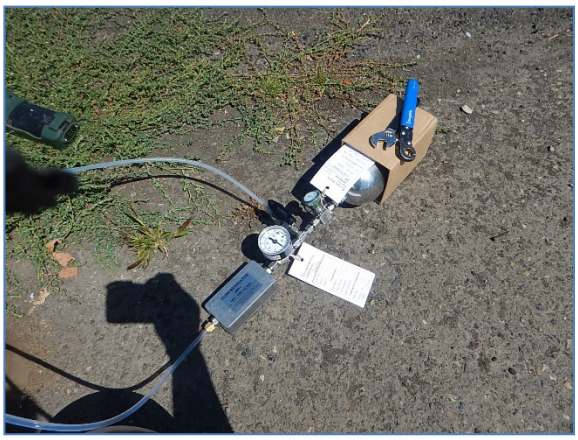
EVREN NORTHWEST INC.
environmental & natural resource consultants

TECHNICAL MEMORANDUM

SECOND ROUND SOIL GAS ASSESSMENT



Islam El Masry Property

1021 E Baseline Street
Cornelius, Oregon 97113

Agency Information

ODEQ LUST File Number 34-06-1375

Prepared for:

Islam El Masry
418 SW 4th Avenue, Unit 306
Portland, Oregon 97024

Issued on:

August 14, 2019

EVREN NORTHWEST, INC.
Project No. 1209-17001-06

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Tables

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1.0 Introduction

At the request of Islam El Masry (Client), EVREN Northwest, Inc. (ENW) prepared this second round of soil gas testing at the subject site (Islam El Masry Property, 1021 E Baseline Street, Cornelius, Oregon; see Figures 1 and 2). A previous soil gas investigation was conducted in February 2019. Investigation and cleanup efforts are being conducted under the oversight of the Oregon Department of Environmental Quality (ODEQ) for a 2006 release from an underground storage tank (UST) system. ODEQ has assigned the site and release Leaking Underground Storage Tank (LUST) File No. 34-06-1375.

This supplemental work was performed per a request by ODEQ in an electronic mail correspondence on June 6, 2019, and according to the October 2018 *Work Plan*[1], approved by the ODEQ on November 7, 2018.

2.0 Background

Six soil gas samples were previously collected and analyzed for gasoline-related organics (GRO) and related volatile organic constituents (VOCs) on February 5, 2019, and results reported in ENW's *Focused Subsurface Investigation* (FSI)[2]. Benzene, naphthalene, toluene, 1,2,4-trimethylbenzene (TMB), xylenes and GRO were detected in one or more soil gas samples; however, none had concentrations that exceeded their respective ODEQ screening-level risk-based concentrations (SLRBCs). Along with analytical results, ENW reported possible air intrusion into SG06 and elevated leak detection compound in sample SG01.

In their email correspondence on June 6, 2019, ODEQ stated that vapor intrusion had not been fully assessed, pointing to sampling anomalies during the initial round of soil gas sampling (reported for soil gas samples SG01 and SG06), and the absence of "dry season" soil gas sampling data. Accordingly, ODEQ requested a second round of sampling to validate initial sample data and to evaluate possible "worst-case" conditions. The results are to determine if risks from the vapor intrusion pathway can be ruled out or if an institutional control is needed. ODEQ also requested that a seventh area be sampled in an area previously containing elevated contaminants in soil and ground water (in the vicinity of monitoring well MW-2 and TW-1/TW-3).

3.0 Scope of Work

To comply with ODEQ requests, ENW completed the following Scope of Work for this project:

- Prepared an internal Sample/Analysis Plan for sample collection.
- Collected seven soil gas samples from identical locations and depths to the previous six soil gas samples, and a seventh sample near MW-2 and TW-1/TW-3.
- Submitted samples to an independent laboratory for analysis.

[1] ENW. November 11, 2018. Work Plan: Reconnaissance Ground Water and Soil Gas Characterization Islam El Masry Property.

[2] ENW, May 12, 2019. *Focused Site Investigation*, Islam El Masry Property. Sampling conducted in February 2019.

- Evaluated analytical data against ODEQ's SLRBCs for vapor intrusion for residential and occupational land use.
- Completed this technical memorandum describing the above activities and findings.

4.0 Methods and Procedures

The second round of soil gas sampling was performed at the site on July 29, 2019. The objectives of this investigation were to:

1) Collect soil gas data during the dry season to supplement previous "wet season" results.
2) Further explore soil gas conditions in the area of monitoring well MW-2 and former sample locations TW-1/TW-3.
3) Confirm soil gas conditions at previous soil gas samples SG01 and SG06.

Photographs taken during site work are included in Attachment A.

4.1 Sampling Methodology

ENW collected soil gas samples (re-designated as SG01 through SG07) from a depth of five feet below ground surface (bgs), consistent with previous sample depths, locations and methods. The soil gas sample locations are illustrated on Figure 3. Field sampling data sheets are included in Attachment B.

As during previous sampling, soil gas samples were collected from manually installed soil gas probes into pre-pressurized and laboratory-certified SUMMA canisters, consistent with ENW's Work Plan. 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) to prevent infiltration. Hydrated bentonite was used to seal around the soil gas probe at the ground surface to prevent ambient air intrusion. In order to allow for subsurface conditions to equilibrate, the system remained in the ground for at least 30 minutes prior to shut-in, leak, purge volume testing, and soil gas sampling.

Shut-in and leak testing was performed by briefly opening the SUMMA sample vessel with the system closed and recording both initial and final vacuum pressures for 5 minutes (shut-in test). Each soil gas probe passing the shut-in tests was purged for a minimum of 4 minutes using a separate dedicated pre-evacuated SUMMA cannister.

Soil gas samples were then collected using certified SUMMA canisters. Rags saturated with isopropyl alcohol (2-propanol or IPA) were placed over the soil gas head seal and over the sampling manifold (all connections) to provide secondary leak detection during sample collection to ensure sample integrity. Soil gas sampling rates were regulated to below approximately 167 milliliters per minute (mL/min) by a calibrated flow regulator. Following sample collection, a photoionization detector (PID) was attached to the tubing to screen soil gas for VOCs. Initial screening results of the samples are presented on Table 3-1.

Table 3-1. Soil Gas Screening Results

Sample ID		SG01-190729-5	SG02-190729-5	SG03-190729-5	SG04-190729-5	SG05-190729-5	SG06-190729-5	SG07-190729-5
Date Sampled		7/29/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019
Depth Sampled (ft)		5	5	5	5	5	5	5
Sampled by		ENW	ENW	ENW	ENW	ENW	ENW	ENW
Location		Between northern 2 USTs.	Southern property line, next to MW01	Northern property line, east of MW04	Between southern USTs and pump island	Near pump islands	Just west of center pump island, near MW03.	Near MW-2, TW-1/TW-3
Parameter of interest	Note:	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv
PID (Total Volatiles)	1	0.6	0.4	1.7	0.1	0.1	171.6	0.1
1 = Photoionization detector								
ppmv = parts per million, volume								

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. Soil gas samples were packed and shipped to the laboratory under chain-of-custody protocols.

4.2 Analytical Methods

The soil gas samples were analyzed according to the analytical plan presented in Table 3-2. Samples were analyzed by Environmental Analytical Services (EAS) of San Luis Obispo, California. The laboratory analytical report is Attachment C.

Table 3-2. Analytical Method

Analytical Method	Constituents	Soil Gas Samples
EPA Method TO-15	GRO and related VOCs 2-Propanol (as leak detection)	All samples

4.3 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 derived in accordance with ODEQ's *Risk-Based Decision Making for the Remediation of Contaminated Sites* guidance document.[3]

5.0 Findings

Laboratory analytical results are presented in Table 1 (after text) and indicate:

- All detections of GRO and related VOCs were below their respective ODEQ SLRBCs.

[3] Applicable to underground storage tanks regulated under the *Cleanup Rules for Leaking Petroleum Underground Storage Tank Systems* (OAR 340-122-0205 through 340-122-0360) and other sources of contamination regulated under the *Hazardous Substance Remedial Action Rules* (OAR 340-122-0010 through 340-122-0115).

- GRO was present at concentrations between 397.6 micrograms per cubic meter (µg/m^3) and 50,398.2 µg/m^3. All reported concentrations were below the ODEQ's SLRBC for GRO of 79,000 µg/m^3.
- Benzene was detected in six of the seven samples at concentrations ranging from 3.53 µg/m^3 to 8.99 µg/m^3, all below its ODEQ SLRBC of 72 µg/m^3.
- Ethylbenzene was detected in one sample (SG01) at an estimated concentration of 7.2 µg/m^3, which is below the ODEQ's most stringent RBC of 220 µg/m^3.
- Iso-propyl benzene was detected in samples SG01 and SG06 at 21.44 µg/m^3 and 55.58 µg/m^3, respectively. Neither concentration exceeded ODEQ's most stringent RBC of 83,000 µg/m^3.
- Toluene was detected in six of the sample locations (SG01, SG02, SG04 through SG07), between 4.78 ug/m^3 and 13.47 ug/m^3. All reported concentrations were below its SLRBC of 1,000,000 ug/m^3.
- 1,2,4-TMB was reported in three samples at up to 255.04 µg/m^3, below the SLRBC of 13,000 ug/m^3.
- 1,3,5-TMB was detected in only three samples, ranging between 7.04 ug/m^3 and 135.09 ug/m^3. All reported concentrations were below its SLRBC of 13,000 ug/m^3.
- Total xylenes were detected in samples SG02, SG06 and SG07 at up to a maximum concentration of 115.74 µg/m^3, below its SLRBC of 21,000 µg/m^3.

Isopropyl alcohol (or 2-Propanol), used for leak detection purposes, was detected in six of seven samples at up to 13.53 µg/m^3. These results meet ODEQ sampling requirements of less than five percent ambient air contribution, as stated in their guidance document.[4]

6.0 Discussion/Conclusions

The findings of this Scope of Work suggest the following:

1. Soil gas testing at SG01 showed acceptable levels of leak detection compound during this round of sampling, indicating improved sample integrity compared with the previous sampling event.
2. Results indicate constituent levels were protective of human health under the most-stringent land use scenario (i.e., future residential land use).
3. Relatively higher concentrations of GRO were observed in soil gas sample SG06 relative to the previous sampling event; however, the detected GRO concentration and related constituents remained below the ODEQ's most-stringent human health risk-based concentration.

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

4. Results from soil gas sample SG07, collected at the request of ODEQ near MW-2 and former sample locations TW-1/TW-3 showed soil gas concentrations in this area meets human health risk-based criteria for the vapor intrusion pathway.

These findings suggest that residual GRO and related VOC-constituent impacts present in the subsurface at the subject site are unlikely to pose a vapor intrusion risk to human health.

7.0 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. 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.

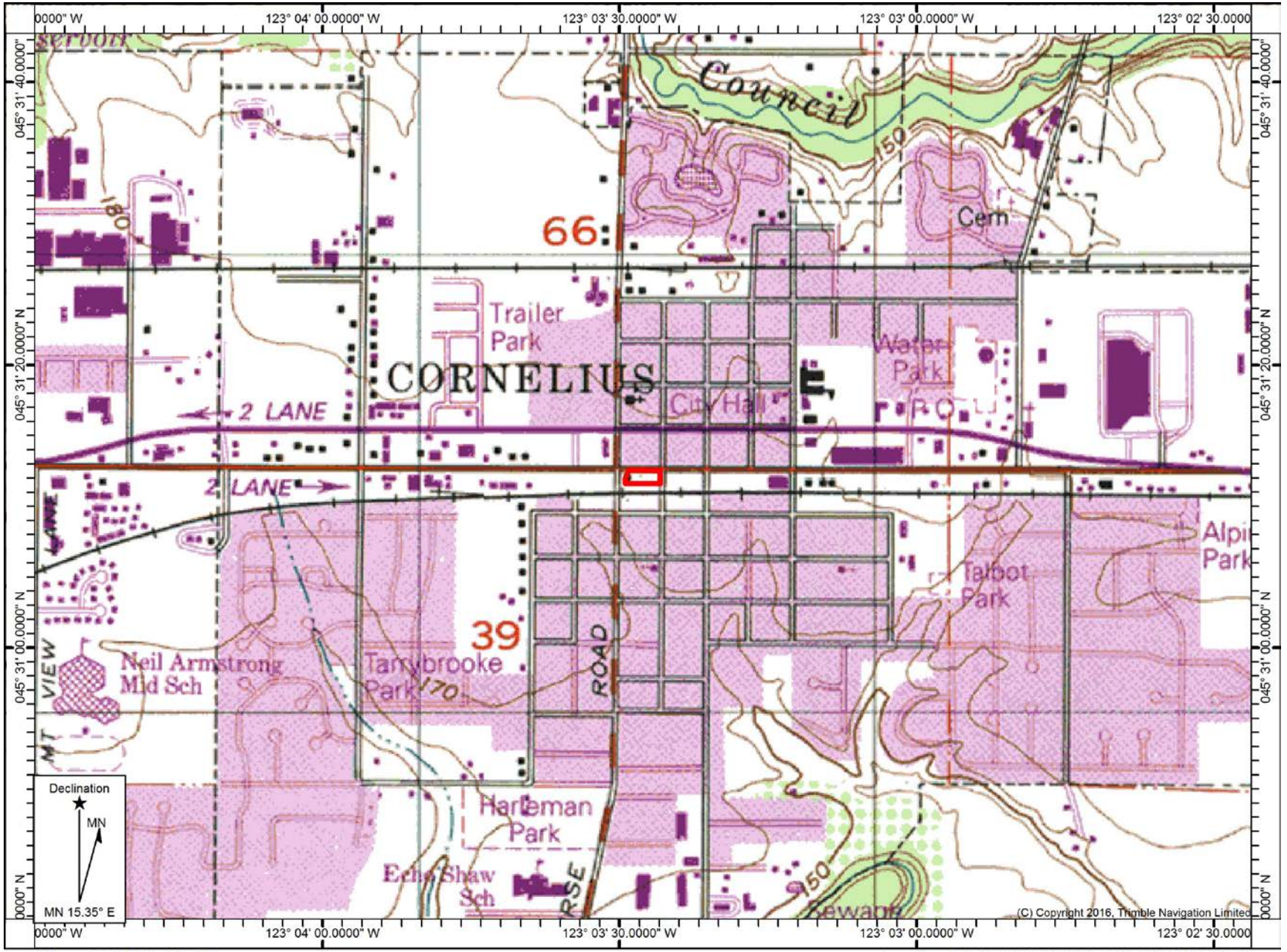
ENW performed this study under a limited scope of services per our agreement. It is possible, despite the use of reasonable care and interpretation, that ENW may have failed to identify regulation violations related to the presence of hazardous substances other than those specifically mentioned at the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

Sample ID		SG01-190205-5	SG02-190205-5	SG03-190205-4	SG04-190205-5	SG05-190205-5	SG06-190205-5	SG01-190729-5	SG02-190729-5	SG03-190729-5	SG04-190729-5	SG05-190729-5	SG06-190729-5	SG07-190729-5	Maximum Soil-Gas Concentration (both samping events)	ODEQs Screening-level RBCs (Soil Gas) [1]	Constituent of Concern (COC)
Date Sampled		2/5/2019	2/5/2019	2/5/2019	2/5/2019	2/5/2019	2/5/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019			
Depth Sampled (feet)		5	5	4	5	5	5	5	5	5	5	5	5	5			
Sampled By		ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW			
Location		Between northern 2 USTs.	Southern property line, next to MW01	Northern property line, east of MW04	Between southern USTs and pump island	Near pump islands	Just west of center pump island, near MW03.	Between northern 2 USTs.	Southern property line, next to MW01	Northern property line, east of MW04	Between southern USTs and pump island	Near pump islands	Just west of center pump island, near MW03.	Near MW-2, TW-1/TW-3			TRUE OR Y FALSE OR N
Constituent of Interest	Note	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3								µg/m3		
Volatile Organic Constituents																	
Benzene	c, v	8.4	6.4 J	5.26 J	8.35	7.24 J	10.32	5.02 J	6.18 J	<8.11 (ND)	3.53 J	4.98 J	8.99	3.8 J	10.32	72	N
EDB (1,2-dibromoethane)	c, v	<8.48 (ND)	<8.4 (ND)	<7.96 (ND)	<8.85 (ND)	<8.48 (ND)	<9.29 (ND)	<9.29 (ND)	<9.29 (ND)	<9.29 (ND)	<9.29 (ND)	<9.29 (ND)	<9.29 (ND)	<9.29 (ND)	<9.29 (ND)	0.94	(Y)
EDC (1,2-dichloroethane)	c, v	<8.42 (ND)	<8.34 (ND)	<7.9 (ND)	<8.78 (ND)	<8.42 (ND)	<9.23 (ND)	<9.23 (ND)	<9.23 (ND)	<9.23 (ND)	<9.23 (ND)	<9.23 (ND)	<9.23 (ND)	<9.23 (ND)	<9.23 (ND)	22	N
Ethylbenzene	c, v	<10.45 (ND)	<10.36 (ND)	<9.81 (ND)	<10.91 (ND)	<10.45 (ND)	<11.46 (ND)	7.2 J	<11.46 (ND)	<11.46 (ND)	<11.46 (ND)	<11.46 (ND)	<11.46 (ND)	<11.46 (ND)	7.2 J	220	N
MTBE (methyl t-butyl ether)	c, v	<6.04 (ND)	<5.99 (ND)	<5.67 (ND)	<6.31 (ND)	<6.04 (ND)	<6.63 (ND)	<6.63 (ND)	<6.63 (ND)	<6.63 (ND)	<6.63 (ND)	<6.63 (ND)	<6.63 (ND)	<6.63 (ND)	<6.63 (ND)	2200	N
Naphthalene	c, v	6.83	<4.45 (ND)	9.89	4.12 J	4.4 J	<4.93 (ND)	<4.93 (ND)	<4.93 (ND)	<4.93 (ND)	<4.93 (ND)	<4.93 (ND)	<4.93 (ND)	<4.93 (ND)	9.89	17	N
iso-Propylbenzene (cumene)	nc, v	<6.81 (ND)	<6.75 (ND)	<6.39 (ND)	<7.11 (ND)	<6.81 (ND)	<7.47 (ND)	21.44	<7.47 (ND)	<7.47 (ND)	<7.47 (ND)	<7.47 (ND)	55.58	<7.47 (ND)	<55.58 (ND)	83000	N
Toluene	nc, v	6.13 J	6.91 J	6.66 J	7.53 J	12.81	8.1 J	13.47	8.68 J	<9.83 (ND)	4.78 J	5.43 J	5.47 J	7.64 J	13.47	1000000	N
1,2,4-Trimethylbenzene	nc, v	<11.38 (ND)	<11.28 (ND)	8.59 J	<11.88 (ND)	<11.38 (ND)	<12.48 (ND)	<12.48 (ND)	11.6 J	<12.48 (ND)	<12.48 (ND)	<12.48 (ND)	255.04	9.25 J	255.04	13000	N
1,3,5-Trimethylbenzene	nc, v	<11.56 (ND)	<11.46 (ND)	<10.85 (ND)	<12.07 (ND)	<11.56 (ND)	<12.68 (ND)	30.81	<12.68 (ND)	<12.68 (ND)	<12.68 (ND)	<12.68 (ND)	135.09	7.04 J	135.09	13000	N
Xylenes	nc, v	<20.71 (ND)	<20.53 (ND)	<19.44 (ND)	<21.16 (ND)	<20.71 (ND)	6.51 J	<52.93 (ND)	13.88 J	<22.7 (ND)	<22.7 (ND)	<22.7 (ND)	115.74	16.28 J	115.74	21000	N
Total Petroleum Hydrocarbons																	
Generic Gasoline (GRO)	nc, v	302.6 J	<666.9 (ND)	399.7 J	344.1 J	243.3 J	<737.7 (ND)	<737.7 (ND)	397.6 J	<737.7 (ND)	726.7 J	<737.7 (ND)	50398.2	<737.7 (ND)	50398.2	79000	N
Leak Detection															**Maximum Soil-Gas Concentration (most recent event)**	**Leak Screening Level**	**Leak Screeninig Level Exceeded?**
2-Propanol		7983.59	12.19	3.92 J	714.38	3835.93	<7.05 (ND)	2.5 J	8.73	<7.05 (ND)	5.55 J	13.53	2.52 J	4.32 J	13.53	5000	N

Notes:
ND = not detected at or above laboratory method reporting limits.
< = 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.
Bolded 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.
>Pv = indicates this constituent cannot present an unacceptable health risk by the vapor intrusion pathway
J = estimated value since compound was detected between the method detection limit and the laboratory reporting limit.

Figures



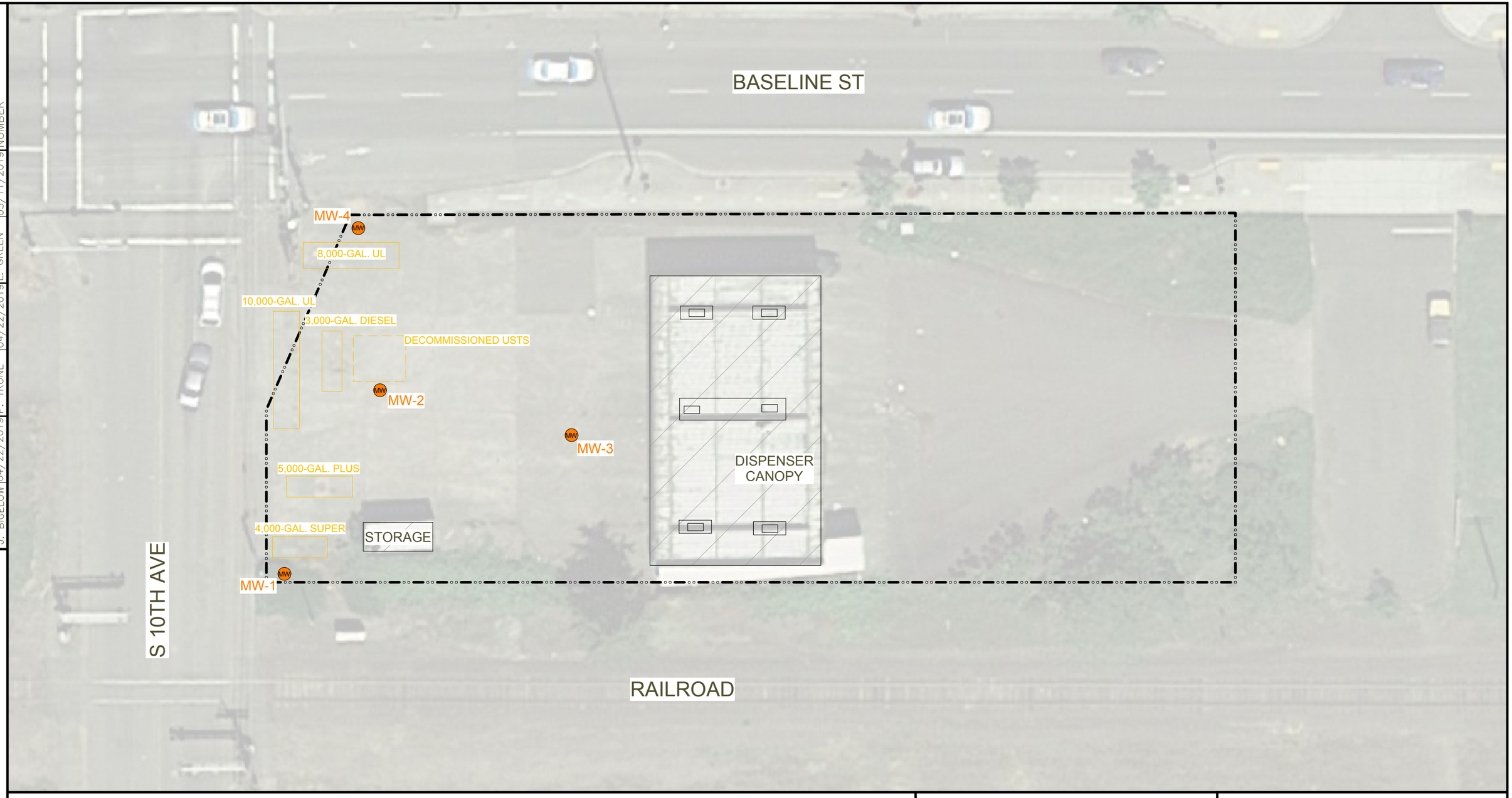
Name: FOREST GROVE
Date: Jan 1, 1992

0 1000 2000
Feet

Location: 045° 31' 12.1534" N, 123° 03' 27.6732" W
Contour Interval: 10 ft

EVREN NORTHWEST INC environmental, natural resource consultants	Date Drawn: 9/18/2018 CAD File Name: 1209-17001-fig1sv_map(v01) Drawn By: JOB Approved By: LDG	1021 Baseline Street Cornelius, Oregon	**Site Vicinity Map**	Project No. 1209-17001 Figure No. **1**

DRAWING NUMBER	APPROVED BY		CHECKED BY		DRAWN BY	
1209-17001(v01)	05/11/2019	L. GREEN	04/22/2019	P. TRONE	04/22/2019	J. BIGELOW



LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- UNDERGROUND STORAGE TANK
- DECOMMISSIONED UNDERGROUND STORAGE TANK
- MW MONITORING WELL

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2017 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 25 50 FEET

N

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FIGURE 2

SITE PLAN

1021 E BASELINE STREET
CORNELIUS, OREGON

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
J. BIGELOW 08/13/2019	P. TRONE 08/13/2019	L. GREEN 08/13/2019	1209-1700(v01)

MW-4

MW

8,000-GAL. UL

10,000-GAL. UL

3,000-GAL. DIESEL

DECOMMISSIONED USTS

SG03

SG03	Result (µg/m³)	
	2/5/2019	7/29/2019
GRO	399.7 J	<738 (ND)
Benzene	5.26 J	<8.11 (ND)
Ethylbenzene	<9.81 (ND)	<11.5 (ND)
Naphthalene	9.89	<4.93 (ND)
iso-Propyl benzene	<6.39 (ND)	<7.47 (ND)
Toluene	6.66 J	<9.83 (ND)
1,2,4-TMB	8.59 J	<12.5 (ND)
1,3,5-TMB	<10.9 (ND)	<12.7 (ND)
Xylenes	<19.4 (ND)	<22.7 (ND)

SG05	Result (µg/m³)	
	2/5/2019	7/29/2019
GRO	243.3 J	<738 (ND)
Benzene	7.24 J	4.98 J
Ethylbenzene	<10.5 (ND)	<11.5 (ND)
Naphthalene	4.4 J	<4.93 (ND)
iso-Propyl benzene	<6.81 (ND)	<7.47 (ND)
Toluene	12.81	5.43 J
1,2,4-TMB	<11.4 (ND)	<12.5 (ND)
1,3,5-TMB	<11.6 (ND)	<12.7 (ND)
Xylenes	<20.7 (ND)	<22.7 (ND)

SG05

SG06

MW

MW-3

SG06	Result (µg/m³)	
	2/5/2019	7/29/2019
GRO	<738 (ND)	50,398.2
Benzene	10.32	8.99
Ethylbenzene	<11.5 (ND)	<11.5 (ND)
Naphthalene	<4.93 (ND)	<4.93 (ND)
iso-Propyl benzene	<7.47 (ND)	55.58
Toluene	8.1 J	5.47 J
1,2,4-TMB	<12.5 (ND)	255.04
1,3,5-TMB	<12.7 (ND)	135.09
Xylenes	6.51 J	115.74

SG01	Result (µg/m³)	
	2/5/2019	7/29/2019
GRO	302.6 J	<738 (ND)
Benzene	8.4	5.02 J
Ethylbenzene	<10.5 (ND)	7.2 J
Naphthalene	6.83	<4.93 (ND)
iso-Propyl benzene	<6.81 (ND)	21.44
Toluene	6.13 J	13.47
1,2,4-TMB	<11.4 (ND)	<12.5 (ND)
1,3,5-TMB	<11.6 (ND)	30.81
Xylenes	<20.7 (ND)	<52.9 (ND)

SG01

SG07

MW

MW-2

SG07	Result (µg/m³)	
	2/5/2019	7/29/2019
GRO	NA	<738 (ND)
Benzene	NA	3.8 J
Ethylbenzene	NA	<11.5 (ND)
Naphthalene	NA	<4.93 (ND)
iso-Propyl benzene	NA	<7.47 (ND)
Toluene	NA	7.64 J
1,2,4-TMB	NA	9.25 J
1,3,5-TMB	NA	7.04 J
Xylenes	NA	16.28 J

5,000-GAL. PLUS

SG04

SG04	Result (µg/m³)	
	2/5/2019	7/29/2019
GRO	344.1 J	726.7 J
Benzene	8.35	3.53 J
Ethylbenzene	<10.9 (ND)	<11.5 (ND)
Naphthalene	4.12 J	<4.93 (ND)
iso-Propyl benzene	<7.11 (ND)	<7.47 (ND)
Toluene	7.53 J	4.78 J
1,2,4-TMB	<11.9 (ND)	<12.5 (ND)
1,3,5-TMB	<12.1 (ND)	<12.7 (ND)
Xylenes	<21.2 (ND)	<22.7 (ND)

4,000-GAL. SUPER

SG02

MW

MW-1

SG02	Result (µg/m³)	
	2/5/2019	7/29/2019
GRO	<667 (ND)	397.6 J
Benzene	6.4 J	6.18 J
Ethylbenzene	<10.4 (ND)	<11.5 (ND)
Naphthalene	<4.45 (ND)	<4.93 (ND)
iso-Propyl benzene	<6.75 (ND)	<7.47 (ND)
Toluene	6.91 J	8.68 J
1,2,4-TMB	<11.3 (ND)	11.6 J
1,3,5-TMB	<11.5 (ND)	<12.7 (ND)
Xylenes	<20.5 (ND)	13.88 J

LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- UNDERGROUND STORAGE TANK
- DECOMMISSIONED UNDERGROUND STORAGE TANK
- MW MONITORING WELL
- ENW SOIL GAS SAMPLE LOCATION

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2017 AND ENW, K&S, AND ALPHA 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 15 30 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 3

SAMPLE LOCATION DIAGRAM (SOIL GAS)

1021 E BASELINE STREET
CORNELIUS, OREGON

Attachment A

Site Photographs

View west while advancing soil probe for soil gas sample SG01.

View southwest at the soil gas probe for soil gas sample SG04.

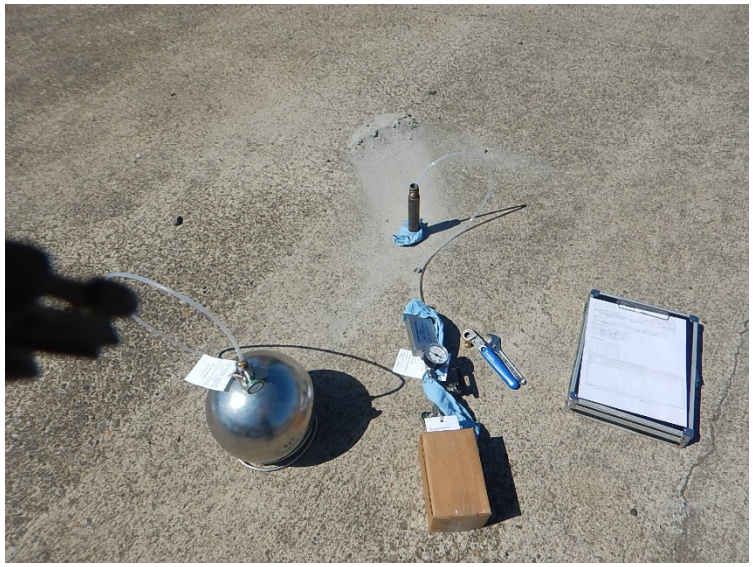
View north of soil gas sample SG01, located just south of the existing USTs (note placement of rags saturated with IPA for leak check).

View north while purging soil gas sample SG02, located in the southwest corner of the property near monitoring well MW-1.

EVREN NORTHWEST INC. environmental / natural resource consultants	Islam El Masry Property 1021 E Baseline Street Cornelius, Oregon	**Site Photographs**	Project No. 1209-17001-06 Appendix **A**

View north at soil gas sample SG07 while purging.

Soil gas sample SG03 was located near the north property boundary.



View of soil gas sample SG04. Rags saturated with 2-propanol (leak detection compound) were placed near connections along the sample train.

View of general area of soil gas sample SG05, placed beneath the fuel island canopy.

EVREN NORTHWEST INC. environmental / natural resource consultants	Islam El Masry Property 1021 E Baseline Street Cornelius, Oregon	**Site Photographs**	Project No. 1209-17001-06 Appendix **A**

Attachment B

Field Sampling Data Sheets

OPEN - 9:41

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-06 **SAMPLE LOCATION:** SG01

SITE ADDRESS: 1021 East Baseline Street, Cornelius, Oregon **DUP ID:**

													Temp., F	Humidity (%)
WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy			
WEATHER:	SUNNY		CLOUDY		RAIN								69	67

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	7/29/19	0.5L, 1L, 3L, 5L, 6L	5	SG01-190729-5	129	YES	NO	2589	526

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	9:25	9:30	27	27
Purge	10:17	10:21	27	25
Sample	10:22	10:34	27	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
7/29/19	10:35	5.0	0.6
	10:36		0.2
	10:37		0.2
	10:38		0.2
	10:39		0.2

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)
	1L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (PRINTED NAME) Barbara Lary (SIGNATURE)

FIELD SAMPLING DATA SHEET

OPEN: 11:49

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-06 **SAMPLE LOCATION:** SG05

SITE ADDRESS: 1021 East Baseline Street, Cornelius, Oregon **DUP ID:**

WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy		Temp., F	Humidity (%)
WEATHER:	SUNNY		CLOUDY		RAIN								80	47

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	7/29/19	0.5L, 1L, 3L, 5L, 6L	5.0	SG05-190729-5	139	YES	NO	2501	526

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	11:18	11:23	28	28
Purge	12:23	1227	18	16
Sample	12:29	1245	20	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
7/29/19	1247	5.0	0.1
	1248	↓	0.0
	1249		0.0
	1250		0.0
	1251		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)
	1L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (PRINTED NAME) Barb Lary (SIGNATURE)

FIELD SAMPLING DATA SHEET Open: 11:31

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-06 **SAMPLE LOCATION:** SG03

SITE ADDRESS: 1021 East Baseline Street, Cornelius, Oregon **DUP ID:**

													Temp., F	Humidity (%)
WIND FROM:	(N)	NE	E	SE	S	SW	W	NW	(Light)	Medium	Heavy			
WEATHER:	(SUNNY)		CLOUDY		RAIN								76	47

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	7/29/19	0.5L (1L) 3L, 5L, 6L	5.0	SG03-190729-5/30		(YES)	NO	2661	526

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	11:10	11:15	25	25
Purge	12:07	12:11	18	16
Sample	12:13	12:24	27	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)	
7/29/19	1227	5.0	1.7	0.3 1.4 open air
	1228		1.3	0.1
	1229		1.0	0.0
	1230		0.7	0.0
	1231		0.6	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)
	1L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) (VOCs (TO-15))
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (PRINTED NAME) Barb Lary (SIGNATURE)

FIELD SAMPLING DATA SHEET

OPEN: 10:59

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-06 **SAMPLE LOCATION:** SG06

SITE ADDRESS: 1021 East Baseline Street, Cornelius, Oregon **DUP ID:**

WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy		Temp., F	Humidity (%)
WEATHER:	SUNNY		CLOUDY		RAIN								76	47

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	7/29/19	0.5L, 1L, 3L, 5L, 6L	5	SG06-190729-5	127	YES	NO	2636	526

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	10:50	10:55	27.5	27.0
Purge	11:41	11:45	21	20
Sample	11:47	11:56	29	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
7/29/19	11:58	5.0	171.6
	11:59		173.4
	12:00		167.0
	12:01		163.6
	12:02		164.0

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)
	1L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (PRINTED NAME) (SIGNATURE)

FIELD SAMPLING DATA SHEET

open 10:34

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-06 **SAMPLE LOCATION:** SG 04

SITE ADDRESS: 1021 East Baseline Street, Cornelius, Oregon **DUP ID:**

													Temp. °C	Humidity (%)
WIND FROM:	(N)	NE	E	SE	S	SW	W	NW	(Light)	Medium	Heavy			
WEATHER:	(SUNNY)		CLOUDY		RAIN								76	47

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	7/29/19	0.5L, (1L), 3L, 5L, 6L	5.0	SG04-190729-5	138	(YES)	NO	2581	526

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	~~948~~		~~27.5~~	
	953	958	27	27
Purge	11:07	11:11	23	21
Sample	11:12	11:23	27	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
7/29/19	11:26	5.0	0.1
	11:27		0.1
	11:28		0.1
	11:29		0.2
	11:30		0.2

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)
	1L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) (VOCs (TO-15)
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (PRINTED NAME) (SIGNATURE)

OPEN 9:52

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-06 **SAMPLE LOCATION:** SG07

SITE ADDRESS: 1021 East Baseline Street, Cornelius, Oregon **DUP ID:**

													Temp., C	Humidity (%)
WIND FROM:	(N)	NE	E	SE	S	SW	W	NW	(Light)	Medium	Heavy			
WEATHER:	(SUNNY)		CLOUDY		RAIN								69	67

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	7/29/19	0.5L, (1L), 3L, 5L, 6L	5	~~SG~~07-190729-5	126	(YES)	NO	2512	526

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	9:29	932	29	27
	935	940	29	28
Purge	10:39	10:43	25	23
Sample	10.45	10:59	28	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
7/29/19	11:01	5.0	0.1
	11:02		0.1
	11:03		0.0
	11:04		0.0
	11:05		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)
	1L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-18) (VOCs (TO-15))
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (PRINTED NAME) Barb Lary (SIGNATURE)

FIELD SAMPLING DATA SHEET

OPEN 9:26

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-06 **SAMPLE LOCATION:** SG02

SITE ADDRESS: 1021 East Baseline Street, Cornelius, Oregon **DUP ID:**

													Temp., F	Humidity (%)
WIND FROM:	(N)	NE	E	SE	S	SW	W	NW	(Light)	Medium	Heavy			
WEATHER:	(SUNNY)		CLOUDY		RAIN								69	67

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	7/29/19	0.5L (1L) 3L, 5L, 6L	5	SG02-190729-S105		(YES)	NO	2630	526

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	920	925	28	27
Purge	10:00	10:04	28	27
Sample	10:05	10:21	28	5

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
7/29/19	10:22	5.0	0.4
	10:23		0.2
	10:24		0.1
	10:25		0.1
	10:26		0.1

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)
	1L Summa	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) (VOCs (TO-15))
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARRY LARY (PRINTED NAME) Barry Lary (SIGNATURE)

Attachment C

Laboratory Analytical Report

Summary: DATA VALID? ☒YES

Analytical Laboratory Data Validation Check Sheet

Project Name: 1021 Baseline St., Cornelius Project Number: 1209-17001-06

Date of Review: 08/12/2019 Lab. Name: **EAS** Lab Batch ID #: **219344**

Chain of Custody

1.) Are all requested analyses reported?	☒yes	☐no	
2.) Were the requested methods used?	☒yes	☐no	
3.) Trip blank submitted?	☐yes	☒no	
4.) Field blank submitted?	☐yes	☒no	
Timing			
5.) Samples extracted within holding times?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	
6.) Analysis performed within holding times?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	
Quality Assurance/Quality Control			
7.) Are the required reporting limits reported? (MRLs vs MDLs/PQLs)	☒yes	☐no	
8.) Are all reported values above either MRL or MDL?	☒yes	☐no	
9.) Are all values between the MDL & PQL tagged as trace?	☐yes	☐no	☒NA
10a.) Are reporting limits raised for other reason besides high analyte conc.?	☐yes	☒no	
10b.) If so, are they footnoted?	☐yes	☐no	☒NA
11.) Lab method blank completed?	☒yes	☐no	
12.) Lab, Field, or Trip Blank(s) report detections?	☐yes	☒no	

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

13.) For inorganics and metals, is there one method blank for each analyte?	☐yes	☐no	☒NA
If not, are all discrepancies footnoted?	☐yes	☐no	
14.) For VOCs, is there one method blank for each day of analysis?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
15.) For SVOC's, is there one method blank for each extraction batch?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
Accuracy			
16.) Is there a surrogate spike recovery for all VOC & SVOC samples?	☒yes	☐no	☐NA
Do all surrogate spike recoveries meet accepted criteria?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
17.) Is there a spike recovery for all Laboratory Control Samples?	☒yes	☐no	☐NA
Do all LCS spike recoveries meet accepted criteria?	☒yes	☐no	
Precision			
18.) Are all matrix spike/matrix spike duplicate recoveries within acceptable limits?	☒yes	☐no	☐NA
19.) Are all matrix spike/matrix spike duplicate RPDs within acceptable limits?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
20.) Do all RPD calculations for Field Duplicates meet accepted criteria?	☐yes	☐no	☒NA

Comments:

Initial Review By: CD **Final** Review By: _____

ENVIRONMENTAL
Analytical Service, Inc.

Friday, August 09, 2019

Sample Delivery Group (SDG 219344
EAS Project Number: 17403

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:	1209-17001-06
PO Number:	None Given
Client Project Number	1209-17001-06
Sample Event Date:	7/29/19

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.

Laboratory Report

Project Name:

1209-17001-06

EAS SDG Number: **219344**

Client Project Manager: Lynn Green

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

Project Number: 17403
Sample Event Date: 7/29/19
Received Date: 7/30/2019
Report Date: 8/9/2019

Project Number: 1209-17001-06
PO Number: None Given

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

Laboratory Work Order

SDG Number: 219344
Client: Lynn Green
Evren Northwest Inc.

Project Number: 17403
Received: 7/30/2019

SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
SG02-190729-5	219344 1	EPA TO-15 RBDM VOC, GRO, IPA	7/29/2019
SG01-190729-5	219344 2	EPA TO-15 RBDM VOC, GRO, IPA	7/29/2019
SG07-190729-5	219344 3	EPA TO-15 RBDM VOC, GRO, IPA	7/29/2019
SG04-190729-5	219344 4	EPA TO-15 RBDM VOC, GRO, IPA	7/29/2019
SG06-190729-5	219344 5	EPA TO-15 RBDM VOC, GRO, IPA	7/29/2019
SG03-190729-5	219344 6	EPA TO-15 RBDM VOC, GRO, IPA	7/29/2019
SG05-190729-5	219344 7	EPA TO-15 RBDM VOC, GRO, IPA	7/29/2019

Project Sample Media

SDG Number: 219344

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. Canisters that are received with sub-ambient pressures are pressurized to about 5 psig. The initial pressure of the canister when it is received is recorded along with the final pressure after pressurization. The canister dilution factor is 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	Final	Can Factor
219344	1	SG02-190729-5	105	071919B	629	629	1.00
219344	2	SG01-190729-5	129	071919B	668	668	1.00
219344	3	SG07-190729-5	126	071919B	640	640	1.00
219344	4	SG04-190729-5	138	071919B	654	654	1.00
219344	5	SG06-190729-5	127	071919B	645	645	1.00
219344	6	SG03-190729-5	130	071919B	618	618	1.00
219344	7	SG05-190729-5	139	071919B	679	679	1.00

Laboratory Case Narrative

EAS SDG Number: 219344 **Project Number:** 17403

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: 8/9/2019

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 1209-17001-06	Project Name		Quote	Requested TAT

REPORT TO:

Attention	LYNN GREEN
Company	EVREN NORTHWEST
Address	40 SE 24th UNIT A
City, State, Zip	PORTLAND, OR 97214
Phone/Fax	503-452-5561
e-mail	lyung@evren-nw.com

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

SDG 219344

Sample Description	Sample Date	Start Time	Stop Date	Stop Time	Canister Number	Flow Reg Number	Matrix	Initial Pressure	Final Pressure	Laboratory ID	Analytical Tests: TPHg	GRO RELATED VOCs	IPA			Comments
SG02-190729-5	7/29/19	10:05	7/29/19	10:21	105	2630	SG	28	5	01	X	X	X			
SG01-190729-5		10:22		10:34	129	2589	SG	27	5	02	X	X	X			
SG07-190729-5		10:45		10:59	126	2512	SG	28	5	03	X	X	X			
SG04-190729-5		11:12		11:23	138	2581	SG	27	5	04	X	X	X			
SG06-190729-5		11:47		11:56	127	2636	SG	29	5	05	X	X	X			
SG03-190729-5		12:13		12:24	130	2661	SG	27	5	06	X	X	X			
SG05-190729-5		12:29		12:45	139	2501	SG	28	5	07	X	X	X			

Comments

BILLING INFORMATION:

ATTENTION	BARBARA POLAND
Company	
Address	
City, State, Zip	
Purchase Order	

SAMPLED BY	Mark Lary	Date/Time 7/29/19 1700
RECEIVED FOR LAB		7/30/19 10:00

COC Number	
Cooler Temp	
Airbill	

Quality Control Report

EAS SDG Number 219344

Project Number: 17403

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

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B08079

File Name: B08079C.D
Description: METHOD BLANK
Canister:
QC_Batch: 080719-MA1

Date Sampled:
Date Analyzed: 08/07/19
Can Dilution Factor: 1.00
Air Volume: 100 ml

Time:
Time: 13:53

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	ND	2.46	7.05	ND	
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	ND	3.19	8.11	ND	
108-88-3	Toluene	1.00	2.61	ND	3.76	9.83	ND	
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	ND	4.34	11.50	ND	
95-47-6	o-Xylene	1.00	2.58	ND	4.34	11.20	ND	
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	ND	4.91	7.47	ND	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	ND	4.91	12.68	ND	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	1.01	4.91	12.48	4.96	J
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	108	70	130	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B08079

File Name: B08079C.D
Description: METHOD BLANK
Canister:
QC_Batch: 080719-MA1

Date Sampled:
Time:
Date Analyzed: 08/07/19
Time: 13:53
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	ND	233.6	737.7	ND	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B08089

File Name: B08089C.D
Description: METHOD BLANK
Canister:
QC_Batch: 080819-MA1

Date Sampled:
Date Analyzed: 08/08/19
Can Dilution Factor: 1.00
Air Volume: 100 ml

Time:
Time: 13:54

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	ND	2.46	7.05	ND	
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	ND	3.19	8.11	ND	
108-88-3	Toluene	1.00	2.61	ND	3.76	9.83	ND	
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	ND	4.34	11.50	ND	
95-47-6	o-Xylene	1.00	2.58	ND	4.34	11.20	ND	
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	ND	4.91	7.47	ND	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	ND	4.91	12.68	ND	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	ND	4.91	12.48	ND	
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

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

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: LABQC
Analytical Method: TO-15
Laboratory ID: B08089

File Name: B08089C.D
Description: METHOD BLANK
Canister:
QC_Batch: 080819-MA1

Date Sampled:
Time:
Date Analyzed: 08/08/19
Time: 13:54
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	ND	233.6	737.7	ND	

QUALITY CONTROL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Spike Duplicate Report

TO15 Volatile Organic Compounds by GC/MS

QC_Batch: 080719-MA1
Date: 08/07/19

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	101		80		70	130	23	25	
75-35-4	1,1-Dichloroethene	99		78		70	130	25	25	
75-09-2	Dichloromethane	98		82		70	130	17	25	
75-34-3	1,1-Dichloroethane	95		76		70	130	22	25	
67-66-3	Chloroform	103		81		70	130	24	25	
71-55-6	1,1,1-Trichloroethane	85		80		70	130	6	25	
107-06-2	1,2-Dichloroethane	107		85		70	130	23	25	
71-43-2	Benzene	88		71		70	130	22	25	
56-23-5	Carbon tetrachloride	106		83		70	130	25	25	
79-01-6	Trichloroethene	98		80		70	130	19	25	
108-88-3	Toluene	89		73		70	130	19	25	
127-18-4	Tetrachloroethene	98		78		70	130	23	25	
100-41-4	Ethylbenzene	89		78		70	130	14	25	
1330-20-7	m,p-Xylenes	88		78		70	130	12	25	
95-47-6	o-Xylene	89		77		70	130	14	25	
108-67-8	1,3,5-Trimethylbenzene	100		87		70	130	14	25	

LCS - Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

QUALITY CONTROL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Spike Duplicate Report

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

QC_Batch: 080819-MA1
Date: 08/08/19

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	117		119		70	130	1	25	
75-35-4	1,1-Dichloroethene	118		114		70	130	3	25	
75-09-2	Dichloromethane	108		105		70	130	3	25	
75-34-3	1,1-Dichloroethane	115		112		70	130	2	25	
67-66-3	Chloroform	115		114		70	130	1	25	
71-55-6	1,1,1-Trichloroethane	116		121		70	130	4	25	
107-06-2	1,2-Dichloroethane	102		114		70	130	11	25	
71-43-2	Benzene	100		102		70	130	2	25	
56-23-5	Carbon tetrachloride	118		126		70	130	6	25	
79-01-6	Trichloroethene	106		111		70	130	5	25	
108-88-3	Toluene	102		104		70	130	2	25	
127-18-4	Tetrachloroethene	107		117		70	130	9	25	
100-41-4	Ethylbenzene	98		103		70	130	5	25	
1330-20-7	m,p-Xylenes	100		102		70	130	3	25	
95-47-6	o-Xylene	97		102		70	130	5	25	
108-67-8	1,3,5-Trimethylbenzene	98		107		70	130	8	25	

LCS - Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

Analytical Reports

EAS SDG Number 219344

Project Number: 17403

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

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: 219344

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

File Name: 1934401A.D
Description: SG02-190729-5
Canister: 105
QC_Batch: 080719-MA1

Date Sampled: 07/29/19 **Time:** 10:05
Date Analyzed: 08/07/19 **Time:** 15:44
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	3.55	2.46	7.05	8.73	
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	1.94	3.19	8.11	6.18	J
108-88-3	Toluene	1.00	2.61	2.31	3.76	9.83	8.68	J
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	2.20	4.34	11.50	9.53	J
95-47-6	o-Xylene	1.00	2.58	1.00	4.34	11.20	4.35	J
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	ND	4.91	7.47	ND	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	ND	4.91	12.68	ND	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	2.36	4.91	12.48	11.60	J
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	90	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 219344

Analytical Method: TO-15

Laboratory ID: 01

File Name: 1934401A.D
Description: SG02-190729-5
Canister: 105
QC_Batch: 080719-MA1

Date Sampled: 07/29/19 **Time:** 10:05
Date Analyzed: 08/07/19 **Time:** 15:44
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	83.0	233.6	737.7	397.6	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219344

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

File Name: 1934402A.D **Date Sampled:** 07/29/19 **Time:** 10:22
Description: SG01-190729-5 **Date Analyzed:** 08/07/19 **Time:** 16:25
Canister: 129 **Can Dilution Factor:** 1.00
QC_Batch: 080719-MA1 **Air Volume:** 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	1.02	2.46	7.05	2.50	J
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	1.57	3.19	8.11	5.02	J
108-88-3	Toluene	1.00	2.61	3.58	3.76	9.83	13.47	
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	1.66	4.34	11.46	7.20	J
1330-20-7	m,p-Xylenes	1.00	2.65	9.61	4.34	11.50	41.73	
95-47-6	o-Xylene	1.00	2.58	ND	4.34	11.20	ND	
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	4.36	4.91	7.47	21.44	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	6.27	4.91	12.68	30.81	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	ND	4.91	12.48	ND	
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	QC Limits UCL	Flag
2037-26-5	Toluene-d8	119	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 219344

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

File Name: 1934402A.D **Date Sampled:** 07/29/19 **Time:** 10:22
Description: SG01-190729-5 **Date Analyzed:** 08/07/19 **Time:** 16:25
Canister: 129 **Can Dilution Factor:** 1.00
QC_Batch: 080719-MA1 **Air Volume:** 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	ND	233.6	737.7	ND	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219344

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

File Name: 1934403A.D **Date Sampled:** 07/29/19 **Time:** 10:45
Description: SG07-190729-5 **Date Analyzed:** 08/07/19 **Time:** 17:01
Canister: 126 **Can Dilution Factor:** 1.00
QC_Batch: 080719-MA1 **Air Volume:** 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	1.76	2.46	7.05	4.32	J
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	1.19	3.19	8.11	3.80	J
108-88-3	Toluene	1.00	2.61	2.03	3.76	9.83	7.64	J
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	2.63	4.34	11.50	11.44	J
95-47-6	o-Xylene	1.00	2.58	1.11	4.34	11.20	4.84	J
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	ND	4.91	7.47	ND	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	1.43	4.91	12.68	7.04	J
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	1.88	4.91	12.48	9.25	J
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	103	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 219344

Analytical Method: TO-15

Laboratory ID: 03

File Name: 1934403A.D
Description: SG07-190729-5
Canister: 126
QC_Batch: 080719-MA1

Date Sampled: 07/29/19 **Time:** 10:45
Date Analyzed: 08/07/19 **Time:** 17:01
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	ND	233.6	737.7	ND	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219344

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

File Name: 1934404A.D **Date Sampled:** 07/29/19 **Time:** 11:12
Description: SG04-190729-5 **Date Analyzed:** 08/07/19 **Time:** 17:39
Canister: 138 **Can Dilution Factor:** 1.00
QC_Batch: 080719-MA1 **Air Volume:** 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	2.26	2.46	7.05	5.55	J
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	1.11	3.19	8.11	3.53	J
108-88-3	Toluene	1.00	2.61	1.27	3.76	9.83	4.78	J
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	ND	4.34	11.50	ND	
95-47-6	o-Xylene	1.00	2.58	ND	4.34	11.20	ND	
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	ND	4.91	7.47	ND	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	ND	4.91	12.68	ND	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	ND	4.91	12.48	ND	
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	QC Limits UCL	Flag
2037-26-5	Toluene-d8	111	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 219344

Analytical Method: TO-15

Laboratory ID: 04

File Name: 1934404A.D
Description: SG04-190729-5
Canister: 138
QC_Batch: 080719-MA1

Date Sampled: 07/29/19 **Time:** 11:12
Date Analyzed: 08/07/19 **Time:** 17:39
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	153.9	233.6	737.7	726.7	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219344

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

File Name: 1934405A.D
Description: SG06-190729-5
Canister: 127
QC_Batch: 080719-MA1

Date Sampled: 07/29/19 **Time:** 11:47
Date Analyzed: 08/07/19 **Time:** 18:17
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	1.03	2.46	7.05	2.52	J
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	2.82	3.19	8.11	8.99	
108-88-3	Toluene	1.00	2.61	1.45	3.76	9.83	5.47	J
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	15.55	4.34	11.50	67.52	
95-47-6	o-Xylene	1.00	2.58	11.11	4.34	11.20	48.22	
98-82-8	Isopropylbenzene	1.00	1.52	11.31	4.91	7.47	55.58	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	27.49	4.91	12.68	135.09	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	51.90	4.91	12.48	255.04	
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	QC Limits UCL	Flag
2037-26-5	Toluene-d8	101	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219344

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

File Name:	1934405A.D	**Date Sampled:**	07/29/19	**Time:**	11:47
Description:	SG06-190729-5	**Date Analyzed:**	08/09/19	**Time:**	8:13
Canister:	127	**Can Dilution Factor:**	1.78		
QC_Batch:	080819-MA1	**Air Volume:**	10 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
103-65-1	n-Propylbenzene	17.80	26.70	2,134.66	87.46	131.20	10,489.11	

	Surrogate Recovery	% Rec.	QC Limits LCL	QC Limits UCL	Flag
2037-26-5	Toluene-d8	103	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 219344

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

File Name: 1934405A.D **Date Sampled:** 07/29/19 **Time:** 11:47
Description: SG06-190729-5 **Date Analyzed:** 08/09/19 **Time:** 8:13
Canister: 127 **Can Dilution Factor:** 1.78
QC_Batch: 080819-MA1 **Air Volume:** 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	106.8	320.4	10,596.0	415.8	1,313.1	50,398.2	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219344

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

File Name: 1934406A.D **Date Sampled:** 07/29/19 **Time:** 12:13
Description: SG03-190729-5 **Date Analyzed:** 08/08/19 **Time:** 21:06
Canister: 130 **Can Dilution Factor:** 1.00
QC_Batch: 080819-MA1 **Air Volume:** 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	ND	2.46	7.05	ND	
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	ND	3.19	8.11	ND	
108-88-3	Toluene	1.00	2.61	ND	3.76	9.83	ND	
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	ND	4.34	11.50	ND	
95-47-6	o-Xylene	1.00	2.58	ND	4.34	11.20	ND	
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	ND	4.91	7.47	ND	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	ND	4.91	12.68	ND	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	ND	4.91	12.48	ND	
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	83	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 219344

Analytical Method: TO-15

Laboratory ID: 06

File Name: 1934406A.D
Description: SG03-190729-5
Canister: 130
QC_Batch: 080819-MA1

Date Sampled: 07/29/19 **Time:** 12:13
Date Analyzed: 08/08/19 **Time:** 21:06
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	ND	233.6	737.7	ND	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219344

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

File Name: 1934407A.D
Description: SG05-190729-5
Canister: 139
QC_Batch: 080719-MA1

Date Sampled: 07/29/19 **Time:** 12:29
Date Analyzed: 08/07/19 **Time:** 19:32
Can Dilution Factor: 1.00
Air Volume: 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	1.00	2.87	5.51	2.46	7.05	13.53	
1634-04-4	Methyl tert butyl ether	1.00	1.84	ND	3.60	6.63	ND	
107-06-2	1,2-Dichloroethane	0.50	2.28	ND	2.02	9.23	ND	
71-43-2	Benzene	1.00	2.54	1.56	3.19	8.11	4.98	J
108-88-3	Toluene	1.00	2.61	1.44	3.76	9.83	5.43	J
106-93-4	1,2-Dibromoethane	0.50	1.21	ND	3.84	9.29	ND	
100-41-4	Ethylbenzene	1.00	2.64	ND	4.34	11.46	ND	
1330-20-7	m,p-Xylenes	1.00	2.65	ND	4.34	11.50	ND	
95-47-6	o-Xylene	1.00	2.58	ND	4.34	11.20	ND	
103-65-1	n-Propylbenzene	1.00	1.50	ND	4.91	7.37	ND	
98-82-8	Isopropylbenzene	1.00	1.52	ND	4.91	7.47	ND	
108-67-8	1,3,5-Trimethylbenzene	1.00	2.58	ND	4.91	12.68	ND	
95-63-6	1,2,4-Trimethylbenzene	1.00	2.54	ND	4.91	12.48	ND	
91-20-3	Naphthalene	0.50	0.94	ND	2.62	4.93	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	91	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH

SDG: 219344

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

File Name: 1934407A.D **Date Sampled:** 07/29/19 **Time:** 12:29
Description: SG05-190729-5 **Date Analyzed:** 08/07/19 **Time:** 19:32
Canister: 139 **Can Dilution Factor:** 1.00
QC_Batch: 080719-MA1 **Air Volume:** 100 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	60.0	180.0	ND	233.6	737.7	ND	