



Indoor Air Quality Assessment

Former RB Recycling
643 N Argyle Street
Portland, Oregon

ECSI No. 4157

October 30, 2024

Prepared on behalf of:



4475 SW Scholls Ferry Road, Suite 256
Portland, Oregon 97225

Prepared by:



Offices in Portland and Bend, Oregon
P.O. Box 14488, Portland, Oregon 97293
T. 503-452-5561 / E. ENW@EVREN-NW.com

Project No. 1997-24001-01

TECHNICAL MEMORANDUM

Indoor Air Quality Assessment

Former RB Recycling
643 N Argyle Street
Portland, Oregon
(ECSI No. 4157)

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This Technical Memorandum has been prepared by EVREN Northwest, Inc. on behalf of:



4475 SW Scholls Ferry Road, Suite 256
Portland, Oregon 97225



EXP. 2/1/2025



Lynn D. Green, C.E.G., *Principal Engineering Geologist*

and



Evan Bruggeman, R.G., *Principal Field Geologist*



Project No. 1997-24001-01

Contents

1.0	INTRODUCTION	1
1.1	Background	1
1.2	Purpose	1
1.3	Scope of Work	1
2.0	METHODS AND PROCEDURES.....	2
2.1	Pre-Sampling Inventory.....	2
2.2	Sampling Locations	2
2.3	Indoor Air Sampling	2
	2.3.1 Petroleum Hydrocarbons	3
	2.3.2 Volatile Organic Constituents	3
2.4	Analytical Plan	3
2.5	Applicable Cleanup Standards	4
3.0	RESULTS	4
3.1	Total Petroleum Hydrocarbons.....	4
3.2	Volatile Organic Constituents	4
3.3	Quality Control	5
4.0	FURTHER EVALUATION.....	5
4.1	RISK DRIVERS.....	5
4.2	COMPETING SOURCES OF IMPACTS IN AMBIENT AIR	5
5.0	DISCUSSION.....	6
6.0	CONCLUSION	7
7.0	LIMITATIONS	8

Tables (in text)

2-1	Summary of Sampling Locations
2-2	Sampling and Screening Parameters

Tables (behind text)

1	Summary of Analytical Data, Ambient Air
2	Risk Evaluation of Identified COPCs in Ambient Air

Figures (after text)

1	Site Vicinity Map
2	Site Plan
3	Sample Location Diagram

Attachments

A	Site Photographs
B	Inventory of Stored Materials
C	Field Sampling Data Sheets
D	Laboratory Analytical Reports

Technical Memorandum

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1.0 INTRODUCTION

On behalf of K&S Environmental, Inc. (K&S), EVREN Northwest, Inc. (ENW) performed an Indoor Air Quality (IAQ) assessment at the above-referenced commercial property in Portland, Oregon (Figures 1 and 2). The IAQ was performed to further assess whether vapor-phase contaminants associated with the Former RB Recycling release site pose a health threat via the vapor intrusion pathway. This technical memorandum presents a description this Indoor Air investigation, including work conducted, findings, and conclusions.

1.1 Background

Based on August 1, 2024 communication with the Oregon Department of Environmental Quality (ODEQ), it was determined that:

Impacts to ground water at the site exceed ODEQ's vapor intrusion Risk-Based Concentrations (RBCs) near the subject building and therefore further evaluation for potential petroleum vapors inside that building is needed to determine whether petroleum vapor emitted from ground water poses an immediate threat to human health within the confined building space.

1.2 Purpose

The purpose of this IAQ investigation is to determine to what extent petroleum hydrocarbon and related VOC impacts to ground water beneath the subject site may be contributing to indoor air quality inside the onsite office building, and whether contribution exceeds acceptable indoor air screening levels.

1.3 Scope of Work

ENW developed the following scope of work (SOW) for this project:

- Collected 24-hour time-weighted average indoor and outdoor air samples for gasoline- and diesel-range organics (GRO and DRO, respectively), following EPA TO-17 protocol.
- Collected 28-day time-weighted average indoor and outdoor air samples for volatile organic constituents (VOCs), following EPA TO-15 protocol.
- Submitted samples to an independent laboratory for selected analytical procedures.
- Evaluated analytical data with respect to screening levels established by ODEQ.

- Prepared this report documenting the findings of the investigation.

The field activities described in this report were performed in September through October 2024.

2.0 METHODS AND PROCEDURES

The following sections describe the methods and procedures utilized for this assessment. Photographs taken during field work are included in Attachment A, and an inventory of stored materials observed during the indoor air survey are included in Attachment B.

2.1 Pre-Sampling Inventory

Concurrently with the deployment of indoor air samples, ENW conducted an inventory of stored materials suggestive of potential VOC sources. During this inventory, the following items were noted present:

- Rust-oleum spray paint
- Gas-powered leaf blower

A copy of the inventory form is included as Attachment B.

2.2 Sampling Locations

The locations of the indoor and ambient air sample locations were selected by K&S based on prior discussion with ODEQ. The building-specific ambient outdoor air sample location was sited outside the building in a presumed upwind location. Sampling locations are summarized in Table 2-1 and shown on Figure 3.

Table 2-1. Summary of Sampling Locations

Location ID	EPA Testing Method	Date Sample Started	Date Sample Stopped	Height Above Floor (feet)	Sampled By	Location
IA01	TO-17	9/11/2024	9/12/2024	5	ENW	Vacant Office
	TO-15	9/11/2024	10/9/2024			
IA02	TO-17	9/11/2024	9/12/2024	5	ENW	Office
	TO-15	9/11/2024	10/9/2024			
OA01	TO-17	9/11/2024	9/12/2024	5	ENW	Northeast of building
	TO-15	9/11/2024	10/9/2024			

2.3 Indoor Air Sampling

ENW began indoor air sampling on September 11, 2024, in general accordance with ODEQ’s DRAFT *Guidance for Assessing and Remediating Vapor Intrusion into Buildings*.¹ ENW performed indoor and ambient air sampling following the following protocol. The samplers were placed such that nothing could restrict circulation of air and confirmed that there are no vents or features nearby that move air across the samplers in a focused way.

¹ ODEQ. March 2024. *Guidance for Assessing and Remediating Vapor Intrusion into Buildings (DRAFT)*

2.3.1 Petroleum Hydrocarbons

Ambient air samples for GRO and DRO were collected from September 11th through 12th, 2024. A flow regulator and a low-flow vacuum pump were connected with clean Teflon[®] tubing at each sampling location and the flow rate adjusted to approximately 20 milliliters per minute. For each sampling location, a new laboratory-provided TO-17 sample cartridge was affixed to the end of the Teflon[®] tubing and positioned between five and six feet above the ground. The sample cartridge consisted of a stainless-steel sorbent tube packed with activated carbon composed of Carbopack C (a weak sorbent), Carbopack B (a medium sorbent) and Carbosieve SIII (a strong sorbent), and was delivered, stored, and transported either refrigerated or on ice, for optimal preservation. Each sampling location was sampled for 24 hours (1440 minutes) for a total volume of approximately 28 liters of sampled air per location). Starting and ending times recorded for each location. After sampling, each sampling cartridge was appropriately labeled, wrapped, and immediately placed in cooled storage. The air samples were shipped by courier to Friedman and Bruya of Seattle, Washington for analysis following chain-of-custody protocol.

2.3.2 Volatile Organic Constituents

Ambient air samples for VOCs were collected from September 11th through October 9th, 2024 using laboratory-supplied SUMMA canisters connected to 28-day flow regulators. At each location, the sampler intake was positioned a height of five to six feet above the floor level (or ground surface for the outdoor air sample). After 28 days, the SUMMA canister valves were closed and sampling terminated prior to the pressure dropping below -5 inches of mercury (inHg). The final time and pressure were recorded and the samples appropriately labeled, packaged, and transported via courier to the laboratory under chain-of-custody protocols.

2.4 Analytical Plan

The indoor and outdoor air samples were analyzed as follows:

GRO and DRO were analyzed in the 24-hour samples, using Environmental Protection Agency (EPA) Method TO-17.

VOCs were analyzed in the 28-day samples, using EPA Method TO-15.

The laboratory analytical report is Attachment D.

2.5 Applicable Cleanup Standards

Risk-based cleanup concentrations are derived in accordance with ODEQ's *Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites* (RBDM) guidance document (2003 revision) and its subsequent updated tables. This document provides guidance on the remediation of petroleum contamination from:

- Underground Storage Tanks regulated under the Cleanup Rules for Leaking Petroleum UST Systems [Oregon Administrative Rule (OAR) 340-122-0205 through 340-122-0360].
- Other sources of contamination regulated under the Hazardous Substance Remedial Action Rules (OAR 340-122-0010 through 340-122-0115).

The State of Oregon developed risk-based concentrations based on the concept of acceptable health risks and conservative assumptions concerning the exposure pathways by which contaminant sources may impact a human receptor. 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, below the constituent threshold concentration at which health impacts would occur.

ODEQ distributes a database of risk-based cleanup concentrations (RBCs) for all constituents and pathways as part of their *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* guidance document. This database, most recently updated in August 2023, was utilized for obtaining current soil gas RBCs for residential properties.

3.0 RESULTS

The indoor and outdoor (ambient) air sampling results are presented in Table 1 and summarized below.

3.1 Total Petroleum Hydrocarbons

GRO was detected in both indoor air samples, at up to 120 $\mu\text{g}/\text{M}^3$, which is below its SLRBC of 300 $\mu\text{g}/\text{M}^3$. Additionally, GRO was detected in the outdoor reference sample at 80 $\mu\text{g}/\text{M}^3$, suggesting likely competing sources for GRO in indoor ambient area.

DRO was detected in both indoor air samples, at up to 110 $\mu\text{g}/\text{M}^3$, exceeding its SLRBC of 100 $\mu\text{g}/\text{M}^3$ at the IA01 sample location. DRO was not detected in the outdoor reference sample.

3.2 Volatile Organic Constituents

Benzene was detected in both indoor air samples, at up to 2.6 $\mu\text{g}/\text{M}^3$, exceeding its SLRBC of 0.36 $\mu\text{g}/\text{M}^3$ at both indoor air sample locations. Additionally, benzene was detected in the outdoor reference sample at 1.0 $\mu\text{g}/\text{M}^3$, suggesting likely competing sources for benzene in indoor ambient area.

Chloroform was detected in both indoor air samples, up to 0.51 $\mu\text{g}/\text{M}^3$, exceeding its SLRBC of 0.12 $\mu\text{g}/\text{M}^3$ at both indoor air sample locations. Additionally, chloroform was detected in the outdoor reference sample at 0.14 $\mu\text{g}/\text{M}^3$, suggesting likely competing sources for chloroform in indoor ambient area.

Naphthalene was detected in both indoor air samples, at up to 0.29 $\mu\text{g}/\text{M}^3$, exceeding its SLRBC of 0.083 $\mu\text{g}/\text{M}^3$ at both indoor air sample locations. Additionally, naphthalene was detected in the outdoor

reference sample at $0.34 \mu\text{g}/\text{M}^3$, suggesting likely competing sources for naphthalene in indoor ambient area.

All other VOCs were either non-detect or detected at concentrations below their respective SLRBCs.

3.3 Quality Control

A review of the laboratory reports indicate samples were analyzed within appropriate quality assurance/quality control (QA/QC) procedures and specified holding times. See attached data validation forms in Attachment D.

4.0 FURTHER EVALUATION

4.1 RISK DRIVERS

Further evaluation of the ambient air data was conducted to determine drivers of potential risk based on site occupation. Table 2 presents this further evaluation, comparing the maximum detected concentration in indoor air to RBCs for residential and occupational use of the property. Based on this evaluation, only benzene in indoor air presents a potential unacceptable risk assuming continued occupational use of the property. This risk evaluation does not take into account competing sources of benzene in indoor air, as outlined in the preceding sections. For example, if you account for contributions of benzene in outdoor air, the net concentration of benzene in indoor air from other sources would be equal to its occupational RBC for ambient air.

4.2 COMPETING SOURCES OF IMPACTS IN AMBIENT AIR

Just prior to the indoor air sampling event on September 11, 2024, ENW inspected the interior of the building for possible competing sources of VOCs. ENW observed a stored chemicals including paint (Rust-oleum, Millers Acri-Lite) and a gas-powered leaf blower. The gas-powered blower was removed from the budling prior to deploying the samples. Regardless, these types of chemicals commonly contain volatile compounds, including benzene, and their presence within an interior space suggests a competing source of VOCs in indoor air.

Chloroform was detected in both indoor air samples and the outdoor reference sample. Since domestic water is supplied by the City of Portland and this water source is chlorinated, it is likely that indoor air concentrations of chloroform are related to water use within the building.

5.0 DISCUSSION

Because indoor air can be contaminated by a number of different sources, ODEQ recommends using multiple lines of evidence to develop and support a hypothesis regarding the contribution of volatilization from ground water to indoor air. By collecting both an indoor and outdoor air sample and conducting a thorough indoor inventory prior to sampling, it can be estimated how much of the measured indoor air contamination is likely to be due to vapor intrusion.

To determine the contribution of vapor intrusion, it was assumed that the outdoor sample is representative of ambient conditions, and likely unaffected by vapors in the building or subsurface. Further, it is assumed that in the absence of indoor VOC emitters (competing VOC sources inside the building) and vapor intrusion impacts, VOC levels indoors should be approximately equal to the VOC concentration measured in the outdoor air that is supplying the building.

Using these simplifying assumptions, the difference between the outdoor TPH and VOC concentrations and the indoor air result represents the likely contribution from vapor intrusion. Subtracting the result for the outdoor (ambient) air concentration from the indoor air concentration results in a likely net contribution from vapor and other sources inside the building. For example, the adjusted concentration for both benzene and naphthalene in the two indoor air samples would be calculated:

[net contribution from subsurface vapor and other competing sources] = [Indoor air concentration] – [outdoor concentration] =

- Benzene
 - IA01 = (2.6– 1.0) $\mu\text{g}/\text{m}^3$ or 1.6 $\mu\text{g}/\text{m}^3$
 - IA02 = (1.4– 1.0) $\mu\text{g}/\text{m}^3$ or 0.4 $\mu\text{g}/\text{m}^3$
- Naphthalene
 - IA01 = (0.18– 0.34) $\mu\text{g}/\text{m}^3$ or 0 $\mu\text{g}/\text{m}^3$
 - IA02 = (0.29– 0.34) $\mu\text{g}/\text{m}^3$ or 0 $\mu\text{g}/\text{m}^3$

However, this does not consider competing sources of TPH and VOCs. ENW observed competing sources of benzene inside the building, including a gas-powered leaf blower, spray paint, adhesives, sealant, paint, and cleaning products. These competing sources, particularly gasoline-powered equipment and paints, likely contribute TPH and VOCs in indoor air in this building.

6.0 CONCLUSION

Based on this evaluation:

DRO in indoor air in sample IA01 slightly exceeds its residential RBC, assuming future residential use; however, it is below its occupational RBC based on current and likely future use.

Benzene in indoor air exceeds its RBC at both indoor air samples assuming future residential use, and its occupational RBC in one sample (IA01) based on current and likely future use. However, considering net contribution from a possible subsurface vapor source, discounting other possible competing sources, only its residential RBC is exceeded. It is likely that items currently stored in the building contribute to benzene concentrations in the building.

Chloroform was detected in both indoor air samples at concentrations exceeding its residential RBC assuming future residential use; however, it is below its occupational RBC based on current and likely future use. Since domestic water is supplied by the City of Portland, and this water source is chlorinated, it is likely that indoor air concentrations of chloroform are related to water use within the building.

Naphthalene was detected in both indoor air samples at concentrations exceeding its residential RBC assuming future residential use; however, it is below its occupational RBC based on current and likely future use. Additionally, considering net contribution from a possible subsurface vapor source, discounting other possible competing sources inside the building, neither RBC is exceeded.

Based on these findings, it is unlikely that occupational RBCs are exceeded when considering net contribution and competing sources. If future residential use of the subject site were to be considered, additional investigation may be warranted.

7.0 LIMITATIONS

The scope of this report is limited to observations made during on-site work; interviews with knowledgeable sources, public agency personnel, and contractors licensed in the state of Washington; and review of readily available published and unpublished reports and literature. These conclusions are based on information supplied by others as well as interpretations by qualified parties.

This report does not extend to the presence of the following conditions, unless they were express concerns of contacted personnel, previous reports and literature, or the scope of work:

1. Naturally occurring toxic or hazardous substances in subsurface soils, geology, and water;
2. Toxicity of substances that are 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; and
4. Unpredictable events that may occur after ENW's site visit, such as illegal dumping or accidental spillage.

There is no practice that is thorough enough to absolutely identify all hazardous substances that may be present at a given site. No sampling program can thoroughly identify all variations in contaminant distribution. ENW's investigation has been focused only on the issue that was specifically identified in the SOW. Therefore, if contamination other than that specifically mentioned is present and not identified as part of a limited SOW, ENW's environmental investigation shall not be construed as a guarantee of the absence of such materials.

ENW performed this study under a limited scope of services, according to our agreement. It is possible, despite the use of reasonable care and interpretation, that ENW may have failed to identify regulation violations related to the presence of hazardous substances other than those specifically mentioned in the SOW. ENW assumes no responsibility for conditions that it did not specifically evaluate or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.

TABLES

Table 1 - Summary of Analytical Data, Ambient Air

Location ID	IA01		IA02		OA01		Maximum Indoor Air Concentration	ODEQs Screening-level RBCs (Chronic, Air) ¹	ODEQs Screening-level RBCs (Acute, Air) ¹	Constituent of Concern (COC)
	Sample ID	IA01-240912	IA01-241009	IA02-240912	IA02-241009	OA01-240912				
Date Sampled	9/12/24	10/9/24	9/12/24	10/9/24	9/12/24	10/9/24				
Depth Sampled (feet)	5		5		6					
Sampled By	ENW		ENW		ENW					
Location	Vacant Office		Office		Outdoor - NE of Building					
Constituent of Interest	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m ³			TRUE OR Y FALSE OR N
Volatile Organic Constituents										
Benzene	---	2.6	---	1.4	---	1.0	2.6	0.36	29	Y
Bromodichloromethane	---	<0.067 (ND)	---	<0.067 (ND)	---	<0.067 (ND)	<0.067 (ND)	0.076	---	N
Bromoform	---	<2.1 k	---	<2.1 k	---	<2.1 k	<2.1 (ND)	2.6	---	N
Bromomethane	---	<3.9 (ND)	---	<3.9 (ND)	---	<3.9 (ND)	<3.9 (ND)	5.2	3900	N
Carbon tetrachloride	---	0.47	---	0.45	---	0.45	0.47	0.47	1900	N
Chlorobenzene	---	<0.46 (ND)	---	<0.46 (ND)	---	<0.46 (ND)	<0.46 (ND)	52	---	N
Chlorodibromomethane (dibromochloromethane)	---	<0.085 k	---	<0.085 k	---	<0.085 k	<0.085 (ND)	NITI	---	N
Chloroform	---	0.51	---	0.46	---	0.14	0.51	0.12	490	Y
Chloromethane	---	<3.7 (ND)	---	<3.7 (ND)	---	<3.7 (ND)	<3.7 (ND)	94	1000	N
Dichlorobenzene, 1,2-	---	<0.6 (ND)	---	<0.6 (ND)	---	<0.6 (ND)	<0.6 (ND)	210	---	N
Dichlorobenzene, 1,3-	---	<0.6 (ND)	---	<0.6 (ND)	---	<0.6 (ND)	<0.6 (ND)	NITI	---	N
Dichlorobenzene, 1,4-	---	<0.23 k	---	<0.23 k	---	<0.23 k	<0.23 (ND)	0.26	12,000	N
Dichloroethane, 1,1-	---	<0.4 (ND)	---	<0.4 (ND)	---	<0.4 (ND)	<0.4 (ND)	1.8	---	N
Dichloroethene, 1,1-	---	<0.4 (ND)	---	<0.4 (ND)	---	<0.4 (ND)	<0.4 (ND)	210	200	N
Dichloroethylene, cis-1,2-	---	<0.4 (ND)	---	<0.4 (ND)	---	<0.4 (ND)	<0.4 (ND)	42	---	N
Dichloroethylene, trans-1,2-	---	<0.4 (ND)	---	<0.4 (ND)	---	<0.4 (ND)	<0.4 (ND)	42	790	N
Methylene Chloride (Dichloromethane)	---	<35 (ND)	---	<35 (ND)	---	<35 (ND)	<35 (ND)	100	2100	N
EDB (dibromoethane, 1,2-)	---	<0.077 (ND)	---	<0.077 (ND)	---	<0.077 (ND)	<0.077 (ND)	0.0047	---	(Y)
EDC (dichloroethane, 1,2-)	---	0.065	---	0.065	---	0.069	0.069	0.11	---	N
Ethylbenzene	---	0.66	---	0.59	---	0.64	0.66	1.1	22000	N
MTBE (methyl t-butyl ether)	---	<7.2 (ND)	---	<7.2 (ND)	---	<7.2 (ND)	<7.2 (ND)	11	8000	N
Naphthalene	---	0.18	---	0.29	---	0.34	0.34	0.083	200	Y
iso-Propylbenzene (cumene)	---	<9.8 (ND)	---	<9.8 (ND)	---	<9.8 (ND)	<9.8 (ND)	420	---	N
Tetrachloroethene (PCE)	---	<6.8 (ND)	---	<6.8 (ND)	---	<6.8 (ND)	<6.8 (ND)	11	41	N
Toluene	---	<7.5 (ND)	---	<7.5 (ND)	---	<7.5 (ND)	<7.5 (ND)	5200	7500	N
Trichloroethane, 1,1,1-	---	<0.55 (ND)	---	<0.55 (ND)	---	<0.55 (ND)	<0.55 (ND)	5200	11000	N
Trichloroethane, 1,1,2-	---	<0.055 (ND)	---	<0.055 (ND)	---	<0.055 (ND)	<0.055 (ND)	0.18	0	N
Trichloroethene (TCE)	---	<0.11 (ND)	---	<0.11 (ND)	---	<0.11 (ND)	<0.11 (ND)	0.48	2.1	N
Trichlorofluoromethane (Freon 11)	---	<2.2 (ND)	---	<2.2 (ND)	---	<2.2 (ND)	<2.2 (ND)	NITI	---	N
Trimethylbenzene, 1,2,4-	---	<4.9 (ND)	---	<4.9 (ND)	---	<4.9 (ND)	<4.9 (ND)	63	---	N
Trimethylbenzene, 1,3,5-	---	<4.9 (ND)	---	<4.9 (ND)	---	<4.9 (ND)	<4.9 (ND)	63	---	N
Vinyl chloride	---	<0.26 (ND)	---	<0.26 (ND)	---	<0.26 (ND)	<0.26 (ND)	0.17	1300	(Y)
Xylenes	---	2.89	---	2.64	---	2.72	2.89	100	8700	N
Total Petroleum Hydrocarbons										
Generic Gasoline (GRO)	120	---	120	---	80	---	120	300	--	N
Generic Diesel / Heating Oil (DRO)	110	---	100	---	<56 (ND)	---	110	100	--	Y

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/m³ = micrograms per cubic meter of air .

GRO = gasoline-range organics.

DRO = diesel-range organics.

RRO = residual-range organics.

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

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

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

NITI = no inhalation toxicity information

Table 2 - Risk Evaluation of Identified COPCs in Ambient Air

Contaminated Medium		AIR µg/m ³								Maximum Detected Concentration
Exposure Pathway		Chronic RBC _{air}				Acute RBC _{air}				
Receptor Scenario		Residential		Occupational		Residential		Occupational		
Direct or Indirect Pathway (see notes)		DCA		DCA		DCA		DCA		
Contaminant of Concern	Note		Note		Note		Note		Note	µg/m ³
Volatile Organic Constituents										
Benzene	c, v	0.36		1.6		29		87		2.6
Chloroform	c, v	0.12		0.53		490.00		1500		0.51
Naphthalene	c, v	0.083		0.36		200		600		0.34
Total Petroleum Hydrocarbons										
Generic Diesel / Heating Oil (DRO)	nc, v	100		430		-		-		110

ND = not detected at or above laboratory method reporting limits

— = not analyzed or not applicable.

ug/m³ = micrograms per cubic meter of air .

c = carcinogenic

nc = noncarcinogenic

v = volatile

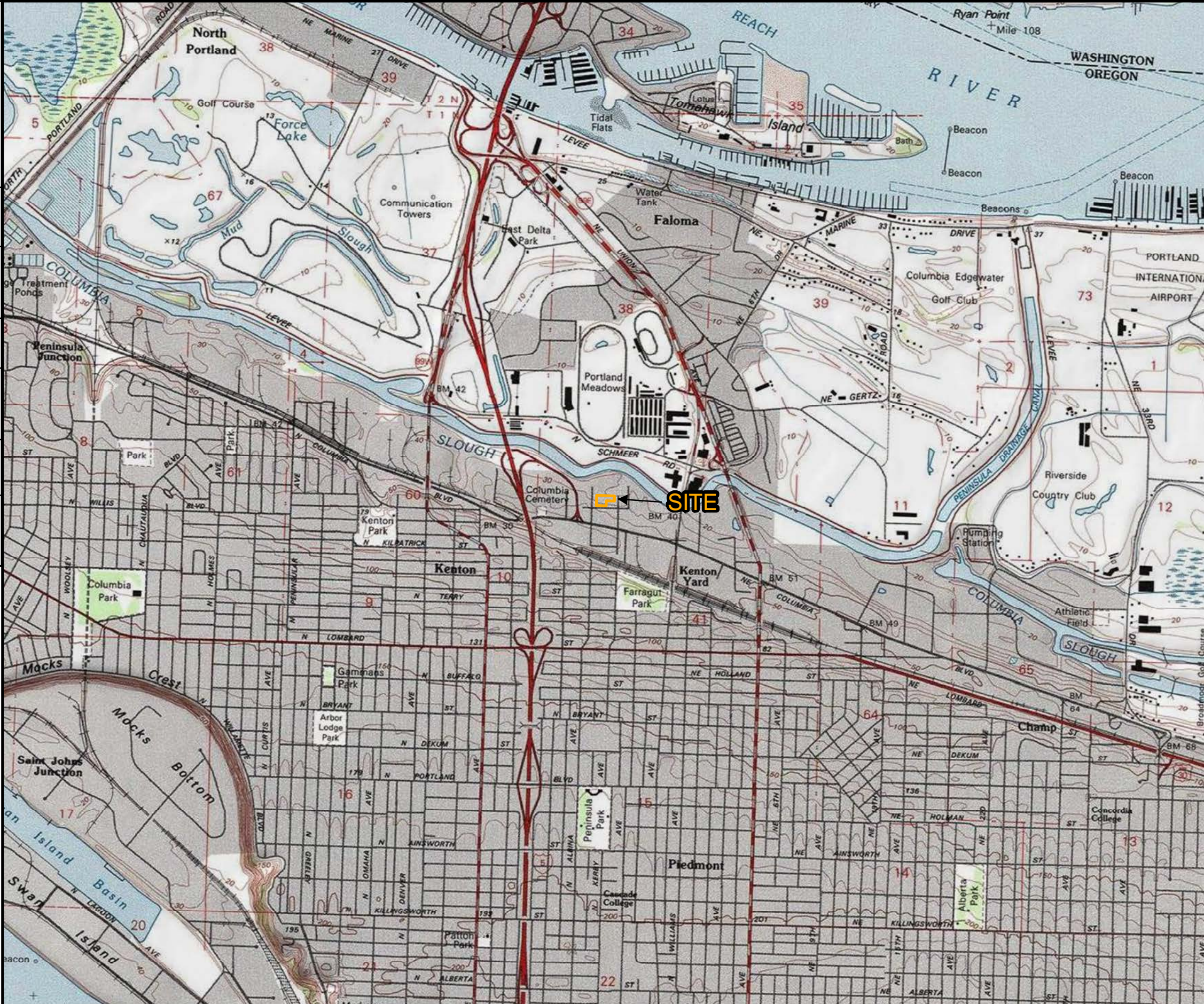
GRO = gasoline-range organics.

DRO = diesel-range organics.

BoldedShaded concentrations exceed receptor risk-based concentrations for ambient air.

FIGURES

1997-24001(V01)
 DRAWING NUMBER
 APPROVED BY L. GREEN 10/30/2024
 CHECKED BY T. BENNETT 10/30/2024
 DRAWN BY M. FERRY 10/30/2024



LEGEND:
 SUBJECT PROPERTY BOUNDARY

NOTES:
 1. BASE MAP DEVELOPED BY THE USGS (2013).

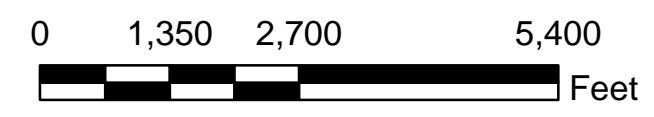




FIGURE 1
SITE VICINITY MAP
643 N ARGYLE STREET
PORTLAND, OREGON






1997-24001(V01)
 DRAWING NUMBER

CHECKED BY T. BENNETT 10/30/2024
 APPROVED BY L. GREEN 10/30/2024

DRAWN BY M. FERRY 10/30/2024

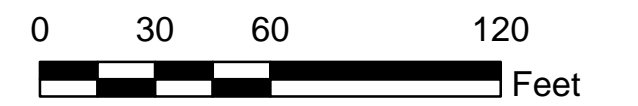


LEGEND:

-  SUBJECT PROPERTY BOUNDARY
-  SUBJECT BUILDING
-  CATCH BASIN
-  POLE TRANSFORMER
-  TRUCK FUEL STATION

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2023 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



(APPROXIMATE 1" = 50 FEET WHEN PRINTED 11X17)







**FIGURE 2
 SITE PLAN**

**643 N ARGYLE STREET
 PORTLAND, OREGON**

1997-24001(V04)
 DRAWING NUMBER
 10/30/2024
 L. GREEN
 APPROVED BY
 10/30/2024
 T. BENNETT
 CHECKED BY
 10/30/2024
 M. FERRY
 DRAWN BY



LEGEND:

-  SUBJECT PROPERTY BOUNDARY
-  SUBJECT BUILDING
-  AIR SAMPLE LOCATION
-  CATCH BASIN

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2023 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



(APPROXIMATE 1" = 10 FEET WHEN PRINTED 11X17)



FIGURE 3
SAMPLE LOCATION DIAGRAM

643 N ARGYLE STREET
PORTLAND, OREGON

ATTACHMENT A
SITE PHOTOGRAPHS



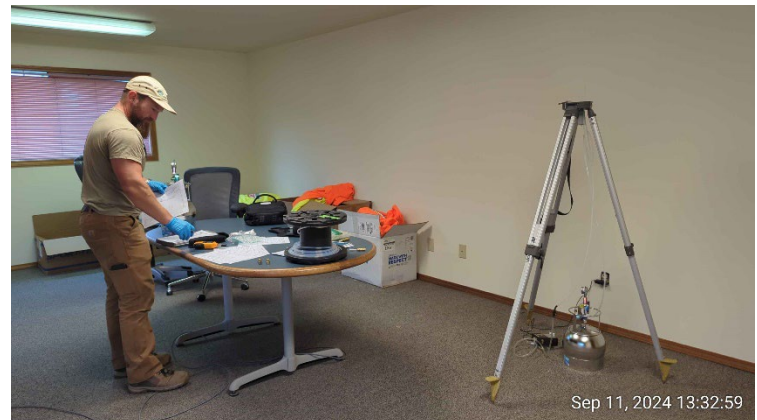
Sep 11, 2024 14:20:17

EPA Method TO-17 intake location for outdoor air sample. View of digital flow meter during sample setup.



Sep 11, 2024 13:59:56

EPA Method TO-15 intake location for outdoor air sample



Sep 11, 2024 13:32:59

Indoor air samples were set up in each area using a tripod, with air intake at approximately 5-foot height above the floor.



Former RB Recycling (ECSI No. 4157)
643 N Argyle Street
Portland, Oregon

**Site
Photographs**

Project No.
1997-24001-01

Appendix
A



View of intake tubing at top of tripod



Acrylic paint stored in subject building.



Spray paint stored in subject building (contains petroleum hydrocarbons and related VOCs)



Calibrating flow rate for EPA Method TO-17 sample using digital flow meter.



Former RB Recycling (ECSI No. 4157)
643 N Argyle Steet
Portland, Oregon

Site
Photographs

Project No.
1997-24001-01
Appendix
A



Co-located samples (methods TO-17 and TO-15).



TO-17 samples were collected after 24-hours (1440 minutes).



Former RB Recycling (ECSI No. 4157)
 643 N Argyle Steet
 Portland, Oregon

**Site
 Photographs**

Project No.
 1997-24001-01
 Appendix
A



Former RB Recycling (ECSI No. 4157)
643 N Argyle Steet
Portland, Oregon

**Site
Photographs**

Project No.
1997-24001-01

Appendix
A

ATTACHMENT B
INVENTORY OF STORED MATERIALS

ATTACHMENT C
FIELD SAMPLING DATA SHEETS

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

PO Box 14488
Portland, Oregon, 97293
503-452-5561 enw@evren-nw.com

PROJECT NAME/NUMBER: 1997-24001-01 SAMPLE LOCATION / ID: IA01
SITE ADDRESS: 643 N ARGYLE ST. SAMPLE DATE: 9/11/24 to 9/12/24

WIND FROM: N NE E SE S SW W NW LIGHT MEDIUM HEAVY
WEATHER: SUNNY CLOUDY RAIN OTHER:

*Indoor
SAMPLE*

Temp., C	Humidity (%)
23	58

SCREENING

Purge Time (start)				Purge Time (finish)		
Date	Time	Depth (ft)	PID (ppm)	O ₂ (ppm)	CO (ppm)	CO ₂ (ppm)
<i>(A diagonal line is drawn across the entire table)</i>						

VOLUME CALCULATION

Flow Rate (L/min)	Sample Time (min)	Total Volume (L)
0.0195	1440	28.08 L

*0.020 @ START
0.019 @ END*

SAMPLING DATA

Sample ID	Tube ID	Sample Depth	Sample Time (start)	Sample Time (finish)
<u>IA01-240912</u>	<u>752880</u>	<i>Height</i>	<u>13:30</u> <i>9/11/24</i>	<u>13:50</u> <i>9/12/24</i>

<u>X</u>	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		PESTICIDE/PCSS (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
		TPH as Diesel (TO-17) <u>TPH_g + TPH_d</u>
	SPECIFIC CHEMICAL ANALYSIS [1

NOTES:

SAMPLER: EWB Bruggeman
(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: 1997-24001-01 SAMPLE LOCATION ID: IA01

SITE ADDRESS: 643 N ARGYLE ST.

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

Dew Point	Wet Bulb	Dry Bulb

Air Setup

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controller	Flow Meter ID	Purge Vessel ID
Summa	<u>9/11/24</u>	0.5L, 1L, 3L, 5L, 6L	<u>5</u>	<u>IA01-24009</u>	<u>49856</u>	<input checked="" type="checkbox"/> YES	NO	<u>20481</u>

Indoor Air Sample

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	<u>13:11</u>	<u>13:16</u>	<u>29</u>	<u>29</u>
Sample	<u>13:30</u>	<u>11:17</u>	<u>29</u>	<u>Ce</u>

9/11/24 10-09-24

GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	<u>X</u>	<u>TU-15 VOCs</u>

NOTES:

SAMPLER: Jordan Morris
(PRINTED NAME)


(SIGNATURE)

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

PO Box 14488
Portland, Oregon, 97293
503-452-5561 enw@evren-nw.com

PROJECT NAME/NUMBER: 1997-24001-01

SAMPLE LOCATION / ID: IA02

SITE ADDRESS: 643 N. ARGYLE ST.

SAMPLE DATE: 9/11/24 to 9/12/24

WIND FROM:

N	NE	E	SE	S	SW	W	NW
				O			

 LIGHT MEDIUM HEAVY
WEATHER:

SUNNY	CLOUDY	RAIN	OTHER:
	O		

INDOOR
SAMPLE

Temp., C	Humidity (%)
23	56

SCREENING

Purge Time (start)				Purge Time (finish)		
Date	Time	Depth (ft)	PID (ppm)	O ₂ (ppm)	CO (ppm)	CO ₂ (ppm)
<i>(Diagonal line through table)</i>						

VOLUME CALCULATION

Flow Rate (mL/min)	Sample Time (min)	Total Volume (L)
0.0204/min	1440	28.8L

0.0204/min @ start
0.0202/min @ end

SAMPLING DATA

Sample ID	Tube ID	Sample Depth ^{Height}	Sample Time (start)	Sample Time (finish)
<u>IA02-240912</u>	<u>853853</u>	<u>5</u>	<u>13:43</u> <u>9/11/24</u>	<u>15:43</u> <u>9/12/24</u>

CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)			
		PESTICIDE/PCBs (TO-4)	ALDEHYDES/KEYTONES (TO-5)	PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	<u>X</u>	TPH as Diesel (TO-17)	<u>TPHg + TPHd</u>	
	SPECIFIC CHEMICAL ANALYSIS []			

NOTES:

SAMPLER: Evan Breuer
(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: 1997-24001-01 SAMPLE LOCATION ID: IA02

SITE ADDRESS: 643 N ARGYLE ST.

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

	Dew Point	Wet Bulb	Dry Bulb

Air Setup

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controller	Flow Meter ID	Purge Vessel ID
Summa	<u>9/11/24</u>	0.5L, 1L, 3L, 5L, 6L	<u>5</u> ^{Height}	<u>IA02-241009</u>	<u>49849</u>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<u>20492</u>	<u>—</u>

Indoor Air Sample

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	<u>13:11</u>	<u>13:16</u>	<u>30</u>	<u>30</u>
Sample	<u>13:43</u>	<u>11:25</u>	<u>30</u>	<u>17</u>

9/11/24 10-09-24

GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	<u>X</u>	<u>10-15 VOCs</u>

NOTES:

SAMPLER: Jordan Morris
(PRINTED NAME)

Jordan Morris
(SIGNATURE)

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

PO Box 14488
Portland, Oregon, 97293
503-452-5561 enw@evren-nw.com

PROJECT NAME/NUMBER: 1997-24001-01

SAMPLE LOCATION / ID: OAO1

SITE ADDRESS: 643 N ARBYLE ST

SAMPLE DATE: 9-11-24 TO 9-12-24

WIND FROM:	N	NE	E	SE	<input checked="" type="radio"/> S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		<input checked="" type="radio"/> RAIN		OTHER:				

Temp., C	Humidity (%)
<u>21</u>	<u>61</u>

SCREENING

Purge Time (start)				Purge Time (finish)		
Date	Time	Depth (ft)	PID (ppm)	O ₂ (ppm)	CO (ppm)	CO ₂ (ppm)
<i>(Entire table is crossed out with a blue diagonal line)</i>						

VOLUME CALCULATION

Flow Rate (mL/min)	Sample Time (min)	Total Volume (L)
<u>0.020</u>	<u>1440</u>	<u>28.8 L</u>

0.020 L/min @ Start
0.020 L/min @ End

SAMPLING DATA

Sample ID	Tube ID	Sample Depth ^{Height}	Sample Time (start)	Sample Time (finish)
<u>OAO1-240912</u>	<u>868440</u>	<u>6</u>	<u>14:30</u> <u>9/11/24</u>	<u>14:30</u> <u>9/12/24</u>

<input checked="" type="checkbox"/>	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		PESTICIDE/PCBs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
<u>X</u>	TPH as Diesel (TO-17)	<u>TPHg + TPHd</u>
	SPECIFIC CHEMICAL ANALYSIS []

NOTES:

SAMPLER: EVAN BRUGGEMAN
(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: 1997-24001-01 SAMPLE LOCATION ID: 0A01

SITE ADDRESS: 643 N ARBYLE ST.

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

Air Setup					Dew Point	Wet Bulb	Dry Bulb	
Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controller	Flow Meter ID	Purge Vessel ID
Summa	<u>9/11/24</u>	0.5L, 1L, 3L, 5L, 6L	<u>6</u>	<u>0A01-100924</u>	<u>49853</u>	<input checked="" type="checkbox"/> YES	<u>NO</u>	<u>20495</u>

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	<u>13:11</u>	<u>13:16</u>	<u>730</u>	<u>730</u>
Sample	<u>13:54</u>	<u>11:32</u>	<u>730</u>	<u>9</u>

9/11/24 10-09-24

Date	Time	Depth (ft)	PID (ppm)

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	<u>X</u>	<u>TO-15 VOLCS</u>

NOTES:

SAMPLER: Jordan Morris
(PRINTED NAME)

Jordan Morris
(SIGNATURE)

ATTACHMENT D
LABORATORY ANALYTICAL REPORT

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

September 25, 2024

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 13, 2024 from the 1997-24001-01, F&BI 409186 project. There are 7 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
ENW0925R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 13, 2024 by Friedman & Bruya, Inc. from the Evren Northwest 1997-24001-01, F&BI 409186 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
409186 -01	IA01-240912
409186 -02	IA02-240912
409186 -03	OA01-240912

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA01-240912	Client:	Evren Northwest
Date Received:	09/13/24	Project:	1997-24001-01, F&BI 409186
Date Collected:	09/11/24	Lab ID:	409186-01 1/0.036
Date Analyzed:	09/24/24	Data File:	092316.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Diesel Fuel Range	110
Gasoline Range Organics	120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	IA02-240912	Client:	Evren Northwest
Date Received:	09/13/24	Project:	1997-24001-01, F&BI 409186
Date Collected:	09/11/24	Lab ID:	409186-02 1/0.035
Date Analyzed:	09/24/24	Data File:	092317.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Diesel Fuel Range	100
Gasoline Range Organics	120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	OA01-240912	Client:	Evren Northwest
Date Received:	09/13/24	Project:	1997-24001-01, F&BI 409186
Date Collected:	09/11/24	Lab ID:	409186-03 1/0.035
Date Analyzed:	09/24/24	Data File:	092318.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
------------	------------------------

Diesel Fuel Range	<56
Gasoline Range Organics	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1997-24001-01, F&BI 409186
Date Collected:	Not Applicable	Lab ID:	04-2213 mb
Date Analyzed:	09/23/24	Data File:	092307.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Diesel Fuel Range	<1,600
Gasoline Range Organics	<1,000

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/24

Date Received: 09/13/24

Project: 1997-24001-01, F&BI 409186

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-17**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Fuel Range	ng/tube	2,500	93	70-130
Gasoline Range Organics	ng/tube	2,000	100	70-130

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, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. 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 standard reporting limit. 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.
- k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.
- 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.

409186

SAMPLE CHAIN OF CUSTODY

09/13/24 (NI)

Report To LYNN GIBBS
 Company EVERETT-NV
 Address 40 SE 24TH AVE
 City, State, ZIP PORTLAND, OR 97214
 Phone 503-482-5561 Email lynn.gibbs@everett-nv.com

SAMPLERS (signature)		TURNAROUND TIME	
PROJECT NAME		Standard Turnaround	
1997-24001-01		RUSH	
REMARKS		Rush charges authorized by:	
INVOICE TO		SAMPLE DISPOSAL	
		<input type="checkbox"/> Dispose after 30 days <input type="checkbox"/> Archive Samples <input type="checkbox"/> Other	

Sample Name	Lab ID	Tube ID	Sample Date	Collection Information			TO-17 Analytes Requested						Notes												
				Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	Volume Sampled	Benzene	Toluene	Ethylbenzene	Xylenes		Naphthalene	TPH-DRO	2-Propanol	TPH-GRO								
IA01-240912	01	752 880	9/11/24	0.020	0.019	13:30	13:30	28.08L																	
IA02-240912	02	853 853	9/12/24	0.020	0.020	13:43	13:43	28.8L																	
OA01-240912	03	568 440	↓	0.020	0.020	14:30	14:30	28.5L																	

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
 FORMS\COOC\COCD.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<i>[Signature]</i>	LYNN GIBBS	EVERETT-NV	9/12/24	17:00
Received by:	DKAN	F&B	9/13/24	11:15
Received by:				
Samples received at 4 °C				

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 409186

CLIENT Evien

INITIALS/ DATE: NP 09/13/24

If custody seals are present on cooler, are they intact? NA YES NO

Cooler/Sample temperature 4 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? YES NO

How did samples arrive?
 Over the Counter Picked up by F&BI FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? YES NO Initials/ Date: NP 9/13/24
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 1 days

Are the samples clearly identified? (explain "no" answer below) YES NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) YES NO

Were appropriate sample containers used? YES NO Unknown

If custody seals are present on samples, are they intact? NA YES NO

Are samples requiring no headspace, headspace free? NA YES NO

Is the following information provided on the COC, and does it match the sample label? (explain "no" answer below)

- Sample ID's Yes No _____ Not on COC/label
- Date Sampled Yes No _____ Not on COC/label
- Time Sampled Yes No _____ Not on COC/label
- # of Containers Yes No _____
- Relinquished Yes No _____
- Requested analysis Yes On Hold _____

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? NA YES NO
Number of unused TO15 canisters _____ Number of unused TO17 tubes 1
S/N 333886

8/21/24, 7:55 AM

GLS.

Ship From
EVREN NW
DAN SAJKO
40 SE 24TH AVE
PORTLAND, OR 97214

Ship To
FRIEDMAN & BRUYA, INC
SAMPLE RECEIVING
5500 4TH AVE S
SEATTLE, WA 98108

COD: \$0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:

Signature Type: NOT REQUIRED

about:blank

800-322-5555
www.gls-us.com

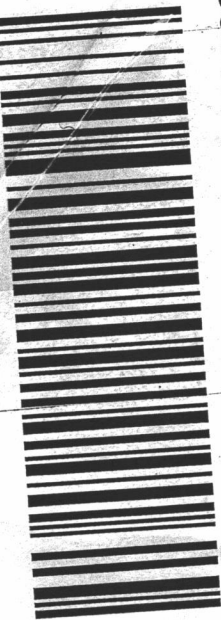
Tracking #: 561874410

PDS



SEATTLE

S06437C



14528331

KNT WA980-7C0

Print Date: 8/21/2024 7:54 AM

Analytical Laboratory Data Validation Check Sheet

 Project Name: 643 N Argyle

 Project Number: 1997-24001-01

 Date of Review: 9/26/24

 Lab. Name: F&BI

 Lab Batch ID #: 409186

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 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 | |
| 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 type="checkbox"/> yes | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |
| Do all surrogate spike recoveries meet accepted criteria? | <input 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 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 |

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 |

 Initial Review By: NB

Final Review By: _____

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

October 25, 2024

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 October 10, 2024 from the 1997-24001-01, F&BI 410210 project. There are 10 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
ENW1025R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 10, 2024 by Friedman & Bruya, Inc. from the Evren Northwest 1997-24001-01, F&BI 410210 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
410210 -01	IA01-241009
410210 -02	IA02-241009
410210 -03	OA01-241009

The TO-15 calibration standard did not meet the acceptance criteria for several analytes. The data were flagged accordingly.

The of several analytes exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA01-241009	Client:	Evren Northwest
Date Received:	10/10/24	Project:	1997-24001-01, F&BI 410210
Date Collected:	10/09/24	Lab ID:	410210-01
Date Analyzed:	10/16/24	Data File:	101615.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	%	Lower	Upper
Surrogates:	Recovery:	Limit:	Limit:
4-Bromofluorobenzene	82	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.4	<0.8	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.5	0.50	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<2.1	<0.3	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	5.3	2.2	Trichloroethene	<0.11	<0.02
Bromomethane	<3.9	<1	cis-1,3-Dichloropropene	<0.91	<0.2
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<8.2	<2
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	71 ve ca	38 ve ca	Toluene	<7.5	<2
Acrolein	2.9	1.3	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	320 ve	130 ve	Dibromochloromethane	<0.085 k	<0.01 k
2-Propanol	38	15	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.66	0.15
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<3.1	<1	Isopropylbenzene	<9.8	<2
CFC-113	<1.5	<0.2	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<4.9	<1
Methyl t-butyl ether (MTBE)	<7.2	<2	4-Ethyltoluene	<4.9	<1
Vinyl acetate	<7	<2	m,p-Xylene	2.1	0.47
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.79	0.18
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1 k	<0.2 k
Chloroform	0.51	0.10	Benzyl chloride	<0.052 k	<0.01 k
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<4.9	<1
Tetrahydrofuran	<0.88	<0.3	1,2,4-Trimethylbenzene	<4.9	<1
2-Butanone (MEK)	<5.9	<2	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.065	0.016	1,4-Dichlorobenzene	<0.23 k	<0.038 k
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.47	0.074	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	2.6	0.82	Naphthalene	0.18	0.035
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21 k	<0.02 k

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA02-241009	Client:	Evren Northwest
Date Received:	10/10/24	Project:	1997-24001-01, F&BI 410210
Date Collected:	10/09/24	Lab ID:	410210-02
Date Analyzed:	10/16/24	Data File:	101614.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.4	<0.8	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.7	0.56	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<2.1	<0.3	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	4.8	2.0	Trichloroethene	<0.11	<0.02
Bromomethane	<3.9	<1	cis-1,3-Dichloropropene	<0.91	<0.2
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<8.2	<2
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	87 ve ca	46 ve ca	Toluene	<7.5	<2
Acrolein	2.7	1.2	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	530 ve	220 ve	Dibromochloromethane	<0.085 k	<0.01 k
2-Propanol	28	12	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.59	0.13
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	38	12	Nonane	<5.2	<1
3-Chloropropene	<3.1	<1	Isopropylbenzene	<9.8	<2
CFC-113	<1.5	<0.2	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<4.9	<1
Methyl t-butyl ether (MTBE)	<7.2	<2	4-Ethyltoluene	<4.9	<1
Vinyl acetate	<7	<2	m,p-Xylene	1.9	0.43
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.74	0.17
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1 k	<0.2 k
Chloroform	0.46	0.095	Benzyl chloride	<0.052 k	<0.01 k
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<4.9	<1
Tetrahydrofuran	<0.88	<0.3	1,2,4-Trimethylbenzene	<4.9	<1
2-Butanone (MEK)	<5.9	<2	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.065	0.016	1,4-Dichlorobenzene	<0.23 k	<0.038 k
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.072	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	1.4	0.43	Naphthalene	0.29	0.056
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21 k	<0.02 k

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	OA01-241009	Client:	Evren Northwest
Date Received:	10/10/24	Project:	1997-24001-01, F&BI 410210
Date Collected:	10/09/24	Lab ID:	410210-03
Date Analyzed:	10/16/24	Data File:	101613.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	1.9	1.1	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.5	0.51	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<2.1	<0.3	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	5.0	2.1	Trichloroethene	<0.11	<0.02
Bromomethane	<3.9	<1	cis-1,3-Dichloropropene	<0.91	<0.2
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<8.2	<2
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	58 ve ca	31 ve ca	Toluene	<7.5	<2
Acrolein	1.2	0.51	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	570 ve	240 ve	Dibromochloromethane	<0.085 k	<0.01 k
2-Propanol	46 ve	19 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.64	0.15
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	22	7.3	Nonane	<5.2	<1
3-Chloropropene	<3.1	<1	Isopropylbenzene	<9.8	<2
CFC-113	<1.5	<0.2	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<4.9	<1
Methyl t-butyl ether (MTBE)	<7.2	<2	4-Ethyltoluene	<4.9	<1
Vinyl acetate	<7	<2	m,p-Xylene	1.9	0.44
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.82	0.19
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1 k	<0.2 k
Chloroform	0.14	0.028	Benzyl chloride	<0.052 k	<0.01 k
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<4.9	<1
Tetrahydrofuran	<0.88	<0.3	1,2,4-Trimethylbenzene	<4.9	<1
2-Butanone (MEK)	<5.9	<2	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017	1,4-Dichlorobenzene	<0.23 k	<0.038 k
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.071	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	1.0	0.32	Naphthalene	0.34	0.065
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21 k	<0.02 k

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1997-24001-01, F&BI 410210
Date Collected:	Not Applicable	Lab ID:	04-2503 MB
Date Analyzed:	10/16/24	Data File:	101612.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration		Compounds:	Concentration	
	ug/m3	ppbv		ug/m3	ppbv
Propene	<1.4	<0.8	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.99	<0.2	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<2.1	<0.3	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<4.8	<2	Trichloroethene	<0.11	<0.02
Bromomethane	<3.9	<1	cis-1,3-Dichloropropene	<0.91	<0.2
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<8.2	<2
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5 k	<4 k	Toluene	<7.5	<2
Acrolein	<0.11	<0.05	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085 k	<0.01 k
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<3.1	<1	Isopropylbenzene	<9.8	<2
CFC-113	<1.5	<0.2	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<4.9	<1
Methyl t-butyl ether (MTBE)	<7.2	<2	4-Ethyltoluene	<4.9	<1
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1 k	<0.2 k
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052 k	<0.01 k
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<4.9	<1
Tetrahydrofuran	<0.88	<0.3	1,2,4-Trimethylbenzene	<4.9	<1
2-Butanone (MEK)	<5.9	<2	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23 k	<0.038 k
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.073 j	<0.014 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21 k	<0.02 k

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/25/24

Date Received: 10/10/24

Project: 1997-24001-01, F&BI 410210

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-15**

Laboratory Code: 410117-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<1.4	<1.4	nm
Dichlorodifluoromethane	ug/m3	2.2	2.1	5
Chloromethane	ug/m3	<3.7	<3.7	nm
F-114	ug/m3	<2.1	<2.1	nm
Vinyl chloride	ug/m3	<0.26	<0.26	nm
1,3-Butadiene	ug/m3	0.097	<0.044	nm
Butane	ug/m3	<4.8	<4.8	nm
Bromomethane	ug/m3	<3.9	<3.9	nm
Chloroethane	ug/m3	<2.6	<2.6	nm
Vinyl bromide	ug/m3	<0.44	<0.44	nm
Ethanol	ug/m3	150	53	96 vo
Acrolein	ug/m3	0.24	0.22	9
Pentane	ug/m3	<5.9	<5.9	nm
Trichlorofluoromethane	ug/m3	<2.2	<2.2	nm
Acetone	ug/m3	39	39	0
2-Propanol	ug/m3	<8.6	<8.6	nm
1,1-Dichloroethene	ug/m3	<0.4	<0.4	nm
trans-1,2-Dichloroethene	ug/m3	<0.4	<0.4	nm
Methylene chloride	ug/m3	<35	<35	nm
t-Butyl alcohol (TBA)	ug/m3	<12	<12	nm
3-Chloropropene	ug/m3	<3.1	<3.1	nm
CFC-113	ug/m3	<1.5	<1.5	nm
Carbon disulfide	ug/m3	<6.2	<6.2	nm
Methyl t-butyl ether (MTBE)	ug/m3	<7.2	<7.2	nm
Vinyl acetate	ug/m3	<7	<7	nm
1,1-Dichloroethane	ug/m3	<0.4	<0.4	nm
cis-1,2-Dichloroethene	ug/m3	<0.4	<0.4	nm
Hexane	ug/m3	<3.5	<3.5	nm
Chloroform	ug/m3	0.28	0.21	29
Ethyl acetate	ug/m3	<7.2	<7.2	nm
Tetrahydrofuran	ug/m3	<0.88	<0.88	nm
2-Butanone (MEK)	ug/m3	<5.9	<5.9	nm
1,2-Dichloroethane (EDC)	ug/m3	0.045	0.045	0
1,1,1-Trichloroethane	ug/m3	<0.55	<0.55	nm
Carbon tetrachloride	ug/m3	0.45	0.47	4
Benzene	ug/m3	<0.32	<0.32	nm
Cyclohexane	ug/m3	<6.9	<6.9	nm
1,2-Dichloropropane	ug/m3	<0.23	<0.23	nm
1,4-Dioxane	ug/m3	<0.36	<0.36	nm
2,2,4-Trimethylpentane	ug/m3	<4.7	<4.7	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/25/24

Date Received: 10/10/24

Project: 1997-24001-01, F&BI 410210

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-15**

Laboratory Code: 410117-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<4.1	<4.1	nm
Heptane	ug/m3	<4.1	<4.1	nm
Bromodichloromethane	ug/m3	<0.067	<0.067	nm
Trichloroethene	ug/m3	<0.11	<0.11	nm
cis-1,3-Dichloropropene	ug/m3	<0.91	<0.91	nm
4-Methyl-2-pentanone	ug/m3	<8.2	<8.2	nm
trans-1,3-Dichloropropene	ug/m3	<0.45	<0.45	nm
Toluene	ug/m3	<7.5	<7.5	nm
1,1,2-Trichloroethane	ug/m3	<0.055	<0.055	nm
2-Hexanone	ug/m3	<4.1	<4.1	nm
Tetrachloroethene	ug/m3	<6.8	<6.8	nm
Dibromochloromethane	ug/m3	<0.085	<0.085	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.077	<0.077	nm
Chlorobenzene	ug/m3	<0.46	<0.46	nm
Ethylbenzene	ug/m3	<0.43	<0.43	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.14	<0.14	nm
Nonane	ug/m3	<5.2	<5.2	nm
Isopropylbenzene	ug/m3	<9.8	<9.8	nm
2-Chlorotoluene	ug/m3	<5.2	<5.2	nm
Propylbenzene	ug/m3	<4.9	<4.9	nm
4-Ethyltoluene	ug/m3	<4.9	<4.9	nm
m,p-Xylene	ug/m3	0.92	0.92	0
o-Xylene	ug/m3	<0.43	<0.43	nm
Styrene	ug/m3	<0.85	<0.85	nm
Bromoform	ug/m3	<2.1	<2.1	nm
Benzyl chloride	ug/m3	<0.052	<0.052	nm
1,3,5-Trimethylbenzene	ug/m3	<4.9	<4.9	nm
1,2,4-Trimethylbenzene	ug/m3	<4.9	<4.9	nm
1,3-Dichlorobenzene	ug/m3	<0.6	<0.6	nm
1,4-Dichlorobenzene	ug/m3	<0.23	<0.23	nm
1,2-Dichlorobenzene	ug/m3	<0.6	<0.6	nm
1,2,4-Trichlorobenzene	ug/m3	<0.74	<0.74	nm
Naphthalene	ug/m3	0.40	0.42	5
Hexachlorobutadiene	ug/m3	<0.21	<0.21	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/25/24

Date Received: 10/10/24

Project: 1997-24001-01, F&BI 410210

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-15**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Acceptance Criteria
			Recovery LCS	
Propene	ug/m3	23	103	70-130
Dichlorodifluoromethane	ug/m3	67	118	70-130
Chloromethane	ug/m3	28	101	70-130
F-114	ug/m3	94	114	70-130
Vinyl chloride	ug/m3	35	109	70-130
1,3-Butadiene	ug/m3	30	97	70-130
Butane	ug/m3	32	101	70-130
Bromomethane	ug/m3	52	123	70-130
Chloroethane	ug/m3	36	107	70-130
Vinyl bromide	ug/m3	59	111	70-130
Ethanol	ug/m3	25	147 vo	70-130
Acrolein	ug/m3	31	100	70-130
Pentane	ug/m3	40	95	70-130
Trichlorofluoromethane	ug/m3	76	119	70-130
Acetone	ug/m3	32	130	70-130
2-Propanol	ug/m3	33	104	70-130
1,1-Dichloroethene	ug/m3	54	115	70-130
trans-1,2-Dichloroethene	ug/m3	54	110	70-130
Methylene chloride	ug/m3	94	105	70-130
t-Butyl alcohol (TBA)	ug/m3	41	109	70-130
3-Chloropropene	ug/m3	42	95	70-130
CFC-113	ug/m3	100	115	70-130
Carbon disulfide	ug/m3	42	105	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	96	70-130
Vinyl acetate	ug/m3	48	93	70-130
1,1-Dichloroethane	ug/m3	55	113	70-130
cis-1,2-Dichloroethene	ug/m3	54	107	70-130
Hexane	ug/m3	48	91	70-130
Chloroform	ug/m3	66	119	70-130
Ethyl acetate	ug/m3	49	88	70-130
Tetrahydrofuran	ug/m3	40	96	70-130
2-Butanone (MEK)	ug/m3	40	107	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	119	70-130
1,1,1-Trichloroethane	ug/m3	74	126	70-130
Carbon tetrachloride	ug/m3	85	128	70-130
Benzene	ug/m3	43	104	70-130
Cyclohexane	ug/m3	46	89	70-130
1,2-Dichloropropane	ug/m3	62	115	70-130
1,4-Dioxane	ug/m3	49	121	70-130
2,2,4-Trimethylpentane	ug/m3	63	107	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/25/24

Date Received: 10/10/24

Project: 1997-24001-01, F&BI 410210

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-15**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Acceptance Criteria
			Recovery LCS	
Methyl methacrylate	ug/m3	55	111	70-130
Heptane	ug/m3	55	97	70-130
Bromodichloromethane	ug/m3	90	129	70-130
Trichloroethene	ug/m3	73	118	70-130
cis-1,3-Dichloropropene	ug/m3	61	118	70-130
4-Methyl-2-pentanone	ug/m3	55	112	70-130
trans-1,3-Dichloropropene	ug/m3	61	124	70-130
Toluene	ug/m3	51	112	70-130
1,1,2-Trichloroethane	ug/m3	74	128	70-130
2-Hexanone	ug/m3	55	111	70-130
Tetrachloroethene	ug/m3	92	129	70-130
Dibromochloromethane	ug/m3	120	133 vo	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	128	70-130
Chlorobenzene	ug/m3	62	121	70-130
Ethylbenzene	ug/m3	59	111	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	129	70-130
Nonane	ug/m3	71	101	70-130
Isopropylbenzene	ug/m3	66	116	70-130
2-Chlorotoluene	ug/m3	70	112	70-130
Propylbenzene	ug/m3	66	114	70-130
4-Ethyltoluene	ug/m3	66	103	70-130
m,p-Xylene	ug/m3	120	113	70-130
o-Xylene	ug/m3	59	120	70-130
Styrene	ug/m3	58	118	70-130
Bromoform	ug/m3	140	135 vo	70-130
Benzyl chloride	ug/m3	70	135 vo	70-130
1,3,5-Trimethylbenzene	ug/m3	66	122	70-130
1,2,4-Trimethylbenzene	ug/m3	66	106	70-130
1,3-Dichlorobenzene	ug/m3	81	127	70-130
1,4-Dichlorobenzene	ug/m3	81	131 vo	70-130
1,2-Dichlorobenzene	ug/m3	81	128	70-130
1,2,4-Trichlorobenzene	ug/m3	100	110	70-130
Naphthalene	ug/m3	71	103	70-130
Hexachlorobutadiene	ug/m3	140	126	70-130

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, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. 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 standard reporting limit. 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.
- k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.
- 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.

410210

SAMPLE CHAIN OF CUSTODY

10/10/24

Page # 1 of 1

Report To Lynn Green
 Company Green Abthorst
 Address P.O. Box 14488
 City, State, ZIP Portland, OR 97223
 Phone (503) 452-5501 Email lynn@green-abthorst.com

SAMPLERS (signature) [Signature]
 PROJECT NAME & ADDRESS 1997-2401-01
 PO #
 INVOICE TO

TURNAROUND TIME
 Standard
 RUSH
 Rush charges authorized by:
 SAMPLE DISPOSAL
 Default: Clean following final report delivery
 Hold (Fee may apply):

SAMPLE INFORMATION

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	ANALYSIS REQUESTED				Notes	
IA01-241009	01	49856	20481	IA / SG	10-09-24	29	10:30	6	11:17	TO15 Full Scan	TO15 BTEXN	APH	Chlorinated VOCs	Helium	VOCs
IA01-241009	02	49849	20402	IA / SG	10-09-24	30	10:43	7	11:25						X
0401-241009	03	49853	20405	IA / SG	10-09-24	30	10:54	9	11:32						X
				IA / SG											
				IA / SG											
				IA / SG											
				IA / SG											
				IA / SG											

Friedman & Bruya, Inc.
 5500 4th Avenue South
 Seattle, WA 98108
 Ph. (206) 285-8282
 Fax (206) 283-5044
 FORMS\OCC\OCC10-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	Sorden Winters	Green Abthorst	10-09-24	18:10
<u>[Signature]</u>	Nhan Phan	ELBT	10/10/24	1030
Received by:		Samples received at	20	°C

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 410210

CLIENT Even

INITIALS/ DATE: (NP) 10/10/24

If custody seals are present on cooler, are they intact? NA YES NO

Cooler/Sample temperature 20 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? YES NO

How did samples arrive?
 Over the Counter Picked up by F&BI FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? YES NO Initials/ Date: (NP) 10/10
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 1 days

Are the samples clearly identified? (explain "no" answer below) YES NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) YES NO

Were appropriate sample containers used? YES NO Unknown

If custody seals are present on samples, are they intact? NA YES NO

Are samples requiring no headspace, headspace free? NA YES NO

Is the following information provided on the COC, and does it match the sample label? (explain "no" answer below)

- Sample ID's Yes No Not on COC/label
- Date Sampled Yes No Not on COC/label
- Time Sampled Yes No Not on COC/label
- # of Containers Yes No _____
- Relinquished Yes No _____
- Requested analysis Yes On Hold _____

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? NA YES NO

Number of unused TO15 canisters 1 Number of unused TO17 tubes _____
S/N 49729

9/27/24, 9:07 AM

about:blank

GLS.

800-322-5555
www.gls-us.com

Ship From

EVREN NW
DAN SAJKO
40 SE 24TH AVE
PORTLAND, OR 97214

Tracking #: 562046279

PDS

Ship To

FRIEDMAN & BRUYA, INC.
SAMPLE RECEIVING
5500 4TH AVENUE SOUTH
SEATTLE, WA 98108

SEATTLE

S06437C

COD: \$0.00

Weight: 0 lb(s)

Reference:

Delivery Instructions:

Signature Type: STANDARD



16666293

KNT WA980-7C0

Print Date: 09/27/2024 09:07 AM

Analytical Laboratory Data Validation Check Sheet

Project Name: Argyle Street 28 Day Project Number: 1997-24001-01

Date of Review: Oct. 29, 2024 Lab. Name: F&BI Lab Batch ID #: 410210

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 | |
| If not, are all discrepancies footnoted? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no | <input type="checkbox"/> NA |
| The value reported fell outside the control limits established for several analytes. (vo) | | | |
| 18.) Are all LCS/LCSD RPDs within acceptable limits? | <input 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 type="checkbox"/> NA |

Precision

- | | | | |
|---|---|--|--|
| 19.) Are all matrix spike/matrix spike duplicate recoveries within acceptable limits? | <input checked="" type="checkbox"/> yes | <input 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 |
| 20.) Are all matrix spike/matrix spike duplicate 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 |
| The value reported fell outside the control limits established for ethanol. (vo) | | | |
| 21.) Do all RPD calculations for Field Duplicates meet accepted criteria? | <input type="checkbox"/> yes | <input type="checkbox"/> no | <input checked="" type="checkbox"/> NA |

Initial Review By: NB

Final Review By: EB