



# ADDITIONAL SITE INVESTIGATION (WITH RISK-BASED ASSESSMENT)



## Commercial Property

10543 SE Fuller Road  
Milwaukie, Oregon

Prepared for:

**Alfa Fuller, LLC**

**Attn: Barbara Deeming**

4905 SE Griffith Drive, Suite 205  
Beaverton, Oregon

Issued on:

December 1, 2022

EVREN NORTHWEST, INC.

Project No. 1638-22001-04

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This

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Report for:

## Commercial Property

10543 SE Fuller Road  
Milwaukie, Oregon

Has been prepared for the sole benefit and use of our Client:

## Alfa Fuller, LLC

Attn: Barbara Deeming

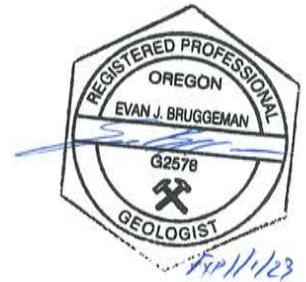
4905 SE Griffith Drive, Suite 205  
Beaverton, Oregon

and its assignees

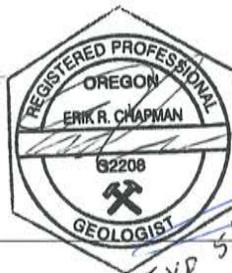
Issued December 1, 2022 by:



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## List of Acronyms and Abbreviations

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bgs	below ground surface	SOW	scope of work
CDF	control-density fill	TCE	trichloroethylene
CFSLs	clean fill screening levels	TPH	Total Petroleum Hydrocarbons
Client	Alpha Fuller, LLC	USCS	Unified Soil Classification System
COCs	constituents of concern	UST	underground storage tank
COIs	constituents of interest	VOCs	volatile organic constituents
COPCs	constituents of potential concern	WAM	Waste Authorization Manager
CSM	Conceptual Site Model		
DCE	dichloroethene		
DRO	diesel-range organics		
EAS	Environmental Analytical Services		
ENW	EVREN Northwest, Inc.		
EPA	US Environmental Protection Agency		
ESA	Environmental Site Assessment		
GRO	gasoline-range organics		
HCID	hydrocarbon identification		
JEI	Janz Enterprises, Inc.		
LOF	Locality of Facility		
µg/L	micrograms per Liter		
µg/m <sup>3</sup>	micrograms per cubic meter		
mg/Kg	milligrams per Kilogram		
mph	miles per hour		
MRL	method reporting limit		
OAR	Oregon Administrative Rules		
ODEQ	Oregon Department of Environmental Quality		
OWRD	Oregon Water Resources Department		
PCE	tetrachloroethylene		
PID	photoionization detector		
RBCs	risk-based concentrations		
RBDM	ODEQ's <i>Risk-Based Decision Making for the Remediation of Contaminated Sites</i> guidance document		
RRO	residual (oil)-range organics		
SLRBCs	screening-level risk-based concentrations		

## 1.0 Introduction

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At the request of Alpha Fuller, LLC (Client), EVREN Northwest, Inc. (ENW) prepared this report documenting further site characterization sampling of indoor air, septic tank decommissioning, and a risk assessment at the subject site (10543 SE Fuller Road, Milwaukie, Oregon; see Figures 1 and 2). This scope of work was approved by Barbara Deeming of Alpha Fuller, LLC on August 5, 2022.

Site work was conducted in September and October 2022 and is documented by photographs presented in Appendix A. This report describes the methods and findings related to the decommissioning of the septic tank, additional assessment of soil and ground water, subsequent indoor air assessment, and evaluation of residual results through a risk assessment. Recommended next steps are provided at the end of the report.

## 2.0 Background

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The subject property is a commercial property developed with a one-story commercial building with two tenant spaces and an adjoining asphalt parking lot. The building is currently occupied by a restaurant and commercial embroidery shop.

ENW has performed several phases of environmental due diligence at the subject property on behalf of Alpha Fuller, LLC, including a Phase I and Phase II Environmental Site Assessment and assessment and decommissioning of an abandoned underground storage tank (UST). The previous investigations are included in the following documents for reference and the findings of these previous assessments are briefly summarized below:

- *Phase I Environmental Site Assessment (ESA), April 2022.*<sup>1</sup>
- *Phase II Environmental Site Assessment, June 2022.*<sup>2</sup>
- *Heating Oil Tank Clean Decommissioning and Closure Report, October 2022.*<sup>3</sup>

Site features and sample locations referenced from previous investigations are illustrated in the Site Plan on Figure 2. A cumulative summary of laboratory analytical results of soil and soil gas/sub-slab vapor samples are presented on Tables 1 and 2, respectively behind the Tables tab following text.

**Historical dry cleaner.** Historical records revealed a dry cleaner operated at the subject property from 1987 through 2010. In June 2022 during ENW's Phase II ESA, trichloroethylene (TCE), a dry-cleaning-

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<sup>1</sup> *Phase I Environmental Site Assessment, Commercial Property, 10543 SE Fuller Road, Milwaukie, Oregon. Site conditions as of April 12, 2022*

<sup>2</sup> *Phase II Environmental Site Assessment, Commercial Property, 10543 SE Fuller Road, Milwaukie, Oregon. June 22, 2022*

<sup>3</sup> *Heating Oil Tank Clean Decommissioning and Closure Report, Commercial Property, 10543 SE Fuller Road, Milwaukie, Oregon. November 17, 2022.*

related constituent, was detected in one of three sub-slab vapor samples collected beneath the former dry cleaner space (SUB01 through SUB03, see Figure 2). The concentration of TCE in sample SUB01, collected in the kitchen of the current restaurant tenant space exceeded the Oregon Department of Environmental Quality (ODEQ) screening level risk-based concentration (SLRBC) for the *Vapor Intrusion Pathway*.

**Abandoned Septic Tank.** During a geophysical survey of the property conducted in June 2022, ENW found evidence of an abandoned septic tank and piping leading back to the former dry-cleaning space. To assess soil and vapor concentrations near the septic tank, ENW collected and analyzed two soil gas samples (SG01 and SG02) and advanced one soil boring (B03) next to the septic tank feature. Elevated concentrations of TCE and tetrachloroethylene (PCE) were one to two orders of magnitude above the levels found beneath the former dry-cleaning building, suggesting a possible source area at or near the abandoned septic tank. Petroleum hydrocarbons were not detected in soil samples collected at 5.5 and 11.5 feet below ground surface (bgs).

**Underground Storage Tank.** During ENW's geophysical survey, an abandoned heating oil tank with product was discovered on the south side of the on-site commercial building. In July 2022, ENW assessed native soils beneath the abandoned UST by advancing two soil borings (B01 and B02) and collecting soil samples for laboratory analysis. Based on assessment soil sample results, it was determined that a release of heating oil had not occurred from the abandoned tank. In October 2022, ENW decommissioned the heating oil UST in-place with control-density fill (CDF) and prepared a Certificate of Voluntary Heating Oil Tank Decommissioning for submittal to ODEQ.

**Dry Well.** During the Phase II ESA geophysical survey, ENW discovered a dry well in the north parking lot on the north side of the commercial building. ENW recommended the dry well be registered as an Underground Injection Control device with ODEQ.

Based on the findings of ENW's initial assessments, ENW has proposed the following tasks be completed to mitigate potential sources, human health risks and reduce further releases at the subject site:

- Conduct additional investigation of soil and ground water to further investigate the abandoned septic system and decommission it per ODEQ guidelines and requirements.
- Conduct further investigation of indoor air to assess current risk to occupational workers via the *Vapor Intrusion Pathway*.

ENW developed a scope of work and cost estimate to perform the above tasks and presented them in a proposal dated August 3, 2022. The proposal was approved on August 5, 2022.

### 3.0 Purpose

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The purpose of this work was to further investigate and remove potential ongoing sources of hazardous substances (i.e., septic tank), complete further assessment of constituents of interest (COIs) in indoor air and perform a cumulative risk assessment to evaluate existing site conditions relative to risk-based cleanup requirements established by ODEQ.

## 4.0 Scope of Work

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ENW completed the following Scope of Work (SOW) for this project:

- Confirmed the nature of the suspected abandoned septic system through physical investigation.
- Advanced two soil borings adjacent to the abandoned septic tank system and collected soil and reconnaissance ground water samples from the borings to further characterize subsurface conditions relative to the presence of halogenated volatile organic constituents (VOCs).
- Collected a characterization sample of the contents of the abandoned septic system and obtained approval for appropriate disposal.
- Coordinated, permitted, and observed the in-place decommissioning of the septic tank.
- Collected indoor air samples in inside the subject building and one background air sample from outside the building in the estimated up-wind location.
- Submitted all samples to independent laboratories for appropriate analysis.
- Evaluated analytical results with respect to ODEQ cleanup standards and risk-based guidance documents.
- Conducted a risk assessment using soil, soil gas, indoor air, and reconnaissance ground water data.
- Prepared this report documenting the work conducted with findings and presenting recommendations for next steps toward regulatory closure.

## 5.0 Site Setting

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**Description and Location.** The subject property is located east of Milwaukie city limits in unincorporated Clackamas County. The 0.37-acre commercial property is at the southwest corner of the intersection of SE King Road and SE Fuller Road and is currently developed with a single-story commercial building and asphalt-paved parking lot with site access provided by driveway entrances off SE Fuller Road to the east and SE King Road to the north (Figures 1 and 2).

Nearby surrounding properties are a mix of residential and commercial development, including a dense commercial strip along SE 82<sup>nd</sup> Avenue (Highway 213) one block east of the site consisting of numerous businesses and retail malls. Multi-family and single-family residences are set back one or more blocks from SE 82<sup>nd</sup> Avenue, including single-family residences adjacent to the west property line and apartment complexes one block to the southwest and two blocks to the northwest.

**Topography.** The U.S. Geological Survey Gladstone 7.5-Minute Series Quadrangle map places the site at an elevation of approximately 200 feet above mean sea level. The subject property is generally level and nearby properties slope east-southeastward. Regional surface topography slopes toward the northwest toward Johnson Creek and southwestward toward Mount Scott Creek, a tributary of Kellogg Creek, located approximately 1 mile and 1¼ miles from the site, respectively.

**Geologic Setting.** The site is located in the Portland Basin. The Portland Basin is a low-lying area between the Oregon Cascade Range to the east and the Portland Hills and Tualatin Mountains to the west. The Columbia and Willamette Rivers are the principal rivers within the basin. The Portland Basin is underlain by fluvial and flood deposits of the Columbia River and Willamette River and their tributaries. Isolated monogenetic volcanic centers of late Pliocene through Pleistocene age are scattered through the Portland area, including several local topographic prominences, e.g., Mt. Talbert to the southeast, Mt. Scott to the east, Powell Butte to the northeast, Kelly Butte to the north-northeast, and Mt. Tabor to the north-northwest.

During the late Pleistocene (approximately 12,000 years ago), numerous catastrophic floods swept into the Portland Basin through the Columbia River Gorge to the east. The floods deposited great thicknesses of sediments within the basin. The subject site is located on channel facies of the catastrophic flood deposits (Qfch). These sediments are typically described as complexly interlayered and variable silts, sands, and gravels deposited in major floodways by flood events. These channels cut earlier or contemporaneous fine- and coarse-grained flood sediments. Low spots in the irregular surfaces of these deposits are filled by bog or pond sediments and by overbank alluvium from local creeks, e.g., Johnson Creek to the northwest of the subject site.

One boring placed within the subject property boundary have confirmed near surface lithology consists primarily of silts, sandy silts, and silty sand zones to a depth of 40 feet bgs. Underlying these finer grained zones are silty sands and gravels. The underlying predominantly sand and gravel lithology was well graded, moderately dense, with a sandy matrix.

**Hydrogeologic Setting.** The closest surface water body to the subject property is a lake feature associated with the Gladanj Lake Estates residential neighborhood approximately 0.28 to the northwest. Phillips Creek is located 1400 feet southeast of the site, which flows southward to Mount Scott Creek, then southwest to Kellogg Creek. The next nearest major water body is the west-flowing Johnson Creek, approximately 1 mile northwest of the site. Johnson Creek joins the Willamette River near downtown Milwaukie, Oregon.

The first-encountered ground water table beneath the subject property was identified within coarse sands and gravels at approximately 45 feet bgs. At similar elevations, the first-encountered ground water table may discharge at Gladanj Lake and other surface water bodies.

In addition to the first-encountered ground water table, well logs in the vicinity report at least two (2) regional productive ground water aquifers from which wells derive water. A shallower aquifer appears to occur within coarse sand and gravel materials (Troutdale Formation) and the deeper aquifer appears to occur within the underlying basaltic bedrock (Columbia River Basalts). Deeper aquifers are anticipated to discharge to larger surface water bodies (Willamette River to the west and Clackamas River to the south). For the purposes of this report, it is assumed that first-encountered ground water flow generally mimics surface water flow (i.e. from topographic highs to lows). However, multiple factors can affect the direction of ground-water flow in subsurface layers including, but not limited to, sediment/rock type, subsurface utility lines, buried river valleys, and stream beds, folds, fractures, and faults. The direction of the shallow-most ground water flow in the subject area is generally expected to be to the southeast, based on the local and regional topography. The direction of ground water flow within the deeper regional aquifers is likely oriented more to the south and west toward the Willamette and Clackamas rivers.

## 6.0 Methods

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### 6.1 Objectives

The septic tank decommissioning and assessment objectives were to:

- Assess whether operation of the septic tank adjacent to the former dry cleaner had resulted in adverse environmental impacts to soil or ground water.
- Assess whether indoor air has been impacted with TCE (and other VOCs) from the intrusion of sub-slab vapor into building indoor air.
- Assess potential environmental risk related to residual impacts following septic tank decommissioning.

Additional objectives for the work included:

- To perform the work efficiently and cost-effectively, minimizing interference with any site operations.
- To perform the work in a safe manner for technical personnel and site residents.
- To document information and data generated in a professional manner that is valid for the intended use.

### 6.2 Roles and Responsibilities

ENW was the contracted environmental consultant, provided excavation equipment, and an operator during tank decommissioning and over-excavation. Subcontracted services included:

- Pacific Northwest Locating, who provided private utility locating services.
- Initial septic tank pumping services were performed by Tidewater Environmental Services. Tidewater provided a pump truck for dewatering the septic tank prior to its decommissioning, and transportation of tank contents to the landfill for disposal.
- Waste Management's Hillsboro Landfill received the pumped sludge material from the septic tank and provided solidification services prior to disposal at their Hillsboro Landfill Title D disposal facility in Hillsboro, Oregon.
- Cascade Drilling of Clackamas, Oregon provided a direct-push drill rig and licensed driller to advance exploratory soil borings.
- Cadman, Inc. provided control density fill for decommissioning the septic tank in place.
- Janz Enterprises, Inc. (JEI) of Boring, Oregon provided paving services following septic tank decommissioning.
- Soil and ground water samples were analyzed by Friedman and Bruya, Inc. of Seattle, Washington.

### 6.3 Preparation Activities

ENW performed or coordinated the following activities before commencing all field activities.

**Plan Preparation.** In-house Sampling and Analysis were prepared for the project.

**One Call Notification.** Prior to any subsurface site work, a call was placed with One Call Utility Notification Service to identify and locate all public utilities near each of the proposed sampling locations.

**Private Utility Locate.** In addition to the public utility locate, a private utility locate was conducted by Pacific Northwest Locating. All boring locations were cleared of public and private underground utilities prior to conducting subsurface exploration.

**Planning.** ENW scheduled and coordinated with the Client to begin site work.

### 6.4 Septic Tank Contents Characterization

On September 9, 2022, ENW personnel collected a sample of the septic tank contents and submitted the sample to a laboratory for analysis for waste characterization purposes. The analytical results of the characterization sample were used to obtain a Non-Hazardous Waste Authorization Manager (WAM) profile from Waste Management. Waste Management approved the profile on September 26, 2022 under Profile Number 138708OR.

### 6.5 Soil Boring and Sampling

ENW contracted with Cascade Drilling of Clackamas, Oregon to install two exploratory borings (B04 and B05) for the purposes of collecting soil and reconnaissance ground water samples for laboratory analysis. Cascade advanced the soil borings using a GeoProbe direct-push drill rig under the direction of an ENW geologist. ENW sited the boring B04 immediately adjacent to the septic tank and boring B05 downgradient of the inferred septic tank outlet pipe. The locations of borings B04 and B05 are illustrated on Figure 3.

Soil boring B04 was advanced to approximately 45 feet bgs, a depth approximately five feet below the first-observed ground water table. Boring B05 was advanced to total depth of five feet bgs, in order to assess soils immediately below the inferred outlet. Soil materials recovered from the borings were field screened continuously for evidence of contaminants using olfactory and visual inspection. Additionally, an ENW geologist collected vapor headspace readings for the presence of volatile constituents using a photoionization detector (PID). Soil types were described in accordance with the Unified Soil Classification System (USCS), paying particular attention to grain size, color, moisture content, texture, and consolidation. Field screening results, soil descriptions and other observations were recorded onto soil boring logs included in Appendix B.

Soil samples were retained for possible laboratory analysis from zones where field screening identified evidence of contamination. If soil contamination was not indicated, at least one soil sample was collected from each boring from appropriate depths unique to the feature being explored. Soil samples were placed directly into labeled laboratory-prepared glass sample jars using clean Nitrile-gloved hands and sealed with a Teflon-lined lid. Samples for analysis of volatile constituents were additionally collected using sampling procedures prescribed by the Environmental Protection Agency (EPA) Method 5035. All samples were preserved on ice in a cooler pending transport to the laboratory.

Upon reaching total depth, the drill tooling was removed from boring B04, and a temporary well point was installed in the open borehole in preparation for reconnaissance ground water sampling. Ground water was purged from B04 using a low-flow peristaltic pump and dedicated polyethylene tubing to purge the standing water from the borehole and to draw representative ground water into the temporary well point. Following purging, a reconnaissance ground water sample was collected from clean, dedicated polyethylene tubing connected to a peristaltic pump set at a low rate to minimize off gassing of volatile contaminants. The sample was transferred into laboratory-supplied containers with appropriate preservative, uniquely labelled, documented on a chain-of-custody record, and placed in a cooler on ice pending transport to the laboratory. A reconnaissance ground water field sampling data form is included in Appendix C.

Samples were labelled by boring number and depth by appending it to the boring number (e.g., B04-10 would indicate a soil sample collected from 10 feet bgs in boring B04). One reconnaissance ground water sample was identified by appending the boring number with "GW" and the total depth of the boring (e.g., B04-GW-45 indicated a reconnaissance ground water sample collected from boring B04 with total depth of 45 feet bgs).

All non-disposable sampling equipment was decontaminated to minimize the potential for cross-contamination. Following sampling, all borings were properly abandoned in accordance with Oregon regulations. Start cards and well reports will be submitted by Cascade Drilling Services to the Oregon Water Resources Department (OWRD) as required.

## 6.6 Septic Tank Decommissioning

ENW oversaw the decommissioning-in-place of the septic tank on October 12, 2022. The septic tank was pumped of all remaining liquid sludges and solids (rock) using a pump truck operated by Tidewater Environmental Services. After pumping out the fluids/solids, the interior of the septic tank was pressure-washed and the resulting rinsate pumped out. All tank contents and rinsate fluids were transported by Tidewater to Hillsboro Landfill for solidification and disposal under the approved waste profile.

Once the septic tank contents were removed, the annular space of the septic tank was backfilled from the bottom up to the ground level with CDF. Filling the feature with CDF creates a permanent seal to prevent vertical movement of fluid and assuring that the septic system is no longer releasing fluids to the subsurface. In total, approximately 10 cubic yards of CDF were placed in the septic tank.

Waste receipts and a Clackamas County septic system decommissioning form is included in Appendix D.

## 6.7 Indoor Air and Outdoor Air Quality Assessment

On October 19, 2022, ENW performed indoor air quality testing which included collection of three indoor air samples (IA01 through IA03) and one outdoor sample (OA01) for laboratory analysis (see Figure 3 for locations). The methods and results of this testing is described in this section.

### 6.7.1 Methods

Indoor and outdoor air samples were collected using pre-certified 6-liter SUMMA canisters at the locations shown on Figure 3. All field measurements were recorded on field sampling data sheets which are included in Appendix C.

Each SUMMA canister was placed on an elevated surface or stepladder with the inlets positioned approximately four to five feet above the floor or ground. The outdoor air sample was collected from the roof of the subject building in the up-wind direction. An 8-hour flow regulator was used to collect a time-integrated sample. The time and initial pressure were recorded, and the SUMMA canister was opened to initiate sampling. After approximately eight hours, the SUMMA canister valve was closed, and sampling was terminated. The final time and pressure were recorded. Clean nitrile gloves were used for each sample collection and when handling any sampling equipment.

Each SUMMA canister was appropriately labeled, packaged, and shipped via FedEx to Environmental Analytical Services, Inc. (EAS) of San Luis Obispo, California under chain-of-custody protocols. EAS analyzed the samples for cVOCs using EPA Method TO-15. The laboratory analytical reports are included in Appendix E.

### 6.7.2 Weather Conditions

Weather conditions can cause temporal variations in vapor intrusion into indoor breathing zone. To accommodate for weather conditions, historical weather data for the three days preceding, and one day following the sampling event are presented in Table 6-1.

**Table 6-1. Weather Data – October 17-20, 2022**

Date	10/17/2022	10/18/2022	10/19/2022	10/20/2022
Precipitation (in)	0.00	0.00	0.00	0.00
Maximum wind speed (mph)	6	7	7	8
Wind Direction (predominant)	CALM	W	CALM	CALM
High Temp	70	71	74	70
Low Temp	50	52	49	49
Sea Level Pressure (in-Hg)	30.14	30.21	30.25	30.13

Weather conditions were generally calm and cool with high temperatures ranging from 70 to 71 degrees Fahrenheit and winds 6 to 5 miles per hour (mph) leading up to the day of sampling. The 8-hour sampling period on October 19, 2022 was from approximately 8:00am to 4:30pm. On this day, winds were reported as calm to variable to NW to W at below 5 mph through 12:53pm, then at speeds up to 7 mph predominantly from northwest and west-northwest directions in the afternoon.

### 6.7.3 Inventory of Competing Sources

The presence of competing VOC sources from chemicals, equipment, or operations taking place in the building interior could contribute to VOCs in indoor air.

To account for ambient indoor contributions, an inventory of existing chemicals inside the buildings was conducted concurrently with the deployment of indoor air samplers. Several chemicals containing VOCs were identified, including various household cleaning chemicals containing chloroform (bleach) inside the embroidery and restaurant tenant spaces. The restaurant stored isopropyl alcohol, bleach, degreaser and various detergents in the kitchen area. Inside the Blind Enterprise site there were containers of Barudum Bearing oil, Klean Strip acetone, Lysol disinfectant, WD-90 lubricant, and paint remover. Chemical inventory forms are included in Appendix F.

## 6.8 Waste Management and Disposal

Liquids and solids pumped from the septic tank were sampled by ENW on September 2, 2022, analyzed for appropriate constituents, and the laboratory results were used to obtain approval for disposal at Waste Management’s Hillsboro Landfill disposal facility.

Purge water generated during reconnaissance ground water sampling was contained inside a labelled Department of Transportation-certified 55-gallon drum and staged on-site pending receipt of analytical results. Once analytical results are received, the waste soil and water can be properly disposed at an approved disposal facility.

Copies of Hillsboro Landfill facility disposal receipts are included in Appendix D.

## 6.9 Laboratory Analysis

Three soil samples and one reconnaissance ground water sample were analyzed by Friedman and Bruya, Inc. of Seattle, Washington, and four air samples were analyzed by EAS of San Luis Obispo, California according to the analytical plan presented in Table 6-2. Laboratory analytical reports are included in Appendix E.

**Table 6-2. Analytical Plan**

Analytical Method	Constituents	Soil	Ground Water	Air
NWTPH-HCID	Total petroleum hydrocarbon identification (HCID)	All samples	--	--
NWTPH-Gx	Total Petroleum Hydrocarbons (TPH)–Gasoline-range quantification (GRO)	--	All samples	
NWTPH-Dx	TPH as Diesel- and Residual-range organics (DRO and RRO, respectively)	Samples indicated with DRO and/or RRO present by HCID	All samples	
Environmental Protection Agency (EPA) 8260B	Volatile organic compounds (VOCs) – Full List	--	All samples	
EPA Method TO-15 Modified SIM GC/MS	VOCs – select compounds	--	--	All samples

## 6.10 Cleanup Standards and Other Numeric Criteria

Oregon’s environmental cleanup rules (Oregon Administrative Rules [OAR] 340-122) establish the standards and procedures for the protection of current and future public health, safety and welfare, and the environment in the event of a release or threat of a release of a hazardous substance. In the event of a release of a hazardous substance, remedial actions shall be implemented to achieve:

- Acceptable risk levels defined in OAR 340-122-0115, as demonstrated by a residual risk assessment; or
- Numeric cleanup standards developed as part of an approved generic remedy identified or developed by the Department under OAR 340-122-0047, if applicable; or
- For areas where hazardous substances occur naturally (e.g., metals, etc.), the background level of the hazardous substances, if higher than those levels specified above.

Acceptable risk levels may be evaluated through conducting a site-specific risk assessment that calculates exposure point concentrations for specific exposure pathway receptor-scenarios or use generic for hazardous substances under ODEQ's Risk-Based Decision Making (RBDM) guideline to streamline the risk assessment process (see below).

The assessment and remediation of hazardous substances in Oregon are conducted according to OAR 340, Division 122, *Hazardous Substance Remedial Action Rules*. The following cleanup standards and numeric criteria may be applied in evaluating site assessment results.

**Soil Matrix.** Under the Soil Matrix Cleanup Option Rules (OARs 340-122-0320 through 0360) cleanup standards are determined by assigning site-specific values to environmental parameters (e.g., soil type, depth to ground water, etc.). For purposes of risk-based evaluations of soil, Soil Matrix Cleanup Levels are often used for screening purposes, where potentially significant levels of petroleum contamination may be present if concentrations of total petroleum hydrocarbons in soil exceed their respective soil matrix cleanup level or soil matrix level I for conservative screening purposes and may require remedial action. Concentrations of total petroleum hydrocarbons lower than their corresponding Soil Matrix Cleanup Level or Soil Matrix Level I if a cleanup level has not been determined, usually do not require any additional cleanup or risk management.

**ODEQ Risk-Based Concentrations.** ODEQ has compiled default risk-based screening reference levels (RBDM guidance document) for common exposure-pathway receptor-scenarios that may be utilized in lieu of site-specific risk calculations (OAR 340-122-0115). In particular, the pre-calculated risk-based concentration (RBC) represents the concentration of a COI in the impacted medium (e.g., soil, ground water, or air) that potentially represents an unacceptable risk level.

The published RBCs represent a conservative default concentration of a COI in an impacted medium (e.g., soil, ground water, soil gas, or air). When COI concentrations on a site exceed the RBC, unacceptable human health impacts are possible.

- For carcinogens, the regulatory standard is represented by an excess cancer risk of one in one million ( $1 \times 10^{-6}$ );
- For non-carcinogens, this is represented by a Hazard Index of 1.

RBC exceedances typically trigger further investigation and potentially a human health risk assessment. Therefore, RBCs can be applied at sites as generic, conservative cleanup standards and are routinely used by ODEQ to determine if a site requires additional action. Site-specific parameters used in the equations to develop the RBCs are often adjusted to match actual conditions in developing site-specific cleanup levels.

RBCs are generally used to evaluate sampling analytical results as follows:

- ODEQ's lowest RBC for all pathways for residential receptors is used as an initial 'conservative' screening of a constituent. If a constituent's concentration exceeds its SLRBC, it requires further evaluation. Otherwise, the constituent is considered unlikely to pose unacceptable risk to any human receptor.
- Because ODEQ Generic RBCs are based on several conservative assumptions (e.g., duration and type of exposure), exceeding an SLRBC does not necessarily indicate that additional investigation or remediation is required. Rather, the exceedance of a SLRBC may indicate that additional

investigation and evaluation, including consideration of site-specific information (e.g., current, and future land uses), may be necessary to determine if remediation or other actions are necessary. In many cases, it is not possible to determine whether unacceptable risks to human health and the environment are present, and require further action, until a risk assessment, including evaluation of current and reasonably likely land and water uses, is complete.

- In general, ODEQ considers chemical concentrations less than SLRBCs to be protective of human health.

Should constituents be identified that also exceed their generic, but exposure pathway- and receptor-specific RBCs, then the appropriateness of additional site-specific methods allowed under the RBDM guidance document will be evaluated (e.g., the development of site-specific RBCs, sampling of soil gas and/or vapor, etc.).

**Other Numeric Criteria.** In addition to the above risk-based cleanup standards, concentrations were also compared to the following numeric criteria to determine if possible enrichment was occurring, and/or determine if there may be offsite soil disposal restrictions.

- **Background Metals.** Analytical data were compared with background concentrations established by the ODEQ.<sup>[1]</sup> ODEQ does not require cleanup for metals concentrations below default background concentrations.
- **Clean Fill Screening Levels.** Analytical data for organics were compared to clean fill screening levels (CFSLS) for upland sites established by the ODEQ.<sup>[2]</sup> ODEQ does not require materials in which contaminant concentrations are less than or equal to CFSLS to be regulated as a solid waste. Rather, these materials may be placed at upland locations that are far enough away from a surface water body, or where there are sufficient controls to avoid erosion into surface water. CFSLS are used to determine if impacts to soil may require future management and are not used for risk screening.

## 7.0 Findings

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ENW completed site work during September and October 2022. This section discusses work conducted in general chronological order. Please reference:

- Figures 3 for sampling locations.
- Appendix A for a photolog of site work.
- Tables 1, 3, and 4 for a comprehensive summary of analytical results by media.
- Table 6-3 (below) for a summary of sampling locations.

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<sup>[1]</sup> ODEQ. March 20, 2013, Fact Sheet: Background Levels of Metals in Soils for Cleanups.

<sup>[2]</sup> ODEQ. July 2014. Clean Fill Determinations: Internal Management Directive, last updated February 21, 2019, by Heather Kuoppamaki.

**Table 6-3. Summary of Sampling Locations**

Borehole / Location ID	Date Sampled	Depth Sampled (feet)	Sample Type	Location
<b>Soil Samples</b>				
B04	9/6/2022	10	ENW	South side of septic tank / cesspool
	9/6/2022	42	ENW	South side of septic tank / cesspool
B05	9/6/2022	5	ENW	Below potential former septic outlet
<b>Reconnaissance Ground Water</b>				
B04	9/6/2022	11.5	ENW	South side of septic tank / cesspool
<b>Indoor/Outdoor Ambient Air Samples</b>				
IA01-221019	10/19/22	4-5	ENW	Northern tenant space
IA02-221019	10/19/22	4-5	ENW	Northern tenant space
IA03-221019	10/19/22	4-5	ENW	Southern tenant space
OA01-1221019	10/19/22	roof	ENW	Outdoor reference sample (roof)

## 7.1 Field Observations

### 7.1.1 Field Screening and Soil Logging

Field screening of recovered cores from two borings (B01 through B04) showed no significant evidence of impacts. Soil materials encountered in the borings were brown silts and silts with sand in the upper 13 feet of soil, transitioning to interbeds of coarse sand, well-sorted medium gravels, poorly-sorted coarse sands, and thinner beds of fine sand with silt. At 34 feet, there was a 2-inch lens of gray medium-stiff silt with mottling indicative of a ground water smear zone. The silt layer was underlain by more sand with silt, well-sorted medium sand, and silts with fine sand to the maximum depth drilled of 45 feet bgs. Saturated conditions were observed at around 41 feet bgs during drilling. Boring logs are presented in Appendix B.

## 7.2 Laboratory Results - Soil

Three soil samples collected from borings B04 and B05 were analyzed, including two soil samples from boring B04 at 10 feet and 42 feet, and one soil sample from B05 from five feet, immediately below the outlet pipe of the septic tank. Results of laboratory analysis of soil samples are summarized on Table 1 (behind the text). Results in Table 1 are screened against ODEQ’s Soil Matrix soil cleanup standards and ODEQ’s SLRBCs as well as CFSLs. Copies of the laboratory reports are included in Appendix E.

### 7.2.1 Petroleum Hydrocarbons

Laboratory analysis reported low concentrations of RRO at the 10-foot sample in boring B04. Specifically,

- RRO was detected at 130 milligrams per kilogram (mg/Kg) in soil sample “B04-10”, collected from boring B04 at 10 feet bgs. This concentration is below ODEQ’s Level II Soil Matrix cleanup level of 500 mg/Kg and ODEQ’s SLRBC of 2,800 mg/Kg. The laboratory flagged the result indicating the analyte concentration is reported below the lowest calibration standard; therefore, the value reported is an estimate.

Neither GRO nor DRO were detected above their respective laboratory MRL in the remaining soil samples analyzed.

### 7.2.2 Volatile Organic Compounds

All three soil samples were analyzed for VOCs and pertinent results are as follows:

- Chloroform was detected at a concentration of 0.099 mg/Kg in the 42-foot (soil/water interface) sample in boring B04. The reported concentration exceeds ODEQ's SLRBC and CFSL of 0.0034 mg/Kg.
- All remaining VOCs were not detected above their respective laboratory method reporting limits (MRLs).

## 7.3 Laboratory Results Reconnaissance Ground Water

One reconnaissance ground water sample was collected for characterization and delineation purposes from boring B04. Results are presented in Table 3 and pertinent results are provided below. Results in Table 3 are screened against ODEQ's SLRBCs. Copies of the laboratory reports are included in Appendix D.

### 7.3.1 Petroleum Hydrocarbons

Laboratory results of ground water samples by NWTPH-Gx and NWTPH-Dx did not detect total petroleum hydrocarbons above their respective laboratory MRL.

### 7.3.2 Volatile Organic Compounds

Laboratory analysis detected the presence of VOCs in sample "B04-GW-45" as follows:

- Bromodichloromethane was reported at 0.67 micrograms per liter ( $\mu\text{g/L}$ ), which is greater than the ODEQ's SLRBC of 0.13  $\mu\text{g/L}$ . This constituent is typically formed as a byproduct when chlorine or chlorine-containing chemicals are added to drinking water to kill bacteria. This chemical is not produced in large quantities, and it is typically not associated with dry cleaning solvents.
- Chloroform was detected at 6.7  $\mu\text{g/L}$ , which exceeds the ODEQ's SLRBC of 0.22  $\mu\text{g/L}$ .
- TCE was detected at 0.89  $\mu\text{g/L}$ , exceeding the SLRBC of 0.49  $\mu\text{g/L}$ .
- Remaining VOC constituents were either not detected or were present below their respective MRL.

## 7.4 Laboratory Results – Indoor / Outdoor Air

Three indoor air samples were collected from inside the existing commercial building and one outdoor (ambient) air sample was collected from the roof of the building. Results are presented in Table 4 and pertinent results are provided below. Results in Table 4 are screened against ODEQ's SLRBCs. Copies of the laboratory reports are included in Appendix E.

### 7.4.1 Select VOCs

All four air samples contained one or more VOCs above the laboratory MRL. In Table 4, the results of the outdoor air sample are subtracted from indoor air results to give the net indoor air contribution. The reported VOC constituents included:

- Chloroform was detected in all samples at concentrations from 0.384 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to 1.636  $\mu\text{g}/\text{m}^3$ . The maximum net indoor air contribution of chloroform is 1.252  $\mu\text{g}/\text{m}^3$  after subtracting the results of the ambient (outdoor) air sample results. The net indoor air contribution is greater than ODEQ's SLRBC of 0.12  $\mu\text{g}/\text{m}^3$ .
- TCE was detected in all samples at concentrations ranging from 0.02  $\mu\text{g}/\text{m}^3$  in sample OA01 to 0.859 in sample IA02, all below its ODEQ SLRBC of 11  $\mu\text{g}/\text{m}^3$ .
- 1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and PCE were detected in one or more samples; however, all reported concentrations were below their respective ODEQ SLRBCs.

## 7.5 Current Understanding of Impacts to Soil, Ground Water and Air

The current understanding of impacts to site media is based on a limited data set of soil, reconnaissance ground water, and soil vapor/indoor air data. ENW's interpretation based on available analytical results are presented by media below.

### 7.5.1 Soil

Findings of this investigation suggest chloroform may be present in soil at the soil/water interface at boring B04 beneath the suspected septic tank location. All remaining constituents in soil were either not detected or were below ODEQ's strictest human health risk-based screening levels at the sampled locations. The absence of chloroform in shallow soils indicates soil impacts are isolated at the soil/water interface near the immediate vicinity of the former septic tank.

### 7.5.2 Ground Water

Ground water at the former septic tank location contains VOCs in excess of screening levels. The lateral extent of ground water impacts is unknown at this time.

### 7.5.3 Soil Gas

Soil vapors beneath the north tenant space and soil gas near the former suspected septic tank contain VOCs above screening levels for the *Vapor Intrusion into Buildings* exposure pathway. Results suggest that concentrations of VOCs in soil gas closest to the septic tank are between one and two orders of magnitude greater than concentrations measured beneath the building slab, suggesting the septic tank and piping could be a source of impacts, or may have provided a pathway for migration of VOCs in the subsurface at one time. Concentrations of VOCs in soil gas were slightly lower in the sample collected several feet east of the suspected septic tank. The lateral extent of VOCs in soil gas is unknown at this time.

### 7.5.4 Indoor Air

Indoor air has been impacted by two VOC constituents at concentrations exceeding screening levels after adjusting for ambient air contributions. Detections of VOCs in indoor air may be biased high from competing VOC sources observed inside the building at the time of sampling.

## 8.0 Locality of Facility

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The Locality of Facility (LOF) is defined as any point where a human or an ecological receptor is reasonably likely to come into contact with facility-related hazardous substances. A Preliminary LOF for the subject property considered the recent cleaning and decommissioning of the septic tank and the absence of additional onsite sources of VOCs in soil and ground water suggesting the potential for low level of site contaminants to migrate off-site is likely to be low.

The Preliminary LOF is proposed as the facility property boundaries. More specifically as shown on Figure 3, the LOF is described as follows:

- **To the south:** Consistent with the south property boundary.
- **To the west:** Consistent with the west property boundary
- **To the north:** Consistent with the north property boundary.
- **To the east:** Consistent with the east property boundary.

## 9.0 Risk Assessment

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Where Soil Matrix Cleanup standards are not met or where ground water impacts are present, the State of Oregon requires that the impacts are evaluated using a risk-based approach described in ODEQ's RBDM guidance document, 2011 revision. The *RBDM* guidance document and its supplemental updates periodically provided by the agency provide pre-calculated RBCs which were developed as screening levels for suspect sites, based on Oregon's unacceptable additional risk criteria for cancer occurrence and for non-carcinogenic health impacts. The State of Oregon considers acceptable additional risk of cancer from contact with carcinogenic constituents at less than one in one million incidences, or for non-carcinogenic constituents, the constituent threshold concentration at which health impacts would occur.

This section conducts a risk-based assessment for residual impacted media at the site, based on analytical data collected during the site activities described above.

### 9.1 Identification of Constituents of Interest

Based on ENW's understanding of past land use (i.e., dry cleaning facility, heating oil tank), and the analytical results of samples collected to date from the site, the COIs associated with the subject property include:

- GRO (as Stoddard Solvent)
- DRO and RRO (heating oil)
- Halogenated VOCs (dry cleaning solvents)

This Risk Assessment will follow the conservative approach of evaluating the highest detected concentration of each constituent for each medium.

## 9.2 Identification of Constituents of Potential Concern

COIs were initially compared to conservative SLRBCs to identify constituents of potential concern (COPCs) in each media. The residential SLRBCs in ODEQ's updated RBC tables were initially used since this approach is the most conservative method in assessing potential risk to human health. The lowest residential SLRBC is used in the screening process regardless of whether a pathway is complete or not.

Several of the constituents of Tables 1 through 4 were not detected above their respective MRLs. Those detection limits that exceeded the RBCs were indicated with a "(Y)" in the final column. ODEQ guidance states that in general, if a contaminant is not detected by the department-specified analytical methods and if standard method detection limits are met, that this is considered acceptable proof that the contaminant is not present in that medium.<sup>4</sup> Therefore, these constituents will not be further addressed in the risk assessment.

### 9.2.1 Soil

The comparison of laboratory results for all soil samples representative of residual soil on site to ODEQ's SLRBCs is provided in Table 1.

- Chloroform in residual on site soil was identified above its SLRBC. Therefore, chloroform was retained as a COPC in soil.

### 9.2.2 Reconnaissance Ground Water

Reconnaissance ground water data from boring B04 was used for comparison with ODEQ's SLRBCs. The comparison of laboratory results for reconnaissance ground water sample to ODEQ's SLRBCs is provided in Table 3.

- The maximum concentrations of bromodichloromethane, chloroform, and TCE were detected above their respective SLRBCs in the reconnaissance ground water sample. Therefore bromodichloromethane, chloroform, and TCE are retained as COPCs in ground water.

### 9.2.3 Soil Gas

The comparison of laboratory results for soil gas and sub-slab vapor samples at the site to ODEQ's SLRBCs is provided in Table 2.

- The maximum concentrations of chloroform, PCE and TCE were detected above their respective SLRBCs in soil gas/sub-slab vapor. Therefore chloroform, PCE and TCE are retained as COPCs in soil gas/sub-slab vapor.

### 9.2.4 Indoor Air

The comparison of laboratory results for indoor and outdoor air samples at the site to ODEQ's SLRBCs is provided in Table 4.

- The maximum concentrations of chloroform and TCE were detected above their respective SLRBCs in indoor air. Therefore, chloroform and TCE are retained as COPCs in indoor air.

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<sup>4</sup> ODEQ. 2003. RBDM Guidance Document, Pg. 13, Footnote 7.

## 9.3 Conceptual Site Model

### 9.3.1 Media of Concern

Laboratory results of indicate surface soils (less than 3 feet bgs) have not been shown to be impacted. However, soil impacts were detected at depths of approximately 42 feet bgs in boring B04. Ground water was encountered in boring B04 at approximately 45 feet bgs and is also impacted. Soil gas has also shown to be impacted. Therefore, subsurface soil, ground water, and soil gas are considered media of concern.

### 9.3.2 Land Use– Potential Receptors

The site is currently zoned Retail Commercial (RTL) by the Clackamas County Zoning and Planning Division and is currently developed with a commercial structure used for retail sales and a restaurant. Since the site is currently operating, occupational workers are expected to be present on site and in the future as the site will likely remain commercial in use in the near future. Construction workers and excavation workers are unlikely to be directly exposed to subsurface impacted soil and ground water, but are retained as possible receptors due to potential for inhalation of volatiles.

RTL zoning allows for single-family dwelling units only as accessory to a permitted use and allows multi-family residential, child and adult care homes/facilities, therefore future potential urban residents are considered as possible receptor.<sup>5</sup>

### 9.3.3 Ground-water Use

ENW personnel observed nearby properties for any indications of water wells (e.g., pump houses, well heads, etc.). There were no water wells observed onsite or on adjoining properties.

Beneficial water use at the site and surrounding properties was evaluated by searching water well records maintained by OWRD's Groundwater Resource Information Database. Wells were searched with an approximately 0.25-mile radius of the site. A summary of the results is as follows.

In total, there were 15 records of water wells identified within the 0.25-mile search distance. Five of the wells are listed for well abandonment and are considered no longer present. Three wells are listed as irrigation wells, one well is industrial in use, five (5) wells are listed for domestic use, and two wells are listed as "unknown." Copies of well logs are included as Appendix G and select wells are discussed below.

Only one domestic well (CLAC 374) is listed in the same quarter-quarter section as the subject property; however, insufficient information is provided to locate the well precisely. The well was drilled in 1959 to a depth of 258 feet, penetrating yellow clay, then "sand rock" in the shallow portions of the borehole (upper 41 feet of the well). The well derives water from a porous basalt aquifer and static water level in the well was recorded at 165 feet at the time of drilling.

The next closest well is an irrigation well drilled for Mary Martello at a location approximately one-quarter (0.25) miles south of the site (CLAC 379). Limited information in the well report indicates the well was drilled to 89 feet in 1944 and static water was reported at 40 feet.

Two domestic water wells (CLAC 378 and CLAC 377) appear to be approximately 0.5 to 0.75 miles southwest and south of the site in the presumed down gradient direction from the subject property. Well drillers' notes suggest both wells penetrated a cemented gravel beginning at approximately 50 feet bgs.

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<sup>5</sup> Clackamas County Land Use Ordinance. Section 500 – Retail Commercial (RTL). Accessed November 29, 2022.

Wells obtain water from water-bearing gravels beginning from approximately 75 to 80 feet, interpreted by OWRD in the well report as the Troutdale Aquifer.

The last remaining domestic well (CLAC 386) is located approximately 0.5 miles east of the site. This domestic well penetrated clay then encountered “rock” at 58 feet bgs. The well is completed with 6-inch diameter open casing installed to 65 feet in the open borehole. Water is derived from soft, brown rock from 123 feet to 137 feet bgs.

#### 9.3.4 Municipal Water Supply

The subject property and surrounding properties are served by the Clackamas River Water District. The Clackamas River District supplies domestic water to properties within the unincorporated Clackamas County area. The Clackamas River is the primary source of drinking water for the district. There are five municipal surface water intakes on the Clackamas, including City of Estacada, City of Lake Oswego/Tigard, Clackamas River Water, North Clackamas County Water Commission, and South Fork Water Board. Clackamas River intakes for these municipalities are all distal to the subject property.

#### 9.3.5 Ground Water Use Findings

A search of water well records did not identify any water wells on the subject property or adjoining properties. The closest potable use of ground water may occur at a well within approximately 0.25 miles from the site. Although the well is old, this Conceptual Site Model (CSM) assumes the well to be active. However, the well is deep and derives water from the underlying basalt bedrock aquifer below 165 feet bgs. There are wells down gradient of the site that are interpreted as obtaining ground water from the Troutdale Aquifer, but these wells are distal to the subject property.

The impacts to ground water beneath the site occur within saturated sands and gravels at 45 feet bgs. Due to the significant depth and distance of off-site domestic wells relative to ground water impacts at the subject site, it is unlikely that off-site domestic wells will be adversely affected. Because the Clackamas Water district has a reliable and readily available municipal drinking-water supply, groundwater at the site and surrounding area is not expected to be used as a drinking-water source in the future.

#### 9.3.6 Pathways of Concern

An exposure pathway is the course a constituent takes from a source to an exposed population. Exposure pathways include four (4) elements: (1) the source of contamination; (2) the means by which a constituent will be released, retained, or travel in a given medium (e.g., air or ground water); (3) a point of potential contact with a receptor; and (4) the means by which contact will occur (e.g., inhalation, ingestion). If any of these elements are missing, the pathway is considered incomplete. Table 9-1 presents a summary of the pathway analysis for human receptors.

**Table 9-1. Summary of Pathway Analysis for Human Receptors**

Potentially Exposed Population	Exposure Route, Medium and Exposure Point	Pathway Considered Potentially Complete?	Reason for Selection or Exclusion
<b>Soil</b>			
Future Urban Resident	Soil ingestion, dermal contact, and Inhalation	NO	Surface soil (<3 feet) is not impacted by COPCs. At the depth of impacts, a resident or occupational worker is unlikely to come into contact with contaminated soils.
Current/Future Occupational Worker	Inhalation of volatiles from impacted soil (indoor and outdoor air)	YES	Sub-slab vapor and soil are impacted with volatile COPCs.
	Leaching to ground water, followed by direct ingestion	NO	The impacted ground water beneath the site is unlikely to be used for domestic use.
Current/Future Construction and Excavation Worker	Direct ingestion, inhalation of volatiles and dermal contact with soil	YES	Subsurface soil is impacted with COPC.
<b>Ground Water</b>			
Future Urban Resident	Ingestion, and Inhalation from tap water	NO	No drinking water wells are present onsite or on adjoining sites, CSM presumes that shallow ground water is used for drinking water.
Current/Future Occupational Worker		YES	
Current/Future Construction Worker	Direct contact	NO	Ground water impacts are beyond the depths that a construction worker is likely to encounter
Current/Future Excavation Worker	GW in an excavation	NO	Ground water is impacted with volatile COPCs. While direct contact is unlikely, due to depth, intrusion of volatile into an open excavation is possible.

## 9.4 Conceptual Site Model

Based on the above discussion, a CSM has been developed for the site, depicting all exposure pathways evaluated and retained for evaluation of human health risk. The CSM is presented in Figure 4.

## 9.5 Further Evaluation of Constituents of Potential Concern

### 9.5.1 Subsurface Soil

Since chloroform was identified by the initial screening as a COPC in subsurface soil, it was further evaluated by comparing RBCs for complete exposure pathways for applicable receptors to determine if it is a constituent of concern (COC) at the site (Table 5). Based on this further evaluation, the following was identified:

- The COPC was not identified as a COC when compared to complete current exposure pathways for applicable receptors. However, there is a potential unacceptable risk to a future Urban Resident if the property were developed with multi-family residential structures.

### 9.5.2 Ground Water

Since bromodichloromethane, chloroform, and TCE were identified by the initial screening as COPCs in ground water, the COPCs are further evaluated by comparing RBCs for complete exposure pathways for applicable receptors to determine if they are COCs at the site (Table 6). Based on this further evaluation, the following was identified:

- None of the COPCs were identified as COCs when compared to complete exposure pathways for applicable receptors.

### 9.5.3 Sub-Slab Vapors/Soil Gas

Since chloroform, PCE, and TCE were identified by the initial screening as COPCs in soil gas, the COPCs are further evaluated by comparing RBCs for complete exposure pathways for applicable receptors to determine if they are COCs at the site (Table 7). Based on this further evaluation, the following was identified:

- The maximum concentrations of PCE and TCE exceeds their RBCs for the *Vapor Intrusion into Buildings* exposure pathway for the future urban resident.
- The maximum concentration of TCE exceeds its RBC for the *Vapor Intrusion into Buildings* exposure pathway for a current/future occupational worker.

### 9.5.4 Indoor Air

Since chloroform and TCE were identified by the initial screening as COPCs in indoor air, the COPCs are further evaluated by comparing RBCs for complete exposure pathways for applicable receptors to determine if they are COCs at the site (Table 8). Based on this further evaluation, the following was identified:

- The maximum concentration of chloroform exceeds the RBC for *Inhalation* exposure pathway for a future urban residential and current/future occupational worker. However, sources of chloroform were observed inside the building at the time of sampling.

### 9.5.5 Scoping Level Ecological Risk Assessment

ODEQ regulations (OAR 340-122-244(3)) generally do not require screening for potential ecological impact if the Site is devoid of ecologically important species and habitat and if the following conditions can be demonstrated:

1. Contaminated soils are only present at depths greater than 3 feet bgs, or, if present at a shallower depth, such soils cover an area no greater than 0.125 acre;
2. Surface water has not been affected by the release;
3. Contaminated ground water does not, and is not, reasonably likely to, discharge to surface waters or otherwise reach the surface in a manner that might result in contact with ecological receptors; and
4. Contaminated groundwater does not, and is not reasonably likely to, come into contact with aquatic sediments (OAR 340-122-0244(3)).

Use of the site for foraging is limited for all species given the commercial land use, impermeable ground cover on site, and no available habitat on or adjacent to the site. No sensitive environments exist on or

immediately adjacent to the site. The lack of receptors strongly suggests ecological risks are unlikely due to site related COPCs in ground water. Therefore, since conditions 1 through 4 listed above appear to be true for the site, ENW concludes that ecological screening is not warranted.

#### 9.5.6 Hot Spot

**Determination of Hot Spot Based on Concentration.** The Oregon cleanup rules require the remedial investigation to evaluate hot spots of contamination for media of concern [Oregon Administrative Rule (OAR) 340-122-080(7)]. The calculation of “highly concentrated” hot spot levels for human exposures is based on a 100-fold multiplier of the acceptable risk levels for carcinogens and a 10-fold multiplier of the acceptable risk level for non-carcinogens, or where COPCs are reasonably likely to migrate such that a hot spot would be created in another medium, or COPCs are not reliably able to be contained.

##### Reconnaissance Ground Water

- The maximum concentration of bromodichloromethane detected in reconnaissance ground water was 0.67 µg/L. The lowest applicable RBC for bromodichloromethane is 180 µg/L. Since bromodichloromethane is currently classified as a noncarcinogen, the calculated hotspot concentration for bromodichloromethane is 1,800 µg/L. Based on this, bromodichloromethane concentrations in reconnaissance ground water do not present a possible hot spot on the subject site.
- The maximum concentration of chloroform detected in reconnaissance ground water was 6.7 µg/L. The lowest applicable RBC for chloroform is 120 µg/L. Since chloroform is currently classified as a carcinogen, the calculated hotspot concentration for naphthalene is 12,000 µg/L. Based on this, chloroform concentrations in reconnaissance ground water do not present a possible hot spot on the subject site.
- The maximum concentration of TCE detected in reconnaissance ground water was 0.89 µg/L. The lowest applicable RBC for TCE is 200 µg/L. Since TCE is currently classified as a carcinogen, the calculated hotspot concentration for TCE is 20,000 µg/L. Based on this, TCE concentrations in reconnaissance ground water do not present a possible hot spot on the subject site.

**Determination of Hot Spot Based on Mobility.** Mobility refers to the transport or migration of hazardous substances from their present location. Typical routes of migration include:

- Advection
- Volatilization
- Chemical degradation

The assessment of “highly mobile” hot spots is required only in instances when it is reasonably likely that significant migration routes exist at a site.

- The beneficial water use determination confirms there is no domestic uses of water within a reasonable search distance from the site.

#### 9.5.7 Uncertainty Analysis

An uncertainty analysis is a discussion of uncertainties in the risk estimates and their impacts in terms of underestimating or overestimating calculated potential risks. There are inherent uncertainties in the risk characterization process. These uncertainties are associated with:

- The validity of adding risks or hazard quotients for multiple chemicals.
- The validity of adding risks or hazard quotients across pathways.
- Lack of reliable toxicological data.
- The validity of the critical underlying assumption in the dose-response model for carcinogens (linearized multistage model) that there is no threshold for carcinogenesis.
- The probability of adverse effects in a human population that is highly variable genetically and in age, activity level and lifestyle.

**Uncertainty Based on Data Gaps.** A sampling program was developed to target areas of likely impact, based on historical site uses. Therefore, soil samples were not collected from all areas of the subject site. However, since this justified sampling program targeted areas where impacts were likely present, the statistical distribution of detected constituents would be biased high, if detected. It is not practical to sample all areas of the site, given the inaccessibility of many of these areas due to the presence of site structures. Laboratory results from reconnaissance ground water sample from boring B04 represents one data point for ground water collected near the former septic tank. Additional ground water data is necessary to determine whether a possible offsite source of impacts is present or if impacts are migrating off-site. Therefore, the uncertainty in contaminant distribution may change the findings of this assessment.

## 10.0 Recommendations

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The information presented in this report demonstrates that residual impacts to soil and ground water from a release from the former dry cleaner are present on site. Laboratory analysis of soil gas and sub-slab vapor samples collected at the site suggest the source of residual subsurface contaminants were centered near the former septic feature, which may have received dry cleaning wash fluids containing volatile hazardous substances. A risk-based assessment showed that residual concentrations of PCE and TCE in soil gas exceed ODEQ RBCs above the residential and occupational RBCs for the Vapor Intrusion into Buildings exposure pathway. In October 2022, all remaining liquids and solids in the septic tank were removed and the septic feature was permanently decommissioned.

The following actions are recommended as protective and proactive measures:

- Completion of two additional rounds of sub-slab vapor samples and indoor air samples during opposite times of the year when ambient temperatures are at the highest and lowest (i.e., late summer and winter, respectively) to assess subsurface conditions following the cleaning and decommissioning of the septic tank and document seasonal changes in contaminant concentrations in soil gas and indoor air.
- Resample soil gas at the former septic tank location and advance additional soil gas samples to confirm the extent of soil gas impacts at the property (and thus the LOF). This work should be conducted at least 6 months following the decommissioning of the septic system to account for the impact of that work on soil gas at the property.
- If the property is to be redeveloped residentially, a properly designed vapor barrier will need to be included as a design element for all planned residential structures.

- Preparation of a Contaminated Media Management Plan, which would include a Health and Safety Plan, to ensure appropriate future management and handling of residual impacted media.

The property owner is required to keep a copy of this report for a minimum of 10 years; however, we recommend this report is kept as part of the permanent property records.

## 11.0 Limitations

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The scope of this report is limited to observations made during on-site work; interviews with knowledgeable sources; and review of readily available published and unpublished reports and literature. As a result, these conclusions are based on information supplied by others as well as interpretations by qualified parties.

The focus of the work does not extend to the presence of the following conditions:

1. Naturally occurring toxic or hazardous substances in the subsurface soils, geology and water,
2. Toxicity of substances common in current habitable environments, such as stored chemicals, products, building materials and consumables,
3. Contaminants or contaminant concentrations that are not a concern now but may be under future regulatory standards,
4. Unpredictable events that may occur after ENW's site work, such as illegal dumping or accidental spillage.

There is no practice that is thorough enough to absolutely identify the presence of all hazardous substances that may be present at a given site. ENW's investigation has been focused only on the potential for contamination that was specifically identified in the Scope of Work. Therefore, if contamination other than that specifically mentioned is present and not identified as part of a limited Scope of Work, ENW's environmental investigation shall not be construed as a guaranteed absence of such materials. ENW has endeavored to collect representative analytical samples for the locations and depths indicated in this report. However, no sampling program can thoroughly identify all variations in contaminant distribution.

We have performed our services for this project in accordance with our agreement and understanding with the Client. This document and the information contained herein have been prepared solely for the use of the client.

ENW performed this study under a limited scope of services per our agreement. ENW assumes no responsibility for conditions that we did not specifically evaluate or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.



Table 1 - Summary of Analytical Data, Soil

Location ID	B04			B05			Maximum Soil Concentration (remaining soil)	Soil Matrix Cleanup Level	ODEQs Screening-Level Risk-Based Concentrations SLRBCs <sup>1</sup> (Soil)	Clean Fill Screening Levels or Background Concentrations (as applicable)	Exceeds ODEQs Screening-Level SLRBCs (Soil) and/or Soil Matrix Cleanup Level
Sample ID	B04-10	B04-SWI-42	B05-5								
Date Sampled	9/6/2022	9/6/2022	9/6/2022								
Depth Sampled (feet)	10	42	5								
Sampled By	ENW	ENW	ENW								
Location	South side of septic tank / cesspool	South side of septic tank / cesspool	Below potential former septic outlet								
Constituent of Interest	Note	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)			TRUE OR Y FALSE OR N			
<b>Volatile Organic Constituents</b>											
Benzene	c, v	<0.03 (ND)	<0.03 (ND)	<0.03 (ND)	<0.03 (ND)	NE	0.023	0.023	(Y)		
Bromodichloromethane	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.002	0.002	(Y)		
Bromoform	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.046	0.046	(Y)		
Bromomethane	nc, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	NE	0.083	0.083	(Y)		
Carbon tetrachloride	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.013	0.013	(Y)		
Chlorobenzene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	5.8	2.4	N		
Chloroethane (ethyl chloride)	nc, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	NE	310	310	N		
Chloroform	c, v	<0.05 (ND)	<b>0.099</b>	<0.05 (ND)	<b>0.099</b>	NE	0.0034	0.0034	<b>Y</b>		
Chloromethane	nc, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	NE	2.2	2.2	N		
1,2-Dichlorobenzene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	36	0.92	N		
1,4-Dichlorobenzene	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.057	0.057	N		
1,1-Dichloroethane	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.044	0.044	(Y)		
1,1-Dichloroethene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	6.7	6.7	N		
cis-1,2-Dichloroethene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.63	0.63	N		
trans-1,2-Dichloroethene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	7.0	7	N		
Dichloromethane	c, v	<0.5 (ND) j	<0.5 (ND) j	<0.5 (ND) j	<0.5 (ND)	NE	0.14	0.14	(Y)		
EDB (1,2-dibromoethane)	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.00012	0.00012	(Y)		
EDC (1,2-dichloroethane)	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.0028	0.0028	(Y)		
Ethylbenzene	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.22	0.22	N		
MTBE (methyl t-butyl ether)	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.11	0.11	N		
Naphthalene	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.077	0.077	N		
iso-Propylbenzene (cumene)	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	96	96	N		
Tetrachloroethene (PCE)	c, v	<0.025 (ND)	<0.025 (ND)	<0.025 (ND)	<0.025 (ND)	NE	0.46	0.18	N		
Toluene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	83	23	N		
1,1,1-Trichloroethane	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	190	190	N		
1,1,2-Trichloroethane	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.0063	0.0063	(Y)		
Trichloroethene	NA, v	<0.02 (ND)	<0.02 (ND)	<0.02 (ND)	<0.02 (ND)	NE	0.013	0.013	(Y)		
Trichlorofluoromethane (Freon 11)	nc, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	NE	61	52	N		
1,2,4-Trimethylbenzene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	10	10	N		
1,3,5-Trimethylbenzene	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	11	11	N		
Vinyl chloride	c, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	0.00057	0.00057	(Y)		
Xylenes	nc, v	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	NE	23	1.4	N		
<b>Total Petroleum Hydrocarbons</b>											
Generic Gasoline (GRO)	nc, v	<20 (NP)	<20 (NP)	<20 (NP)	<20 (NP)	80	31	520	N		
Generic Diesel / Heating Oil (DRO)	nc, v	<50 (NP)	<50 (NP)	<50 (NP)	<50 (NP)	500	1100	90	N		
Generic Mineral Insulating Oil (RRO)	nc, nv	130 j	<250 (NP)	<250 (NP)	<130 j		2800	140,000	N		

Notes:

mg/Kg = milligram per kilogram or parts per million (ppm).  
 NP = not present at or above the laboratory method reporting limit shown (HCID analysis).  
 — = not analyzed or not applicable.  
 nc = noncarcinogenic  
 v = volatile  
 nv = nonvolatile  
 GRO = gasoline-range organics.  
 DRO = diesel-range organics.  
 RRO = residual-range organics.

<sup>1</sup> Lowest Risk-Based Concentration for soil (screening level assumes residential use, from ODEQ RBCs dated May 2018).

Table 2 - Summary of Analytical Data, Sub-Slab Vapor and Soil Gas

Sample ID	SUB01-220601	SUB02-220601	SUB03-220601	SG01-220601-5	SG02-220601-5	Maximum Soil-Gas Concentration	ODEQs Screening-level RBCs (Soil Gas) <sup>1</sup>	Constituent of Concern (COC)	
Date Sampled	6/1/22	6/1/22	6/1/22	6/1/22	6/1/22				
Depth Sampled (feet)	sub-slab	sub-slab	sub-slab	5	5				
Sampled By	ENW	ENW	ENW	ENW	ENW				
Location	N tenant space (kitchen)	N portion of S tenant space (break room)	S portion of S tenant space (production area)	E side of suspected septic tank	N side of suspected septic tank			TRUE OR Y FALSE OR N	
Constituent of Interest	Note	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>		
<b>Volatile Organic Constituents</b>									
Acetone	c,v	<5.95 (ND)	<5.95 (ND)	138.47	32.35	33.30	138.47	NE	N
Benzene	c, v	<2.13 (ND)	1.33 J	<2.13 (ND)	1.46 J	2.41	<2.41 (ND)	72	N
Bromodichloromethane	c, v	3.20	<2.26 (ND)	<2.26 (ND)	<2.26 (ND)	<2.26 (ND)	<2.26 (ND)	15	N
Bromoform	c, v	<2.31 (ND)	<2.31 (ND)	<2.31 (ND)	<2.31 (ND)	<2.31 (ND)	<2.31 (ND)	510	N
Bromomethane	nc, v	<3.26 (ND)	<3.26 (ND)	<3.26 (ND)	<3.26 (ND)	<3.26 (ND)	<3.26 (ND)	1000	N
Carbon tetrachloride	c, v	<4.98 (ND)	<4.98 (ND)	<4.98 (ND)	<4.98 (ND)	<4.98 (ND)	<4.98 (ND)	94	N
Chlorobenzene	nc, v	<3.50 (ND)	<3.5 (ND)	<3.5 (ND)	<3.5 (ND)	<3.5 (ND)	<3.5 (ND)	10000	N
Chlorodibromomethane (dibromochloromethane)	c, v	<2.84 (ND)	<2.84 (ND)	<2.84 (ND)	<2.84 (ND)	<2.84 (ND)	<2.84 (ND)	21	N
Chloroethane (ethyl chloride)	nc, v	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	2100000	N
Chloroform	c, v	<b>49.96</b>	<3.88 (ND)	<3.88 (ND)	<b>38.39</b>	<b>41.83</b>	<b>49.96</b>	24	Y
Chloromethane	nc, v	3.38	<1.74 (ND)	<1.74 (ND)	<1.74 (ND)	<1.74 (ND)	<3.38 (ND)	19000	N
1,2-Dichlorobenzene	nc, v	<5.02 (ND)	<5.02 (ND)	<5.02 (ND)	<5.02 (ND)	<5.02 (ND)	<5.02 (ND)	42,000	N
1,4-Dichlorobenzene	c, v	<3.47 (ND)	<3.47 (ND)	<3.47 (ND)	<3.47 (ND)	<3.47 (ND)	<3.47 (ND)	51	N
1,1-Dichloroethane	c, v	<3.37 (ND)	<3.37 (ND)	<3.37 (ND)	6.27	16.09	<16.09 (ND)	350	N
1,1-Dichloroethene	nc, v	<3.28 (ND)	<3.28 (ND)	<3.28 (ND)	<3.28 (ND)	9.15	<9.15 (ND)	42000	N
cis-1,2-Dichloroethene	nc, v	30.94	<3.56 (ND)	<3.56 (ND)	2704.4	6105.0	<6105 (ND)	>Pv	N
trans-1,2-Dichloroethene	nc, v	5.88	<2.39 (ND)	<2.39 (ND)	105.59	223.78	<223.78 (ND)	>Pv	N
Dichloromethane	c, v	<2.79 (ND)	<2.79 (ND)	<2.79 (ND)	<2.79 (ND)	<2.79 (ND)	<2.79 (ND)	20000	N
EDB (1,2-dibromoethane)	c, v	<3.11 (ND)	<3.11 (ND)	<3.11 (ND)	<3.11 (ND)	<3.11 (ND)	<3.11 (ND)	0.94	(Y)
EDC (1,2-dichloroethane)	c, v	<3.08 (ND)	<3.08 (ND)	<3.08 (ND)	<3.08 (ND)	<3.08 (ND)	<3.08 (ND)	22	N
Ethylbenzene	c, v	2.20 J	<3.83 (ND)	8.99	<3.83 (ND)	<3.83 (ND)	<8.99 (ND)	220	N
MTBE (methyl t-butyl ether)	c, v	<2.22 (ND)	<2.22 (ND)	<2.22 (ND)	<2.22 (ND)	<2.22 (ND)	<2.22 (ND)	2200	N
Naphthalene	c, v	<1.40 (ND)	<1.4 (ND)	<1.4 (ND)	<1.4 (ND)	<1.4 (ND)	<1.4 (ND)	17	N
Tetrachloroethene (PCE)	c, v	894.55	396.69	148.08	<b>11278.8</b>	<b>18300.6</b>	<b>18300.6</b>	2200	Y
Toluene	nc, v	21.12	6.28	74.52	9.70	5.86	<74.52 (ND)	1000000	N
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	nc, v	<6.12 (ND)	<6.12 (ND)	<6.12 (ND)	<6.12 (ND)	<6.12 (ND)	<6.12 (ND)	6300000	N
1,1,1-Trichloroethane	nc, v	<4.04 (ND)	<4.04 (ND)	<4.04 (ND)	<4.04 (ND)	<4.04 (ND)	<4.04 (ND)	1000000	N
1,1,2-Trichloroethane	c, v	<4.68 (ND)	<4.68 (ND)	<4.68 (ND)	<4.68 (ND)	<4.68 (ND)	<4.68 (ND)	35	N
Trichloroethene	NA, v	<b>325.67</b>	<4.18 (ND)	<4.18 (ND)	<b>6791.4</b>	<b>13698.2</b>	<b>13698.2</b>	95	Y
Trichlorofluoromethane (Freon 11)	nc, v	<4.73 (ND)	<4.73 (ND)	<4.73 (ND)	<4.73 (ND)	<4.73 (ND)	<4.73 (ND)	150000	N
1,2,4-Trimethylbenzene	nc, v	<4.17 (ND)	<4.17 (ND)	1.75 J	<4.17 (ND)	<4.17 (ND)	<4.17 (ND)	13000	N
1,3,5-Trimethylbenzene	nc, v	<4.24 (ND)	<4.24 (ND)	<4.24 (ND)	<4.24 (ND)	<4.24 (ND)	<4.24 (ND)	13000	N
Vinyl chloride	c, v	<2.15 (ND)	<2.15 (ND)	<2.15 (ND)	<2.15 (ND)	<2.15 (ND)	<2.15 (ND)	33	N
Xylenes	nc, v	10.39 J	2.73 J	45.22	2.71 J	2.83 J	<45.22 (ND)	21000	N
<b>Total Petroleum Hydrocarbons</b>									
Generic Gasoline (GRO)	nc, v	1161.68	569.73	1396.17	704.61	942.24	1396.17	79000	N
<b>Leak Detection</b>						<b>Maximum Soil-Gas Concentration</b>	<b>Leak Screening Level</b>	<b>Leak Suggested?</b>	
2-Propanol		<6.15 (ND)	<6.15 (ND)	27.66	15.14	11.82	27.66	5000	N

Notes:

ND = not detected at or above laboratory method reporting limits.

— = not analyzed or not applicable.

< = not detected above method reporting limit shown.

NE = not established.

µg/m<sup>3</sup> = micrograms per cubic meter of air .

c = carcinogenic

nc = noncarcinogenic

v = volatile

nv = nonvolatile

GRO = gasoline-range organics.

**Bolded** concentrations exceed screening level risk-based concentrations and reference concentrations, as applicable.

<sup>1</sup> Lowest Risk-Based Concentration for soil gas/sub-slab vapor (screening level).

(Y) indicates analyte not detected, but detection limit is above screening concentration.

J = indicates the internal standard associated with the analyte is out of control limits; the reported concentration is an estimate.

Table 3 - Summary of Analytical Data, Reconnaissance Ground Water

Location ID		B04		Maximum Ground Water Concentration	ODEQs Screening-level Risk-Based Concentrations (SLRBCs) <sup>1</sup>	COPC?
Sample ID	B04-GW-45					
Date Sampled	9/6/22					
Depth Sampled (feet)	2/14/1900					
Sampled By		ENW				
Location		South side of septic tank / cesspool				
Constituent of Interest	Note	µg/L (ppb)	µg/L (ppb)			TRUE OR Y FALSE OR N
<b>Volatile Organic Constituents</b>						
Benzene	c, v	<0.35 (ND)	<0.35 (ND)	0.46		N
Bromodichloromethane	c, v	<b>0.67</b>	<b>0.67</b>	0.13		Y
Bromoform	c, v	<5 (ND)	<5 (ND)	3.3		(Y)
Bromomethane	nc, v	<5 (ND)	<5 (ND)	7.5		N
Carbon tetrachloride	c, v	<0.5 (ND)	<0.5 (ND)	0.46		(Y)
Chlorobenzene	nc, v	<1 (ND)	<1 (ND)	77		N
Chlorodibromomethane (dibromochloromethane)	c, v	<0.5 (ND)	<0.5 (ND)	0.17		(Y)
Chloroethane (ethyl chloride)	nc, v	<1 (ND)	<1 (ND)	21000		N
Chloroform	c, v	<b>6.7</b>	<b>6.7</b>	0.22		Y
Chloromethane	nc, v	<10 (ND)	<10 (ND)	190		N
1,2-Dichlorobenzene	nc, v	<1 (ND)	<1 (ND)	300		N
1,4-Dichlorobenzene	c, v	<1 (ND)	<1 (ND)	0.48		(Y)
1,1-Dichloroethane	c, v	<1 (ND)	<1 (ND)	2.8		N
1,1-Dichloroethene	nc, v	<1 (ND)	<1 (ND)	280		N
cis-1,2-Dichloroethene	nc, v	<1 (ND)	<1 (ND)	36		N
trans-1,2-Dichloroethene	nc, v	<1 (ND)	<1 (ND)	360		N
Dichloromethane	c, v	<5 (ND) ca	<5 (ND)	11		N
EDB (1,2-dibromoethane)	c, v	<1 (ND)	<1 (ND)	0.0075		(Y)
EDC (1,2-dichloroethane)	c, v	<0.2 (ND)	<0.2 (ND)	0.17		(Y)
Ethylbenzene	c, v	<1 (ND)	<1 (ND)	1.5		N
MTBE (methyl t-butyl ether)	c, v	<1 (ND)	<1 (ND)	14		N
Naphthalene	c, v	<1 (ND)	<1 (ND)	0.17		(Y)
iso-Propylbenzene (cumene)	nc, v	<1 (ND)	<1 (ND)	440		N
Tetrachloroethene (PCE)	c, v	2.8	2.8	12		N
Toluene	nc, v	<1 (ND)	<1 (ND)	1100		N
1,1,1-Trichloroethane	nc, v	<1 (ND)	<1 (ND)	8000		N
1,1,2-Trichloroethane	c, v	<0.5 (ND)	<0.5 (ND)	0.28		(Y)
Trichloroethene	NA, v	<b>0.89</b>	<b>0.89</b>	0.49		Y
Trichlorofluoromethane (Freon 11)	nc, v	<1 (ND)	<1 (ND)	1100		N
1,2,4-Trimethylbenzene	nc, v	<1 (ND)	<1 (ND)	54		N
1,3,5-Trimethylbenzene	nc, v	<1 (ND)	<1 (ND)	59		N
Vinyl chloride	c, v	<0.02 (ND)	<0.02 (ND)	0.027		N
Xylenes	nc, v	<1 (ND)	<1 (ND)	190		N
<b>Total Petroleum Hydrocarbons</b>						
Generic Gasoline (GRO)	nc, v	<100 (ND)	<100 (ND)	110		N
Generic Diesel / Heating Oil (DRO)	nc, v	<50 (ND)	<50 (ND)	100		N
Generic Mineral Insulating Oil (RRO)	nc, nv	<250 (ND)	<250 (ND)	300		N

Notes:

ug/L = micrograms per Liter or parts per billion (ppb).  
 <# (ND) = not detected at or above the laboratory method reporting limit shown.  
 NE = not established.

<sup>1</sup> Lowest Risk-Based Concentration for ground water (screening level assumes residential use, from ODEQ RBCs dated May 2018).

— = not analyzed or not applicable.  
 c = carcinogenic  
 nc = noncarcinogenic  
 v = volatile  
 nv = nonvolatile  
 GRO = gasoline-range organics.  
 DRO = diesel-range organics.  
 RRO = residual-range organics.

**Bolded** concentrations exceed screening level risk-based concentrations and background concentrations, as applicable.

<sup>1</sup> Lowest Risk-Based Concentration for ground water (screening level).

(Y) indicates analyte not detected, but detection limit is above screening concentration.

ca = The calibration results for this range fell outside of acceptance criteria; the value reported is an estimate.

Table 4 - Summary of Analytical Data, Indoor and Outdoor Air

Sample ID		IA01-221019	IA02-221019	IA03-221019	OA01-221019	Maximum Indoor Air Concentration	Maximum Outdoor Air Concentration (Reference)	Net Indoor Air Contribution (subtracting reference concentration)	ODEQs Screening-level RBCs (Air) <sup>1</sup>	Constituent of Concern (COC)  TRUE OR Y FALSE OR N
Date Sampled		10/19/22	10/19/22	10/19/22	10/19/22					
Height Above Floor (feet)		6	6	6	14					
Sampled By		ENW	ENW	ENW	ENW					
Location		Northern tennant space	Northern tennant space	Southern tenant space	Outdoor reference sample (roof)					
Constituent of Interest	Note	µg/m3	µg/m3	µg/m3	µg/m3	µg/m <sup>3</sup>				
<b>Volatile Organic Constituents</b>										
Chloroform	c, v	<b>1.636</b>	<b>1.39</b>	<b>0.41</b>	<b>0.384</b>	1.636	0.384	1.252	0.12	Y
1,1-Dichloroethene	nc, v	0.054	0.038	0.027 J	0.03 J	0.054	0.03	0.024	210	N
cis-1,2-Dichloroethene	nc, v	0.086	0.093	<0.04 (ND)	0.029 J	0.093	0.029	0.064	1.04286E+15	N
trans-1,2-Dichloroethene	nc, v	<0.02 (ND)	0.019 J	0.026	<0.02 (ND)	0.026	0.02	0.006	1.04286E+15	N
Tetrachloroethene (PCE)	c, v	9.22	7.21	6.17	9.52	9.22	9.52	-0.3	11	N
Trichloroethene	NA, v	<b>0.777</b>	<b>0.859</b>	0.031 J	0.02 J	0.859	0.02	0.839	0.47	Y
Vinyl chloride	c, v	<0.026 (ND)	<0.026 (ND)	<0.026 (ND)	<0.026 (ND)	<0.026 (ND)	<0.026 (ND)	<0 (ND)	0.17	N

Notes:

ND = not detected at or above laboratory method reporting limits.

— = not analyzed or not applicable.

< = not detected above method reporting limit shown.

NE = not established.

ug/m<sup>3</sup> = micrograms per cubic meter of air .

c = carcinogenic

nc = noncarcinogenic

v = volatile

nv = nonvolatile

**Bolded** concentrations exceed screening level risk-based concentrations and reference concentrations, as applicable.

<sup>1</sup> Lowest Risk-Based Concentration for soil gas/sub-slab vapor (screening level).

(Y) indicates analyte not detected, but detection limit is above screening concentration.

J = indicates the internal standard associated with the analyte is out of control limits; the reported concentration is an estimate.

Table 5. Further Evaluation of COPCs in Soil

Contaminated Medium		SOIL mg/Kg (ppm)															Maximum Detected Concentration	Lowest Applicable RBC (Soil)	Constituent of Concern (COC)?
Exposure Pathway		Soil Ingestion, Dermal Contact, and Inhalation					Volatilization to Outdoor Air					Vapor Intrusion into Buildings							
Receptor Scenario		RBC <sub>SS</sub>					RBC <sub>SO</sub>					RBC <sub>SI</sub>							
Direct or Indirect Pathway (see notes)		Urban Residential	Occupational	Construction Worker	Excavation Worker	Residential	Urban Residential	Occupational	Urban Residential	Occupational	Urban Residential	Occupational	Urban Residential	Occupational	Urban Residential	Occupational			
Contaminant of Concern		DC	DC	DC	DC	IVS	IVS	IVS	IVS	IVS	IVS	IVS	IVS	IVS	IVS	IVS			
Note		Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note	Note			
		mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)			
<b>Volatile Organic Constituents</b>																			
Chloroform	c, v	22	26	410	11000	>C <sub>sat</sub>	3.9	9.2	17	0.074	0.41	0.099	0.074	Y					

Notes:  
 — = not analyzed or not applicable.  
 < = not detected above method reporting limit shown.  
 NE = not established.  
 mg/kg = milligrams per kilogram or parts per million (ppm)  
 c = carcinogenic  
 nc = noncarcinogenic  
 v = volatile  
 nv = nonvolatile  
 <C<sub>sat</sub> = This soil RBC exceeds the limit of three-phase equilibrium partitioning.

Table 6. Further Evaluation of COPCs, Reconnaissance Ground Water

Contaminated Medium		GROUND WATER µg/L (ppb)									Maximum Detected Concentration	Lowest Applicable RBC (Ground Water) <sup>1</sup>	Constituent of Concern (COC)?	
Exposure Pathway		Volatilization to Outdoor Air RBC <sub>wo</sub>			Vapor Intrusion into Buildings RBC <sub>wi</sub>			GW in Excavation RBC <sub>we</sub>						
Receptor Scenario		Urban Residential	Occupational		Urban Residential	Occupational		Construction & Excavation Worker						
Direct or Indirect Pathway (see notes)		IVW	IVW		IVW	IVW		DS						
Contaminant of Concern	Note		Note		Note		Note		Note		Note	µg/L (ppb)	µg/L (ppb)	Y/N
<b>Volatile Organic Constituents</b>														
Bromodichloromethane	c, v	3200		6000		420		2300		450		0.67	420	N
Chloroform	c, v	3400		6300		290		1600		720		6.7	290	N
Trichloroethene	NA, v	6900		20000		430		3700		430		0.89	430	N

Notes:  
 ND = not detected at or above laboratory method reporting limits  
 — = not analyzed or not applicable.  
 ug/L = micrograms per Liter or parts per billion (ppb).  
 nc = noncarcinogenic  
 nv = nonvolatile  
 <S = This groundwater RBC exceeds the solubility limit.

Table 7. Further Evaluation of COPCs in Soil Gas

Contaminated Medium		SOIL GAS µg/m <sup>3</sup>				Maximum Detected Concentration	Lowest Applicable RBC (Soil Gas)	COC?
Exposure Pathway		Vapor Intrusion into Buildings RBC <sub>sv</sub>						
Receptor Scenario		Urban Residential		Occupational				
Direct or Indirect Pathway (see notes)		ICA		ICA				
Contaminant of Concern	Note	1	Note	1	Note	µg/m <sup>3</sup>	µg/m <sup>3</sup>	Y/N
<b>Volatile Organic Constituents</b>								
Chloroform	c, v	58		530		49.96	58	N
Tetrachloroethene (PCE)	c, v	5100		47000		18300.6	5100	Y
Trichloroethene	NA, v	200		2900		13698.2	200	Y

Notes:

ug/M<sup>3</sup> = micrograms per cubic meter or parts per billion (ppb).

c = carcinogenic

nc = noncarcinogenic

v = volatile

Shading indicates risk drivers (pathways/receptors)

Table 8 - Further Evaluation of COPCs in Ambient Air

Contaminated Medium		AIR µg/m <sup>3</sup>				Maximum Detected Concentration	Lowest Applicable RBC (Soil)	COC?
Exposure Pathway		Inhalation RBC <sub>air</sub>						
Receptor Scenario		Urban Residential		Occupational				
Direct or Indirect Pathway (see notes)		DCA		DCA				
Contaminant of Concern	Note		Note		Note	µg/m <sup>3</sup>	µg/m <sup>3</sup>	Y/N
<b>Volatile Organic Constituents</b>								
Chloroform	c, v	<b>0.29</b>		<b>0.53</b>		1.636	0.29	<b>Y</b>
Trichloroethene	c*, v	1.0		2.9		0.859	1.0	N

Notes:

ug/m3 = micrograms per cubic meter

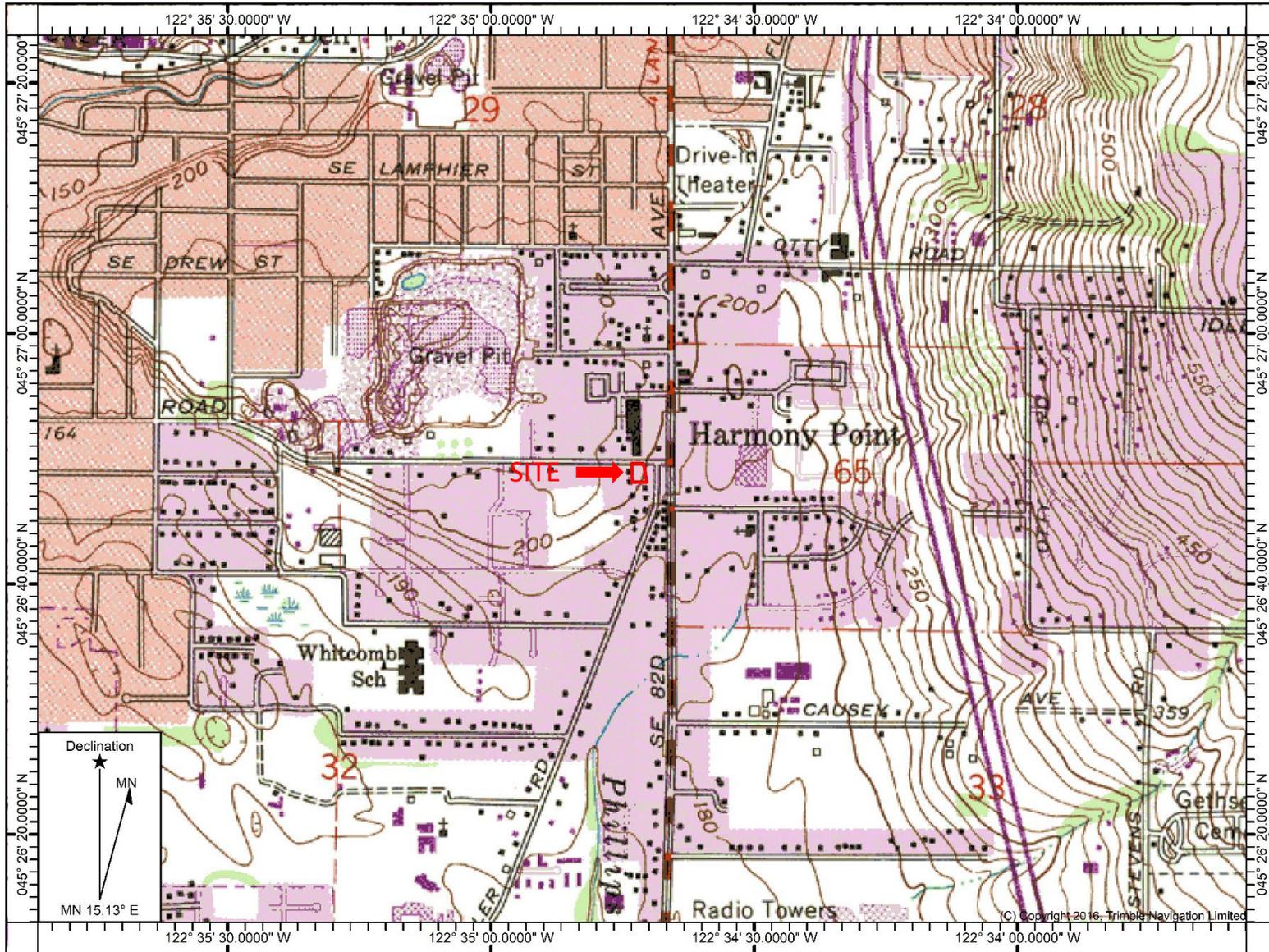
c = carcinogenic

v = volatile

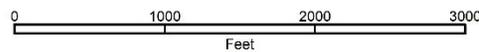
**Bolded** concentrations exceed either Soil Matrix Cleanup

Shading indicates risk drivers (pathways/receptors)





Name: GLADSTONE  
Date: 07/27/22



Location: 045° 26' 48.3864" N, 122° 34' 42.8041" W  
Contour Interval: 10 ft



Date Drawn: 7/27/2022  
CAD File Name:  
1638-22001-05\_fig1sv\_map  
Drawn By: PMT  
Approved By: EB

Commercial Property  
10543 SE Fuller Road  
Milwaukie, Oregon

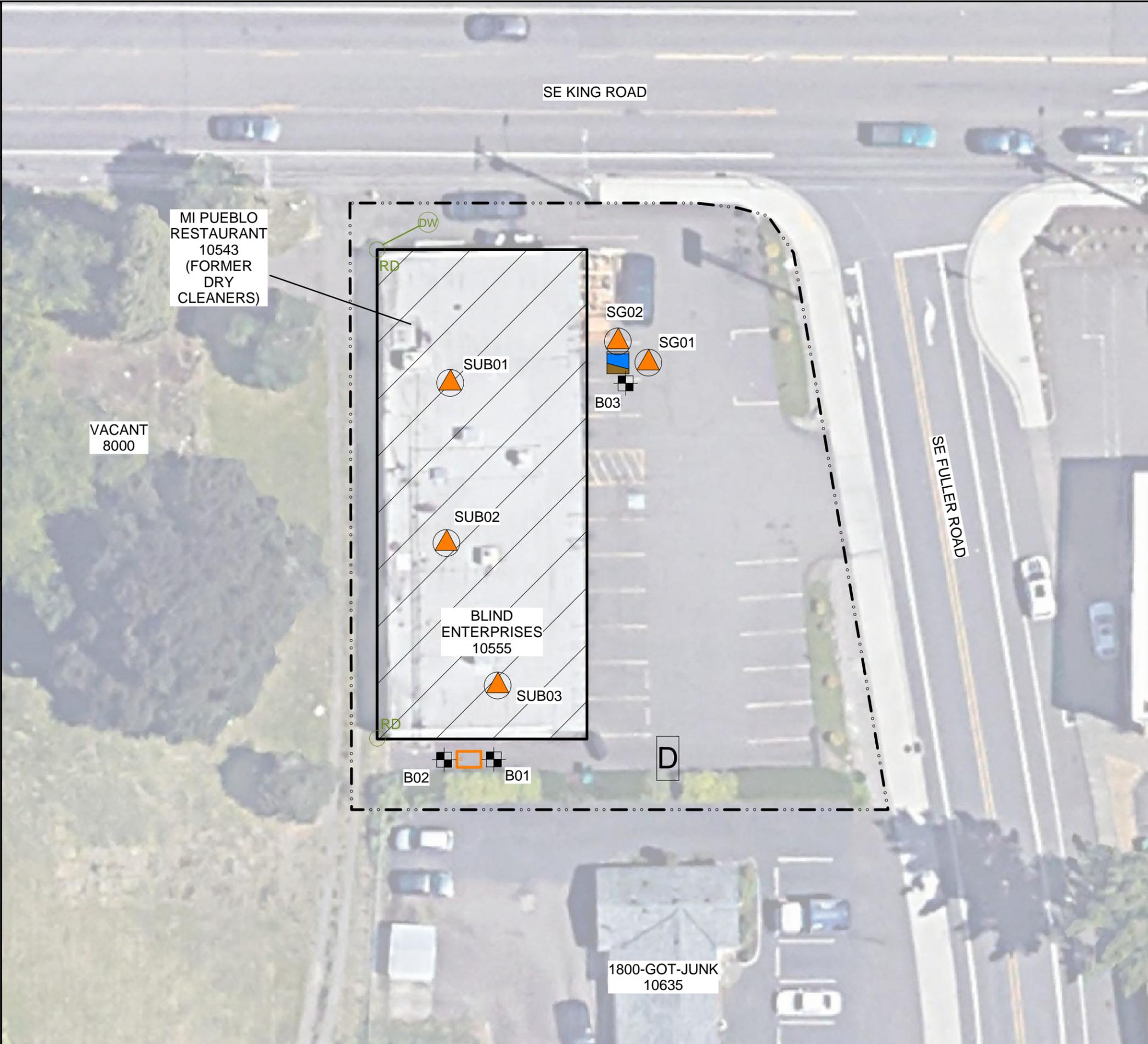
## Site Vicinity Map

Project No.  
1638-22001

Figure No.

1

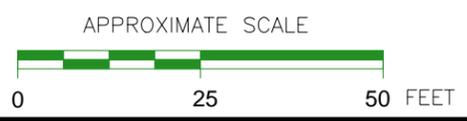
DRAWN BY: C. ROSEBROOK | 11/30/2022 | E. BRUGGEMAN | 11/30/2022 | P. TRONE | 11/30/2022 | DRAWING NUMBER: 1638-22001(v01)



LEGEND:

	SUBJECT BUILDINGS
	SUBJECT PROPERTY BOUNDARIES
	NATURAL GAS METER
	UNDERGROUND HEATING OIL TANK (DECOMMISSIONED)
	DECOMMISSIONED SEPTIC TANK
	SOLID WASTE RECEPTACLE
	ROOF DOWNSPOUT
	DRYWELL (FOR ROOF DRAINS)
	PREVIOUS ENW SUB SLAB VAPOR SAMPLE LOCATION
	PREVIOUS ENW SOIL GAS SAMPLE LOCATION
	PREVIOUS ENW ASSESSMENT BORING SAMPLE LOCATION

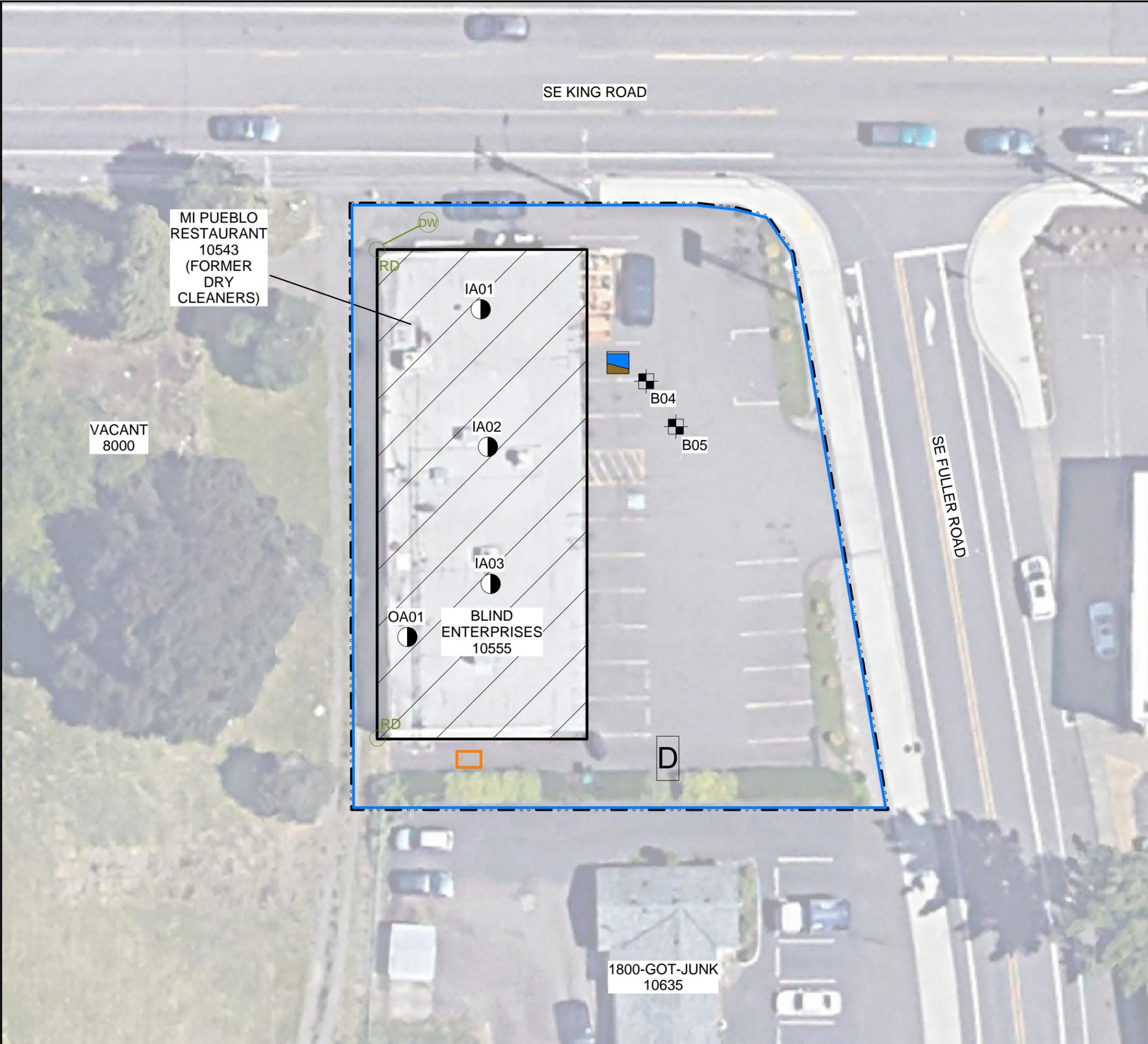
- NOTES:
1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2022 AND ENW FIELD NOTES.
  2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
  3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.



PO BOX 14488, PORTLAND, OREGON 97293  
P: (503)452-5561, E: ENW@EVREN-NW.COM

**FIGURE 2**  
**SITE PLAN AND**  
**PREVIOUS SAMPLE LOCATIONS**  
COMMERCIAL PROPERTY  
10543 SE FULLER ROAD  
MILWAUKIE, OREGON

DRAWN BY: C. ROSEBROOK | 11/23/2022 | E. BRUGGEMAN | 11/23/2022 | P. TRONE | 11/23/2022 | DRAWING NUMBER: 1638-22001(v01)

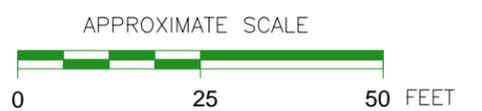


LEGEND:

-  SUBJECT BUILDINGS
-  SUBJECT PROPERTY BOUNDARIES
-  LOCALITY OF FACILITY
-  NATURAL GAS METER
-  UNDERGROUND HEATING OIL TANK (DECOMMISSIONED)
-  DECOMMISSIONED SEPTIC TANK
-  SOLID WASTE RECEPTACLE
-  ROOF DOWNSPOUT
-  DRYWELL (FOR ROOF DRAINS)
-  ENW ASSESSMENT BORING SAMPLE LOCATION
-  INDOOR AIR QUALITY SAMPLE LOCATION
-  OUTDOOR AIR QUALITY SAMPLE LOCATION

NOTES:

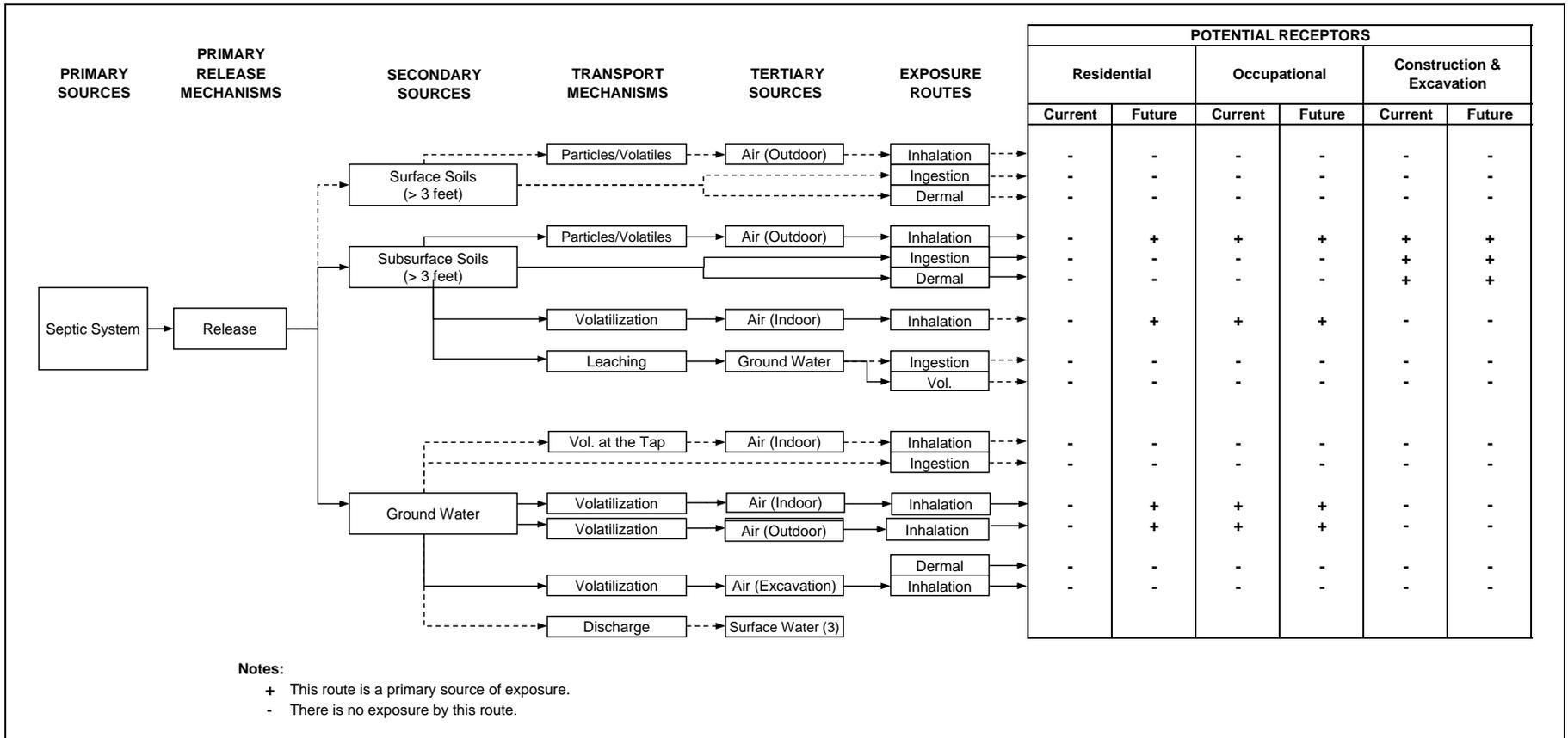
1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2022 AND ENW FIELD NOTES.
2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.



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FIGURE 3  
SAMPLE LOCATION DIAGRAM  
COMMERCIAL PROPERTY  
10543 SE FULLER ROAD  
MILWAUKIE, OREGON

Figure 4. Conceptual Site Model (Human Health)



*Appendix A*  
Site Photographs



View of Geoprobe rig during drilling of boring B04 next to septic tank.



View of collecting a reconnaissance ground water sample from B04.



An excavator was used to expose the septic tank and access the interior for characterization sampling.



Collecting a sample of the septic tank contents for waste characterization purposes.



Commercial Property  
10543 SE Fuller Road  
Milwaukie, Oregon

**Site  
Photographs**

Project No.  
1638-22001-04

Appendix  
**A**



View of the pump truck removing the contents of the septic tank.



Accessing roof for placement of outdoor air sample OA01.



After decommissioning the septic tank, the asphalt was patched to match the surrounding grade.



View of OA01 on roof of building.



Commercial Property  
10543 SE Fuller Road  
Milwaukie, Oregon

**Site  
Photographs**

Project No.  
1638-22001-04

Appendix  
**A**



View of types of chemicals stored inside the tenant spaces of the commercial building representing potential competing sources during air sampling.



Cleaning chemicals stored indoors included those containing chlorine.



Summa cannister deployed for sampling of indoor air within the kitchen of the northern tenant space.

*Appendix B*

Soil Boring Logs

# EVREN Northwest, Inc.

<b>DRILL LOG</b>	PROJECT	PROJECT NO.	BORING NO.
	Commercial Property		1638-22001-02 <b>B04</b>
SITE	BEGUN	COMPLETED	HOLE SIZE
10543 SE Fuller Road, Milwaukie, Oregon	09-06-22	09-06-22	2 1/4"
COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL
			FIRST WATER
			42.9'
DRILLER	CORE RECOVERY (%)		# CORE BOXES
Cascade			2
DRILL MAKE AND MODEL	LOGGED BY:		DEPTH BOTTOM OF HOLE
DPT 06-Z8853	Jordan Morris		45

DEPTH	STRATA ELEVATION/DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./Completion		
0	201		Soft brown SILT WITH SAND (ML), moist, low-plasticity, moderately cohesive, occasional rounded sand grains, micaceous.						
3	198					60			
6	195		Loose brown poorly-sorted MEDIUM SAND (SP), subrounded grains, moist, mica-poor, barely any fines.					0.0	
9	192					30			
12	189		Soft brown SILT WITH SAND (ML), moist, low-plasticity, moderately cohesive, micaceous.	B04-10	5035, 4 oz			0.0	Sample from 1' below bottom of tank
			Loose brown poorly-sorted MEDIUM SAND (SP), moist, mica-poor, barely any fines.						
			Loose brown FINE SAND (SM), moist, visible quartz grains.			70			
			Medium-stiff brown SILT WITH SAND (ML), moist, non-plastic, moderate cohesion, strongly micaceous.						
15	186		Loose brown-gray COARSE SAND (SP), subrounded grains, moist, quartz visible, barely micaceous.					0.0	
18	183		Loose brown well-sorted MEDIUM GRAVEL (GW), dry, non-micaceous, grains up to 2" .			60			
			Loose brown-gray poorly-sorted COARSE SAND (SP), subrounded grains, many large and medium grains but few silty fines, barely moist, quartz visible, non-micaceous.					0.0	
21	180								
			Medium-dense brown FINE SAND WITH SILT (SM), moist, no plasticity, no cohesion, micaceous.			70			

# EVREN Northwest

<b>DRILL LOG</b>		PROJECT	PROJECT NO.	BORING NO.					
		Commercial Property	1638-22001-02	<b>B04</b>					
DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./ Completion		
24	177		Loose brown-gray poorly-sorted COARSE SAND (SP), subrounded grains, many large and medium grains but few silty fines, moist, quartz visible, non-micaceous.					0.0	
27	174		Medium-dense brown FINE SAND WITH SILT (SM), moist, weakly micaceous.			70			
			Very loose brown-gray poorly sorted MEDIUM SAND (SP), moist, quartz visible, non-micaceous.						
			Medium-stiff gray SILT WITH FINE SAND (ML), wet, mottled brown and orange, micaceous.						
30	171		Loose brown-gray poorly-sorted MEDIUM SAND (SP), some fine grains but no silt, moist, quartz visible, non-micaceous.					0.0	
			Medium-dense brown FINE SAND WITH SILT (SM), some medium sand grains, moist, non-micaceous, occasional 1-2" gravel grains.						
33	168		Loose brown-gray poorly-sorted MEDIUM SAND (SP), some fine grains but no silt, moist, quartz visible, non-micaceous, occasional 1-2" gravel grains.			80			
			At 34' there is a 2" lense of gray medium-stiff SILT (ML), moist, mottled brown and orange, micaceous.						
36	165		Medium-dense brown-gray medium SAND WITH SILT (SM), moist, occasional 1/2" to 1" gravel grains.					0.0	
39	162		Loose brown-gray well-sorted MEDIUM SAND (SW), subangular to subrounded grains, moist, some quartz, mica present.			70			
			Medium-soft brown SILT WITH FINE SAND (ML), wet, non-plastic, low cohesion, micaceous.					0.0	
42	159		Loose brown FINE SAND WITH SILT (SM), saturated, quartz visible, non-micaceous.	B04-42-SWI		80		0.0	Soil-water interface
45	156		Medium-soft brown SILT WITH FINE SAND (ML), saturated, non-plastic, non-cohesive, micaceous.	B04-GW-45				0.0	DTW 42.9', screened from 40-45'
			End of boring.						
48	153								

# EVREN Northwest, Inc.

<b>DRILL LOG</b>	PROJECT	PROJECT NO.	BORING NO.
	Commercial Property		1638-22001-02
SITE	BEGUN	COMPLETED	HOLE SIZE
10543 SE Fuller Road, Milwaukie, Oregon	09-06-22	09-06-22	2"
COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL
			FIRST WATER
DRILLER	CORE RECOVERY (%)		# CORE BOXES
Evren Northwest			1
DRILL MAKE AND MODEL	LOGGED BY:		DEPTH BOTTOM OF HOLE
Hand Auger	Jordan Morris		5

DEPTH	STRATA ELEVATION/DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.	
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./Completion			
0	201		Soft brown SILT WITH FINE SAND (ML), moist, low-plasticity, moderately cohesive, occasional black and red sand grains, micaceous.			100		0.0		
3	198									0.0
										0.0
										0.0
										0.0
6	195		End of boring.	B05-5	5035, 4 oz			0.0		
9	192									
12	189									
15	186									
18	183									
21	180									

*Appendix C*

Field Sampling Data Sheets



## FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

PO Box 14488  
Portland, Oregon, 97293  
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: 186-19002-07

SAMPLE LOCATION ID: IA01

SITE ADDRESS: 10543 SE Faller Rd, Milwaukie

WIND FROM:	N	NE	E	SE	S	SW	W	Medium	Heavy	Temp., C	Humidity (%)
WEATHER:	SUNNY	CLOUDY	RAIN							16.21	76.72

**Air Setup**

Dew Point	Wet Bulb	Dry Bulb
9.83	11.41	

Container Type	Date	Volume (L)	Sample Height (ft.)	Sample ID	Summa ID	Flow Controler	Flow Meter ID
Summa	10/19/22	0.5L, 1L, 3L, 5L, 6L	6	IA01-221019	053	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	2659

**Indoor Air Sample**

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	07:19	07:24	29	29
Sample	08:52	<del>08:52</del>	29	<del>29</del>

16:52

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)

NOTES:

SAMPLER: Jordan Morris  
(PRINTED NAME)

  
(SIGNATURE)

## FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

PO Box 14488  
Portland, Oregon, 97293  
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: 186-19002-07

SAMPLE LOCATION ID: IAOZ

SITE ADDRESS: 10543 SE Fuller Rd, Milwaukie

WIND FROM:	N	NE	E	SE	S	SW	W	Medium	Heavy	Temp., C	Humidity (%)
WEATHER:	SUNNY	CLOUDY	RAIN							16.26	57.32

**Air Setup**

Dew Point	Wet Bulb	Dry Bulb
10.30	12.41	

Container Type	Date	Volume (L)	Sample Height (ft.)	Sample ID	Summa ID	Flow Controler	Flow Meter ID
Summa	10/19/22	0.5L, 1L, 3L, 5L, 6L	6	IAOZ-221019	762	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	2616

**Indoor Air Sample**

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	07:19	07:24	>30	>30
Sample	08:55	10:55	>30	12

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)

NOTES:

SAMPLER:

Jordan Morris  
(PRINTED NAME)

*Jordan Morris*  
(SIGNATURE)

**FIELD SAMPLING DATA SHEET**

EVREN NORTHWEST

1638-22001-04

PO Box 14488  
Portland, Oregon, 97293  
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: ~~186-19002-07~~

SAMPLE LOCATION ID: IA03

SITE ADDRESS: 10543 SE Fuller Rd, Milwaukie

16.39

WIND FROM:  N  NE  E  SE  S  SW  W Medium Heavy Temp., ~~74~~ Humidity (%) ~~70~~

WEATHER:  SUNNY  CLOUDY  RAIN  Smoky Dew Point 9.12 Wet Bulb 17.27 Dry Bulb ~~16.39~~ 27

**Air Setup**

Container Type	Date	Volume (L)	Sample Height (ft.)	Sample ID	Summa ID	Flow Controller	Flow Meter ID
Summa	10/19/22	0.5L, 1L, 3L, 5L, 6L	6	IA03	767	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	2623

**Indoor Air Sample**

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	07:17	07:22	29	29
Sample	08:03		29	

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)

NOTES:

SAMPLER: Jordan Morris  
(PRINTED NAME)

[Signature]  
(SIGNATURE)

**FIELD SAMPLING DATA SHEET**

EVREN NORTHWEST

PO Box 14488  
Portland, Oregon, 97293  
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: 186-19002-07

SAMPLE LOCATION ID: 0A01

SITE ADDRESS: 20543 SE Fuller Rd, Milwaukie

WIND FROM: N NE E SE S SW W Medium Heavy Temp., C Humidity (%)  
WEATHER: SUNNY CLOUDY RAIN ~~6.01~~ 18.57 63.73

**Air Setup**

Container Type	Date	Volume (L)	Sample Height (ft.)	Sample ID	Summa ID	Flow Controller	Flow Meter ID
Summa	10/19/22	0.5L, 1L, 3L, 5L, 6L	14	0A01-221019	692	YES	2543

**Indoor Air Sample**

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	07:23	07:20	29	29
Sample	08:23	16:03	28	10

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)

NOTES: Extreme smoky conditions from wildfires

SAMPLER: Jordan Morris  
(PRINTED NAME)

Jordan Morris  
(SIGNATURE)

*Appendix D*

Waste Disposal Receipts

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number  
0 0 0 0 0 0 0 0 0 0 0 0

2. Page 1 of  
1

3. Emergency Response Phone  
503-285-2485

4. Waste Tracking Number  
ORV-39576

5. Generator's Name and Mailing Address

ALPROP  
10543 SE FULLER AVENUE  
MILWAUKIE OR 97222

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name

TIDEWATER ENVIRONMENTAL SERVICES DBA WEST COAST MARINE

U.S. EPA ID Number

WAH000053774

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

HILLSBORO TIRE AND RIM INC  
3265 S.E. Minter Bridge Road  
HILLSBORO OR 97123

U.S. EPA ID Number

Facility's Phone:

503 493-7834

0 0 0 0 0 0 0 0 0 0 0 0

9. Waste Shipping Name and Description

1. NON REGULATED MATERIAL PER 40 & 49 CFR  
(WATER)

10. Containers

No.

Type

11. Total Quantity

12. Unit Wt./Vol.

TT

G

13. Special Handling Instructions and Additional Information

PROFILE # 13870ROR

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/Offoror's Printed/Typed Name

Signature

Month Day Year

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

Signature

Month Day Year

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

Quantity

Type

Residue

Partial Rejection

Full Rejection

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

Signature

Month Day Year

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

**CERTIFICATION**  
**OF**  
**EXISTING SYSTEM DECOMMISSIONING**

SEPTIC PERMIT NUMBER: ST 0 Unknown (abandoned)

T. 1 S.; R. 2 E.; Sec. 32; Tax Lot 12E32AA00600

The street address for the property is 10543 SE Fuller Rd, Milwaukie, OR 97222.

By my signature, I certify that the existing (select one or more of the following)

Septic tank      [ ] Seepage Pit      [ ] Cesspool

was decommissioned in accordance with established standards of the Department of Environmental Quality (DEQ). The DEQ standards require the selected items to be:

- A) pumped by a licensed sewage disposal pumping service to remove all septage;
- B) filled with reject sand, bar run gravel or other material acceptable to the County, **OR**  
the tank must be removed and properly disposed.

The septage was pumped by Tidwater Environmental Services, Inc.  
(Company Name of the septage pumping business)

Signature: *Evan Bruggeman*      Date: 10/13/2022

- Attach a copy of the pumping receipt.
- Remit completed form to:

Clackamas County  
Septic and Onsite Wastewater Program  
150 Beaver Creek Rd.  
Oregon City, Oregon 97045

Or, submit via FAX: **(503) 742-4247**

*Appendix E*

Laboratory Analytical Results

## Analytical Report

Project Name:

**1638-22001-04**

EAS SDG Number: **222513**

**Client Project Manager:** Lynn Green

**Prepared For:**

Evren Northwest Inc.

40 SE 24th Avenue, Suite A

Portland

OR 97214

**Project Number:** 17753

**Sample Event Date:** 10/19/22

**Received Date:** 10/21/2022

**Report Date:** 10/26/2022

**Project Number:** 1638-22001-04

**PO Number:**

This is the Laboratory Report for the samples in the indicated Sample Delivery Group (SDG). Each sample received in the group is assigned a Laboratory ID number. The combination of the SDG number and the Lab ID number is a unique identifier for the sample.

**This Report Contains:**

Laboratory Work Order

Project Sample Media

Laboratory Case Narrative and Chain of Custody

Method Description (when applicable)

Quality Control Reports

Analytical Reports

NELAC Certification: Florida E871125

173 Cross Street, San Luis Obispo, CA 93401 (805) 781-3585

# Laboratory Work Order

SDG Number: 222513

Project Number: 17753

Client: Lynn Green

Received: 10/21/2022

Evren Northwest Inc.

## SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
IA01-221019	222513 1	EPA TO-15 SCL	10/19/2022
IA02-221019	222513 2	EPA TO-15 SCL	10/19/2022
IA03-221019	222513 3	EPA TO-15 SCL	10/19/2022
OA01-221019	222513 4	EPA TO-15 SCL	10/19/2022

## Project Sample Media

**SDG Number:** 222513

The following sample media was used for this Sample Delivery Group (SDG). The Sample Media column identifies the type of media. For canisters, the Sample Media Batch gives the canister number followed by the cleaning batch number, which is a unique identification. The initial pressure of the canister when it is received is recorded. If the canister is not pressurized, the final pressure will be the same as the initial pressure. If the canister is pressurized the final pressure will be recorded, and the canister dilution factor is calculated as the ratio of the final to initial pressure. The results are adjusted for the can dilution factor.

SDG	Lab ID	Client Sample No.	Sample Media	Batch	Pressure, torr		Can Factor
					Initial	Final	
222513	1	IA01-221019	653		573	573	1.00
222513	2	IA02-221019	762		515	515	1.00
222513	3	IA03-221019	767		562	562	1.00
222513	4	OA01-221019	692		476	476	1.00

# Laboratory Case Narrative

**EAS SDG Number:** 222513

**Project Number:** 17753

**Client:** Evren Northwest Inc.

The Laboratory Case Narrative for the SDG is below. The Chain of Custody form(s) follow the Laboratory Case Narrative.

---

## Sample Control Narrative

The samples were all received in good condition and with proper preservation.

## Analytical Methods

The methods used for sample analysis are listed on the Analytical Report header, and have been modified as described in the EAS Quality Manual..

## Case Narrative

## QC Narrative

All analyses met EAS method criteria as defined in the Quality Manual, except as noted in the report or QC reports with data qualifiers.

## Subcontract Narrative

No sample analysis was subcontracted for this project

## Laboratory Certification

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness other than the condition(s) noted above. The Laboratory Report is property of EAS and its client. The entire report has been reviewed and approved.



Date Approved: 10/26/2022

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Steven D. Hoyt, Ph.D.  
Environmental Analytical Service  
Laboratory Director

**CHAIN OF CUSTODY RECORD**

Project Number <b>1630-22001-04</b>		Project Name		Quote		Requested TAT		Standard			
<b>REPORT TO:</b>											
Attention <b>Lynn Green</b>		Matrix		SDG		Analytical Tests					
Company <b>Evan Northwest</b>		A - Ambient Air		222513		TCE, PCE, VC					
Address <b>PO Box 14180</b>		SG - Soil Gas				CIS 1/2 DCE		X Chloroform			
City, State, Zip <b>Portland OR 97243</b>		S - Source				1/1 DCE		X			
Phone/Fax <b>503 452-5561</b>		I - Indoor Air				X		X			
e-mail <b>lynn@g-evan-nw.com</b>						X		X			
Sample Description	Sample Date	Start Time	Stop Date	Stop Time	Canister Number	Flow Reg Number	Matrix	Initial Pressure	Final Pressure	Laboratory ID	Comments
IA01-221019	10/14/22	8:52	10/16/22	16:57	653	2659	I	29	8	01	
IA02-221019		8:55		16:45	762	2616	I	730	12	02	
IA03-221019		8:03		16:03	767	2623	I	29	40	03	
IA01-221019		8:13		16:13	652	2543	K	28	12	04	
Comments											
BILLING INFORMATION:											
ATTENTION <b>Barbara Roland</b>		SAMPLED BY <b>[Signature]</b>		Date/Time						COC Number	
Company <b>Same as above</b>										Cooler Temp	
Address <b>"</b>										Airbill	
City, State, Zip <b>"</b>											
Purchase Order <b>1630-22001-04</b>		RECEIVED FOR LAB <b>[Signature]</b>		Date/Time <b>10/12/22</b>							

12:00

# Quality Control Report

EAS SDG Number 222513

Project Number: 17753

---

## QC Narrative

Samples were analyzed in a daily analytical batch (DAB) designated by a QC batch number, and were analyzed using EAS standard laboratory QC specified in the EAS Quality Manual which may be different than the referenced agency method. Any deviations from the EAS QC criteria are flagged in the Laboratory Control Reports or in the sample Analytical Reports.

## Standard Laboratory QC Report

Unless project specific QC was requested, this Section containing the standard laboratory QC (Level 2) supplied with the Analytical Reports. Each sample is analyzed in a Daily Analytical Batch (DAB) which includes the method blank, a laboratory control spike (LCS) and a laboratory control duplicate (LCD). A Daily Analytical Batch QC report is supplied for each method requested.

### Method Blank

The method blank is a laboratory generated sample which assesses the degree to which laboratory operations cause a false positive. The target analytes in the analytical reports for a daily analytical batch are "B" flagged if their concentrations are present in the Method Blank above the RL, unless the result is greater than ten times the blank value.

### Laboratory Control Spike

A laboratory control spike is a well characterized matrix similar to the sample which is spiked and run in duplicate with each Daily Analytical Batch. The laboratory control spike results are reported as a percent recovery. The QC Criteria for the control spike is listed in the Laboratory Control Report. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report. The control spike contains an abbreviated list of compounds in the method, and may contain compounds not on the target list for the specified report.

### Laboratory Control Duplicate

The laboratory control duplicate is a duplicate analysis of the laboratory control spike, a standard, or a sample depending on the method. The results are reported as a relative percent difference (RPD). The criteria for the duplicate is in the Laboratory Control Report for the Daily Analytical Batch. Any results outside the control limits are flagged with a "Q" on the Laboratory Control Report.

# METHOD BLANK REPORT

## EPA Method TO-15 Modified SIM GC/MS

Analytical Method: TO15 SIM

SDG: LABQC

Laboratory ID: B10242

File Name: B10242C.D

Description: METHOD BLANK

Can/Tube#:

QC\_Batch: 102422-MB1

Date Sampled:

Date Analyzed: 10/24/22

Can Dilution Factor: 1.00

Air Volume: 1000 ml

Time:

Time: 12:04

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-01-4	Vinyl chloride	0.003	0.010	ND	0.008	0.026	ND	
75-35-4	1,1-Dichloroethene	0.003	0.009	ND	0.012	0.036	ND	
156-60-5	trans-1,2-Dichloroethene	0.003	0.005	ND	0.012	0.020	ND	
156-59-2	cis-1,2-Dichloroethene	0.003	0.010	ND	0.012	0.040	ND	
67-66-3	Chloroform	0.003	0.010	ND	0.015	0.049	ND	
79-01-6	Trichloroethene	0.003	0.006	ND	0.016	0.032	ND	
	Surrogate Recovery				% Rec.	QC	Limits	Flag
2037-26-5	Toluene-d8				96	70	130	

# METHOD BLANK REPORT

## EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC  
Laboratory ID: B10312

File Name: B10312C.D  
Description: METHOD BLANK  
Canister:  
QC\_Batch: 103122-MA1

Date Sampled:  
Date Analyzed: 10/31/22  
Can Dilution Factor: 1.00  
Air Volume: 750.00 ml  
Time: 13:48

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
127-18-4	Tetrachloroethene	0.04	0.16	ND	0.27	1.10	ND	
	Surrogate Recovery				% Rec.	QC LCL	Limits UCL	Flag
2037-26-5	Toluene-d8				98	70	130	

# QUALITY CONTROL REPORT

## Laboratory Control Spike and Spike Duplicate Report

TO15 SIM Volatile Organic Compounds by GC/MS

QC\_Batch: 102422-MB1

Date: 10/24/22

CAS#	Compound	LCS		LCD		Spike Limit		Duplicate		Flag
		Recovery	Flag	Recovery	Flag	LCL	UCL	Duplicate	Limit	
		%		%		%	%	%	%	
75-01-4	Vinyl chloride	126		101		70	130	22	25	
75-35-4	1,1-Dichloroethene	110		89		70	130	21	25	
75-09-2	Dichloromethane	106		94		70	130	12	25	
75-34-3	1,1-Dichloroethane	109		93		70	130	15	25	
67-66-3	Chloroform	104		87		70	130	18	25	
71-55-6	1,1,1-Trichloroethane	100		95		70	130	5	25	
107-06-2	1,2-Dichloroethane	106		96		70	130	9	25	
71-43-2	Benzene	109		99		70	130	10	25	
79-01-6	Trichloroethene	98		90		70	130	9	25	
108-88-3	Toluene	103		94		70	130	9	25	
127-18-4	Tetrachloroethene	97		88		70	130	10	25	
100-41-4	Ethylbenzene	111		99		70	130	12	25	
1330-20-7	m,p-Xylenes	113		97		70	130	15	25	
95-47-6	o-Xylene	111		99		70	130	12	25	
108-67-8	1,3,5-Trimethylbenzene	110		98		70	130	11	25	

LCS - Laboratory Control Spike

LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

# QUALITY CONTROL REPORT

## Laboratory Control Spike and Spike Duplicate Report

TO15 Volatile Organic Compounds by GC/MS

QC\_Batch: 103122-MA1

Date: 10/31/22

CAS#	Compound	LCS		LCD		Spike Limit		Duplicate		Flag
		Recovery	Flag	Recovery	Flag	LCL	UCL	Duplicate	Limit	
		%		%		%	%	%	%	
75-01-4	Vinyl chloride	92		88		70	130	4	25	
75-35-4	1,1-Dichloroethene	95		89		70	130	6	25	
75-09-2	Dichloromethane	99		92		70	130	7	25	
75-34-3	1,1-Dichloroethane	100		94		70	130	6	25	
67-66-3	Chloroform	102		97		70	130	5	25	
71-55-6	1,1,1-Trichloroethane	105		100		70	130	5	25	
107-06-2	1,2-Dichloroethane	108		100		70	130	8	25	
71-43-2	Benzene	109		103		70	130	6	25	
56-23-5	Carbon tetrachloride	104		98		70	130	7	25	
79-01-6	Trichloroethene	120		105		70	130	14	25	
108-88-3	Toluene	112		98		70	130	13	25	
106-93-4	1,2-Dibromoethane	101		104		70	130	3	25	
127-18-4	Tetrachloroethene	120		107		70	130	11	25	
100-41-4	Ethylbenzene	104		98		70	130	6	25	
1330-20-7	m,p-Xylenes	102		99		70	130	3	25	
95-47-6	o-Xylene	104		99		70	130	5	25	
108-67-8	1,3,5-Trimethylbenzene	104		102		70	130	1	25	
95-63-6	1,2,4-Trimethylbenzene	104		99		70	130	5	25	

LCS - Laboratory Control Spike

LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

# Analytical Reports

**EAS SDG Number** 222513

**Project Number:** 17753

---

The following pages contain the certified Analytical Reports for the samples submitted in the Sample Delivery Group (SDG) and are in order of the EAS Lab ID number. All of the analytical methods used are modifications of the published methods. Procedural method modifications, QC modifications, QC Criteria modifications, target lists, definitions of detection limits, and flags are all explained in detail in the EAS Quality Manual.

The Analytical Report has columns for the method detection limit (MDL), the reporting limit (RL), and the Amount. The Amount is the concentration of the compound in the sample. The report usually has the results reported with two commonly used units. The MDL, RL, and Amount are adjusted for the canister dilution factor and any dilution caused by sample matrix effects.

## NELAC CERTIFICATION

EAS is accredited by the National Environmental Laboratory Accreditation (NELAC) with the Florida Department of Health, one of the NELAC certifying states. EAS is certified for the EPA TO-15, EPA TO-11 and EPA TO-4 methods. A list of accredited compounds is available on request.

## DETECTION LIMITS

**MDL:** The MDL is lowest concentration that can be measured to be statistically above the noise level and is determined using the EPA 2016 method which uses the standard deviation of replicate measurements made over time. The method also incorporates systematic instrumentation blank levels. See Quality Manual for detailed explanation.

**RL:** The reporting limit (RL) is the lowest concentration that can be reliably reported for each compound that meets the QC Criteria for the method, background levels, or project specific considerations. The QC criteria level for the method blank is to be less than the RL. See Quality Manual for more information.

## DATA FLAGS

In the standard report, if a compound is not detected above the method detection limit, a "ND" is in the Amount column. The flag column is used for both the not detect flag and for any data flags.

**B -** This compound was detected in the batch method blank above the reporting limit and is greater than one tenth the amount in the sample.

**E -** This compound exceeds the calibration range for this sample volume.

**J -** The amount reported is estimated because it was below the RL and could be below the lowest calibration point, have higher uncertainty, or could be the result of system background

## UNITS

**PPBV or PPMV:** Parts-per-billion (or million) by volume is a mole (volume) ratio of the moles of analyte divided by the moles of air (gas). This is the primary unit used to report air or gas concentrations and is independent of temperature and pressure.

**UG/M3 OR MG/M3:** The reported result was calculated based on 1 atm pressure and a temperature of 25C. The conversion from PPBV is:  $UG/M3 = PPBV \times MW/24.46$  where 24.46 is the gas constant and MW is the Compounds Molecular Weight (sometimes called Formula Weight)

# ANALYTICAL REPORT

**EPA Method TO-15 Modified SIM GC/MS**

SDG: 222513

Analytical Method: TO15 SIM

Laboratory ID: 01

File Name: 2251301A.D

Date Sampled: 10/19/22 Time: 8:52

Description: IA01-221019

Date Analyzed: 10/24/22 Time: 13:29

Can/Tube#: 653

Can Dilution Factor: 1.00

QC\_Batch: 102422-MB1

Air Volume: 1000 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-01-4	Vinyl chloride	0.003	0.010	ND	0.008	0.026	ND	
75-35-4	1,1-Dichloroethene	0.003	0.009	0.014	0.012	0.036	0.054	
156-60-5	trans-1,2-Dichloroethene	0.003	0.005	ND	0.012	0.020	ND	
156-59-2	cis-1,2-Dichloroethene	0.003	0.010	0.022	0.012	0.040	0.086	
67-66-3	Chloroform	0.003	0.010	0.335	0.015	0.049	1.636	
79-01-6	Trichloroethene	0.003	0.006	0.144	0.016	0.032	0.777	
	Surrogate Recovery				% Rec.	QC	Limits	Flag
2037-26-5	Toluene-d8				99	70	130	

# ANALYTICAL REPORT

---

## EPA Method TO-15 Modified Full Scan GC/MS

SDG: 222513

Analytical Method: TO-15

Laboratory ID: 01

---

File Name: 2251301A.D

Date Sampled: 10/19/22

Time: 08:52

Description: IA01-221019

Date Analyzed: 10/31/22

Time: 15:08

Canister: 653

Can Dilution Factor: 1.00

QC\_Batch: 103122-MA1

Air Volume: 750.00 ml

---

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
127-18-4	Tetrachloroethene	0.04	0.16	1.36	0.27	1.10	9.22	

---

Surrogate Recovery		% Rec.	QC LCL	Limits UCL	Flag
2037-26-5	Toluene-d8	100	70	130	

---

# ANALYTICAL REPORT

**E**NVIRONMENTAL  
Analytical Service, Inc.

## EPA Method TO-15 Modified SIM GC/MS

SDG: 222513

Analytical Method: TO15 SIM

Laboratory ID: 02

File Name: 2251302A.D

Date Sampled: 10/19/22 Time: 8:55

Description: IA02-221019

Date Analyzed: 10/24/22 Time: 14:14

Can/Tube#: 762

Can Dilution Factor: 1.00

QC\_Batch: 102422-MB1

Air Volume: 1000 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-01-4	Vinyl chloride	0.003	0.010	ND	0.008	0.026	ND	
75-35-4	1,1-Dichloroethene	0.003	0.009	0.010	0.012	0.036	0.038	
156-60-5	trans-1,2-Dichloroethene	0.003	0.005	0.005	0.012	0.020	0.019	J
156-59-2	cis-1,2-Dichloroethene	0.003	0.010	0.024	0.012	0.040	0.093	
67-66-3	Chloroform	0.003	0.010	0.284	0.015	0.049	1.390	
79-01-6	Trichloroethene	0.003	0.006	0.160	0.016	0.032	0.859	
	Surrogate Recovery				% Rec.	QC	Limits	Flag
2037-26-5	Toluene-d8				108	70	130	

# ANALYTICAL REPORT

**E**NVIRONMENTAL  
Analytical Service, Inc.

---

## EPA Method TO-15 Modified Full Scan GC/MS

SDG: 222513

Analytical Method: TO-15

Laboratory ID: 02

---

File Name: 2251302A.D

Date Sampled: 10/19/22

Time: 08:55

Description: IA02-221019

Date Analyzed: 10/31/22

Time: 15:48

Canister: 762

Can Dilution Factor: 1.00

QC\_Batch: 103122-MA1

Air Volume: 750.00 ml

---

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
127-18-4	Tetrachloroethene	0.04	0.16	1.06	0.27	1.10	7.21	

---

Surrogate Recovery		% Rec.	QC LCL	Limits UCL	Flag
2037-26-5	Toluene-d8	100	70	130	

---

# ANALYTICAL REPORT

**E**NVIRONMENTAL  
Analytical Service, Inc.

## EPA Method TO-15 Modified SIM GC/MS

SDG: 222513

Analytical Method: TO15 SIM

Laboratory ID: 03

File Name: 2251303A.D

Date Sampled: 10/19/22 Time: 8:03

Description: IA03-221019

Date Analyzed: 10/24/22 Time: 14:58

Can/Tube#: 767

Can Dilution Factor: 1.00

QC\_Batch: 102422-MB1

Air Volume: 1000 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-01-4	Vinyl chloride	0.003	0.010	ND	0.008	0.026	ND	
75-35-4	1,1-Dichloroethene	0.003	0.009	0.007	0.012	0.036	0.027	J
156-60-5	trans-1,2-Dichloroethene	0.003	0.005	0.007	0.012	0.020	0.026	
156-59-2	cis-1,2-Dichloroethene	0.003	0.010	ND	0.012	0.040	ND	
67-66-3	Chloroform	0.003	0.010	0.084	0.015	0.049	0.410	
79-01-6	Trichloroethene	0.003	0.006	0.006	0.016	0.032	0.031	J
	Surrogate Recovery				% Rec.	QC	Limits	Flag
2037-26-5	Toluene-d8				98	70	130	

# ANALYTICAL REPORT

---

## EPA Method TO-15 Modified Full Scan GC/MS

SDG: 222513

Analytical Method: TO-15

Laboratory ID: 03

---

File Name: 2251303A.D

Date Sampled: 10/19/22

Time: 08:03

Description: IA03-221019

Date Analyzed: 10/31/22

Time: 16:29

Canister: 767

Can Dilution Factor: 1.00

QC\_Batch: 103122-MA1

Air Volume: 750.00 ml

---

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
127-18-4	Tetrachloroethene	0.04	0.16	0.91	0.27	1.10	6.17	

---

	Surrogate Recovery	% Rec.	QC LCL	Limits UCL	Flag
2037-26-5	Toluene-d8	100	70	130	

---

# ANALYTICAL REPORT

## EPA Method TO-15 Modified SIM GC/MS

Analytical Method: TO15 SIM

SDG: 222513

Laboratory ID: 04

File Name: 2251304A.D  
Description: OA01-221019  
Can/Tube#: 692  
QC\_Batch: 102422-MB1

Date Sampled: 10/19/22 Time: 8:13  
Date Analyzed: 10/24/22 Time: 15:41  
Can Dilution Factor: 1.00  
Air Volume: 1000 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
75-01-4	Vinyl chloride	0.003	0.010	ND	0.008	0.026	ND	
75-35-4	1,1-Dichloroethene	0.003	0.009	0.008	0.012	0.036	0.030	J
156-60-5	trans-1,2-Dichloroethene	0.003	0.005	ND	0.012	0.020	ND	
156-59-2	cis-1,2-Dichloroethene	0.003	0.010	0.007	0.012	0.040	0.029	J
67-66-3	Chloroform	0.003	0.010	0.079	0.015	0.049	0.384	
79-01-6	Trichloroethene	0.003	0.006	0.004	0.016	0.032	0.020	J
Surrogate Recovery					% Rec.	QC	Limits	Flag
2037-26-5	Toluene-d8				96	70	130	

# ANALYTICAL REPORT

**EPA Method TO-15 Modified Full Scan GC/MS**

SDG: 222513

Analytical Method: TO-15

Laboratory ID: 04

File Name: 2251304A.D  
 Description: OA01-221019  
 Canister: 692  
 QC\_Batch: 103122-MA1

Date Sampled: 10/19/22      Time: 08:13  
 Date Analyzed: 10/31/22      Time: 14:28  
 Can Dilution Factor: 1.00  
 Air Volume: 750.00 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
127-18-4	Tetrachloroethene	0.04	0.16	1.40	0.27	1.10	9.52	

Surrogate Recovery		% Rec.	QC LCL	Limits UCL	Flag
2037-26-5	Toluene-d8	100	70	130	

## Analytical Laboratory Data Validation Check Sheet

 Project Name: 10543 SE Fuller Road, Milwaukie

 Project Number: 1638-22001-04

 Date of Review: 11/3/2022

 Lab. Name: EAS

 Lab Batch ID #: 222513

### Chain of Custody

- |  |   |  |  |
|--|---|--|--|
| 1.) Are all requested analyses reported? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 2.) Were the requested methods used?     | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 3.) Trip blank submitted?                | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |
| 4.) Field blank submitted?               | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |

### Timing

- |  |   |                             |  |
|--|---|-----------------------------|--|
| 5.) Samples extracted within holding times?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |  |
| If not, are all discrepancies footnoted?     | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| 6.) Analysis performed within holding times? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |  |
| If not, are all discrepancies footnoted?     | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |

### Quality Assurance/Quality Control

- |  |   |  |  |
|--|---|--|--|
| 7.) Are the required reporting limits reported? (MRLs vs MDLs/PQLs)            | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 8.) Are all reported values above either MRL or MDL?                           | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 9.) Are all values between the MDL & PQL tagged as trace?                      | <input type="checkbox"/> yes            | <input type="checkbox"/> no            | <input checked="" type="checkbox"/> NA |
| 10a.) Are reporting limits raised for other reason besides high analyte conc.? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |
| 10b.) If so, are they footnoted?   | <input type="checkbox"/> yes            | <input type="checkbox"/> no            | <input checked="" type="checkbox"/> NA |
| 11.) Lab method blank completed?   | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 12.) Lab, Field, or Trip Blank(s) report detections?                           | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |
- If yes, indicate blank type, chemical(s) and concentration(s): \_\_\_\_\_

- |   |   |                             |  |
|---|---|-----------------------------|--|
| 13.) For inorganics and metals, is there one method blank for each analyte? | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| If not, are all discrepancies footnoted?                                    | <input type="checkbox"/> yes            | <input type="checkbox"/> no |  |
| 14.) For VOCs, is there one method blank for each day of analysis?          | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no | <input type="checkbox"/> NA            |
| If not, are all discrepancies footnoted?                                    | <input type="checkbox"/> yes            | <input type="checkbox"/> no |  |
| 15.) For SVOC's, is there one method blank for each extraction batch?       | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| If not, are all discrepancies footnoted?                                    | <input type="checkbox"/> yes            | <input type="checkbox"/> no |  |

### Accuracy

- |  |   |                             |  |
|--|---|-----------------------------|--|
| 16.) Is there a surrogate spike recovery for all VOC & SVOC samples? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no | <input type="checkbox"/> NA            |
| Do all surrogate spike recoveries meet accepted criteria?            | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |  |
| If not, are all discrepancies footnoted?                             | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| 17.) Is there a spike recovery for all Laboratory Control Samples?   | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no | <input type="checkbox"/> NA            |
| Do all LCS/LCSD spike recoveries meet accepted criteria?             | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |  |
| If not, are all discrepancies footnoted?                             | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| 18.) Are all LCS/LCSD RPDs within acceptable limits?                 | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no | <input type="checkbox"/> NA            |
| If not, are all discrepancies footnoted?                             | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |

### Precision

- |   |                              |                             |  |
|---|------------------------------|-----------------------------|--|
| 19.) Are all matrix spike/matrix spike duplicate recoveries within acceptable limits? | <input type="checkbox"/> yes | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| If not, are all discrepancies footnoted?  | <input type="checkbox"/> yes | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| 20.) Are all matrix spike/matrix spike duplicate RPDs within acceptable limits?       | <input type="checkbox"/> yes | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| If not, are all discrepancies footnoted?  | <input type="checkbox"/> yes | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| 21.) Do all RPD calculations for Field Duplicates meet accepted criteria?             | <input type="checkbox"/> yes | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |

Comments:

The amount reported of trans-1,2-dichloroethene, trichloroethene, 1,1-dichloroethene, and cis-1,2-dichloroethene is estimated because it was below the RL and could be below the lowest calibration point, have higher uncertainty, or could be the result of system background (J).

**Initial** Review By: LP

**Final** Review By: EB

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  
(206) 285-8282  
fbi@isomedia.com  
www.friedmanandbruya.com

September 16, 2022

Lynn Green, Project Manager  
Evren Northwest, Inc.  
PO Box 14488  
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on September 3, 2022 from the 1638-22001-05, F&BI 209046 project. There are 6 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures

c: Neil Woller, Paul Trone, Evan Bruggeman  
ENW0916R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 3, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1638-22001-05, F&BI 209046 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
209046 -01	CP-220902
209046 -02	CP-220902-SED

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CP-220902	Client:	Evren Northwest
Date Received:	09/03/22	Project:	1638-22001-05, F&BI 209046
Date Extracted:	09/06/22	Lab ID:	209046-01
Date Analyzed:	09/06/22	Data File:	090609.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	78	126
Toluene-d8	90	84	115
4-Bromofluorobenzene	95	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1,200 ve
Vinyl chloride	1,800 ve	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	2.6
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	10	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	77	Bromoform	<5
1,1-Dichloroethane	2.4	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	4,000 ve	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	7.9
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	1.0
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	1,600 ve	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	3.4
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	1.3	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:	CP-220902	Client:	Evren Northwest
Date Received:	09/03/22	Project:	1638-22001-05, F&BI 209046
Date Extracted:	09/06/22	Lab ID:	209046-01 1/100
Date Analyzed:	09/06/22	Data File:	090628.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	100	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	1,200
Vinyl chloride	2,200	Dibromochloromethane	<50
Bromomethane	<500	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	<100
Acetone	<5,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	<200
Hexane	<500	o-Xylene	<100
Methylene chloride	<500	Styrene	<100
Methyl t-butyl ether (MTBE)	<100	Isopropylbenzene	<100
trans-1,2-Dichloroethene	<100	Bromoform	<500
1,1-Dichloroethane	<100	n-Propylbenzene	<100
2,2-Dichloropropane	<100	Bromobenzene	<100
cis-1,2-Dichloroethene	5,100	1,3,5-Trimethylbenzene	<100
Chloroform	<100	1,1,2,2-Tetrachloroethane	<20
2-Butanone (MEK)	<2,000	1,2,3-Trichloropropane	<100
1,2-Dichloroethane (EDC)	<20	2-Chlorotoluene	<100
1,1,1-Trichloroethane	<100	4-Chlorotoluene	<100
1,1-Dichloropropene	<100	tert-Butylbenzene	<100
Carbon tetrachloride	<50	1,2,4-Trimethylbenzene	<100
Benzene	<35	sec-Butylbenzene	<100
Trichloroethene	1,800	p-Isopropyltoluene	<100
1,2-Dichloropropane	<100	1,3-Dichlorobenzene	<100
Bromodichloromethane	<50	1,4-Dichlorobenzene	<100
Dibromomethane	<100	1,2-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dibromo-3-chloropropane	<1,000
cis-1,3-Dichloropropene	<40	1,2,4-Trichlorobenzene	<100
Toluene	<100	Hexachlorobutadiene	<50
trans-1,3-Dichloropropene	<40	Naphthalene	<100
1,1,2-Trichloroethane	<50	1,2,3-Trichlorobenzene	<100
2-Hexanone	<1,000		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1638-22001-05, F&BI 209046
Date Extracted:	09/06/22	Lab ID:	02-1969 mb
Date Analyzed:	09/06/22	Data File:	090607.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	78	126
Toluene-d8	101	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		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/16/22

Date Received: 09/03/22

Project: 1638-22001-05, F&BI 209046

**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	109	107	46-206	2
Chloromethane	ug/L (ppb)	10	100	101	70-142	1
Vinyl chloride	ug/L (ppb)	10	107	106	70-130	1
Bromomethane	ug/L (ppb)	10	106	114	56-197	7
Chloroethane	ug/L (ppb)	10	114	111	70-130	3
Trichlorofluoromethane	ug/L (ppb)	10	104	101	70-130	3
Acetone	ug/L (ppb)	50	99	100	10-140	1
1,1-Dichloroethene	ug/L (ppb)	10	103	100	70-130	3
Hexane	ug/L (ppb)	10	88	87	54-136	1
Methylene chloride	ug/L (ppb)	10	77	77	43-134	0
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	102	99	70-130	3
trans-1,2-Dichloroethene	ug/L (ppb)	10	110	106	70-130	4
1,1-Dichloroethane	ug/L (ppb)	10	99	100	70-130	1
2,2-Dichloropropane	ug/L (ppb)	10	117	112	70-130	4
cis-1,2-Dichloroethene	ug/L (ppb)	10	108	107	70-130	1
Chloroform	ug/L (ppb)	10	97	95	70-130	2
2-Butanone (MEK)	ug/L (ppb)	50	106	102	17-154	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	99	96	70-130	3
1,1,1-Trichloroethane	ug/L (ppb)	10	102	99	70-130	3
1,1-Dichloropropene	ug/L (ppb)	10	97	97	70-130	0
Carbon tetrachloride	ug/L (ppb)	10	103	103	70-130	0
Benzene	ug/L (ppb)	10	103	99	70-130	4
Trichloroethene	ug/L (ppb)	10	104	100	70-130	4
1,2-Dichloropropane	ug/L (ppb)	10	100	95	70-130	5
Bromodichloromethane	ug/L (ppb)	10	104	97	70-130	7
Dibromomethane	ug/L (ppb)	10	104	98	70-130	6
4-Methyl-2-pentanone	ug/L (ppb)	50	112	101	68-130	10
cis-1,3-Dichloropropene	ug/L (ppb)	10	106	95	69-131	11
Toluene	ug/L (ppb)	10	119	112	70-130	6
trans-1,3-Dichloropropene	ug/L (ppb)	10	109	100	70-130	9
1,1,2-Trichloroethane	ug/L (ppb)	10	111	104	70-130	7
2-Hexanone	ug/L (ppb)	50	113	111	45-138	2
1,3-Dichloropropane	ug/L (ppb)	10	105	101	70-130	4
Tetrachloroethene	ug/L (ppb)	10	111	107	70-130	4
Dibromochloromethane	ug/L (ppb)	10	111	107	60-148	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	114	106	70-130	7
Chlorobenzene	ug/L (ppb)	10	109	103	70-130	6
Ethylbenzene	ug/L (ppb)	10	112	107	70-130	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	107	110	70-130	3
m,p-Xylene	ug/L (ppb)	20	112	107	70-130	5
o-Xylene	ug/L (ppb)	10	110	107	70-130	3
Styrene	ug/L (ppb)	10	104	100	70-130	4
Isopropylbenzene	ug/L (ppb)	10	107	107	70-130	0
Bromoform	ug/L (ppb)	10	115	114	69-138	1
n-Propylbenzene	ug/L (ppb)	10	111	107	70-130	4
Bromobenzene	ug/L (ppb)	10	111	108	70-130	3
1,3,5-Trimethylbenzene	ug/L (ppb)	10	108	106	70-130	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	111	111	70-130	0
1,2,3-Trichloropropane	ug/L (ppb)	10	109	111	70-130	2
2-Chlorotoluene	ug/L (ppb)	10	107	106	70-130	1
4-Chlorotoluene	ug/L (ppb)	10	109	109	70-130	0
tert-Butylbenzene	ug/L (ppb)	10	108	110	70-130	2
1,2,4-Trimethylbenzene	ug/L (ppb)	10	106	107	70-130	1
sec-Butylbenzene	ug/L (ppb)	10	109	109	70-130	0
p-Isopropyltoluene	ug/L (ppb)	10	109	109	70-130	0
1,3-Dichlorobenzene	ug/L (ppb)	10	107	109	70-130	2
1,4-Dichlorobenzene	ug/L (ppb)	10	107	106	70-130	1
1,2-Dichlorobenzene	ug/L (ppb)	10	105	108	70-130	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	115	121	70-130	5
1,2,4-Trichlorobenzene	ug/L (ppb)	10	101	105	70-130	4
Hexachlorobutadiene	ug/L (ppb)	10	101	108	70-130	7
Naphthalene	ug/L (ppb)	10	101	105	70-130	4
1,2,3-Trichlorobenzene	ug/L (ppb)	10	101	106	70-130	5

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.



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  
(206) 285-8282  
fbi@isomedia.com  
www.friedmanandbruya.com

September 20, 2022

Lynn Green, Project Manager  
Evren Northwest, Inc.  
PO Box 14488  
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on September 10, 2022 from the 1638-22001-05, F&BI 209134 project. There are 9 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures

c: Neil Woller, Paul Trone, Evan Bruggeman  
ENW0920R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 10, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1638-22001-05, F&BI 209134 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID

209134 -01

Evren Northwest

CP-220909

Sample CP-220909 was sent to Fremont Analytical for flashpoint analysis. The report is enclosed.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	CP-220909	Client:	Evren Northwest
Date Received:	09/10/22	Project:	1638-22001-05, F&BI 209134
Date Extracted:	09/13/22	Lab ID:	209134-01 x5
Date Analyzed:	09/14/22	Data File:	209134-01 x5.168
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<5
Chromium	<5
Lead	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	CP-220909	Client:	Evren Northwest
Date Received:	09/10/22	Project:	1638-22001-05, F&BI 209134
Date Extracted:	09/13/22	Lab ID:	209134-01 x10
Date Analyzed:	09/14/22	Data File:	209134-01 x10.111
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<10
Barium	4,190
Mercury	<10
Selenium	<10
Silver	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1638-22001-05, F&BI 209134
Date Extracted:	09/13/22	Lab ID:	I2-641 mb
Date Analyzed:	09/13/22	Data File:	I2-641 mb.087
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 PCBs By EPA Method 8082A

Client Sample ID:	CP-220909	Client:	Evren Northwest
Date Received:	09/10/22	Project:	1638-22001-05, F&BI 209134
Date Extracted:	09/14/22	Lab ID:	209134-01
Date Analyzed:	09/15/22	Data File:	091512.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	96	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:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1638-22001-05, F&BI 209134
Date Extracted:	09/14/22	Lab ID:	02-2200 mb
Date Analyzed:	09/15/22	Data File:	091510.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	56	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: 09/20/22

Date Received: 09/10/22

Project: 1638-22001-05, F&BI 209134

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 209096-01 (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	2.23	93	97	75-125	4
Barium	ug/L (ppb)	50	19.2	105	111	75-125	6
Cadmium	ug/L (ppb)	5	<1	99	102	75-125	3
Chromium	ug/L (ppb)	20	2.89	80	83	75-125	4
Lead	ug/L (ppb)	10	<1	87	90	75-125	3
Mercury	ug/L (ppb)	5	<1	103	106	75-125	3
Selenium	ug/L (ppb)	5	<1	84	83	75-125	1
Silver	ug/L (ppb)	5	<1	81	84	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	108	80-120
Barium	ug/L (ppb)	50	96	80-120
Cadmium	ug/L (ppb)	5	94	80-120
Chromium	ug/L (ppb)	20	98	80-120
Lead	ug/L (ppb)	10	105	80-120
Mercury	ug/L (ppb)	5	112	80-120
Selenium	ug/L (ppb)	5	114	80-120
Silver	ug/L (ppb)	5	109	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/20/22

Date Received: 09/10/22

Project: 1638-22001-05, F&BI 209134

**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	67	72	25-165	7
Aroclor 1260	ug/L (ppb)	0.25	79	78	25-163	1

# 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.





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: 209134**  
**Work Order Number: 2209141**

September 14, 2022

**Attention Michael Erdahl:**

Fremont Analytical, Inc. received 1 sample(s) on 9/12/2022 for the analyses presented in the following report.

***Flashpoint by EPA 1010/ASTM D93***

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,

A handwritten signature in blue ink, appearing to read "Brianna Barnes".

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*

---

Original

[www.fremontanalytical.com](http://www.fremontanalytical.com)



Date: 09/14/2022

---

**CLIENT:** Friedman & Bruya  
**Project:** 209134  
**Work Order:** 2209141

## Work Order Sample Summary

---

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2209141-001	CD-220909	09/09/2022 11:35 AM	09/12/2022 10:55 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

**CLIENT:** Friedman & Bruya

**Project:** 209134

---

**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").

**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



**Client:** Friedman & Bruya

**Collection Date:** 9/9/2022 11:35:00 AM

**Project:** 209134

**Lab ID:** 2209141-001

**Matrix:** Water

**Client Sample ID:** CD-220909

**Analyses**

**Result**

**PQL**

**Qual**

**Units**

**DF**

**Date Analyzed**

**Flashpoint by EPA 1010/ASTM D93**

Batch ID: R78202

Analyst: AK

Flashpoint

>200

°F

1

9/13/2022 12:34:15 PM

Client Name: FB	Work Order Number: 2209141
Logged by: Elisabeth Samoray	Date Received: 9/12/2022 10:55:00 AM

**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:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

**Item Information**

Item #	Temp °C
Sample 1	1.3

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C





Evren NW  
40 SE 24th Ave. A  
Portland, OR 97214  
Attn: Lynn Green

**BioLogic Resources, LLC**  
10260 SW Nimbus Ave., Suite M11  
Portland, OR 97223  
Phone 503.670.1312  
Fax 503.670.7262

Received: 09/02/22

Reported: 09/06/22

Lab #	Sample	Result	Units	Tested	Completed
<b>22I0107-01</b>	<b>CP-220902</b>				
	Thermotolerant (Fecal) Coliforms	<1.8	MPN/100 ml	09/02/22 14:57	09/04/22 10:54

**Method Reference**

Standard Methods for the Examination of Water and Wastewater, AWWA, 23rd Edition, 2017: 9221E: Therm

We warrant the above analysis was performed in good faith, using methods which are considered Standard Methods, or using methods previously agreed upon by the client. No other warranty is expressed or implied by this laboratory report. All sample results pertain only to the sample(s) tested. This test report shall not be reproduced except in full, without written approval of the laboratory.

Authorized Signature,

Joanna Kronmiller, Senior Microbiologist

# BioLogic Resources, LLC

10260 SW Nimbus Ave., Suite M111  
 Portland, OR 97223

Phone: 503.670.1312

Fax: 503.670.7262

## Chain of Custody Laboratory Analysis Request

### Special Instructions

**Client Information**  
 Company: EVERAL-NM  
 Contact: EVAN SEVENSON  
 Address: 40 SE 74TH AVE  
PORTLAND, OR 97214  
 Phone: 503-452-5711 Fax: 503-452-5711

**Billing Information**  
 Company: ENVI  
 Contact: BARBARA ROSS  
 Address: SAVILL  
 Phone: \_\_\_\_\_ Fax: 503-452-5711

**Project Information**  
 Project Name: FUTURE PO  
 Project #: 1658-22002-03  
 PO #: \_\_\_\_\_  
 Sampler's Name: David Morris  
 Sampler's Signature: [Signature]

Sample Identification	Date	Time	# of Containers	Analyses		Turnaround Time Requested	Remarks
				Microbiology	Chemistry		
1 CP-220902	9-2-22	10:10	1	X			RESULTS WED 9/7

**Relinquished**  
 Signature: [Signature] Date: 09-02-22  
 Print Name: David Morris Time: 13:21  
 Company: EVERAL NORTHWEST

**Received**  
 Signature: [Signature] Date: 09-02-22  
 Print Name: Kim Soria Time: 13:21  
 Company: BIOLOGIC RESOURCES

**Relinquished**  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Print Name: \_\_\_\_\_ Time: \_\_\_\_\_  
 Company: \_\_\_\_\_

**Received**  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Print Name: \_\_\_\_\_ Time: \_\_\_\_\_  
 Company: \_\_\_\_\_

**Relinquished**  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Print Name: \_\_\_\_\_ Time: \_\_\_\_\_  
 Company: \_\_\_\_\_

**Received**  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Print Name: \_\_\_\_\_ Time: \_\_\_\_\_  
 Company: \_\_\_\_\_

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  
(206) 285-8282  
fbi@isomedia.com  
www.friedmanandbruya.com

September 15, 2022

Lynn Green, Project Manager  
Evren Northwest, Inc.  
PO Box 14488  
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on September 7, 2022 from the 1638-22001-03, F&BI 209063 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures

c: Neil Woller, Paul Trone, Evan Bruggeman  
ENW0915R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 7, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1638-22001-03, F&BI 209063 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
209063 -01	B04-10
209063 -02	B05-5
209063 -03	B04-SWI-42
209063 -04	B04-GW-45

The 8260D water calibration standard failed the acceptance criteria for methylene chloride. The data were flagged accordingly.

Methylene chloride in the 8260D soil matrix spike and laboratory control sample duplicate and the relative percent difference failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22  
Date Received: 09/07/22  
Project: 1638-22001-03, F&BI 209063  
Date Extracted: 09/07/22  
Date Analyzed: 09/07/22

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID**

Results Reported on a Dry Weight Basis  
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

<u>Sample ID</u> Laboratory ID	<u>Gasoline</u>	<u>Diesel</u>	<u>Heavy Oil</u>	Surrogate (% Recovery) (Limit 56-165)
B04-10 209063-01	ND	ND	D	112
B05-5 209063-02	ND	ND	ND	101
B04-SWI-42 209063-03	ND	ND	ND	99
Method Blank 02-2123 MB	ND	ND	ND	103

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

Date Extracted: 09/08/22

Date Analyzed: 09/08/22 and 09/09/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
B04-GW-45 209063-04	<100	91
Method Blank 02-2073 MB2	<100	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22  
Date Received: 09/07/22  
Project: 1638-22001-03, F&BI 209063  
Date Extracted: 09/08/22  
Date Analyzed: 09/08/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND RESIDUAL RANGE  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Residual Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
B04-GW-45 209063-04	<50	<250	79
Method Blank 02-2135 MB	<50	<250	121

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	B04-10	Client:	Evren Northwest
Date Received:	09/07/22	Project:	1638-22001-03, F&BI 209063
Date Extracted:	09/08/22	Lab ID:	209063-01
Date Analyzed:	09/08/22	Data File:	090822.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	107	89	112
4-Bromofluorobenzene	103	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 jl	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	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)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	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	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
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

Client Sample ID: B05-5	Client: Evren Northwest
Date Received: 09/07/22	Project: 1638-22001-03, F&BI 209063
Date Extracted: 09/08/22	Lab ID: 209063-02
Date Analyzed: 09/08/22	Data File: 090828.D
Matrix: Soil	Instrument: GCMS4
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	106	89	112
4-Bromofluorobenzene	101	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 jl	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	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)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	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	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
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

Client Sample ID:	B04-SWI-42	Client:	Evren Northwest
Date Received:	09/07/22	Project:	1638-22001-03, F&BI 209063
Date Extracted:	09/08/22	Lab ID:	209063-03
Date Analyzed:	09/08/22	Data File:	090829.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	90	109
Toluene-d8	106	89	112
4-Bromofluorobenzene	103	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 jl	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	0.099	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	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	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
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

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1638-22001-03, F&BI 209063
Date Extracted:	09/08/22	Lab ID:	02-1975 mb
Date Analyzed:	09/08/22	Data File:	090805.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	105	89	112
4-Bromofluorobenzene	100	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 jl	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	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)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	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	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
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:	B04-GW-45	Client:	Evren Northwest
Date Received:	09/07/22	Project:	1638-22001-03, F&BI 209063
Date Extracted:	09/07/22	Lab ID:	209063-04
Date Analyzed:	09/07/22	Data File:	090720.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	94	84	115
4-Bromofluorobenzene	95	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	2.8
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	6.7	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	0.89	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	0.67	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:	Evren Northwest
Date Received:	Not Applicable	Project:	1638-22001-03, F&BI 209063
Date Extracted:	09/07/22	Lab ID:	02-1973 mb
Date Analyzed:	09/07/22	Data File:	090712.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	95	84	115
4-Bromofluorobenzene	101	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 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		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 208472-04 (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	99	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

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	92	96	63-142	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 209063-01 (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	17	15	10-142	12
Chloromethane	mg/kg (ppm)	1	<0.5	46	45	10-126	2
Vinyl chloride	mg/kg (ppm)	1	<0.05	48	45	10-138	6
Bromomethane	mg/kg (ppm)	1	<0.5	51	60	10-163	16
Chloroethane	mg/kg (ppm)	1	<0.5	60	63	10-176	5
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	55	52	10-176	6
Acetone	mg/kg (ppm)	5	<5	96	101	10-163	5
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	72	70	10-160	3
Hexane	mg/kg (ppm)	1	<0.25	50	51	10-137	2
Methylene chloride	mg/kg (ppm)	1	<0.5	81	79	10-156	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	93	97	21-145	4
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	88	91	14-137	3
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	91	94	19-140	3
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	104	101	10-158	3
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	95	98	25-135	3
Chloroform	mg/kg (ppm)	1	<0.05	92	97	21-145	5
2-Butanone (MEK)	mg/kg (ppm)	5	<1	103	111	19-147	7
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	99	102	12-160	3
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	89	90	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	92	94	17-140	2
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	101	102	9-164	1
Benzene	mg/kg (ppm)	1	<0.03	93	96	29-129	3
Trichloroethene	mg/kg (ppm)	1	<0.02	94	99	21-139	5
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	98	100	30-135	2
Bromodichloromethane	mg/kg (ppm)	1	<0.05	100	102	23-155	2
Dibromomethane	mg/kg (ppm)	1	<0.05	99	102	23-145	3
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	107	112	24-155	5
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	99	102	28-144	3
Toluene	mg/kg (ppm)	1	<0.05	86	90	35-130	5
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	90	95	26-149	5
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	90	97	10-205	7
2-Hexanone	mg/kg (ppm)	5	<0.5	91	99	15-166	8
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	88	93	31-137	6
Tetrachloroethene	mg/kg (ppm)	1	0.022	85	87	20-133	2
Dibromochloromethane	mg/kg (ppm)	1	<0.05	89	92	28-150	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	89	92	28-142	3
Chlorobenzene	mg/kg (ppm)	1	<0.05	90	93	32-129	3
Ethylbenzene	mg/kg (ppm)	1	<0.05	88	92	32-137	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	88	93	31-143	6
m,p-Xylene	mg/kg (ppm)	2	<0.1	87	92	34-136	6
o-Xylene	mg/kg (ppm)	1	<0.05	88	91	33-134	3
Styrene	mg/kg (ppm)	1	<0.05	87	92	35-137	6
Isopropylbenzene	mg/kg (ppm)	1	<0.05	87	91	31-142	4
Bromoform	mg/kg (ppm)	1	<0.05	89	94	21-156	5
n-Propylbenzene	mg/kg (ppm)	1	<0.05	88	91	23-146	3
Bromobenzene	mg/kg (ppm)	1	<0.05	85	90	34-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	86	90	18-149	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	92	96	28-140	4
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	91	92	25-144	1
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	86	90	31-134	5
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	87	92	31-136	6
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	87	90	30-137	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	89	92	10-182	3
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	86	91	23-145	6
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	88	94	21-149	7
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	88	90	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	85	88	29-129	3
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	87	90	31-132	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	87	95	11-161	9
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	84	91	22-142	8
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	85	94	10-142	10
Naphthalene	mg/kg (ppm)	1	<0.05	82	88	14-157	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	81	88	20-144	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

**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	76	10-146
Chloromethane	mg/kg (ppm)	1	81	27-133
Vinyl chloride	mg/kg (ppm)	1	89	22-139
Bromomethane	mg/kg (ppm)	1	81	38-114
Chloroethane	mg/kg (ppm)	1	91	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	98	10-196
Acetone	mg/kg (ppm)	5	110	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	92	47-128
Hexane	mg/kg (ppm)	1	99	43-142
Methylene chloride	mg/kg (ppm)	1	95	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	103	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	107	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	107	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	152	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	108	72-127
Chloroform	mg/kg (ppm)	1	98	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	117	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	110	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	108	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	107	69-128
Carbon tetrachloride	mg/kg (ppm)	1	123	60-139
Benzene	mg/kg (ppm)	1	105	71-118
Trichloroethene	mg/kg (ppm)	1	107	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	107	72-127
Bromodichloromethane	mg/kg (ppm)	1	109	57-126
Dibromomethane	mg/kg (ppm)	1	111	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	120	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	112	67-122
Toluene	mg/kg (ppm)	1	96	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	103	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	101	64-115
2-Hexanone	mg/kg (ppm)	5	104	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	98	72-130
Tetrachloroethene	mg/kg (ppm)	1	96	72-114
Dibromochloromethane	mg/kg (ppm)	1	101	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	98	74-132
Chlorobenzene	mg/kg (ppm)	1	98	76-111
Ethylbenzene	mg/kg (ppm)	1	97	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	95	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	97	74-126
Isopropylbenzene	mg/kg (ppm)	1	94	76-127
Bromoform	mg/kg (ppm)	1	98	56-132
n-Propylbenzene	mg/kg (ppm)	1	98	74-124
Bromobenzene	mg/kg (ppm)	1	97	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	97	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	104	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	102	61-137
2-Chlorotoluene	mg/kg (ppm)	1	95	74-121
4-Chlorotoluene	mg/kg (ppm)	1	97	75-122
tert-Butylbenzene	mg/kg (ppm)	1	98	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	100	76-125
sec-Butylbenzene	mg/kg (ppm)	1	96	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	97	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	97	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	93	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	97	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	104	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	101	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	105	50-153
Naphthalene	mg/kg (ppm)	1	100	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	99	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 209063-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Dichlorodifluoromethane	ug/L (ppb)	10	<1	86	50-150
Chloromethane	ug/L (ppb)	10	<10	90	50-150
Vinyl chloride	ug/L (ppb)	10	<0.02	98	50-150
Bromomethane	ug/L (ppb)	10	<5	100	50-150
Chloroethane	ug/L (ppb)	10	<1	104	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	95	50-150
Acetone	ug/L (ppb)	50	<50	92	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	93	50-150
Hexane	ug/L (ppb)	10	<5	91	50-150
Methylene chloride	ug/L (ppb)	10	<5	34 vo	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	90	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	101	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	96	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	105	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	101	50-150
Chloroform	ug/L (ppb)	10	6.7	90 b	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	93	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	97	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	95	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	98	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	101	50-150
Benzene	ug/L (ppb)	10	<0.35	98	50-150
Trichloroethene	ug/L (ppb)	10	0.89	98	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<1	92	50-150
Bromodichloromethane	ug/L (ppb)	10	0.67	97	50-150
Dibromomethane	ug/L (ppb)	10	<1	101	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	97	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	99	50-150
Toluene	ug/L (ppb)	10	<1	106	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	100	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	103	50-150
2-Hexanone	ug/L (ppb)	50	<10	104	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	102	50-150
Tetrachloroethene	ug/L (ppb)	10	2.8	100 b	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	105	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	104	50-150
Chlorobenzene	ug/L (ppb)	10	<1	102	50-150
Ethylbenzene	ug/L (ppb)	10	<1	102	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	101	50-150
m,p-Xylene	ug/L (ppb)	20	<2	103	50-150
o-Xylene	ug/L (ppb)	10	<1	102	50-150
Styrene	ug/L (ppb)	10	<1	99	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	99	50-150
Bromoform	ug/L (ppb)	10	<5	111	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	105	50-150
Bromobenzene	ug/L (ppb)	10	<1	105	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	101	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	105	50-150
2-Chlorotoluene	ug/L (ppb)	10	<1	101	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	104	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	104	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	102	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	102	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	103	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	104	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	102	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	102	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	108	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	97	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	87	50-150
Naphthalene	ug/L (ppb)	10	<1	95	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	92	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/15/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

**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	103	84	46-206	20
Chloromethane	ug/L (ppb)	10	90	77	70-142	16
Vinyl chloride	ug/L (ppb)	10	97	85	70-130	13
Bromomethane	ug/L (ppb)	10	96	81	56-197	17
Chloroethane	ug/L (ppb)	10	103	90	70-130	13
Trichlorofluoromethane	ug/L (ppb)	10	95	81	70-130	16
Acetone	ug/L (ppb)	50	87	72	10-140	19
1,1-Dichloroethene	ug/L (ppb)	10	100	87	70-130	14
Hexane	ug/L (ppb)	10	87	76	54-136	13
Methylene chloride	ug/L (ppb)	10	68	38 vo	43-134	57 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	89	79	70-130	12
trans-1,2-Dichloroethene	ug/L (ppb)	10	104	90	70-130	14
1,1-Dichloroethane	ug/L (ppb)	10	97	81	70-130	18
2,2-Dichloropropane	ug/L (ppb)	10	106	93	70-130	13
cis-1,2-Dichloroethene	ug/L (ppb)	10	101	89	70-130	13
Chloroform	ug/L (ppb)	10	91	80	70-130	13
2-Butanone (MEK)	ug/L (ppb)	50	84	88	17-154	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	95	85	70-130	11
1,1,1-Trichloroethane	ug/L (ppb)	10	92	80	70-130	14
1,1-Dichloropropene	ug/L (ppb)	10	98	85	70-130	14
Carbon tetrachloride	ug/L (ppb)	10	100	87	70-130	14
Benzene	ug/L (ppb)	10	98	87	70-130	12
Trichloroethene	ug/L (ppb)	10	101	89	70-130	13
1,2-Dichloropropane	ug/L (ppb)	10	91	82	70-130	10
Bromodichloromethane	ug/L (ppb)	10	93	83	70-130	11
Dibromomethane	ug/L (ppb)	10	94	89	70-130	5
4-Methyl-2-pentanone	ug/L (ppb)	50	92	81	68-130	13
cis-1,3-Dichloropropene	ug/L (ppb)	10	94	88	69-131	7
Toluene	ug/L (ppb)	10	107	95	70-130	12
trans-1,3-Dichloropropene	ug/L (ppb)	10	99	93	70-130	6
1,1,2-Trichloroethane	ug/L (ppb)	10	100	92	70-130	8
2-Hexanone	ug/L (ppb)	50	98	89	45-138	10
1,3-Dichloropropane	ug/L (ppb)	10	95	89	70-130	7
Tetrachloroethene	ug/L (ppb)	10	109	97	70-130	12
Dibromochloromethane	ug/L (ppb)	10	104	92	60-148	12
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	100	91	70-130	9
Chlorobenzene	ug/L (ppb)	10	100	90	70-130	11
Ethylbenzene	ug/L (ppb)	10	103	92	70-130	11
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	98	87	70-130	12
m,p-Xylene	ug/L (ppb)	20	103	92	70-130	11
o-Xylene	ug/L (ppb)	10	103	91	70-130	12
Styrene	ug/L (ppb)	10	96	86	70-130	11
Isopropylbenzene	ug/L (ppb)	10	102	88	70-130	15
Bromoform	ug/L (ppb)	10	106	97	69-138	9
n-Propylbenzene	ug/L (ppb)	10	101	92	70-130	9
Bromobenzene	ug/L (ppb)	10	98	92	70-130	6
1,3,5-Trimethylbenzene	ug/L (ppb)	10	101	90	70-130	12
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	97	93	70-130	4
1,2,3-Trichloropropane	ug/L (ppb)	10	95	87	70-130	9
2-Chlorotoluene	ug/L (ppb)	10	99	89	70-130	11
4-Chlorotoluene	ug/L (ppb)	10	99	92	70-130	7
tert-Butylbenzene	ug/L (ppb)	10	102	92	70-130	10
1,2,4-Trimethylbenzene	ug/L (ppb)	10	99	92	70-130	7
sec-Butylbenzene	ug/L (ppb)	10	102	91	70-130	11
p-Isopropyltoluene	ug/L (ppb)	10	104	92	70-130	12
1,3-Dichlorobenzene	ug/L (ppb)	10	99	90	70-130	10
1,4-Dichlorobenzene	ug/L (ppb)	10	95	87	70-130	9
1,2-Dichlorobenzene	ug/L (ppb)	10	97	91	70-130	6
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	98	91	70-130	7
1,2,4-Trichlorobenzene	ug/L (ppb)	10	96	85	70-130	12
Hexachlorobutadiene	ug/L (ppb)	10	98	87	70-130	12
Naphthalene	ug/L (ppb)	10	90	82	70-130	9
1,2,3-Trichlorobenzene	ug/L (ppb)	10	93	84	70-130	10

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.

209063

SAMPLE CHAIN OF CUSTODY

9/7/22

Page # 1 of 1

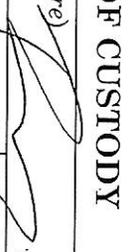
Report To Lynn Gunn

Company Ever NW

Address 410 SE 24th Ave

City, State, ZIP Portland, OR 97214

Phone 503-452-5561 Email lynn.gunn@ever-nw.com

SAMPLERS (signature) 

PROJECT NAME 1638-22001-03 PO # \_\_\_\_\_

REMARKS \_\_\_\_\_ INVOICE TO \_\_\_\_\_

Project specific RIs? - Yes / No \_\_\_\_\_

TURNAROUND TIME EDS

SAMPLE DISPOSAL

Standard turnaround

RUSH

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED						Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270		PCBs EPA 8082	
B04-10	01A-E	09/06/22	13:00	501	5				X	X				
B05-5	02	09/06/22	09:15	501	5				X	X				
B04-5 (MS-42)	03	09/06/22	14:00	501	5				X	X				
B04-6 (W-45)	04A-G	09/06/22	16:50	water	7	X	X		X					

Friedman & Bryya, Inc.  
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: _____	_____	_____	_____	_____
Received by: <u>mlp</u>	<u>Nolan Phan</u>	<u>FAST</u>	<u>9/5/22</u>	<u>1000</u>
Relinquished by: _____	_____	_____	_____	_____
Received by: _____	_____	_____	_____	_____

Samples received at 2 oc

## Analytical Laboratory Data Validation Check Sheet

Project Name: 10543 SE Fuller Road, Milwaukie      Project Number: 1638-22001-03

Date of Review: 9/16/2022      Lab. Name: F&B      Lab Batch ID #: 209063

### Chain of Custody

- |  |   |  |  |
|--|---|--|--|
| 1.) Are all requested analyses reported? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 2.) Were the requested methods used?     | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 3.) Trip blank submitted?                | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |
| 4.) Field blank submitted?               | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |

### Timing

- |  |   |                             |  |
|--|---|-----------------------------|--|
| 5.) Samples extracted within holding times?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |  |
| If not, are all discrepancies footnoted?     | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| 6.) Analysis performed within holding times? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |  |
| If not, are all discrepancies footnoted?     | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |

### Quality Assurance/Quality Control

- |  |   |  |  |
|--|---|--|--|
| 7.) Are the required reporting limits reported? (MRLs vs MDLs/PQLs)            | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 8.) Are all reported values above either MRL or MDL?                           | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 9.) Are all values between the MDL & PQL tagged as trace?                      | <input type="checkbox"/> yes            | <input type="checkbox"/> no            | <input checked="" type="checkbox"/> NA |
| 10a.) Are reporting limits raised for other reason besides high analyte conc.? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |
| 10b.) If so, are they footnoted?   | <input type="checkbox"/> yes            | <input type="checkbox"/> no            | <input checked="" type="checkbox"/> NA |
| 11.) Lab method blank completed?   | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| 12.) Lab, Field, or Trip Blank(s) report detections?                           | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |
- If yes, indicate blank type, chemical(s) and concentration(s): \_\_\_\_\_

- |   |   |                             |  |
|---|---|-----------------------------|--|
| 13.) For inorganics and metals, is there one method blank for each analyte? | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| If not, are all discrepancies footnoted?                                    | <input type="checkbox"/> yes            | <input type="checkbox"/> no |  |
| 14.) For VOCs, is there one method blank for each day of analysis?          | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no | <input type="checkbox"/> NA            |
| If not, are all discrepancies footnoted?                                    | <input type="checkbox"/> yes            | <input type="checkbox"/> no |  |
| 15.) For SVOC's, is there one method blank for each extraction batch?       | <input type="checkbox"/> yes            | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| If not, are all discrepancies footnoted?                                    | <input type="checkbox"/> yes            | <input type="checkbox"/> no |  |

### Accuracy

- |  |   |  |  |
|--|---|--|--|
| 16.) Is there a surrogate spike recovery for all VOC & SVOC samples?   | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            | <input type="checkbox"/> NA            |
| Do all surrogate spike recoveries meet accepted criteria?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |  |
| If not, are all discrepancies footnoted?   | <input type="checkbox"/> yes            | <input type="checkbox"/> no            | <input checked="" type="checkbox"/> NA |
| 17.) Is there a spike recovery for all Laboratory Control Samples?   | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            | <input type="checkbox"/> NA            |
| Do all LCS/LCSD spike recoveries meet accepted criteria?   | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |  |
| The value reported for methylene chloride fell outside the control limits established for this analyte (vo). |   |  |  |
| If not, are all discrepancies footnoted?   | <input type="checkbox"/> yes            | <input type="checkbox"/> no            | <input type="checkbox"/> NA            |
| 18.) Are all LCS/LCSD RPDs within acceptable limits?   | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no | <input type="checkbox"/> NA            |
| If not, are all discrepancies footnoted?   | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            | <input type="checkbox"/> NA            |
- See above (vo).

### Precision

- |   |   |  |                             |
|---|---|--|-----------------------------|
| 19.) Are all matrix spike/matrix spike duplicate recoveries within acceptable limits? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no | <input type="checkbox"/> NA |
| If not, are all discrepancies footnoted?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            | <input type="checkbox"/> NA |

The value reported for methylene chloride fell outside the control limits established for this analyte (vo).

Chloroform and tetrachloroethene were spiked at a level less than five times what were present in the sample; therefore, the matrix spike recoveries may not be meaningful (b).

20.) Are all matrix spike/matrix spike duplicate RPDs within acceptable limits?

yes no NA

If not, are all discrepancies footnoted?

yes no NA

21.) Do all RPD calculations for Field Duplicates meet accepted criteria?

yes no NA

Comments:

The laboratory control sample percent recovery and RPD of methylene chloride were out of control limits. the reported concentration should be considered an estimate (jl).

The calibration results for methylene chloride were outside of acceptance criteria. The value reported is an estimate (ca).

Gasoline was not detected in one or more of the duplicate analyses; therefore, calculation of the RPD is not applicable (nm).

Initial Review By: LP \_\_\_\_\_

Final Review By: \_\_\_\_\_ EB \_\_\_\_\_

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  
(206) 285-8282  
fbi@isomedia.com  
www.friedmanandbruya.com

September 20, 2022

Lynn Green, Project Manager  
Evren Northwest, Inc.  
PO Box 14488  
Portland, OR 97293

Dear Mr Green:

Included are the additional results from the testing of material submitted on September 7, 2022 from the 1638-22001-03, F&BI 209063 project. There are 4 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures

c: Neil Woller, Paul Trone, Evan Bruggeman  
ENW0920R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 7, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1638-22001-03, F&BI 209063 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
209063 -01	B04-10
209063 -02	B05-5
209063 -03	B04-SWI-42
209063 -04	B04-GW-45

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/20/22  
Date Received: 09/07/22  
Project: 1638-22001-03, F&BI 209063  
Date Extracted: 09/16/22  
Date Analyzed: 09/16/22

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND RESIDUAL RANGE  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Residual Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
B04-10 209063-01	<50	130 j	94
Method Blank 02-2220 MB2	<50	<100 j	92

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/20/22

Date Received: 09/07/22

Project: 1638-22001-03, F&BI 209063

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 209209-02 (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	88	92	73-135	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	74-139

# 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.

209063

SAMPLE CHAIN OF CUSTODY

9/7/22 202 145-45/22  
Page # 01 (bp) of 01/143

Report To: Lynn Gunn  
Company: ERM NW  
Address: 410 SE 24th Ave  
City, State, ZIP: Portland, OR 97224  
Phone: 503-452-5561 Email: Lynn.Gunn@ERM.com

SAMPLERS (signature)	PROJECT NAME	PO #
	1638-22001-03	
REMARKS	INVOICE TO	
Project specific RIs? - Yes / No		

TURNAROUND TIME	SAMPLE DISPOSAL
<input checked="" type="checkbox"/> Standard turnaround	<input type="checkbox"/> Archive samples
<input type="checkbox"/> RUSH	<input type="checkbox"/> Other
Rush charges authorized by:	Default: Dispose after 30 days
ED3	

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
B04-10	01A-E	09/06/22	13:00	Soil	5	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				per ER
B05-5	02 /	09/06/22	09:15	Soil	5				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				a/15/22
B04-SW-42	03 /	09/06/22	14:05	Soil	5				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				ME
B04-EW-45	04A-G	09/06/22	14:50	water	7	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>					

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Reinquished by:				
Received by:	Nhan Phan	ERT	9/5/22	1000
Reinquished by:				
Received by:			Samples received at	200

Friedman & Bruya, Inc.  
Ph. (206) 285-8282

## Analytical Laboratory Data Validation Check Sheet

Project Name: 10543 SE Fuller Road, Milwaukie      Project Number: 1638-22001-03

Date of Review: 9/20/2022      Lab. Name: F&B      Lab Batch ID #: 209063

Chain of Custody

- 1.) Are all requested analyses reported?      yes    no
- 2.) Were the requested methods used?      yes    no
- 3.) Trip blank submitted?      yes    no
- 4.) Field blank submitted?      yes    no

Timing

- 5.) Samples extracted within holding times?      yes    no  
     If not, are all discrepancies footnoted?      yes    no    NA
- 6.) Analysis performed within holding times?      yes    no  
     If not, are all discrepancies footnoted?      yes    no    NA

Quality Assurance/Quality Control

- 7.) Are the required reporting limits reported? (MRLs vs MDLs/PQLs)      yes    no
- 8.) Are all reported values above either MRL or MDL?      yes    no
- 9.) Are all values between the MDL & PQL tagged as trace?      yes    no    NA
- 10a.) Are reporting limits raised for other reason besides high analyte conc.?      yes    no
- 10b.) If so, are they footnoted?      yes    no    NA
- 11.) Lab method blank completed?      yes    no
- 12.) Lab, Field, or Trip Blank(s) report detections?      yes    no

If yes, indicate blank type, chemical(s) and concentration(s): \_\_\_\_\_

- 13.) For inorganics and metals, is there one method blank for each analyte?      yes    no    NA  
     If not, are all discrepancies footnoted?      yes    no
- 14.) For VOCs, is there one method blank for each day of analysis?      yes    no    NA  
     If not, are all discrepancies footnoted?      yes    no
- 15.) For SVOC's, is there one method blank for each extraction batch?      yes    no    NA  
     If not, are all discrepancies footnoted?      yes    no

Accuracy

- 16.) Is there a surrogate spike recovery for all VOC & SVOC samples?      yes    no    NA  
     Do all surrogate spike recoveries meet accepted criteria?      yes    no  
     If not, are all discrepancies footnoted?      yes    no    NA
- 17.) Is there a spike recovery for all Laboratory Control Samples?      yes    no    NA  
     Do all LCS/LCSD spike recoveries meet accepted criteria?      yes    no  
     If not, are all discrepancies footnoted?      yes    no    NA
- 18.) Are all LCS/LCSD RPDs within acceptable limits?      yes    no    NA  
     If not, are all discrepancies footnoted?      yes    no    NA

Precision

- 19.) Are all matrix spike/matrix spike duplicate recoveries within acceptable limits?      yes    no    NA  
     If not, are all discrepancies footnoted?      yes    no    NA
- 20.) Are all matrix spike/matrix spike duplicate RPDs within acceptable limits?      yes    no    NA  
     If not, are all discrepancies footnoted?      yes    no    NA
- 21.) Do all RPD calculations for Field Duplicates meet accepted criteria?      yes    no    NA

Comments:

The concentration of residual range is reported below the lowest calibration point; therefore, the value reported is an estimate.

Initial Review By: LP

Final Review By: EB

*Appendix F*

Chemical Inventory by Tenant Space





*Appendix G*

OWRD Well Reports

STATE ENGINEER  
Salem, Oregon

CLAC

CLAC  
00342

# Well Record

STATE WELL NO. 1/2-28P1  
COUNTY MILTNOMAH  
APPLICATION NO.

OWNER: M. E. Thomas

MAILING ADDRESS:

LOCATION OF WELL: Owner's No.

CITY AND STATE:

..... 1/4 ..... 1/4 Sec. ..... T. ..... N. E. S., R. ..... W., W.M.

Bearing and distance from section or subdivision corner


Altitude at well 375

TYPE OF WELL: Drilled Date Constructed

Depth drilled 225 Depth cased 99

Section

### CASING RECORD:

6 inch

### FINISH:

### AQUIFERS:

Troutdale Formation

### WATER LEVEL:

109.0 feet below land surface on September 19, 1955

PUMPING EQUIPMENT: Type Submersible H.P.  
Capacity G.P.M.

### WELL TESTS:

Drawdown ft. after hours G.P.M.

Drawdown ft. after hours G.P.M.

USE OF WATER Domestic Temp. °F., 19

SOURCE OF INFORMATION USGS

DRILLER or DIGGER

### ADDITIONAL DATA:

Log Water Level Measurements Chemical Analysis Aquifer Test

### REMARKS:

RECEIVED  
 SEP 8 1959  
 STATE ENGINEER

CLAC  
 00374

WATER WELL REPORT  
 STATE OF OREGON

State Well No. 1/2-32A  
 State Permit No. \_\_\_\_\_

File Original and  
 First Copy with the  
 STATE ENGINEER,  
 SALEM, OREGON

(1) OWNER: Joseph C. Imper  
 Name \_\_\_\_\_  
 Address 171-1/2 Ave. 82 Sherwood, Ore.

(2) LOCATION OF WELL:  
 County Cackamas Owner's number, if any—  
 1/4 Section T. R. W.M.  
 Bearing and distance from section or subdivision corner  
Lot 19 - Property

(3) TYPE OF WORK (check):  
 New Well  Deepening  Reconditioning  Abandon   
 If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):  
 Domestic  Industrial  Municipal   
 Irrigation  Test Well  Other

(5) TYPE OF WELL:  
 Rotary  Driven   
 Cable  Jetted   
 Dug  Bored

(6) CASING INSTALLED:  
 Threaded  Welded   
6" Diam. from 0 ft. to 45 ft. Gage 270  
 " Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_  
 " Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_

(7) PERFORATIONS:  
 Perforated?  Yes  No  
 Type of perforator used \_\_\_\_\_  
 SIZE of perforations in. by in.  
 perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

(8) SCREENS:  
 Well screen installed  Yes  No  
 Manufacturer's Name \_\_\_\_\_  
 Type \_\_\_\_\_ Model No. \_\_\_\_\_  
 Slot size Set from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 Diam. Slot size Set from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

(9) CONSTRUCTION:  
 Was well gravel packed?  Yes  No Size of gravel: \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 Was a surface seal provided?  Yes  No To what depth? 45 ft.  
 Material used in seal— Casing  
 Did any strata contain unusable water?  Yes  No  
 Type of water? \_\_\_\_\_ Depth of strata \_\_\_\_\_  
 Method of sealing strata off \_\_\_\_\_

(10) WATER LEVELS:  
 Static level 1.65 ft. below land surface Date 8-31-59  
 Artesian pressure \_\_\_\_\_ lbs. per square inch Date \_\_\_\_\_

Log Accepted by:  
 [Signed] J.C. Imper Date 9-2-, 1959  
 (Owner)

(11) WELL TESTS:  
 Drawdown is amount water level is lowered below static level  
 Was a pump test made?  Yes  No If yes, by whom?  
 Yield: gal./min. with ft. drawdown after hrs.  
 " " " " "  
 " " " " "  
 Baller test 10 gal./min. with 60 ft. drawdown after 3 hrs.  
 Artesian flow g.p.m. Date \_\_\_\_\_  
 Temperature of water \_\_\_\_\_ Was a chemical analysis made?  Yes  No

(12) WELL LOG:  
 Diameter of well 6 inches.  
 Depth drilled 258 ft. Depth of completed well 258 ft.  
 Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Yellow clay	0	25
Sand, rocks	25	41
Poros "	41	70
Brown "	70	84
Blue basalt "	84	98
Brown rock	98	116
Poros Blue "	116	138
Poros brown "	138	150
Blue basalt	150	233
Brown rock	233	246
Red "	246	251
Brown "	251	258

Work started 8-4-59 19 \_\_\_\_\_ Completed 8-31- 1959

(13) PUMP:  
 Manufacturer's Name Jacuzzi  
 Type: 1 H.P. Submersible H.P.

Well Driller's Statement:  
 This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME SIMONS & GREGORY  
 (Person, firm, or corporation) Garden Home Rd.  
 Address Portland 19, Oregon

Driller's well number \_\_\_\_\_  
 [Signed] \_\_\_\_\_ (Well Driller)  
 License No. 99 Date Sept 1, 1959





STATE ENGINEER  
Salem, Oregon

CLAC 00379 Well Record

STATE WELL NO. 1/2-32H  
COUNTY CLACKAMAS  
APPLICATION NO. GR-2684

OWNER: Mary Martello

MAILING ADDRESS: 11175 S.E. 82nd. Ave.

LOCATION OF WELL: Owner's No.

CITY AND STATE: Portland 66, Oregon

97266

SE 1/4 NE 1/4 Sec. 32 T. 1 N S., R. 2 E. W.M.

Bearing and distance from section or subdivision corner 1700' S. & 280' W.


Section

Altitude at well

TYPE OF WELL: drilled Date Constructed 1944

Depth drilled 89 Depth cased 89

CASING RECORD:

8-inch

FINISH:

AQUIFERS:

WATER LEVEL:

40-feet

PUMPING EQUIPMENT: Type Downward Jet H.P. 3  
Capacity 1600 gph GPM

WELL TESTS:

Drawdown 0 ft. after hours Pumping 24 G.P.M.

Drawdown ft. after hours G.P.M.

USE OF WATER irrigation Temp. °F. 19

SOURCE OF INFORMATION GR-2542

DRILLER or DIGGER Zeig 82nd and Otty Road, Portland 66, Oregon

ADDITIONAL DATA:

Log Water Level Measurements Chemical Analysis Aquifer Test

REMARKS:

