FOCUSED SUB-SLAB VAPOR AND SOIL GAS ASSESSMENT

Ollison Estate

23737 SW Newland Road
Wilsonville, Oregon

Agency Information

ODEQ LUST File Number 03-19-0934

Prepared for:

Estate of David Ollison
23737 SW Newland Road
Wilsonville, Oregon 97070

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This

Focused Sub-Slab Vapor and Soil Gas Assessment

Report for:

Ollison Property

23737 SW Newland Road
Wilsonville, Oregon

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

Estate of David Ollison
23737 SW Newland Road
Wilsonville, OR 97070

and its assignees

Prepared by:

EVREN NORTHWEST INC.
environmental natural resource consultants

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Attachments

bgs	below ground surface
Client	Estate of David Ollison
cumene	iso-propylbenzene
DRO	Diesel-range organics
EAS	Environmental Analytical Services, Inc.
EDB	1,2-dibromoethane
EDC	1,2-dichloroethane
ENW	EVREN Northwest, Inc.
EPA	US Environmental Protection Agency
FSDS	Field Sampling Data Sheets
GRO	gasoline-range organics
In Hg	inches of mercury
mL/min	millimeters per minute
MRL	method reporting limit
MTBE	methyl tert-butyl ether
ODEQ	Oregon Department of Environmental Quality
ORC	oxygen release compound
PID	photoionization detector
ppmv	parts per million by volume
QA/QC	quality assurance/quality control
RBCs	risk-based concentrations
RRFF-5	Rural Residential Farm / Forest 5 Acres
SLRBCs	screening-level risk-based concentrations
SOW	scope of work
Tgsb	Sentinel Bluffs Member
UST	underground storage tank
VOCs	volatile organic constituents

1.0 Introduction

At the request of the Estate of David Ollison (Client), EVREN Northwest, Inc. (ENW) prepared this Focused Sub-Slab and Soil Gas Assessment report at the Ollison property located at 23737 SW Newland Road in Wilsonville, Oregon (subject property; see Figure 1 for Site Vicinity Map). This work was conducted in accordance with the scope of work presented in ENW's Work Plan, dated January 2, 2024, which was reviewed and approved by the Oregon Department of Environmental Quality (ODEQ).

2.0 Background

In 2019, a petroleum release was discovered from an underground storage tank (UST) system believed to have operated at the subject property since the 1960s. A second petroleum release was later discovered from a residential heating oil UST. Soil and ground water cleanup efforts have been conducted at both tank systems under ODEQs Leaking Underground Storage Tank (LUST) site ID no. 03-19-0934.

Site characterization and cleanup efforts have included the installation of five ground water monitoring wells (MW01 through MW05) and quarterly ground water monitoring starting in March 2023. Between August 30, 2023, and September 25, 2023, ENW directed removal of approximately 1,286 tons of petroleum-impacted soil from the site and disposed impacted soil at Hillsboro Landfill. Two excavations were treated with a strong chemical oxidant and an oxygen release compound (ORC) prior to backfilling the excavations to enhance natural attenuation of residual impacts in shallow ground water.

Samples collected from site monitoring wells in October 2023 and January 2024 contain residual levels of petroleum-related volatile organic compounds (VOCs) that exceed risk-based concentrations (RBCs) for the *Vapor Intrusion into Buildings* exposure pathway for residential receptors. Since ground water impacts are near occupied buildings and residual petroleum-related VOCs in soil, further evaluation of the vapor intrusion pathway was performed.

A scope of work to perform soil gas and sub-slab vapor characterization sampling was presented to ODEQ in a work plan on January 2, 2024. The work plan called for two sampling events in different times of the year to account for seasonal fluctuations in subsurface conditions that could affect soil gas migration in the subsurface. This report documents the first round of sampling, which was conducted during the winter months. A second round of sampling is anticipated to occur in the Summer of 2024.

2.1 Purpose

The purpose of this investigation was to assess whether petroleum-related VOCs in ground water and residual soil pose a potential vapor intrusion risk at the subject site. Specifically, this investigation assesses soil vapor beneath the on-site buildings and soil gas concentrations closest to residual petroleum-related VOCs in ground water and soil where the highest impacts to soil gas are likely to be present.

2.2 Scope of Work

This work was performed in accordance with the Scope of Work (SOW) provided in ENW's work plan, approved on January 16, 2024 by ODEQ.

The SOW included the following tasks:

- Ordered a utility clearance to identify public utilities in the area.
- Collected three (3) sub-slab vapor samples beneath the existing shop building and residence and five (5) soil gas samples within the former release area.
- Submitted samples to an independent laboratory for analysis.
- Evaluated analytical data against ODEQ's June 2023 Vapor Intrusion screening level risk-based concentrations (SLRBCs) for vapor intrusion for residential land use.
- Completed this report describing the above activities and findings.

Appendix A presents photos of work conducted on site during this SOW.

3.0 Site Setting

3.1 Site Location and Description

The subject site is in a rural residential zoning district in unincorporated Clackamas County 3.8 miles northwest of Wilsonville, Oregon, and 2 miles east of Interstate 5. The subject site is a rectangular 4.74-acre parcel of land on the west side of SW Newland Road developed with a residence, a detached garage/shop building and greenhouses. A "new" water well installed in 1994, replacing an "old" well, and currently provides domestic water to the property. Surrounding land use is a mix of low-density residential and agricultural use.

The subject property is zoned Rural Residential Farm / Forest 5 Acres (RRFF-5), which, in part, is intended to provide areas for rural living where this type of development is compatible with the continuation of farm and forest uses. Primary uses include single family dwellings.[1]

3.2 Geographic Setting

The subject site lies at the northwestern end of Pete's Mountain, which is an uplifted block north of the Canby Fault Zone. Situated in the SW ¼ of the SE ¼ of section 31, Township 2 South, Range 1 East of the Willamette Merdian. The site lies on the north slope of a local ridge at elevations ranging from approximately 470 feet above mean sea level (amsl) in the northeast corner to an elevation of 520 feet amsl at the southwest corner of the site (Figure 1, Canby, Oregon 7.5' quadrangle). The subject property slopes generally to the northeast, and surrounding topography is hilly with local elevations rising

[1] Clackamas County Zoning and Development Ordinance, Section 309 Rural Residential Farm/Forest 5 Acres (RRFF-5); chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://dochub.clackamas.us/documents/drupal/a9d33a65-67c4-4ffd-be9a-bdb39f685896#:~:text=The%20RRFF%2D5%20zone%20is,and%20are%20easily%20accessible%20to

moderately to 839 feet amsl to the east-southeast, around 570 feet to the south, and dropping northeastward down to 100 feet amsl to the Tualatin River.

3.3 Geology and Hydrogeology

The site is within 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, and the Chehalem Mountains / Pete's Mountain to the south. 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. Though flood lava flows of the Columbia River Basalt Group (CRBG) are the basement rocks in the basin, such flows have been uplifted to form topographic highs such as the Chehalem Mountains and its eastern extension Pete's Mountain.

The site is mapped as Sentinel Bluffs Member (Tgsb) flows of the Grande Ronde Basalt of the Yakima Basalt Subgroup of CRBG.[2] Tgsb flows consist of blocky to columnar-jointed and locally entablature/colonnade jointed light- to dark-gray basalt with vesicular flow tops. Weathered basalt surfaces are greenish gray to pale gray. Finely to medium crystalline in hand sample, intersertal, in places plagioclase-phyric with sparse, small (<0.5 cm [0.2 inch]) tabular plagioclase phenocrysts. Tgsb can be distinguished from younger Frenchman Springs flows and older Grande Ronde units on the combined basis of stratigraphic position, higher MgO (magnesium oxide) and low TiO_2 (titanium dioxide) composition, lithology, and paleomagnetic directions. Unit thickness is variable, ranging from 10-25 m (32-82 ft). Weathering is variable and believed to be related to individual basalt flows, in which some exposures are altered to red clay (laterite) to depths of 9 m (30 feet), and occasionally as deep as 18-53 m (60-175 ft), while others are only slightly weathered at the surface. The basalt is mantled with colluvium and a weathered soil horizon.

Subsurface conditions encountered in soil borings at the site consisted of silts, sands and basalt with orange, red, yellow, and brown clayey weathered materials, including weathered and fractured basalt rock to the maximum depth explored of 8.3 m (27.5 ft) below ground surface (bgs). Sediments are interpreted as highly weathered Tgsb which underlie the area.

Shallow ground water occurs as a shallow water-bearing unit on top of the low-permeability weathered basalt surface. Depth to ground water has been measured in ground water monitoring wells between approximately 10 and 28 feet bgs. Quarterly monitoring of the wells has shown a seasonal fluctuation in shallow ground water of up to 10 feet at any given well. The direction of shallow ground water flow has generally been north to northeast beneath the site.

4.0 Nature and Extent of Residual Soil and Ground Water Impacts

Soil. Confirmation soil samples collected from the margins of the excavations at EX01 and EX02 suggest residual gasoline-range organics (GRO) concentrations remained in the floor of the excavation at 20 to 23 feet bgs , in the central, north, and west portions of EX01 at concentrations ranging from 78 milligrams per kilogram (mg/Kg) to 1,100 mg/Kg. The maximum concentration in sidewall samples was detected at 180 mg/Kg in samples collected from the central and west ends of the south wall and the west end of the

[2] Wells, R.E. and others, 2020. *Geologic Map of the Greater Portland Metropolitan and Surrounding Region, Oregon and Washington*: U.S. Geological Society Scientific Investigations Map 3443, Map Scale 1:63,360.

north wall. As expected, the highest GRO-related VOCs (benzene, ethylbenzene, and naphthalene) were also in the floor of excavation EX01.

Confirmation sampling at the margins of EX02 reported a maximum GRO concentration of 100 mg/Kg in the floor of the excavation EX02, next to the residence, at 18 feet bgs. No GRO related VOCs were detected in confirmation soil samples from EX02.

This data suggests the majority of the residual GRO in soil remains at or near the shallow ground water table near EX01.

Ground Water. The most recent quarterly ground water sampling detected dissolved GRO in three of five monitoring wells at concentrations ranging from 1,500 micrograms per liter (ug/L) in MW04 to 15,000 ug/L in MW02. Diesel-range organics (DRO) ranged from 530 ug/L in MW05 to 3,400 ug/L in MW02 following filtration through silica gel to remove biogenic materials. Elevated benzene (up to 140 ug/L), ethylbenzene (up to 190 ug/L), and naphthalene (up to 100 ug/L) were also detected in ground water samples. A decreasing trend in concentrations of dissolved GRO and GRO-related VOCs has been observed in monitoring wells since the soil removal and ORC treatment in November 2023.

5.0 Methods

This section describes the methods used to conduct the Scope of Work. Field activities for this project are documented in the photographic log included as Appendix A.

5.1 Work Objectives

The objective of this work was to quantitatively determine whether hazardous volatile constituents may be present in the subsurface beneath the subject site, and if their presence could potentially be considered a vapor intrusion concern. In addition, the following general objectives were followed:

- To perform all work conducted at the subject site in a safe manner for technical personnel.
- To perform all work efficiently and cost-effectively, without interfering or otherwise affecting with the condition and operation of the property.
- To document information and data generated under this Scope of Work that is valid for the intended use.

5.2 Preparation Activities

Field Work Preparation. ENW prepared the work plan based on the work objectives listed above.

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.

5.3 Sampling Methodology

On January 23, 2024, ENW field technicians mobilized to the site to perform the installation and sampling of three (3) sub-slab vapor pins, identified as SUB01 through SUB03, and installation and sampling of five (5) soil gas probes, identified as SG01 through SG05. Field sampling activities were conducted in general

accordance with the methods and procedures presented in ODEQ's "*Guidance for Assessing and Remediating Vapor Intrusion in Buildings*."[3] Sample locations are presented on Figure 3.

Vapor Pin Installation. Sub-slab vapor pins SUB01 through SUB03 were advanced beneath the northeast and west central portions of the residence, and the northeast portion of the on-site shop building, respectively. The sampling points were advanced by drilling a 5/8-inch hole through the approximately four (4) to six (6) inch concrete floor slabs and pressing a dedicated Vapor Pin® with a silicon sleeve into the drilled sampling point. Disposable Teflon sample tubing was connected to a barbed fitting on the Vapor Pin at the ground surface to allow for purging and collection of the sub-slab vapor samples.

Soil Gas Probe Installation. Soil gas probes SG01 through SG05 was advanced using a slide-hammer technique to a depth of approximately five (5) feet bgs. The probe was retracted a few inches to open the probe tip once the target sample depth had been reached. A section of dedicated Teflon sample tubing was connected with a threaded fitting onto the probe tip through the hollow probe rods to allow for purging and collection of the soil gas sample. The Teflon® sample tubing was attached so that the inner soil gas pathway from probe tip to the surface was continuously sealed (a Teflon® sampling tube attached to a screw adapter fitted with an O-ring and connected to the probe tip). Hydrated bentonite was used to seal around the soil gas probe at the ground surface to prevent ambient air intrusion.

Sample Collection. The Teflon® sample tubing from each sampling point was connected to a sample manifold, which in turn was connected to two (2) laboratory-supplied SUMMA cannisters. One (1) uncertified 3-liter SUMMA cannister was used for purging and leak testing, and one dedicated 3-Liter batch-certified Summa cannister was used at each location for collecting the sample.

After the end of an approximately a 30-minute equilibration period, the completely assembled sampling train was leak tested by connecting the purge cannister to the manifold to generate a vacuum on the system, then allowing the sealed sampling train to sit with an approximate 30 inches of mercury (in Hg) negative pressure vacuum over a period of five (5) minutes. In addition, as a leak check to the sample tubing connections at the Vapor Pin and at the manifold, rags saturated with isopropyl alcohol (2-propanol or IPA) were placed near the Vapor Pin and over the manifold at the time of sample collection. If the connections leaked, elevated concentrations of isopropyl alcohol would be detected.

Once the sampling trains were tested, each system was purged to remove at least three volumes of stagnant air from the sample train.

Sampling was initiated by opening the valve on the batch-certified SUMMA canisters. Soil gas sampling rates were maintained at a flow rate below approximately 100 milliliters per minute (mL/min) by a calibrated flow regulator attached to the SUMMA cannister. Soil sampling was terminated when a sufficient volume of sample had been collected, indicated by negative pressure readings of -5 inches mercury (in Hg) or less. Sample data recorded by the ENW field technicians were recorded onto Field Sampling Data Sheets (FSDS) included in Appendix B.

Sub-slab vapor samples and the soil gas sample were uniquely labelled, packaged, and shipped to the laboratory under chain-of-custody protocols.

[3] DEQ, 2010. *Guidance for Assessing and Remediating Vapor Intrusion in Buildings* dated March 2010, last updated May 29, 2020.

Following sample collection, a photoionization detector (PID) and GEM5000 Landfill Gas Meter were used to screen soil gas for VOCs, oxygen, carbon dioxide, carbon monoxide, and methane. Initial screening results of the samples are presented on Table 5-1.

Table 5-1. Soil Gas Screening Results

Sample ID		SUB01-240123	SUB02-240123	SUB03-240123	SG01-240123-5	SG02-240123-5	SG03-240123-5	SG04-240123-5	SG05-240123-5
Date Sampled		1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024
Depth Sampled (ft)		sub-slab	sub-slab	sub-slab	5	5	5	5	5
Sampled by		ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW
Location		NE corner of basement	Inside house, W side of basement	With outside shop	SE of MW04	SE of EX01, N of T2 & T3	E of SG02	E of MW02	NW structure
Parameter of interest	Note:	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv
PID (Total Volatiles)	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		% vol.	% vol.	% vol.	% vol.	% vol.	% vol.	% vol.	% vol.
CH_4	2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1
CO_2	2	1.1	0.1	0.4	0.1	6.9	0.6	0.2	0.1
CO	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O_2	2	20.1	20.7	20.7	20.7	14.4	19.7	20.3	20.9
Bal. Gases		78.5	79.1	78.7	78.7	77.8	79.6	79.1	78.9

1 = Photoionization detector
2 = Measurements using LandTec Gas Meter
ppmv = parts per million, volume

Field screening for organic vapors using a PID calibrated using isobutylene standard gas (100 parts per million) did not suggest the presence of elevated levels of VOCs (max. 0.0 parts per million by volume [ppmv]) at any of the sample locations.

All sampling equipment was decontaminated before and after sampling by undergoing a wash sequence of Alconox® solution, tap water, and then deionized water final rinse. Clean Nitrile gloves were used during sample collection.

5.4 Analytical Methods

The sub-slab vapor and soil gas samples were analyzed according to the analytical plan presented in Table 5-2. Samples were analyzed by Environmental Analytical Services (EAS) of San Luis Obispo, California. The laboratory analytical report is Attachment C.

Table 5-2. Analytical Method

Analytical Method	Constituents	Soil Gas Samples
Environmental Protection Agency (EPA) Method TO-15	Gasoline-range organics (GRO) and GRO-related VOCs 2-Propanol (as leak detection)	All samples

5.5 Cleanup Standards

When a release has occurred, the assessment and remediation of hazardous substances in Oregon are conducted according to Oregon Administrative Rules 340, Division 122, *Hazardous Substance Remedial Action Rules*. Depending on the individual release situation, different pathways to state regulatory closure may be followed.

Analytical results for this Scope of Work were compared to SLRBCs[4] derived in accordance with ODEQ's June 2023 *Guidance on Vapor Intrusion Risk-Based Concentrations Screening Levels*.[5]

Because the subject site is zoned for residential use, ENW utilized the residential RBCs for soil gas in this evaluation.

6.0 Findings

6.1 Sample Locations

Current site features and previous investigation results were used to site sample locations for this subsurface assessment. Table 6-1 summarizes sample locations. Figure 3 shows sample locations relative to site features.

Table 6-1. Summary of Sample Locations

Borehole / Location ID	Date Sampled	Depth Sampled (feet)	Sampled By	Location
SUB01-240123	1/23/2024	sub-slab	ENW	Northeast corner of basement
SUB02-240123	1/23/2024	sub-slab	ENW	Inside house, west side of basement
SUB03-240123	1/23/2024	sub-slab	ENW	Northwest corner of shop
SG01-240123-5	1/23/2024	5	ENW	Southeast of MW04
SG02-240123-5	1/23/2024	5	ENW	Southeast of excavation EX01, north of former tanks T2 & T3
SG03-240123-5	1/23/2024	5	ENW	East of SG02
SG04-240123-5	1/23/2024	5	ENW	East of MW02
SG05-240123-5	1/23/2024	5	ENW	North of MW03

6.2 Laboratory Results

The results of laboratory analysis of sub-slab vapor and soil gas samples are summarized on Table 1, behind the Tables tab following text. A copy of the EAS laboratory report is included in Appendix C.

Laboratory analysis detected GRO, benzene, toluene, and xylenes in one or more samples during the sampling event; however, all detections were below ODEQ's most conservative (residential) screening levels.

Specifically,

- GRO was detected in all sample locations at concentrations up to 1,116.09 micrograms per cubic meter (µg/m^3), which is well below the SLRBC of 10,000 µg/m^3.
- Benzene was detected at up to 11.76 ug/m^3 but did not exceed its SLRBC of 12 µg/m^3.
- Toluene was detected in all samples at concentrations significantly below its SLRBC of 170,000 µg/m^3.

[4] Lowest RBC for media, regardless of receptor (typically residential).

[5] Applicable to underground storage tanks regulated under the *Cleanup Rules for Leaking Petroleum Underground Storage Tank Systems* (OAR 340-122-0205 through 340-122-0260) and other sources of contamination regulated under the *Hazardous Substance Remedial Action Rules* (OAR 340-122-0010 through 340-122-0115).

Laboratory analysis did not detect the presence of 1,2-dibromoethane (EDB), 1,2-dichloroethane (EDC), methyl t-butyl ether (MTBE), ethylbenzene, naphthalene, iso-propylbenzene (cumene), or 1,2,4-tremethlybenzene, 1,3,5-trimethylbenzene, or xylenes above their respective laboratory method reporting limits (MRL).

6.3 Quality Assurance/Quality Control

A review of the EAS laboratory report indicates that samples were generally analyzed within appropriate and Quality Assurance/Quality Control (QA/QC) procedures and specified holding times. Results were flagged where QA/QC limits were not met, as follows:

- Some of the results for total xylenes were flagged by the laboratory with the "J" designation, indicating that the amount reported is estimated because it was below the reporting limit and could be below the lowest calibration point, have higher uncertainty, or could be the result of system background. Since all concentrations were significantly below ODEQ SLRBCs, ENW has determined the "J" flagged results can be relied upon for the purposes of this investigation and do not alter our findings.

Results of leak detection analysis were as follows:

- The levels of isopropyl alcohol in samples SUB01 through SUB03 and SG01 through SG05 were within ODEQ sampling requirements of less than five (5) percent ambient air contribution during the sampling event[6], and were below ENW's internal leak screening level of 5,000 µg/M^3.

7.0 Discussion/Conclusions

Based on the findings of this investigation, ENW presents the following conclusion:

- The results of this sampling event suggest that petroleum-related volatile constituents are not present at concentrations that would pose a threat to human health via the Vapor Intrusion pathway.

8.0 Recommendations

Based on the above findings and conclusions, ENW recommends the following:

- ENW recommends a second round of soil gas sampling in the Summer 2024 to track possible seasonal fluctuations in soil gas in accordance with the work plan.

We recommend this report is kept as part of the permanent property records.

9.0 Limitations

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.

[6] ODEQ, March 25, 2010. *Guidance for Assessing and Remediating Vapor Intrusion in Buildings*.

As a result, these conclusions are based on information supplied by others as well as interpretations by qualified parties.

The focus of the site closure does not extend to the presence of the following conditions unless they were the express concerns of contacted personnel, report and literature authors or the work scope.

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 have 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.

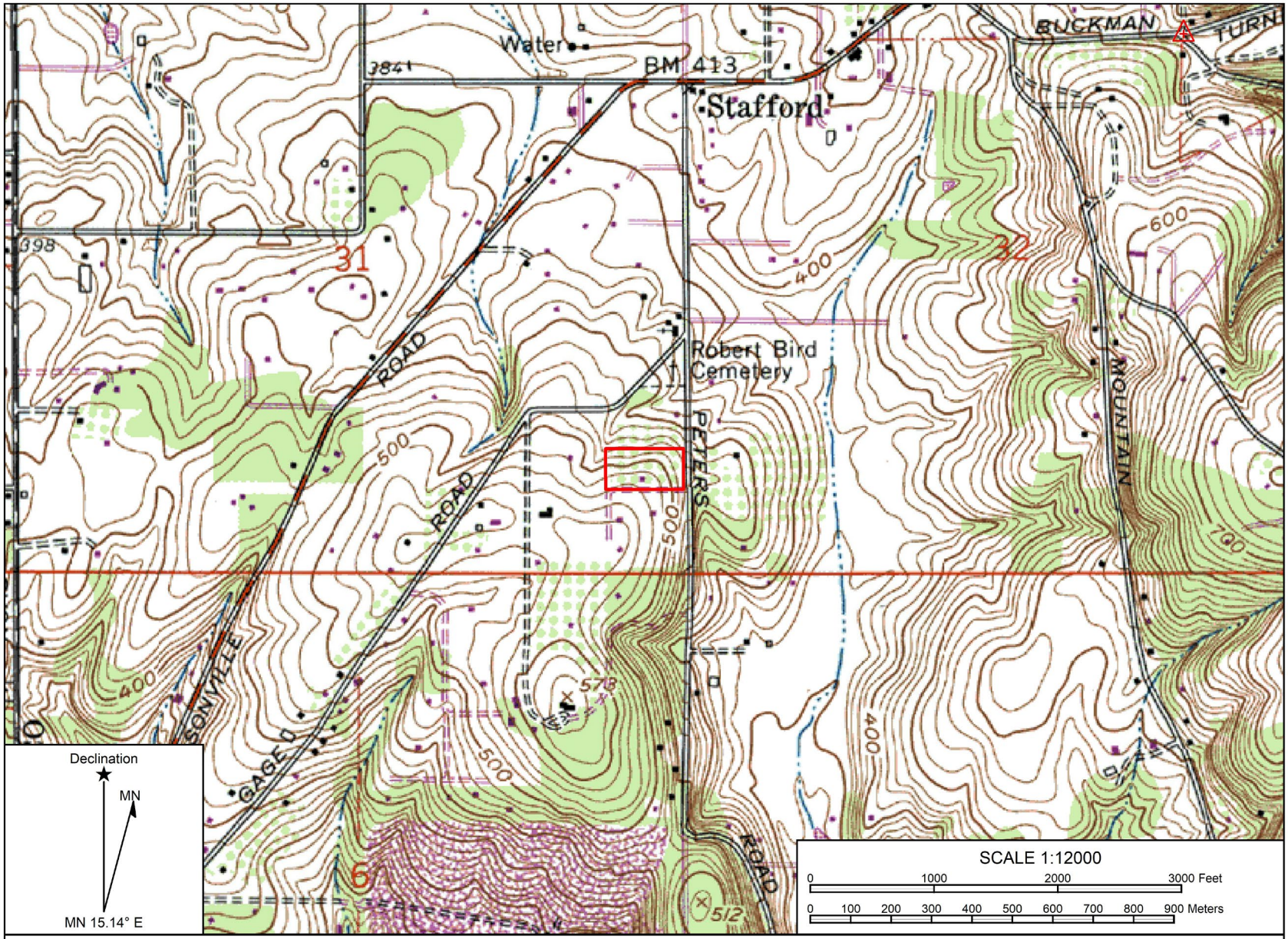
ENW performed this study under a limited scope of services per our agreement. It is possible, despite the use of reasonable care and interpretation, that ENW may have failed to identify regulation violations related to the presence of hazardous substances other than those specifically mentioned at the closure site. 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, Sub-Slab Vapor and Soil Gas

Sample ID		SUB01-240123	SUB02-240123	SUB03-240123	SG01-240123-5	SG02-240123-5	SG03-240123-5	SG04-240123-5	SG05-240123-5	Maximum Soil-Gas Concentration	ODEQs Chronic Screening Values (Residential Soil Vapor) [1]	ODEQs Acute Screening Values (Residential Soil Vapor) [1]	Constituent of Concern (COC)
Date Sampled		1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024	1/23/2024				
Depth Sampled (feet)		sub-slab	sub-slab	sub-slab	5	5	5	5	5				
Sampled By		ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW				
Location		Northeast corner of basement	Inside house, west side of basement	Northwest corner of shop	Southeast of MW04	Southeast of excavation EX01, north of former tanks T2 & T3	East of SG02	East of MW02	North of MW03				TRUE OR Y FALSE OR N
Constituent of Interest	Note	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m^3			
Volatile Organic Constituents													
Benzene	c, v	3.57	4.28	11.76	5.74	7.35	4.42	4.74	5.19	11.76	12	970	N
EDB (1,2-dibromoethane)	c, v	<3.1 (ND)	<3.1 (ND)	<3.1 (ND)	<3.1 (ND)	<3.1 (ND)	<3.1 (ND)	<3.1 (ND)	<3.1 (ND)	<3.1 (ND)	0.16	---	(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)	<3.08 (ND)	<3.08 (ND)	<3.08 (ND)	3.6	---	N
Ethylbenzene	c, v	<3.82 (ND)	<3.82 (ND)	<3.82 (ND)	<3.82 (ND)	<3.82 (ND)	<3.82 (ND)	<3.82 (ND)	<3.82 (ND)	<3.82 (ND)	37	730000	N
MTBE (methyl t-butyl ether)	c, v	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	<2.21 (ND)	360	270000	N
Naphthalene	c, v	<1.64 (ND)	<1.64 (ND)	<1.64 (ND)	<1.64 (ND)	<1.64 (ND)	<1.64 (ND)	<1.64 (ND)	<1.64 (ND)	<1.64 (ND)	2.8	6700	N
iso-Propylbenzene (cumene)	nc, v	<2.49 (ND)	<2.49 (ND)	<2.49 (ND)	<2.49 (ND)	<2.49 (ND)	<2.49 (ND)	<2.49 (ND)	<2.49 (ND)	<2.49 (ND)	14000	---	N
Toluene	nc, v	4.13	4.27	7.67	4.72	15.4	10.09	5.81	3.78	15.4	170000	250000	N
1,2,4-Trimethylbenzene	nc, v	<4.16 (ND)	<4.16 (ND)	<4.16 (ND)	<4.16 (ND)	<4.16 (ND)	<4.16 (ND)	<4.16 (ND)	<4.16 (ND)	<4.16 (ND)	2100	---	N
1,3,5-Trimethylbenzene	nc, v	<4.23 (ND)	<4.23 (ND)	<4.23 (ND)	<4.23 (ND)	<4.23 (ND)	<4.23 (ND)	<4.23 (ND)	<4.23 (ND)	<4.23 (ND)	2100	---	N
Xylenes	nc, v	2.43 J	4.09	3.51 J	2.01 J	1.67 J	<7.56 (ND)	<7.56 (ND)	<7.56 (ND)	<7.56 (ND)	3500	290000	N
Total Petroleum Hydrocarbons													
Generic Gasoline (GRO)	nc, v	242.19	468.16	347.15	328.37	1116.09	159.11 J	228.08	247.29	1116.09	10000	NE	N
Leak Detection										**Maximum Soil-Gas Concentration**	**ENW Leak Screenining Level**		**Leak Suggested?**
2-Propanol		8.59	3.56	59.13	16.28	1139.95	33.19	33.72	29.8	1139.95	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.
ug/m^3 = micrograms per cubic meter of air .
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
[1] Oregon Department of Environmental Quality Chronic and Acute Vapor Intrusion Risk-Based Concentrations for soil gas/sub-slab vapor (screening level), June 2023.
(Y) indicates analyte not detected, but detection limit is above screening concentration.

Figures



Name: CANBY
Date: Jan 1, 1985,
Scale: 1 inch = 1,000 ft.

Location: 045° 20' 55.8190" N, 122° 43' 21.9793" W
Contour Interval: 10 ft

EVREN NORTHWEST INC environmental, natural resource consultants	Date Drawn: 5/11/2022 CAD File Name: 114-19002-fig1sv_map Drawn By: CLR Approved By: LDG	Ollison Property 23737 SW Newland Road Wilsonville, Clackamas County, Oregon	**Site Vicinity Map**	Project No. 114-19002 Figure No. **1**

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
H. ROMER 07/05/2023	E.BRUGGEMAN 10/04/2023	L. GREEN 10/04/2023	114-19002(v01)

LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- UNDERGROUND STORAGE TANK LOCATIONS (REMOVED)
- DOMESTIC WELL
- DECOMMISSIONED DOMESTIC WELL
- MONITORING WELL LOCATION

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2022 AND BOTH UAI 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 SCALE

0 50 100 FEET

N

EVREN NORTHWEST INC.
environmental natural resource consultants
PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 2

SITE PLAN

OLLISON PROPERTY
23737 SW NEWLAND ROAD
WILSONVILLE, CLACKAMAS COUNTY, OREGON

DRAWING NUMBER	114-19002(V01)	
APPROVED BY	L. GREEN	2/20/2024
CHECKED BY	P. TRONE	2/20/2024
DRAWN BY	H. ROMER	2/20/2024

LEGEND:

- SUBJECT PROPERTY BOUNDARY
- SUBJECT BUILDINGS
- PCS REMOVAL AREA
- DECOMMISSIONED TANK
- MONITORING WELL
- SOIL GAS SAMPLE LOCATION
- SUB-SLAB VAPOR SAMPLE LOCATION

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.

0 10 20 40

Feet

N

EVREN NORTHWEST INC.
environmental / natural resource consultants

FIGURE 3

SAMPLE LOCATION DIAGRAM

OLLISON PROPERTY
23737 SW NEWLAND ROAD
WILSONVILE, OREGON

Attachment A

Site Photographs

Installing vapor pin for sub-slab vapor monitoring in garage.

Vapor pin installed.

Typical soil gas sampling set up (note blue rags saturated with IPA for leak check)

Typical sub-slab vapor sampling set up.

EVREN NORTHWEST INC. environmental / natural resource consultants	Ollison Property 23737 SW Newland Road Wilsonville, Oregon	**Site Photographs**	Project No. 114-19002-05 Appendix **A**

Purging and screening soil gas with PID

Vapor pin removed and floor restored.

Attachment B

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: 114-19002-05 SAMPLE LOCATION: SUB01

SITE ADDRESS: DUP ID:

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

Temp., F	Humidity (%)
47	86

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler		Flow Meter ID	Purge Vessel ID
Tedlar/Summa	01/23/24	0.5L, 1L, 3L, 6L	SUB	SUB01-240123	341	YES	NO	2551	537

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	8:59	9:04	30	30
Purge	11:12	11:14	22	21
Sample	11:15	11:43	30	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (ppm)	CO (ppm)	CO_2 (ppm)
01-23-24	12:10	SUB	0.0	20.1	0	1.1
	12:11		0.0			
	12:12		0.0			
	12:13		0.0			
	12:14		0.0			

CH_4	H_2S	Bal
0.1-0.2	0	78.5

Analysis Allowed per Bottle Type

CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15)
	TPH as Diesel (TO-17)
	SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES: located at NE corner of basement

SAMPLER: Jordan Neary
(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: Ollison Estate 114-19002-05 SAMPLE LOCATION: SUB02

SITE ADDRESS: 23737 SW Newland Rd. Wilsonville, Oregon DUP ID:

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

Temp., F	Humidity (%)
47	86

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler	Flow Meter ID	Purge Vessel ID
Summa	01/23/24	0.5L, 1L, (3L) 5L, 6L	SUB	SUB02-240123	385	(YES) NO	2605	654

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	8:59	9:04	30	30
Purge	11:03	11:015	11	8
Sample	11:09	12:09	30	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (%)	CO (ppm)	CO_2 (%)	CH_4	H_2S	Bal
01-23-24	12:19	SUB	0.0	20.7	0	0.1	0.1	0	79.1
↓	12:20	↓	0.0						
↓	12:21	↓	0.0						
↓	12:22	↓	0.0						
↓	12:23	↓	0.0						

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	X	GRO (TO-15), GRO related VOCs (TO-15) and IPA (leak check)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES: Located inside house west side of basement

SAMPLER: Jordan Manns
(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: Ollison Estate 114-19002-05 SAMPLE LOCATION: SVB03

SITE ADDRESS: 23737 SW Newland Rd. Wilsonville, Oregon DUP ID:

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

Temp., C	Humidity (%)

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler		Flow Meter ID	Purge Vessel ID
Summa	01/23/24	0.5L, 1L, (3L) 5L, 6L	SVB	SVB03-240123	387	(YES)	NO	2576	

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	8:59	9:04	30	30
Purge	1027	10:29	24	23
Sample	1030	11:16	30	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (%)	CO (ppm)	CO_2 (%)	CH_4	H_2S	Bal
01-23-24	11:26	SVB	0.0	20.7	0	0.4	0.1	0	78.7
↓	11:27	↓	0.0						
	11:28		0.0						
	11:29		0.0						
	11:30		0.0						

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	X	GRO (TO-15), GRO related VOCs (TO-15) and IPA (leak check)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES: Located with outside shop

SAMPLER: Jordan Mercer
(PRINTED NAME)

Jordan Mercer
(SIGNATURE)

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: Ollison Estate 114-19002-05 **SAMPLE LOCATION:** SG01

SITE ADDRESS: 23737 SW Newland Rd. Wilsonville, Oregon **DUP ID:**

												Temp., C	Humidity (%)
WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY		
WEATHER:	SUNNY		CLOUDY		RAIN		?						

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler		Flow Meter ID	Purge Vessel ID
Summa	01/23/24	0.5L, 1L, (3L), 5L, 6L	5	SG01-240123-5	334	(YES)	NO	2533	654

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	8:59	9:04	30	30
Purge	9:37	9:41	29	28
Sample	9:46	10:24	30	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (%)	CO (ppm)	CO_2 (%)	CH_4	H_2S	Ba
01-23-24	10:36	5	0.0	21.0	0	0.1	0.2	0	787
↓	10:37	↓	0.0						
	10:38		0.0						
	10:39		0.0						
↓	10:40	↓	0.0						

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	X	GRO (TO-15), GRO related VOCs (TO-15) and IPA (leak check)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: Jordan Manes (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: Ollison Estate 114-19002-05 SAMPLE LOCATION: SG02

SITE ADDRESS: 23737 SW Newland Rd. Wilsonville, Oregon DUP ID:

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

Temp., C	Humidity (%)

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler	Flow Meter ID	Purge Vessel ID
Summa	01/23/24	0.5L, 1L (3L) 5L, 6L	5	SG02-240123-5	311	(YES) NO	2558	937

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	9:12	9:17	30	30
Purge	9:44	9:48	30	29
Sample	9:49	10:29	30	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (%)	CO (ppm)	CO_2 (%)
01-23-24	10:45	5	0.0	14.4	0	6.9
↓	10:46	↓	0.0			
	10:47		0.0			
	10:48		0.0			
✗	10:49	↓	0.0			

CH_4	H_2S	Bal
	0	~~77.8~~

GEM choked after about 30s.

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	X	GRO (TO-15), GRO related VOCs (TO-15) and IPA (leak check)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: Jordan Mooers
(PRINTED NAME)

Jordan Mooers
(SIGNATURE)

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: Ollison Estate 114-19002-05 SAMPLE LOCATION: SG03

SITE ADDRESS: 23737 SW Newland Rd. Wilsonville, Oregon DUP ID:

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

Temp., F	Humidity (%)
49	86

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler	Flow Meter ID	Purge Vessel ID
Summa	01/23/24	0.5L, 1L, (3L) 5L, 6L	5	SG03-240123-5	347	(YES) NO	2501	537

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	9:12	9:12	28	28
Purge	10:02	10:06	26	23
Sample	10:08	10:39	28	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (%)	CO (ppm)	CO_2 (%)
01-23-24	10:54	5	0.0	19.7	0	0.6
↓	10:55	↓	0.0			
	10:56		0.0			
	10:57		0.0			
	10:58		0.0			

CH_4	H_2S	Bal
0.1	0	99.6

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	X	GRO (TO-15), GRO related VOCs (TO-15) and IPA (leak check)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES: East of Excavation 01

SAMPLER: Jordan Manis
(PRINTED NAME)

Jordan
(SIGNATURE)

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: Ollison Estate 114-19002-05 **SAMPLE LOCATION:** SG04

SITE ADDRESS: 23737 SW Newland Rd. Wilsonville, Oregon **DUP ID:**

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

Temp., F	Humidity (%)
47	86

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler		Flow Meter ID	Purge Vessel ID
Summa	01/23/24	0.5L, 1L, (3L) 5L, 6L	5	SG04-240123-5	356	(YES)	NO	2578	577

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	9:12	9:17	27	27
Purge	10:14	10:18	22	20
Sample	10:19	10:49	27	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (%)	CO (ppm)	CO_2 (%)
01-23-24	11:03	5	0.0	20.3	0	0.2
↓	11:04	↓	0.0			
	11:05		0.0			
	11:06		0.0			
↓	11:07	↓	0.0			

CH_4	H_2S	Bal
0.1	0	79.1

Gas choked after ~2 hrs.

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	X	GRO (TO-15), GRO related VOCs (TO-15) and IPA (leak check)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES: Point of Excavation #1

SAMPLER: Jordan Meares
(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: Ollison Estate 114-19002-05

SAMPLE LOCATION: SG05

SITE ADDRESS: 23737 SW Newland Rd. Wilsonville, Oregon

DUP ID:

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

Temp., C	Humidity (%)

SOIL GAS SETUP DATA

Container Type	Date	Volume (L)	Sample Depth (ft.)	Sample ID	Summa ID	Flow Controler		Flow Meter ID	Purge Vessel ID
Summa	01/23/24	0.5L, 1L, 3L, 5L, 6L	5	SG05-240123-5	314	YES	NO	2585	654

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	9:42	9:47	27	27
Purge	10:23	10:28	25	9
Sample	10:29	10:48	27	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	O_2 (%)	CO (ppm)	CO_2 (%)
01-23-24	11:11	5	0.0	20.9	0	0.1
	11:12		0.0			
	11:13		0.0			
	11:14		0.0			
	11:15		0.0			

CH_4	H_2S	Bal
0.1	0	78.9

Analysis Allowed per Bottle Type	CONTAINER TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
		BTEX/TPH (TO-3) PESTICIDE/PCSs (TO-4) ALDEHYDES/KEYTONES (TO-5) PESTICIDES/PCBs (TO-10) ALDEHYDES/KEYTONES (TO-11)
	X	GRO (TO-15), GRO related VOCs (TO-15) and IPA (leak check)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: Jordan Manes
(PRINTED NAME)

(SIGNATURE)

Attachment C

Laboratory Analytical Report

ENVIRONMENTAL
Analytical Service, Inc.

Friday, February 9, 2024

Sample Delivery Group (SDG) 224035
EAS Project Number: 17824

Lynn Green
Evren Northwest Inc.
40 SE 24th Avenue, Suite A
Portland, OR 97214

Lynn,

Enclosed is the analytical report for the samples received and analyzed by Environmental Analytical Service, Inc. for the following Project.

Client Project Name: SubSlab/SG Investigation
PO Number:
Client Project Number: 114-19002-05
Sample Event Date: 1/23/2024

If you have any questions on the report or the analytical data please contact me at (805) 781-3585.

Sincerely

Steven D. Hoyt Ph.D.
Laboratory Director

SDH/LIMS

173 Cross Street
San Luis Obispo
CA
93401-7597
805.781.3585
Fax 805.541.4550

ENVIRONMENTAL
Analytical Service, Inc.

Analytical Report

Project Name:

SubSlab/SG Investigation

EAS SDG Number: **224035**

Client Project Manager: Lynn Green

Prepared For:

Evren Northwest Inc.
40 SE 24th Avenue, Suite A
Portland OR 97214

Project Number: 17824
Sample Event Date: 1/23/2024
Received Date: 1/25/2024
Report Date: 1/31/2024

Project Number:
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 an 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: 224035
Client: Lynn Green
Evren Northwest Inc.

Project Number: 17824
Received: 1/25/2024

SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
SUB01-240123	224035 1	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024
SUB02-240123	224035 2	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024
SUB03-240123	224035 3	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024
SG01-240123-5	224035 4	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024
SG02-240123-5	224035 5	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024
SG03-240123-5	224035 6	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024
SG04-240123-5	224035 7	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024
SG05-240123-5	224035 8	EPA TO-15 RBDM VOC, GRO, IPA	1/23/2024

Project Sample Media

SDG Number: 224035

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 pessurized 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 Initial	Pressure, torr Final	Can Factor
224035	1	SUB01-240123	341		688	688	1.00
224035	2	SUB02-240123	385		691	691	1.00
224035	3	SUB03-240123	387		725	725	1.00
224035	4	SG01-240123-5	334		717	717	1.00
224035	5	SG02-240123-5	311		717	717	1.00
224035	6	SG03-240123-5	347		691	691	1.00
224035	7	SG04-240123-5	356		638	638	1.00
224035	8	SG05-240123-5	314		615	615	1.00

Laboratory Case Narrative

EAS SDG Number: 224035 **Project Number:** 17824

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 Analytyical 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: 1/31/2024

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

ENVIRONMENTAL
Analytical Service, Inc.

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

CHAIN OF CUSTODY RECORD

Project Number 114-19002-05 | Project Name Subslab/SG investigation | Quote 17824 | Requested TAT

REPORT TO:

Attention	Lynn Green
Company	Evren Northwest
Address	P.O. Box 14488
City, State, Zip	Portland OR 97293
Phone/Fax	(503) 452-5561
e-mail	lynn@evren-nw.com

Matrix
A - Ambient Air
SG - Soil Gas
S - Source
I - Indoor Air

SDG R24035

Sample Description	Sample Date	Start Time	Stop Date	Stop Time	Canister Number	Flow Reg Number	Matrix	Initial Pressure	Final Pressure	Laboratory ID	Analytical Tests: GRO	Chlorinated VOCs	TPH			Comments
SUB01-240123	01-23-24	11:15	01-23-24	11:43	341	2551	SG	30	5	01	X	X	X			
SUB02-240123	01-23-24	11:09	01-23-24	12:09	385	2665	SG	30	5	02	X	X	X			
SUB03-240123	01-23-24	10:30	01-23-24	11:16	387	2576	SG	30	5	03	X	X	X			
SG01-240123-5	01-23-24	9:46	01-23-24	10:24	334	2533	SG	30	5	04	X	X	X			
SG02-240123-5	01-23-24	9:49	01-23-24	10:29	311	2558	SG	30	5	05	X	X	X			
SG03-240123-5	01-23-24	10:08	01-23-24	10:39	347	2501	SG	28	5	06	X	X	X			
SG04-240123-5	01-23-24	10:19	01-23-24	10:49	356	2578	SG	27	5	07	X	X	X			
SG05-240123-5	01-23-24	10:29	01-23-24	10:48	314	2585	SG	27	5	06	X	X	X			

Comments

2590

BILLING INFORMATION:

ATTENTION	Leslye Moffat-Pena
Company	Evren Northwest
Address	P.O. Box 14488
City, State, Zip	Portland OR 97293
Purchase Order	114-19002-05

SAMPLED BY: Jordan Morris / Dan Sajko — Date/Time: 01-23-24/18:00

RECEIVED FOR LAB: JBH — 1/25/2024 11:30

COC Number
Cooler Temp
Airbill

Quality Control Report

EAS SDG Number: 224035

Project Number: 17824

QC Narrative

Samples were anlayzed 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 then the referrenced 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 then 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

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: LABQC

Analytical Method: TO-15 **Laboratory ID: B01294**

File Name: B01294D.D **Date Sampled:** **Time:**
Description: METHOD BLANK **Date Analyzed:** 1/29/24 **Time:** 12:37
Canister: **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	ND	0.82	2.35	ND	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	ND	1.06	2.70	ND	
108-88-3	Toluene	0.33	0.87	ND	1.25	3.28	ND	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	ND	1.45	3.83	ND	
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	96	70	130	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B01294

File Name: B01294D.D
Description: METHOD BLANK
Canister:
QC_Batch: 012924-MA1

Date Sampled:
Date Analyzed: 1/29/24
Can Dilution Factor: 1.00
Air Volume: 300 ml

Time:
Time: 12:37

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	ND	67.76	203.28	ND	

QUALITY CONTROL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Spike Duplicate Report

TO15 **Volatile Organic Compounds by GC/MS**

QC_Batch: 012924-MA1
Date: 1/29/24

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	93		88		70	130	6	25	
75-35-4	1,1-Dichloroethene	92		96		70	130	4	25	
75-09-2	Dichloromethane	94		96		70	130	2	25	
75-34-3	1,1-Dichloroethane	92		97		70	130	6	25	
67-66-3	Chloroform	95		96		70	130	1	25	
71-55-6	1,1,1-Trichloroethane	99		100		70	130	0	25	
107-06-2	1,2-Dichloroethane	95		100		70	130	5	25	
71-43-2	Benzene	95		98		70	130	3	25	
56-23-5	Carbon tetrachloride	102		105		70	130	3	25	
79-01-6	Trichloroethene	101		102		70	130	1	25	
108-88-3	Toluene	96		100		70	130	4	25	
106-93-4	1,2-Dibromoethane	94		98		70	130	5	25	
127-18-4	Tetrachloroethene	99		102		70	130	3	25	
100-41-4	Ethylbenzene	98		98		70	130	0	25	
1330-20-7	m,p-Xylenes	99		98		70	130	0	25	
95-47-6	o-Xylene	98		99		70	130	1	25	
108-67-8	1,3,5-Trimethylbenzene	99		95		70	130	4	25	
95-63-6	1,2,4-Trimethylbenzene	97		96		70	130	1	25	

LCS - Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

Analytical Reports

EAS SDG Number: 224035

Project Number: 17824

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 then 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 then 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

SIGNIFICANT FIGURES

Based on the uncertainty in the methods, the numbers on the Analytical Reports should be used with only two significant digits. Additional significant figures are reported for ease of use and to avoid rounding errors when used in further calculations.

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 x MW/24.46 where 24.26 is the gas constant and MW is the Compounds Molecular Weight (sometimes called Formula Weight)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 01**

File Name: 2403501A.D **Date Sampled:** 1/23/24 **Time:** 11:15
Description: SUB01-240123 **Date Analyzed:** 1/29/24 **Time:** 14:45
Canister: 341 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	3.50	0.82	2.35	8.59	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	1.12	1.06	2.70	3.57	
108-88-3	Toluene	0.33	0.87	1.10	1.25	3.28	4.13	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	0.56	1.45	3.83	2.43	J
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	99	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 01

File Name: 2403501A.D **Date Sampled:** 1/23/24 **Time:** 11:15
Description: SUB01-240123 **Date Analyzed:** 1/29/24 **Time:** 14:45
Canister: 341 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	35.15	67.76	203.28	242.19	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 02**

File Name:	2403502A.D	**Date Sampled:**	1/23/24	**Time:**	11:09
Description:	SUB02-240123	**Date Analyzed:**	1/29/24	**Time:**	15:24
Canister:	385	**Can Dilution Factor:**	1.00		
QC_Batch:	012924-MA1	**Air Volume:**	300 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	1.45	0.82	2.35	3.56	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	1.34	1.06	2.70	4.28	
108-88-3	Toluene	0.33	0.87	1.13	1.25	3.28	4.27	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	0.94	1.45	3.83	4.09	
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

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

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 02

File Name: 2403502A.D **Date Sampled:** 1/23/24 **Time:** 11:09
Description: SUB02-240123 **Date Analyzed:** 1/29/24 **Time:** 15:24
Canister: 385 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	65.14	67.76	203.28	468.18	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 03**

File Name: 2403503A.D **Date Sampled:** 1/23/24 **Time:** 10:30
Description: SUB03-240123 **Date Analyzed:** 1/29/24 **Time:** 16:15
Canister: 387 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	24.07	0.82	2.35	59.13	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	3.68	1.06	2.70	11.76	
108-88-3	Toluene	0.33	0.87	2.04	1.25	3.28	7.67	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	0.81	1.45	3.83	3.51	J
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	106	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 03

File Name: 2403503A.D **Date Sampled:** 1/23/24 **Time:** 10:30
Description: SUB03-240123 **Date Analyzed:** 1/29/24 **Time:** 16:15
Canister: 387 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	53.11	67.76	203.28	347.15	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 04**

File Name: 2403504B.D **Date Sampled:** 1/23/24 **Time:** 09:46
Description: SG01-240123-5 **Date Analyzed:** 1/29/24 **Time:** 20:06
Canister: 334 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	6.62	0.82	2.35	16.28	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	1.80	1.06	2.70	5.74	
108-88-3	Toluene	0.33	0.87	1.25	1.25	3.28	4.72	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	0.46	1.45	3.83	2.01	J
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

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

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 04

File Name: 2403504B.D **Date Sampled:** 1/23/24 **Time:** 09:46
Description: SG01-240123-5 **Date Analyzed:** 1/29/24 **Time:** 20:06
Canister: 334 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	51.87	67.76	203.28	328.37	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 05**

File Name: 2403505A.D
Description: SG02-240123-5
Canister: 311
QC_Batch: 012924-MA1

Date Sampled: 1/23/2024 **Time:** 09:49
Date Analyzed: 1/29/2024 **Time:** 17:32
Can Dilution Factor: 1.00
Air Volume: 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	463.99	0.82	2.35	1,139.95	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	2.30	1.06	2.70	7.35	
108-88-3	Toluene	0.33	0.87	4.09	1.25	3.28	15.40	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	0.38	1.45	3.83	1.67	J
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	109	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 05

File Name: 2403505A.D **Date Sampled:** 1/23/24 **Time:** 09:49
Description: SG02-240123-5 **Date Analyzed:** 1/29/24 **Time:** 17:32
Canister: 311 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	218.03	67.76	203.28	1,116.09	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 06**

File Name:	2403506A.D	**Date Sampled:**	1/23/24	**Time:**	10:08
Description:	SG03-240123-5	**Date Analyzed:**	1/29/24	**Time:**	18:10
Canister:	347	**Can Dilution Factor:**	1.00		
QC_Batch:	012924-MA1	**Air Volume:**	300 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	13.51	0.82	2.35	33.19	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	1.38	1.06	2.70	4.42	
108-88-3	Toluene	0.33	0.87	2.68	1.25	3.28	10.09	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	ND	1.45	3.83	ND	
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	98	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 06

File Name: 2403506A.D **Date Sampled:** 1/23/24 **Time:** 10:08
Description: SG03-240123-5 **Date Analyzed:** 1/29/24 **Time:** 18:10
Canister: 347 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	23.59	67.76	203.28	159.11	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 07**

File Name:	2403507A.D	**Date Sampled:**	1/23/2024	**Time:**	10:19
Description:	SG04-240123-5	**Date Analyzed:**	1/29/2024	**Time:**	18:49
Canister:	356	**Can Dilution Factor:**	1.00		
QC_Batch:	012924-MA1	**Air Volume:**	300 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	13.72	0.82	2.35	33.72	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	1.48	1.06	2.70	4.74	
108-88-3	Toluene	0.33	0.87	1.54	1.25	3.28	5.81	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	ND	1.45	3.83	ND	
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	99	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 07

File Name: 2403507A.D **Date Sampled:** 1/23/24 **Time:** 10:19
Description: SG04-240123-5 **Date Analyzed:** 1/29/24 **Time:** 18:49
Canister: 356 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	31.70	67.76	203.28	228.08	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 224035

Analytical Method: TO-15 **Laboratory ID: 08**

File Name: 2403508A.D **Date Sampled:** 1/23/24 **Time:** 10:48
Description: SG05-240123-5 **Date Analyzed:** 1/29/24 **Time:** 19:27
Canister: 314 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol (isopropylalcohol)	0.33	0.96	12.13	0.82	2.35	29.80	
1634-04-4	Methyl tert butyl ether	0.33	0.61	ND	1.20	2.21	ND	
107-06-2	1,2-Dichloroethane	0.17	0.76	ND	0.67	3.08	ND	
71-43-2	Benzene	0.33	0.85	1.62	1.06	2.70	5.19	
108-88-3	Toluene	0.33	0.87	1.00	1.25	3.28	3.78	
106-93-4	1,2-Dibromoethane (EDB)	0.17	0.40	ND	1.28	3.10	ND	
100-41-4	Ethylbenzene	0.33	0.88	ND	1.45	3.82	ND	
1330-20-7	m,p-Xylenes	0.33	0.88	ND	1.45	3.83	ND	
95-47-6	o-Xylene	0.33	0.86	ND	1.45	3.73	ND	
103-65-1	n-Propylbenzene	0.33	0.50	ND	1.64	2.46	ND	
98-82-8	Isopropylbenzene	0.33	0.51	ND	1.64	2.49	ND	
108-67-8	1,3,5-Trimethylbenzene	0.33	0.86	ND	1.64	4.23	ND	
95-63-6	1,2,4-Trimethylbenzene	0.33	0.85	ND	1.64	4.16	ND	
91-20-3	Naphthalene	0.17	0.31	ND	0.87	1.64	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	99	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 224035
Analytical Method: TO-15 **Laboratory ID:** 08

File Name: 2403508A.D **Date Sampled:** 1/23/24 **Time:** 10:48
Description: SG05-240123-5 **Date Analyzed:** 1/29/24 **Time:** 19:27
Canister: 314 **Can Dilution Factor:** 1.00
QC_Batch: 012924-MA1 **Air Volume:** 300 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
1330-20-7	GRO	13.33	40.00	36.92	67.76	203.28	247.29	