6	X	X			X		X	X				
C-1 DP4-5.0	02		1005	S	6	X	X			X		X	X				
C-1 DP4-7.0	03		1010	S	6	X	X			X		X	X				
C-1 DP3-4.0	04		1040	S	6	X	X			X		X	X				
C-1 DP3-7.0	05		1050	S	6	X	X			X		X	X				
C-1 DP3-033021w	06 A-J		1140	gw	10	X	X			X		X		X	X		
C-1 DP5-3.0	07 A-F		1150	S	6	X	X			X		X	X				
C-1 DP5-6.0	08		~~1340~~ 1200	S	6	X	X			X		X	X				
C-1 DP15-4.0	09		1340	S	6	X	X			X		X	X				
C-1 DP15-7.0	10		1350	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ankfirk	GEI	3/31/21	16:30
Received by:	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:				

Samples received at 4 °C

103585

Report To [redacted]

Company

Address

City, State, ZIP

Phone Email

See pg 1

SAMPLE CHAIN OF CUSTODY ME 03-31-21 [redacted] BI4/E03/VS2/VW5

Page # 2 of 4

SAMPLERS (*signature*)	
PROJECT NAME	PO # S530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals	Total metal	Diss. metal		Notes
C-1 DP14-5.0	11 A-F	3/30/21	1430	S	6	X	X			X		X	X				
C-1 DP14-10.0	12		1440	S	6	X	X			X		X	X				4 extra VOA's
C-1 DP13-2.0	13		1500	S	6	X	X			X		X	X				labels C-1DP13-2.5
C-1 DP13-5.0	14		1520	S	6	X	X			X		X	X				
C-1 DP13-033121w	15A-J	3/31/21	800	gw	10	X	X			X		X		X	X		time on bottle wrong
C-1DP14-033121w	16		820	gw	10	X	X			X		X		X	X		
C-1DP8-4.5	17A-F		900	S	6	X	X			X		X	X				
C-1DP8-9.0	18		910	S	6	X	X			X		X	X				
C-1DP9-3.0	19		920	S	6	X	X			X		X	X				
C-1DP9-7.5	20		930	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Ataktuk	GEI	3/31/21	16:30
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

103585

SAMPLE CHAIN OF CUSTODY 03-31-21 BI4/E03/VS2/VWS

Report To See pg 1

Company

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*) ME

Page # 3 of 4

PROJECT NAME	PO #
	5530-014-01
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA8 metals	Total metals	Diss. metals	Hex Chrome	Notes
C-1 DP10-4.0	21A-F	3/31/21	1000	S	6	X	X			X		X	X				● -per JL 4/27/21 ME
C-1 DP11-4.0	22		1030	S	6	X	X			X		X	X				
C-1 DP2-5.0	23		1100	S	6	X	X			X		X	X				
C-1 DP2-11.0	24		1120	S	6	X	X			X		X	X				
C-1 DP1-3.5	25		1200	S	6	X	X			X		X	X				
C-1 DP1-11.0	26		1220	S	6	X	X			X		X	X			●	
C-1 DP2-033121w	27A-J		1300	gw	10	X	X			X		X		X	X		
C-1 DP7-4.0	28A-F		1300	S	6	X	X			X		X	X				
C-1 DP7-9.0	29		1320	S	6	X	X			X		X	X				
C-1 DP12-3.0	30		1340	S	6	X	X			X		X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Atakturk	GEI	3/31/21	16:30
Received by:	Khoi Hoang	FBE	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

103585

SAMPLE CHAIN OF CUSTODY ME 03-31-21

BE4/E03/VS2/ Page # 4 of 4 VWS

Report To

Company

Address Seep

City, State, ZIP

Phone Email

SAMPLERS (signature)

PROJECT NAME 1

PO # 05530-014-01

REMARKS

INVOICE TO

Project specific RLs? - Yes / No

TURNAROUND TIME
- ☒ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	metals (RCRA 8)				Notes
C-1 DP12-8.0	31A-F	3/31/21	1400	S	6	X	X			X		X	X				⊗ per KA 4/1/21 ME
C-1 DPG-3.0	32A-F	03/30/21	1220	soil	5	⊗	⊗			⊗		⊗	⊗				
C-1 DPG-4.0	33	03/30/21	1230	soil	5	⊗	⊗			⊗		⊗	⊗				B 4/1
Trip Blank 1	34 A-B			water	2					⊗							
Trip Blank 2	35																
Trip Blank 3	36																
Trip Blank 4	37																
Trip Blank 5	38																

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	3/31/21	1630
Received by: [signature]	Khoi Hoang	FBI	3/31/21	16:30
Relinquished by:				
Received by:		Samples received at 4 °C		

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 103585
Work Order Number: 2104392

May 05, 2021

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 4/28/2021 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Fremont Analytical

Date: *05/05/2021*

CLIENT:	Friedman & Bruya
Project:	103585
Work Order:	2104392

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2104392-001	C-1 DP1-11.0	03/31/2021 12:20 PM	04/28/2021 1:28 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Fremont Analytical

Case Narrative

WO#: **2104392**

Date: **5/5/2021**

CLIENT: Friedman & Bruya

Project: 103585

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2104392**
Date Reported: **5/5/2021**

Client: Friedman & Bruya
Project: 103585
Lab ID: 2104392-001
Client Sample ID: **C-1 DP1-11.0**

Collection Date: 3/31/2021 12:20:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R66978		Analyst: CJ
Percent Moisture	10.0	0.500		wt%	1	5/4/2021 9:17:29 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 32196		Analyst: LB
Chromium, Hexavalent	ND	0.555	H	mg/Kg-dry	1	5/5/2021 12:53:00 PM

Date: *5/5/2021*

Fremont Analytical

Work Order: 2104392
CLIENT: Friedman & Bruya
Project: 103585

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **MB-32196** SampType: **MBLK** Units: **mg/Kg** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **MBLKS** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350324**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-32196** SampType: **LCS** Units: **mg/Kg** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **LCSS** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350325**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.19	0.500	2.500	0	87.6	86.5	114				

Sample ID: **2104305-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **BATCH** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350327**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.532						0		30	

Sample ID: **2104305-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **BATCH** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350328**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.53	0.522	2.611	0	96.9	6.79	138				

Sample ID: **2104305-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **5/5/2021** RunNo: **67034**
Client ID: **BATCH** Batch ID: **32196** Analysis Date: **5/5/2021** SeqNo: **1350329**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.57	0.536	2.679	0	95.9	6.79	138	2.531	1.52	30	

Fremont Analytical

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2104392**
Logged by:	**Carissa True**	Date Received:	**4/28/2021 1:28:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☐	No ☑	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	3.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2104392

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER	
Fremont	
PROJECT NAME/NO.	PO #
103585	B-238
REMARKS	
Please Email Results EQUIS EDD	

TURNAROUND TIME
- ☒ Standard TAT
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH	VPH	Hex Chrome							Notes
C-1 DP1-11.0		3/31/21	1220	Soil	1				X							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Michael Erdahl	Friedman & Bruya	4/28/21	0800 AM
Received by: [signature]	Claire Anderson	FAI	4/29/21	1328
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 28, 2022

Jacob Letts, Project Manager
GeoEngineers, Inc
1101 Fawcett Ave 200
Tacoma, WA 98402

Dear Mr Letts:

Included are the results from the testing of material submitted on December 21, 2022 from the C-1 RI 5531-014-02, F&BI 212334 project. There are 43 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Ataturk
GNR1228R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 21, 2022 by Friedman & Bruya, Inc. from the GeoEngineers, Inc C-1 RI 5531-014-02, F&BI 212334 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers, Inc
212334 -01	C-1 RI-5-4
212334 -02	C-1 RI-5-8
212334 -03	C-1 RI-5-10
212334 -04	C-1 RI-5-20
212334 -05	C-1 RI-4-4
212334 -06	C-1 RI-4-8
212334 -07	C-1 RI-4-10
212334 -08	C-1 RI-4-20
212334 -09	C-1 RI-2-4
212334 -10	C-1 RI-2-8
212334 -11	C-1 RI-2-10
212334 -12	C-1 RI-2-20
212334 -13	C-1 RI-3-4
212334 -14	C-1 RI-3-8
212334 -15	C-1 RI-3-10
212334 -16	C-1 RI-1-4
212334 -17	C-1 RI-1-8
212334 -18	C-1 RI-1-10

The 8260D calibration standard failed the acceptance criteria for acetone. The data were flagged accordingly.

The 8260D matrix spike, matrix spike duplicate, and laboratory control sample exceeded the acceptance criteria for several analytes. The compounds were not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334
Date Extracted: 12/22/22
Date Analyzed: 12/22/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
C-1 RI-5-4 212334-01	<5	93
C-1 RI-5-8 212334-02	<5	95
C-1 RI-5-10 212334-03	<5	93
C-1 RI-4-4 212334-05	<5	90
C-1 RI-4-8 212334-06	<5	94
C-1 RI-4-10 212334-07	<5	95
C-1 RI-2-4 212334-09	<5	94
C-1 RI-2-8 212334-10	<5	89
C-1 RI-2-10 212334-11	<5	78
C-1 RI-3-4 212334-13	<5	88
C-1 RI-3-8 212334-14	<5	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334
Date Extracted: 12/22/22
Date Analyzed: 12/22/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
C-1 RI-3-10 212334-15	<5	95
C-1 RI-1-4 212334-16	<5	96
C-1 RI-1-8 212334-17	<5	70
C-1 RI-1-10 212334-18	<5	91
Method Blank 02-2939 MB	<5	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334
Date Extracted: 12/22/22
Date Analyzed: 12/22/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
C-1 RI-5-4 212334-01	<50	<250	106
C-1 RI-5-8 212334-02	<50	<250	103
C-1 RI-5-10 212334-03	<50	<250	105
C-1 RI-4-4 212334-05	<50	<250	104
C-1 RI-4-8 212334-06	<50	<250	103
C-1 RI-4-10 212334-07	<50	<250	103
C-1 RI-2-4 212334-09	<50	<250	104
C-1 RI-2-8 212334-10	<50	<250	104
C-1 RI-2-10 212334-11	<50	<250	105
C-1 RI-2-20 212334-12	<50	<250	105
C-1 RI-3-8 212334-14	<50	<250	104
C-1 RI-3-10 212334-15	<50	<250	103

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334
Date Extracted: 12/22/22
Date Analyzed: 12/22/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
C-1 RI-1-4 212334-16	<50	<250	103
C-1 RI-1-8 212334-17	<50	<250	104
C-1 RI-1-10 212334-18	<50	<250	103
Method Blank 02-3056 mb	<50	<250	104

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-5-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-01
Date Analyzed:	12/21/22	Data File:	212334-01.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.84
Barium	43.9
Cadmium	<1
Chromium	24.9
Lead	1.84
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-5-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-02
Date Analyzed:	12/21/22	Data File:	212334-02.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.18
Barium	56.6
Cadmium	<1
Chromium	24.4
Lead	2.83
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-5-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-03
Date Analyzed:	12/21/22	Data File:	212334-03.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.16
Barium	52.3
Cadmium	<1
Chromium	25.5
Lead	2.47
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-4-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-05
Date Analyzed:	12/21/22	Data File:	212334-05.074
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.50
Barium	47.0
Cadmium	<1
Chromium	22.6
Lead	2.42
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-4-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-06
Date Analyzed:	12/21/22	Data File:	212334-06.075
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.11
Barium	50.1
Cadmium	<1
Chromium	24.0
Lead	2.34
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-4-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-07
Date Analyzed:	12/21/22	Data File:	212334-07.076
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.79
Barium	42.1
Cadmium	<1
Chromium	18.4
Lead	1.88
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-2-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-09
Date Analyzed:	12/21/22	Data File:	212334-09.079
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.93
Barium	45.0
Cadmium	<1
Chromium	19.7
Lead	1.76
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-2-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-10
Date Analyzed:	12/21/22	Data File:	212334-10.080
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.28
Barium	43.4
Cadmium	<1
Chromium	19.4
Lead	2.27
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-2-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-11
Date Analyzed:	12/21/22	Data File:	212334-11.081
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.97
Barium	39.5
Cadmium	<1
Chromium	19.4
Lead	2.03
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-3-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-13
Date Analyzed:	12/21/22	Data File:	212334-13.082
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.28
Barium	43.5
Cadmium	<1
Chromium	20.3
Lead	2.08
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-3-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-14
Date Analyzed:	12/21/22	Data File:	212334-14.083
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.99
Barium	43.6
Cadmium	<1
Chromium	20.9
Lead	2.30
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-3-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-15
Date Analyzed:	12/21/22	Data File:	212334-15.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.10
Barium	45.7
Cadmium	<1
Chromium	21.0
Lead	2.15
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-1-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-16
Date Analyzed:	12/21/22	Data File:	212334-16.085
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.82
Barium	51.5
Cadmium	<1
Chromium	25.7
Lead	2.40
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-1-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-17
Date Analyzed:	12/21/22	Data File:	212334-17.086
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.40
Barium	47.6
Cadmium	<1
Chromium	29.5
Lead	2.33
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	C-1 RI-1-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	212334-18
Date Analyzed:	12/21/22	Data File:	212334-18.087
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.19
Barium	57.0
Cadmium	<1
Chromium	24.5
Lead	2.67
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	NA	Project:	C-1 RI 5531-014-02
Date Extracted:	12/21/22 14:10	Lab ID:	I2-917 mb
Date Analyzed:	12/21/22	Data File:	I2-917 mb.067
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<3
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-5-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-01 1/0.25
Date Analyzed:	12/22/22	Data File:	122206.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	84	120
Toluene-d8	89	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-5-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-02 1/0.25
Date Analyzed:	12/22/22	Data File:	122207.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	104	73	128
4-Bromofluorobenzene	98	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-5-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-03 1/0.25
Date Analyzed:	12/22/22	Data File:	122208.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	97	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-4-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-05 1/0.25
Date Analyzed:	12/22/22	Data File:	122209.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	120
Toluene-d8	92	73	128
4-Bromofluorobenzene	100	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-4-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-06 1/0.25
Date Analyzed:	12/22/22	Data File:	122210.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	98	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-4-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-07 1/0.25
Date Analyzed:	12/22/22	Data File:	122211.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	104	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-2-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-09 1/0.25
Date Analyzed:	12/22/22	Data File:	122212.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	96	73	128
4-Bromofluorobenzene	99	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.0078
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	0.0014	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	0.0036	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	0.0091	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.43	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-2-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-10 1/0.25
Date Analyzed:	12/22/22	Data File:	122213.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.0021
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	0.0035	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	0.0043	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0010	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	0.0030	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.29	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-2-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-11 1/0.25
Date Analyzed:	12/22/22	Data File:	122214.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	84	120
Toluene-d8	86	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.0031
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	0.011	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	0.0067	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0040	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.73	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-3-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-13 1/0.25
Date Analyzed:	12/22/22	Data File:	122215.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.0026
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.047	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-3-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-14 1/0.25
Date Analyzed:	12/22/22	Data File:	122216.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	120
Toluene-d8	97	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.0049	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-3-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-15 1/0.25
Date Analyzed:	12/22/22	Data File:	122217.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	98	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.0034	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-1-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-16 1/0.25
Date Analyzed:	12/22/22	Data File:	122218.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	104	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.0020	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-1-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-17 1/0.25
Date Analyzed:	12/22/22	Data File:	122219.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-1-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	212334-18 1/0.25
Date Analyzed:	12/22/22	Data File:	122220.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	92	73	128
4-Bromofluorobenzene	99	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	C-1 RI 5531-014-02
Date Extracted:	12/22/22	Lab ID:	02-2980 mb 1/0.25
Date Analyzed:	12/22/22	Data File:	122205.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	97	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 212334-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 212334-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	2,000	<50	105	105	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	2,000	103	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 212334-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	104	99	75-125	5
Barium	mg/kg (ppm)	50	45.2	99	97	75-125	2
Cadmium	mg/kg (ppm)	10	<5	104	103	75-125	1
Chromium	mg/kg (ppm)	50	27.8	93	87	75-125	7
Lead	mg/kg (ppm)	50	<5	99	97	75-125	2
Mercury	mg/kg (ppm	5	<5	102	98	75-125	4
Selenium	mg/kg (ppm)	5	<5	112	115	75-125	3
Silver	mg/kg (ppm)	10	<5	104	105	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	105	80-120
Barium	mg/kg (ppm)	50	104	80-120
Cadmium	mg/kg (ppm)	10	103	80-120
Chromium	mg/kg (ppm)	50	112	80-120
Lead	mg/kg (ppm)	50	106	80-120
Mercury	mg/kg (ppm)	5	102	80-120
Selenium	mg/kg (ppm)	5	111	80-120
Silver	mg/kg (ppm)	10	104	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 212334-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	30	25	10-142	18
Chloromethane	mg/kg (ppm)	1	<0.5	55	57	10-126	4
Vinyl chloride	mg/kg (ppm)	1	<0.05	62	64	10-138	3
Bromomethane	mg/kg (ppm)	1	<0.5	143	167 vo	10-163	15
Chloroethane	mg/kg (ppm)	1	<0.5	91	95	10-176	4
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	79	84	10-176	6
Acetone	mg/kg (ppm)	5	<5	180 vo	197 vo	10-163	9
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	90	96	10-160	6
Hexane	mg/kg (ppm)	1	<0.25	85	87	10-137	2
Methylene chloride	mg/kg (ppm)	1	<0.5	120	134	10-156	11
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	102	119	21-145	15
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	95	107	14-137	12
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	101	115	19-140	13
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	120	136	10-158	12
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	104	117	25-135	12
Chloroform	mg/kg (ppm)	1	<0.05	107	121	21-145	12
2-Butanone (MEK)	mg/kg (ppm)	5	<1	90	103	19-147	13
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	109	122	12-160	11
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	100	116	10-156	15
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	105	118	17-140	12
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	103	119	9-164	14
Benzene	mg/kg (ppm)	1	<0.03	107	119	29-129	11
Trichloroethene	mg/kg (ppm)	1	<0.02	102	116	21-139	13
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	109	127	30-135	15
Bromodichloromethane	mg/kg (ppm)	1	<0.05	102	118	23-155	15
Dibromomethane	mg/kg (ppm)	1	<0.05	110	127	23-145	14
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	102	120	24-155	16
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	107	124	28-144	15
Toluene	mg/kg (ppm)	1	<0.05	97	113	35-130	15
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	95	110	26-149	15
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	98	115	10-205	16
2-Hexanone	mg/kg (ppm)	5	<0.5	77	89	15-166	14
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	98	113	31-137	14
Tetrachloroethene	mg/kg (ppm)	1	<0.025	99	114	20-133	14
Dibromochloromethane	mg/kg (ppm)	1	<0.05	100	119	28-150	17
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	98	115	28-142	16
Chlorobenzene	mg/kg (ppm)	1	<0.05	100	116	32-129	15
Ethylbenzene	mg/kg (ppm)	1	<0.05	97	113	32-137	15
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	95	110	31-143	15
m,p-Xylene	mg/kg (ppm)	2	<0.1	100	114	34-136	13
o-Xylene	mg/kg (ppm)	1	<0.05	99	114	33-134	14
Styrene	mg/kg (ppm)	1	<0.05	93	110	35-137	17
Isopropylbenzene	mg/kg (ppm)	1	<0.05	94	109	31-142	15
Bromoform	mg/kg (ppm)	1	<0.05	103	120	21-156	15
n-Propylbenzene	mg/kg (ppm)	1	<0.05	100	117	23-146	16
Bromobenzene	mg/kg (ppm)	1	<0.05	99	115	34-130	15
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	101	118	18-149	16
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	101	117	28-140	15
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	100	114	25-144	13
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	101	115	31-134	13
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	99	115	31-136	15
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	102	118	30-137	15
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	101	115	10-182	13
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	103	118	23-145	14
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	100	118	21-149	17
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	101	117	30-131	15
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	98	113	29-129	14
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	100	115	31-132	14
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	95	109	11-161	14
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	92	109	22-142	17
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	95	109	10-142	14
Naphthalene	mg/kg (ppm)	1	<0.05	94	109	14-157	15
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	90	105	20-144	15

Date of Report: 12/28/22
Date Received: 12/21/22
Project: C-1 RI 5531-014-02, F&BI 212334

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	61	10-146
Chloromethane	mg/kg (ppm)	1	73	27-133
Vinyl chloride	mg/kg (ppm)	1	82	22-139
Bromomethane	mg/kg (ppm)	1	165 vo	38-114
Chloroethane	mg/kg (ppm)	1	108	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	106	10-196
Acetone	mg/kg (ppm)	5	187 vo	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	103	47-128
Hexane	mg/kg (ppm)	1	113	43-142
Methylene chloride	mg/kg (ppm)	1	117	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	111	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	106	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	112	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	134	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	112	72-127
Chloroform	mg/kg (ppm)	1	115	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	101	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	118	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	111	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	114	69-128
Carbon tetrachloride	mg/kg (ppm)	1	117	60-139
Benzene	mg/kg (ppm)	1	115	71-118
Trichloroethene	mg/kg (ppm)	1	112	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	120	72-127
Bromodichloromethane	mg/kg (ppm)	1	115	57-126
Dibromomethane	mg/kg (ppm)	1	120	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	111	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	114	67-122
Toluene	mg/kg (ppm)	1	106	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	107	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	110	64-115
2-Hexanone	mg/kg (ppm)	5	86	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	106	72-130
Tetrachloroethene	mg/kg (ppm)	1	107	72-114
Dibromochloromethane	mg/kg (ppm)	1	113	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	108	74-132
Chlorobenzene	mg/kg (ppm)	1	109	76-111
Ethylbenzene	mg/kg (ppm)	1	105	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	105	64-121
m,p-Xylene	mg/kg (ppm)	2	107	78-122
o-Xylene	mg/kg (ppm)	1	108	77-124
Styrene	mg/kg (ppm)	1	101	74-126
Isopropylbenzene	mg/kg (ppm)	1	103	76-127
Bromoform	mg/kg (ppm)	1	115	56-132
n-Propylbenzene	mg/kg (ppm)	1	107	74-124
Bromobenzene	mg/kg (ppm)	1	107	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	108	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	107	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	108	61-137
2-Chlorotoluene	mg/kg (ppm)	1	107	74-121
4-Chlorotoluene	mg/kg (ppm)	1	105	75-122
tert-Butylbenzene	mg/kg (ppm)	1	108	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	107	76-125
sec-Butylbenzene	mg/kg (ppm)	1	109	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	108	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	109	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	106	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	109	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	110	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	102	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	101	50-153
Naphthalene	mg/kg (ppm)	1	105	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	103	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

212334 [redacted]

SAMPLE CHAIN OF CUSTODY

12/21/22 [redacted]

GS / VS-D2

Page # 1 of 2

Report To Jacob Letts

Company GeoEngineers

Address

City, State, ZIP

Phone Email JLetts@geoengineers.com

SAMPLERS (signature)	
PROJECT NAME: C-1 RI	PO #: 5531-014-02
REMARKS: Froze sample. ~~Sensitive extraction~~ ~~time~~!!! 12/20/22 4pm	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA-8 Metals		HOLD		Notes
C-1 RI-~~15~~ 5-4	1A-E	12/19/22	900	S	5	X	X			X			X				IDs updated per JL 12/21/22 AE
C-1 RI-~~15~~ 5-8	2		910			X	X			X			X				
C-1 RI-~~15~~ 5-10	3		920			X	X			X			X				
C-1 RI-~~15~~ 5-20	4		930												X		
C-1 RI-~~14~~ 4-4	5		1000			X	X			X			X				
C-1 RI-~~14~~ 4-8	6		1010			X	X			X			X				
C-1 RI-~~14~~ 4-10	7		1020			X	X			X			X				
C-1 RI-~~14~~ 4-20	8		1030												X		
C-1 RI-2-4	9		1320			X	X			X			X				
C-1 RI-2-8	10		1340			X	X			X			X				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ataturk	GEI	12/20/21	0800
Received by:	ANH PHAN	F&B	12/21/22	10:57
Relinquished by:				
Received by:				

Samples received at 0 °C

212334 [redacted]

SAMPLE CHAIN OF CUSTODY 12/21/22 [redacted]

~~VA3~~ G5/VS D2

Page # 2 of 2

Report To Jacob Letts

Company GEI

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)	
PROJECT NAME: C-1 RI	PO #: 5531-014-02
REMARKS: Froze samples 4PM 12/20/22 Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA-8metals		HOLD		Notes
C-1 RI-2-10	11A-E	12/19/22	1350	S	5	X	X			X			X				
C-1 RI-2-20	12		1415												X		
C-1 RI-3-4	13		1440			X	X			X			X				
C-1 RI-3-8	14		1500			X	X			X			X				
C-1 RI-3-10	15		1510			X	X			X			X				
C-1 RI-1-4	16		1600			X	X			X			X				
C-1 RI-1-8	17		1610			X	X			X			X				
C-1 RI-1-10	18		1620			X	X			X			X				
				N/A													

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ataturk	GEI	12/20/22	0800
Received by:	ANH PHAN	F&B	12/21/22	10:57
Relinquished by:				
Received by:		Samples received at 0 °C		

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 212334 CLIENT GEI INITIALS/DATE: AP 12/21/22

If custody seals are present on cooler, are they intact?	☑ NA	☐ YES	☐ NO
Cooler/Sample temperature			Ø °C
Were samples received on ice/cold packs?		☑ YES	☐ NO

How did samples arrive?
- ☐ Over the Counter
- ☐ Picked up by F&BI
- ☑ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 2 days

Is there a Chain-of-Custody* (COC)? *or other representative documents, letters, and/or shipping memos	☑ YES	☐ NO
Are the samples clearly identified? (explain "no" answer below)	☐ YES	☑ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☑ Yes	☐ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☐ Yes	☑ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below)		☑ YES	☐ NO
Were appropriate sample containers used?	☑ YES	☐ NO	☐ Unknown
If custody seals are present on samples, are they intact?	☑ NA	☐ YES	☐ NO
Are samples requiring no headspace, headspace free?	☑ NA	☐ YES	☐ NO
Air Samples: Were any additional canisters received?	☑ NA	☐ YES	☐ NO

If Yes, number of unused 1L canisters ______

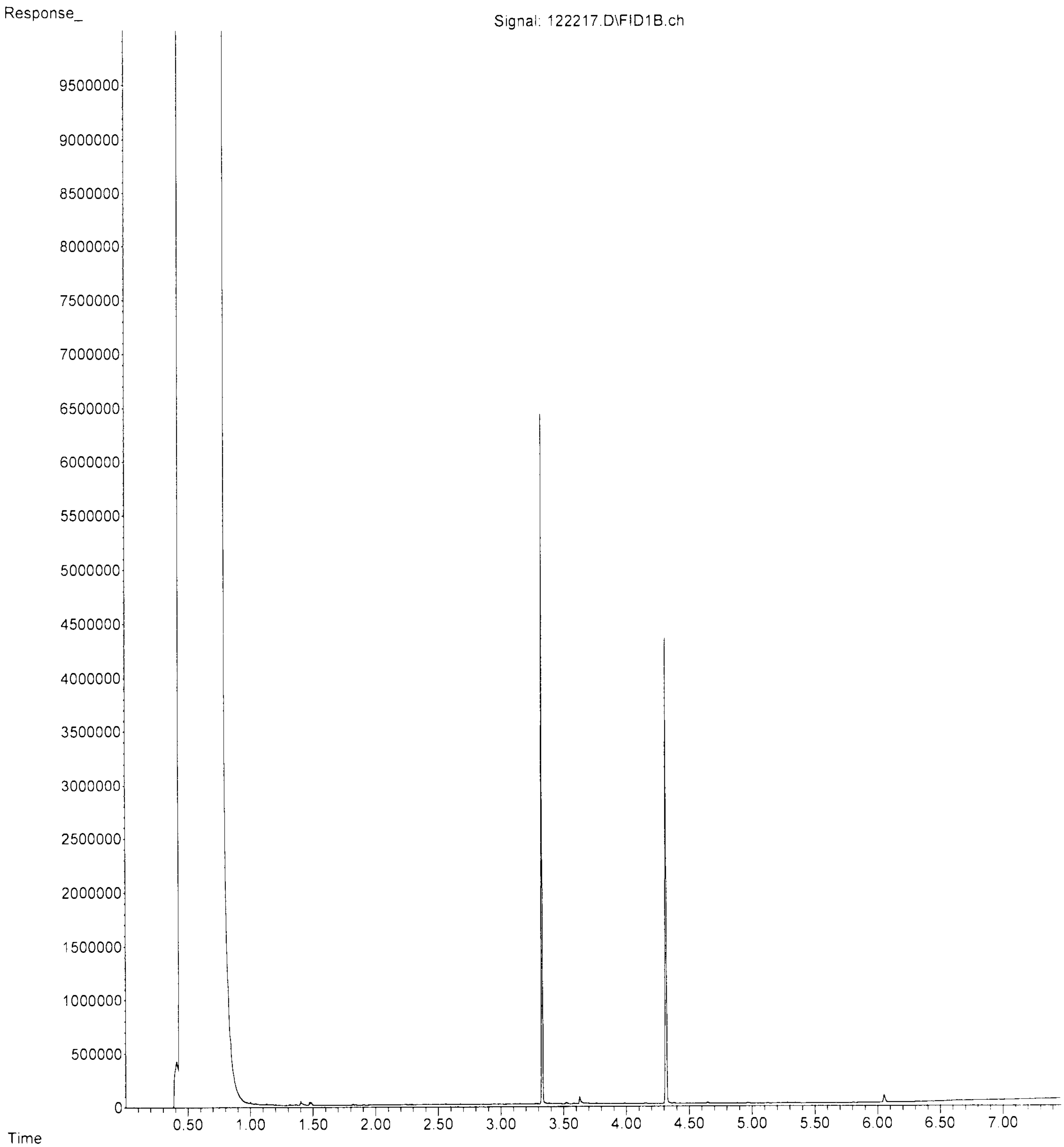
number of unused 6L canisters ______

Explain "no" items from above (use the back if needed)

- Sample ID C-1 R1-2-20 does not have time one 4oz jar sampled
- Sample ID C-1 R1-2-8 does not have time on VOAs samples.
- Sample ID C-1 R1-1-10 & C-1 R1-2-4. Time on 4oz jars do not match with VOAs samples.

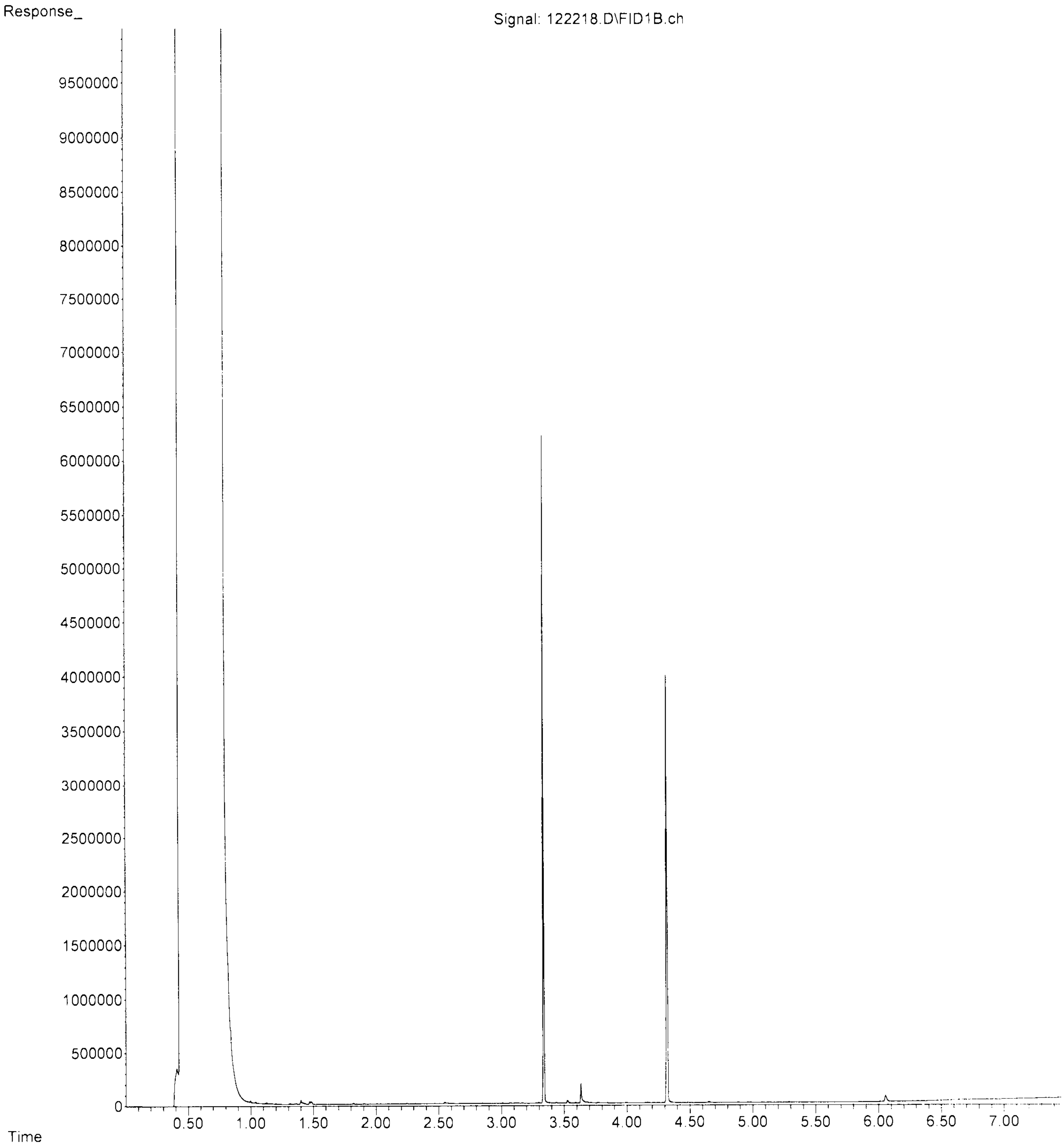
File   :P:\Proc_GC14\12-22-22\122217.D
Operator   : TL
Acquired   : 22 Dec 2022 10:32 am using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-01
Misc Info :
Vial Number: 19

ERR

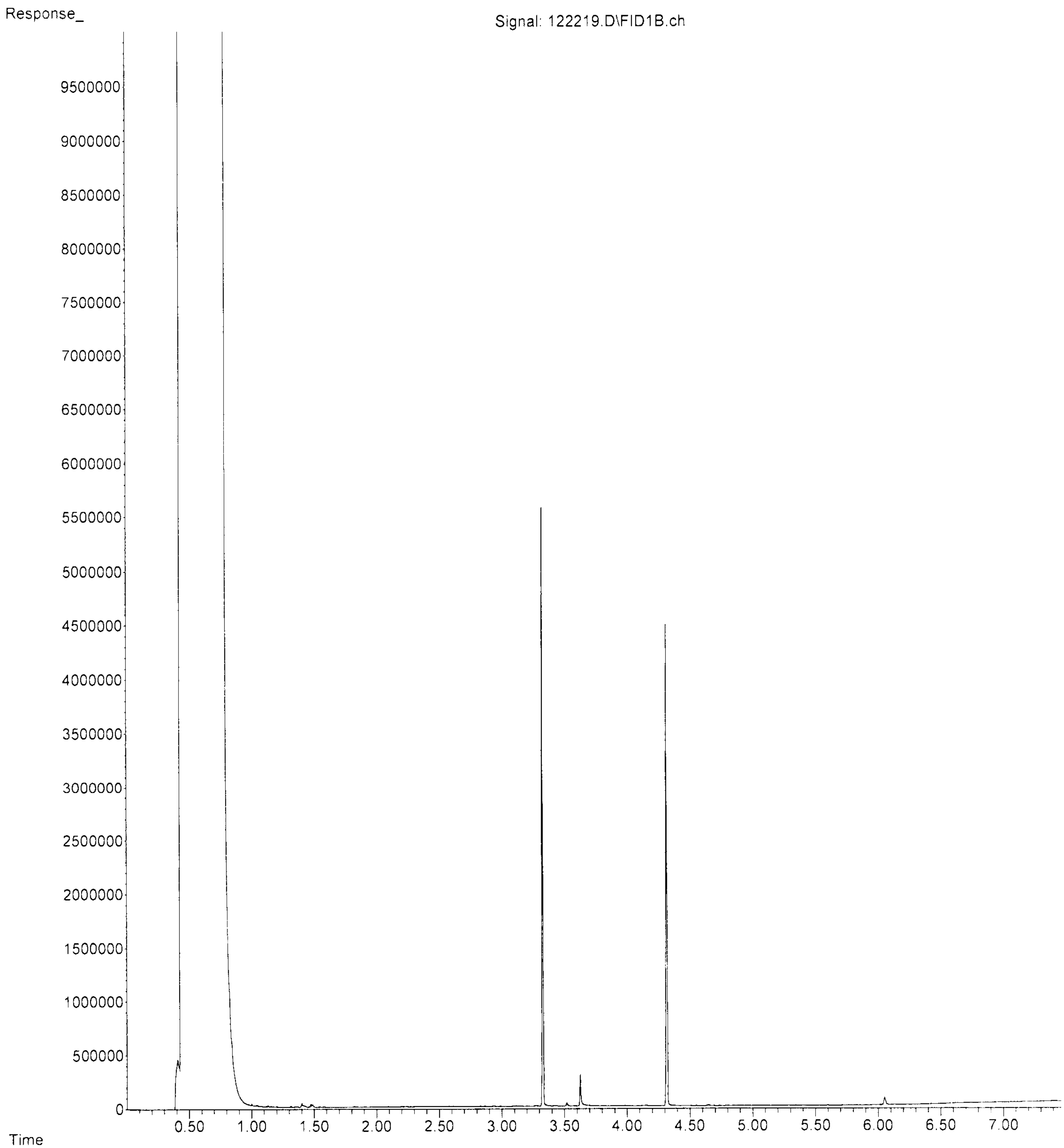


File   :P:\Proc_GC14\12-22-22\122218.D
Operator   : TL
Acquired   : 22 Dec 2022 10:46 am using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-02
Misc Info :
Vial Number: 20

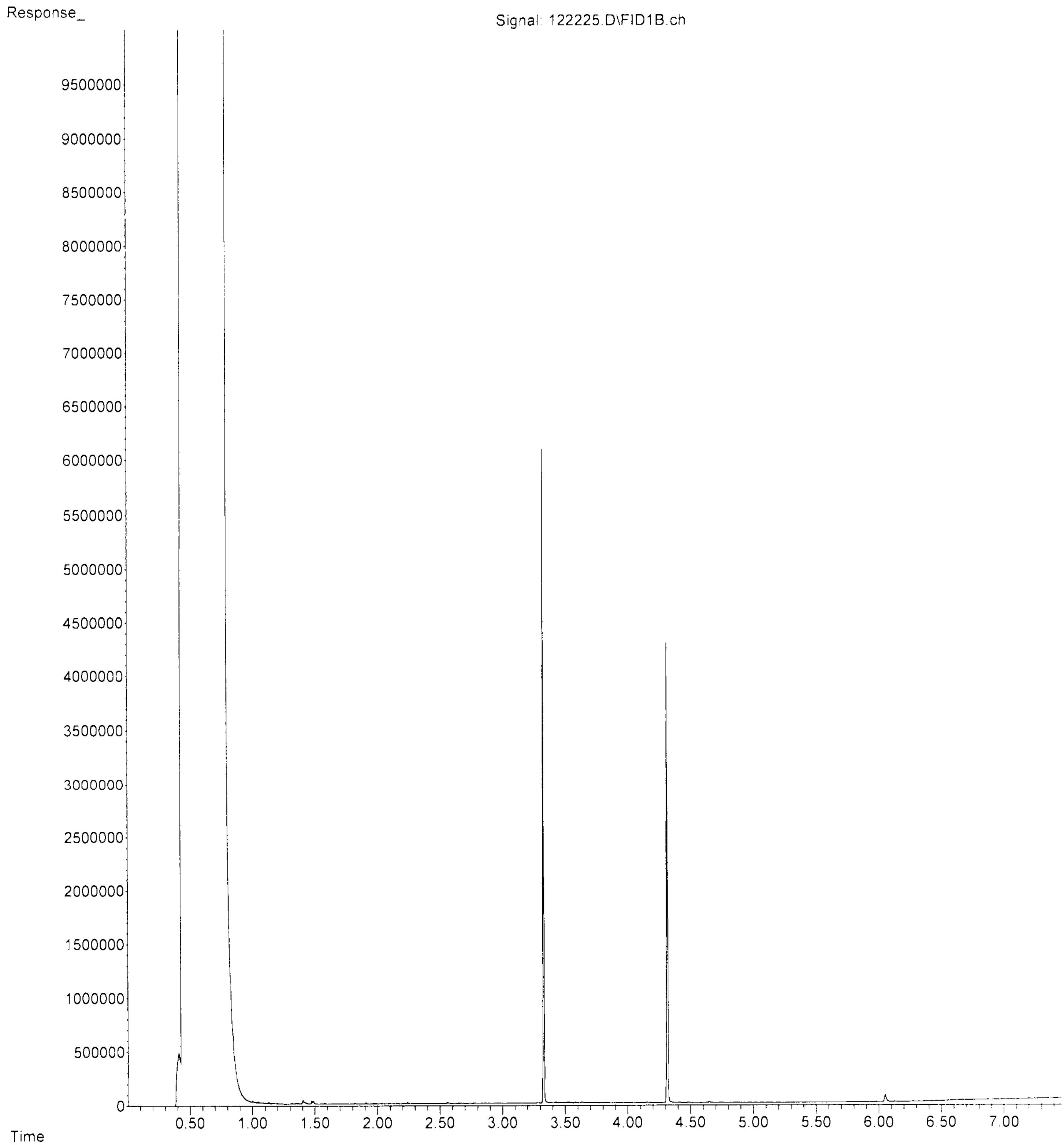
ERR



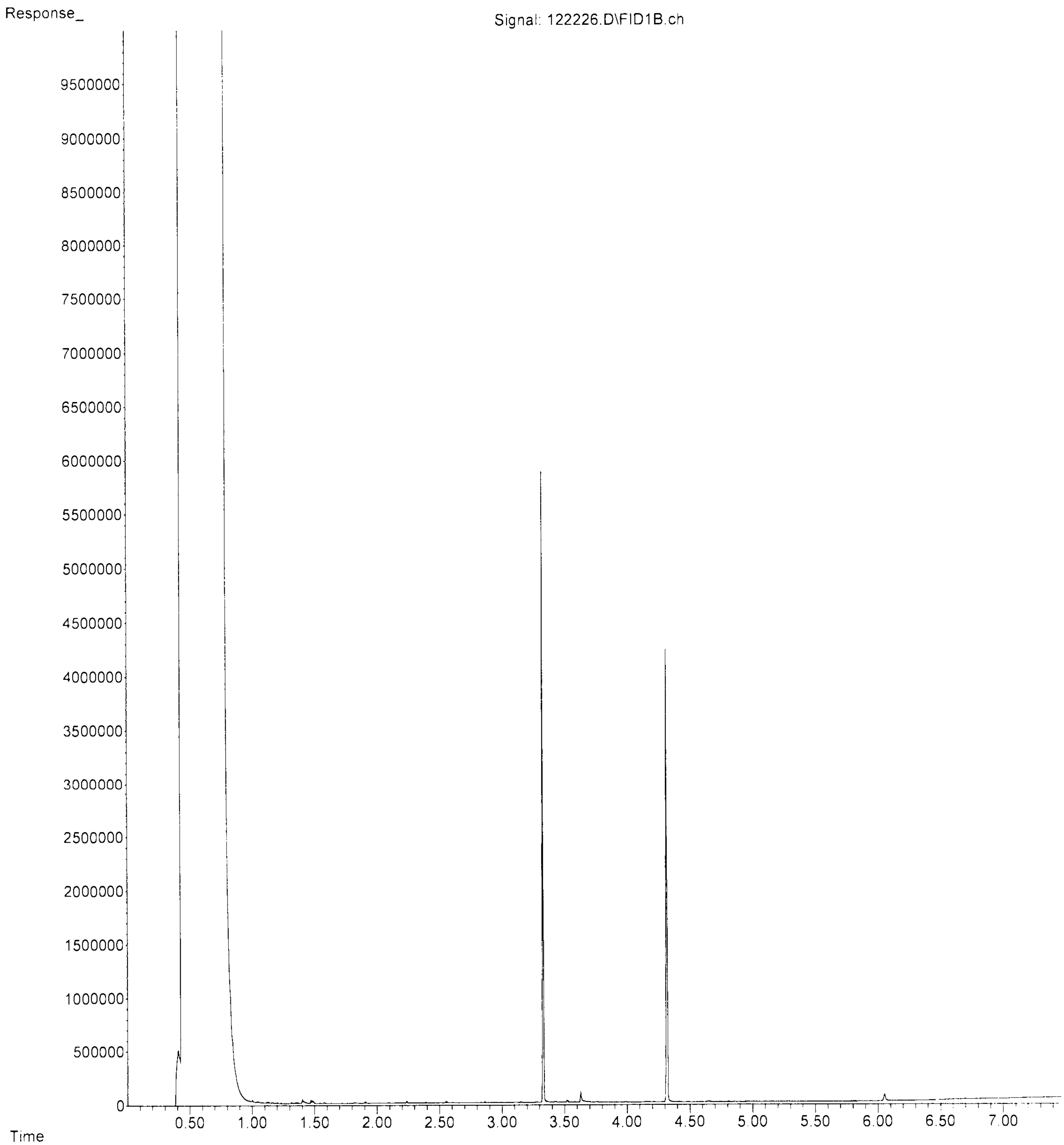
File   :P:\Proc_GC14\12-22-22\122219.D
Operator   : TL
Acquired   : 22 Dec 2022 10:57 am using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-03
Misc Info :   ERR
Vial Number: 21



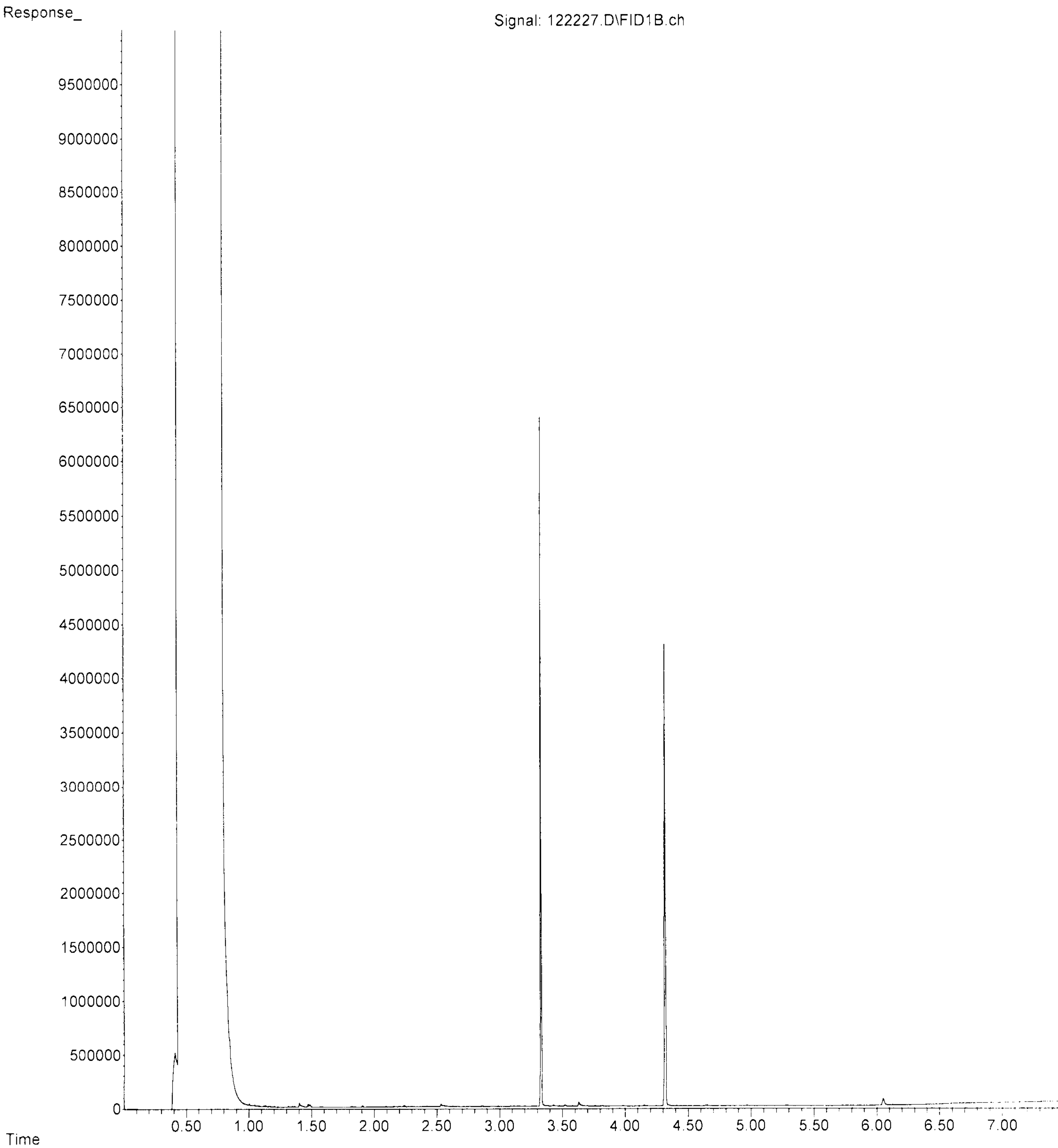
File   :P:\Proc_GC14\12-22-22\122225.D
Operator   : TL
Acquired   : 22 Dec 2022 12:06 pm using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-05
Misc Info :   ERR
Vial Number: 22



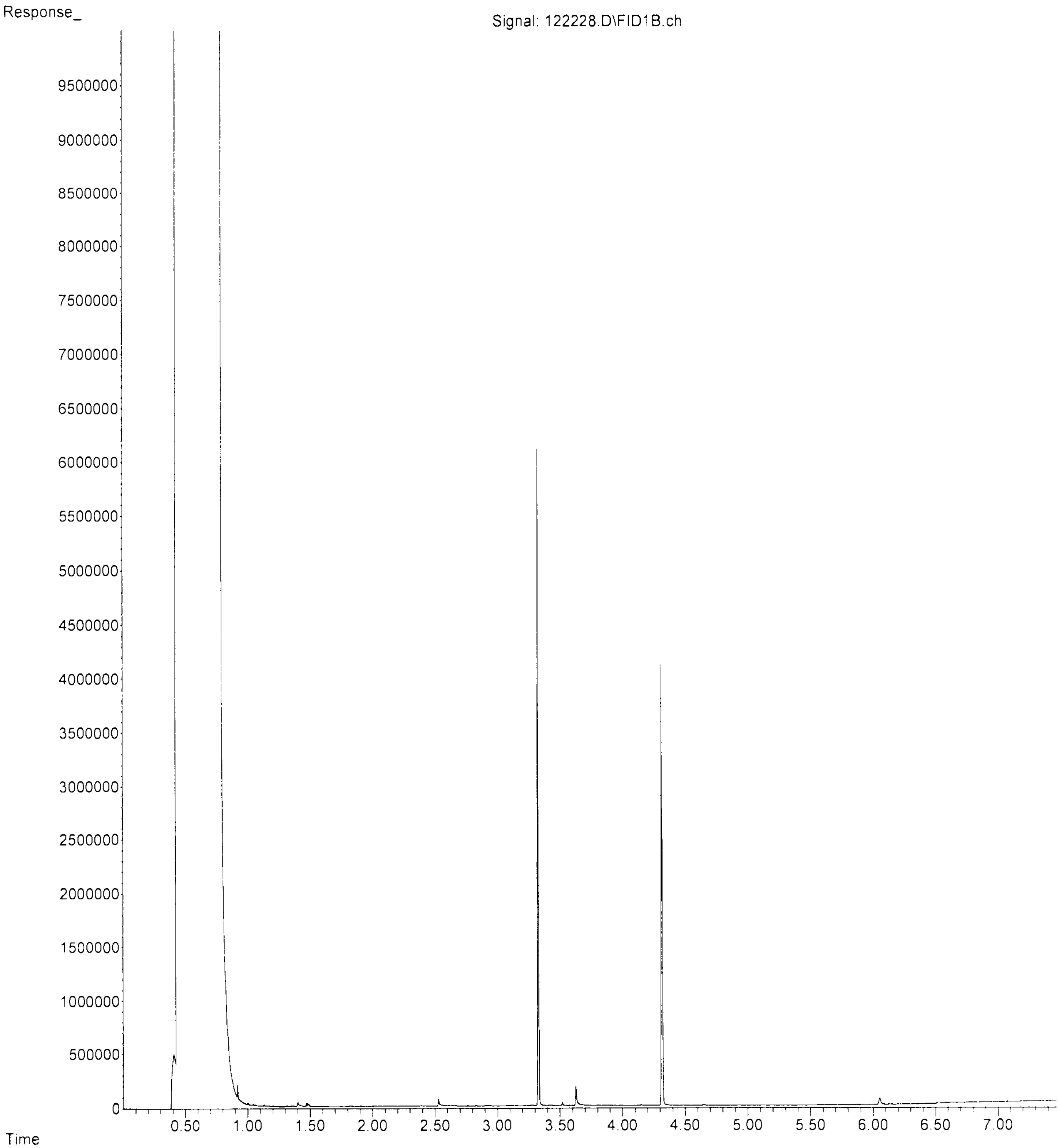
File   :P:\Proc_GC14\12-22-22\122226.D
Operator   : TL
Acquired   : 22 Dec 2022 12:18 pm using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-06
Misc Info :   ERR
Vial Number: 23



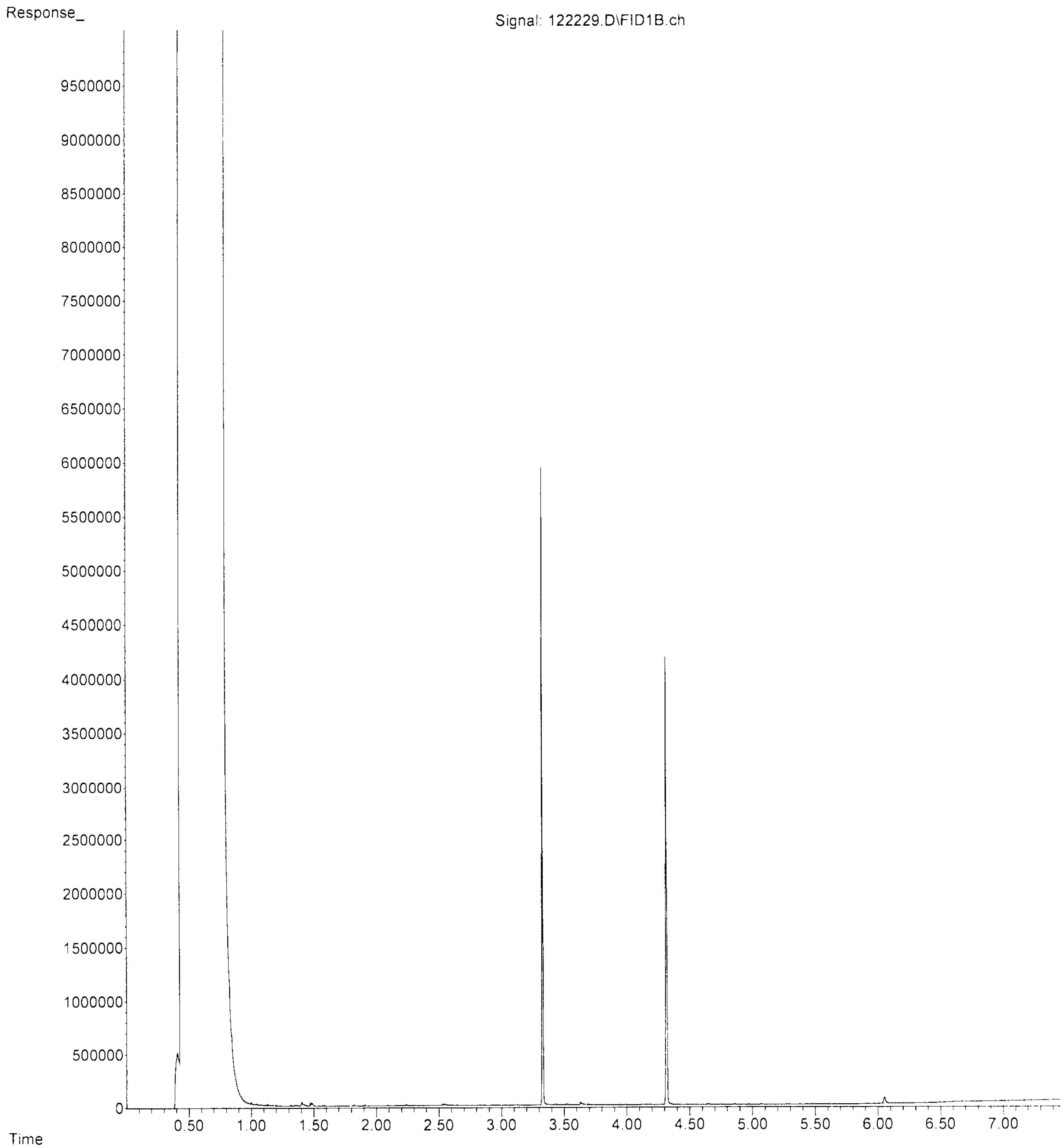
File   :P:\Proc_GC14\12-22-22\122227.D
Operator   : TL
Acquired   : 22 Dec 2022 12:29 pm using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-07
Misc Info :   ERR
Vial Number: 24



File   :P:\Proc_GC14\12-22-22\122228.D
Operator   : TL
Acquired   : 22 Dec 2022 12:41 pm using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-09
Misc Info :   ERR
Vial Number: 25



```
File        :P:\Proc_GC14\12-22-22\122229.D
Operator    : TL
Acquired    : 22 Dec 2022  12:52 pm using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212334-10
Misc Info  :                                              ERR
Vial Number: 26
```



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Operator   : TL
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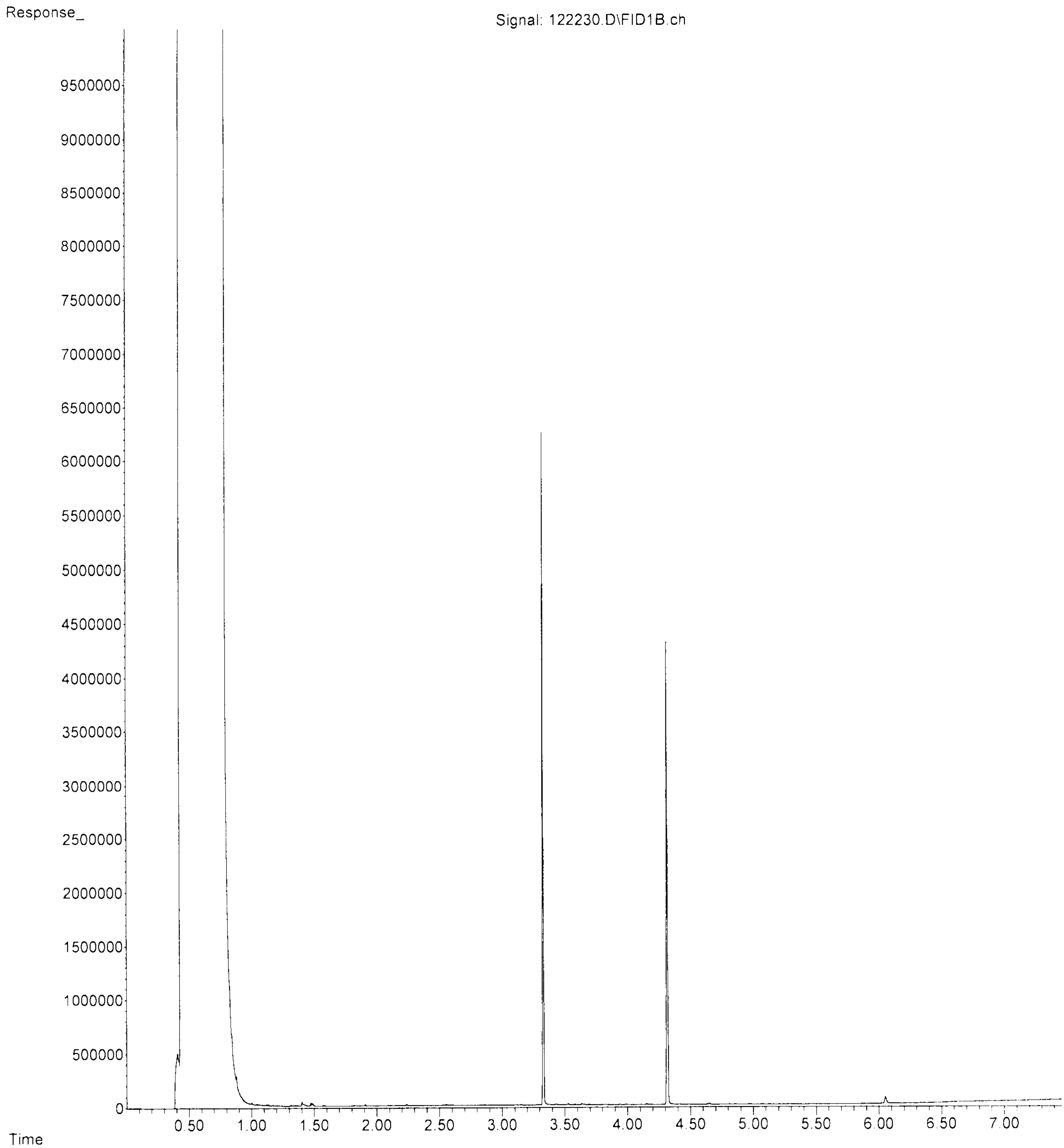
Instrument :   GC14
Sample Name: 212334-11
Misc Info :
Vial Number: 27

ERR



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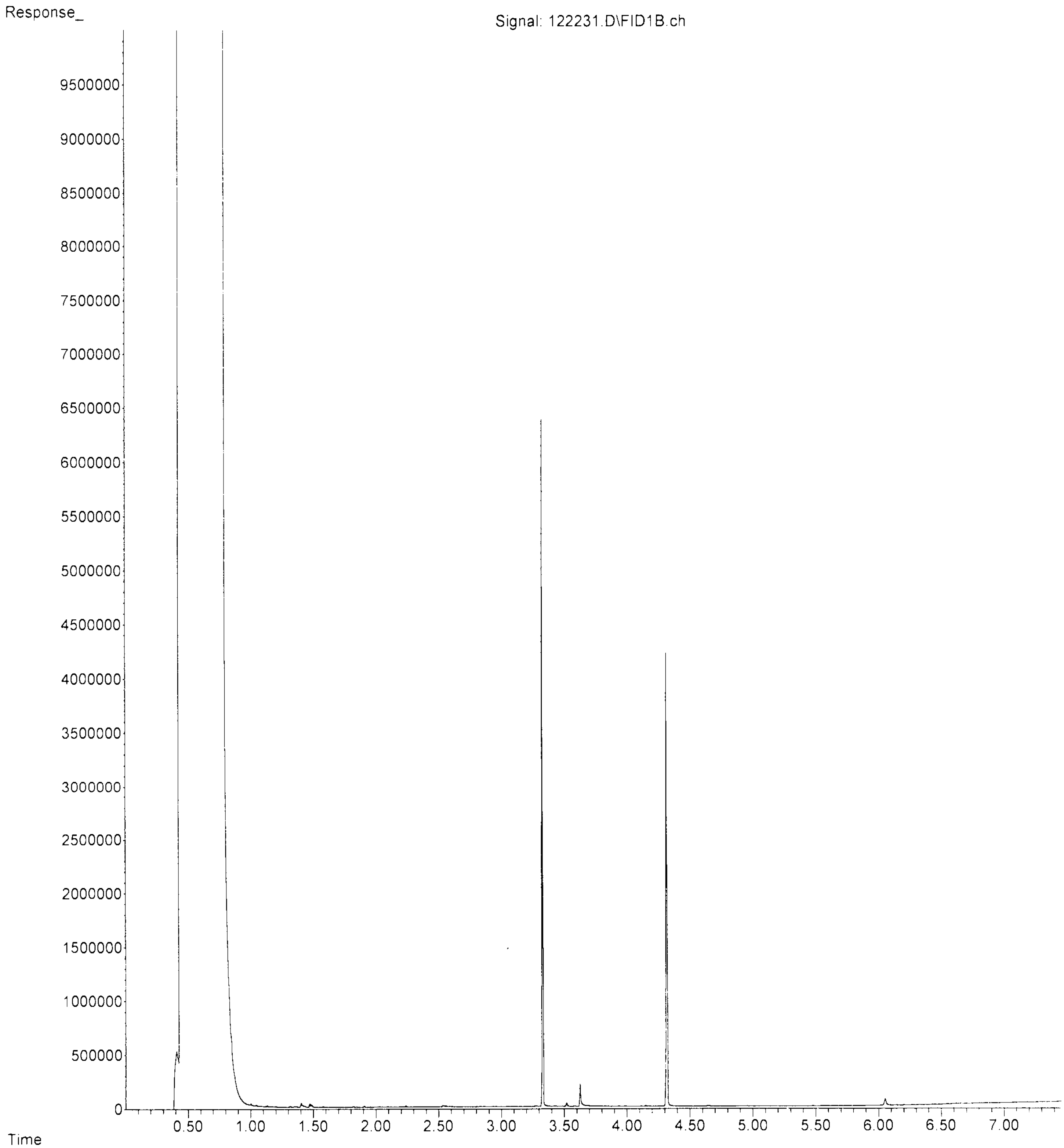
Instrument :   GC14
Sample Name: 212334-12
Misc Info :
Vial Number: 28

ERR



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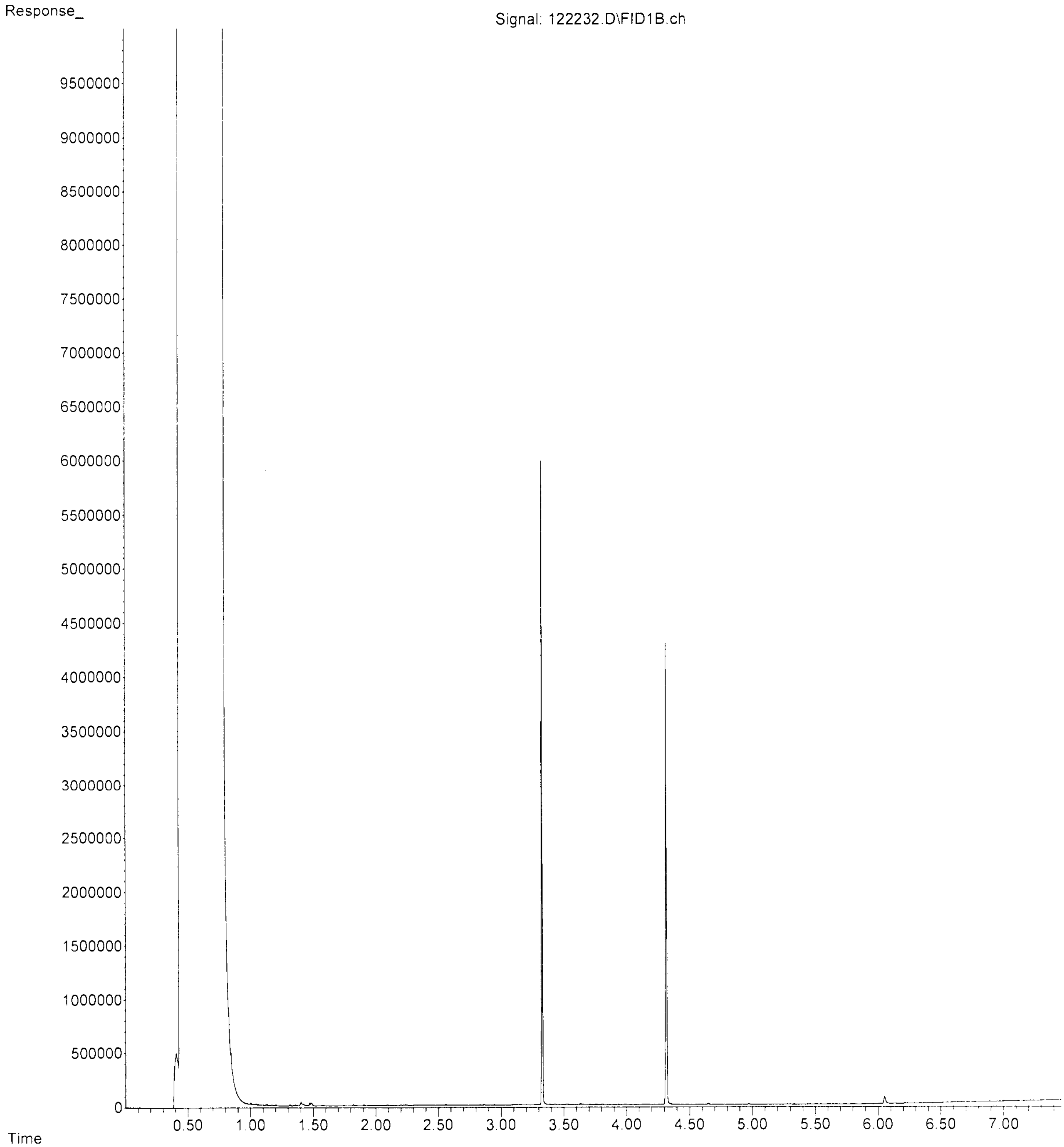
Instrument :   GC14
Sample Name: 1212334-14
Misc Info :
Vial Number: 29

ERR



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Instrument :   GC14
Sample Name: 2212334-15
Misc Info  :
Vial Number: 30
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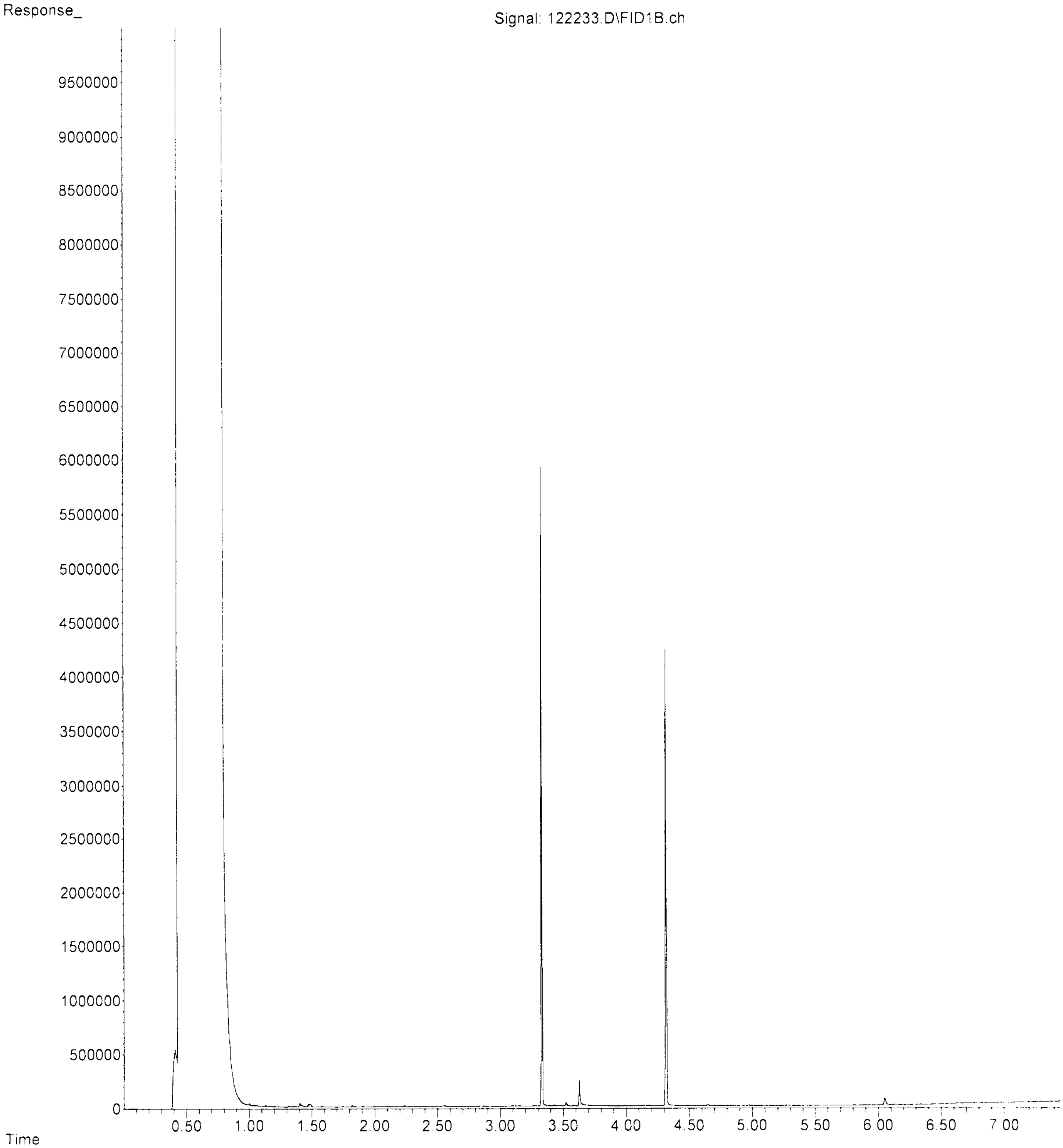
ERR



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Operator   : TL
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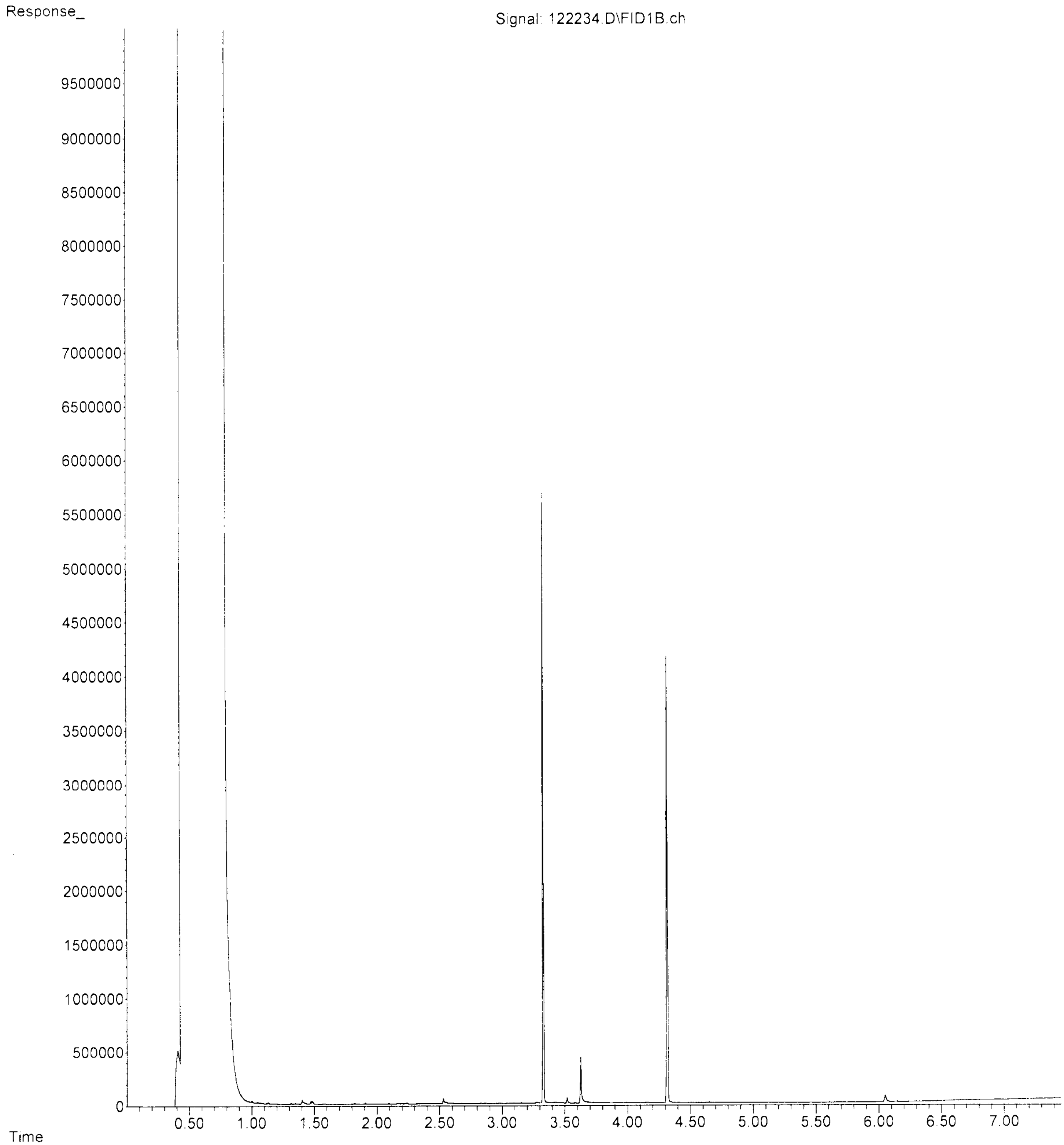
Instrument : GC14
Sample Name: 1212334-16
Misc Info : nG-12-TB
Vial Number: 31

ERR



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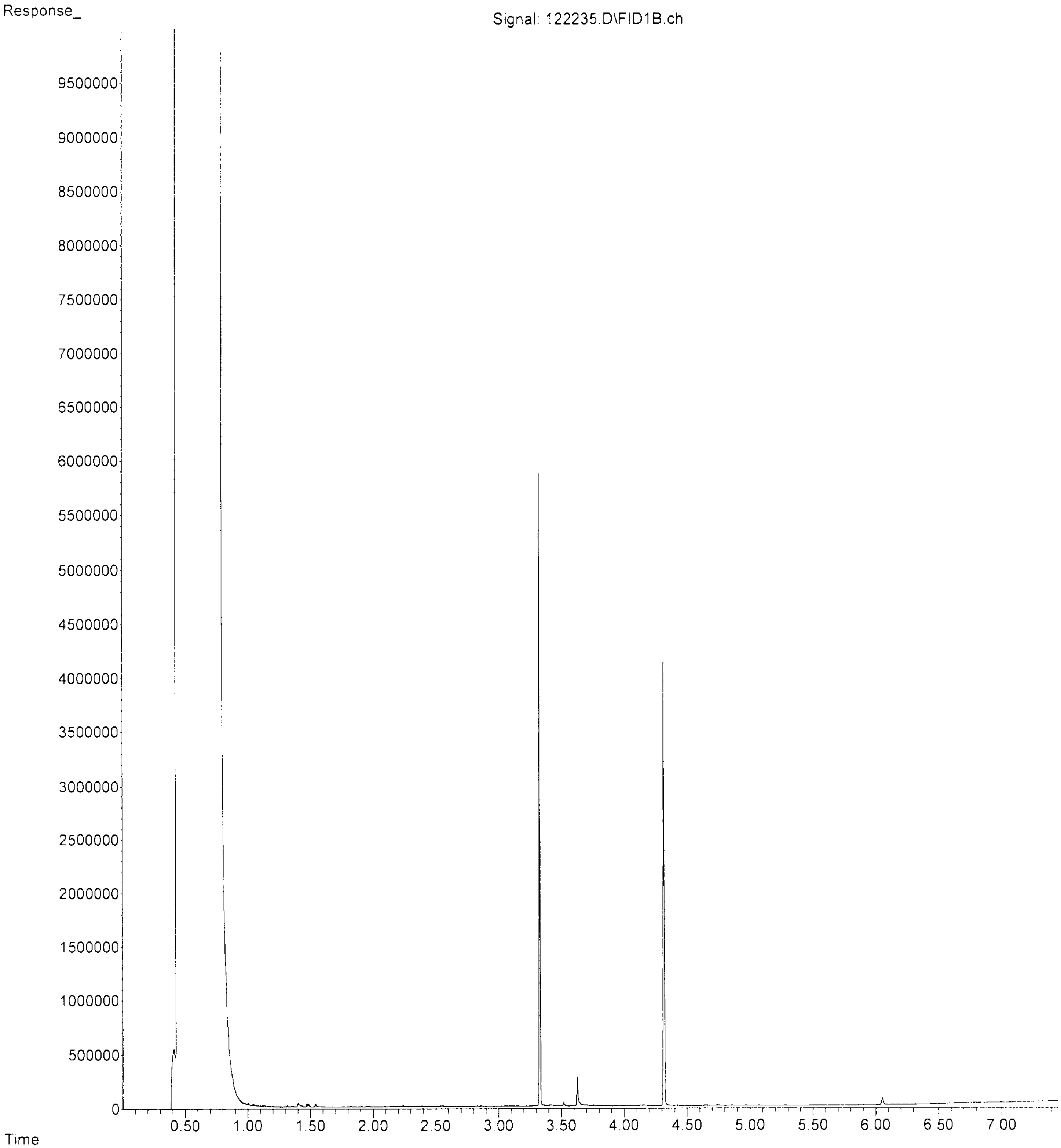
Operator   : TL
Acquired   : 22 Dec 2022 02:02 pm using AcqMethod DX.M
Instrument :   GC14
Sample Name: 1212334-17
Misc Info : 12/27

ERR



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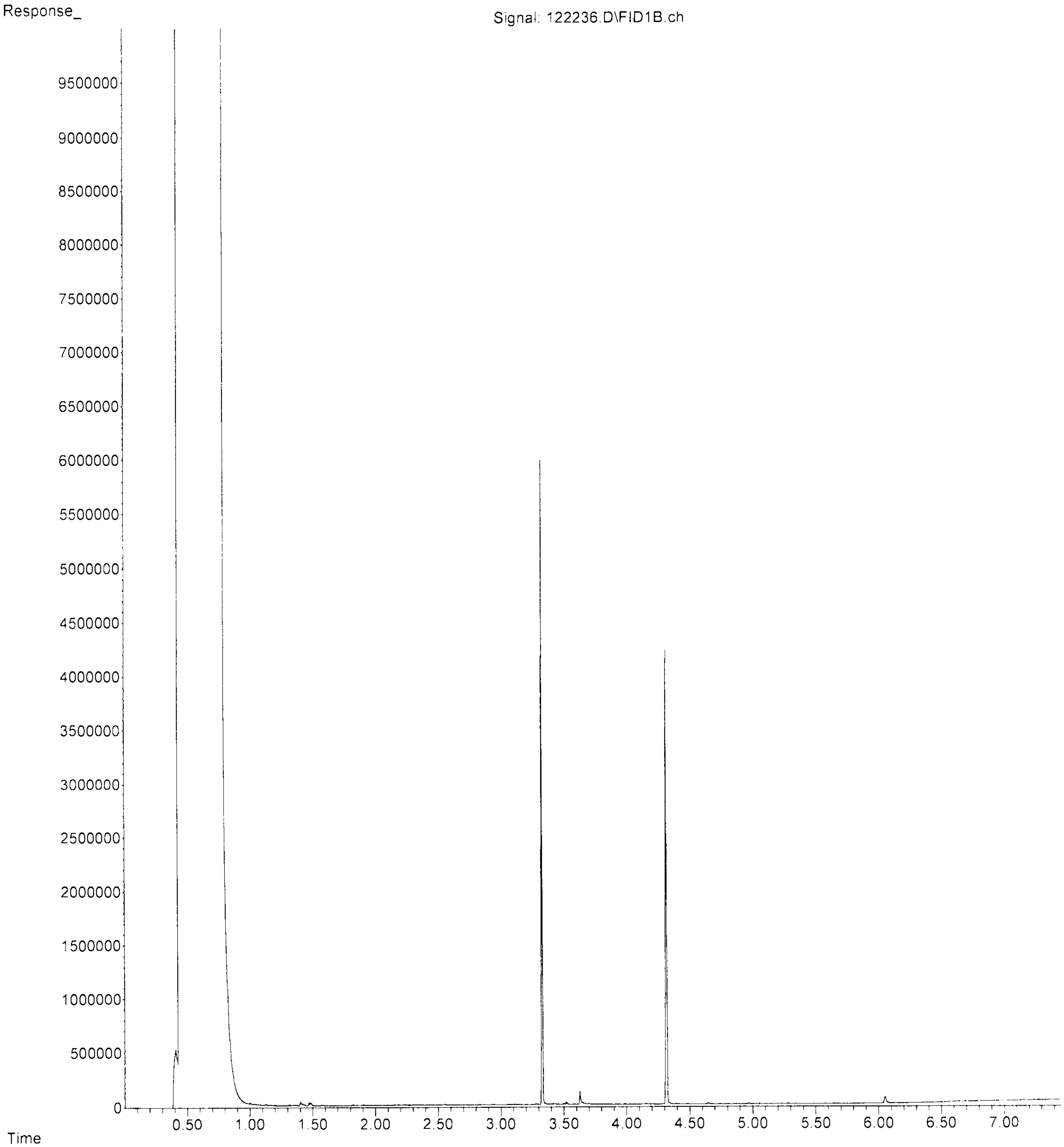
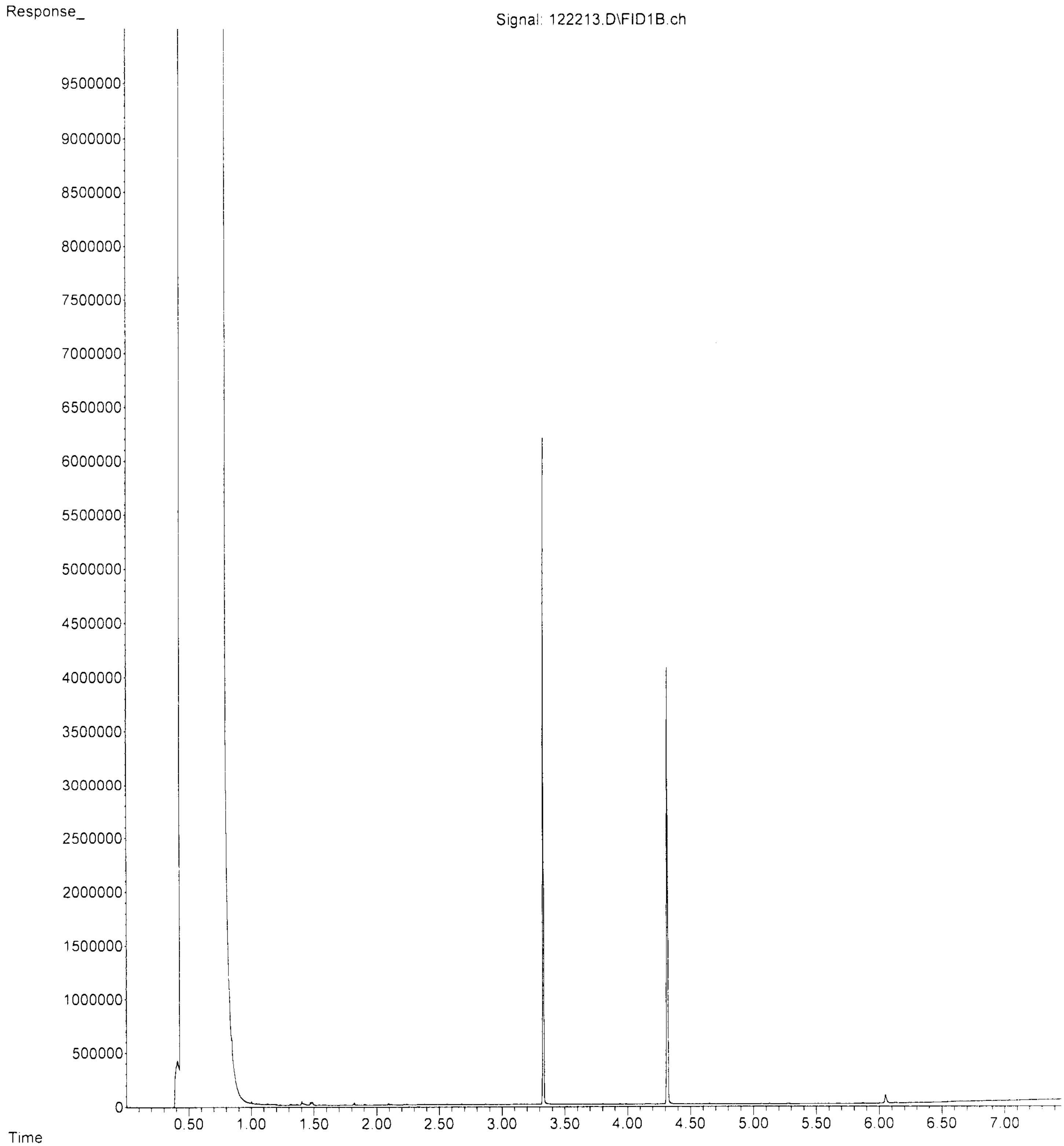
Operator : TL
Acquired : 22 Dec 2022 02:13 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 1212334-18
Misc Info : MW 12/27 ERR
Vial Number: 33



File   :P:\Proc_GC14\12-22-22\122213.D
Operator   : TL
Acquired   : 22 Dec 2022 09:36 am using AcqMethod DX.M
Instrument :   GC14
Sample Name: 02-3056 mb
Misc Info :   ERR
Vial Number: 15



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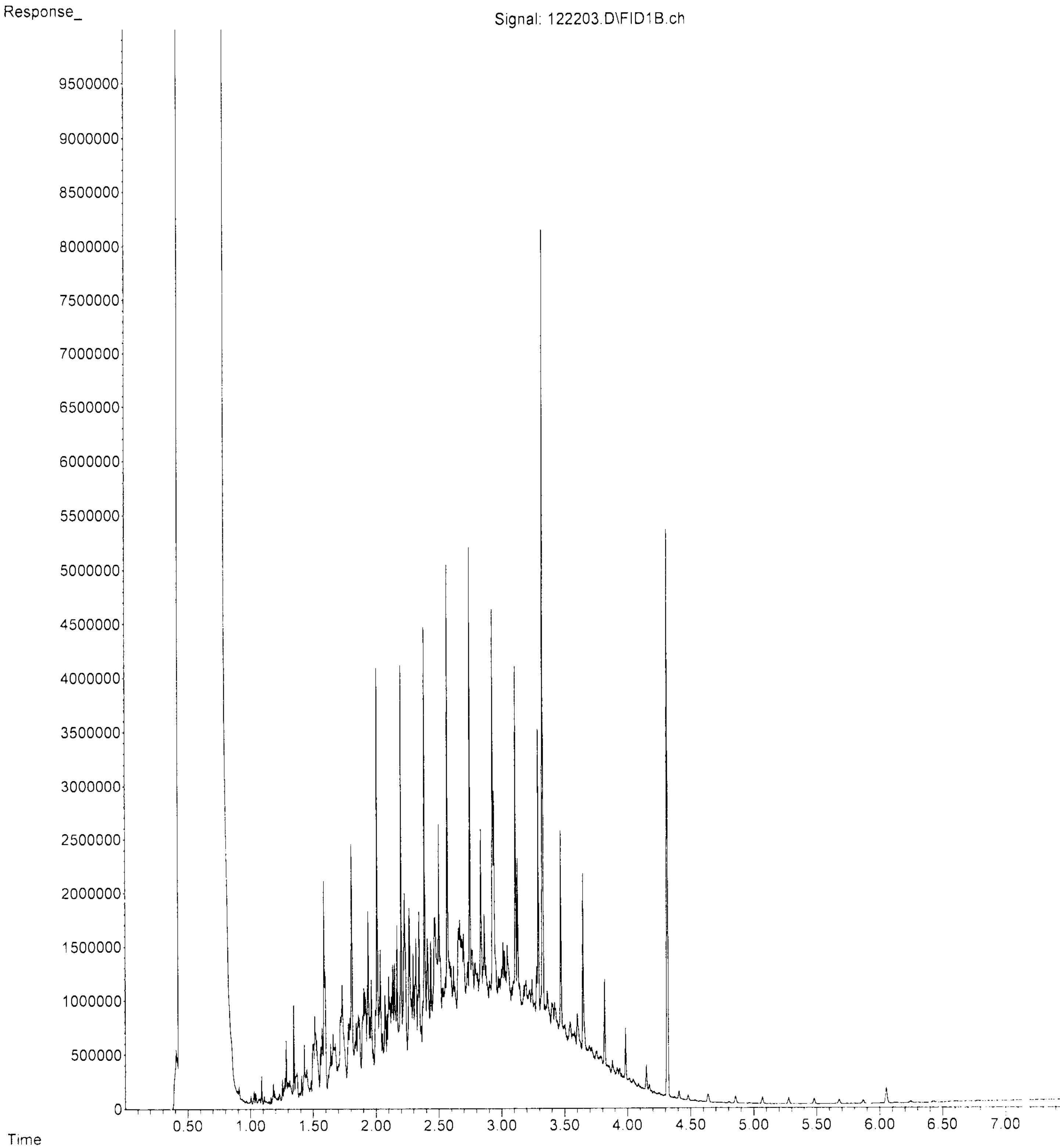
Operator   : TL
Acquired   : 22 Dec 2022 07:35 am using AcqMethod DX.M
Instrument :   GC14
Sample Name: 500 Dx 67-143B
Misc Info :   ERR
Vial Number: 3



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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January 3, 2023

Jacob Letts, Project Manager
GeoEngineers, Inc
1101 Fawcett Ave 200
Tacoma, WA 98402

Dear Mr Letts:

Included are the results from the testing of material submitted on December 21, 2022 from the C-1 RI 5530-014-02, F&BI 212333 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Ataturk
GNR0103R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 21, 2022 by Friedman & Bruya, Inc. from the GeoEngineers, Inc C-1 RI 5530-014-02, F&BI 212333 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers, Inc
212333 -01	C-1 RI-6-4
212333 -02	C-1 RI-6-8
212333 -03	C-1 RI-7-8
212333 -04	C-1 RI-8-4
212333 -05	C-1 RI-8-8
212333 -06	C-1 RI-9-4
212333 -07	C-1 RI-9-8
212333 -08	C-1 RI-12-4
212333 -09	C-1 RI-12-10
212333 -10	C-1 RI-12-20
212333 -11	C-1 RI-12-25
212333 -12	C-1 RI-12-30
212333 -13	C-1 RI-12-35
212333 -14	TB_20221220

The 8260D soil acetone calibration standard failed the acceptance criteria. The data were flagged accordingly.

Dichlorodifluoromethane did not meet the acceptance criteria in the 8260D soil matrix spike sample or the associated relative percent difference. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

The 8260D laboratory control sample exceeded the acceptance criteria for several analytes. The compounds were not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333
Date Extracted: 12/27/22
Date Analyzed: 12/27/22 and 12/28/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 RI-6-4 212333-01	<5	99
C-1 RI-6-8 212333-02	6.2	84
C-1 RI-7-8 212333-03	<5	94
C-1 RI-8-4 212333-04	<5	94
C-1 RI-8-8 212333-05	<5	87
C-1 RI-9-4 212333-06	<5	95
C-1 RI-9-8 212333-07	<5	90
C-1 RI-12-4 212333-08	<5	90
C-1 RI-12-10 212333-09	<5	85
C-1 RI-12-20 212333-10	<5	97

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333
Date Extracted: 12/27/22
Date Analyzed: 12/27/22 and 12/28/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-1 RI-12-25 212333-11	<5	91
Method Blank 02-3043 MB	<5	95

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333
Date Extracted: 12/22/22
Date Analyzed: 12/22/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
C-1 RI-6-4 212333-01	<50	<250	122
C-1 RI-6-8 212333-02	<50	<250	101
C-1 RI-7-8 212333-03	<50	<250	106
C-1 RI-8-4 212333-04	<50	<250	114
C-1 RI-8-8 212333-05	<50	<250	114
C-1 RI-9-4 212333-06	<50	<250	107
C-1 RI-9-8 212333-07	<50	<250	108
C-1 RI-12-4 212333-08	<50	<250	110
C-1 RI-12-10 212333-09	<50	<250	125
C-1 RI-12-20 212333-10	<50	<250	105

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333
Date Extracted: 12/22/22
Date Analyzed: 12/22/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
C-1 RI-12-25 212333-11	<50	<250	121
Method Blank 02-3053 MB	<50	<250	110

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-6-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-01 1/0.25
Date Analyzed:	12/23/22	Data File:	122309.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	106	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.033
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	0.34
Hexane	<0.25	o-Xylene	0.078
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-6-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-02 1/0.25
Date Analyzed:	12/23/22	Data File:	122310.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	104	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	0.0058
Hexane	<0.25	o-Xylene	0.0016
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0027	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.0027	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-7-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-03 1/0.25
Date Analyzed:	12/23/22	Data File:	122311.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	89	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	0.0023
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-8-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-04 1/0.25
Date Analyzed:	12/23/22	Data File:	122312.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	107	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	0.0041
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-8-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-05 1/0.25
Date Analyzed:	12/23/22	Data File:	122313.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	84	120
Toluene-d8	92	73	128
4-Bromofluorobenzene	104	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.0035
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	0.0068
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	0.0011	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	0.0027	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-9-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-06 1/0.25
Date Analyzed:	12/23/22	Data File:	122314.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-9-8	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-07 1/0.25
Date Analyzed:	12/23/22	Data File:	122315.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	84	120
Toluene-d8	91	73	128
4-Bromofluorobenzene	104	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0013	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

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Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-12-4	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-08 1/0.25
Date Analyzed:	12/23/22	Data File:	122316.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	97	73	128
4-Bromofluorobenzene	105	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.051	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.61	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-12-10	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-09 1/0.25
Date Analyzed:	12/23/22	Data File:	122317.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0077	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.075	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-12-20	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-10 1/0.25
Date Analyzed:	12/23/22	Data File:	122318.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	84	120
Toluene-d8	90	73	128
4-Bromofluorobenzene	105	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0074	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.058	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C-1 RI-12-25	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	212333-11 1/0.25
Date Analyzed:	12/23/22	Data File:	122319.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	98	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/23/22	Lab ID:	02-2981 mb2 1/0.25
Date Analyzed:	12/23/22	Data File:	122308.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	84	120
Toluene-d8	91	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TB_20221220	Client:	GeoEngineers, Inc
Date Received:	12/21/22	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/28/22	Lab ID:	212333-14
Date Analyzed:	12/28/22	Data File:	122810.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	C-1 RI 5530-014-02, F&BI 212333
Date Extracted:	12/28/22	Lab ID:	02-2986 mb2
Date Analyzed:	12/28/22	Data File:	122805.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 212333-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	61-153

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 212333-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	88	70-130	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	83	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 212350-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	8 vo	10	10-142	22 vo
Chloromethane	mg/kg (ppm)	1	<0.5	27	27	10-126	0
Vinyl chloride	mg/kg (ppm)	1	<0.05	27	26	10-138	4
Bromomethane	mg/kg (ppm)	1	<0.5	67	68	10-163	1
Chloroethane	mg/kg (ppm)	1	<0.5	42	38	10-176	10
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	34	31	10-176	9
Acetone	mg/kg (ppm)	5	<5	97	92	10-163	5
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	42	39	10-160	7
Hexane	mg/kg (ppm)	1	<0.25	27	31	10-137	14
Methylene chloride	mg/kg (ppm)	1	<0.5	62	56	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	58	51	21-145	13
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	50	46	14-137	8
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	55	50	19-140	10
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	64	55	10-158	15
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	58	51	25-135	13
Chloroform	mg/kg (ppm)	1	<0.05	61	53	21-145	14
2-Butanone (MEK)	mg/kg (ppm)	5	<1	51	48	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	60	55	12-160	9
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	53	48	10-156	10
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	53	50	17-140	6
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	55	49	9-164	12
Benzene	mg/kg (ppm)	1	<0.03	57	52	29-129	9
Trichloroethene	mg/kg (ppm)	1	<0.02	57	50	21-139	13
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	60	55	30-135	9
Bromodichloromethane	mg/kg (ppm)	1	<0.05	57	51	23-155	11
Dibromomethane	mg/kg (ppm)	1	<0.05	62	54	23-145	14
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	56	51	24-155	9
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	57	53	28-144	7
Toluene	mg/kg (ppm)	1	<0.05	54	50	35-130	8
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	53	50	26-149	6
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	58	52	10-205	11
2-Hexanone	mg/kg (ppm)	5	<0.5	44	42	15-166	5
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	55	52	31-137	6
Tetrachloroethene	mg/kg (ppm)	1	<0.025	54	51	20-133	6
Dibromochloromethane	mg/kg (ppm)	1	<0.05	59	53	28-150	11
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	55	54	28-142	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	57	52	32-129	9
Ethylbenzene	mg/kg (ppm)	1	<0.05	55	50	32-137	10
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	56	50	31-143	11
m,p-Xylene	mg/kg (ppm)	2	<0.1	56	50	34-136	11
o-Xylene	mg/kg (ppm)	1	<0.05	57	51	33-134	11
Styrene	mg/kg (ppm)	1	<0.05	52	48	35-137	8
Isopropylbenzene	mg/kg (ppm)	1	<0.05	54	48	31-142	12
Bromoform	mg/kg (ppm)	1	<0.05	59	54	21-156	9
n-Propylbenzene	mg/kg (ppm)	1	<0.05	55	51	23-146	8
Bromobenzene	mg/kg (ppm)	1	<0.05	54	52	34-130	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	55	51	18-149	8
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	57	52	28-140	9
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	55	53	25-144	4
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	56	52	31-134	7
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	55	50	31-136	10
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	56	51	30-137	9
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	56	50	10-182	11
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	56	51	23-145	9
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	55	49	21-149	12
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	57	52	30-131	9
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	55	50	29-129	10
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	57	51	31-132	11
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	54	52	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	53	47	22-142	12
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	51	47	10-142	8
Naphthalene	mg/kg (ppm)	1	<0.05	53	48	14-157	10
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	53	47	20-144	12

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	61	10-146
Chloromethane	mg/kg (ppm)	1	68	27-133
Vinyl chloride	mg/kg (ppm)	1	77	22-139
Bromomethane	mg/kg (ppm)	1	158 vo	38-114
Chloroethane	mg/kg (ppm)	1	105	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	100	10-196
Acetone	mg/kg (ppm)	5	171 vo	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	95	47-128
Hexane	mg/kg (ppm)	1	102	43-142
Methylene chloride	mg/kg (ppm)	1	112	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	104	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	100	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	106	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	121	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	104	72-127
Chloroform	mg/kg (ppm)	1	107	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	90	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	108	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	104	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	106	69-128
Carbon tetrachloride	mg/kg (ppm)	1	106	60-139
Benzene	mg/kg (ppm)	1	105	71-118
Trichloroethene	mg/kg (ppm)	1	104	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	109	72-127
Bromodichloromethane	mg/kg (ppm)	1	104	57-126
Dibromomethane	mg/kg (ppm)	1	111	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	100	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	106	67-122
Toluene	mg/kg (ppm)	1	100	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	100	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	100	64-115
2-Hexanone	mg/kg (ppm)	5	77	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	99	72-130
Tetrachloroethene	mg/kg (ppm)	1	99	72-114
Dibromochloromethane	mg/kg (ppm)	1	106	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	100	74-132
Chlorobenzene	mg/kg (ppm)	1	101	76-111
Ethylbenzene	mg/kg (ppm)	1	98	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	98	64-121
m,p-Xylene	mg/kg (ppm)	2	100	78-122
o-Xylene	mg/kg (ppm)	1	101	77-124
Styrene	mg/kg (ppm)	1	95	74-126
Isopropylbenzene	mg/kg (ppm)	1	95	76-127
Bromoform	mg/kg (ppm)	1	106	56-132
n-Propylbenzene	mg/kg (ppm)	1	100	74-124
Bromobenzene	mg/kg (ppm)	1	100	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	100	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	101	61-137
2-Chlorotoluene	mg/kg (ppm)	1	101	74-121
4-Chlorotoluene	mg/kg (ppm)	1	99	75-122
tert-Butylbenzene	mg/kg (ppm)	1	102	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	101	76-125
sec-Butylbenzene	mg/kg (ppm)	1	103	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	103	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	98	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	100	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	99	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	96	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	95	50-153
Naphthalene	mg/kg (ppm)	1	98	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	94	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 212362-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<10	109	50-150
Chloromethane	ug/L (ppb)	10	<10	101	50-150
Vinyl chloride	ug/L (ppb)	10	0.51	115	16-176
Bromomethane	ug/L (ppb)	10	<1	117	10-193
Chloroethane	ug/L (ppb)	10	<1	123	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	117	50-150
Acetone	ug/L (ppb)	50	<10	60	15-179
1,1-Dichloroethene	ug/L (ppb)	10	<1	110	50-150
Hexane	ug/L (ppb)	10	<1	103	49-161
Methylene chloride	ug/L (ppb)	10	<5	102	40-143
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	108	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	104	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	106	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	141	10-335
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	105	50-150
Chloroform	ug/L (ppb)	10	<1	102	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<10	98	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	117	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	105	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	107	50-150
Carbon tetrachloride	ug/L (ppb)	10	<1	101	50-150
Benzene	ug/L (ppb)	10	<0.35	106	50-150
Trichloroethene	ug/L (ppb)	10	<1	101	43-133
1,2-Dichloropropane	ug/L (ppb)	10	<1	106	50-150
Bromodichloromethane	ug/L (ppb)	10	<1	107	50-150
Dibromomethane	ug/L (ppb)	10	<1	104	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	108	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	102	48-145
Toluene	ug/L (ppb)	10	<1	107	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	109	37-152
1,1,2-Trichloroethane	ug/L (ppb)	10	<1	108	50-150
2-Hexanone	ug/L (ppb)	50	<10	112	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	102	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	107	50-150
Dibromochloromethane	ug/L (ppb)	10	<1	105	33-164
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	106	50-150
Chlorobenzene	ug/L (ppb)	10	<1	102	50-150
Ethylbenzene	ug/L (ppb)	10	<1	108	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	107	50-150
m,p-Xylene	ug/L (ppb)	20	<2	108	50-150
o-Xylene	ug/L (ppb)	10	<1	106	50-150
Styrene	ug/L (ppb)	10	<1	101	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	103	50-150
Bromoform	ug/L (ppb)	10	<1	107	23-161
n-Propylbenzene	ug/L (ppb)	10	<1	106	50-150
Bromobenzene	ug/L (ppb)	10	<1	100	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	104	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<1	115	10-235
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	110	33-151
2-Chlorotoluene	ug/L (ppb)	10	<1	100	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	108	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	104	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	103	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	104	46-139
p-Isopropyltoluene	ug/L (ppb)	10	<1	103	46-140
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	104	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	103	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	103	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	110	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	101	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<1	101	42-150
Naphthalene	ug/L (ppb)	10	<1	102	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	100	44-155

Date of Report: 01/03/23
Date Received: 12/21/22
Project: C-1 RI 5530-014-02, F&BI 212333

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	100	95	70-130	5
Chloromethane	ug/L (ppb)	10	91	91	70-130	0
Vinyl chloride	ug/L (ppb)	10	109	103	70-130	6
Bromomethane	ug/L (ppb)	10	114	108	28-182	5
Chloroethane	ug/L (ppb)	10	116	109	70-130	6
Trichlorofluoromethane	ug/L (ppb)	10	111	94	70-130	17
Acetone	ug/L (ppb)	50	54	53	42-155	2
1,1-Dichloroethene	ug/L (ppb)	10	108	100	70-130	8
Hexane	ug/L (ppb)	10	107	99	50-161	8
Methylene chloride	ug/L (ppb)	10	108	100	29-192	8
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	105	97	70-130	8
trans-1,2-Dichloroethene	ug/L (ppb)	10	102	96	70-130	6
1,1-Dichloroethane	ug/L (ppb)	10	107	99	70-130	8
2,2-Dichloropropane	ug/L (ppb)	10	135 vo	124	70-130	8
cis-1,2-Dichloroethene	ug/L (ppb)	10	104	97	70-130	7
Chloroform	ug/L (ppb)	10	104	97	70-130	7
2-Butanone (MEK)	ug/L (ppb)	50	82	89	50-157	8
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	117	109	70-130	7
1,1,1-Trichloroethane	ug/L (ppb)	10	103	96	70-130	7
1,1-Dichloropropene	ug/L (ppb)	10	106	99	70-130	7
Carbon tetrachloride	ug/L (ppb)	10	100	92	70-130	8
Benzene	ug/L (ppb)	10	106	98	70-130	8
Trichloroethene	ug/L (ppb)	10	102	95	70-130	7
1,2-Dichloropropane	ug/L (ppb)	10	100	98	70-130	2
Bromodichloromethane	ug/L (ppb)	10	103	100	70-130	3
Dibromomethane	ug/L (ppb)	10	102	95	70-130	7
4-Methyl-2-pentanone	ug/L (ppb)	50	100	93	70-130	7
cis-1,3-Dichloropropene	ug/L (ppb)	10	105	97	70-130	8
Toluene	ug/L (ppb)	10	107	99	70-130	8
trans-1,3-Dichloropropene	ug/L (ppb)	10	108	99	70-130	9
1,1,2-Trichloroethane	ug/L (ppb)	10	106	99	70-130	7
2-Hexanone	ug/L (ppb)	50	102	100	69-130	2
1,3-Dichloropropane	ug/L (ppb)	10	107	99	70-130	8
Tetrachloroethene	ug/L (ppb)	10	106	96	70-130	10
Dibromochloromethane	ug/L (ppb)	10	103	94	63-142	9
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	102	95	70-130	7
Chlorobenzene	ug/L (ppb)	10	98	94	70-130	4
Ethylbenzene	ug/L (ppb)	10	108	101	70-130	7
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	104	95	70-130	9
m,p-Xylene	ug/L (ppb)	20	106	99	70-130	7
o-Xylene	ug/L (ppb)	10	106	96	70-130	10
Styrene	ug/L (ppb)	10	101	93	70-130	8
Isopropylbenzene	ug/L (ppb)	10	103	94	70-130	9
Bromoform	ug/L (ppb)	10	103	92	50-157	11
n-Propylbenzene	ug/L (ppb)	10	106	100	70-130	6
Bromobenzene	ug/L (ppb)	10	101	95	70-130	6
1,3,5-Trimethylbenzene	ug/L (ppb)	10	104	98	52-150	6
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	112	107	70-130	5
1,2,3-Trichloropropane	ug/L (ppb)	10	107	104	70-130	3
2-Chlorotoluene	ug/L (ppb)	10	105	99	70-130	6
4-Chlorotoluene	ug/L (ppb)	10	107	101	70-130	6
tert-Butylbenzene	ug/L (ppb)	10	102	96	70-130	6
1,2,4-Trimethylbenzene	ug/L (ppb)	10	103	97	70-130	6
sec-Butylbenzene	ug/L (ppb)	10	104	98	70-130	6
p-Isopropyltoluene	ug/L (ppb)	10	104	98	70-130	6
1,3-Dichlorobenzene	ug/L (ppb)	10	102	96	70-130	6
1,4-Dichlorobenzene	ug/L (ppb)	10	100	96	70-130	4
1,2-Dichlorobenzene	ug/L (ppb)	10	100	96	70-130	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	104	103	70-130	1
1,2,4-Trichlorobenzene	ug/L (ppb)	10	99	91	70-130	8
Hexachlorobutadiene	ug/L (ppb)	10	102	92	70-130	10
Naphthalene	ug/L (ppb)	10	97	90	70-130	7
1,2,3-Trichlorobenzene	ug/L (ppb)	10	96	92	69-143	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

212333

SAMPLE CHAIN OF CUSTODY

12/21/22 G5/VW2/VS-02

Page # 1 of 2

Report To Jacob Letts

Company GeoEngineers

Address 2101 4th Ave STE950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geoengineers.com

SAMPLERS (signature) Katy A

PROJECT NAME: C-1 RI

PO #: 5530-014-02

REMARKS

INVOICE TO

Project specific RLs? - Yes / No

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH ______
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other ______
- Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082					Notes
C-1 R1-6-4	1A-E	12/20/22	830	S	5	X	X			X							
C-1 R1-6-8	2		840														
C-1 R1-7-8	3		910														
C-1 R1-8-4	4		930														
C-1 R1-8-8	5		950														
C-1 R1-9-4	6		1030														
C-1 R1-9-8	7		1040														
C-1 R1-12-4	8		1200														
C-1 R1-12-10	9		1220														
C-1 R1-12-20	10		1240														

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Katy A	Katy Atakturk	GeoEngineers	12/21/22	0900
Received by:	ANH PHAN	F&B	12/21/22	10:57
Relinquished by:				
Received by:		Samples received at 0 °C		

DW

212333

SAMPLE CHAIN OF CUSTODY

12/21/22 G5/VW2/VS-D2.

Page # 2 of 2

Report To [redacted] Jacob Letts

Company GEI

Address see pg 1

City, State, ZIP

Phone ______ Email ______

SAMPLERS (signature) [redacted]	
PROJECT NAME: C1 RI	PO #: 5530-014-02
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH ______
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other ______
- Default: Dispose after 30 days

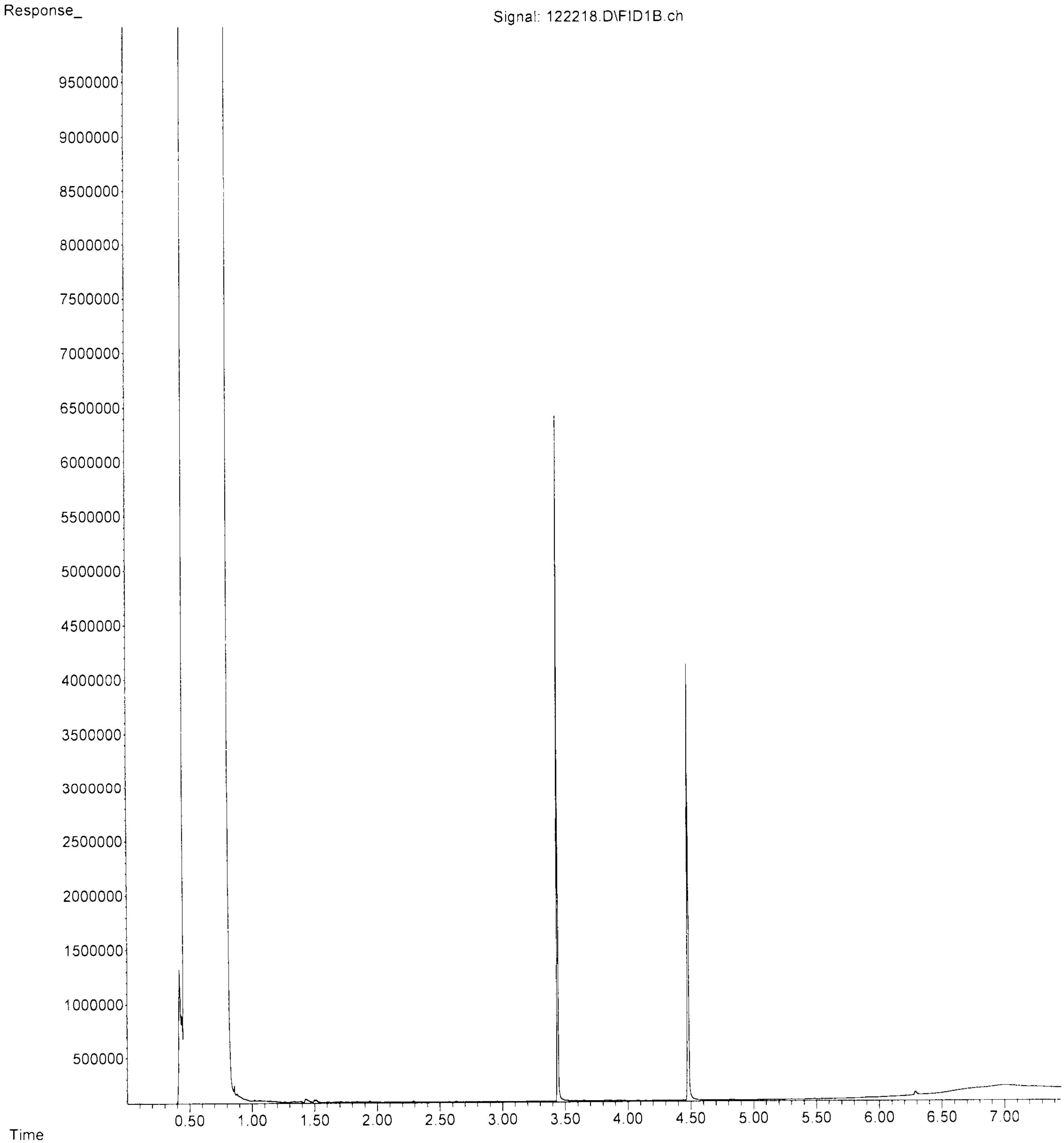
ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		HOLD			Notes
C1 RI-12-25	11 A-E	12/20/22	1300	S	5	X	X			X							
C1 RI-12-30	12	↓	1320	↓	↓									X			
C1 RI-12-35	13	↓	1340	↓	↓									X			
TB_20221220	14A-B	↓	—	↓	↓					X							Rec 2 samples at lab AP

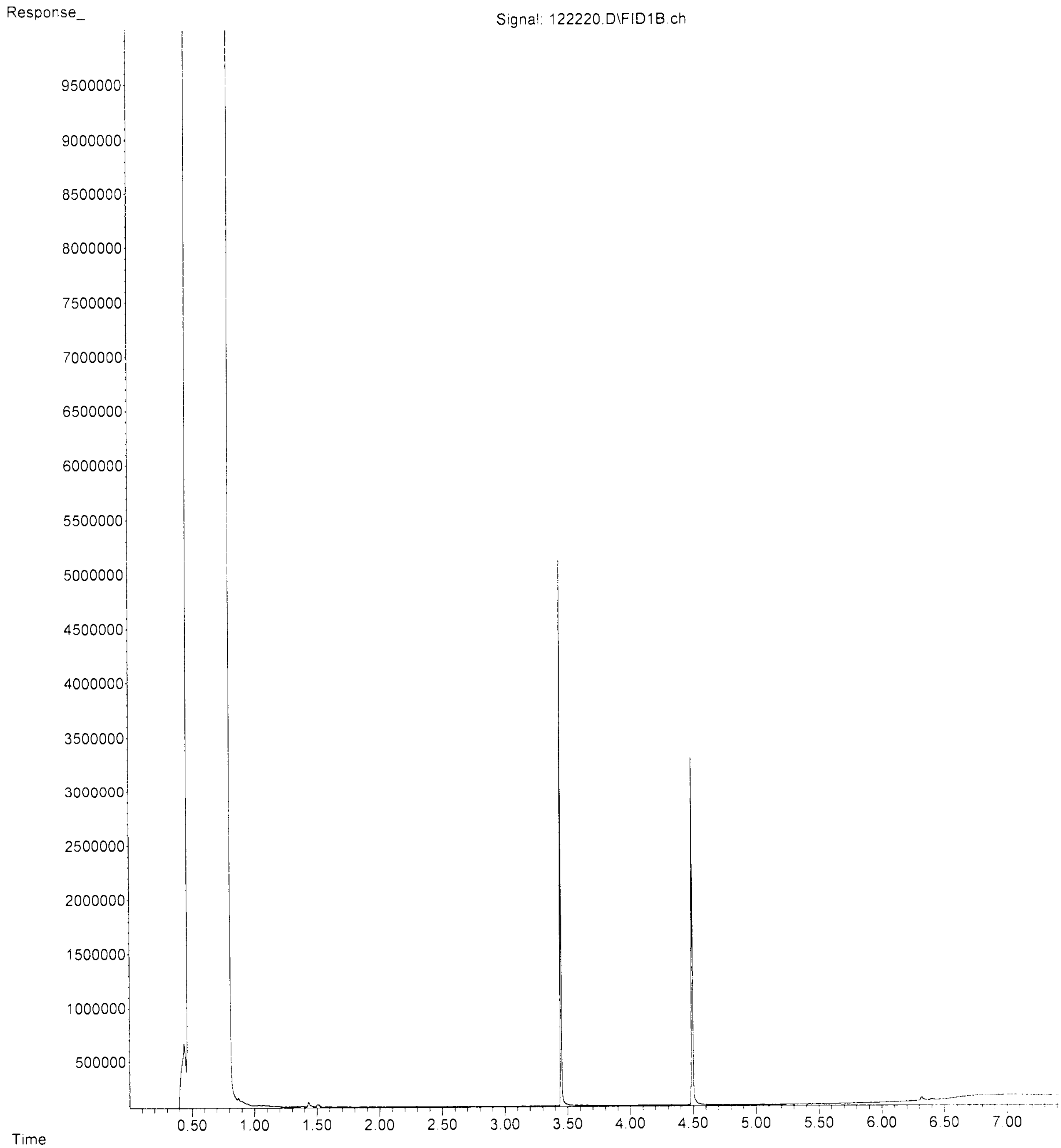
Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ataktürk	GEI	12/~~20~~21/22	0900
Received by:	ANH PHAN	F&B	12/21/22	10:57
Relinquished by:				
Received by:		Samples received at 0 °C		

```
File        :P:\Proc_GC10\12-22-22\122218.D
Operator    : TL
Acquired    : 22 Dec 2022  11:00 am using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-01
Misc Info  :
Vial Number: 20
```



File   :P:\Proc_GC10\12-22-22\122220.D
Operator   : TL
Acquired   : 22 Dec 2022 11:23 am using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-02
Misc Info :
Vial Number: 21



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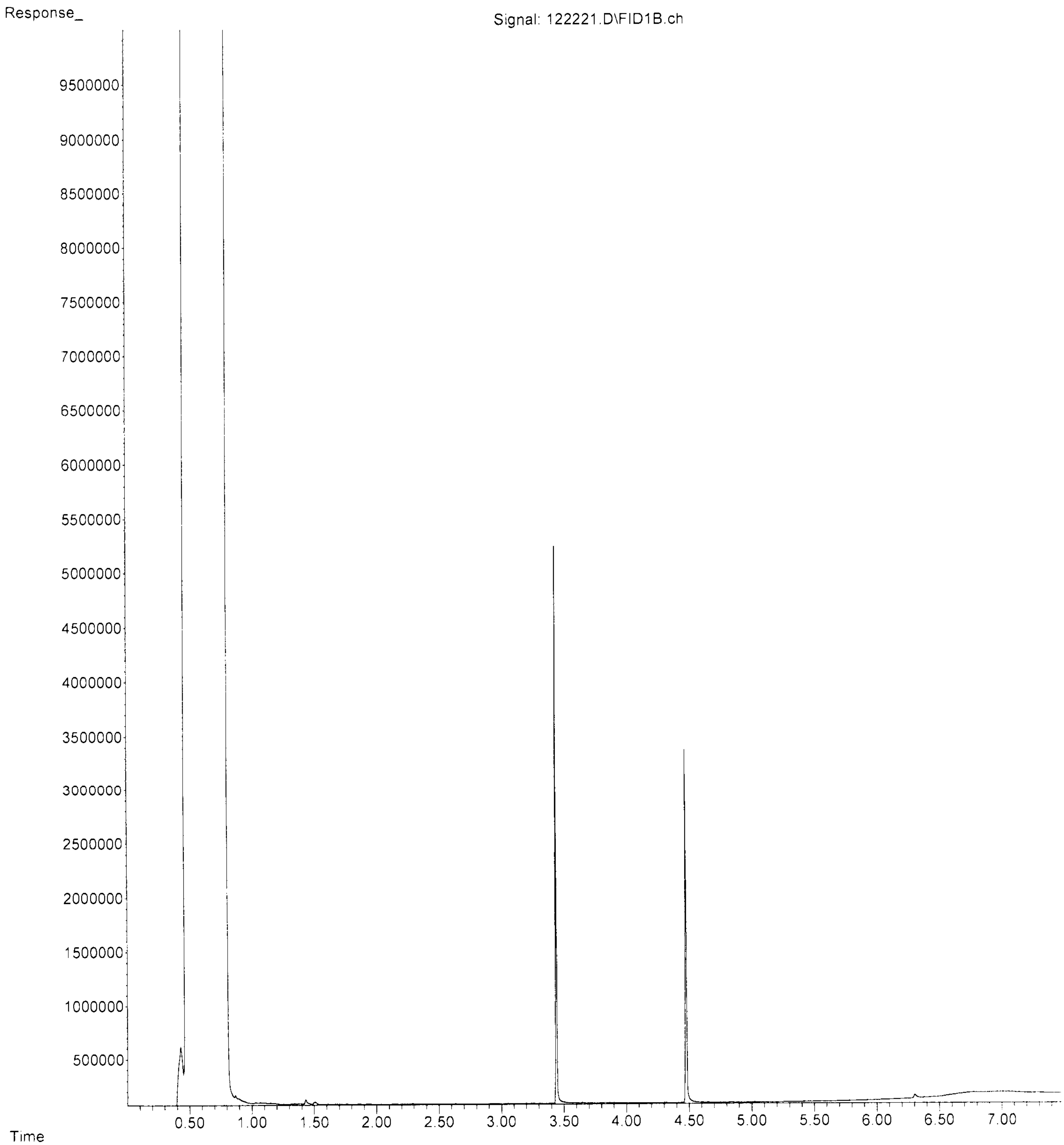
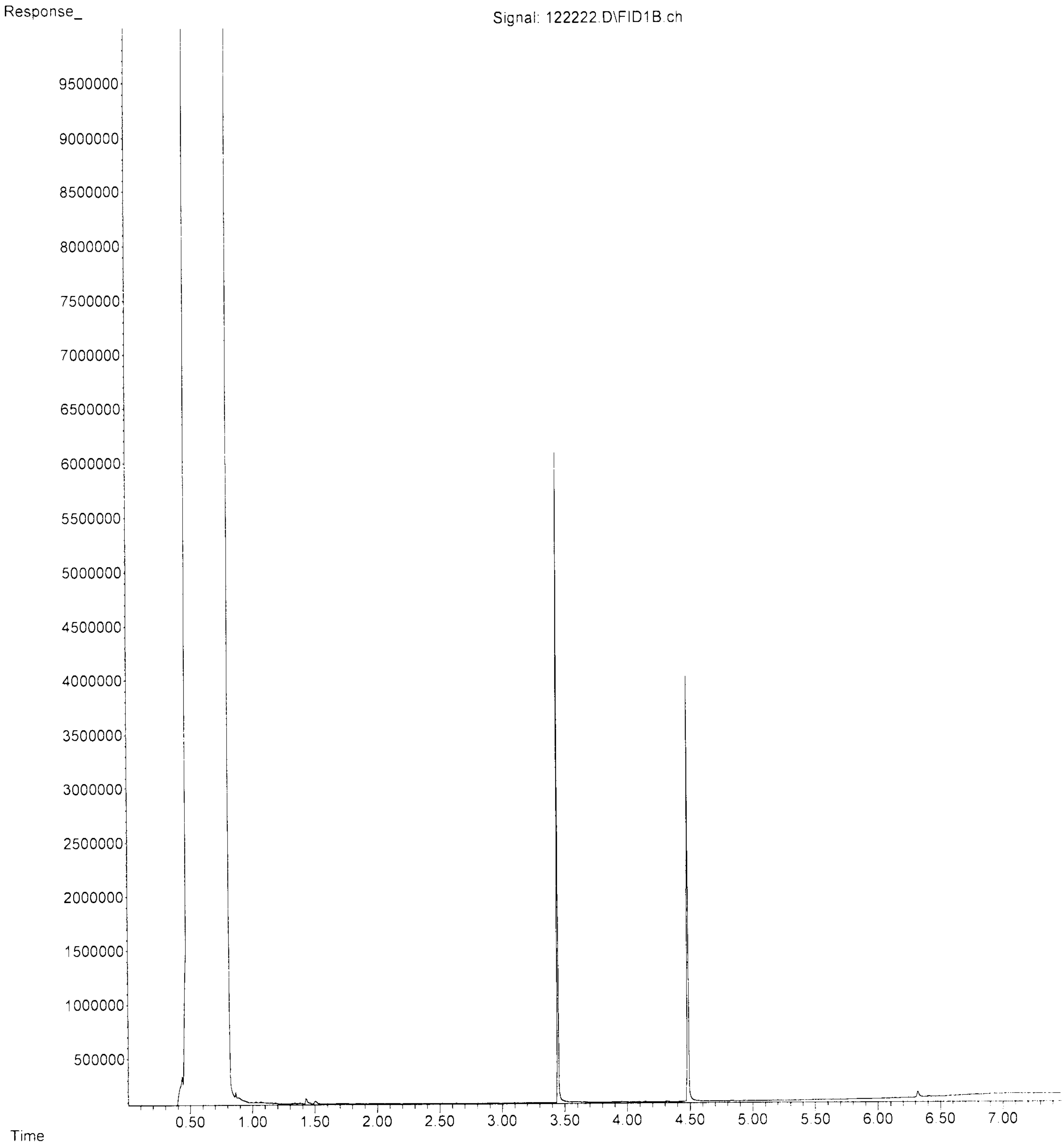
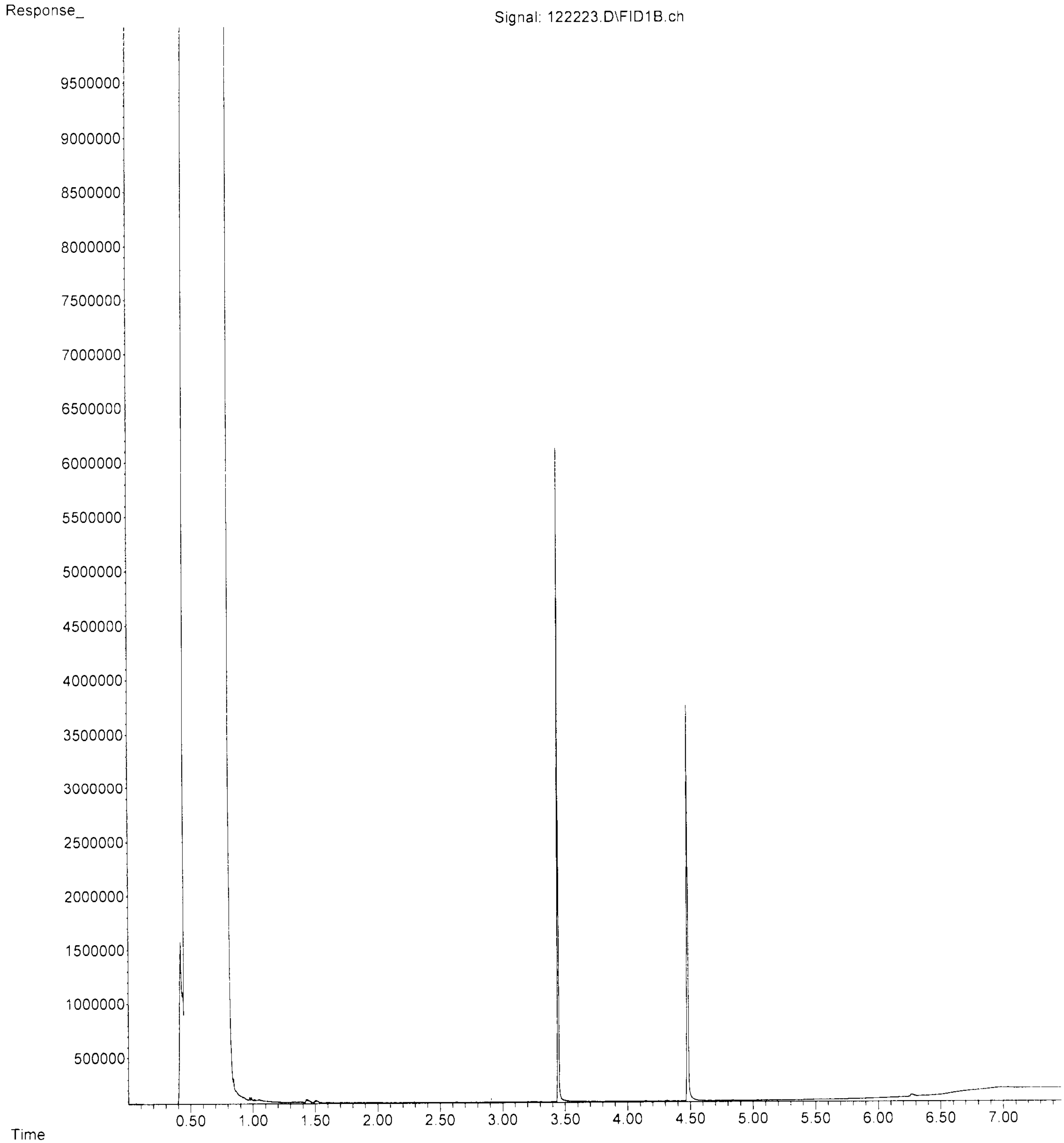
Operator   : TL
Acquired   : 22 Dec 2022 11:34 am using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-03
Misc Info :
Vial Number: 22



File   :P:\Proc_GC10\12-22-22\122222.D
Operator   : TL
Acquired   : 22 Dec 2022 11:46 am using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-04
Misc Info   :
Vial Number: 23

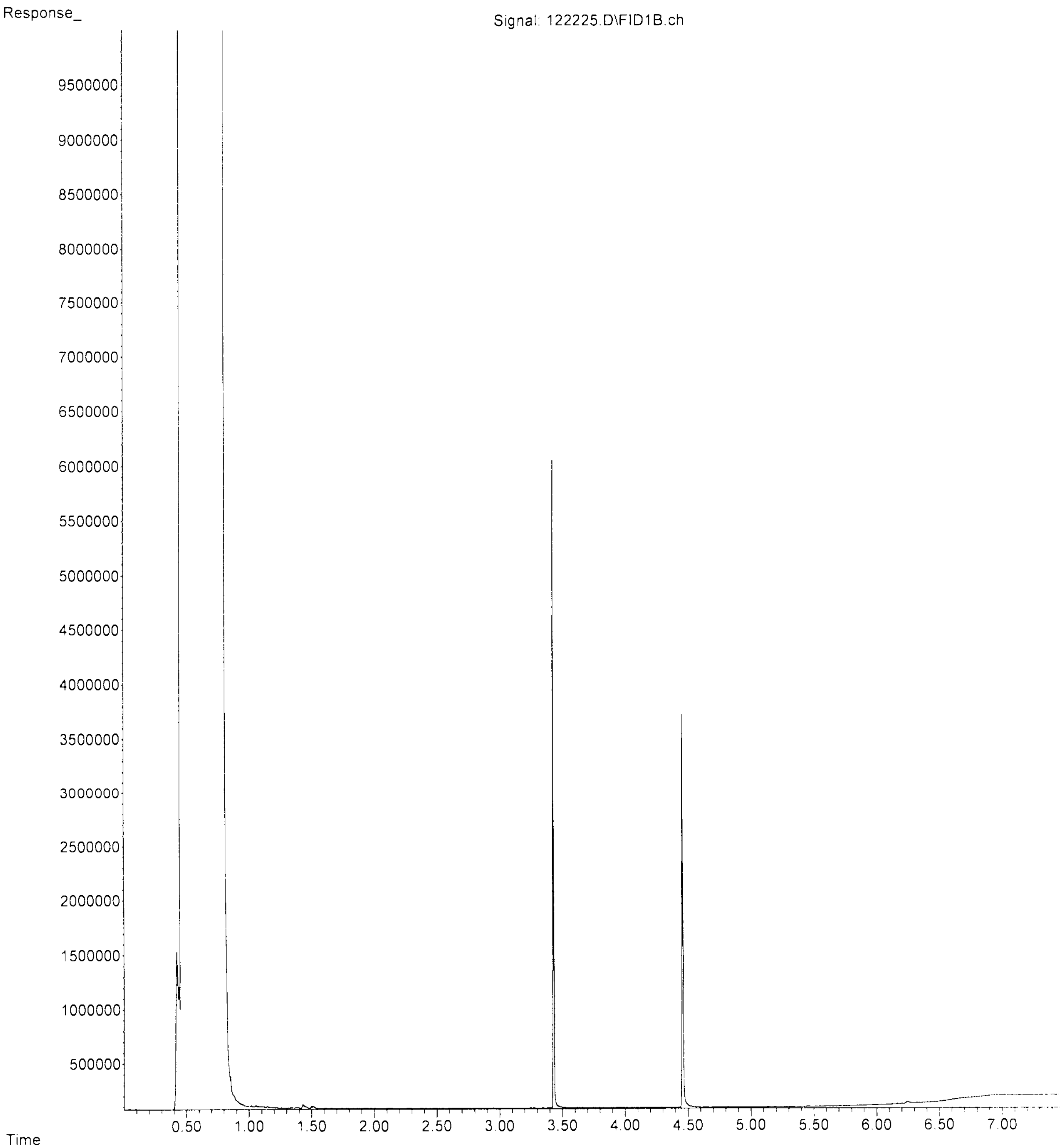


File :P:\Proc_GC10\12-22-22\122223.D
Operator : TL
Acquired : 22 Dec 2022 11:58 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 212333-05
Misc Info :
Vial Number: 24

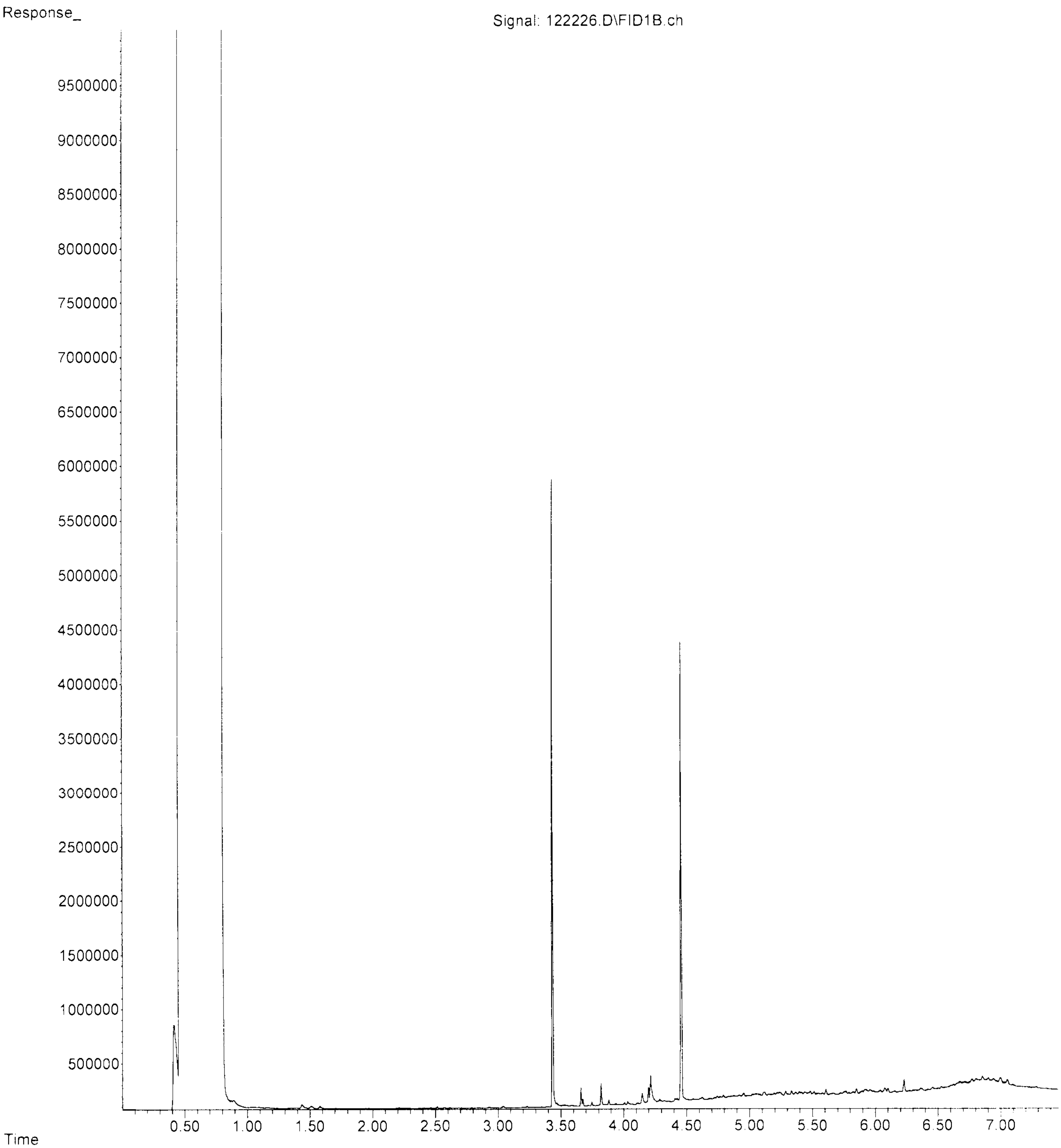


File   :P:\Proc_GC10\12-22-22\122224.D
Operator   : TL
Acquired   : 22 Dec 2022 12:09 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-06
Misc Info :
Vial Number: 25

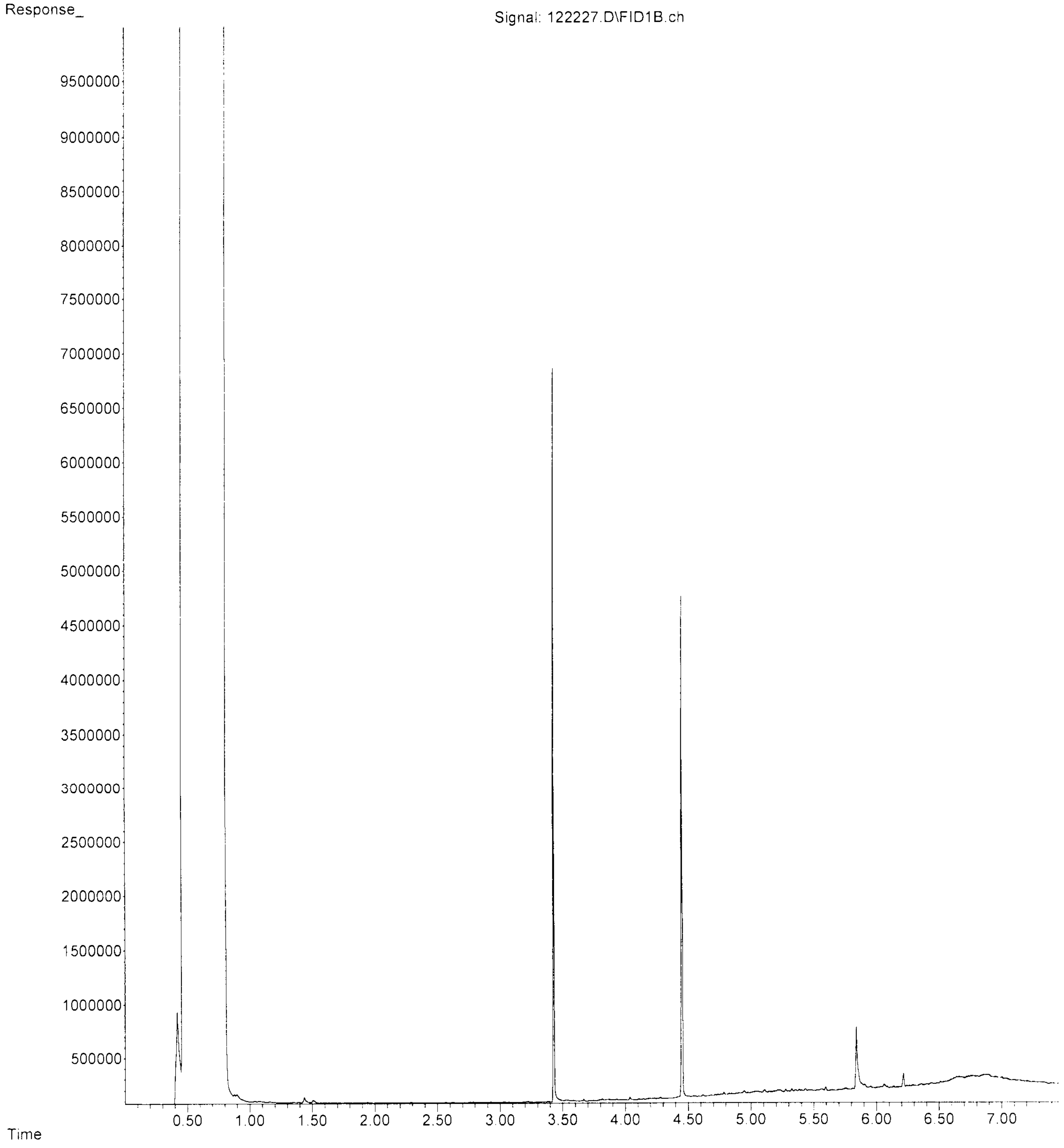
File   :P:\Proc_GC10\12-22-22\122225.D
Operator   : TL
Acquired   : 22 Dec 2022 12:21 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-07
Misc Info :
Vial Number: 26



File   :P:\Proc_GC10\12-22-22\122226.D
Operator   : TL
Acquired   : 22 Dec 2022 12:32 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-08
Misc Info :
Vial Number: 27



File   :P:\Proc_GC10\12-22-22\122227.D
Operator   : TL
Acquired   : 22 Dec 2022 12:43 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-09
Misc Info   :
Vial Number: 28



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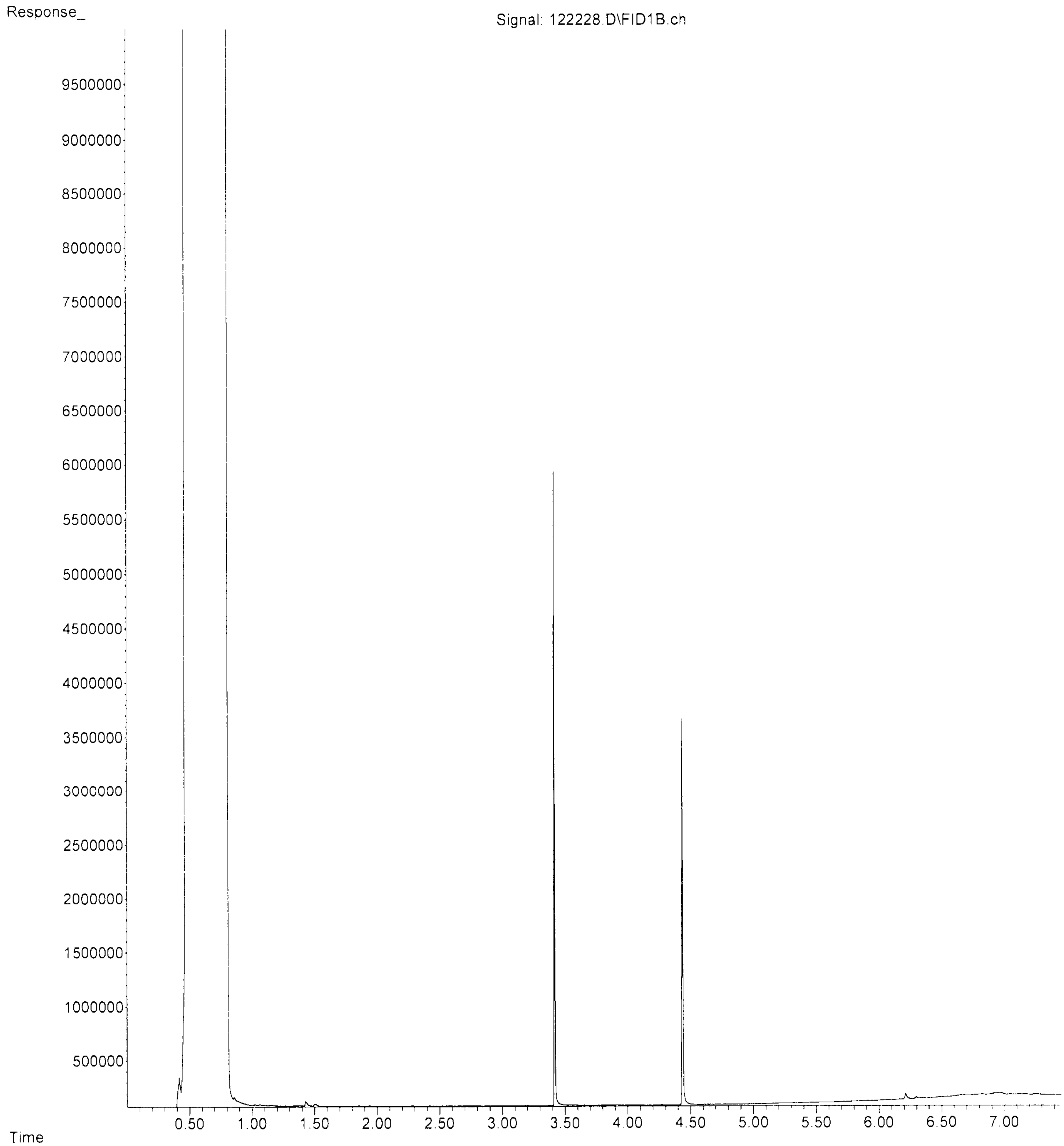
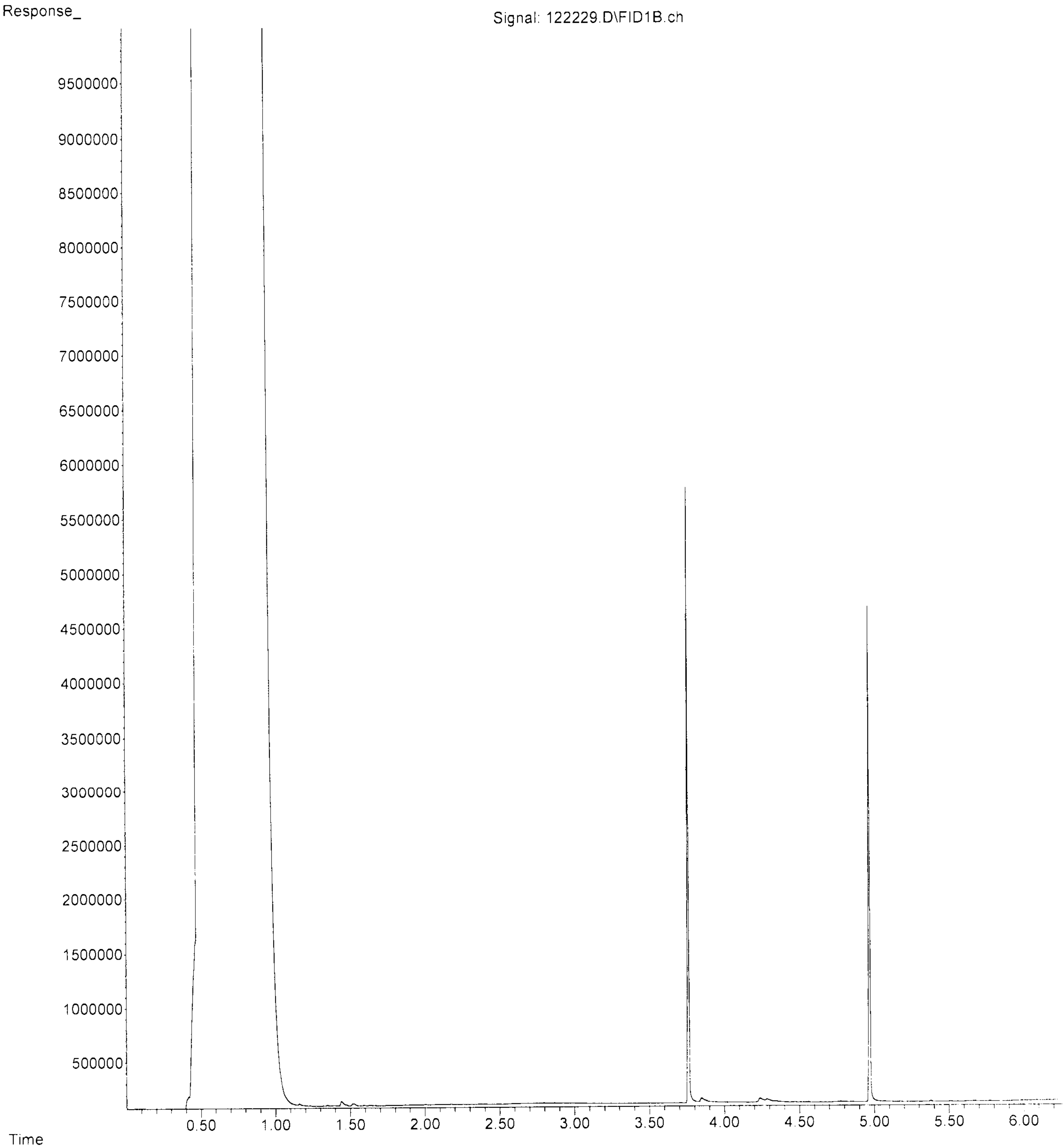
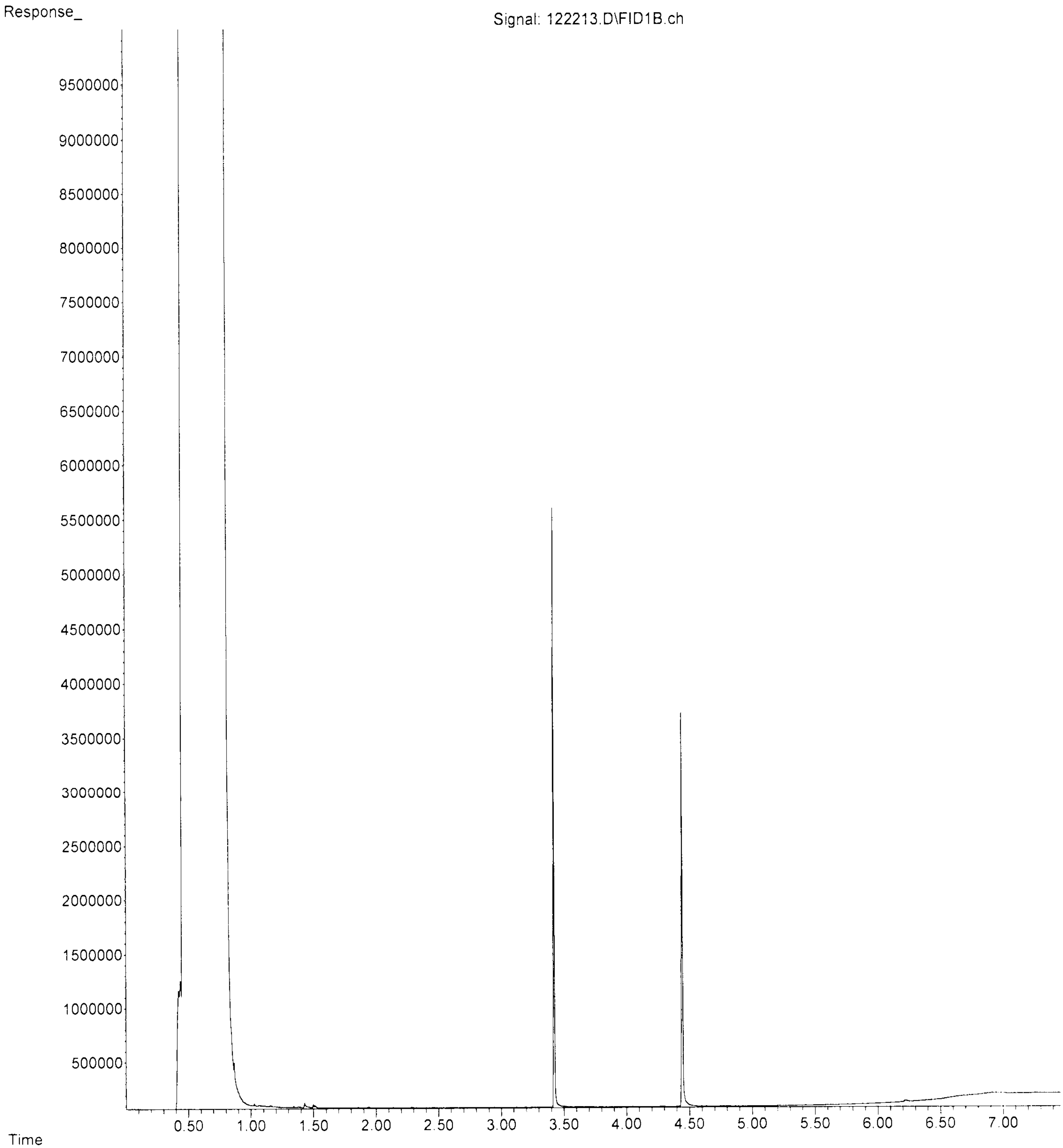
Acquired   : 22 Dec 2022 12:55 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-10
Misc Info :
Vial Number: 29



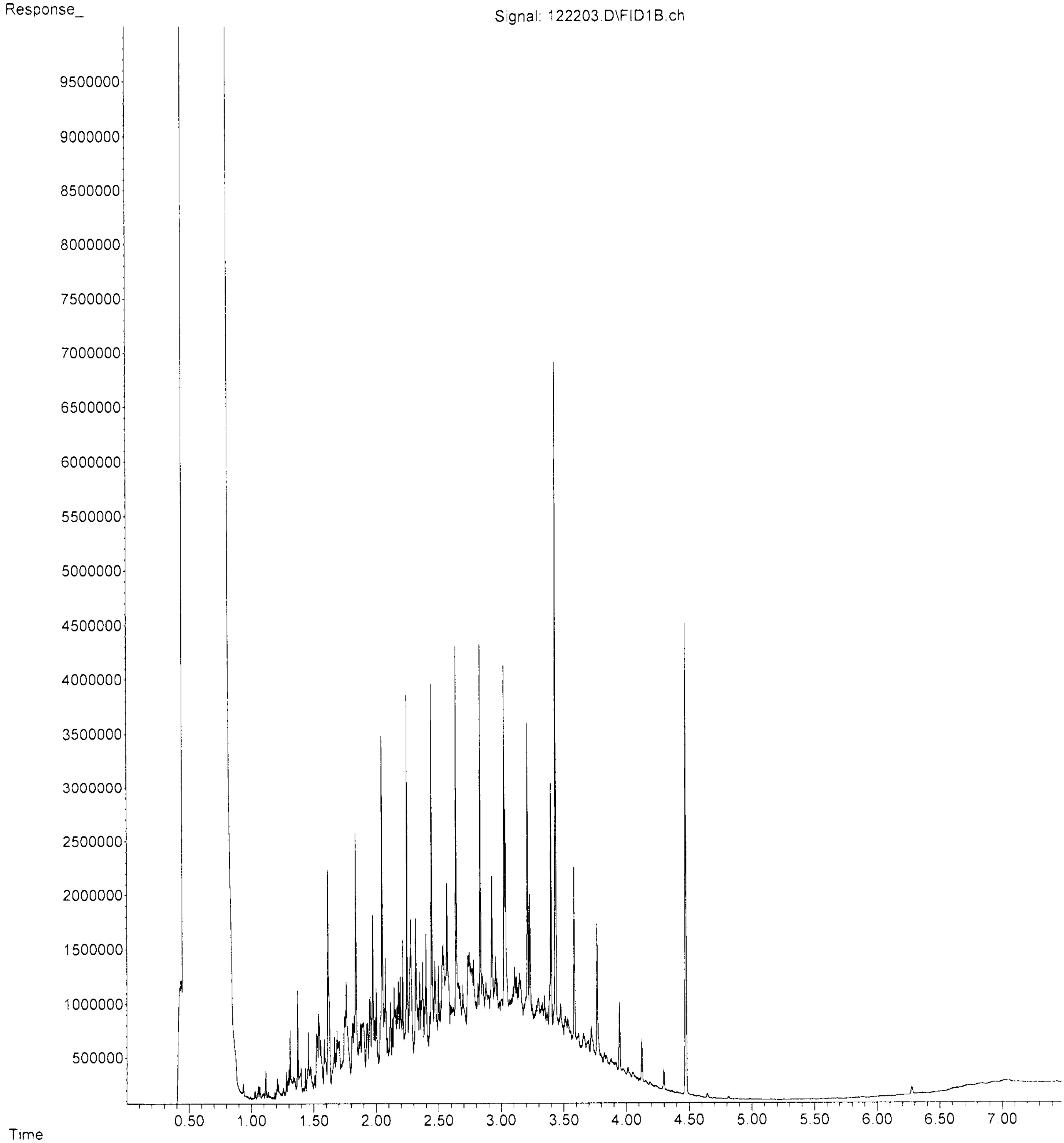
File   :P:\Proc_GC10\12-22-22\122229.D
Operator   : TL
Acquired   : 22 Dec 2022 01:06 pm using AcqMethod DX.M
Instrument :   GC10
Sample Name: 212333-11
Misc Info :
Vial Number: 30



File   :P:\Proc_GC10\12-22-22\122213.D
Operator   : TL
Acquired   : 22 Dec 2022 09:59 am using AcqMethod DX.M
Instrument :   GC10
Sample Name: 02-3053 mb
Misc Info :
Vial Number: 15



File   :P:\Proc_GC10\12-22-22\122203.D
Operator   : TL
Acquired   : 22 Dec 2022 08:04 am using AcqMethod DX.M
Instrument :   GC10
Sample Name: 500 DX 67-143B
Misc Info :
Vial Number: 3



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

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fbi@isomedia.com
www.friedmanandbruya.com

January 3, 2023

Jacob Letts, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on December 22, 2022 from the C-1 R1 5530-014-02, F&BI 212350 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Katy Ataturk
GNR0103R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 22, 2022 by Friedman & Bruya, Inc. from the GeoEngineers C-1 R1 5530-014-02, F&BI 212350 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
212350 -01	C1 R1-10-4
212350 -02	C1 R1-10-10
212350 -03	C1 R1-10-17
212350 -04	C1 R1-11-2
212350 -05	C1 R1-11-4
212350 -06	C1 R1-Dup-1
212350 -07	C1 R1-13-4
212350 -08	C1 R1-13-10
212350 -09	C1 R1-13-20

The 8260D soil acetone calibration standard failed the acceptance criteria. The data were flagged accordingly.

Dichlorodifluoromethane did not meet the acceptance criteria in the 8260D soil matrix spike sample or the associated relative percent difference. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

The 8260D laboratory control sample exceeded the acceptance criteria for several analytes. The compounds were not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350
Date Extracted: 12/28/22
Date Analyzed: 12/28/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
C1 R1-10-4 212350-01	<5	88
C1 R1-10-10 212350-02	<5	97
C1 R1-10-17 212350-03	<5	91
C1 R1-11-2 212350-04	<5	93
C1 R1-11-4 212350-05	<5	93
C1 R1-Dup-1 212350-06	<5	89
C1 R1-13-4 212350-07	<5	87
C1 R1-13-10 212350-08	<5	86
C1 R1-13-20 212350-09	<5	91
Method Blank 02-3044 MB	<5	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350
Date Extracted: 12/27/22
Date Analyzed: 12/27/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
C1 R1-10-4 212350-01	<50	<250	98
C1 R1-10-10 212350-02	<50	<250	99
C1 R1-10-17 212350-03	<50	<250	99
C1 R1-11-2 212350-04	<50	<250	99
C1 R1-11-4 212350-05	180	880	98
C1 R1-Dup-1 212350-06	75	<250	95
C1 R1-13-4 212350-07	<50	<250	100
C1 R1-13-10 212350-08	<50	<250	100
C1 R1-13-20 212350-09	<50	<250	100
Method Blank 02-3057 MB	<50	<250	101

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350
Date Extracted: 12/30/22
Date Analyzed: 12/30/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS STODDARD SOLVENT USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Stoddard Solvent Range (C_8-C_{11})	Surrogate (% Recovery) (Limit 50-150)
C1 R1-11-2 212350-04	<5	109
C1 R1-11-4 212350-05	<5	120
C1 R1-Dup-1 212350-06	<5	109
Method Blank 02-3049 MB	<5	114

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C1 R1-10-4	Client:	GeoEngineers
Date Received:	12/22/22	Project:	C-1 R1 5530-014-02
Date Extracted:	12/23/22	Lab ID:	212350-01 1/0.25
Date Analyzed:	12/23/22	Data File:	122320.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	120
Toluene-d8	89	73	128
4-Bromofluorobenzene	106	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.0047	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	0.0014	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C1 R1-10-10	Client:	GeoEngineers
Date Received:	12/22/22	Project:	C-1 R1 5530-014-02
Date Extracted:	12/23/22	Lab ID:	212350-02 1/0.25
Date Analyzed:	12/23/22	Data File:	122321.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C1 R1-10-17	Client:	GeoEngineers
Date Received:	12/22/22	Project:	C-1 R1 5530-014-02
Date Extracted:	12/23/22	Lab ID:	212350-03 1/0.25
Date Analyzed:	12/23/22	Data File:	122322.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	104	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C1 R1-13-4	Client:	GeoEngineers
Date Received:	12/22/22	Project:	C-1 R1 5530-014-02
Date Extracted:	12/23/22	Lab ID:	212350-07 1/0.25
Date Analyzed:	12/23/22	Data File:	122323.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	84	120
Toluene-d8	91	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C1 R1-13-10	Client:	GeoEngineers
Date Received:	12/22/22	Project:	C-1 R1 5530-014-02
Date Extracted:	12/23/22	Lab ID:	212350-08 1/0.25
Date Analyzed:	12/23/22	Data File:	122324.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	104	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	C1 R1-13-20	Client:	GeoEngineers
Date Received:	12/22/22	Project:	C-1 R1 5530-014-02
Date Extracted:	12/23/22	Lab ID:	212350-09 1/0.25
Date Analyzed:	12/23/22	Data File:	122325.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	105	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	C-1 R1 5530-014-02
Date Extracted:	12/23/22	Lab ID:	02-2981 mb2 1/0.25
Date Analyzed:	12/23/22	Data File:	122308.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	84	120
Toluene-d8	91	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.001
Vinyl chloride	<0.001	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.001	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.001	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.001	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.001	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.001	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 212350-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR STODDARD SOLVENT AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 212350-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Stoddard Solvent	mg/kg (ppm)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Stoddard Solvent	mg/kg (ppm)	40	85	70-130

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 212352-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	2,000	49,000	83 b	115 b	70-130	32 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	2,000	101	70-130

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 212350-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	8 vo	10	10-142	22 vo
Chloromethane	mg/kg (ppm)	1	<0.5	27	27	10-126	0
Vinyl chloride	mg/kg (ppm)	1	<0.05	27	26	10-138	4
Bromomethane	mg/kg (ppm)	1	<0.5	67	68	10-163	1
Chloroethane	mg/kg (ppm)	1	<0.5	42	38	10-176	10
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	34	31	10-176	9
Acetone	mg/kg (ppm)	5	<5	97	92	10-163	5
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	42	39	10-160	7
Hexane	mg/kg (ppm)	1	<0.25	27	31	10-137	14
Methylene chloride	mg/kg (ppm)	1	<0.5	62	56	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	58	51	21-145	13
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	50	46	14-137	8
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	55	50	19-140	10
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	64	55	10-158	15
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	58	51	25-135	13
Chloroform	mg/kg (ppm)	1	<0.05	61	53	21-145	14
2-Butanone (MEK)	mg/kg (ppm)	5	<1	51	48	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	60	55	12-160	9
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	53	48	10-156	10
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	53	50	17-140	6
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	55	49	9-164	12
Benzene	mg/kg (ppm)	1	<0.03	57	52	29-129	9
Trichloroethene	mg/kg (ppm)	1	<0.02	57	50	21-139	13
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	60	55	30-135	9
Bromodichloromethane	mg/kg (ppm)	1	<0.05	57	51	23-155	11
Dibromomethane	mg/kg (ppm)	1	<0.05	62	54	23-145	14
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	56	51	24-155	9
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	57	53	28-144	7
Toluene	mg/kg (ppm)	1	<0.05	54	50	35-130	8
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	53	50	26-149	6
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	58	52	10-205	11
2-Hexanone	mg/kg (ppm)	5	<0.5	44	42	15-166	5
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	55	52	31-137	6
Tetrachloroethene	mg/kg (ppm)	1	<0.025	54	51	20-133	6
Dibromochloromethane	mg/kg (ppm)	1	<0.05	59	53	28-150	11
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	55	54	28-142	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	57	52	32-129	9
Ethylbenzene	mg/kg (ppm)	1	<0.05	55	50	32-137	10
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	56	50	31-143	11
m,p-Xylene	mg/kg (ppm)	2	<0.1	56	50	34-136	11
o-Xylene	mg/kg (ppm)	1	<0.05	57	51	33-134	11
Styrene	mg/kg (ppm)	1	<0.05	52	48	35-137	8
Isopropylbenzene	mg/kg (ppm)	1	<0.05	54	48	31-142	12
Bromoform	mg/kg (ppm)	1	<0.05	59	54	21-156	9
n-Propylbenzene	mg/kg (ppm)	1	<0.05	55	51	23-146	8
Bromobenzene	mg/kg (ppm)	1	<0.05	54	52	34-130	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	55	51	18-149	8
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	57	52	28-140	9
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	55	53	25-144	4
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	56	52	31-134	7
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	55	50	31-136	10
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	56	51	30-137	9
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	56	50	10-182	11
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	56	51	23-145	9
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	55	49	21-149	12
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	57	52	30-131	9
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	55	50	29-129	10
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	57	51	31-132	11
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	54	52	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	53	47	22-142	12
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	51	47	10-142	8
Naphthalene	mg/kg (ppm)	1	<0.05	53	48	14-157	10
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	53	47	20-144	12

Date of Report: 01/03/23
Date Received: 12/22/22
Project: C-1 R1 5530-014-02, F&BI 212350

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	61	10-146
Chloromethane	mg/kg (ppm)	1	68	27-133
Vinyl chloride	mg/kg (ppm)	1	77	22-139
Bromomethane	mg/kg (ppm)	1	158 vo	38-114
Chloroethane	mg/kg (ppm)	1	105	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	100	10-196
Acetone	mg/kg (ppm)	5	171 vo	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	95	47-128
Hexane	mg/kg (ppm)	1	102	43-142
Methylene chloride	mg/kg (ppm)	1	112	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	104	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	100	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	106	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	121	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	104	72-127
Chloroform	mg/kg (ppm)	1	107	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	90	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	108	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	104	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	106	69-128
Carbon tetrachloride	mg/kg (ppm)	1	106	60-139
Benzene	mg/kg (ppm)	1	105	71-118
Trichloroethene	mg/kg (ppm)	1	104	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	109	72-127
Bromodichloromethane	mg/kg (ppm)	1	104	57-126
Dibromomethane	mg/kg (ppm)	1	111	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	100	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	106	67-122
Toluene	mg/kg (ppm)	1	100	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	100	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	100	64-115
2-Hexanone	mg/kg (ppm)	5	77	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	99	72-130
Tetrachloroethene	mg/kg (ppm)	1	99	72-114
Dibromochloromethane	mg/kg (ppm)	1	106	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	100	74-132
Chlorobenzene	mg/kg (ppm)	1	101	76-111
Ethylbenzene	mg/kg (ppm)	1	98	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	98	64-121
m,p-Xylene	mg/kg (ppm)	2	100	78-122
o-Xylene	mg/kg (ppm)	1	101	77-124
Styrene	mg/kg (ppm)	1	95	74-126
Isopropylbenzene	mg/kg (ppm)	1	95	76-127
Bromoform	mg/kg (ppm)	1	106	56-132
n-Propylbenzene	mg/kg (ppm)	1	100	74-124
Bromobenzene	mg/kg (ppm)	1	100	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	100	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	101	61-137
2-Chlorotoluene	mg/kg (ppm)	1	101	74-121
4-Chlorotoluene	mg/kg (ppm)	1	99	75-122
tert-Butylbenzene	mg/kg (ppm)	1	102	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	101	76-125
sec-Butylbenzene	mg/kg (ppm)	1	103	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	103	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	98	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	100	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	99	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	96	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	95	50-153
Naphthalene	mg/kg (ppm)	1	98	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	94	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

212350 [redacted]

12/22/22 [redacted] VS-D2/H2

Report To Jacob Letts
Company GEI
Address 2101 4th Ave STE 950
City, State, ZIP Seattle, WA 98121
Phone ______ Email ______

SAMPLERS (signature) [signature]

PROJECT NAME C-1 R1

PO # 5530-014-02

REMARKS

INVOICE TO

Project specific RLs? - Yes / No

Page # 1 of 1

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

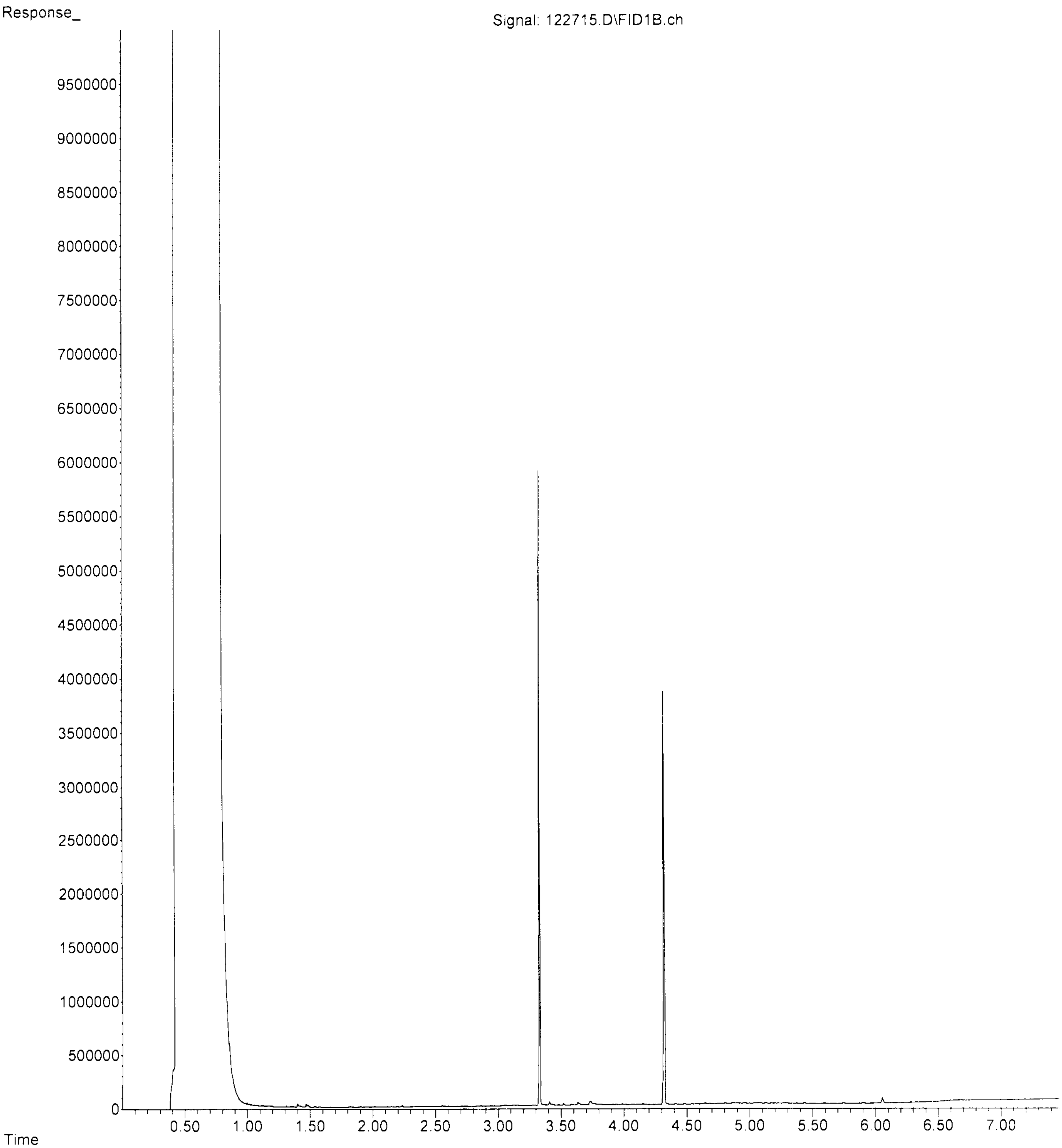
SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		Quantify for mineral spirits			Notes
C-1 R1-10-4	01 A-E	12/21/22	1200	S	5	X	X			X							(X) per KA 12/22/22 ME
C-1 R1-10-10	02		1210			X	X			X							
C-1 R1-10.17	03		1230			X	X			X							
C-1 R1-11-2	04		1300			X	X							X			
C-1 R1-11-4	05		1310			X	X							X			
C-1 R1-Dup-1	06		1320			X	X							X			
C-1 R1-~~B~~13-4	07 A-E	12/21/22	8:30	Soil	5	X	X			X							Added at lab AP
C-1 R1-13-10	08	12/21/22	8:40			X	X			X							
C-1 R1-13-20	09	12/21/22	9:00			X	X			X							

Friedman & Bruya, Inc.
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Katy Atakturk	GEI	12/22/22	1400
Received by:	[signature]	AN H PHAN	F&B	12/22/22	14:00
Relinquished by:					
Received by:			Samples received at ∅ °C		

File   :P:\Proc_GC14\12-27-22\122715.D
Operator   : AL
Acquired   : 27 Dec 2022 01:44 pm using AcqMethod DX.M
Instrument :   GC14
Sample Name: 212350-01
Misc Info :   ERR
Vial Number: 11



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Instrument :   GC14
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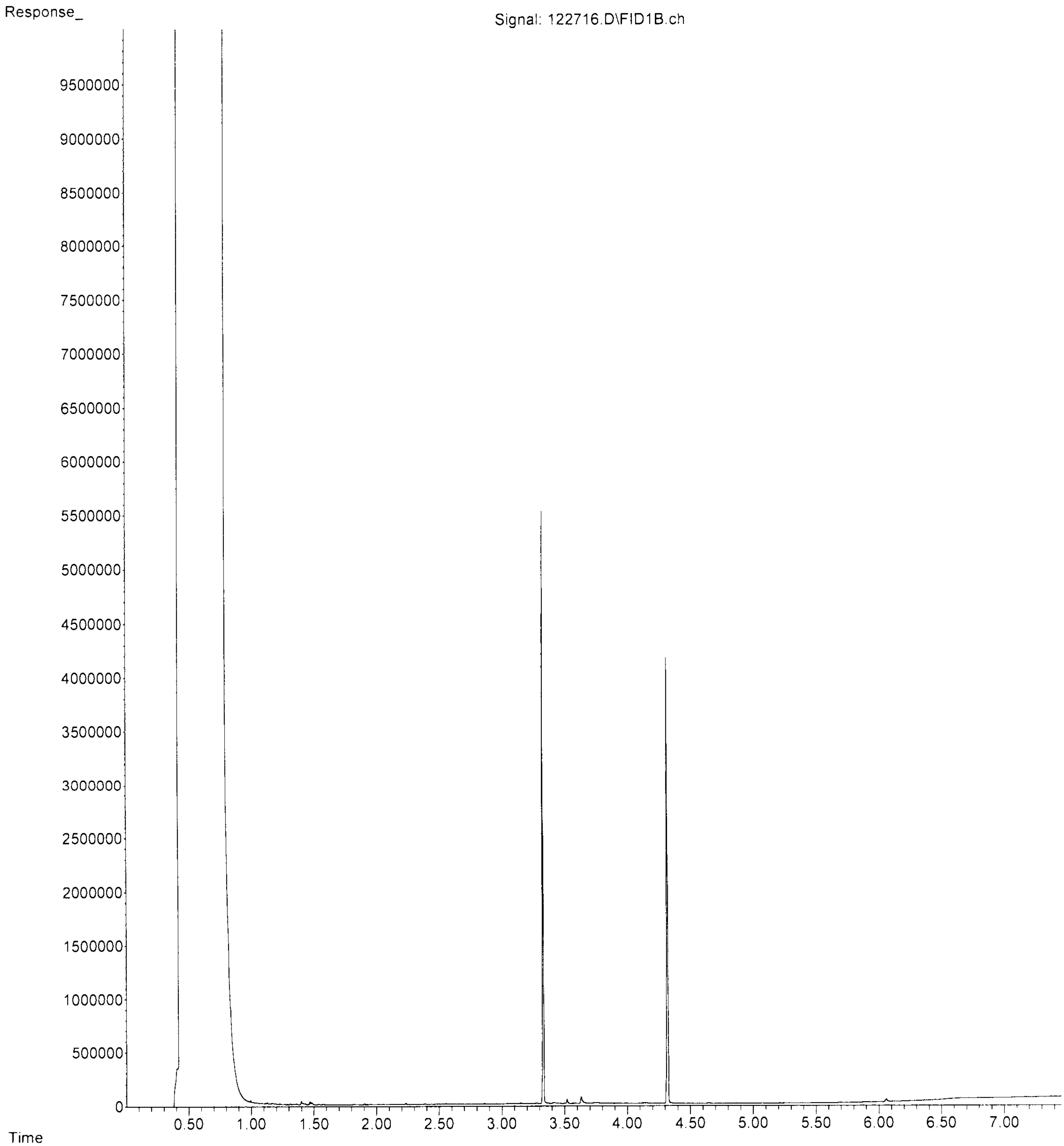
Misc Info :
ERR
Vial Number: 12



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Operator    : AL
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Sample Name: 212350-03
Misc Info   :                                              ERR
Vial Number: 13
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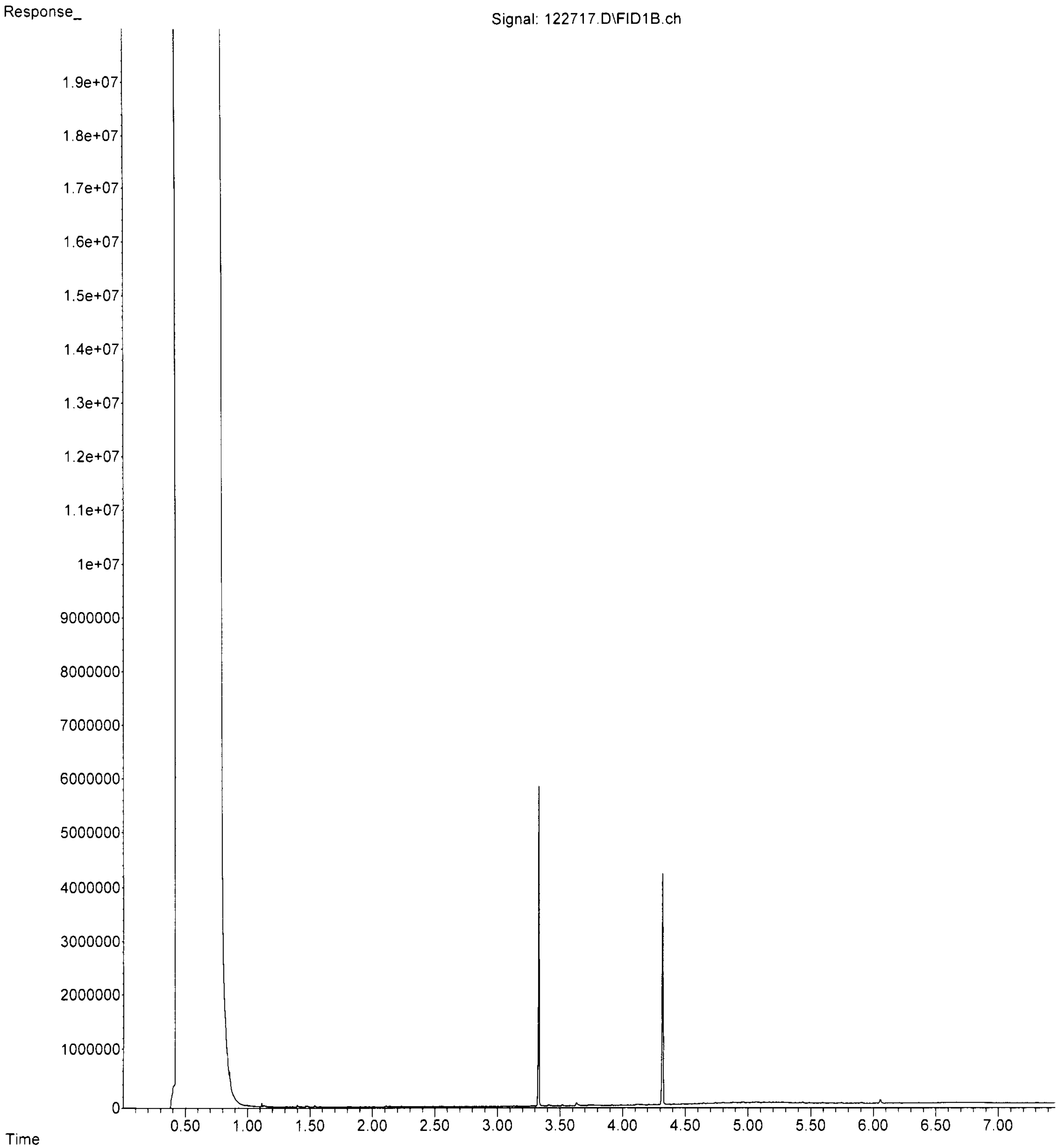

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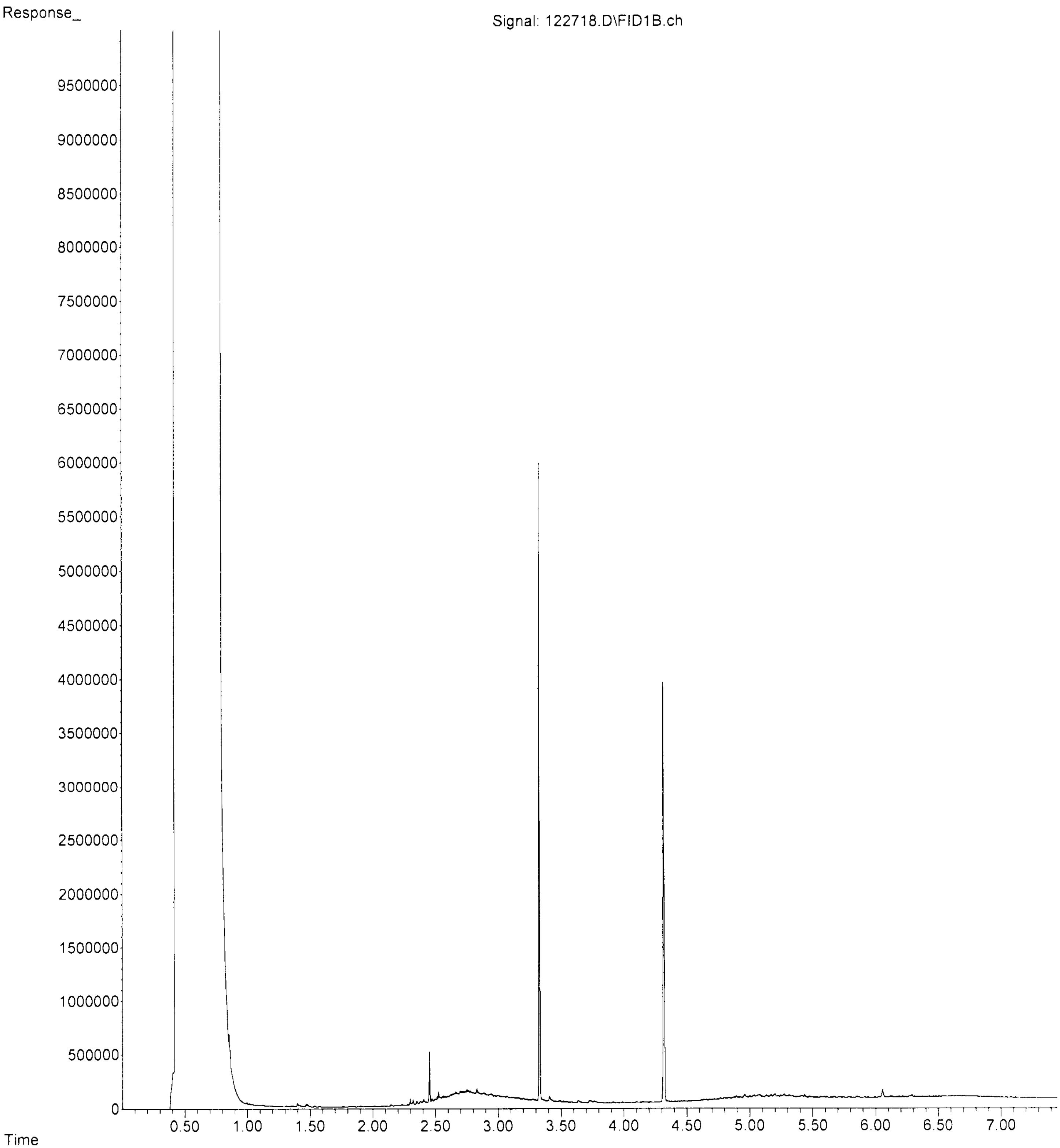
Instrument :   GC14
Sample Name: 212350-04
Misc Info :   ERR
Vial Number: 14



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Instrument :   GC14
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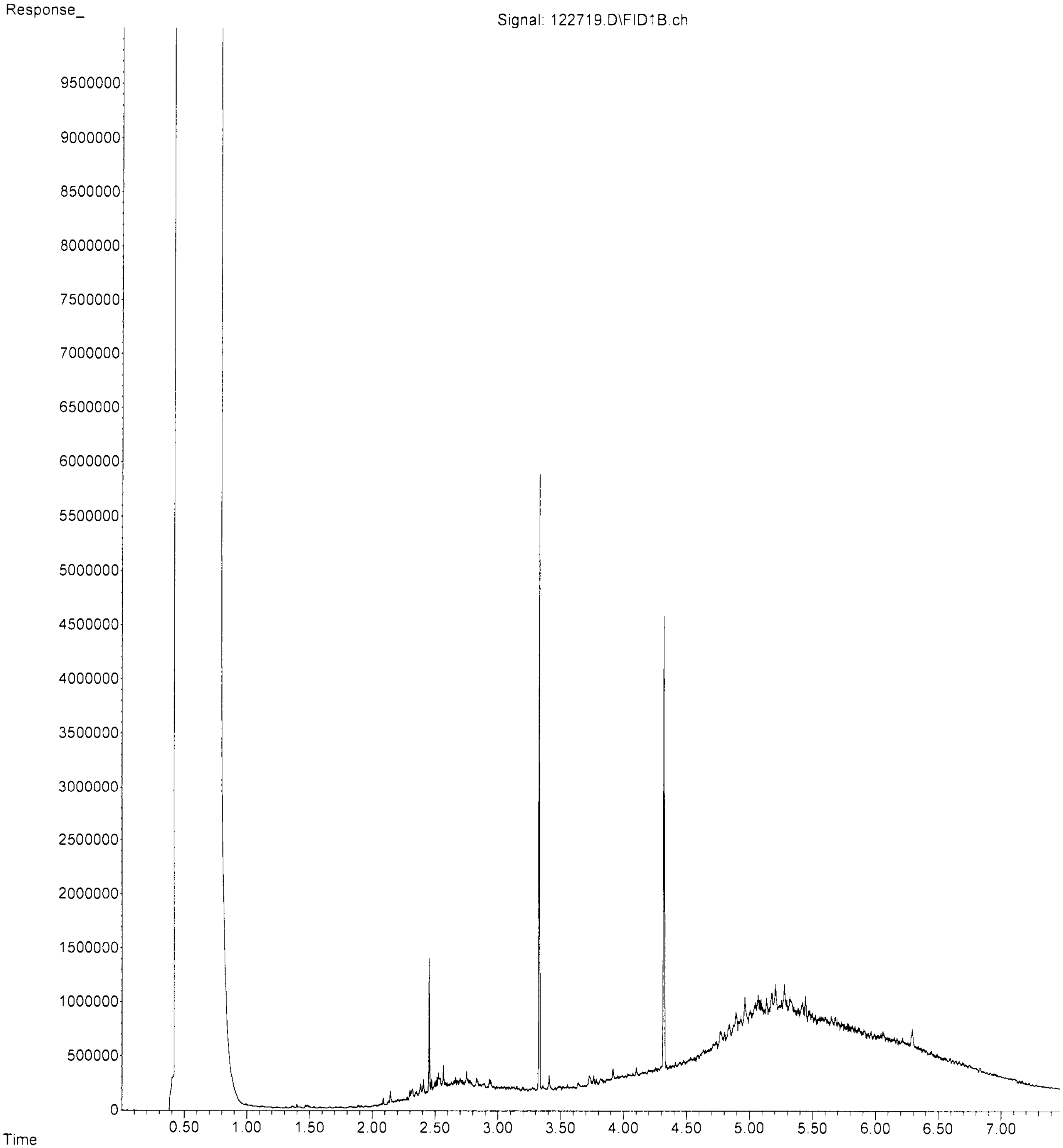
Misc Info :   ERR
Vial Number: 15



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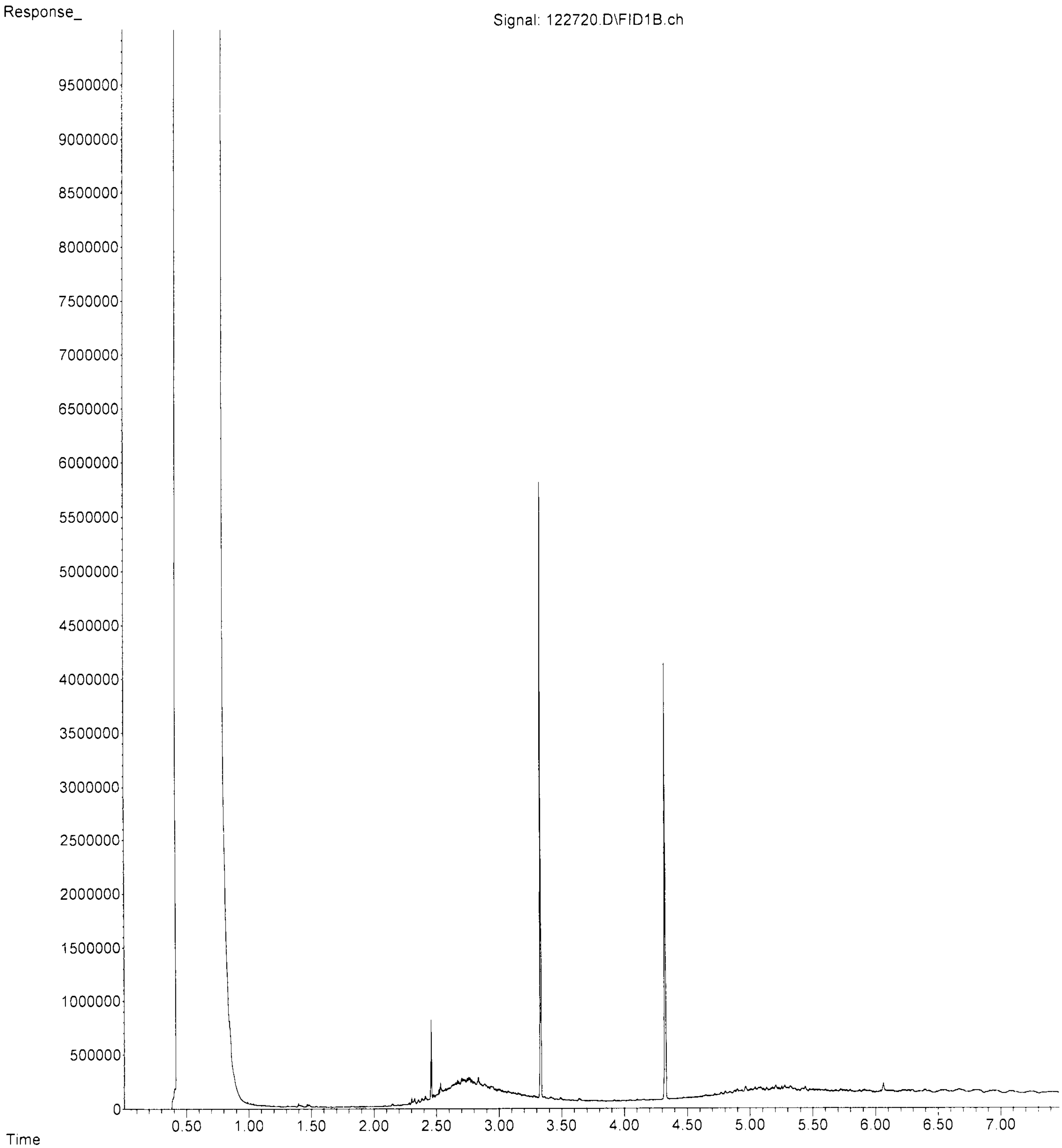
Misc Info :   ERR
Vial Number: 16



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Instrument : GC14
Sample Name: 212350-07
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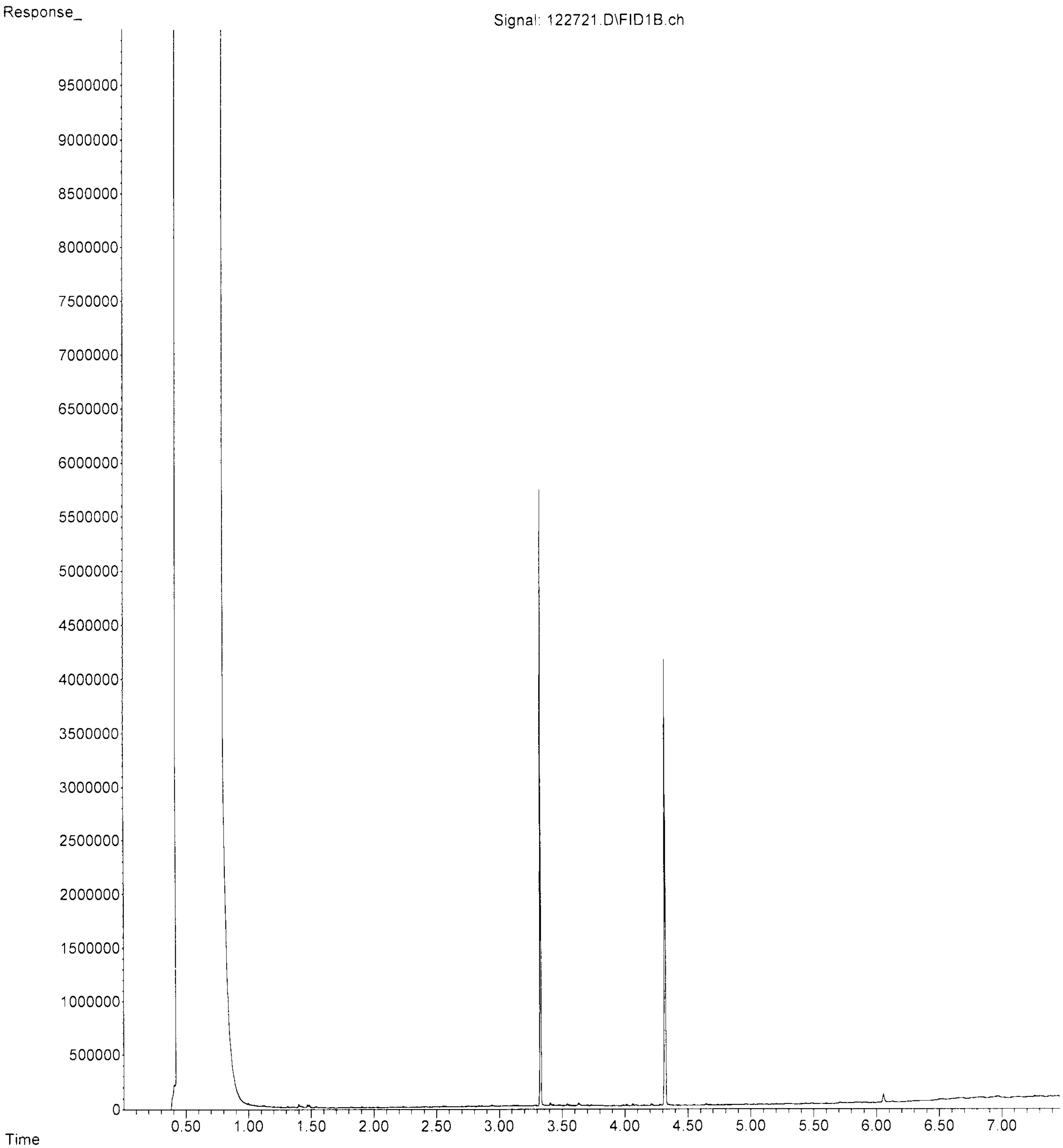
Vial Number: 17



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Instrument :   GC14
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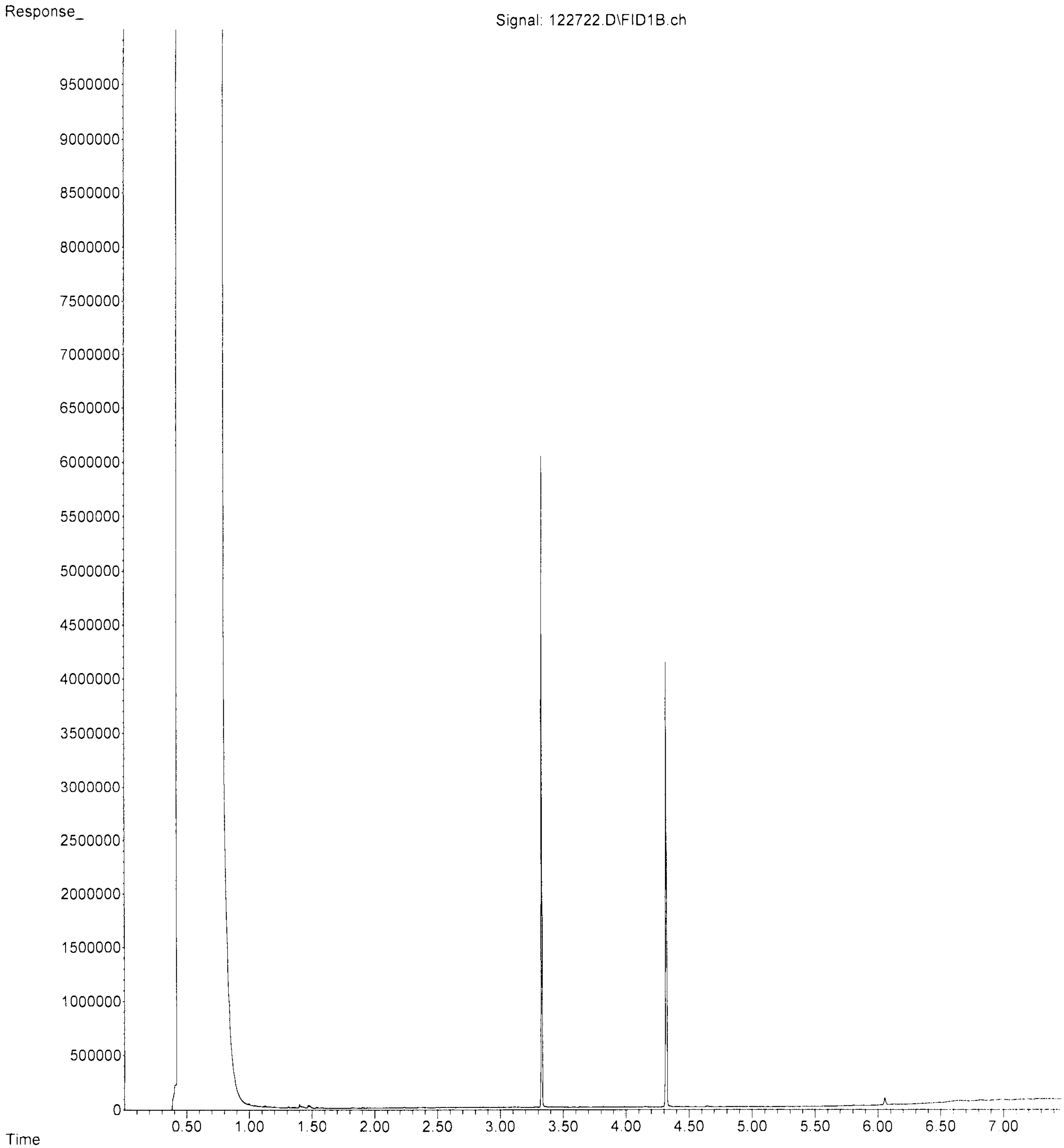
Misc Info :   ERR
Vial Number: 18



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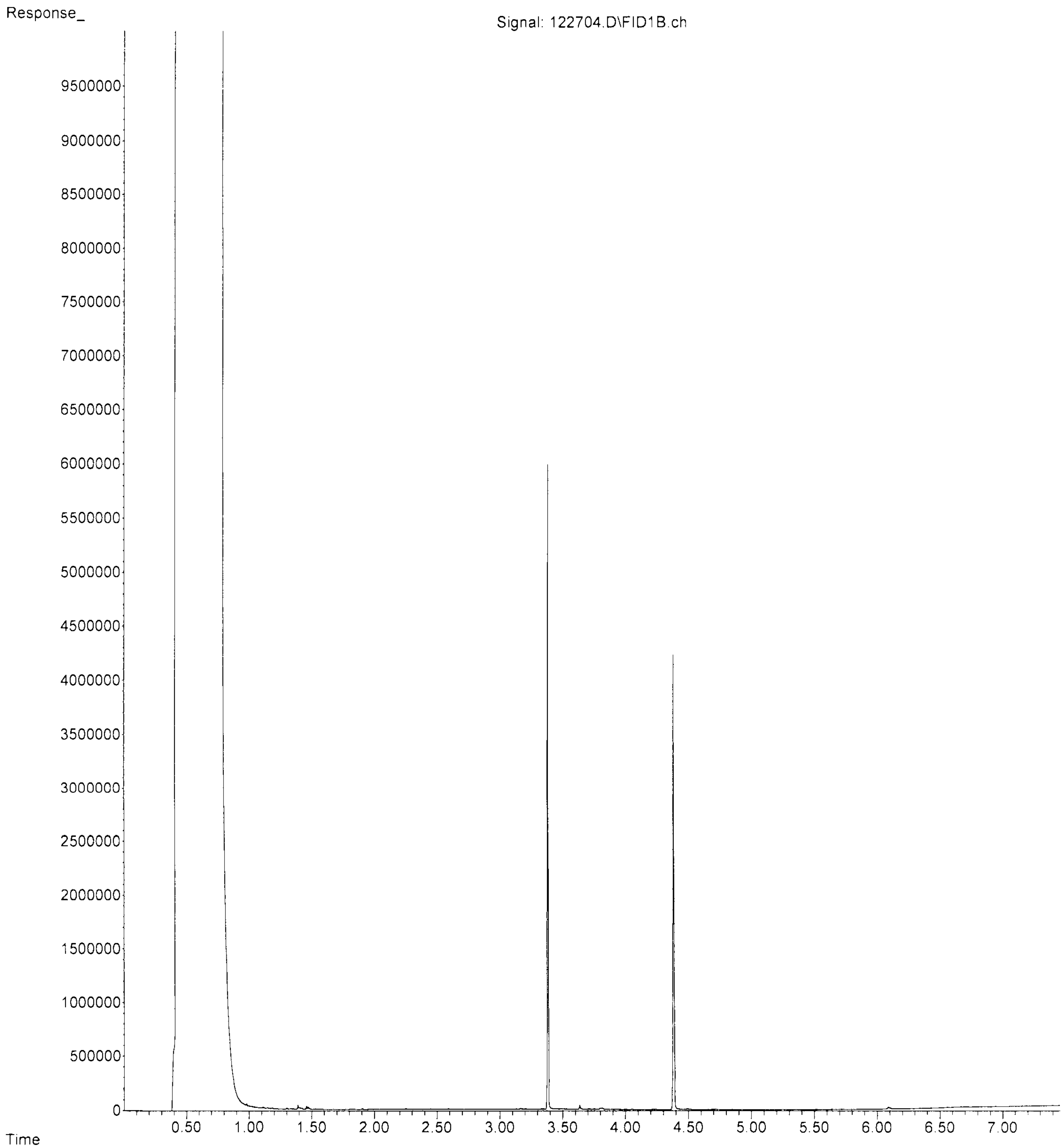
Instrument :   GC14
Sample Name: 02-3057 mb
Misc Info :   ERR
Vial Number: 6



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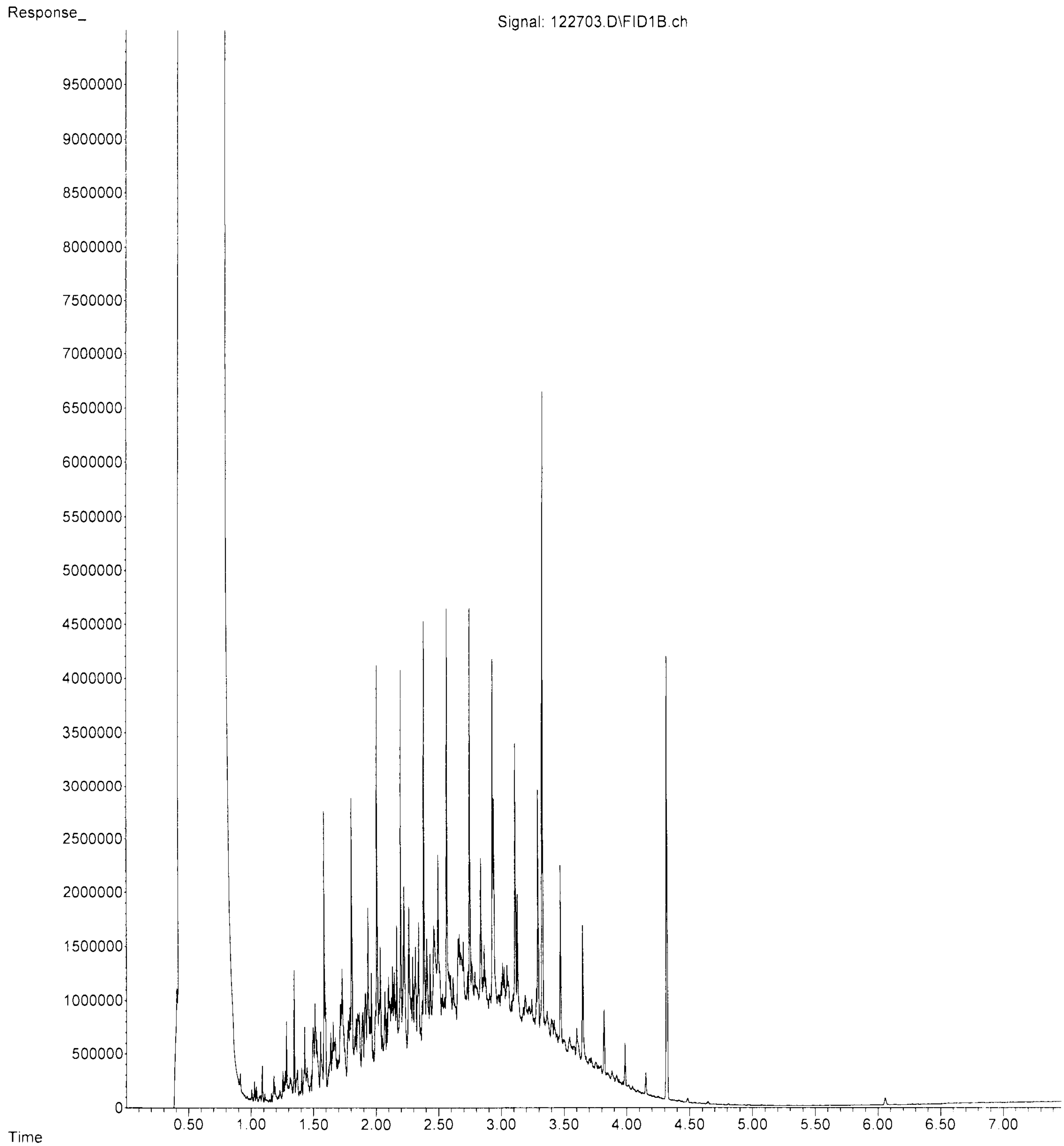
Operator   : AL
Acquired   : 27 Dec 2022 09:50 am using AcqMethod DX.M
Instrument :   GC14
Sample Name: 500 Dx 67-143B
Misc Info :   ERR
Vial Number: 3



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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December 11, 2020

Jacob Letts, Project Manager
GeoEngineers, Inc
1101 Fawcett Ave 200
Tacoma, WA 98402

Dear Mr Letts:

Included are the results from the testing of material submitted on December 1, 2020 from the C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022 project. There are 74 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR1211R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 1, 2020 by Friedman & Bruya, Inc. from the GeoEngineers, Inc C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers, Inc
012022 -01	IA-1_120120
012022 -02	IA-2_120120
012022 -03	IA-3_120120
012022 -04	IA-4_120120
012022 -05	IA-5_120120
012022 -06	IA-6_120120
012022 -07	IA-7_120120
012022 -08	IA-8_120120
012022 -09	IA-9_120120
012022 -10	IA-10_120120
012022 -11	IA-11_120120
012022 -12	IA-12_120120
012022 -13	IA-13_120120
012022 -14	OA-1_120120
012022 -15	OA-2_120120
012022 -16	SV-1_113020
012022 -17	SV-2_113020
012022 -18	SV-3_113020
012022 -19	SV-4_120120
012022 -20	SV-5_120120
012022 -21	SV-6_120120
012022 -22	SV-7_120120
012022 -23	SV-8_120120
012022 -24	SV-9_120120
012022 -25	SV-10_120120
012022 -26	SV-11_120120
012022 -27	SV-12_120120

CASE NARRATIVE (continued)

APH (air) - Analysis Method MA-APH
Non-petroleum compounds identified in the air phase hydrocarbon ranges were subtracted per the MA-APH method.

The APH EC5-8 aliphatics concentration in sample SV-6_120120 exceeded the calibration range of the instrument. The data were flagged accordingly. All quality control requirements were acceptable.

The APH EC5-8 concentrations reported in the SV samples (012022-16 through 012022-27) show the presence of a possible non-petroleum interferent. The compound was tentatively identified as 1-butanol. The GC/MS tentative identification quality score did not meet the method criteria for subtraction. Affected concentrations were reported with an x qualifier.

Volatiles (air) - Analysis Method TO-15
The concentration of several analytes exceeded the calibration range of the instrument. The data were flagged accordingly. All quality control requirements were acceptable.

The methylene chloride concentrations present in the IA and OA samples (012022-01 through 012022-15) were flagged as possibly due to laboratory contamination.

Helium (air) - Analysis Method ASTM D1946
All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-01
Date Analyzed:	12/04/20	Data File:	120420.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	45
APH EC9-12 aliphatics	140
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-02
Date Analyzed:	12/04/20	Data File:	120422.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	130
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-3_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-03
Date Analyzed:	12/04/20	Data File:	120423.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	43
APH EC9-12 aliphatics	180
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-04
Date Analyzed:	12/04/20	Data File:	120424.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	43
APH EC9-12 aliphatics	130
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-05
Date Analyzed:	12/05/20	Data File:	120425.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	96
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-06
Date Analyzed:	12/05/20	Data File:	120426.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	140
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-07
Date Analyzed:	12/05/20	Data File:	120427.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-08
Date Analyzed:	12/05/20	Data File:	120428.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	45
APH EC9-12 aliphatics	90
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-09
Date Analyzed:	12/05/20	Data File:	120429.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	67
APH EC9-12 aliphatics	130
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-10
Date Analyzed:	12/05/20	Data File:	120430.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	58
APH EC9-12 aliphatics	99
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-11
Date Analyzed:	12/05/20	Data File:	120431.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	118	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	42
APH EC9-12 aliphatics	98
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-12
Date Analyzed:	12/05/20	Data File:	120432.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	65
APH EC9-12 aliphatics	72
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	IA-13_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-13
Date Analyzed:	12/05/20	Data File:	120433.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	51
APH EC9-12 aliphatics	100
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	OA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-14
Date Analyzed:	12/05/20	Data File:	120434.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	OA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-15
Date Analyzed:	12/05/20	Data File:	120435.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	112	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	59
APH EC9-12 aliphatics	52
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-1_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-16 1/5.5
Date Analyzed:	12/03/20	Data File:	120311.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	750 x
APH EC9-12 aliphatics	<270
APH EC9-10 aromatics	<140

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-2_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-17 1/3.6
Date Analyzed:	12/03/20	Data File:	120313.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	380 x
APH EC9-12 aliphatics	290
APH EC9-10 aromatics	590

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-3_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-18 1/5.7
Date Analyzed:	12/03/20	Data File:	120314.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,000 x
APH EC9-12 aliphatics	310
APH EC9-10 aromatics	220

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-19 1/5.3
Date Analyzed:	12/03/20	Data File:	120315.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	109	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,000 x
APH EC9-12 aliphatics	<260
APH EC9-10 aromatics	<130

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-20 1/3.4
Date Analyzed:	12/03/20	Data File:	120316.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	370 x
APH EC9-12 aliphatics	240
APH EC9-10 aromatics	310

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-21 1/8.1
Date Analyzed:	12/03/20	Data File:	120317.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	89	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	22,000 ve x
APH EC9-12 aliphatics	1,800
APH EC9-10 aromatics	460

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-22 1/5.5
Date Analyzed:	12/03/20	Data File:	120318.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	112	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,300 x
APH EC9-12 aliphatics	390
APH EC9-10 aromatics	1,400

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-23 1/3.4
Date Analyzed:	12/03/20	Data File:	120319.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	200 x
APH EC9-12 aliphatics	<170
APH EC9-10 aromatics	180

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-24 1/5.7
Date Analyzed:	12/03/20	Data File:	120320.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,400 x
APH EC9-12 aliphatics	910
APH EC9-10 aromatics	210

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-25 1/5.8
Date Analyzed:	12/03/20	Data File:	120321.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,300 x
APH EC9-12 aliphatics	480
APH EC9-10 aromatics	220

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-26 1/6.1
Date Analyzed:	12/03/20	Data File:	120322.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,400 x
APH EC9-12 aliphatics	510
APH EC9-10 aromatics	<150

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Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SV-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-27 1/17
Date Analyzed:	12/03/20	Data File:	120323.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	4,600 x
APH EC9-12 aliphatics	<850
APH EC9-10 aromatics	800

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2756 MB
Date Analyzed:	12/04/20	Data File:	120419.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2554 MB
Date Analyzed:	12/03/20	Data File:	120310.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-01
Date Analyzed:	12/04/20	Data File:	120420.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.4	0.49	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.4	1.4	Trichloroethene	0.15	0.028
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	7.5	3.2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	60 lc	17 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.4	0.33
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.63	0.14
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	4.0	1.1	Bromoform	<2.1	<0.2
Chloroform	0.11	0.022	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.061	0.015	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.40	0.063	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.45	0.14	Naphthalene	0.21	0.04
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-02
Date Analyzed:	12/04/20	Data File:	120422.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.3	0.47	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.1	1.3	Trichloroethene	0.14	0.026
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	10	4.3	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.6	0.36
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.72	0.17
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.11	0.022	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.46	0.073	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.18	0.034
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-3_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-03
Date Analyzed:	12/04/20	Data File:	120423.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.7	0.54	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	4.2	1.8	Trichloroethene	0.13	0.024
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	11	4.7	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	65 lc	19 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.5	0.34
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.66	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	3.6	1.0	Bromoform	<2.1	<0.2
Chloroform	0.098	0.020	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.075	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.2	0.038
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-04
Date Analyzed:	12/04/20	Data File:	120424.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.8	0.56	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	0.13	0.024
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	9.6	4.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.5	0.35
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.66	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.075	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.51	0.16	Naphthalene	0.27	0.052
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-05
Date Analyzed:	12/05/20	Data File:	120425.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.9	1.6	Trichloroethene	0.12	0.022
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	9.8	5.2	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	7.6	3.2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.3	0.30
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.55	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.11	0.022	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.65	0.20	Naphthalene	0.14	0.026
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-06
Date Analyzed:	12/05/20	Data File:	120426.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.59	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.8	1.6	Trichloroethene	0.19	0.035
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	10	4.3	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.6	0.37
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.70	0.16
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.46	0.073	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.58	0.18	Naphthalene	0.19	0.037
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-07
Date Analyzed:	12/05/20	Data File:	120427.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	1.6	0.91	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.59	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	1.1	0.20
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	6.0	2.5	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	41 lc	12 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.12	0.024	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.43	0.069	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.44	0.14	Naphthalene	<0.057 j	<0.011 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-08
Date Analyzed:	12/05/20	Data File:	120428.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.2	0.44	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.1	1.3	Trichloroethene	0.37	0.068
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	16	8.5	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	7.4	2.5	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	8.2	3.5	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.48	0.11
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.7	0.40
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.66	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.031	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.31	0.10	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.072	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.59	0.18	Naphthalene	0.094 j	0.018 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-09
Date Analyzed:	12/05/20	Data File:	120429.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.5	0.50	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	9.2	3.9	Trichloroethene	0.31	0.057
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	11	5.9	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	29	9.8	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	13	5.6	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.48	0.11
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.8	0.42
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.73	0.17
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.59	0.18	Naphthalene	0.13	0.025
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-10
Date Analyzed:	12/05/20	Data File:	120430.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.58	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	0.44	0.081
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	84 ve	44 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	13	4.3	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	9.7	4.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.60	0.14
Methylene chloride	40 lc	12 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.3	0.52
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.79	0.18
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.22	0.045	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.31	0.10	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.081	0.020	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.48	0.076	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.15	0.028
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-11
Date Analyzed:	12/05/20	Data File:	120431.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	113	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.8	0.58	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	3.7	1.6	Trichloroethene	0.41	0.076
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	95 ve	50 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	12	4.1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	9.9	4.2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.57	0.13
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.1	0.48
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.77	0.18
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.25	0.052	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.53	0.084	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.68	0.21	Naphthalene	0.084 j	0.016 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-12
Date Analyzed:	12/05/20	Data File:	120432.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.59	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	4.2	1.8	Trichloroethene	0.70	0.13
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	37	19	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	7.3	2.5	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	15	6.5	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.46	0.10
Methylene chloride	110 ve lc	32 ve lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.7	0.38
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.60	0.14
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	7.3	2.1	Bromoform	<2.1	<0.2
Chloroform	0.16	0.033	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.31	0.11	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.10	0.025	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.075	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.63	0.20	Naphthalene	0.084 j	0.016 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-13_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-13
Date Analyzed:	12/05/20	Data File:	120433.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.5	0.51	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	4.0	1.7	Trichloroethene	0.60	0.11
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	25	13	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	7.9	2.7	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	7.5	3.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.51	0.12
Methylene chloride	47 lc	13 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.9	0.44
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.67	0.15
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.19	0.038	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.061	0.015	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.40	0.063	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.55	0.17	Naphthalene	0.13	0.024
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	OA-1_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-14
Date Analyzed:	12/05/20	Data File:	120434.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.9	0.58	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	5.0	2.1	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.093	0.019	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.074	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.42	0.13	Naphthalene	<0.057 j	<0.011 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	OA-2_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-15
Date Analyzed:	12/05/20	Data File:	120435.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	4.4	2.6	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	37	16	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	64 lc	19 lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	0.91	0.21
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	3.9	1.1	Bromoform	<2.1	<0.2
Chloroform	0.098	0.020	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	16	5.4	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.097	0.024	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.52	0.082	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.59	0.18	Naphthalene	0.079 j	0.015 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-1_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-16 1/5.5
Date Analyzed:	12/03/20	Data File:	120311.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<6.6	<3.8	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.7	<0.55	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	<26	<5.5
F-114	<3.8	<0.55	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	<0.24	<0.11	Bromodichloromethane	<0.37	<0.055
Butane	<13	<5.5	Trichloroethene	<0.59	<0.11
Bromomethane	<13	<3.3	cis-1,3-Dichloropropene	<2.5	<0.55
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	<23	<5.5
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	180	97	Toluene	<100	<27
Acrolein	<11	<4.9	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	<16	<5.5	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	510 ve	210 ve	Dibromochloromethane	<0.47	<0.055
2-Propanol	670 ve	270 ve	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	<2.2	<0.55	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	<2.4	<0.55
Methylene chloride	<190	<55	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	<29	<5.5
3-Chloropropene	<8.6	<2.7	Isopropylbenzene	<14	<2.7
CFC-113	<4.2	<0.55	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<14	<2.7
Methyl t-butyl ether (MTBE)	<9.9	<2.7	4-Ethyltoluene	<14	<2.7
Vinyl acetate	<39	<11	m,p-Xylene	<4.8	<1.1
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	<2.4	<0.55
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	<0.27	<0.055	Benzyl chloride	<0.28	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.7
Tetrahydrofuran	<1.6	<0.55	1,2,4-Trimethylbenzene	<14	<2.7
2-Butanone (MEK)	<16	<5.5	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	3.6	0.65	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	<1.7	<0.28	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	2.4	0.74	Naphthalene	<1.4	<0.28
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-2_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-17 1/3.6
Date Analyzed:	12/03/20	Data File:	120313.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.3	<2.5	1,2-Dichloropropane	<0.83	<0.18
Dichlorodifluoromethane	3.1	0.62	1,4-Dioxane	<1.3	<0.36
Chloromethane	<13	<6.5	2,2,4-Trimethylpentane	<17	<3.6
F-114	<2.5	<0.36	Methyl methacrylate	<15	<3.6
Vinyl chloride	<0.92	<0.36	Heptane	<15	<3.6
1,3-Butadiene	<0.16	<0.072	Bromodichloromethane	<0.24	<0.036
Butane	36	15	Trichloroethene	0.58	0.11
Bromomethane	<8.4	<2.2	cis-1,3-Dichloropropene	<1.6	<0.36
Chloroethane	<9.5	<3.6	4-Methyl-2-pentanone	<15	<3.6
Vinyl bromide	<1.6	<0.36	trans-1,3-Dichloropropene	<1.6	<0.36
Ethanol	220 ve	110 ve	Toluene	<68	<18
Acrolein	<7.4	<3.2	1,1,2-Trichloroethane	<0.2	<0.036
Pentane	18	6.1	2-Hexanone	<15	<3.6
Trichlorofluoromethane	<8.1	<1.4	Tetrachloroethene	<24	<3.6
Acetone	360 ve	150 ve	Dibromochloromethane	<0.31	<0.036
2-Propanol	97	39	1,2-Dibromoethane (EDB)	<0.28	<0.036
1,1-Dichloroethene	<1.4	<0.36	Chlorobenzene	<1.7	<0.36
trans-1,2-Dichloroethene	<1.4	<0.36	Ethylbenzene	<1.6	<0.36
Methylene chloride	<130	<36	1,1,2,2-Tetrachloroethane	<0.49	<0.072
t-Butyl alcohol (TBA)	<44	<14	Nonane	<19	<3.6
3-Chloropropene	<5.6	<1.8	Isopropylbenzene	<8.8	<1.8
CFC-113	8.4	1.1	2-Chlorotoluene	<19	<3.6
Carbon disulfide	<22	<7.2	Propylbenzene	<8.8	<1.8
Methyl t-butyl ether (MTBE)	<6.5	<1.8	4-Ethyltoluene	<8.8	<1.8
Vinyl acetate	<25	<7.2	m,p-Xylene	6.1	1.4
1,1-Dichloroethane	<1.5	<0.36	o-Xylene	1.8	0.41
cis-1,2-Dichloroethene	<1.4	<0.36	Styrene	<3.1	<0.72
Hexane	<13	<3.6	Bromoform	<7.4	<0.72
Chloroform	0.51	0.10	Benzyl chloride	<0.19	<0.036
Ethyl acetate	<26	<7.2	1,3,5-Trimethylbenzene	<8.8	<1.8
Tetrahydrofuran	<1.1	<0.36	1,2,4-Trimethylbenzene	<8.8	<1.8
2-Butanone (MEK)	11	3.9	1,3-Dichlorobenzene	<2.2	<0.36
1,2-Dichloroethane (EDC)	<0.15	<0.036	1,4-Dichlorobenzene	<0.83	<0.14
1,1,1-Trichloroethane	8.7	1.6	1,2-Dichlorobenzene	<2.2	<0.36
Carbon tetrachloride	<1.1	<0.18	1,2,4-Trichlorobenzene	<2.7	<0.36
Benzene	3.7	1.2	Naphthalene	5.5	1.0
Cyclohexane	<25	<7.2	Hexachlorobutadiene	<0.77	<0.072

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-3_113020	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-18 1/5.7
Date Analyzed:	12/03/20	Data File:	120314.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<6.9	<4	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<2.1	<0.57
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<27	<5.7
F-114	<4	<0.57	Methyl methacrylate	<23	<5.7
Vinyl chloride	<1.5	<0.57	Heptane	<23	<5.7
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.057
Butane	15	6.1	Trichloroethene	0.64	0.12
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.6	<0.57
Chloroethane	<15	<5.7	4-Methyl-2-pentanone	<23	<5.7
Vinyl bromide	<2.5	<0.57	trans-1,3-Dichloropropene	<2.6	<0.57
Ethanol	150	79	Toluene	<110	<28
Acrolein	<12	<5.1	1,1,2-Trichloroethane	<0.31	<0.057
Pentane	<17	<5.7	2-Hexanone	<23	<5.7
Trichlorofluoromethane	<13	<2.3	Tetrachloroethene	<39	<5.7
Acetone	1,200 ve	500 ve	Dibromochloromethane	<0.49	<0.057
2-Propanol	270	110	1,2-Dibromoethane (EDB)	<0.44	<0.057
1,1-Dichloroethene	<2.3	<0.57	Chlorobenzene	<2.6	<0.57
trans-1,2-Dichloroethene	<2.3	<0.57	Ethylbenzene	3.1	0.71
Methylene chloride	<200	<57	1,1,2,2-Tetrachloroethane	<0.78	<0.11
t-Butyl alcohol (TBA)	<69	<23	Nonane	<30	<5.7
3-Chloropropene	<8.9	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	<4.4	<0.57	2-Chlorotoluene	<30	<5.7
Carbon disulfide	<36	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<40	<11	m,p-Xylene	12	2.8
1,1-Dichloroethane	<2.3	<0.57	o-Xylene	3.7	0.85
cis-1,2-Dichloroethene	<2.3	<0.57	Styrene	<4.9	<1.1
Hexane	<20	<5.7	Bromoform	<12	<1.1
Chloroform	<0.28	<0.057	Benzyl chloride	<0.3	<0.057
Ethyl acetate	<41	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	2.5	0.84	1,2,4-Trimethylbenzene	<14	<2.8
2-Butanone (MEK)	42	14	1,3-Dichlorobenzene	<3.4	<0.57
1,2-Dichloroethane (EDC)	<0.23	<0.057	1,4-Dichlorobenzene	<1.4	<0.22
1,1,1-Trichloroethane	<3.1	<0.57	1,2-Dichlorobenzene	<3.4	<0.57
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.57
Benzene	<1.8	<0.57	Naphthalene	4.8	0.92
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-4_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-19 1/5.3
Date Analyzed:	12/03/20	Data File:	120315.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<6.4	<3.7	1,2-Dichloropropane	<1.2	<0.26
Dichlorodifluoromethane	2.9	0.58	1,4-Dioxane	<1.9	<0.53
Chloromethane	<20	<9.5	2,2,4-Trimethylpentane	<25	<5.3
F-114	<3.7	<0.53	Methyl methacrylate	<22	<5.3
Vinyl chloride	<1.4	<0.53	Heptane	<22	<5.3
1,3-Butadiene	<0.23	<0.11	Bromodichloromethane	<0.36	<0.053
Butane	<13	<5.3	Trichloroethene	0.83	0.15
Bromomethane	<12	<3.2	cis-1,3-Dichloropropene	<2.4	<0.53
Chloroethane	<14	<5.3	4-Methyl-2-pentanone	<22	<5.3
Vinyl bromide	<2.3	<0.53	trans-1,3-Dichloropropene	<2.4	<0.53
Ethanol	270 ve	140 ve	Toluene	<100	<26
Acrolein	<11	<4.8	1,1,2-Trichloroethane	<0.29	<0.053
Pentane	<16	<5.3	2-Hexanone	<22	<5.3
Trichlorofluoromethane	<12	<2.1	Tetrachloroethene	<36	<5.3
Acetone	2,000 ve	820 ve	Dibromochloromethane	<0.45	<0.053
2-Propanol	3,600 ve	1,500 ve	1,2-Dibromoethane (EDB)	<0.41	<0.053
1,1-Dichloroethene	<2.1	<0.53	Chlorobenzene	<2.4	<0.53
trans-1,2-Dichloroethene	<2.1	<0.53	Ethylbenzene	<2.3	<0.53
Methylene chloride	<180	<53	1,1,2,2-Tetrachloroethane	<0.73	<0.11
t-Butyl alcohol (TBA)	<64	<21	Nonane	<28	<5.3
3-Chloropropene	<8.3	<2.6	Isopropylbenzene	<13	<2.6
CFC-113	4.8	0.63	2-Chlorotoluene	<27	<5.3
Carbon disulfide	<33	<11	Propylbenzene	<13	<2.6
Methyl t-butyl ether (MTBE)	<9.6	<2.6	4-Ethyltoluene	<13	<2.6
Vinyl acetate	<37	<11	m,p-Xylene	6.7	1.5
1,1-Dichloroethane	<2.1	<0.53	o-Xylene	<2.3	<0.53
cis-1,2-Dichloroethene	<2.1	<0.53	Styrene	<4.5	<1.1
Hexane	<19	<5.3	Bromoform	<11	<1.1
Chloroform	<0.26	<0.053	Benzyl chloride	<0.27	<0.053
Ethyl acetate	<38	<11	1,3,5-Trimethylbenzene	<13	<2.6
Tetrahydrofuran	2.0	0.68	1,2,4-Trimethylbenzene	<13	<2.6
2-Butanone (MEK)	<16	<5.3	1,3-Dichlorobenzene	<3.2	<0.53
1,2-Dichloroethane (EDC)	<0.21	<0.053	1,4-Dichlorobenzene	<1.3	<0.2
1,1,1-Trichloroethane	<2.9	<0.53	1,2-Dichlorobenzene	<3.2	<0.53
Carbon tetrachloride	<1.7	<0.26	1,2,4-Trichlorobenzene	<3.9	<0.53
Benzene	<1.7	<0.53	Naphthalene	2.9	0.56
Cyclohexane	<36	<11	Hexachlorobutadiene	<1.1	<0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-5_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-20 1/3.4
Date Analyzed:	12/03/20	Data File:	120316.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.1	<2.4	1,2-Dichloropropane	<0.79	<0.17
Dichlorodifluoromethane	2.5	0.50	1,4-Dioxane	<1.2	<0.34
Chloromethane	<13	<6.1	2,2,4-Trimethylpentane	<16	<3.4
F-114	<2.4	<0.34	Methyl methacrylate	<14	<3.4
Vinyl chloride	<0.87	<0.34	Heptane	<14	<3.4
1,3-Butadiene	<0.15	<0.068	Bromodichloromethane	<0.23	<0.034
Butane	<8.1	<3.4	Trichloroethene	0.37	0.068
Bromomethane	<7.9	<2	cis-1,3-Dichloropropene	<1.5	<0.34
Chloroethane	<9	<3.4	4-Methyl-2-pentanone	<14	<3.4
Vinyl bromide	<1.5	<0.34	trans-1,3-Dichloropropene	<1.5	<0.34
Ethanol	210 ve	110 ve	Toluene	<64	<17
Acrolein	<7	<3.1	1,1,2-Trichloroethane	<0.19	<0.034
Pentane	<10	<3.4	2-Hexanone	<14	<3.4
Trichlorofluoromethane	<7.6	<1.4	Tetrachloroethene	<23	<3.4
Acetone	410 ve	170 ve	Dibromochloromethane	<0.29	<0.034
2-Propanol	120	48	1,2-Dibromoethane (EDB)	<0.26	<0.034
1,1-Dichloroethene	<1.3	<0.34	Chlorobenzene	<1.6	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34	Ethylbenzene	7.4	1.7
Methylene chloride	<120	<34	1,1,2,2-Tetrachloroethane	<0.47	<0.068
t-Butyl alcohol (TBA)	<41	<14	Nonane	<18	<3.4
3-Chloropropene	<5.3	<1.7	Isopropylbenzene	<8.4	<1.7
CFC-113	<2.6	<0.34	2-Chlorotoluene	<18	<3.4
Carbon disulfide	<21	<6.8	Propylbenzene	<8.4	<1.7
Methyl t-butyl ether (MTBE)	<6.1	<1.7	4-Ethyltoluene	<8.4	<1.7
Vinyl acetate	<24	<6.8	m,p-Xylene	29	6.8
1,1-Dichloroethane	<1.4	<0.34	o-Xylene	6.9	1.6
cis-1,2-Dichloroethene	<1.3	<0.34	Styrene	<2.9	<0.68
Hexane	<12	<3.4	Bromoform	<7	<0.68
Chloroform	<0.17	<0.034	Benzyl chloride	<0.18	<0.034
Ethyl acetate	<25	<6.8	1,3,5-Trimethylbenzene	<8.4	<1.7
Tetrahydrofuran	15	5.1	1,2,4-Trimethylbenzene	11	2.2
2-Butanone (MEK)	<10	<3.4	1,3-Dichlorobenzene	<2	<0.34
1,2-Dichloroethane (EDC)	<0.14	<0.034	1,4-Dichlorobenzene	<0.79	<0.13
1,1,1-Trichloroethane	<1.9	<0.34	1,2-Dichlorobenzene	<2	<0.34
Carbon tetrachloride	<1.1	<0.17	1,2,4-Trichlorobenzene	<2.5	<0.34
Benzene	2.6	0.81	Naphthalene	2.1	0.41
Cyclohexane	<23	<6.8	Hexachlorobutadiene	<0.73	<0.068

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-6_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-21 1/8.1
Date Analyzed:	12/03/20	Data File:	120317.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	65	38	1,2-Dichloropropane	<1.9	<0.4
Dichlorodifluoromethane	<4	<0.81	1,4-Dioxane	5.5	1.5
Chloromethane	<30	<15	2,2,4-Trimethylpentane	40	8.7
F-114	<5.7	<0.81	Methyl methacrylate	<33	<8.1
Vinyl chloride	<2.1	<0.81	Heptane	<33	<8.1
1,3-Butadiene	<0.36	<0.16	Bromodichloromethane	<0.54	<0.081
Butane	29	12	Trichloroethene	<0.87	<0.16
Bromomethane	<19	<4.9	cis-1,3-Dichloropropene	<3.7	<0.81
Chloroethane	<21	<8.1	4-Methyl-2-pentanone	<33	<8.1
Vinyl bromide	<3.5	<0.81	trans-1,3-Dichloropropene	<3.7	<0.81
Ethanol	640 ve	340 ve	Toluene	<150	<40
Acrolein	<17	<7.3	1,1,2-Trichloroethane	<0.44	<0.081
Pentane	<24	<8.1	2-Hexanone	<33	<8.1
Trichlorofluoromethane	<18	<3.2	Tetrachloroethene	93	14
Acetone	2,000 ve	830 ve	Dibromochloromethane	<0.69	<0.081
2-Propanol	1,000 ve	410 ve	1,2-Dibromoethane (EDB)	<0.62	<0.081
1,1-Dichloroethene	<3.2	<0.81	Chlorobenzene	<3.7	<0.81
trans-1,2-Dichloroethene	<3.2	<0.81	Ethylbenzene	51	12
Methylene chloride	<280	<81	1,1,2,2-Tetrachloroethane	<1.1	<0.16
t-Butyl alcohol (TBA)	<98	<32	Nonane	<42	<8.1
3-Chloropropene	<13	<4	Isopropylbenzene	<20	<4
CFC-113	340	45	2-Chlorotoluene	<42	<8.1
Carbon disulfide	<50	<16	Propylbenzene	<20	<4
Methyl t-butyl ether (MTBE)	<15	<4	4-Ethyltoluene	<20	<4
Vinyl acetate	<57	<16	m,p-Xylene	180	43
1,1-Dichloroethane	<3.3	<0.81	o-Xylene	49	11
cis-1,2-Dichloroethene	<3.2	<0.81	Styrene	<6.9	<1.6
Hexane	<29	<8.1	Bromoform	<17	<1.6
Chloroform	<0.4	<0.081	Benzyl chloride	<0.42	<0.081
Ethyl acetate	<58	<16	1,3,5-Trimethylbenzene	<20	<4
Tetrahydrofuran	26	8.8	1,2,4-Trimethylbenzene	43	8.7
2-Butanone (MEK)	140	46	1,3-Dichlorobenzene	<4.9	<0.81
1,2-Dichloroethane (EDC)	<0.33	<0.081	1,4-Dichlorobenzene	<1.9	<0.31
1,1,1-Trichloroethane	32	5.9	1,2-Dichlorobenzene	<4.9	<0.81
Carbon tetrachloride	<2.5	<0.4	1,2,4-Trichlorobenzene	<6	<0.81
Benzene	<2.6	<0.81	Naphthalene	6.5	1.2
Cyclohexane	<56	<16	Hexachlorobutadiene	<1.7	<0.16

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-7_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-22 1/5.5
Date Analyzed:	12/03/20	Data File:	120318.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	100	59	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	3.2	0.65	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	<26	<5.5
F-114	<3.8	<0.55	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	<0.24	<0.11	Bromodichloromethane	<0.37	<0.055
Butane	36	15	Trichloroethene	0.74	0.14
Bromomethane	<13	<3.3	cis-1,3-Dichloropropene	<2.5	<0.55
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	<23	<5.5
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	400 ve	210 ve	Toluene	390	100
Acrolein	<11	<4.9	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	28	9.5	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	580 ve	250 ve	Dibromochloromethane	<0.47	<0.055
2-Propanol	320	130	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	4.5	1.1	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	27	6.1
Methylene chloride	<190	<55	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	<29	<5.5
3-Chloropropene	<8.6	<2.7	Isopropylbenzene	<14	<2.7
CFC-113	260	33	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<14	<2.7
Methyl t-butyl ether (MTBE)	<9.9	<2.7	4-Ethyltoluene	<14	<2.7
Vinyl acetate	<39	<11	m,p-Xylene	98	22
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	37	8.5
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	<0.27	<0.055	Benzyl chloride	<0.28	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	16	3.3
Tetrahydrofuran	18	5.9	1,2,4-Trimethylbenzene	95	19
2-Butanone (MEK)	41	14	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3	<0.55	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	7.5	1.2	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	4.7	1.5	Naphthalene	31	5.9
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-8_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-23 1/3.4
Date Analyzed:	12/03/20	Data File:	120319.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4.1	<2.4
Dichlorodifluoromethane	2.8	0.56
Chloromethane	<13	<6.1
F-114	<2.4	<0.34
Vinyl chloride	<0.87	<0.34
1,3-Butadiene	<0.15	<0.068
Butane	<8.1	<3.4
Bromomethane	<7.9	<2
Chloroethane	<9	<3.4
Vinyl bromide	<1.5	<0.34
Ethanol	490 ve	260 ve
Acrolein	<7	<3.1
Pentane	<10	<3.4
Trichlorofluoromethane	<7.6	<1.4
Acetone	240 ve	100 ve
2-Propanol	67	27
1,1-Dichloroethene	<1.3	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34
Methylene chloride	<120	<34
t-Butyl alcohol (TBA)	<41	<14
3-Chloropropene	<5.3	<1.7
CFC-113	<2.6	<0.34
Carbon disulfide	<21	<6.8
Methyl t-butyl ether (MTBE)	<6.1	<1.7
Vinyl acetate	<24	<6.8
1,1-Dichloroethane	<1.4	<0.34
cis-1,2-Dichloroethene	<1.3	<0.34
Hexane	<12	<3.4
Chloroform	0.55	0.11
Ethyl acetate	<25	<6.8
Tetrahydrofuran	1.4	0.46
2-Butanone (MEK)	<10	<3.4
1,2-Dichloroethane (EDC)	<0.14	<0.034
1,1,1-Trichloroethane	<1.9	<0.34
Carbon tetrachloride	<1.1	<0.17
Benzene	<1.1	<0.34
Cyclohexane	<23	<6.8
1,2-Dichloropropane	<0.79	<0.17
1,4-Dioxane	<1.2	<0.34
2,2,4-Trimethylpentane	<16	<3.4
Methyl methacrylate	<14	<3.4
Heptane	<14	<3.4
Bromodichloromethane	<0.23	<0.034
Trichloroethene	0.38	0.071
cis-1,3-Dichloropropene	<1.5	<0.34
4-Methyl-2-pentanone	<14	<3.4
trans-1,3-Dichloropropene	<1.5	<0.34
Toluene	<64	<17
1,1,2-Trichloroethane	<0.19	<0.034
2-Hexanone	<14	<3.4
Tetrachloroethene	<23	<3.4
Dibromochloromethane	<0.29	<0.034
1,2-Dibromoethane (EDB)	<0.26	<0.034
Chlorobenzene	<1.6	<0.34
Ethylbenzene	<1.5	<0.34
1,1,2,2-Tetrachloroethane	<0.47	<0.068
Nonane	<18	<3.4
Isopropylbenzene	<8.4	<1.7
2-Chlorotoluene	<18	<3.4
Propylbenzene	<8.4	<1.7
4-Ethyltoluene	<8.4	<1.7
m,p-Xylene	5.6	1.3
o-Xylene	2.2	0.51
Styrene	<2.9	<0.68
Bromoform	<7	<0.68
Benzyl chloride	<0.18	<0.034
1,3,5-Trimethylbenzene	<8.4	<1.7
1,2,4-Trimethylbenzene	<8.4	<1.7
1,3-Dichlorobenzene	<2	<0.34
1,4-Dichlorobenzene	<0.79	<0.13
1,2-Dichlorobenzene	<2	<0.34
1,2,4-Trichlorobenzene	<2.5	<0.34
Naphthalene	6.7	1.3
Hexachlorobutadiene	<0.73	<0.068

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-9_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-24 1/5.7
Date Analyzed:	12/03/20	Data File:	120320.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<6.9	<4	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.8	<0.57	1,4-Dioxane	<2.1	<0.57
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<27	<5.7
F-114	<4	<0.57	Methyl methacrylate	<23	<5.7
Vinyl chloride	<1.5	<0.57	Heptane	<23	<5.7
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.057
Butane	<14	<5.7	Trichloroethene	2.8	0.52
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.6	<0.57
Chloroethane	<15	<5.7	4-Methyl-2-pentanone	<23	<5.7
Vinyl bromide	<2.5	<0.57	trans-1,3-Dichloropropene	<2.6	<0.57
Ethanol	370 ve	200 ve	Toluene	<110	<28
Acrolein	<12	<5.1	1,1,2-Trichloroethane	<0.31	<0.057
Pentane	<17	<5.7	2-Hexanone	<23	<5.7
Trichlorofluoromethane	<13	<2.3	Tetrachloroethene	<39	<5.7
Acetone	430 ve	180 ve	Dibromochloromethane	<0.49	<0.057
2-Propanol	110	43	1,2-Dibromoethane (EDB)	<0.44	<0.057
1,1-Dichloroethene	<2.3	<0.57	Chlorobenzene	<2.6	<0.57
trans-1,2-Dichloroethene	<2.3	<0.57	Ethylbenzene	12	2.7
Methylene chloride	<200	<57	1,1,2,2-Tetrachloroethane	<0.78	<0.11
t-Butyl alcohol (TBA)	<69	<23	Nonane	<30	<5.7
3-Chloropropene	<8.9	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	54	7.0	2-Chlorotoluene	<30	<5.7
Carbon disulfide	<36	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<40	<11	m,p-Xylene	44	10
1,1-Dichloroethane	<2.3	<0.57	o-Xylene	16	3.6
cis-1,2-Dichloroethene	<2.3	<0.57	Styrene	<4.9	<1.1
Hexane	<20	<5.7	Bromoform	<12	<1.1
Chloroform	<0.28	<0.057	Benzyl chloride	<0.3	<0.057
Ethyl acetate	<41	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	2.6	0.87	1,2,4-Trimethylbenzene	18	3.6
2-Butanone (MEK)	<17	<5.7	1,3-Dichlorobenzene	<3.4	<0.57
1,2-Dichloroethane (EDC)	<0.23	<0.057	1,4-Dichlorobenzene	<1.4	<0.22
1,1,1-Trichloroethane	6.5	1.2	1,2-Dichlorobenzene	<3.4	<0.57
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.57
Benzene	<1.8	<0.57	Naphthalene	6.2	1.2
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-10_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-25 1/5.8
Date Analyzed:	12/03/20	Data File:	120321.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<7	<4.1	1,2-Dichloropropane	<1.3	<0.29
Dichlorodifluoromethane	<2.9	<0.58	1,4-Dioxane	<2.1	<0.58
Chloromethane	<22	<10	2,2,4-Trimethylpentane	<27	<5.8
F-114	<4.1	<0.58	Methyl methacrylate	<24	<5.8
Vinyl chloride	<1.5	<0.58	Heptane	<24	<5.8
1,3-Butadiene	<0.26	<0.12	Bromodichloromethane	<0.39	<0.058
Butane	<14	<5.8	Trichloroethene	22	4.1
Bromomethane	<14	<3.5	cis-1,3-Dichloropropene	<2.6	<0.58
Chloroethane	<15	<5.8	4-Methyl-2-pentanone	<24	<5.8
Vinyl bromide	<2.5	<0.58	trans-1,3-Dichloropropene	<2.6	<0.58
Ethanol	240	130	Toluene	<110	<29
Acrolein	<12	<5.2	1,1,2-Trichloroethane	<0.32	<0.058
Pentane	<17	<5.8	2-Hexanone	<24	<5.8
Trichlorofluoromethane	<13	<2.3	Tetrachloroethene	<39	<5.8
Acetone	460 ve	190 ve	Dibromochloromethane	<0.49	<0.058
2-Propanol	83	34	1,2-Dibromoethane (EDB)	<0.45	<0.058
1,1-Dichloroethene	<2.3	<0.58	Chlorobenzene	<2.7	<0.58
trans-1,2-Dichloroethene	<2.3	<0.58	Ethylbenzene	6.1	1.4
Methylene chloride	<200	<58	1,1,2,2-Tetrachloroethane	<0.8	<0.12
t-Butyl alcohol (TBA)	<70	<23	Nonane	<30	<5.8
3-Chloropropene	<9.1	<2.9	Isopropylbenzene	<14	<2.9
CFC-113	28	3.6	2-Chlorotoluene	<30	<5.8
Carbon disulfide	<36	<12	Propylbenzene	<14	<2.9
Methyl t-butyl ether (MTBE)	<10	<2.9	4-Ethyltoluene	<14	<2.9
Vinyl acetate	<41	<12	m,p-Xylene	24	5.5
1,1-Dichloroethane	<2.3	<0.58	o-Xylene	7.7	1.8
cis-1,2-Dichloroethene	<2.3	<0.58	Styrene	<4.9	<1.2
Hexane	<20	<5.8	Bromoform	<12	<1.2
Chloroform	<0.28	<0.058	Benzyl chloride	<0.3	<0.058
Ethyl acetate	<42	<12	1,3,5-Trimethylbenzene	<14	<2.9
Tetrahydrofuran	13	4.6	1,2,4-Trimethylbenzene	<14	<2.9
2-Butanone (MEK)	<17	<5.8	1,3-Dichlorobenzene	<3.5	<0.58
1,2-Dichloroethane (EDC)	<0.23	<0.058	1,4-Dichlorobenzene	<1.4	<0.22
1,1,1-Trichloroethane	<3.2	<0.58	1,2-Dichlorobenzene	<3.5	<0.58
Carbon tetrachloride	<1.8	<0.29	1,2,4-Trichlorobenzene	<4.3	<0.58
Benzene	<1.9	<0.58	Naphthalene	8.8	1.7
Cyclohexane	<40	<12	Hexachlorobutadiene	<1.2	<0.12

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-11_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-26 1/6.1
Date Analyzed:	12/03/20	Data File:	120322.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<7.3	<4.3	1,2-Dichloropropane	<1.4	<0.3
Dichlorodifluoromethane	<3	<0.61	1,4-Dioxane	<2.2	<0.61
Chloromethane	<23	<11	2,2,4-Trimethylpentane	<28	<6.1
F-114	<4.3	<0.61	Methyl methacrylate	<25	<6.1
Vinyl chloride	<1.6	<0.61	Heptane	<25	<6.1
1,3-Butadiene	<0.27	<0.12	Bromodichloromethane	<0.41	<0.061
Butane	<15	<6.1	Trichloroethene	<0.66	<0.12
Bromomethane	<14	<3.7	cis-1,3-Dichloropropene	<2.8	<0.61
Chloroethane	<16	<6.1	4-Methyl-2-pentanone	<25	<6.1
Vinyl bromide	<2.7	<0.61	trans-1,3-Dichloropropene	<2.8	<0.61
Ethanol	260	140	Toluene	<110	<30
Acrolein	<13	<5.5	1,1,2-Trichloroethane	<0.33	<0.061
Pentane	<18	<6.1	2-Hexanone	<25	<6.1
Trichlorofluoromethane	<14	<2.4	Tetrachloroethene	<41	<6.1
Acetone	220	93	Dibromochloromethane	<0.52	<0.061
2-Propanol	200	80	1,2-Dibromoethane (EDB)	<0.47	<0.061
1,1-Dichloroethene	<2.4	<0.61	Chlorobenzene	<2.8	<0.61
trans-1,2-Dichloroethene	<2.4	<0.61	Ethylbenzene	<2.6	<0.61
Methylene chloride	<210	<61	1,1,2,2-Tetrachloroethane	<0.84	<0.12
t-Butyl alcohol (TBA)	<74	<24	Nonane	<32	<6.1
3-Chloropropene	<9.5	<3	Isopropylbenzene	<15	<3
CFC-113	16	2.1	2-Chlorotoluene	<32	<6.1
Carbon disulfide	<38	<12	Propylbenzene	<15	<3
Methyl t-butyl ether (MTBE)	<11	<3	4-Ethyltoluene	<15	<3
Vinyl acetate	<43	<12	m,p-Xylene	6.4	1.5
1,1-Dichloroethane	<2.5	<0.61	o-Xylene	2.6	0.61
cis-1,2-Dichloroethene	<2.4	<0.61	Styrene	<5.2	<1.2
Hexane	<22	<6.1	Bromoform	<13	<1.2
Chloroform	<0.3	<0.061	Benzyl chloride	<0.32	<0.061
Ethyl acetate	<44	<12	1,3,5-Trimethylbenzene	<15	<3
Tetrahydrofuran	7.1	2.4	1,2,4-Trimethylbenzene	<15	<3
2-Butanone (MEK)	<18	<6.1	1,3-Dichlorobenzene	<3.7	<0.61
1,2-Dichloroethane (EDC)	<0.25	<0.061	1,4-Dichlorobenzene	<1.5	<0.23
1,1,1-Trichloroethane	13	2.5	1,2-Dichlorobenzene	<3.7	<0.61
Carbon tetrachloride	<1.9	<0.3	1,2,4-Trichlorobenzene	<4.5	<0.61
Benzene	<1.9	<0.61	Naphthalene	2.0	0.38
Cyclohexane	<42	<12	Hexachlorobutadiene	<1.3	<0.12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-12_120120	Client:	GeoEngineers, Inc
Date Received:	12/01/20	Project:	5531-014-01, F&BI 012022
Date Collected:	12/01/20	Lab ID:	012022-27 1/17
Date Analyzed:	12/03/20	Data File:	120323.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<20	<12	1,2-Dichloropropane	<3.9	<0.85
Dichlorodifluoromethane	<8.4	<1.7	1,4-Dioxane	<6.1	<1.7
Chloromethane	<63	<31	2,2,4-Trimethylpentane	<79	<17
F-114	<12	<1.7	Methyl methacrylate	<70	<17
Vinyl chloride	<4.3	<1.7	Heptane	<70	<17
1,3-Butadiene	<0.75	<0.34	Bromodichloromethane	<1.1	<0.17
Butane	<40	<17	Trichloroethene	30,000 ve	5,600 ve
Bromomethane	<40	<10	cis-1,3-Dichloropropene	<7.7	<1.7
Chloroethane	<45	<17	4-Methyl-2-pentanone	<70	<17
Vinyl bromide	<7.4	<1.7	trans-1,3-Dichloropropene	<7.7	<1.7
Ethanol	150	77	Toluene	<320	<85
Acrolein	<35	<15	1,1,2-Trichloroethane	1.8	0.32
Pentane	<50	<17	2-Hexanone	<70	<17
Trichlorofluoromethane	<38	<6.8	Tetrachloroethene	740	110
Acetone	190	78	Dibromochloromethane	<1.4	<0.17
2-Propanol	<150	<59	1,2-Dibromoethane (EDB)	<1.3	<0.17
1,1-Dichloroethene	930	240	Chlorobenzene	<7.8	<1.7
trans-1,2-Dichloroethene	<6.7	<1.7	Ethylbenzene	<7.4	<1.7
Methylene chloride	<590	<170	1,1,2,2-Tetrachloroethane	<2.3	<0.34
t-Butyl alcohol (TBA)	<210	<68	Nonane	<89	<17
3-Chloropropene	<27	<8.5	Isopropylbenzene	<42	<8.5
CFC-113	<13	<1.7	2-Chlorotoluene	<88	<17
Carbon disulfide	<110	<34	Propylbenzene	<42	<8.5
Methyl t-butyl ether (MTBE)	<31	<8.5	4-Ethyltoluene	<42	<8.5
Vinyl acetate	<120	<34	m,p-Xylene	17	3.9
1,1-Dichloroethane	530	130	o-Xylene	<7.4	<1.7
cis-1,2-Dichloroethene	20	5.0	Styrene	<14	<3.4
Hexane	<60	<17	Bromoform	<35	<3.4
Chloroform	170	35	Benzyl chloride	<0.88	<0.17
Ethyl acetate	<120	<34	1,3,5-Trimethylbenzene	<42	<8.5
Tetrahydrofuran	<5	<1.7	1,2,4-Trimethylbenzene	<42	<8.5
2-Butanone (MEK)	<50	<17	1,3-Dichlorobenzene	<10	<1.7
1,2-Dichloroethane (EDC)	<0.69	<0.17	1,4-Dichlorobenzene	<4	<0.65
1,1,1-Trichloroethane	7,900 ve	1,400 ve	1,2-Dichlorobenzene	<10	<1.7
Carbon tetrachloride	<5.3	<0.85	1,2,4-Trichlorobenzene	<13	<1.7
Benzene	<5.4	<1.7	Naphthalene	12	2.2
Cyclohexane	<120	<34	Hexachlorobutadiene	<3.6	<0.34

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2756 MB
Date Analyzed:	12/04/20	Data File:	120419.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	81	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.057 j	<0.011 j

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	GeoEngineers, Inc
Date Received:	Not Applicable	Project:	5531-014-01, F&BI 012022
Date Collected:	Not Applicable	Lab ID:	00-2554 MB
Date Analyzed:	12/03/20	Data File:	120310.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022
Date Extracted: 12/08/20
Date Analyzed: 12/08/20

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Results Reported as % Helium

Sample ID Laboratory ID	Helium
SV-1_113020 012022-16	<0.6
SV-2_113020 012022-17	<0.6
SV-3_113020 012022-18	<0.6
SV-4_120120 012022-19	<0.6
SV-5_120120 012022-20	<0.6
SV-6_120120 012022-21	<0.6
SV-7_120120 012022-22	<0.6
SV-8_120120 012022-23	<0.6
SV-9_120120 012022-24	<0.6
SV-10_120120 012022-25	<0.6
SV-11_120120 012022-26	<0.6

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022
Date Extracted: 12/08/20
Date Analyzed: 12/08/20

RESULTS FROM THE ANALYSIS OF AIR SAMPLES
FOR HELIUM USING METHOD ASTM D1946
Results Reported as % Helium

Sample ID Laboratory ID	Helium
SV-12_120120 012022-27	<0.6
Method Blank 00-2803 MB	<0.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 012022-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	45	46	2
APH EC9-12 aliphatics	ug/m3	140	160	13
APH EC9-10 aromatics	ug/m3	<25	<25	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	67	79	70-130
APH EC9-12 aliphatics	ug/m3	67	104	70-130
APH EC9-10 aromatics	ug/m3	67	96	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 012022-16 1/5.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	750	890	17
APH EC9-12 aliphatics	ug/m3	<270	280	nm
APH EC9-10 aromatics	ug/m3	<140	<140	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	67	83	70-130
APH EC9-12 aliphatics	ug/m3	67	102	70-130
APH EC9-10 aromatics	ug/m3	67	99	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<1.2	<1.2	nm
Dichlorodifluoromethane	ug/m3	2.4	2.9	19
Chloromethane	ug/m3	<3.7	<3.7	nm
F-114	ug/m3	<0.7	<0.7	nm
Vinyl chloride	ug/m3	<0.26	<0.26	nm
1,3-Butadiene	ug/m3	<0.044	<0.044	nm
Butane	ug/m3	3.4	4.8	34 vo
Bromomethane	ug/m3	<2.3	<2.3	nm
Chloroethane	ug/m3	<2.6	<2.6	nm
Vinyl bromide	ug/m3	<0.44	<0.44	nm
Ethanol	ug/m3	<7.5	<7.5	nm
Acrolein	ug/m3	<2.1	<2.1	nm
Pentane	ug/m3	<3	<3	nm
Trichlorofluoromethane	ug/m3	<2.2	<2.2	nm
Acetone	ug/m3	7.5	11	38 vo
2-Propanol	ug/m3	<8.6	<8.6	nm
1,1-Dichloroethene	ug/m3	<0.4	<0.4	nm
trans-1,2-Dichloroethene	ug/m3	<0.4	<0.4	nm
Methylene chloride	ug/m3	60	81	30
t-Butyl alcohol (TBA)	ug/m3	<12	<12	nm
3-Chloropropene	ug/m3	<1.6	<1.6	nm
CFC-113	ug/m3	<0.77	<0.77	nm
Carbon disulfide	ug/m3	<6.2	<6.2	nm
Methyl t-butyl ether (MTBE)	ug/m3	<1.8	<1.8	nm
Vinyl acetate	ug/m3	<7	<7	nm
1,1-Dichloroethane	ug/m3	<0.4	<0.4	nm
cis-1,2-Dichloroethene	ug/m3	<0.4	<0.4	nm
Hexane	ug/m3	4.0	4.6	14
Chloroform	ug/m3	0.11	0.11	0
Ethyl acetate	ug/m3	<7.2	<7.2	nm
Tetrahydrofuran	ug/m3	<0.29	<0.29	nm
2-Butanone (MEK)	ug/m3	<2.9	<2.9	nm
1,2-Dichloroethane (EDC)	ug/m3	0.061	0.077	23
1,1,1-Trichloroethane	ug/m3	<0.55	<0.55	nm
Carbon tetrachloride	ug/m3	0.40	0.43	7
Benzene	ug/m3	0.45	0.53	16
Cyclohexane	ug/m3	<6.9	<6.9	nm
1,2-Dichloropropane	ug/m3	<0.23	<0.23	nm
1,4-Dioxane	ug/m3	<0.36	<0.36	nm
2,2,4-Trimethylpentane	ug/m3	<4.7	<4.7	nm

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-01 (Duplicate) (continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<4.1	<4.1	nm
Heptane	ug/m3	<4.1	<4.1	nm
Bromodichloromethane	ug/m3	<0.067	<0.067	nm
Trichloroethene	ug/m3	0.15	0.19	24
cis-1,3-Dichloropropene	ug/m3	<0.45	<0.45	nm
4-Methyl-2-pentanone	ug/m3	<4.1	<4.1	nm
trans-1,3-Dichloropropene	ug/m3	<0.45	<0.45	nm
Toluene	ug/m3	<19	<19	nm
1,1,2-Trichloroethane	ug/m3	<0.055	<0.055	nm
2-Hexanone	ug/m3	<4.1	<4.1	nm
Tetrachloroethene	ug/m3	<6.8	<6.8	nm
Dibromochloromethane	ug/m3	<0.085	<0.085	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.077	<0.077	nm
Chlorobenzene	ug/m3	<0.46	<0.46	nm
Ethylbenzene	ug/m3	<0.43	<0.43	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.14	<0.14	nm
Nonane	ug/m3	<5.2	<5.2	nm
Isopropylbenzene	ug/m3	<2.5	<2.5	nm
2-Chlorotoluene	ug/m3	<5.2	<5.2	nm
Propylbenzene	ug/m3	<2.5	<2.5	nm
4-Ethyltoluene	ug/m3	<2.5	<2.5	nm
m,p-Xylene	ug/m3	1.4	1.7	19
o-Xylene	ug/m3	0.63	0.73	15
Styrene	ug/m3	<0.85	<0.85	nm
Bromoform	ug/m3	<2.1	<2.1	nm
Benzyl chloride	ug/m3	<0.052	<0.052	nm
1,3,5-Trimethylbenzene	ug/m3	<2.5	<2.5	nm
1,2,4-Trimethylbenzene	ug/m3	<2.5	<2.5	nm
1,3-Dichlorobenzene	ug/m3	<0.6	<0.6	nm
1,4-Dichlorobenzene	ug/m3	<0.23	<0.23	nm
1,2-Dichlorobenzene	ug/m3	<0.6	<0.6	nm
1,2,4-Trichlorobenzene	ug/m3	<0.74	<0.74	nm
Naphthalene	ug/m3	<0.26	<0.26	nm
Hexachlorobutadiene	ug/m3	<0.21	<0.21	nm

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	113	70-130
Dichlorodifluoromethane	ug/m3	67	109	70-130
Chloromethane	ug/m3	28	117	70-130
F-114	ug/m3	94	108	70-130
Vinyl chloride	ug/m3	35	118	70-130
1,3-Butadiene	ug/m3	30	105	70-130
Butane	ug/m3	32	99	70-130
Bromomethane	ug/m3	52	100	70-130
Chloroethane	ug/m3	36	95	70-130
Vinyl bromide	ug/m3	59	114	70-130
Ethanol	ug/m3	25	85	70-130
Acrolein	ug/m3	31	123	70-130
Pentane	ug/m3	40	99	70-130
Trichlorofluoromethane	ug/m3	76	103	70-130
Acetone	ug/m3	32	109	70-130
2-Propanol	ug/m3	33	104	70-130
1,1-Dichloroethene	ug/m3	54	106	70-130
trans-1,2-Dichloroethene	ug/m3	54	98	70-130
Methylene chloride	ug/m3	94	91	70-130
t-Butyl alcohol (TBA)	ug/m3	41	108	70-130
3-Chloropropene	ug/m3	42	93	70-130
CFC-113	ug/m3	100	99	70-130
Carbon disulfide	ug/m3	42	94	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	101	70-130
Vinyl acetate	ug/m3	48	115	70-130
1,1-Dichloroethane	ug/m3	55	109	70-130
cis-1,2-Dichloroethene	ug/m3	54	102	70-130
Hexane	ug/m3	48	83	70-130
Chloroform	ug/m3	66	100	70-130
Ethyl acetate	ug/m3	49	101	70-130
Tetrahydrofuran	ug/m3	40	95	70-130
2-Butanone (MEK)	ug/m3	40	120	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	99	70-130
1,1,1-Trichloroethane	ug/m3	74	99	70-130
Carbon tetrachloride	ug/m3	85	99	70-130
Benzene	ug/m3	43	95	70-130
Cyclohexane	ug/m3	46	92	70-130
1,2-Dichloropropane	ug/m3	62	96	70-130
1,4-Dioxane	ug/m3	49	105	70-130
2,2,4-Trimethylpentane	ug/m3	63	99	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	106	70-130
Heptane	ug/m3	55	103	70-130
Bromodichloromethane	ug/m3	90	106	70-130
Trichloroethene	ug/m3	73	106	70-130
cis-1,3-Dichloropropene	ug/m3	61	109	70-130
4-Methyl-2-pentanone	ug/m3	55	106	70-130
trans-1,3-Dichloropropene	ug/m3	61	96	70-130
Toluene	ug/m3	51	103	70-130
1,1,2-Trichloroethane	ug/m3	74	107	70-130
2-Hexanone	ug/m3	55	101	70-130
Tetrachloroethene	ug/m3	92	113	70-130
Dibromochloromethane	ug/m3	120	120	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	128	70-130
Chlorobenzene	ug/m3	62	126	70-130
Ethylbenzene	ug/m3	59	113	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	110	70-130
Nonane	ug/m3	71	106	70-130
Isopropylbenzene	ug/m3	66	110	70-130
2-Chlorotoluene	ug/m3	70	110	70-130
Propylbenzene	ug/m3	66	112	70-130
4-Ethyltoluene	ug/m3	66	110	70-130
m,p-Xylene	ug/m3	120	113	70-130
o-Xylene	ug/m3	59	112	70-130
Styrene	ug/m3	58	108	70-130
Bromoform	ug/m3	140	118	70-130
Benzyl chloride	ug/m3	70	118	70-130
1,3,5-Trimethylbenzene	ug/m3	66	110	70-130
1,2,4-Trimethylbenzene	ug/m3	66	115	70-130
1,3-Dichlorobenzene	ug/m3	81	117	70-130
1,4-Dichlorobenzene	ug/m3	81	107	70-130
1,2-Dichlorobenzene	ug/m3	81	108	70-130
1,2,4-Trichlorobenzene	ug/m3	100	83	70-130
Naphthalene	ug/m3	71	88	70-130
Hexachlorobutadiene	ug/m3	140	112	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-16 1/5.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6.6	<6.6	nm
Dichlorodifluoromethane	ug/m3	<2.7	<2.7	nm
Chloromethane	ug/m3	<20	<20	nm
F-114	ug/m3	<3.8	<3.8	nm
Vinyl chloride	ug/m3	<1.4	<1.4	nm
1,3-Butadiene	ug/m3	<0.24	<0.24	nm
Butane	ug/m3	<13	<13	nm
Bromomethane	ug/m3	<13	<13	nm
Chloroethane	ug/m3	<15	<15	nm
Vinyl bromide	ug/m3	<2.4	<2.4	nm
Ethanol	ug/m3	180	190	5
Acrolein	ug/m3	<11	<11	nm
Pentane	ug/m3	<16	<16	nm
Trichlorofluoromethane	ug/m3	<12	<12	nm
Acetone	ug/m3	510	500	2
2-Propanol	ug/m3	670	670	0
1,1-Dichloroethene	ug/m3	<2.2	<2.2	nm
trans-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Methylene chloride	ug/m3	<190	<190	nm
t-Butyl alcohol (TBA)	ug/m3	<67	<67	nm
3-Chloropropene	ug/m3	<8.6	<8.6	nm
CFC-113	ug/m3	<4.2	<4.2	nm
Carbon disulfide	ug/m3	<34	<34	nm
Methyl t-butyl ether (MTBE)	ug/m3	<9.9	<9.9	nm
Vinyl acetate	ug/m3	<39	<39	nm
1,1-Dichloroethane	ug/m3	<2.2	<2.2	nm
cis-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Hexane	ug/m3	<19	<19	nm
Chloroform	ug/m3	<0.27	<0.27	nm
Ethyl acetate	ug/m3	<40	<40	nm
Tetrahydrofuran	ug/m3	<1.6	<1.6	nm
2-Butanone (MEK)	ug/m3	<16	<16	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.22	<0.22	nm
1,1,1-Trichloroethane	ug/m3	3.6	3.5	3
Carbon tetrachloride	ug/m3	<1.7	<1.7	nm
Benzene	ug/m3	2.4	2.3	4
Cyclohexane	ug/m3	<38	<38	nm
1,2-Dichloropropane	ug/m3	<1.3	<1.3	nm
1,4-Dioxane	ug/m3	<2	<2	nm
2,2,4-Trimethylpentane	ug/m3	<26	<26	nm

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 012022-16 1/5.5 (Duplicate) (continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<23	<23	nm
Heptane	ug/m3	<23	<23	nm
Bromodichloromethane	ug/m3	<0.37	<0.37	nm
Trichloroethene	ug/m3	<0.59	<0.59	nm
cis-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
4-Methyl-2-pentanone	ug/m3	<23	<23	nm
trans-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
Toluene	ug/m3	<100	<100	nm
1,1,2-Trichloroethane	ug/m3	<0.3	<0.3	nm
2-Hexanone	ug/m3	<23	<23	nm
Tetrachloroethene	ug/m3	<37	<37	nm
Dibromochloromethane	ug/m3	<0.47	<0.47	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.42	<0.42	nm
Chlorobenzene	ug/m3	<2.5	<2.5	nm
Ethylbenzene	ug/m3	<2.4	<2.4	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.76	<0.76	nm
Nonane	ug/m3	<29	<29	nm
Isopropylbenzene	ug/m3	<14	<14	nm
2-Chlorotoluene	ug/m3	<28	<28	nm
Propylbenzene	ug/m3	<14	<14	nm
4-Ethyltoluene	ug/m3	<14	<14	nm
m,p-Xylene	ug/m3	<4.8	<4.8	nm
o-Xylene	ug/m3	<2.4	<2.4	nm
Styrene	ug/m3	<4.7	<4.7	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.28	<0.28	nm
1,3,5-Trimethylbenzene	ug/m3	<14	<14	nm
1,2,4-Trimethylbenzene	ug/m3	<14	<14	nm
1,3-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,4-Dichlorobenzene	ug/m3	<1.3	<1.3	nm
1,2-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,2,4-Trichlorobenzene	ug/m3	<4.1	<4.1	nm
Naphthalene	ug/m3	<1.4	<1.4	nm
Hexachlorobutadiene	ug/m3	<1.2	<1.2	nm

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	94	70-130
Dichlorodifluoromethane	ug/m3	67	94	70-130
Chloromethane	ug/m3	28	82	70-130
F-114	ug/m3	94	79	70-130
Vinyl chloride	ug/m3	35	80	70-130
1,3-Butadiene	ug/m3	30	82	70-130
Butane	ug/m3	32	78	70-130
Bromomethane	ug/m3	52	84	70-130
Chloroethane	ug/m3	36	78	70-130
Vinyl bromide	ug/m3	59	89	70-130
Ethanol	ug/m3	25	70	70-130
Acrolein	ug/m3	31	95	70-130
Pentane	ug/m3	40	114	70-130
Trichlorofluoromethane	ug/m3	76	101	70-130
Acetone	ug/m3	32	97	70-130
2-Propanol	ug/m3	33	98	70-130
1,1-Dichloroethene	ug/m3	54	110	70-130
trans-1,2-Dichloroethene	ug/m3	54	103	70-130
Methylene chloride	ug/m3	94	99	70-130
t-Butyl alcohol (TBA)	ug/m3	41	111	70-130
3-Chloropropene	ug/m3	42	110	70-130
CFC-113	ug/m3	100	104	70-130
Carbon disulfide	ug/m3	42	102	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	101	70-130
Vinyl acetate	ug/m3	48	113	70-130
1,1-Dichloroethane	ug/m3	55	114	70-130
cis-1,2-Dichloroethene	ug/m3	54	108	70-130
Hexane	ug/m3	48	98	70-130
Chloroform	ug/m3	66	110	70-130
Ethyl acetate	ug/m3	49	128	70-130
Tetrahydrofuran	ug/m3	40	114	70-130
2-Butanone (MEK)	ug/m3	40	115	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	110	70-130
1,1,1-Trichloroethane	ug/m3	74	105	70-130
Carbon tetrachloride	ug/m3	85	100	70-130
Benzene	ug/m3	43	102	70-130
Cyclohexane	ug/m3	46	93	70-130
1,2-Dichloropropane	ug/m3	62	89	70-130
1,4-Dioxane	ug/m3	49	95	70-130
2,2,4-Trimethylpentane	ug/m3	63	93	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	98	70-130
Heptane	ug/m3	55	96	70-130
Bromodichloromethane	ug/m3	90	98	70-130
Trichloroethene	ug/m3	73	98	70-130
cis-1,3-Dichloropropene	ug/m3	61	100	70-130
4-Methyl-2-pentanone	ug/m3	55	101	70-130
trans-1,3-Dichloropropene	ug/m3	61	85	70-130
Toluene	ug/m3	51	96	70-130
1,1,2-Trichloroethane	ug/m3	74	98	70-130
2-Hexanone	ug/m3	55	88	70-130
Tetrachloroethene	ug/m3	92	97	70-130
Dibromochloromethane	ug/m3	120	101	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	101	70-130
Chlorobenzene	ug/m3	62	124	70-130
Ethylbenzene	ug/m3	59	110	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	112	70-130
Nonane	ug/m3	71	109	70-130
Isopropylbenzene	ug/m3	66	113	70-130
2-Chlorotoluene	ug/m3	70	114	70-130
Propylbenzene	ug/m3	66	117	70-130
4-Ethyltoluene	ug/m3	66	111	70-130
m,p-Xylene	ug/m3	120	116	70-130
o-Xylene	ug/m3	59	114	70-130
Styrene	ug/m3	58	112	70-130
Bromoform	ug/m3	140	121	70-130
Benzyl chloride	ug/m3	70	115	70-130
1,3,5-Trimethylbenzene	ug/m3	66	113	70-130
1,2,4-Trimethylbenzene	ug/m3	66	117	70-130
1,3-Dichlorobenzene	ug/m3	81	116	70-130
1,4-Dichlorobenzene	ug/m3	81	107	70-130
1,2-Dichlorobenzene	ug/m3	81	108	70-130
1,2,4-Trichlorobenzene	ug/m3	100	80	70-130
Naphthalene	ug/m3	71	84	70-130
Hexachlorobutadiene	ug/m3	140	111	70-130

Date of Report: 12/11/20
Date Received: 12/01/20
Project: C-1 Hangar & Precision Reg Support (SNO-CO) PO 5531-014-01, F&BI 012022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Laboratory Code: 011481-01 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	<0.6	nm	0-20

Laboratory Code: 012022-20 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	<0.6	nm	0-20

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

012022

SAMPLE CHAIN OF CUSTODY ME 12-01-20

Page # 1 of 4

Report To Jacob Letts

Company GEI

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone ______ Email JLetts@geiengineers.com

SAMPLERS (signature)	KA
PROJECT NAME & ADDRESS: C-1 Hangar & Precision Reg. Support (NO-CO)	PO #: 5531-014-01
NOTES:	INVOICE TO

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-1_120120	01	20546	—	IA / SG	12/1/20	30	811	5	1622	X			X			
IA-2_120120	02	21437	—	IA / SG	↓	30	806	6	1637	X			X			
IA-3_120120	03	18572	—	IA / SG	↓	30	823	6	1626	X			X			
IA-4_120120	04	23229	—	IA / SG	↓	30	820	6	1633	X			X			
IA-5_120120	05	32100	—	IA / SG	↓	30	830	5	1615	X			X			
IA-6_120120	06	18562	—	IA / SG	↓	29	834	7	1648	X			X			
IA-7_120120	07	18566	—	IA / SG	↓	28	843	8	1651	X			X			
IA-8_120120	08	23230	6607	IA / SG	↓	30	851	10	1609	X			X			

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044 EWB

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atkhurk	GEI	12/1/20	1845
Received by: [signature]	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

012022

SAMPLE CHAIN OF CUSTODY ME 12-01-20

Page # 2 of 4

Report To Jacob Letts

Company See Pg 1.

Address

City, State, ZIP

Phone Email

SAMPLERS (signature) KRA	
PROJECT NAME & ADDRESS	PO #
CHHangar & Precision Reg. Support (SNOCO)	5531-014-01
NOTES:	INVOICE TO

TURNAROUND TIME
☑ Standard
☐ RUSH
Rush charges authorized by:
SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-9_120120	09	18577	7845	IA / SG	12/1/20	30	845	11	1606	X			X			
IA-10_120120	10	20543	7850	IA / SG		30	840	9	1605	X			X			
IA-11_120120	11	23231	7848	IA / SG		30	824	8	1600	X			X			
IA-12_120120	12	18568	7870	IA / SG		30	901	9	1616	X			X			
IA-13_120120	13	21453	7871	IA / SG		30	855	8	1614	X			X			
OA-1_120120	14	23233	—	IA / SG		30	921	8	1642	X			X			
OA-2_120120	15	18569	7847	IA / SG		30	912	9	1630	X			X			
SV-1_113020	16	3312	230	IA / SG	11/30/20	30	1340	5	1347	X			X	X		

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3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Atakturk	GEI	12/1/20	1845
Received by:	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

012022

SAMPLE CHAIN OF CUSTODY ME 12-01-20

Page # 3 of 4

Report To J. Letts

Company

Address See pg 1

City, State, ZIP

Phone Email

SAMPLERS (signature) 4URA	
PROJECT NAME & ADDRESS	PO #
C-1 Hangar & Precision Reg Support (SNO-CO)	5531-014-01
NOTES:	INVOICE TO

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	MA-APH	Helium		Notes
SV-2_113020	17	3311	228	IA / SG	11/30/20	29	1442	5	1448	X			X	X		
SV-3_113020	18	3674	240	IA / SG	11/30/20	30	1506	5	1513	X			X	X		
SV-4_120120	19	2432	222	IA / SG	12/01/20	30	1040	5	1046	X			X	X		
SV-5_120120	20	3251	221	IA / SG		30	1057	5	1103	X			X	X		
SV-6_120120	21	3664	281	IA / SG		30	1114	5	1120	X			X	X		
SV-7_120120	22	3667	220	IA / SG		30	1135	5	1140	X			X	X		
SV-8_120120	23	3260	224	IA / SG		30	1157	5	1203	X			X	X		
SV-9_120120	24	2294	225	IA / SG		30	1232	5	1238	X			X	X		

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Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Katy Ataktuk	GEI	12/1/20	1845
Received by:	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

012022 [redacted]

SAMPLE CHAIN OF CUSTODY ME

12-01-20 [redacted]

Page # 4 of 4

Report To J. Letts

Company

Address Seepg 1.

City, State, ZIP

Phone Email

SAMPLERS (signature) KRA	
PROJECT NAME & ADDRESS	PO #
C-1 Hangar & Precision Reg. Support (SNO-CO)	5531-014-01
NOTES:	INVOICE TO

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
SV-10_120120	25	4176	204	IA / SG	12/1/20	29	1331	5	1337	X			X	X		
SV-11_120120	26	3388	203	IA / SG		27	1425	5	1431	X			X	X		
SV-12_120120	27	3254	206	IA / SG		29	1514	4	1520	X			X	X		
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

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3012 16th Avenue West
Seattle, WA 98119-2029
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SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Ataktürk	GEI	12/1/20	1845
Received by: [signature]	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

Samples received at 16 °C

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 012022 CLIENT GeoEngineers INITIALS/DATE: [initials] 12/01/20

If custody seals are present on cooler, are they intact?	☑ NA	☐ YES	☐ NO
Cooler/Sample temperature	16 °C		
Were samples received on ice/cold packs?		☐ YES	☑ NO
How did samples arrive?	☑ Over the Counter ☐ Picked up by F&BI ☐ FedEx/UPS/GSO		
Number of days samples have been sitting prior to receipt at laboratory	0-1 days		
Is there a Chain-of-Custody* (COC)? *or other representative documents, letters, and/or shipping memos		☑ YES	☐ NO
Are the samples clearly identified? (explain "no" answer below)		☑ YES	☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☑ Yes	☐ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☑ Yes	☐ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below)		☑ YES	☐ NO
Were appropriate sample containers used? (explain "no" answer below)		☑ YES	☐ NO
If custody seals are present on samples, are they intact?	☑ NA	☐ YES	☐ NO
Are samples requiring no headspace, headspace free?	☑ NA	☐ YES	☐ NO
Air Samples: Were any additional canisters received?	☐ NA	☑ YES	☐ NO

If Yes, number of unused 1L canisters ____

number of unused 6L canisters 1 (Can ID: 20549)

Explain "no" items from above (use the back if needed)

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
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fbi@isomedia.com
www.friedmanandbruya.com

December 14, 2020

Jacob Letts, Project Manager
GeoEngineers
2101 4th Ave, Suite 950
Seattle, WA 98121

Dear Mr Letts:

Included are the results from the testing of material submitted on December 1, 2020 from the C-1 Hangar&Precision Reg. Support (SNO-CO) PO 5530-014-01, F&BI 012023 project. There are 19 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GNR1214R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 1, 2020 by Friedman & Bruya, Inc. from the GeoEngineers C-1 Hangar&Precision Reg. Support (SNO-CO) PO 5530-014-01, F&BI 012023 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
012023 -01	IA-1_120120
012023 -02	IA-2_120120
012023 -03	IA-3_120120
012023 -04	IA-4_120120
012023 -05	IA-5_120120
012023 -06	IA-6_120120
012023 -07	IA-7_120120
012023 -08	IA-8_120120
012023 -09	IA-9_120120
012023 -10	IA-10_120120
012023 -11	IA-11_120120
012023 -12	IA-12_120120
012023 -13	IA-13_120120
012023 -14	OA-1_120120
012023 -15	OA-2_120120

Naphthalene (air) - Analysis Method TO-17

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-1_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-01 1/0.047
Date Analyzed:	12/08/20	Data File:	120819.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-2_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-02 1/0.034
Date Analyzed:	12/08/20	Data File:	120820.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-3_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-03 1/0.035
Date Analyzed:	12/08/20	Data File:	120821.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-4_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-04 1/0.036
Date Analyzed:	12/08/20	Data File:	120822.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.10

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-5_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-05 1/0.038
Date Analyzed:	12/08/20	Data File:	120823.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-6_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-06 1/0.039
Date Analyzed:	12/09/20	Data File:	120824.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-7_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-07 1/0.041
Date Analyzed:	12/09/20	Data File:	120825.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.10

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-8_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-08 1/0.039
Date Analyzed:	12/09/20	Data File:	120826.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-9_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-09 1/0.038
Date Analyzed:	12/09/20	Data File:	120827.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.15

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-10_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-10 1/0.038
Date Analyzed:	12/09/20	Data File:	120828.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.14

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-11_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-11 1/0.036
Date Analyzed:	12/09/20	Data File:	120829.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.13

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-12_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-12 1/0.040
Date Analyzed:	12/09/20	Data File:	120830.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.12

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA-13_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-13 1/0.039
Date Analyzed:	12/09/20	Data File:	120831.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.13

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	OA-1_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-14 1/0.043
Date Analyzed:	12/09/20	Data File:	120832.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.061

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	OA-2_120120	Client:	GeoEngineers
Date Received:	12/01/20	Project:	5530-014-01, F&BI 012023
Date Collected:	12/01/20	Lab ID:	012023-15 1/0.041
Date Analyzed:	12/09/20	Data File:	120833.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	0.058

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	5530-014-01, F&BI 012023
Date Collected:	Not Applicable	Lab ID:	00-2765 mb
Date Analyzed:	12/08/20	Data File:	120810.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Naphthalene	<1

Date of Report: 12/14/20
Date Received: 12/01/20
Project: C-1 Hangar&Precision Reg. Support (SNO-CO) PO 5530-014-01, F&BI 012023

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	ng/tube	50	101	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

012023

SAMPLE CHAIN OF CUSTODY ME 12-01-20

CI2

Page # 1 of 2

Report To Jacob Letts
Company GeoEngineers
Address 2101 4th Ave suite 950
City, State, ZIP Seattle, WA 98121
Phone ______ Email JLetts@geoengineers.com

SAMPLERS (signature) [signature]	
PROJECT NAME G-1 Hangar & Precision Reg. Support (SND-CO)	PO # 5530-014-01
REMARKS	INVOICE TO

TURNAROUND TIME
☑ Standard Turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

Sample Name	Lab ID	Tube ID	Collection Information: Sample Date	Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	(L) Volume Sampled	TO-17 Analytes Requested: Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	TPH-DRO	2-Propanol		Notes
1A-1_120120	01	311365	12/1/20	100	100	925	1300	21.5					X				
1A-2_120120	02	309148		100	100	806	1303	29.7					X				
1A-3_120120	03	311347		100	100	823	1306	28.3					X				
1A-4_120120	04	322155		100	100	820	1256	27.6					X				
1A-5_120120	05	311344		100	100	830	1254	26.4					X				
1A-6_120120	06	309141		100	100	834	1252	25.8					X				
1A-7_120120	07	322173		100	100	843	1245	24.2					X				
1A-8_120120	08	311345		100	100	851	1310	25.9					X				
1A-9_120120	09	322157		100	100	845	1305	26.0					X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Atakturk	GEI	12/1/20	1845
Received by: [signature]	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Samples received at 4 °C

012023

SAMPLE CHAIN OF CUSTODY ME 12-01-20

C12

Page # 2 of 2

Report To: Jacob Letts

Company: GEI

Address: See pg 1.

City, State, ZIP:

Phone: Email: JLetts@geiengineers.com

SAMPLERS (*signature*): [signature]

PROJECT NAME	PO #
C-1 Hangar & Precision Reg. support (SNO-CO)	5530-014-01
REMARKS	INVOICE TO

TURNAROUND TIME
- ☑ Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample Name	Lab ID	Tube ID	Collection Information: Sample Date	Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	(L) Volume Sampled	TO-17 Analytes Requested: Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	TPH-DRO	2-Propanol		Notes
IA-10_120120	10	435241	12/1/20	100	100	840	1302	26.2					X				
IA-11_120120	11	453004		100	100	824	1258	27.4					X				
IA-12_120120	12	333885		100	100	901	1312	25.1					X				
IA-13_120120	13	311363		100	100	855	1310	25.5					X				
OA-1_120120	14	309143		100	100	921	1311	23.0					X				
OA-2_120120	15	333889		100	100	912	1318	24.6					X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Ataleturk	GEI	12/1/20	1845
Received by: [signature]	BISRAT TADESSE	FBI	12/1/20	1845
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 012023 CLIENT Geo Engineers INITIALS/DATE: 12/01/20

If custody seals are present on cooler, are they intact?	☑ NA	☐ YES	☐ NO
Cooler/Sample temperature		4 °C	
Were samples received on ice/cold packs?		☑ YES	☐ NO

How did samples arrive?

- ☑ Over the Counter
- ☐ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0 days

Is there a Chain-of-Custody* (COC)? *or other representative documents, letters, and/or shipping memos		☑ YES	☐ NO
Are the samples clearly identified? (explain "no" answer below)		☑ YES	☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☑ Yes	☐ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☑ Yes	☐ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below)		☑ YES	☐ NO
Were appropriate sample containers used? (explain "no" answer below)		☑ YES	☐ NO
If custody seals are present on samples, are they intact?	☑ NA	☐ YES	☐ NO
Are samples requiring no headspace, headspace free?	☑ NA	☐ YES	☐ NO
Air Samples: Were any additional canisters received?	☐ NA	~~☐ YES~~ AW 12/2	☑ NO

If Yes, number of unused 1L canisters ______

number of unused 6L canisters ______

Explain "no" items from above (use the back if needed)

2 extra tubes not used

APPENDIX F
Remedial Investigation Field Procedures

APPENDIX F
REMEDIAL INVESTIGATION FIELD PROCEDURES

Underground Utility Locate

Prior to drilling activities, an underground utility locate was conducted in the area of the proposed boring locations to identify subsurface utilities and/or potential underground physical hazards. The underground utility check consisted of contacting a local utility alert service (One call) and hiring a private utility locating service to locate utilities by conductible and ground penetrating radar (GPR) technologies.

Soil Sampling

The remedial investigation (RI) was completed using continuous-flight, hollow-stem auger (HSA) equipment and direct-push drilling equipment. Discrete soil samples from selected depths were collected during hollow-stem auger drilling using a 2-inch diameter, 18-inch long stainless-steel split spoon sampler driven with a 300-pound auto hammer dropped from a distance of 30-inches.

A representative from GeoEngineers observed and classified the soil encountered in general accordance with ASTM International (ASTM) D 2488-94 and maintained a detailed log of each exploration.

The sampling equipment was decontaminated before each sampling attempt with an Alconox® solution wash and a distilled water rinse. Soil samples were obtained from the split spoon sampler for field screening and possible chemical analysis. Undisturbed portions of selected samples were placed in laboratory-prepared vials/jars for chemical analytical testing at Friedman & Bruya Inc (F&B). The soil samples were placed in a cooler with ice for transport to the laboratory within proper hold-times under standard chain-of-custody procedures.

Drill cuttings and decontamination/purge water generated during RI drilling activities were tested for characterization purposes and will be removed from the Site by a licensed waste removal company for off-site disposal. Borings not completed as monitoring wells were backfilled with bentonite and the surface restored to match the surrounding area. Borings completed inside the C-1 Building had the surface restored with concrete.

Sample Identification Scheme

Each environmental sample obtained during the investigation was identified by a unique sample designation. The sample designation was documented in the field report, on the boring log, included on the sample container label and on the laboratory chain-of-custody. The soil sample designation scheme is as follows:

- Soil samples from borings: Boring number C-1 RI1 etc., followed by the depth from which the soil sample was collected, to the nearest 0.5 foot. For example, C-1 RI1-10.0 is from boring number C-1 RI1 sampled at a depth of 10 feet below the ground surface (bgs).
- Groundwater samples from monitoring wells: Boring number C-1 RI1 etc., followed by "GW" and the date. For example, C-1 RI2-GW-091222 is the groundwater sample collected from boring/monitoring well C-1 RI2 sampled on September 12, 2022.

- Investigation derived waste (IDW) characterization samples: Sample IDs for IDW characterization samples will be designated as follows: IDW-Soil-1 for the first IDW soil sample, and IDW-Water-1 for the first IDW water sample.

Field Screening of Soil Samples

Soil samples obtained from the borings were screened in the field for evidence of contamination using: (1) visual examination; (2) sheen screening and (3) vapor headspace screening with a photoionization detector (PID). The results of headspace and sheen screening were included in the RI tables and on the boring logs.

Visual screening consisted of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons, such as motor oil or hydraulic oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines. Sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen classifications are as follows:

- No Sheen (NS): No visible sheen on water surface.
- Slight Sheen (SS): Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly.
- Moderate Sheen (MS): Light to heavy sheen, may have some color/iridescence; spread is irregular to flowing; few remaining areas of no sheen on water surface.
- Heavy Sheen (HS): Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted in the bag and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in parts per million (ppm) and is calibrated to 100 ppm isobutylene gas. The PID is designed to quantify combustible gas and organic vapor concentrations up to 5,000 ppm. A lower threshold of significance of 1 ppm was used in this application. Field screening results are site-specific and vary with soil type, soil moisture content, temperature, and type of contaminant.

Groundwater Monitoring Well Development and Sampling

Following construction of the RI monitoring wells, the wells were developed using surge and purge development methods until the groundwater was relatively clear of suspended solids. Monitoring wells were left to sit undisturbed for at least 24 hours following development prior to groundwater sampling. Groundwater samples were obtained from monitoring wells C-1 HSA1, C-1 HSA2, C-1 RI10, C-1 RI12 and C-1 RI13. Groundwater samples were collected by low-flow methods using dedicated disposable tubing and a peristaltic pump. Groundwater samples were placed in laboratory-prepared vials/jars for chemical analytical testing at F&B. The samples were placed in a cooler with ice for transport to the laboratory within proper hold-times under standard chain-of-custody procedures. Purge water from groundwater sampling was placed into drums and left on site pending receipt of analytical data for characterization and disposal at a permitted offsite facility.

Investigation-Derived Waste Management

IDW includes drill cuttings, well development water, sampling equipment decontamination water, pre-sampling purge water from monitoring wells, and incidental waste.

Drill cuttings, well development water, decontamination water, and pre-sampling purge water was stored in sealed drums. The drums were temporarily stored on the Site pending waste designation and off-site disposal. The drums were labeled with the following information:

- Material contained in the drum (e.g., drill cuttings, decontamination water, etc.).
- Source of the material (e.g., investigation locations and depths where applicable).
- Date material was generated.
- Name and telephone number of the appropriate contact person.

Incidental waste to be generated during sampling activities includes items such as disposable gloves, plastic sheeting, sample bags, paper towels, and similar expended and discarded field supplies. These materials are considered *de minimis* and were disposed of in a trash receptacle or county disposal facility.

APPENDIX G
Investigation Derived Waste Disposal Documentation

INVOICE

Customer ID: **22-16300-83000**
Customer Name: GEOENGINEERS INC
Service Period:
Invoice Date: 06/27/2023
Invoice Number: 0044804-2236-1

How to Contact Us	Your Payment is Due	Your Total Due
Visit wmsolutions.com Log in to manage disposal records and tonnage reports. To pay a bill or explore other online tools, visit wm.com/MyWM. Have a question? Fill out the Contact Us Form at WMSolutions.com or contact Customer Service. Customer Service: (541) 454-2030	**Due Upon Receipt** If full payment of the invoiced amount is not received within your contractual terms, you may be charged a monthly late charge of 2.5% of the unpaid amount, with a minimum monthly charge of $5, or such late charge allowed under applicable law, regulation or contract.	**$3,459.92**

Previous Balance	+	Payments	+	Adjustments	+	Current Invoice Charges	=	Total Account Balance Due
0.00		0.00		0.00		3,459.92		**3,459.92**

IMPORTANT MESSAGES

AS REQUIRED BY 40 CFR 264.12 (b). WM IS NOTIFYING YOU THAT THIS FACILITY HAS THE APPROPRIATE PERMIT(s) FOR AND WILL ACCEPT THE WASTE YOU THE GENERATOR IS SHIPPING.

Please be advised that due to the recent implementation of the eManifest system combined, with the specialized invoice format you have requested, we are unable to provide information regarding your previous balance, payments, adjustments or the total due for your entire account.

Please detach and send the lower portion with payment - - - (no cash or staples)

CHEMICAL WASTE MANAGEMENT
OF THE NORTHWEST, INC.
720 4TH AVENUE SUITE 400
KIRKLAND, WA 98033-8136
(541) 454-2030

Invoice Date	Invoice Number	Customer ID (Include with your payment)
06/27/2023	0044804-2236-1	**22-16300-83000**
Payment Terms	**Total Due**	**Amount**
Due Upon Receipt	$3,459.92	

223600022163008300000044804000003459920000345992 3

I2236L01

GEOENGINEERS INC
17425 NE UNION HILL RD STE 250
CHRIS WATKINS
REDMOND WA 98052-6190

Remit To: **WM CORPORATE SERVICES, INC.**
AS PAYMENT AGENT
PO BOX 660345
DALLAS, TX 75266-0345

475-0000652-2236-6

Printed on recycled paper.

DETAILS OF SERVICE

Details for Service Location: **Customer ID: 22-16300-83000**
Geoengineers Inc, 4000 Kruse Way Pl Bldg 200, Lake Oswego OR 97035-5545
PO#: 5530-012-00

Description	Date	Ticket	Quantity	Unit of Measure	Rate	Amount
TEN DAY SEATTLE DRUMS	06/22/23	74708	3.00	ECH	39.00	117.00
NON CONFORMING WASTE, DRUM			3.00	ECH	24.50	73.50
NON HAZ WASTE			3.00	ECH	78.00	234.00
Energy Surcharge - Landfill			1.00	PCT	6.51	27.63
$5/TON ODEQ						4.50
Profile # :OR354560						0.00
Generator #:PAINE FIELD SNOHOMISH COUNTY AIRPORT 3220 1						0.00

EASY WAYS TO PAY

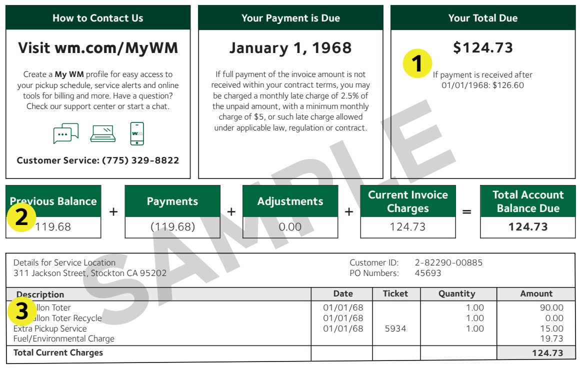
AutoPay
Set up recurring payments with us at **wm.com/myaccount**.

Online
Use **wm.com** or **My WM** for a quick and easy payment.

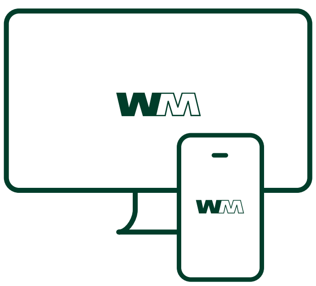
By Phone
Pay 24/7 by calling **866-964-2729**

By Mail
Fill out your invoice and mail it in. We'll provide the envelope.

HOW TO READ YOUR INVOICE



1. States the date payment is due to **WM**. Anything beyond that date may incur additional charges. Your Total Due is the total amount of current charges and any previous unpaid balances combined.
2. Previous balance is the total due from your previous invoice. We subtract any Payments Received/Adjustments and add your Current Charges from this billing cycle to get a Total Due on this invoice. If you have not paid all or a portion of your previous balance, please pay the entire Total Due to avoid a late charge or service interruption.
3. Service location details the total current charges of this invoice.



Get More with My WM

Scan to enroll in AutoPay & Paperless Billing, manage your services, view your pick up schedule and see your pick up ETA, all in one place.

Scan the QR code to get started today!

Visit **wm.com/MyWM**

If your service is suspended for non-payment, you may be charged a Resume charge to restart your service. For each returned check, a charge will be assessed on your next invoice equal to the maximum amount permitted by applicable state law.

☐ Check Here to Change Contact Info

List your new billing information below. For a change of service address, please contact **WM**.

Address 1	
Address 2	
City	
State	
Zip	
Email	
Date Valid	

☐ Check Here to Sign Up for Automatic Payment Enrollment

If I enroll in Automatic Payment services, I authorize **WM** to pay my invoice by electronically deducting money from my bank account. I can cancel authorization by notifying **WM** at **wm.com** or by calling the customer service number listed on my invoice. Your enrollment could take 1-2 billing cycles for Automatic Payments to take effect. Continue to submit payment until page one of your invoice reflects that your payment will be deducted.

Email	
Date	
Bank Account Holder Signature	

NOTICE: By sending your check, you are authorizing the Company to use information on your check to make a one-time electronic debit to your account at the financial institution indicated on your check. The electronic debit will be for the amount of your check and may occur as soon as the same day we receive your check.

In order for us to service your account or to collect any amounts you may owe (for non-marketing or solicitation purposes), we may contact you by telephone at any telephone number that you provided in connection with your account, including wireless telephone numbers, which could result in charges to you. Methods of contact may include text messages and using pre-recorded/artificial voice messages and/or use of an automatic dialing device, as applicable. We may also contact you by email or other methods as provided in our contract.

Please send all bankruptcy correspondence to RMCbankruptcy@wm.com or PO Box 43290 Phoenix, AZ 85080. Using the email option will expedite your request. (this language is in compliance with 11 USC 342(c)(2) of the Bankruptcy Code)

Customer ID: **22-16300-83000**
Customer Name: GEOENGINEERS INC
Service Period:
Invoice Date: 06/27/2023
Invoice Number: 0044804-2236-1

DETAILS OF SERVICE - continued

Details for Service Location:
Geoengineers Inc, 4000 Kruse Way Pl Bldg 200, Lake Oswego OR 97035-5545

Customer ID: 22-16300-83000

PO#: 5530-012-00

Description	Date	Ticket	Quantity	Unit of Measure	Rate	Amount
Manifest # :PFSC51723-ESP1						0.00
PO# :5530-012-00						0.00
Ticket Total						**456.63**
TEN DAY SEATTLE DRUMS	06/22/23	74709	7.00	ECH	39.00	273.00
NON HAZ WASTE			7.00	ECH	78.00	546.00
Energy Surcharge - Landfill			1.00	PCT	6.51	53.32
$5/TON ODEQ						10.50
Profile # :OR354560						0.00
Generator #:PAINE FIELD SNOHOMISH COUNTY AIRPORT 3220 1						0.00
Manifest # :PFSC51723-ESP1						0.00
PO# :5530-012-00						0.00
Ticket Total						**882.82**
TEN DAY SEATTLE DRUMS	06/22/23	74714	8.00	ECH	39.00	312.00
NON HAZ WASTE			8.00	ECH	78.00	624.00
Energy Surcharge - Landfill			1.00	PCT	6.51	60.93
$5/TON ODEQ						12.00
Profile # :OR354562						0.00
Generator #:PAINE FIELD SNOHOMISH COUNTY AIRPORT 3220 1						0.00
Manifest # :PFSC51723-ESP1						0.00
PO# :5530-012-00						0.00
Ticket Total						**1,008.93**
TEN DAY SEATTLE DRUMS	06/22/23	74715	1.00	ECH	39.00	39.00
NON CONFORMING WASTE, DRUM			1.00	ECH	24.50	24.50
NON HAZ WASTE			1.00	ECH	78.00	78.00
Energy Surcharge - Landfill			1.00	PCT	6.51	9.21
$5/TON ODEQ						1.50
Profile # :OR354562						0.00
Generator #:PAINE FIELD SNOHOMISH COUNTY AIRPORT 3220 1						0.00
Manifest # :PFSC51723-ESP1						0.00
PO# :5530-012-00						0.00
Ticket Total						**152.21**
TEN DAY SEATTLE DRUMS	06/22/23	74716	4.00	ECH	39.00	156.00
NON HAZ WASTE			4.00	ECH	185.00	740.00
Energy Surcharge - Landfill			1.00	PCT	6.51	58.33
$5/TON ODEQ						5.00
Profile # :OR354565						0.00
Generator #:PAINE FIELD SNOHOMISH COUNTY AIRPORT 3220 1						0.00
Manifest # :PFSC51723-ESP1						0.00
PO# :5530-012-00						0.00
Ticket Total						**959.33**
Total Current Charges						**3,459.92**

496865 ESP/CWM/LTZ

CWM

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAZ000011951
2. Page 1 of 2
3. Emergency Response Phone: (800)424-9300
4. Waste Tracking Number: PFSC51723-ESP1

5. Generator's Name and Mailing Address:
PAINE FIELD SNOHOMISH COUNTY
3220 100TH ST SW
EVERETT WA 98204
Generator's Phone: (425)508-7472
Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: CHEMICAL WASTE MANAGEMENT, INC. — U.S. EPA ID Number: ORD089452353

7. Transporter 2 Company Name: UPRR — U.S. EPA ID Number: NED001792910

8. Designated Facility Name and Site Address: CHEMICAL WASTE MANAGEMENT, INC., 17629 CEDAR SPRINGS LANE, ARLINGTON OR 97812-9709 — U.S. EPA ID Number: ORD089452353
Facility's Phone: (541)454-2643

9. Waste Shipping Name and Description	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.
1. MATERIAL NOT REGULATED BY D.O.T. OR354560	10 ~~5~~	DM	6,000	P
2. MATERIAL NOT REGULATED BY D.O.T. OR354562	9 ~~4~~	DM	5,400	P
3. MATERIAL NOT REGULATED BY D.O.T. OR354565	4	DM	2,000	P
4.				

13. Special Handling Instructions and Additional Information
1. OR354560
2. OR354562
3. OR354565

WWKU-970930

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Signed on behalf of Andrew Rardin — Signature — Month 5 Day 18 Year 23

15. International Shipments: Import to U.S. / Export from U.S. — Port of entry/exit: — Transporter Signature (for exports only): — Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Pele Laupati — Signature — Month 5 Day 18 Year 23
Transporter 2 Printed/Typed Name: G. Altheimer — Signature GA — Month 5 Day 23 Year 23

17. Discrepancy
17a. Discrepancy Indication Space: ☐ Quantity ☒ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Lines 01+02-Drums 1-3 and drum 1 contain about 10% free liquid. Liquid is water, OK to solidify per Andrew Rardin. KR 6/8/23
Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Morgan Wolf — Signature MWolf — Month 6 Day 8 Year 23

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

TC

CWI

496865 ESP/CWM/LTL

NON-HAZARDOUS WASTE MANIFEST (Continuation Sheet)	19. Generator ID Number WAZ000011951	20. Page 2 of 2	21. Waste Tracking Number PFSC51723-ESP1

GENERATOR

22. Generator's Name PAINE FIELD SNOHOMISH COUNTY

23. Transporter 3 Company Name PCC — U.S. EPA ID Number ORQ000041180

24. Transporter ____ Company Name — U.S. EPA ID Number

25. Waste Shipping Name and Description	26. Containers No	26. Containers Type	27. Total Quantity	28. Unit Wt./Vol

29. Special Handling Instructions and Additional Information

waiver - 970930

TRANSPORTER

30. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

31. Transporter ____ Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

32. Discrepancy

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Region Office
PO Box 330316, Shoreline, WA 98133-9716 • 206-594-0000

March 30, 2023

Andrew Rardin
Paine Field/Snohomish County Airport
3220 100th Street SW, Suite A
Everett, WA 98204-1303

RE: Contained-In Determination for F002 Contaminated Soils for the Paine Field – C-1 Building and Hangar Site located at 5808 119th Avenue SE, Everett, WA, 98204. Facility ID # 84613634; Cleanup Site ID # 3526.

Reference(s): 1. Request for Contained-In Determination from Jacob Letts (GeoEngineers, Inc.) to Paul Bianco (Ecology), dated March 24, 2023
2. Electronic Mail for Contained-In Determination from Paul Bianco (Ecology) to Andrew Rardin (Paine Field/Snohomish County Airport), dated March 28, 2023
3. Request for Contained-In Determination Revision 1 from Jacob Letts (GeoEngineers, Inc.) to Paul Bianco (Ecology), dated March 30, 2023

Andrew Rardin:

The Washington State Department of Ecology (Ecology) received a contained-in determination request from your environmental consultant, GeoEngineers, Inc. for specific F002 listed waste tetrachloroethylene (PCE) and trichloroethylene (TCE) contaminated soils generated during subsurface investigation activities on the property located at 5805 119th Ave. SE, Everett, WA 98204.

Analytical data were submitted to Ecology to determine if these soils contaminated with F002 listed dangerous waste constituents may be exempt from management as dangerous wastes per the "Contained-In Policy"[1]. Ecology understands that these contaminated soils do not designate under federal characteristics (WAC 173-303-090) or State-only criteria (WAC 173-303-100).

Based on the information received and reviewed, Ecology has determined that the **seven (7), 55-gallon drums** of PCE and TCE contaminated soils generated during subsurface investigation activities are contaminated with F002 listed dangerous waste constituents (PCE and TCE) at concentrations that do not warrant management as dangerous wastes. Ecology will not require disposal of these **seven (7), 55-gallon drums** of PCE and TCE contaminated soils as F002 listed

[1] Washington State Department of Ecology Contained-in Policy, dated February 19, 1993

dangerous wastes at a RCRA permitted dangerous waste treatment, storage and disposal (TSD) facility, provided that all of the following conditions are implemented. This contained-in determination applies only to the contaminated soils and does not pertain to contaminated water or any mixture of contaminated soils and fluid.

You or your environmental consultant, GeoEngineers, Inc. shall:

- Ensure that no standing water is present within the containers or trucks holding the contaminated soils. All water must be removed to the maximum extent possible from each container or truck and managed as F002 dangerous wastes or as otherwise allowed under Chapter 173-303 WAC. Adding bentonite or similar materials to absorb standing F002 listed waste contaminated water in the containers is not allowed. Mixtures of bentonite or similar materials and the listed waste contaminated water must be managed as F002 listed dangerous wastes.

- Directly deliver the soils to a solid waste landfill or transfer station permitted under Chapter 173-351 WAC and/or Chapter 173-350 WAC inside Washington State. If taken directly to the solid waste landfill, no off-loading of the contaminated soils is allowed between the cleanup site and the permitted solid waste landfill; If taken to the transfer station, removal of the contaminated soils from the intermodal container at the transfer station is not allowed.

- If you plan to deliver the contaminated soils to a landfill outside Washington State, you must FIRST submit to Ecology written approval for the contaminated soil disposal from the State hazardous waste program and the out of state landfill, **before** the soils are delivered to the out of state landfill.

- If you load the contaminated soils directly onto the truck bed or the contaminated soils are transported in roll-off bins, the truck or the roll-off bins must be lined with plastic and properly covered to prevent leaks, spills, or dispersion due to wind.

- Dispose of the contaminated soils at the permitted solid waste landfill by June 30, 2023. This contained-in determination letter is no longer valid after June 30, 2023, and the contaminated soils shall be managed as dangerous wastes after this date.

- Provide copies of all signed solid waste landfill receipts or a certificate of disposal issued by the receiving landfill for these contaminated soils to Ecology, attention of Paul Bianco, by August 31, 2023. This is an important verification step for you and your consultant to follow in order for this Ecology decision to be valid.

- Do not consolidate these contaminated soils with other soils that do not pertain to this contained-in determination.

- Notify Ecology before disposal of the contaminated soil if the amount exceeds the approved amount. Ecology needs to make sure that the additional soil qualifies for a contained-in determination.

- Notify Ecology via email at least five (5) days before removing the contaminated soils approved in this letter. This notice gives Ecology the option of observing the removal. If Ecology chooses to observe the removal, we will notify you by phone or email at least 24 hours before the day the soil removal begins.

- Ensure that the transporter is properly trained to handle hazardous waste so that the transporter manages the contained-in determination soils during transport in a manner that is protective of human health and the environment.

- Take measures to prevent unauthorized contact with these contaminated soils at all times.

- Provide instructions to the landfill operator that these soils are **not** to be used for daily, intermediate, or final cover.

- Provide copies of all soil analytical data to the landfill operator, upon request.

- Do not send these contaminated soils to any incinerator, thermal desorption unit or <u>recycling facility</u> unless that facility is a RCRA Subtitle C permitted dangerous waste TSD facility.

Ecology issued this determination based on the information provided and reviewed to date. This Ecology determination will be rescinded if Ecology finds that the information submitted by the property owner or its environmental consultant is materially false, misleading, otherwise does not accurately represent the site conditions, or if the Ecology requirements listed above are not followed.

This written decision only applies to the **seven (7), 55-gallon drums** of specified PCE and TCE contaminated soils generated during excavation activities from areas described in your request (reference 3). It does not apply to any other media. Any data used for this contained-in determination is intended for use in determining the proper disposal of the above stated PCE and TCE contaminated soil according to the Washington State Dangerous Waste Regulations (Chapter 173-303 WAC) and Ecology Contained-in Policy. This letter is not an Ecology approval for dangerous waste designation or disposal of contaminated soils that may be generated or already excavated from other areas in this property.

This letter is <u>not</u> a No Further Action (NFA) letter and not written approval for any cleanup action plan you may have submitted. Instead, this letter only addresses the procedures for disposal of the contaminated soils according to the Washington State Dangerous Waste Regulations (Chapter 173-303 WAC). Regulatory decisions regarding the cleanup action, applicable soil and groundwater cleanup levels and any other cleanup issues must comply with the requirements under Ecology Model Toxics Control Act (Chapter 173-340 WAC). Local agencies may have the authority to impose additional requirements on this waste stream.

If you fail to comply with the terms of this letter, Ecology may issue an administrative order and/or penalty as provided by the Revised Code of Washington, Sections 70A.300.090 and/or .120 (Hazardous Waste Management Act).

If you have any questions concerning this letter, please contact me at (425) 466-5161 or paul.bianco@ecy.wa.gov.

Sincerely,

Paul V. Bianco, PE
Environmental Engineer
Hazardous Waste and Toxics Reduction Program

Sent by Certified Mail: 9171 9690 0935 0233 2187 67

ecc: Jacob Letts, GeoEngineers, Inc.
Tim L. Syverson, GeoEngineers, Inc.
Neil Morton, GeoEngineers, Inc.
Lisa Huston, GeoEngineers, Inc.
Christa Colouzis, Ecology
Kurt Walker, Ecology
Donna Kirkman, Ecology
Elaine Snouwaert, Ecology
Jason Landskron, Ecology
Ron Kauffman, Ecology
Brittany McManus, Ecology
Kim Wooten, Ecology

APPENDIX H
Report Limitations and Guidelines for Use

APPENDIX H
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geosciences practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of Snohomish County Airport, their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment or remedial action study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except the Snohomish County Airport should rely on this report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

This Environmental Report Is Based on a Unique Set of Project-Specific Factors

This report applies to the C-1 Hangar and C-1 Building located at 3220 100th Street SW in Everett, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

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[1] Developed based on material provided by ASFE, The GeoProfessional Association; www.asfe.org.

Reliance Conditions for Third Parties

No third party may rely on the product of our services unless GeoEngineers agrees in advance, and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Environmental Regulations Are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Subsurface Conditions Can Change

This report is based on conditions that existed at the time our site studies were performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes and slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

Do Not Redraw the Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

Geotechnical, Geologic and Environmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on Site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject Site to another location or its reuse on site in instances that we were not aware of or could not control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

GeoEngineers