EVREN NORTHWEST INC.
environmental natural resource consultants

FOCUSED SITE INVESTIGATION

Islam El Masry Property

1021 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:

May 12, 2019

EVREN NORTHWEST, INC.
Project No. 1209-17001-02

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

This

Focused Site Investigation

Report for:

Islam El Masry Property

1021 Baseline Street
Cornelius, Oregon 97113

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

Islam El Masry

418 SW 4th Avenue, Unit 306
Portland, Oregon 97024

and its assignees

Issued May 12, 2019 *by:*

EVREN NORTHWEST INC.
environmental / natural resource consultants

REGISTERED PROFESSIONAL GEOLOGIST
OREGON
PAUL M. TRONE
No. GT178
1-1-2020

CERTIFIED ENGINEERING GEOLOGIST
OREGON
LYNN DELAWAN GREEN
2332
2/1/2020

Paul M. Trone, R.G.
Principal Geologist

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

Table of Contents

1.0 Introduction 1

2.0 Scope of Work 1

3.0 Site Description 1

4.0 Overview of Environmental History 2

5.0 Approach 4

5.1 Objectives 4

5.2 Roles and Responsibilities 5

5.3 Preparation Activities 5

5.4 Soil Gas Investigation 5

5.5 Soil Boring Investigation 6

5.5.1 Soil Screening and Sampling 6

5.5.2 Reconnaissance Ground Water Sampling 7

5.6 Waste Management and Disposal 7

5.7 Laboratory Analysis 7

5.8 Cleanup Standards and Other Numeric Criteria 8

5.8.1 Cleanup Standards 8

5.8.2 Other Numeric Criteria 9

6.0 Site Work Results 10

6.1 Soil Borings 11

6.1.1 Field Screening and Soil Logging 11

6.1.2 Delineation Soil Sampling Results 11

6.1.2.1 Soil Risk Screening 11

6.1.3 Reconnaissance Ground Water Sampling Results 11

6.1.4 Ground Water Monitoring Results 12

6.2 Soil Gas Sampling 12

6.3 Discussion 12

7.0 Analysis of Risk Drivers 12

8.0 Recommended Next Actions 13

9.0 Limitations 14

Tables

IN TEXT (*labeled by Section – Number)*

5-1 Analytical Plan

6-1 Summary of Sampling Locations

AFTER TEXT (*following 'Tables' tab)*

1 Summary of Analytical Data, Soil

2 Summary of Analytical Data, Reconnaissance Ground Water

3 Summary of Analytical Data, Ground Water Monitoring

4 Summary of Analytical Data, Soil Gas

5 Further Evaluation of COPCs in Subsurface Soil (Risk Drivers)

6 Further Evaluation of COPCs in Ground Water (Risk Drivers)

Figures

1 Site Vicinity Map

2 Site Plan

3 Sample Location Diagram, Soil

4 Sample Location Diagram, Ground Water

5 Sample Location Diagram, Soil Gas

Appendices

A Site Photographs

B Soil Boring Logs

C Field Sampling Data Sheets

D Laboratory Analytical Reports

E Soil Matrix Cleanup Scoresheet

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CFSLs	clean fill screening levels
Client	Islam El Masry
COPCs	Constituents of Potential Concern
DRO	diesel-range organics
ENW	EVREN Northwest, Inc.
EPA	US Environmental Protection Agency
GRO	gasoline-range organics
HCID	hydrocarbon identification
K&S	K&S Environmental, Inc.
LUST	Leaking Underground Storage Tank
µg/L	micrograms per Liter
µg/m^3	micrograms per cubic meter
µm	micrometer
mg/Kg	milligrams per Kilogram
mL	milliliter
mL/min	milliliters per minute
MRL	method reporting limit
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
PE	polyethylene
PID	photoionization detector
ppmv	parts per million by volume
PVC	polyvinyl chloride
RBCs	risk-based concentrations
RBDM	ODEQ's *Risk-Based Decision Making for the Remediation of Contaminated Sites* guidance document
RRO	residual (oil)-range organics
SLRBCs	screening-level risk-based concentrations
SOW	scope of work
SWI	soil-water interface
TPH	Total Petroleum Hydrocarbons
UST	underground storage tank
VOA	volatile organic analysis
VOCs	volatile organic constituents

1.0 Introduction

At the request of Islam El Masry (Client), EVREN Northwest, Inc. (ENW) prepared this report documenting a Focused Site Investigation to delineate previously characterized petroleum impacts at the subject site (*Islam El Masry Property*, 1021 Baseline Street, Cornelius, Oregon; see Figures 1 and 2). Work was performed according to the *October 2018 Work Plan*[1] which was approved by the Oregon Department of Environmental Quality (ODEQ) on November 7, 2018.

Site work was conducted in February and April 2019 and is documented by photographs presented in Appendix A. This report describes the methods and findings of site assessment, evaluates the results, identifies preliminary risk drivers and recommends next steps needed to proceed to regulatory closure for the site.

2.0 Scope of Work

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

- Conducted soil gas sampling from six probes located on-site.
- Collected soil and reconnaissance water samples from seven borings, three located on-site and four located off-site.
- Submitted samples to an independent laboratory under chain-of-custody protocols for appropriate analysis.
- Evaluated analytical results with respect to ODEQ underground storage tank (UST) cleanup standards and risk-based guidance documents.
- Prepared this report documenting the work conducted with findings and presenting recommendations for next steps to obtain regulatory site closure.

3.0 Site Description

The subject site currently occupied with remnants of a former service station (see Figure 2). The site is almost entirely paved, with a pump island and canopy occupying the center of the property and a small shed located in the southwest corner of the property. ODEQ indicates the presence of the following USTs:

- Five "Active" USTs all installed in the 1980s:
    - One 10,000-gallon unleaded gasoline UST installed in 1985.
    - One 8,000-gallon unleaded gasoline UST installed in 1983.
    - One 5,000-gallon plus gasoline UST installed in 1981.
    - One 4,000-gallon super gasoline installed in 1981.

[1] ENW 2018. *October 2018 Work Plan Reconnaissance Ground Water and Soil Gas Characterization*, for Islam El Masry Property, 1021 Baseline Street, Cornelius, Oregon.

  - One 3,000-gallon diesel UST installed in 1985.

- Two Previously Decommissioned USTs: both 3,000 gallons in capacity were installed in 1957 and decommissioned by removal in 2008.

Based on historical research, it has operated as a fuel station since 1953 until approximately 2006 and was owned by several different parties over the years. A release from USTs and/or distribution system was discovered during a subsurface investigation conducted in July 2006. Gasoline impacts to both ground water and soil were reported to the ODEQ Leaking Underground Storage Tank (LUST) program, who assigned the site LUST ID #34-06-1375.

The approximately 0.53-acre subject site is composed of two tax lots and is identified as Tax Lots 1S304AB00100 and 1S304AB00200. It is zoned commercial (Main Street General Employment) in Cornelius, Washington County, Oregon.

Topography. The US Geological Survey Forest Grove Oregon topographic quadrangle indicates the subject property is located at an approximate elevation of 181 feet above mean sea level (see Figure 1). The site is situated in downtown Cornelius, with little to no slope on the site. The regional topography is gently sloping to the south/southeast.

Geologic Setting. The subject site is located in a thick sequence of basin-fill sediments, consisting of upper deposits of Missoula Flood deposits (equivalent to Willamette Silts) and a lower unit of Hillsboro Formation. Most of the Hillsboro Formation is composed of variegated clay and silt layers that represent floodplain and rare lacustrine deposits of pre-Missoula Flood times. The Hillsboro Formation also contains interbedded sand layers that are the deposits of low-gradient, meandering fluvial systems, forming shoestring sand bodies surrounded by finer-grained materials. Basaltic bedrock is present at approximately 900 feet below the subject property's location.

Borings completed at the site indicate that the upper soils below the site [to 9 feet below ground surface (bgs)] consist of fine sandy silts, and fine sands under gravel fill materials. Boring logs are in Appendix B.

Surface Water. There are no surface water features on the subject site, but there is a small drainage approximately 500 feet south of the property. This unnamed surface water generally flows south and eventually discharges to the Tualatin River.

Ground Water. Monitoring wells completed onsite show depth to water ranges from 2.4 to 8.9 feet bgs. During this investigation, ground water was generally encountered around 6 to 9 feet bgs. Historical ground-water monitoring indicates that the ground-water flow direction is generally south, at a very low gradient of 0.006 vertical feet per lineal foot (ft/ft).[2]

4.0 Overview of Environmental History

Subsurface petroleum impacts were discovered during an investigation conducted in 2006. Environmental work has been conducted by various firms at the site since that time. A brief overview is presented below.

[2] ENW, January 7, 2019. *December 2018 Ground Water Monitoring Repor*t, Islam El Masry Property, 1021 Baseline Street, Cornelius, Oregon, ODEQ LUST File No: 34-06-1375).

- **July 2006.**[3] K&S Environmental, Inc. (K&S) sited four soil borings at the subject site, specifically B-1, B-2 and B-4 near the 5,000-gallon UST in the southwest corner of the property and B-3 near the southwest dispenser island. Silty clay soils were described from just below the gravel subbase below existing pavement to the maximum depth explored (10 feet bgs). Laboratory analysis indicated only gasoline-range organics (GRO) at 10 to 11 feet bgs at concentrations ranging from 107-milligrams per Kilogram (mg/Kg) to 659-mg/Kg, and that GRO-related volatile organic constituents [benzene, toluene, ethylbenzene and total xylenes (BTEX)] were also present. K&S subsequently reported the release of GRO to soil and recommended additional investigation. ODEQ assigned the site LUST ID #34-06-1375.

- **September 2007.**[4] K&S advanced six borings (TW1 through TW3 and B-5 through B-7) at the subject site. Ground water was observed in the borings at approximately 11 feet bgs. Based on laboratory analysis, only GRO was detected in soil samples collected from 10 feet bgs. GRO was detected at concentrations ranging from 664-mg/Kg to 7,590-mg/Kg in samples collected from borings TW1 through TW3 and B-5. GRO was not detected in borings B-6 and B-7. K&S collected reconnaissance ground-water samples from each of the six borings for laboratory analysis. GRO was present in all six ground water samples collected with concentrations ranging from 1,190 to 62,000 micrograms per Liter (µg/L). Diesel-range organics (DRO) was detected in TW1 through TW3 at concentrations greater than the method reporting limit (MRL), though not quantified. Based on data from soil and ground water sampling, K&S concluded the following:

  1) Ground water impacts likely extend offsite to the south and possibly the west.
  2) Impacts are greatest at the current UST locations
  3) Impacts attenuate quickly with increased distance from the UST area.

  K&S recommended the installation of permanent ground water monitoring wells and additional investigation to delineate the extent of impacts to ground water.

- **March 2008.**[5] K&S advanced four additional borings (TW4 through TW7) to further characterize GRO impacts to ground water beneath the subject site. K&S collected four reconnaissance ground water samples for laboratory analysis, which indicated GRO was present in all water samples at concentrations ranging from 524 to 28,000 µg/L, and DRO ranged from 838 to 14,300 µg/L.[6] Residual (oil)-range organics (RRO) was detected in one sample, TW4, at 767 µg/L. All ground water samples also contained at least some BTEX constituents, with the highest concentrations near the decommissioned 3,000-gallon USTs, 3,000-gallon diesel UST, and 10,000-gallon unleaded UST located in the west-central part of the site and 5,000-gallon gasoline UST located near the southwest corner of the property. Based on this data, K&S concluded that ground water impacts were delineated to the east, though impacts likely extend offsite towards the west. K&S recommended installation of a permanent ground water monitoring network and proposed locations for these monitoring wells.

[3] K&S, August 10, 2006. *Site Assessment Report.*

[4] K&S, October 11, 2007. *Subsurface Investigation Report.*

[5] K&S, April 02, 2008. *Subsurface Investigation Report.*

[6] Laboratory interpretation suggested the presence of DRO is related to overlap from the gasoline range.

- **July 2008.**[7] K&S oversaw the installation of four ground water monitoring wells (MW-1 through MW-4) to further characterize impacts of GRO to ground water beneath the subject site. K&S collected just one soil sample, from the MW-3 borehole at 10 feet depth, which contained GRO at a concentration of 1,660 mg/Kg, as well as detections of ethylbenzene and total xylenes. K&S further noted that there were no indications of petroleum impacts in the borehole until it was advanced beyond 6 feet bgs. K&S observed ground water in all borings between 8 and 10 feet bgs, and subsequently noted that ground water stabilized in the monitoring wells between 8.5 and 10 feet after one hour, suggesting the water table was not under confining pressure. Initial ground water data from the four newly installed monitoring wells indicated GRO was present in all water samples collected, with concentrations ranging from 537 µg/L (MW-4) to 48,300 µg/L (MW-2) and DRO ranged from 403 µg/L (MW-4) to 12,700 µg/L (MW-2). According to laboratory interpretation, the detections of DRO were due to overlap from gasoline-range product and do not appear to be related to a release of diesel product at the subject site. The highest concentration of GRO was detected in monitoring well MW-2, located in the west central portion of the site, just south of the decommissioned USTs. K&S determined that the ground water had a very low hydraulic gradient (0.009 lateral ft/vertical ft) and flowed toward the south. K&S concluded that ground water impacts were greatest near the USTs and the extent of ground water impacts appeared to be localized to this area. K&S attributes this fact to the relatively low hydraulic gradient which would have minimized travel of the contaminant. K&S recommended additional ground water monitoring.
- **October 2008 through December 2016.** The ground water monitoring well network was sampled by various consulting firms (K&S, AMEC, and Alpha Environmental).
- **December 2018.** On December 17, 2018, ENW collected ground water samples from the onsite monitoring wells MW-2 through MW-4. MW-1 was found to have been filled with bentonite clay, therefore it wasn't sampled. Methods and findings of the December 2018 ground water monitoring event were previously reported under separate cover.[2]

Tables 1 through 3 summarize analytical results of the site assessment work conducted above. Figures 3 and 4 show boring and monitoring well locations.

5.0 Approach

5.1 Objectives

The Focused Site Investigation objectives were to:

1) Delineate the lateral extent petroleum impacts to soil, ground water and soil gas.
2) Identify any data gaps.
3) Develop clear next actions to bring the subject site to regulatory closure.

[7] K&S, August 08, 2008. *Monitoring Well installation and Subsurface Sampling Report.*

Additional objectives for the work were:

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

5.2 Roles and Responsibilities

ENW was the contracted environmental consultant, who arranged for subcontracted services with:

- A private utility locate was conducted by Pacific Northwest Locating.
- Soil and ground water samples were analyzed by Freidman and Bruya, Inc. of Seattle, Washington.
- Soil gas samples were submitted to Environmental Analytical Services of San Luis Obispo, California.

5.3 Preparation Activities

Once approval of the Interim Remedial Action Plan was received from ODEQ, ENW performed or coordinated the following activities.

Plan Preparation. In-house Sampling and Analysis and Health and Safety Plans were prepared for the project.

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

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

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

5.4 Soil Gas Investigation

ENW completed six soil gas borings (SG01 through SG06) on site on February 5, 2019. Soil gas samples were collected manually by advancing a 1-inch soil-gas probe assembly (using a slide hammer impact technique) to a depth of approximately 5 feet and then retracting it 4 inches to allow the soil gas sampling tip to be opened. The only exception to sample collection at this depth was at the boring SG03 location where very moist conditions were noted at 5-feet depth. At this location, the screen was pulled back to 4-feet depth bgs for sample collection. A threaded connector was pressed firmly into 1/4-inch Teflon®-lined tubing, lowered down the inside of the drive rod and screwed into the top of the soil gas sampling tip. The system was allowed to equilibrate 30 minutes prior to sampling.

Following equilibration, the sampling train was tested for leaks by briefly opening the sample vessel with the system closed and recording both initial and finial vacuum pressures for 5 minutes (shut in test). If no

leaks were indicated, the sampling train was attached to Teflon-lined tubing and then purged to evacuate sampling tubing and manifold for 4 minutes using the purge summa (sampling summa is closed) to ensure that stagnant or ambient air is removed from the sampling system and to assure samples collected are representative of subsurface conditions. The 4 minutes of purge time takes into account the volume of the sampling system, tubing, and the purge rate restricted by the flow controller.

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 samples were collected at a sampling rate of approximately 167 milliliters per minute (mL/min), or less, depending on the permeability of the soil. Following sample collection, a photoionization detector (PID) was attached to the tubing to screen soil gas for volatile organic constituents (VOCs).

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

5.5 Soil Boring Investigation

On February 6 and 18, 2019 and April 9, 2019, ENW completed seven borings (designated as EB01, EB02, EB04 through EB08, see Figure 3)[8] using a stainless-steel hand auger and/or manual direct-push tooling with a slide hammer.

Drilling tools were decontaminated with an Alconox wash and double rinse prior to each boring. The direct-push tooling used a 2-foot sampler at the end, lined with a polyvinyl chloride (PVC) sleeve. The sleeve was retrieved and cut open to examine and log the subsurface materials and collect necessary soil samples. All borings were logged by an Oregon Registered Geologist, or by a staff geologist under direct supervision of an Oregon Registered Geologist.

Each boring was designated with a "EB" prefix and a number (e.g., EB01, EB02, etc.). Individual soil samples are designated with the sample's depth appended to the boring number [e.g., EB01-10 would indicate a sample collected at 10 feet bgs in boring EB01; "SWI" inserted into the sample name indicated that the soil sample was taken from the soil/ground-water interface]. Reconnaissance ground water samples are labeled EB01-GW-9 indicating a ground water sample collected from boring EB01 with the bottom of the 4-foot screen located at 9 feet bgs.

Once sampling was complete, all borings were backfilled with bentonite "Holeplug" to the approximate ground surface, and the pavement/asphalt surface was then restored.

5.5.1 Soil Screening and Sampling

Soil cores and samples were visually and olfactorily screened for the presence of petroleum impacts. In addition, semi-quantitative headspace screening was performed by placing selected soil samples in a plastic sealable bag, breaking the soil core to expose surface area inside the bag, and inserting a PID into the top of the bag. The cores were logged (Appendix B) with special attention to description of lithology, color, moisture, foreign clasts, physical properties and odor. Soil samples from each boring were collected for laboratory analysis, based on screening indicators, feature investigated, and/or at the soil/ground-water interface; however only selected soil samples were analyzed for this assessment.

[8] Planned boring EB03 met refusal at shallow depth (2-3 feet bgs) in dense gravels.

Soil samples collected for laboratory analysis were transferred with fresh Nitrile gloves into sample containers provided by the laboratory. The containers were filled to minimize headspace before immediate sealing. Additionally, selected samples were collected according to the prescribed methodology and procedures of US Environmental Protection Agency (EPA) sampling method 5035A. The samples were immediately labeled and placed in cooled storage until they were delivered to the laboratory following chain-of-custody protocols.t

5.5.2 Reconnaissance Ground Water Sampling

ENW collected reconnaissance ground-water samples from seven borings (EB01, EB02, and EB04 through EB08). Each of the seven borings was completed to at least one foot below the top of ground water. A clean 4-foot stainless-steel well point was placed in the boring so that its screen was placed across the top of the water surface. Clean polyethylene (PE) tubing was inserted into the temporary well point in the borehole and connected to a peristaltic pump.

After purging standing water from the borehole, grab ground water samples were collected from clean dedicated PE tubing connected to a peristaltic pump set at its lowest setting.

Following purging, the ground water was collected directly into laboratory supplied bottles with the appropriate preservatives. Water samples were transferred with fresh Nitrile gloves slowly into volatile organic analysis (VOA) containers without turbulence and eliminating all bubbles within the container before sealing. Each sample container was labeled with the sample location, depth of sample, date, time, sampler name, and analysis required.

Water samples collected for dissolved lead were field-filtered through a 0.45 µm (micrometer) single use ground water filter appropriate for the purpose and collected in 250-mL PE bottles preserved with nitric acid. All samples were immediately placed in cooled storage until they were delivered to the laboratory following chain-of-custody protocols. Field sampling data sheets are included as Appendix C.

5.6 Waste Management and Disposal

Soil cuttings and purge and “decon” water generated during the investigation were placed into Department of Transportation-approved 55-gallon drums and left onsite pending future appropriate disposal.

5.7 Laboratory Analysis

All samples were analyzed according to the analytical plan presented in Table 5-1. Friedman and Bruya, Inc. of Seattle, Washington analyzed soil and reconnaissance ground water samples. Environmental Analytical Services of San Luis Obispo, California analyzed all soil gas samples. Laboratory analytical reports are included in Appendix D.

Table 5-1. Analytical Plan

Analytical Method	Constituents	Soil	Ground Water	Soil Gas
NWTPH-Gx	Total Petroleum Hydrocarbons (TPH)–Gasoline-range quantification (GRO)	All	All	---
NWTPH-HCID	Total Petroleum Hydrocarbon Identification (HCID) Analysis	Selected Samples	Selected Samples	---
NWTPH-Dx	Total Petroleum Hydrocarbon (TPH)	None	Selected Samples	---
EPA 5032\8260B	GRO-related volatile constituents: Benzene Toluene Ethylbenzene Xylenes (total) Naphthalene 1,2-dichloroethane (EDC) 1,2-dibromoethane (EDB) methyl-tert-butyl ether (MTBE) 1,2,4-trimethylbenzene (1,2,4-TMB) 1,3,5-trimethylbenzene (1,3,5-TMB) Isopropylbenzene n-Propylbenzene	Samples with greatest GRO impacts	All	---
EPA 8021	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) and GRO	Soil/water interface sample	---	---
(EPA 6012B)	Total or Dissolved Lead	Samples with greatest GRO impacts (total)	All (dissolved)	---
EPA T0-15	GRO and related VOCs 2-Propanol (as leak detection)	---	---	All

5.8 Cleanup Standards and Other Numeric Criteria

5.8.1 Cleanup Standards

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

Soil Matrix. Under the Soil Matrix Cleanup Option [Oregon Administrative Rules (OARs) 340-122-0320 through 0360] cleanup standards are determined by assigning site-specific values to environmental parameters (e.g., soil type, depth to ground water, etc.). The Soil Matrix Cleanup Score Sheet and Checklist for the site are presented in Appendix E. The score calculated for the site is 37, indicating that Soil Matrix Level 2 cleanup standards would apply to the site if closed under Soil Matrix Rules.

Risk-Based Cleanup. Risk-based cleanup standards are derived in accordance with ODEQ's *Risk-Based Decision Making for the Remediation of Contaminated Sites* (RBDM) guidance document for:

- Underground storage tanks regulated under the Cleanup Rules for Leaking Petroleum Underground Storage Tank Systems (OAR 340-122-0205 through 340-122-0360).
- Other sources of contamination regulated under the Hazardous Substance Remedial Action Rules (OAR 340-122-0010 through 340-122-0115).

Risk-based concentrations (RBCs) are based on Oregon unacceptable additional risk criteria for cancer occurrence and for non-carcinogenic health impacts. The State of Oregon considers acceptable additional risk of cancer from contact with carcinogenic constituents at less than one in one million incidences, or, for non-carcinogenic constituents, below the constituent threshold concentration at which health impacts would occur. RBCs are generally used to evaluate sampling analytical results as follows:

- ODEQ's lowest RBC for residential receptors is used as an initial 'conservative' screening of a constituent. If a constituent's concentration exceeds its screening-level RBC (SLRBC), it requires further evaluation. Otherwise, the constituent is considered unlikely to pose unacceptable risk to any human receptor.
- Those constituents identified by initial screening as exceeding their SLRBC should be further evaluated through a risk-based assessment, which evaluates site-specific exposure pathways and receptors against generic ODEQ-provided RBCs.

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

5.8.2 Other Numeric Criteria

Background Metals. Analytical data were compared with background concentrations established by the ODEQ.[9,10] ODEQ does not require cleanup for metals concentrations below default background concentrations. Background concentrations are used for screening data for metals in soil as part of the risk assessment.

Clean Fill Screening *(Unrestricted Upland Disposal).* Analytical data for organics were compared with clean fill screening levels (CFSLs) for upland sites established by the ODEQ.[11] ODEQ does not require materials in which contaminant concentrations are less than or equal to CFSLs to be regulated as a solid waste. Rather, these materials may be placed at upland locations that are far enough away from a surface water body, or where there are sufficient controls to avoid erosion into surface water.[12]. CFSLs are used to determine if impacts to soil may require future management and are not used for risk screening.

Please Note: CFLSs do not constitute rulemaking by the Environmental Quality Commission and may not be relied upon to create an enforceable right or benefit, substantive or procedural, enforceable at law or in equity, by any person. Therefore, CFSLs should be considered as general guidance only for best practices during future development of the subject site.

[9] ODEQ, March 2013. Development of Oregon Background Metals Concentrations in Soil: Technical Report, Land Quality Division Cleanup Program.

[10] ODEQ, October 28, 2002. Default Background Concentrations for metals, Memo from Toxicology Workgroup to DEQ Cleanup, Table 1 – Oregon DEQ Suggested Default Background Concentrations for Inorganic Contaminants in Various Environmental Media.

[11] ODEQ, July 2014. Clean Fill Determinations: Internal Management Directive, last updated July 23, 2014, by Bill Mason. Clean Fill Table for Uplands last updated by Bill Mason, ODEQ-Eugene, June 10, 2014.

[12] ODEQ, September 8, 2017. Personal communication.

6.0 Site Work Results

Site work was completed during February and April 2019. This section discusses work conducted in general chronological order. Please reference:

- Figures 3 through 5 for locations: for sampling locations, select results and estimated extent of residual petroleum impacts.
- Appendix A for a photolog of site work.
- Tables 1 through 4 for a comprehensive summary of analytical results by media.
- Table 6-1 (below) for a summary of sampling locations.

Table 6-1. Summary of Sampling Locations

Sample ID	Date Sampled	Depth Sampled (feet)	Sampled By	Location
Soil Samples				
EB01-SWI-8	2/6/2019	8	ENW	Next to the northern pump island
EB02-SWI-7.75	2/6/2019	7.75	ENW	Next to the center pump island
EB03	NOT COMPLETED - refusal met between 2-3 feet in dense gravels.		ENW	South of the southern pump island
EB04-SWI-8.5	2/18/2019	8.5	ENW	Located offsite, across and west of 10th Ave
EB05-SWI-6	2/18/2019	6	ENW	Located offsite, southwest and across 10th Ave
EB06-SWI-6	2/18/2019	6	ENW	Located offsite, south of RR and east-adjacent of 10th Ave
EB07-SWI-8.5	2/6/2019	8.5	ENW	Located offsite, south of RR
EB08-SWI-5.5	4/9/2019	5.5	ENW	2.5 feet NE of MW-1
Reconnaissance Ground Water Samples				
EB01-GW-9	2/6/2019	5-9	ENW	Next to the northern pump island
EB02-GW-7.75	2/6/2019	3.75-7.75	ENW	Next to the center pump island
EB03	NOT COMPLETED - refusal met at 3 feet in dense gravels.		ENW	South of the southern pump island
EB04-GW-9	2/18/2019	5-9	ENW	Located offsite, across and west of 10th Ave
EB05-GW-7	2/18/2019	2-7	ENW	Located offsite, southwest and across 10th Ave
EB06-GW-7.75	2/18/2019	2.27-7.75	ENW	Located offsite, south of RR and east-adjacent of 10th Ave
EB07-GW-9.5	2/6/2019	5.5-9.5	ENW	Located offsite, south of RR
EB08-GW-6.5	4/9/2019	2.5-6.5	ENW	2.5 feet NE of MW-1
Soil Gas Samples				
SG01-190205-5	2/5/2019	5	ENW	Between 10,000-gal and 3000-gal USTs
SG02-190205-5	2/5/2019	5	ENW	Southern property line, next to MW-1
SG03-190205-4	2/5/2019	4	ENW	Northern property line, east of MW-4
SG04-190205-5	2/5/2019	5	ENW	Between southern USTs and pump island
SG05-190205-5	2/5/2019	5	ENW	Between the northern and center pump islands
SG06-190205-5	2/5/2019	5	ENW	Just west of center pump island, near MW-3

6.1 Soil Borings

6.1.1 Field Screening and Soil Logging

Screening of headspace over the recovered cores from EB01, EB02, and EB04 through EB08 was generally low, typically reading between 0.0 and 0.3 parts per million by volume (ppmv) on the PID.

Borings completed show that the upper soils (to 9 feet bgs) consist of fine sandy silts, and fine sands under gravel fill materials. Boring logs are in Appendix B.

6.1.2 Delineation Soil Sampling Results

Seven soil samples were collected from the SWI at depths ranging from 5.5 feet bgs to 8.5 feet bgs in borings EB01, EB02, and EB04 through EB08. Analytical results are presented in Table 1 and summarized here:

- GRO was not detected above the MRL in any of the soil samples.
- RBDM VOCs were not detected above their respective MRLs in any of the soil samples.
- Total lead, analyzed in six of the samples, was detected at concentrations ranging from 8.53 to 10.3 mg/Kg, which were all below ODEQ's SLRBC of 30 mg/Kg and default background lead concentration in the Portland Basin of 79 mg/Kg (includes anthropogenic effects).

Based on this data, GRO impacts to soil have been delineated (see Figure 3 for estimated soil plume).

6.1.2.1 Soil Risk Screening

Previous soil data, along with data collected during this investigation, were used for initial risk screening at the subject site (Table 1).

- Soils are impacted with GRO and/or related volatile constituents (benzene, ethylbenzene, naphthalene, 1,2,4-TMB, 1,3,5-TMB, total xylenes and GRO) above SLRBCs and were tentatively identified as COPCs in soil at the subject site. These soil COPCs were detected at depths between eight and ten feet below ground surface (bgs), primarily beneath the western portion of the subject site.

6.1.3 Reconnaissance Ground Water Sampling Results

Seven reconnaissance ground water samples were collected from borings EB01, EB02, and EB04 through EB08. Analytical results are presented in Table 2 and summarized here:

- GRO was not detected above the MRL in any of the reconnaissance ground water samples.
- RBDM VOCs were not detected above their respective MRLs in any of the reconnaissance ground water samples.
- Dissolved lead was not detected above the laboratory MRLs in any of the reconnaissance ground water samples analyzed.

Based on this data, GRO impacts to ground water have been delineated (see Figure 4 for estimated ground-water plume).

6.1.4 Ground Water Monitoring Results

Previous ground-water monitoring data, along with data collected during this investigation, were used for initial risk screening at the subject site (Table 3).

- Based on the results of the last four quarters of ground-water monitoring, the following COPCs were identified in ground water: benzene, ethylbenzene, naphthalene, 1,2,4-TMB, 1,3,5-TMB, total xylenes GRO, and DRO (diesel-range organics), all above SLRBCs. The exceedances were all in the western portion of the subject property.

6.2 Soil Gas Sampling

Six soil gas samples were collected and analyzed for GRO and related VOCs (Table 4). Benzene, naphthalene, toluene, 1,2,4-TMB, xylenes and GRO were detected in one or more soil gas samples; however, none had concentrations that exceeded their respective ODEQ SLRBCs.

Isopropyl alcohol (or 2-Propanol), used for leak detection purposes, was detected in five of the six samples. The 2-propanol concentration in the sub-slab vapor sample SG01 exceeds ENW's in-house screening level of 5,000-micrograms per cubic meter (µg/m3). Further evaluation of the potential ambient air contribution to this sample was conducted using a numeric calculation of the contribution of ambient air into the sub-slab vapor sample and a more realistic value of 40% 2-propanol mixture. This evaluation determined that, based on the detected concentration of 2-propanol, an estimated contribution of 0.09% ambient air is present in this sample, which is within the acceptable 5% maximum contribution standard. Calculation of actual contribution of leak detection compound indicates sampling integrity was preserved during this investigation.

6.3 Discussion

Findings of this Focused Site Investigation demonstrate lateral delineation of soil and ground water impacts. Figures 3 and 4 present estimated areas of residual soil and ground water impacts, respectively, inferred from a review of the site's comprehensive data set (includes data from investigations by others).

7.0 Analysis of Risk Drivers

A preliminary understanding of risk drivers allows for identification and discussion of the next steps to bring the site to regulatory closure.

Land Use & Potential Receptors. The site is located within the Main Street District boundary and zoned Main Street Mixed Use , which allows future multi-family residential use and single-family uses accessory or secondary to a commercial use. Therefore, the reasonably likely future land use needs to include future residential and urban residential, construction, and excavation worker receptors in addition to current occupational receptor scenarios.

Exclusion of Exposure Pathways. A basic review of the site setting allows for preliminary exclusion of the following exposure pathways.

- *Soil Ingestion, Dermal Contact, and Inhalation for potential Residential, Urban Residential and Occupational Worker Receptors*. Reasoning: the site is mostly covered by an existing asphalt cap and impacts above SLRBCs are not present in surface soils (defined as up to 3 feet bgs).

- *Vapor Intrusion into Buildings.* Reasoning: direct measurement of soil gas did not identify any potential risk to receptors.
- *Ingestion and Inhalation from Tapwater.* Reasoning: this exposure pathway is incomplete.
    - Public water is provided within the city limits of Cornelius. The water supply is purchased from the City of Hillsboro, which obtains its water from Barney Reservoir and Hagg Lake, two surface water bodies located west/southwest of Cornelius.
    - Ground water is not currently used at the site for domestic purposes. Additionally, given the poor production of the shallow aquifer, it is not likely to be used for a domestic or drinking water supply in the future.

Further Evaluation of COPCs in Subsurface Soil. Table 1 conducts a conservative screening of constituent detections in soil samples against ODEQ's SLRBCs to identify Constituents of Potential Concern (COPCs). Table 5 screens identified COPCs in soil against potentially complete exposure pathways. Assuming the only applicable exposure pathway is direct contact during future construction and/or excavation activities, no risk drivers related to residual soil impacts were identified.

Further Evaluation of COPCs in Ground Water. Table 3 conduct conservative screenings of constituent detections in ground water monitoring samples (last four quarters) against ODEQ's SLRBCs to identify COPCs. Table 6 screens identified COPCs in ground water against potentially complete exposure pathways. Assuming the only applicable exposure pathway is direct contact during future excavation activities, this additional risk screening identified the follow risk driver:

- *Potential risk to construction and excavation works from direct contact with ground water in an excavation, specific to GRO, benzene and naphthalene.*

8.0 Recommended Next Actions

ENW recommends the following next steps to bring the site to regulatory closure:

- Prepare a *Contaminated Media Management Plan* to ensure proper handling and management of petroleum-impacted subsurface soils and shallow ground water during subsurface work to mitigate potential risk to a future excavation worker.
- Decommission all onsite USTs, piping and pump islands following all federal, state and local regulations and guidance.
- Once ODEQ has determined that work is complete onsite, monitoring wells MW-2, MW-3 and MW-4 should be formally decommissioned in accordance with the rules and regulations promulgated by the State of Oregon.

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

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

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

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

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

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

Table 1 - Summary of Analytical Data, Soil

Location ID		B-1	B-2	B-3	B-4	B-5	B-6	B-7	TW1	TW2	TW3	MW-3	EB01	EB02	EB03	EB04	EB05	EB06	EB07	EB08
Sample ID		#1	#2	#3	#4	B5S	B6S	B7S	TW1S	TW2S	TW3S	MW-3	EB01-SWI-8	EB02-SWI-7.75	EB03	EB04-SWI-8.5	EB05-SWI-6	EB06-SWI-6	EB07-SWI-8.5	EB08-SWI-5.5
Date Sampled		7/26/2006	7/26/2006	7/26/2006	7/26/2006	9/26/2007	9/26/2007	9/26/2007	9/26/2007	9/26/2007	9/26/2007	7/21/2008	2/6/2019	2/6/2019	2/6/2019	2/18/2019	2/18/2019	2/18/2019	2/6/2019	4/9/19
Depth Sampled (feet)		10-11	10-11	8-9	10-11	10	10	10	10	10	10	10	8	7.75	3	8.5	6	6	8.5	5.5
Sampled By		K&S	K&S	K&S	K&S	K&S	K&S	K&S	K&S	K&S	K&S	K&S	ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW
Location		North of tank	East of tank	Next to Southwest pump	West of tank	Between tanks and pump island	West of 5,000 gallon tank	South and offsite	North of decommissioned tanks	East of decommissioned tanks	South of decommissioned tanks	Near pump island	Next to the northern pump island	Next to the center pump island	NOT COMPLETED - refusal at 3 feet in dense gravels. South of the southern pump island	Located off-site across and west of 10th Avenue	Located offsite - southwest and across 10th Avenue	Located south and off-site, on the east side of 10th Avenue	Located south and off-site of site.	2.5 feet NE of MW01
Constituent of Interest	Note	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
Volatile Organic Constituents																				
Benzene	c, v	1.32	13.2	---	0.785	<0.0657 (ND)	<0.016 (ND)	<0.016 (ND)	0.152	<0.0665 (ND)	0.37	<0.0834 (ND)	<0.03 (ND)	<0.03 (ND)	---	<0.03 (ND)	<0.03 (ND)	<0.03 (ND)	<0.03 (ND)	<0.02 (ND)
EDB (1,2-dibromoethane)	c, v	---	---	---	---	---	---	---	---	---	<0.236 (ND)	---	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	---
EDC (1,2-dichloroethane)	c, v	---	---	---	---	---	---	---	---	---	<0.236 (ND)	---	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	---
Ethylbenzene	c, v	0.634	9.71	---	1.55	0.623	<0.0319 (ND)	<0.0325 (ND)	45.3	9.04	106	18	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.02 (ND)
MTBE (methyl t-butyl ether)	c, v	---	---	---	---	---	---	---	---	---	<0.236 (ND)	---	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	---
Naphthalene	c, v	---	---	---	---	---	---	---	---	---	59.9	---	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	---
iso-Propylbenzene (cumene)	nc, v	---	---	---	---	---	---	---	---	---	13.5	---	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	---
Toluene	nc, v	0.385	2.8	---	0.549	<0.526 (ND)	<0.128 (ND)	<0.13 (ND)	<0.469 (ND)	<0.532 (ND)	23.3	<0.667 (ND)	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.02 (ND)
1,2,4-Trimethylbenzene	nc, v	---	---	---	---	---	---	---	---	---	283	---	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	---
1,3,5-Trimethylbenzene	nc, v	---	---	---	---	---	---	---	---	---	82.1	---	<0.05 (ND)	<0.05 (ND)	---	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	<0.05 (ND)	---
Xylenes	nc, v	0.629	2.73	---	1.81	<0.394 (ND)	<0.0958 (ND)	<0.0975 (ND)	51.2	1.49	561	21.1	<0.15 (ND)	<0.15 (ND)	---	<0.15 (ND)	<0.15 (ND)	<0.15 (ND)	<0.15 (ND)	<0.06 (ND)
Metals																				
Lead	NA, nv	---	---	---	---	---	---	---	---	---	---	---	10.3	8.66	---	9.46	8.53	8.73	9.7	---
Total Petroleum Hydrocarbons																				
Generic Gasoline (GRO)	nc, v	108	659	<20.6 (NP)	107	664	<5.11 (ND)	<5.2 (ND)	3150	991	7590	1660	<5 (ND)	<5 (ND)	---	<5 (ND)	<5 (ND)	<5 (ND)	<5 (ND)	<5 (ND)
Generic Diesel / Heating Oil (DRO)	nc, v	<59.3 (NP)	<62.3 (NP)	<51.4 (NP)	<53.8 (NP)	---	---	---	<64.2 (NP)	DET	DET	---	---	---	---	---	---	---	---	---
Generic Mineral Insulating Oil (RRO)	nc, nv	<119 (NP)	<125 (NP)	<103 (NP)	<108 (NP)	---	---	---	<128 (NP)	<127 (NP)	<121 (NP)	---	---	---	---	---	---	---	---	---

Notes:

mg/Kg = milligram per kilogram or parts per million (ppm).

<# (ND) = not detected at or above the laboratory method reporting limit shown.

NE = not established.

NP = not present at or above the laboratory method reporting limit shown (HCID analysis).

— = not analyzed or not applicable.

c = carcinogenic

nc = noncarcinogenic

v = volatile

nv = nonvolatile

GRO = gasoline-range organics.

DRO = diesel-range organics.

RRO = residual-range organics.

[1] Lowest Risk-Based Concentration for soil (screening level assumes residential use, from ODEQ RBCs dated May 2018).

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

x = the pattern of peaks is not indicative of the fuel standard used for quantitation.

y = The pattern of peaks is not typical of motor oil.

BKG = constituent exceeded its SLRBC; however, was not detected above default backgound concentrations in soil

Table 1 - Summary of Analytical Data, Soil

Location ID		Maximum Soil Concentration (remaining soil)	Soil Matrix Cleanup Level	ODEQs Screening-Level Risk-Based Concentrations SLRBCs[1] (Soil)	Background Concentrations (Regional Default)	Clean Fill Screening Levels or Background Concentrations (as applicable)	Exceeds ODEQs Screening-Level SLRBCs (Soil) and/or Soil Matrix Cleanup Level
Sample ID							
Date Sampled							
Depth Sampled (feet)							
Sampled By							
Location					Portland Basin		TRUE OR Y FALSE OR N
Constituent of Interest	Note	mg/Kg (ppm)					
Volatile Organic Constituents							
Benzene	c, v	**13.2**	NE	0.023	---	0.0093	Y
EDB (1,2-dibromoethane)	c, v	<0.236 (ND)	NE	0.00012	---	0.00081	(Y)
EDC (1,2-dichloroethane)	c, v	<0.236 (ND)	NE	0.0028	---	0.0014	(Y)
Ethylbenzene	c, v	**106**	NE	0.22	---	0.16	Y
MTBE (methyl t-butyl ether)	c, v	<0.236 (ND)	NE	0.11	---	0.092	(Y)
Naphthalene	c, v	**59.9**	NE	0.077	---	0.087	Y
iso-Propylbenzene (cumene)	nc, v	13.5	NE	96	---	85.2	N
Toluene	nc, v	23.3	NE	83	---	200	N
1,2,4-Trimethylbenzene	nc, v	**283**	NE	10	---	16	Y
1,3,5-Trimethylbenzene	nc, v	**82.1**	NE	11	---	92	Y
Xylenes	nc, v	**561**	NE	23	---	25	Y
Metals							
Lead	NA, nv	10.3	NE	30	79	28	BKG
Total Petroleum Hydrocarbons							
Generic Gasoline (GRO)	nc, v	**7590**	80	31	---	---	Y
Generic Diesel / Heating Oil (DRO)	nc, v	<64.2 (NP)	500	1100	---	---	N
Generic Mineral Insulating Oil (RRO)	nc, nv	<128 (ND)		2800	---	---	N

Notes:

mg/Kg = milligram per kilogram or parts per million (ppm).
<# (ND) = not detected at or above the laboratory method reporting limit shown.
NE = not established.
NP = not present at or above the laboratory method reporting limit shown (HCID analysis).
--- = not analyzed or not applicable.

c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.

[1] Lowest Risk-Based Concentration for soil (screening level assumes residential use, from ODEQ RBCs dated May 2018).

(Y) indicates analyte not detected, but detection limit is above screening concentration.
x = the pattern of peaks is not indicative of the fuel standard used for quantitation.

y = The pattern of peaks is not typical of motor oil.

BKG = constituent exceeded its SLRBC; however, was not detected above default backgound concentrations in soil

Table 2 - Summary of Analytical Data, Reconnaissance Ground Water

Location ID		B-5	B-6	B-7	TW1	TW2	TW3	TW4	TW5	TW6	TW7								
Sample ID		B5S	B6S	B7S	TW1W	TW2W	TW3W	TW4W	TW5W	TW6W	TW7W	EB01-GW-9	EB02-GW-7.75	EB03	EB04-GW-9	EB05-GW-7	EB06-GW-7.75	EB07-GW-9.5	EB08-GW-6.5
Date Sampled		9/26/2007	9/26/2007	9/26/2007	9/26/2007	9/26/2007	9/26/2007	3/4/2008	3/4/2008	3/4/2008	3/4/2008	2/6/19	2/6/19	2/6/19	2/18/19	2/18/19	2/18/19	2/6/19	4/9/19
Depth Sampled (feet)		10	10	10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-9	3.75-7.75	3	5-9	2-7	2.27-7.75	5.5-9.5	2.5-6.5
Sampled By		K&S	K&S	K&S	K&S	K&S	K&S	K&S	K&S	K&S	K&S	ENW	ENW	ENW	ENW	ENW	ENW	ENW	ENW
Location		Between tanks and pump island	West of 5,000 gallon tank	South and offsite	North of decommissioned tanks	East of decommissioned tanks	South of decommissioned tanks	South central, between the USTs and pumps	North central, between the USTs and the pumps	Just off-site to the west of the 10,000 gallon tank	Just east of 5,000 gallon UST.	Next to the northern pump island	Next to the center pump island	NOT COMPLETED - refusal met at 3 feet in dense gravels. South of the southern pump island	Located off-site, across and west of 10th Avenue	Located offsite - southwest and across 10th Avenue	Located south and off-site, on the east side of 10th Avenue	Located south and off-site of site.	2.5 feet NE of MW01
Constituent of Interest	Note	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)
Volatile Organic Constituents																			
Benzene	c, v	55	2.46	40.8	386	945	1780	81	0.71	266	291	<0.35 (ND)	<0.35 (ND)	---	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)
EDB (1,2-dibromoethane)	c, v	---	---	---	---	---	<25 (ND)	---	---	---	---	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
EDC (1,2-dichloroethane)	c, v	---	---	---	---	---	<25 (ND)	---	---	---	---	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
Ethylbenzene	c, v	3200	<0.5 (ND)	0.63	3780	1430	4010	1.86	65	3540	122	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
MTBE (methyl t-butyl ether)	c, v	---	---	---	---	---	<25 (ND)	---	---	---	---	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
Naphthalene	c, v	---	---	---	---	---	1530	---	---	1570	---	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
iso-Propylbenzene (cumene)	nc, v	---	---	---	---	---	187	---	---	---	---	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
Toluene	nc, v	<100 (ND)	<2 (ND)	<2 (ND)	107	35.5	1060	14.6	<2 (ND)	67.6	82	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
1,2,4-Trimethylbenzene	nc, v	---	---	---	---	---	3870	---	---	---	---	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
1,3,5-Trimethylbenzene	nc, v	---	---	---	---	---	915	---	---	---	---	<1 (ND)	<1 (ND)	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)
Xylenes	nc, v	2750	<1.5 (ND)	<1.5 (ND)	429	104	8700	7.64	<1.5 (ND)	257	70.2	<3 (ND)	<3 (ND)	---	<3 (ND)	<3 (ND)	<3 (ND)	<3 (ND)	<3 (ND)
Metals																			
Lead	NA, nv	---	---	---	---	---	---	---	---	---	---	<1 (ND)	<1 (ND)	--	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<5 (ND)
Polycyclic Aromatic Hydrocarbons																			
Acenaphthene	nc, v	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Anthracene	nc, v	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Benz[a]anthracene	c, v	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Benzo[a]pyrene (BaP equivalents)	c, nv	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Benzo[b]fluoranthene	c, nv	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Benzo[k]fluoranthene	c, nv	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Chrysene	c, nv	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Dibenz[a,h]anthracene	c, nv	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Fluoranthene	nc, nv	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Fluorene	nc, v	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Indeno[1,2,3-cd]pyrene	c, nv	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Pyrene	nc, v	---	---	---	---	---	---	---	---	<2.4 (ND)	---	---	---	---	---	---	---	---	---
Total Petroleum Hydrocarbons																			
Generic Gasoline (GRO)	nc, v	25800	1190	3070	18400	10800	62000	524	908	28000	6980	<100 (ND)	<100 (ND)	---	<100 (ND)	<100 (ND)	<100 (ND)	<100 (ND)	<100 (ND)
Generic Diesel / Heating Oil (DRO)	nc, v	---	---	---	>325 (DET)	>258 (DET)	>325 (DET)	838	903	14300	4230	---	---	---	---	---	---	---	---
Generic Mineral Insulating Oil (RRO)	nc, nv	---	---	---	<649 (ND)	<515 (ND)	<649 (ND)	767	<476 (ND)	<481 (ND)	<476 (ND)	---	---	---	---	---	---	---	---

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

NA = not accessible for sampling

--- = not analyzed or not applicable.
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.
Bolded/Shaded concentrations exceed lowest applicable risk-based concentrations and background concentrations, as applicable.

[1] Lowest Risk-Based Concentration for ground water (screening level).

Table 2 - Summary of Analytical Data, Reconnaissance Ground Water

Location ID		Maximum Ground Water Concentration (current quarter)	Lowest Potentially Applicable ODEQ Risk-Based Concentraiton[1]	Background Concentrations (metals)	Exceeds Background Concentrations (metals)?	COPC?
Sample ID						
Date Sampled						
Depth Sampled (feet)						
Sampled By						
Location					TRUE OR Y FALSE OR N	TRUE OR Y FALSE OR N
Constituent of Interest	Note	µg/L (ppb)				
Volatile Organic Constituents						
Benzene	c, v	**1780**	0.46	NE	N	Y
EDB (1,2-dibromoethane)	c, v	<25 (ND)	0.0075	NE	N	(Y)
EDC (1,2-dichloroethane)	c, v	<25 (ND)	0.17	NE	N	(Y)
Ethylbenzene	c, v	**4010**	1.5	NE	N	Y
MTBE (methyl t-butyl ether)	c, v	<25 (ND)	14	NE	N	(Y)
Naphthalene	c, v	**1570**	0.17	NE	N	Y
iso-Propylbenzene (cumene)	nc, v	187	440	NE	N	N
Toluene	nc, v	1060	1100	NE	N	N
1,2,4-Trimethylbenzene	nc, v	**3870**	54	NE	N	Y
1,3,5-Trimethylbenzene	nc, v	**915**	59	NE	N	Y
Xylenes	nc, v	**8700**	190	NE	N	Y
Metals						
Lead	NA, nv	<5 (ND)	15	13.3	N	N
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	nc, v	<2.4 (ND)	510	NE	N	N
Anthracene	nc, v	<2.4 (ND)	1700	NE	N	N
Benz[a]anthracene	c, v	<2.4 (ND)	0.03	NE	N	(Y)
Benzo[a]pyrene (BaP equivalents)	c, nv	<2.4 (ND)	0.025	NE	N	(Y)
Benzo[b]fluoranthene	c, nv	<2.4 (ND)	0.25	NE	N	(Y)
Benzo[k]fluoranthene	c, nv	<2.4 (ND)	2.5	NE	N	N
Chrysene	c, nv	<2.4 (ND)	25	NE	N	N
Dibenz[a,h]anthracene	c, nv	<2.4 (ND)	0.025	NE	N	(Y)
Fluoranthene	nc, nv	<2.4 (ND)	800	NE	N	N
Fluorene	nc, v	<2.4 (ND)	280	NE	N	N
Indeno[1,2,3-cd]pyrene	c, nv	<2.4 (ND)	0.25	NE	N	(Y)
Pyrene	nc, v	<2.4 (ND)	110	NE	N	N
Total Petroleum Hydrocarbons						
Generic Gasoline (GRO)	nc, v	**62000**	110	NE	N	Y
Generic Diesel / Heating Oil (DRO)	nc, v	**14300**	100	NE	N	Y
Generic Mineral Insulating Oil (RRO)	nc, nv	**767**	300	NE	N	Y

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

NA = not accessible for sampling

— = not analyzed or not applicable.
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.
Bolded/Shaded concentrations exceed lowest applicable risk-based concentrations and background concentrations, as applicable.

[1] Lowest Risk-Based Concentration for ground water (screening level).

Table 3 - Summary of Analytical Data, Ground Water Monitoring

Location ID		MW-1							
Sample ID		MW1							
Date Sampled		7/28/08	10/29/08	8/27/09	12/2/12	2/11/16	8/24/16	12/21/16	12/17/18
Depth Sampled (feet)		5-15	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Sampled By		K&S	K&S	K&S	AMEC	Alpha	Alpha	Alpha	ENW
Location		SW Corner of the property							
Constituent of Interest	Note	µg/L (ppb)							
Volatile Organic Constituents									
Benzene	c, v	230	114	19600	180	271	4010	503	NA
EDB (1,2-dibromoethane)	c, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<5 (ND)	<5 (ND)	<2.5 (ND)	NA
EDC (1,2-dichloroethane)	c, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<5 (ND)	<5 (ND)	<2.5 (ND)	NA
Ethylbenzene	c, v	21.8	8.36	1710	115	268	2640	517	NA
MTBE (methyl t-butyl ether)	c, v	<1 (ND)	<2.5 (ND)	<100 (ND)	<1 (ND)	<10 (ND)	<10 (ND)	<5 (ND)	NA
Naphthalene	c, v	15.5	<5 (ND)	<500 (ND)	48.8	59.8	597	104	NA
iso-Propylbenzene (cumene)	nc, v	13.8	6.6	50	5.4	10.3	67.2	11.5	NA
Toluene	nc, v	303	3.68	14900	321	129	170	126	NA
1,2,4-Trimethylbenzene	nc, v	19.7	<0.5 (ND)	733	<162 (ND)	123	1020	234	NA
1,3,5-Trimethylbenzene	nc, v	19	1.74	181	53.5	28.8	244	38.8	NA
Xylenes	nc, v	217	8.8	6670	432	613	4920	1330	NA
Metals									
Lead	NA, nv	--	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons									
Generic Gasoline (GRO)	nc, v	4280	3550	84800	4880	7600	57100	10300	NA
Generic Diesel / Heating Oil (DRO)	nc, v	1850	---	3310	761	121	654	318	NA
Generic Mineral Insulating Oil (RRO)	nc, nv	<0.472 (ND)	---	<500 (ND)	<0.404 (ND)	<155 (ND)	<155 (ND)	<154 (ND)	NA

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

NA = not accessible for sampling

[1] Lowest Risk-Based Concentration for ground water (screening level assumes urban residential use, from ODEQ RBCs dated May 2018).
— = not analyzed or not applicable.
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.
Bolded/Shaded concentrations exceed lowest applicable risk-based concentrations and background concentrations, as applicable.
(Y) indicates analyte not detected, but detection limit is above screening concentration.

Table 3 - Summary of Analytical Data, Ground Water Monitoring

Location ID		MW-2							
Sample ID		MW2							
Date Sampled		7/28/08	10/29/08	8/27/09	12/2/12	2/11/16	8/24/16	12/21/16	12/17/18
Depth Sampled (feet)		5-15	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Sampled By		K&S	K&S	K&S	AMEC	Alpha	Alpha	Alpha	ENW
Location		Near tanks							
Constituent of Interest	Note	µg/L (ppb)							
Volatile Organic Constituents									
Benzene	c, v	998	348	358	5.5	3.84	31.8	25.4	3.5
EDB (1,2-dibromoethane)	c, v	<5 (ND)	<10 (ND)	<25 (ND)	<5 (ND)	<0.5 (ND)	<5 (ND)	<5 (ND)	<1 (ND)
EDC (1,2-dichloroethane)	c, v	<5 (ND)	<10 (ND)	<25 (ND)	<5 (ND)	<0.5 (ND)	<5 (ND)	<5 (ND)	<1 (ND)
Ethylbenzene	c, v	3390	3160	2830	595	190	1540	849	600
MTBE (methyl t-butyl ether)	c, v	<10 (ND)	<20 (ND)	<50 (ND)	<10 (ND)	<1 (ND)	<10 (ND)	<10 (ND)	<1 (ND)
Naphthalene	c, v	1310	1390	1100	388	101	810	408	290
iso-Propylbenzene (cumene)	nc, v	148	145	65.5	42.1	14.3	87.2	37.1	61
Toluene	nc, v	986	718	604	19.4	12.4	94.7	50.1	22
1,2,4-Trimethylbenzene	nc, v	2770	2620	2230	637	110	673	341	200
1,3,5-Trimethylbenzene	nc, v	665	601	474	138	19.9	102	58.1	48
Xylenes	nc, v	7790	6950	4440	82.2	147	1180	450	376
Metals									
Lead	NA, nv	--	--	--	--	--	--	--	<1 (ND)
Total Petroleum Hydrocarbons									
Generic Gasoline (GRO)	nc, v	48300	50700	43000	7270	4990	24600	12000	8700
Generic Diesel / Heating Oil (DRO)	nc, v	12700	---	9550	2300	162	1080	594	---
Generic Mineral Insulating Oil (RRO)	nc, nv	<0.467 (ND)	---	<521 (ND)	<0.8 (ND)	<152 (ND)	<784 (ND)	<158 (ND)	---

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

NA = not accessible for sampling

[1] Lowest Risk-Based Concentration for ground water (screening level assumes urban residential use, from ODEQ RBCs dated May 2018).
— = not analyzed or not applicable.
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.
Bolded/Shaded concentrations exceed lowest applicable risk-based concentrations and background concentrations, as applicable.
(Y) indicates analyte not detected, but detection limit is above screening concentration.

Table 3 - Summary of Analytical Data, Ground Water Monitoring

Location ID		MW-3							
Sample ID		MW3							
Date Sampled		7/28/08	10/29/08	8/27/09	12/2/12	2/11/16	8/24/16	12/21/16	12/17/18
Depth Sampled (feet)		5-15	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Sampled By		K&S	K&S	K&S	AMEC	Alpha	Alpha	Alpha	ENW
Location		Near pump island							
Constituent of Interest	Note	µg/L (ppb)							
Volatile Organic Constituents									
Benzene	c, v	1.5	2.11	5.3	<0.25 (ND)	<0.2 (ND)	0.06	<0.2 (ND)	<0.35 (ND)
EDB (1,2-dibromoethane)	c, v	<0.5 (ND)	<0.5 (ND)	<5 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<0.5 (ND)	<1 (ND)
EDC (1,2-dichloroethane)	c, v	<0.5 (ND)	<0.5 (ND)	<5 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<0.5 (ND)	<1 (ND)
Ethylbenzene	c, v	450	626	742	1	36.2	88.1	26.2	22
MTBE (methyl t-butyl ether)	c, v	<1 (ND)	<1 (ND)	<10 (ND)	<1 (ND)	<1 (ND)	<2 (ND)	<1 (ND)	<1 (ND)
Naphthalene	c, v	209	367	436	5.53	10	4.54	6.6	<1 (ND)
iso-Propylbenzene (cumene)	nc, v	38.7	67	49.1	2.39	13.3	60.8	10.7	15
Toluene	nc, v	6.21	7.18	9.4	<1 (ND)	<1 (ND)	<2 (ND)	<1 (ND)	<1 (ND)
1,2,4-Trimethylbenzene	nc, v	106	176	162	1.26	3.73	6.9	3.14	2.3
1,3,5-Trimethylbenzene	nc, v	21.7	38.8	33.9	<1 (ND)	<1 (ND)	4	<1 (ND)	<1 (ND)
Xylenes	nc, v	213	333	377	<1 (ND)	11.5	44.1	8.72	7.3
Metals									
Lead	NA, nv								<1 (ND)
Total Petroleum Hydrocarbons									
Generic Gasoline (GRO)	nc, v	4180	5430	8660	<0.1 (ND)	1340	5210	1200	1000
Generic Diesel / Heating Oil (DRO)	nc, v	1870	---	2980	237	<75.5 (ND)	257	129	---
Generic Mineral Insulating Oil (RRO)	nc, nv	<0.467 (ND)	---	<532 (ND)	<0.385 (ND)	<151 (ND)	<151 (ND)	<157 (ND)	---

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

NA = not accessible for sampling

[1] Lowest Risk-Based Concentration for ground water (screening level assumes urban residential use, from ODEQ RBCs dated May 2018).
— = not analyzed or not applicable.
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.
Bolded/Shaded concentrations exceed lowest applicable risk-based concentrations and background concentrations, as applicable.
(Y) indicates analyte not detected, but detection limit is above screening concentration.

Table 3 - Summary of Analytical Data, Ground Water Monitoring

Location ID		MW-4								Maximum Ground Water Concentration (last four monitoring events)	Lowest ODEQ Risk-Based Concentration[1]	Background Concentrations (metals)	Exceeds Background Concentrations (metals)?	COPC?
Sample ID		MW4												
Date Sampled		7/28/08	10/29/08	8/27/09	12/2/12	2/11/16	8/24/16	12/21/16	12/17/18					
Depth Sampled (feet)		5-15	5-15	5-15	5-15	5-15	5-15	5-15	5-15					
Sampled By		K&S	K&S	K&S	AMEC	Alpha	Alpha	Alpha	ENW					
Location		NW corner of property											TRUE OR Y FALSE OR N	TRUE OR Y FALSE OR N
Constituent of Interest	Note	µg/L (ppb)								µg/L (ppb)				
Volatile Organic Constituents														
Benzene	c, v	0.31	<0.25 (ND)	13.2	1.75	0.215	<0.2 (ND)	<0.2 (ND)	<0.35 (ND)	**4010**	0.46	NE	N	Y
EDB (1,2-dibromoethane)	c, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<5 (ND)	0.0075	NE	N	(Y)
EDC (1,2-dichloroethane)	c, v	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<5 (ND)	0.17	NE	N	(Y)
Ethylbenzene	c, v	0.78	<0.5 (ND)	44.8	94.2	4.2	<0.5 (ND)	<0.5 (ND)	2.4	**2640**	1.5	NE	N	Y
MTBE (methyl t-butyl ether)	c, v	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<10 (ND)	14	NE	N	N
Naphthalene	c, v	<5 (ND)	<5 (ND)	23.2	18.6	0.0876	<0.0777 (ND)	<0.0792 (ND)	<1 (ND)	**810**	0.17	NE	N	Y
iso-Propylbenzene (cumene)	nc, v	0.7	<0.5 (ND)	1.12	6	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	87.2	440	NE	N	N
Toluene	nc, v	<1 (ND)	<1 (ND)	12.1	18.1	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	170	1100	NE	N	N
1,2,4-Trimethylbenzene	nc, v	<1 (ND)	<1 (ND)	58.4	85.7	<1 (ND)	<1 (ND)	<1 (ND)	10	**1020**	54	NE	N	Y
1,3,5-Trimethylbenzene	nc, v	<1 (ND)	<1 (ND)	2.03	4.34	<1 (ND)	<1 (ND)	<1 (ND)	3.4	**244**	59	NE	N	Y
Xylenes	nc, v	<1.5 (ND)	<1.5 (ND)	97.3	137.9	4.84	<1.5 (ND)	<1.5 (ND)	7.1	**4920**	190	NE	N	Y
Metals														
Lead	NA, nv								<1 (ND)	<1 (ND)	15	13.3	N	N
Total Petroleum Hydrocarbons														
Generic Gasoline (GRO)	nc, v	537	472	1280	1120	219	177	137	200	57100	110	NE	N	Y
Generic Diesel / Heating Oil (DRO)	nc, v	403	---	<472 (ND)	<1350 (ND)	<82.5 (ND)	<78.4 (ND)	<79.2 (ND)	---	1080	100	NE	N	Y
Generic Mineral Insulating Oil (RRO)	nc, nv	<0.467 (ND)	---	<500 (ND)	<0.392 (ND)	<165 (ND)	<157 (ND)	<158 (ND)	---	<784 (ND)	300	NE	N	Y

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

NA = not accessible for sampling

[1] Lowest Risk-Based Concentration for ground water (screening level assumes urban residential use, from ODEQ RBCs dated May 2018).
— = not analyzed or not applicable.
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.
Bolded/Shaded concentrations exceed lowest applicable risk-based concentrations and background concentrations, as applicable.
(Y) indicates analyte not detected, but detection limit is above screening concentration.

Table 4 - 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	Maximum Soil-Gas Concentration	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	2/5/19			
Depth Sampled (feet)		5	5	4	5	5	5			
Sampled By		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.			TRUE OR Y FALSE OR N
Constituent of Interest	Note	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m^3		
Volatile Organic Constituents										
Benzene	c, v	8.4	6.4 J	5.26 J	8.35	7.24 J	10.32	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)	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)	22	N
Ethylbenzene	c, v	<10.45 (ND)	<10.36 (ND)	<9.81 (ND)	<10.91 (ND)	<10.45 (ND)	<11.46 (ND)	<11.46 (ND)	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)	2200	N
Naphthalene	c, v	6.83	<4.45 (ND)	9.89	4.12 J	4.4 J	<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)	<7.47 (ND)	83000	N
Toluene	nc, v	6.13 J	6.91 J	6.66 J	7.53 J	12.81	8.1 J	12.81	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)	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)	<12.68 (ND)	>Pv	N
Xylenes	nc, v	<20.71 (ND)	<20.53 (ND)	<19.44 (ND)	<21.16 (ND)	<20.71 (ND)	6.51 J	<21.16 (ND)	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)	79000	N
Leak Detection								**Maximum Soil-Gas Concentration**	**Leak Screenining Level**	**Leak Screeninig Level Exceeded?**
2-Propanol		7983.59	12.19	3.92 J	714.38	3835.93	<7.05 (ND)	7983.59	5000	Y

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.

Table 5. Further Evaluation of COPCs in Subsurface Soil (Risk Drivers)

Contaminated Medium		SOIL mg/Kg (ppm)																										Maximum Detected Concentration
Exposure Pathway		Soil Ingestion, Dermal Contact, and Inhalation RBC_{ss}										Volatilization to Outdoor Air RBC_{so}						Vapor Intrusion into Buildings RBC_{si}						Leaching to Groundwater RBC_{sw}						
Receptor Scenario		Residential		Urban Residential		Occupational		Construction Worker		Excavation Worker		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		
Direct or Indirect Pathway (see notes)		DC		DC		DC		DC		DC		IVS		IVS		IVS		IVS		IVS		IVS		IS		IS		IS		
Contaminant of Concern	Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note	mg/Kg (ppm)
Volatile Organic Constituents																														
Benzene	c, v	8.2		24		37		380		11000	>Csat	11		27		50		0.16		0.38		2.1		0.023		0.1		0.1		13.2
Ethylbenzene	c, v	34		110		150		1700	>Csat	49000	>Csat	36		85		160		1.3		3		17		0.22		0.94		0.9		106
Naphthalene	c, v	5.3		25		23		580	>Csat	16000	>Csat	6.4		15		83		6.4		15		83		0.077		0.37		0.34		59.9
1,2,4-Trimethylbenzene	nc, v	430		860		6900	>Csat	2900	>Csat	81000	>Csat	2000		2000		8400		140		140		1800		10		43		48		283
1,3,5-Trimethylbenzene	nc, v	430	>Csat	860	>Csat	6900	>Csat	2900	>Csat	81000	>Csat	2000		2000		8400		98		98		1200		11		45		53	>Csat	82.1
Xylenes	nc, v	1400	>Csat	2900	>Csat	25000	>Csat	20000	>Csat	560000	>Csat	3300	>Csat	3300	>Csat	14000	>Csat	160		160		2000	>Csat	23		87		100		561
Total Petroleum Hydrocarbons																														
Generic Gasoline (GRO)	nc, v	1200		2500		20000		9700		-	>Max	5900		5900		69000		94		94		-	>Max	31		31		130		7590

Notes:
— = not analyzed or not applicable.
< = not detected above method reporting limit shown.
NE = not established.
mg/Kg = milligrams per Kilogram or parts per million
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.
(Y) indicates analyte not detected, but detection limit is above scree
J = inidicates the internal standard associated with the analyte is out of control limits; the reported concentration is an estimate.
y = the pattern of peaks is not indicative of motor oil.
<Csat = This soil RBC exceeds the limit of three-phase equilibrium partitioning.
<Max = The constituent RBC for this pathway is greater than 100,000 mg/kg. The Department believes it is highly unlikely that such concentrations will ever be encountered.

Table 6. Further Evaluation of COPCs, Ground Water (Risk Drivers)

Contaminated Medium		GROUND WATER µg/L (ppb)																				Maximum Detected Concentration
Exposure Pathway		Ingestion & Inhalation from Tapwater RBC_{tw}						Volatilization to Outdoor Air RBC_{wo}						Vapor Intrusion into Buildings RBC_{wi}						GW in Excavation RBC_{we}		
Receptor Scenario		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Construction & Excavation Worker		
Direct or Indirect Pathway (see notes)		DS		DS		DS		IVW		IVW		IVW		IVW		IVW		IVW		DS		
Contaminant of Concern	Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note	µg/L (ppb)
Volatile Organic Constituents																						
Benzene	c, v	0.46		2		2.1		3100		7400		14000		210		510		2800		1800		4010
Ethylbenzene	c, v	1.5		6.7		6.4		9900		23000		43000		620		1500		8200		4500		4010
Naphthalene	c, v	0.17		0.78		0.72		3600		8500		16000		840		2000		11000		500		1570
1,2,4-Trimethylbenzene	nc, v	54		230		250		720000	>S	720000	>S	3000000	>S	50000		50000		620000	>S	6300		3870
1,3,5-Trimethylbenzene	nc, v	59		240		280		570000	>S	570000	>S	2400000	>S	36000	>S	36000	>S	450000	>S	7500		915
Xylenes	nc, v	190		710		830		1200000	>S	1200000	>S	5100000	>S	86000		86000		1100000	>S	23000		8700
Total Petroleum Hydrocarbons																						
Generic Gasoline (GRO)	nc, v	110		110		450		-	>S	-	>S	-	>S	22000		22000		-	>S	14000		62000
Generic Diesel / Heating Oil (DRO)	nc, v	100		100		430		-	>S	-	>S	-	>S	-	>S	-	>S	-	>S	-	>S	14300

Notes:

ND = not detected at or above laboratory method reporting limits

— = not analyzed or not applicable.

ug/L = micrograms per Liter or parts per billion (ppb).

c = carcinogenic

nc = noncarcinogenic

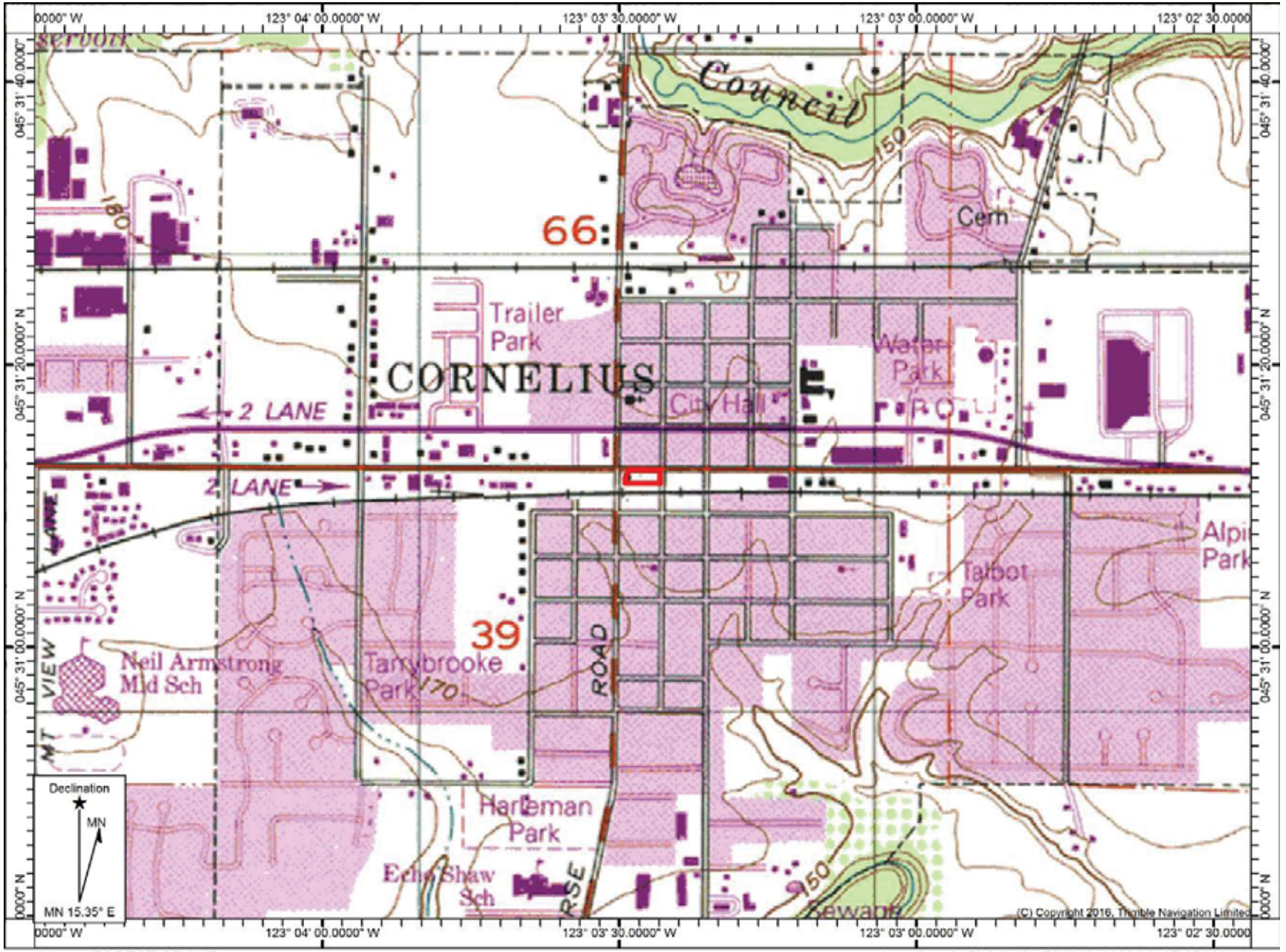
v = volatile

GRO = gasoline-range organics.

DRO = diesel-range organics.

<S = This groundwater RBC exceeds the solubility limit.

Figures



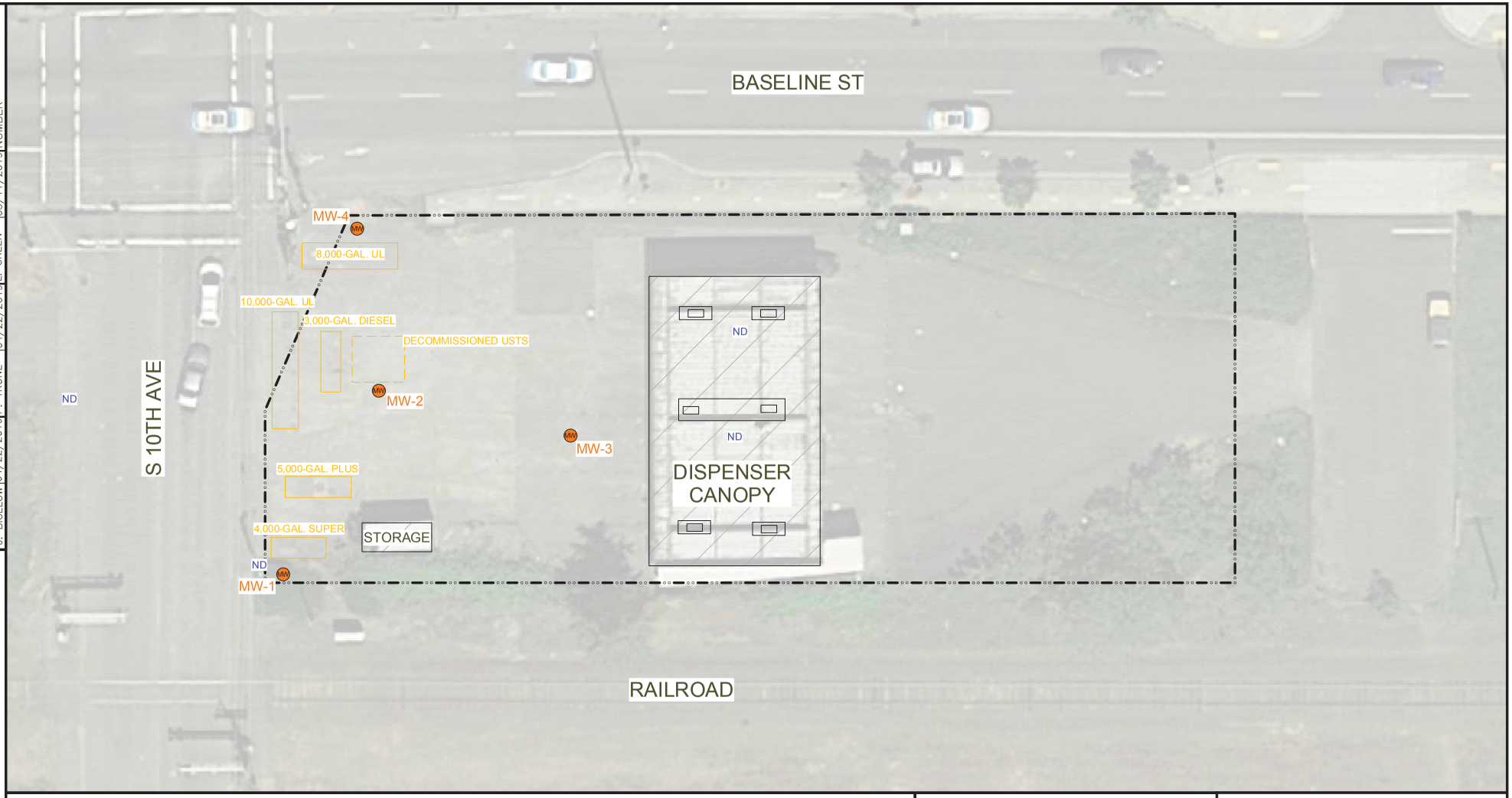
Name: FOREST GROVE
Date: Jan 1, 1992

0 1000 2000
Feet

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

EVREN NORTHWEST	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**

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



LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- UNDERGROUND STORAGE TANK
- DECOMMISSIONED UNDERGROUND STORAGE TANK
- 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

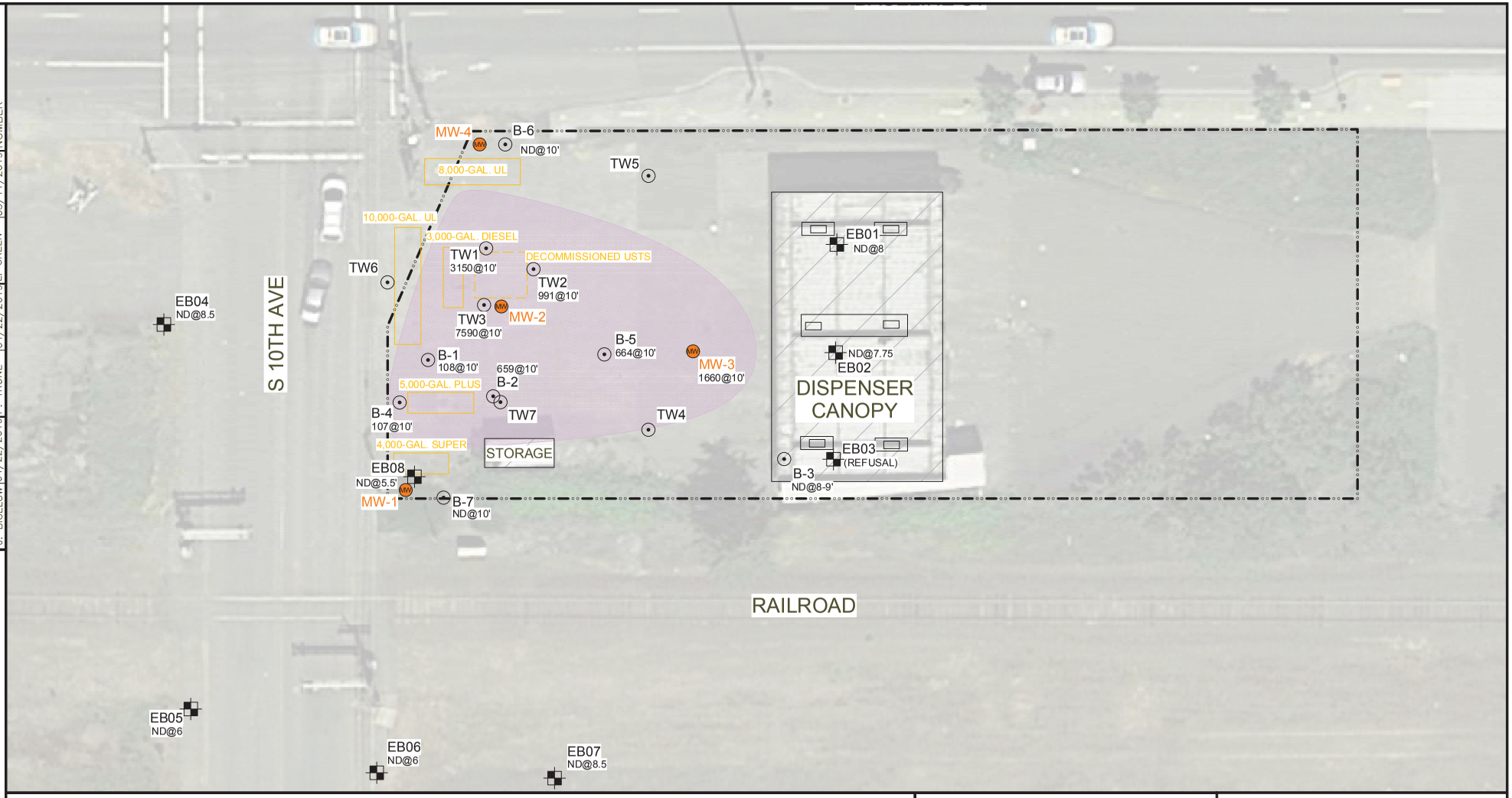
N

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

FIGURE 2

SITE PLAN

1021 E BASELINE STREET
CORNELIUS, OREGON



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

LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- PREVIOUS SAMPLE LOCATION COLLECTED BY K&S
- UNDERGROUND STORAGE TANK
- DECOMMISSIONED UNDERGROUND STORAGE TANK
- MONITORING WELL
- ENW SOIL BORING LOCATION
- EXTENT OF GRO SOIL IMPACTS (EXCEEDING SOIL MATRIX CLEANUP LEVELS)
- ND NOT DETECTED
- GRO GASOLINE RANGE ORGANICS
- 108@10' GRO CONCENTRATION (MG/KG) AT DEPTH OF SAMPLE (FEET)

NO SOIL SAMPLES WERE COLLECTED FROM TW4, TW5, TW6, & TW7.

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

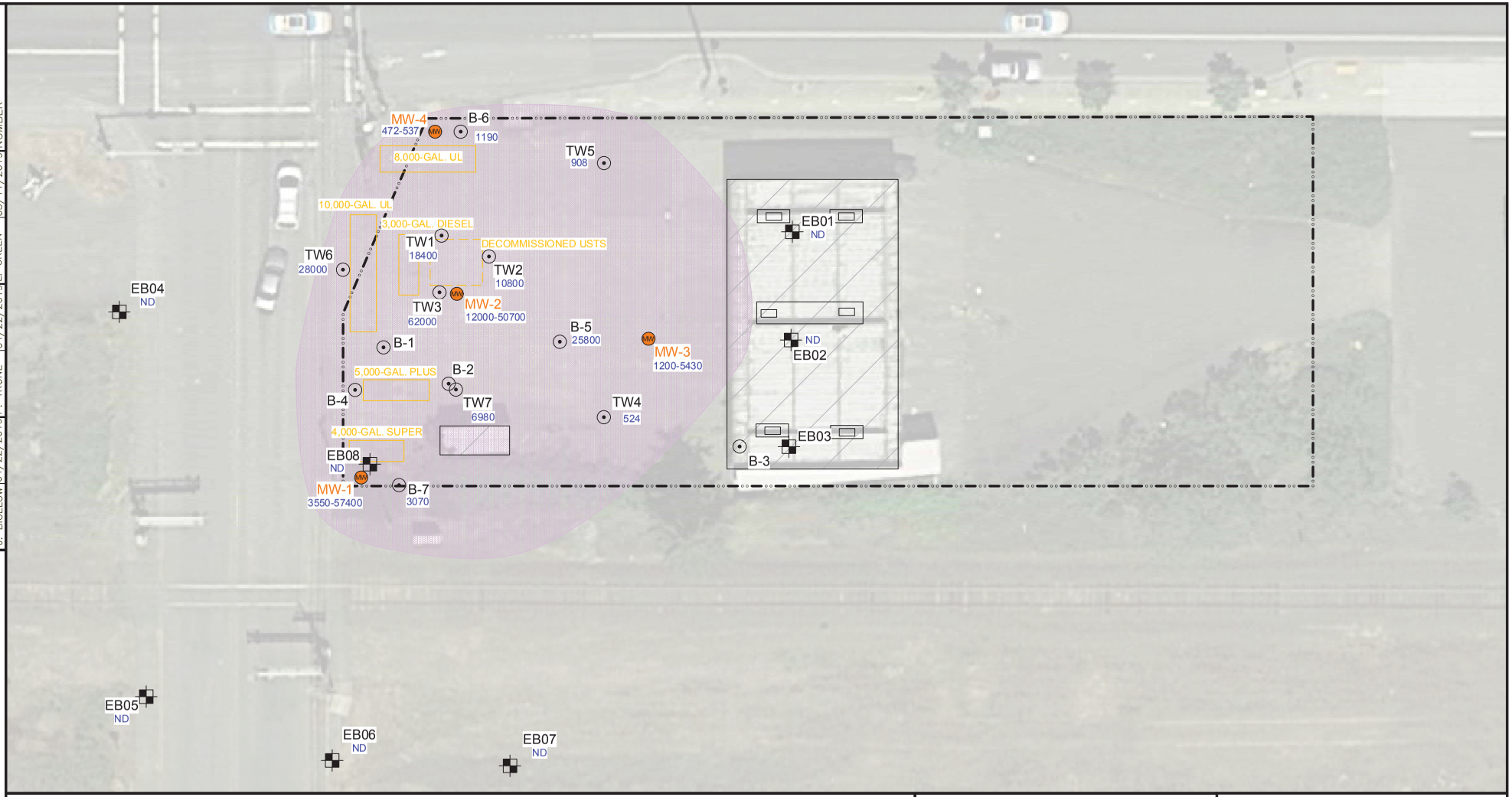
0 25 50 FEET

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

FIGURE 3
SAMPLE LOCATION DIAGRAM (SOIL)

1021 E BASELINE STREET
CORNELIUS, OREGON

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



LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- PREVIOUS SAMPLE LOCATION COLLECTED BY K&S
- UNDERGROUND STORAGE TANK
- DECOMMISSIONED UNDERGROUND STORAGE TANK
- MONITORING WELL
- ENW SOIL BORING LOCATION
- ESTIMATED EXTENT OF GRO IMPACTS (GROUND WATER)
- ND NOT DETECTED
- GRO GASOLINE RANGE ORGANICS
- 3070 GRO CONCENTRATION (µg/L)

NO WATER SAMPLES WERE COLLECTED FROM B-1, B-2, B-3, & B-4.

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 25 50 FEET

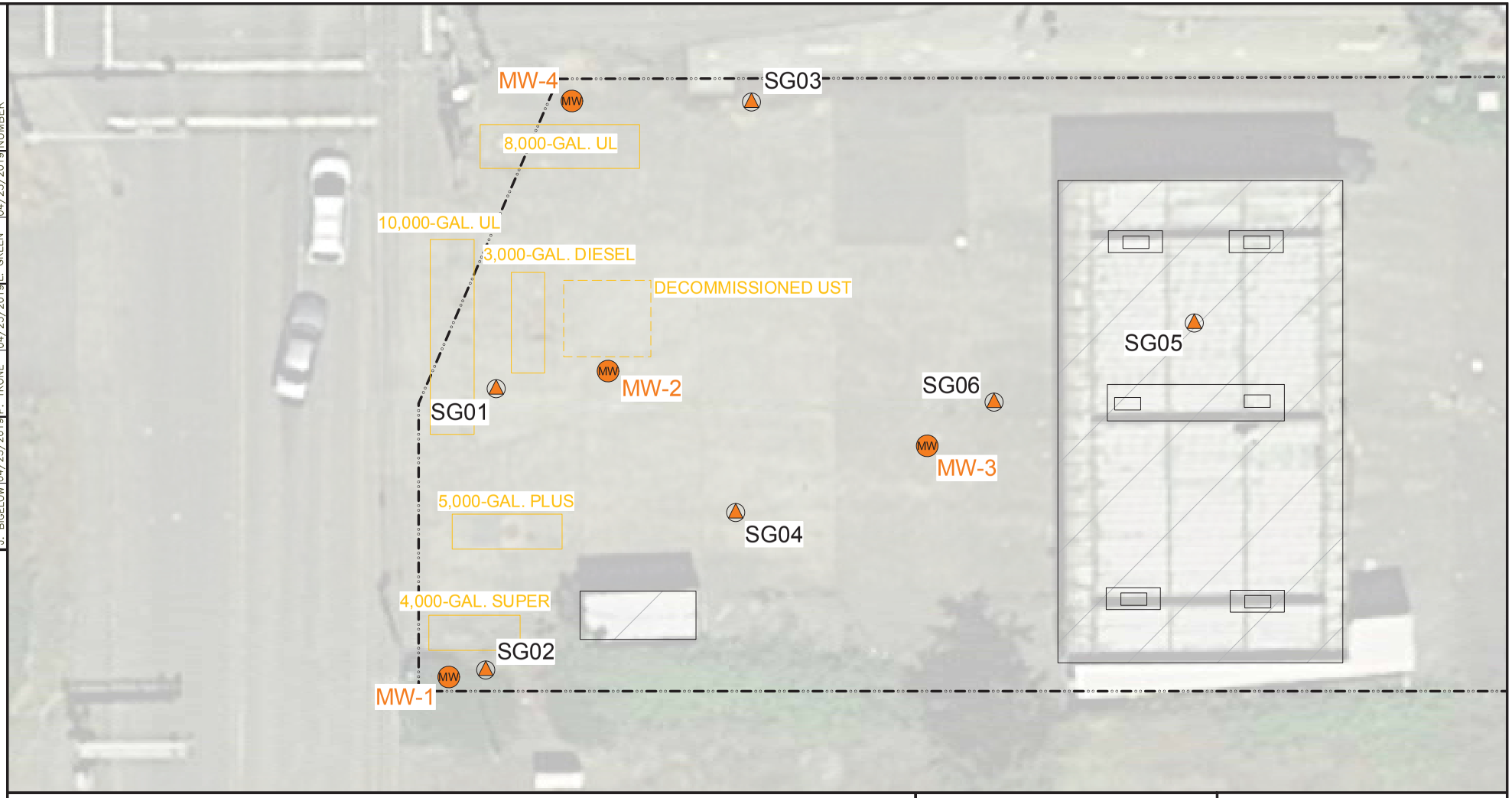
N

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

FIGURE 4

SAMPLE LOCATION DIAGRAM (GROUND WATER)

1021 E BASELINE STREET
CORNELIUS, OREGON



DRAWN BY J. BIGELOW 04/25/2019 | CHECKED BY P. TRONE 04/25/2019 | APPROVED BY L. GREEN 04/25/2019 | DRAWING NUMBER 1209--17001(v01)

LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- PREVIOUS SAMPLE LOCATION COLLECTED BY K&S
- 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
PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 5

SAMPLE LOCATION DIAGRAM (SOIL GAS)

1021 E BASELINE STREET
CORNELIUS, OREGON

Appendix A

Site Photographs

View showing purging at soil gas sample location SG06.

View looking east at soil gas sampling location SG04.

View looking southeast at soil gas sampling at SG01.

View looking northeast at soil gas sampling location SG05.

EVREN NORTHWEST INC. environmental, natural resource consultants	1021 Baseline Street Cornelius, Oregon	**Site Photographs**	Project No. 1209-17001-02 Appendix **A**

View looking east during advancement of boring EB02.

View looking north during advancement of soil boring EB01.

View showing typical ground water sampling setup on a temporary boring.

View looking south during the attempt to advance boring EB03. It was not possible to advance this boring beyond 2 feet bgs due to subsurface gravels.

EVREN NORTHWEST INC. environmental, natural resource consultants	1021 Baseline Street Cornelius, Oregon	**Site Photographs**	Project No. 1209-17001-02 Appendix **A**

View looking north during the advancement of EB04, located on the west side of 10th Avenue.

View looking north at boring EB08 during reconnaissance ground water sampling. Note the white lid in the foreground. This is MW-1 which was previously backfilled with bentonite.

EVREN NORTHWEST INC. environmental, natural resource consultants	1021 Baseline Street Cornelius, Oregon	**Site Photographs**	Project No. 1209-17001-02 Appendix **A**

Appendix B

Soil Boring Logs

EVREN Northwest, Inc.

DRILL LOG

PROJECT		PROJECT NO.	BORING NO.
		1209-17001-02	**EB01**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
1021 Baseline St. Cornelius, OR	2-6-19	2-6-19	2"	

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION
		2-6-19	7.1	8	

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW				

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger	Evan Bruggeman	9

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Concrete (6") with base rock.						
			Fine sandy SILT (ML), medium stiff, slightly moist, brown.						
2									
4								0.0	
			Grades to light brown, micaceous.						
6								0.1	
8			Wet.	EB01-SWI-8	Soil			0.1	
				EB01-GW-9	Water				
			End of boring; backfilled with bentonite chips.						
10									
12									
14									

EVREN Northwest, Inc.

DRILL LOG

PROJECT	PROJECT NO.	BORING NO.
	1209-17001-02	**EB02**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
1021 Baseline St. Cornelius, OR	2-6-19	2-6-19	2"	

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION
		2-6-19	7	7.75	

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW				

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger	Evan Bruggeman	8

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Concrete (6") with base rock.						
			Silty fine SAND (SM), dense, dry, brown, with trace coarse sand.						
2								0.3	
			Fine sandy SILT (ML), medium stiff, slightly moist, brown.						
4								0.2	
			Grades to light brown, micaceous.						
6									
			Wet.	EB02-SWI-7.75	Soil Water				
8			End of boring; backfilled with bentonite chips.	EB02-GW-7.75					
10									
12									
14									

EVREN Northwest, Inc.

DRILL LOG	PROJECT	PROJECT NO.	BORING NO.
		1209-17001-02	**EB03**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
1021 Baseline St. Cornelius, OR	2-6-19	2-6-19	2"	

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW				

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger	Evan Bruggeman	3

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Concrete (6") with base rock.						
2			Refusal; unable to penetrate base rock.						
4									
6									
8									
10									
12									
14									

EVREN Northwest, Inc.

DRILL LOG

PROJECT	PROJECT NO.	BORING NO.
	1209-17001-02	**EB04**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
1021 Baseline St. Cornelius, OR	2-18-19	2-18-19	2"	

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION
		2-18-19	7.5	8.5	

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW				

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger	Evan Bruggeman	9

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Fill from recent construction activities.						
			Asphalt surface with base rock.						
2			Fine sandy SILT (ML), medium stiff, dry to slightly moist, dark gray-brown with rusty discoloration.					0.1	
4			Grades to slightly moist, light brown, micaceous.						
6									
8			Wet.	EB04-SWI-8.5	Soil Water			0.2	
			End of boring; backfilled with bentonite chips.	EB04-GW-9					
10									
12									
14									

EVREN Northwest, Inc.

DRILL LOG

PROJECT	PROJECT NO.	BORING NO.
	1209-17001-02	**EB05**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
1021 Baseline St. Cornelius, OR	2-18-19	2-18-19	2"	

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION
		2-18-19	6	6	

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW				

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger	Evan Bruggeman	7

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Fill from recent construction activities.						
2			Fine sandy SILT (ML), medium stiff, dry, dark gray-brown with rusty discoloration.						
			Grades to slightly moist, medium brown.					0.1	
4			Grades to, light brown, micaceous.						
6			Wet.	EB05-SWI-6	Soil			0.1	
				EB05-GW-7	Water				
			End of boring; backfilled with bentonite chips.						
8									
10									
12									
14									

EVREN Northwest, Inc.

DRILL LOG

PROJECT	PROJECT NO.	BORING NO.
	1209-17001-02	**EB06**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
1021 Baseline St. Cornelius, OR	2-18-19	2-18-19	2"	

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION
		2-18-19	6	6	

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW				

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger	Evan Bruggeman	7.75

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Fill from recent construction activities.						
2			Fine sandy SILT (ML), medium stiff, slightly moist, brown.						
4			Grades to, light brown, micaceous.						
6			Wet.	EB06-SWI-6	Soil			0.2	
				EB06-GW-7.75	Water				
8			End of boring; backfilled with bentonite chips.						
10									
12									
14									

EVREN Northwest, Inc.

DRILL LOG

PROJECT		PROJECT NO.	BORING NO.
		1209-17001-02	**EB07**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
1021 Baseline St. Cornelius, OR	2-6-19	2-6-19	2"	

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION
		2-6-19	7.71	8.5	

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW				

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger	Evan Bruggeman	9.5

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Gravel fill material.						
2			Fine sandy SILT (ML), medium stiff, slightly moist, brown.						
4			Grades to, light brown, micaceous.						
6			Grades to moist.						
8			Stiff, rusty mottling.						
			Wet.	EB07-SWI-8.5	Soil			0.0	
				EB07-GW-9.5	Water				
			End of boring; backfilled with bentonite chips.						
10									
12									
14									

Appendix C

Field Sampling Data Sheets

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-02 SAMPLE LOCATION: SG01

SITE ADDRESS: 1021-N. BASELINE CORNELIUS, OR DUP ID:

WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy		Temp., C	Humidity (%)
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
Tedlar/Summa	2/05/19	0.5L, 1L, 3L, 5L, 6L	5	SG01-190205-5	1665	YES NO	2501	326

SOIL GAS SAMPLING DATA

OPEN: 12:55

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	1327	1332	28	28
Purge	1339	1343	25	21
Sample	1345	1428	29	10Bel 9

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
2/05/19	1430	5ft	0.2
	1431	"	0.3
	1432	"	0.3
	1433	"	0.2
	1434	"	0.4

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)
6L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15) + GRO + IPA
	TPH as Diesel (TO-17) RBDM
	SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (PRINTED NAME) (SIGNATURE)

FIELD SAMPLING DATA SHEET OPEN: 11:00

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

PROJECT NAME/NUMBER: 1209-17001-02 SAMPLE LOCATION: SG02

SITE ADDRESS: 1021 BASELINE, CORNELIUS DUP ID:

	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy	Temp., °F	Humidity (%)
WIND FROM:											NO WIND		
WEATHER:	SUNNY		CLOUDY		RAIN							35	79

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	02/05/19	0.5L, 1L, 3L, 5L, 6L	5	SG02-190205	5687	YES NO	2641	875

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	11:30	11:35	30	30
Purge	11:38	11:42	18	15
Sample	11:45	1232	30	10

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
2/5/19	1234	~~0.5~~ 5	0.1
	1235	↓	0.1
	1236	↓	0.1
	1237	↓	0.1
	1238	↓	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)
6L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15) RBTEX + GRO
	TPH as Diesel (TO-17)
	SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (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: 1209-17001-02 SAMPLE LOCATION: SG03

SITE ADDRESS: 1024 N. BASELINE ST, CORNELIUS DUP ID:

WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy		Temp., °F	Humidity (%)
WEATHER:	SUNNY		CLOUDY		RAIN								35	76

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	2/05/19	0.5L, 1L, 3L, 5L, 6L	4	~~SG03-190205-4~~	714	YES NO	2569	875 → 3L

SOIL GAS SAMPLING DATA

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	1212	1217	25	25
Purge	1222	1226	10	9
Sample	1227	~~1234~~ 1305	30	10

OPEN: 1145
ONLY TO 4! PROBED TO 5' & GOT A WET TIP ON TILE PROBE

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
2/5/19	13:08	4	0.2
	13:09	"	0.3
	13:10	"	0.2
	13:11	"	0.3
	13:12	"	0.3

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)
6L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15) + GRO + IPA
	TPH as Diesel (TO-17) RBOM
	SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

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

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-02 SAMPLE LOCATION: SG04

SITE ADDRESS: 1021 N. BASELINE CORNELIUS, OR DUP ID:

WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy		Temp., °F	Humidity (%)
WEATHER:	PM SUNNY		CLOUDY		RAIN								38	72

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	02 05 19	0.5L, 1L, 3L, 5L, (6L)	5	SG04-190205-S	699	(YES) NO	2594	328

SOIL GAS SAMPLING DATA

OPEN: 1245

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	1319	1324	26	26
Purge	1324	1328	27	23
Sample	1329	1416	26	8

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
2/5/19	1417	5	0.2
	1418	↓	0.3
	1419		0.5
	1420		0.3
	1421	↓	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)
	6L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) (VOCs (TO-15)) +GRO+ IPA
		TPH as Diesel (TO-17) RBDM
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LARY (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: 1209-17001-02 SAMPLE LOCATION: SG05

SITE ADDRESS: 1021 N BASELINE CORNELIUS, OR DUP ID:

													Temp. C	Humidity (%)
WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy			
WEATHER:	SUNNY		CLOUDY		RAIN								39	71

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	2/05/19	0.5L, 1L, 3L, 5L, (6L)	5	SG05-190205-5	882	(YES)	NO	2578	328

SOIL GAS SAMPLING DATA

OPEN 1455

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	1459	1504	26	26
Purge	15:21	15:25	18	14
Sample	15:27	1602	26	7

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
2/05/19	1602	5ft	0.3
	1603	↓	0.1
	1604		0.3
	1605		0.6
	1606	↓	0.7

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/KEYTÓNES (TO-11)
	6L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15) BGRD + IPA RBDM
		TPH as Diesel (TO-17)
		SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

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

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME/NUMBER: 1209-17001-02 SAMPLE LOCATION: SG06

SITE ADDRESS: 1021 N. BASELINE ST., CORNELIUS, OR DUP ID:

WIND FROM:	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy		Temp., F	Humidity (%)
WEATHER:	SUNNY		CLOUDY		RAIN				NONE				35	

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	2 05 19	0.5L, 1L, 3L, 5L 6L	5	SG06-190205-5	878	YES	NO	2643	875

SOIL GAS SAMPLING DATA

OPEN: 11:28

Action	Start Time	Finish Time	Init Pressue (mmHg)	Final Pressue (mmHg)
Leak-Test	11:53	11:56	30	30
Purge	12:02	12:06	14	10
Sample	1207	1243	30	10

→ FORGOT TO TURN OFF VALVE BEFORE REMOVING REGULATOR SO SUCKED IN SOME AMBIENT AIR

SOIL GAS SCREENING

Date	Time	Depth (ft)	PID (ppm)
2/5/19	1244	5	0.1
	1245	↓	0.1
	1246	↓	0.1
	1247	↓	0.1
	1248	↓	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)
6L SUMMA	NON-METHANE ORGANIC CMPDS (TO-12) PAHs/SVOCs (TO-13) VOCs (TO-15) RBDM + GRO
	TPH as Diesel (TO-17)
	SPECIFIC CHEMICAL ANALYSIS [ ]

NOTES:

SAMPLER: BARB LAMY (PRINTED NAME) (SIGNATURE)

EVREN Northwest **GROUND WATER FIELD SAMPLING DATA FORM (FIELD)**

PROJECT NAME: 1021 BASELINE PROJECT NUMBER: 1209.

Event: RECON GW Date: 2-6-19

Field Personnel: EVAN TS. Monitoring Well ID: EBU1

Weather Conditions: CLEAR 30°F Start Time: 1100

DTW (prior to purging): 7.1' BGS

WELL PURGING INFORMATION

Time	DTW During Purging (feet)	Pumping Rate (L/min)	Temperature (degree C)	Specific Conductivity (mS/cm), ±3%	Dissolved Oxygen (mg/L), ±10%	Water pH (S.U.), , ±0.1%	ORP (mV), , ±10 mV	Turbidity (NTU), , ±10%	Total Quantity Purged (gallons/liters)
1102		150 mL/min						BROWN	0L
1105		150						BROWN	0.5L
1108		150						NEAR CLEAR	0.9L
1110		150						CLEAR	1.2L
1119		150	8.61	0.298	16.13	6.77	~~0.299~~/68	CLEAR	
			READINGS TAKEN FROM HORIBA CUP AFTER SAMPLE COLLECTION						

Total Purged:

Tubing: 1/4" PE

Purge Pumping Rate (approx. L/m):

Decontamination method:

Well casing (in. diam): 1¼" SS

Approx. Pump/Intake Depth: 8.5' BGS

Well Conversion Factors: 2" = 0.17 gal / foot; 5/8" = 0.02 gal/foot

WELL CONDITION

Recommended Well Repairs/Additional Notes:

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☑ None

Sampling Method: ☐ Grundfos Pump ☑ Peristaltic Pump ☐ Bladder Pump ☐ Dual Valve

SAMPLE INFORMATION

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
GRx + VOCs	FLB	HCL	40mL	4	EBU-GW-9	1115
DISS METALS		HNO3	250mL	1 (FF)		

Method of Transportation of samples: FedEx (Courier)

All samples were immediately placed into a cooler and packed with ice or "blue Ice" ☑ Yes ☐ No

Field Observations/Notes of sampling event:

Signature of Field Personnel:

EVREN Northwest GROUND WATER FIELD SAMPLING DATA FORM (FIELD)

PROJECT NAME: _____ PROJECT NUMBER: 209-1701-02

Event: Reuse G/W Date: 02/06/19

Field Personnel: Dan Sayko Monitoring Well ID: EB02

Weather Conditions: Sunny - cold ~ 35° F Start Time: 12:03

DTW (prior to purging):

WELL PURGING INFORMATION

Time	DTW During Purging (feet)	Pumping Rate (L/min)	Temperature (degree C)	Specific Conductivity (mS/cm), ±3%	Dissolved Oxygen (mg/L), ±10%	Water pH (S.U.), , ±0.1%	ORP (mV), , ±10 mV	Turbidity (NTU), , ±10%	Total Quantity Purged (~~gallons~~/liters)
12:06		180	Brown	very	turbid				—
12:09		130	light	brown	less turbid				0.540
12:12		130	milky						0.920
12:14		130	clear						1.18
12:17		Begin collecting Sample							
12:26									
Post Sample parameters			9.1	0.223	11.23	6.34	220		

Total Purged: 1.5

Tubing: 1/4" LDPE

Purge Pumping Rate (approx. L/m): ~130 mL/min Well casing (in. diam): 1

Decontamination method: Approx. Pump/Intake Depth: 7'5gs

Well Conversion Factors: 2" = 0.17 gal / foot; 5/8" = 0.02 gal/foot

WELL CONDITION

Recommended Well Repairs/Additional Notes: 1" stainless steel screen set from 4-8

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☒ None

Sampling Method: ☐ Grundfos Pump ☒ Peristaltic Pump ☐ Bladder Pump ☐ Dual Valve

SAMPLE INFORMATION

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
OX	TestAmerica	HCL	40mL	3	EB02-GW-7.75	12:26
VOCs		HCL	40mL	3		
Dissolved metals		HNO3	250mL	1		

Method of Transportation of samples: FedEx Courier

All samples were immediately placed into a cooler and packed with ice or "blue ice" ☒ Yes ☐ No

Field Observations/Notes of sampling event:

Signature of Field Personnel:

EVREN Northwest **GROUND WATER FIELD SAMPLING DATA FORM (FIELD)**

PROJECT NAME: _____ PROJECT NUMBER: 1209-170N-02

Event: RECON GW Date: 2-6-19

Field Personnel: EVAN B & DAN S Monitoring Well ID: EB07

Weather Conditions: CLEAR 40's F Start Time: 1605

DTW (prior to purging): 7.79' TOC

WELL PURGING INFORMATION

Time	DTW During Purging (feet)	Pumping Rate (mL/min)	Temperature (degree C)	Specific Conductivity (mS/cm), ±3%	Dissolved Oxygen (mg/L), ±10%	Water pH (S.U.), , ±0.1%	ORP (mV), , ±10 mV	Turbidity (NTU), , ±10%	Total Quantity Purged (gallons/liters)
1608		120 mL/min						NEAR CLEAR	0L
1611		120						"	0.4L
1614		120						CLEAR	0.8L
	RAN DRY ONCE DURING SAMPLING								

Total Purged:

Tubing: 1/4" PE

Purge Pumping Rate (approx. L/m): 120 mL/min Well casing (in. diam): 1¼" SS

Decontamination method: Approx. Pump/Intake Depth: 9' TOC

Well Conversion Factors: 2" = 0.17 gal / foot; 5/8" = 0.02 gal/foot

WELL CONDITION

Recommended Well Repairs/Additional Notes:

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☒ None

Sampling Method: ☐ Grundfos Pump ☒ Peristaltic Pump ☐ Bladder Pump ☐ Dual Valve

SAMPLE INFORMATION

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
GX + VOCs	ARI	HCl	40mL	4	EB07-GW-9.5	1625
DISS METALS		HNO3	250mL	1 (FF)		

Method of Transportation of samples: FedEx Courier

All samples were immediately placed into a cooler and packed with ice or "blue Ice" ☒ Yes ☐ No

Field Observations/Notes of sampling event: TOTAL DEPTH 9.5'

Signature of Field Personnel:

EVREN Northwest **GROUND WATER FIELD SAMPLING DATA FORM (FIELD)**

PROJECT NAME: 1021 E Baseline Corridors PROJECT NUMBER: 1209-17001-02

Event: GW Recon Date: 02/18/19

Field Personnel: Dan Sytsma TEMP Monitoring Well ID: EB04

Weather Conditions: cloudy 40°F Start Time: 13:29

DTW (prior to purging): ~~[redacted]~~ ~7.5' bgs

WELL PURGING INFORMATION

Time	DTW During Purging (feet)	Pumping Rate mL/min	Temperature (degree C)	Specific Conductivity (mS/cm), ±3%	Dissolved Oxygen (mg/L), ±10%	Water pH (S.U.), , ±0.1%	ORP (mV), , ±10 mV	Turbidity (NTU), , ±10%	Total Quantity Purged (gallons/liters)
13:29		125	brown	turbid					0
13:31		〃	light brown	/ less turbid					0.25
13:33		〃	tan						0.5
13:37		〃	milky						1.0
13:41		〃	clear						1.5
			Begin collecting						
13:47									

Total Purged: 1.5

Tubing: 1/4 LDPE

Purge Pumping Rate (approx. L/m): 125 mL/min

Well casing (in. diam): 1" SS

Decontamination method:

Approx. Pump/Intake Depth: 6' from bottom of screen

Well Conversion Factors: 2" = 0.17 gal / foot; 5/8" = 0.02 gal/foot

WELL CONDITION

Recommended Well Repairs/Additional Notes: Screen set from 5'-9' bgs (Stainless steel)

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☒ None

Sampling Method: ☐ Grundfos Pump ☒ Peristaltic Pump ☐ Bladder Pump ☐ Dual Valve

SAMPLE INFORMATION

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
GW, VOCs	FTS	HCl	40mL	4	EB04-GW-9	13:47
Dissolved Lead	〃	HNO3	250 mL	1	〃	13:47

Method of Transportation of samples: FedEx (Courier)

All samples were immediately placed into a cooler and packed with ice or "blue Ice" ☒ Yes ☐ No

Field Observations/Notes of sampling event:

Field filtered HNO3 poly

Signature of Field Personnel:

EVREN Northwest **GROUND WATER FIELD SAMPLING DATA FORM (FIELD)**

PROJECT NAME: 1021 BASELINE PROJECT NUMBER: 1209-1708V-02

Event: REGIONAL GW Date: 2-18-19

Field Personnel: EVAN TE Monitoring Well ID: EB05

Weather Conditions: OVERCAST 40F Start Time: 12:20

DTW (prior to purging): ~6' BGS

WELL PURGING INFORMATION

Time	DTW During Purging (feet)	Pumping Rate (mL/min)	Temperature (degree C)	Specific Conductivity (mS/cm), ±3%	Dissolved Oxygen (mg/L), ±10%	Water pH (S.U.), , ±0.1%	ORP (mV), , ±10 mV	Turbidity (NTU), , ±10%	Total Quantity Purged (gallons/liters)
1330		125mL/min						MUDDY	0L
1333		125						LIGHT TAN	0.4L
1336	RAN DRY, LET	RECHARGE						" "	0.75L
1338	RESUME	PURGE						" "	0.75L
1341	RAN DRY, LET	RECHARGE						CLOUDY	1.1L
1343	RESUME	PURGE						NEAR CLEAR	1.1L
1346	RAN DRY, LET	RECHARGE & BEGIN	SAMPLE					" "	1.5L

Total Purged: 1.5L

Tubing: 1/4" PE

Purge Pumping Rate (approx. L/m): 125 mL/min

Well casing (in. diam): 1¼" SS

Decontamination method:

Approx. Pump/Intake Depth: 6.5' BGS

Well Conversion Factors: 2" = 0.17 gal / foot; 5/8" = 0.02 gal/foot

WELL CONDITION

Recommended Well Repairs/Additional Notes:

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☑ None

Sampling Method: ☐ Grundfos Pump ☑ Peristaltic Pump ☐ Bladder Pump ☐ Dual Valve

SAMPLE INFORMATION

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
GX + VOCs	FLS	HCL	40mL	4	EB05-GW-7	1355
DISS LEAD		HNO3	250mL	1 (FF)		

Method of Transportation of samples: FedEx (Courier)

All samples were immediately placed into a cooler and packed with ice or "blue ice" ☑ Yes ☐ No

Field Observations/Notes of sampling event: RAN DRY SEVERAL TIMES, DNT RECHARGED QUICKLY

Signature of Field Personnel:

EVREN Northwest **GROUND WATER FIELD SAMPLING DATA FORM (FIELD)**

PROJECT NAME: 1021 E Baseline PROJECT NUMBER: 1209-17001-02

Event: GW Recon Date: 02/12/19

Field Personnel: Dan Seyka Monitoring Well ID: EB06

Weather Conditions: Cloudy 42°F Start Time: 14:09

DTW (prior to purging): ~6' bgs

WELL PURGING INFORMATION

Time	DTW During Purging (feet)	Pumping Rate (mL/min)	Temperature (degree C)	Specific Conductivity (mS/cm), ±3%	Dissolved Oxygen (mg/L), ±10%	Water pH (S.U.), , ±0.1%	ORP (mV), , ±10 mV	Turbidity (NTU), , ±10%	Total Quantity Purged (gallons/liters)
14:14		125	Brown	Turbid					0
14:16		"	Light	brown / less	turbid				0.25
14:18		"	Tan						0.5
14:22		"	Clear						1.0
14:26		"	Begin	collection					1.5

Total Purged: 1.5

Tubing: 1/4" LDPE

Purge Pumping Rate (approx. L/m): 125 mL/min Well casing (in. diam): 1" SS

Decontamination method: Approx. Pump/Intake Depth: 6" from bottom screen

Well Conversion Factors: 2" = 0.17 gal / foot; 5/8" = 0.02 gal/foot

WELL CONDITION

Recommended Well Repairs/Additional Notes: stainless steel screen set from 3.75 - 7.75' bgs

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☒ None

Sampling Method: ☐ Grundfos Pump ☒ Peristaltic Pump ☐ Bladder Pump ☐ Dual Valve

SAMPLE INFORMATION

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
GX, VOC's	4453	HCl	40mL	4	EB06-GW-7.75	14:35
Dissolved Lead	"	HNO3	250mL	1	"	14:35

Method of Transportation of samples: FedEx Courier

All samples were immediately placed into a cooler and packed with ice or "blue Ice" ☒ Yes ☐ No

Field Observations/Notes of sampling event:

TKN Field filtered HNO3 poly

Signature of Field Personnel:

EVREN Northwest **GROUND WATER FIELD SAMPLING DATA FORM (FIELD)**

PROJECT NAME: _____ PROJECT NUMBER: 1209-17001-02

Event: Soil / GW (2) EB03 Date: 04/09/19

Field Personnel: Dan, Jay, K, E TEMP Monitoring Well ID: EB03

Weather Conditions: Partly Cloudy 50°F Start Time: 10:03

DTW (prior to purging): 4.24

WELL PURGING INFORMATION

Time	DTW During Purging (feet)	Pumping Rate (L/min)	Temperature (degree C)	Specific Conductivity (mS/cm), ±3%	Dissolved Oxygen (mg/L), ±10%	Water pH (S.U.), , ±0.1%	ORP (mV), , ±10 mV	Turbidity (NTU), , ±10%	Total Quantity Purged (gallons/liters)
10:04		125	Dark brown very turbid						0.2
10:06		" "	Brown turbid						0.3
10:07		" "	ran dry						0.4
10:11		" "	start pump (milky)						0.4
10:15			ran dry						0.9
10:20			start pump (clear)						0.9
10:24			ran dry last amount light brown						1.3
10:27			begin collection						

Total Purged: 1.3

Tubing: 0.25" LDPE

Purge Pumping Rate (approx. L/m): 125 mL/min Well casing (in. diam): 1"

Decontamination method: Approx. Pump/Intake Depth: 6' bgs

Well Conversion Factors: 2" = 0.17 gal / foot; 5/8" = 0.02 gal/foot

WELL CONDITION

Recommended Well Repairs/Additional Notes: Screen set from 2.5 - 6.5 bgs with Stainless steel 1"

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☒ None

Sampling Method: ☐ Grundfos Pump ☒ Peristaltic Pump ☐ Bladder Pump ☐ Dual Valve

SAMPLE INFORMATION

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
RBDM (VOCs) 6X	Eurofins	HCL	40mL	4	EB03-GW-6.5	10:30
HOLD	"	HNO3	250mL	1	"	

Method of Transportation of samples: FedEx (Courier)

All samples were immediately placed into a cooler and packed with ice or "blue Ice" ☒ Yes ☐ No

Field Observations/Notes of sampling event:

250 mL Poly HNO3 = field filtered

Signature of Field Personnel:

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST

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

PROJECT NAME: **PROJECT NO:** 1209-17001-02

SITE ADDRESS: 1021 E Baseline St Cornelius Oregon **BLIND ID:**

DUP ID: NA

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

TEMPERATURE: 50 ° C F
[Circle appropriate units]

SOIL SAMPLING DATA Method:

Bottle Type	Date	Sample Depth /ID	Sample Time	PID	Volume (oz)	VOC Kit	Amount	Ice
Soil Jar	09/09/19	EB00-SW1-5.5	0957	0.0	4 8 other:	Y / N	4	YES
Soil Jar	~~09/09/19~~	~~EB00~~	:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
Soil Jar	/ /		:		4 8 other:	Y / N		YES
					Total Number of Containers			

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	Soil Jar	(8010) (8010/8020) (8020) (8240) (8260) (BTEX) (BTEX/TPH-G) [redacted] OR [ ] WA [ ]
	Soil Jar	(PAH 8270) (TPH-HCID) (TPH-D) (TPH-G) (TPH-418.1) (Oil &Grease) OR [ ] WA [ ]
	Soil Jar	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO_3/CO_3) (Cl) (SO_4) (NO_3) (NO_2) (F)
	Soil Jar	(COD) (TOC) (Total PO_4) (Total Keldahl Nitrogen) (NH_3) (NO_3/NO_2)
	Soil Jar	(Cyanide)
	Soil Jar	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Cr 6)
	Soil Jar	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)

NOTES:

SAMPLER: Dan Sayko
(PRINTED NAME)

(SIGNATURE)

Appendix D

Laboratory Analytical Results

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 15, 2019

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

Dear Mr Green:

Included are the results from the testing of material submitted on February 7, 2019 from the 1209-17001-02, F&BI 902098 project. There are 27 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone
ENW0215R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 7, 2019 by Friedman & Bruya, Inc. from the Evren Northwest 1209-17001-02, F&BI 902098 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
902098 -01	EB01-SW1-8
902098 -02	EB02-SW1-7.75
902098 -03	EB07-SW1-8.5
902098 -04	EB01-GW-9
902098 -05	EB02-GW-7.75
902098 -06	EB07-GW-9.5

The 8260C matrix spike and matrix spike duplicate failed the relative percent difference for RBDM compounds. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098
Date Extracted: 02/08/19
Date Analyzed: 02/08/19

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
EB01-SW1-8 902098-01	<5	78
EB02-SW1-7.75 902098-02	<5	63
EB07-SW1-8.5 902098-03	<5	74
Method Blank 09-121 MB	<5	79

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098
Date Extracted: 02/11/19
Date Analyzed: 02/11/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
EB01-GW-9 902098-04	<100	96
EB02-GW-7.75 902098-05	<100	93
EB07-GW-9.5 902098-06	<100	101
Method Blank 09-124 MB	<100	95

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB01-GW-9	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	902098-04
Date Analyzed:	02/08/19	Data File:	902098-04.238
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB02-GW-7.75	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	902098-05
Date Analyzed:	02/08/19	Data File:	902098-05.239
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB07-GW-9.5	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	902098-06
Date Analyzed:	02/08/19	Data File:	902098-06.240
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	I9-89 mb
Date Analyzed:	02/07/19	Data File:	I9-89 mb.173
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB01-SW1-8	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	902098-01
Date Analyzed:	02/08/19	Data File:	902098-01.221
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	10.3

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB02-SW1-7.75	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	902098-02
Date Analyzed:	02/08/19	Data File:	902098-02.224
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	8.66

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB07-SW1-8.5	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	902098-03
Date Analyzed:	02/08/19	Data File:	902098-03.225
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	9.70

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/07/19	Lab ID:	I9-86 mb
Date Analyzed:	02/07/19	Data File:	I9-86 mb.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB01-SW1-8	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	902098-01
Date Analyzed:	02/12/19	Data File:	021163.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB02-SW1-7.75	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	902098-02
Date Analyzed:	02/12/19	Data File:	021164.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB07-SW1-8.5	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	902098-03
Date Analyzed:	02/12/19	Data File:	021165.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	09-0272 mb
Date Analyzed:	02/08/19	Data File:	020810.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB01-GW-9	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	902098-04
Date Analyzed:	02/11/19	Data File:	021145.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB02-GW-7.75	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	902098-05
Date Analyzed:	02/11/19	Data File:	021146.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB07-GW-9.5	Client:	Evren Northwest
Date Received:	02/07/19	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	902098-06
Date Analyzed:	02/11/19	Data File:	021147.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1209-17001-02, F&BI 902098
Date Extracted:	02/08/19	Lab ID:	09-0273 mb
Date Analyzed:	02/08/19	Data File:	020827.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 902098-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	85	71-131

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 902108-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	98	69-134

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098

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

Laboratory Code: 901407-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	98	97	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	106	80-120

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098

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

Laboratory Code: 902087-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	1,240	36 b	0 b	75-125	200 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	105	80-120

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098

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

Laboratory Code: 902035-36 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	71	88	17-134	21 vo
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	69	88	22-124	24 vo
Benzene	mg/kg (ppm)	2.5	<0.03	63	80	26-114	24 vo
Toluene	mg/kg (ppm)	2.5	<0.05	65	83	34-112	24 vo
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	74	95	32-126	25 vo
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	68	86	34-115	23 vo
m,p-Xylene	mg/kg (ppm)	5	<0.1	66	85	25-125	25 vo
o-Xylene	mg/kg (ppm)	2.5	<0.05	67	86	27-126	25 vo
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	71	89	34-123	22 vo
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	68	86	31-120	23 vo
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	71	89	24-130	22 vo
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	68	87	35-116	25 vo
Naphthalene	mg/kg (ppm)	2.5	<0.05	60	77	24-139	25 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	97	72-122
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	73-111
Benzene	mg/kg (ppm)	2.5	97	72-106
Toluene	mg/kg (ppm)	2.5	97	74-111
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	105	77-117
Ethylbenzene	mg/kg (ppm)	2.5	98	75-112
m,p-Xylene	mg/kg (ppm)	5	97	77-115
o-Xylene	mg/kg (ppm)	2.5	100	76-115
Isopropylbenzene	mg/kg (ppm)	2.5	103	76-120
n-Propylbenzene	mg/kg (ppm)	2.5	99	77-115
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	103	77-121
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	77-119
Naphthalene	mg/kg (ppm)	2.5	99	73-122

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098

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

Laboratory Code: 902123-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	95	68-125
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	98	70-119
Benzene	ug/L (ppb)	50	<0.35	95	75-114
Toluene	ug/L (ppb)	50	<1	94	73-117
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	107	79-120
Ethylbenzene	ug/L (ppb)	50	<1	95	66-124
m,p-Xylene	ug/L (ppb)	100	<2	94	63-128
o-Xylene	ug/L (ppb)	50	<1	94	64-129
Isopropylbenzene	ug/L (ppb)	50	<1	97	74-122
n-Propylbenzene	ug/L (ppb)	50	<1	95	65-129
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	99	60-138
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	97	59-136
Naphthalene	ug/L (ppb)	50	<1	95	60-145

Date of Report: 02/15/19
Date Received: 02/07/19
Project: 1209-17001-02, F&BI 902098

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	94	95	70-122	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	98	100	78-114	2
Benzene	ug/L (ppb)	50	95	96	75-116	1
Toluene	ug/L (ppb)	50	94	97	79-115	3
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	107	112	82-118	5
Ethylbenzene	ug/L (ppb)	50	95	97	83-111	2
m,p-Xylene	ug/L (ppb)	100	94	97	84-112	3
o-Xylene	ug/L (ppb)	50	94	97	81-117	3
Isopropylbenzene	ug/L (ppb)	50	96	98	81-122	2
n-Propylbenzene	ug/L (ppb)	50	96	99	81-115	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	99	102	83-117	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	97	100	81-121	3
Naphthalene	ug/L (ppb)	50	94	98	72-131	4

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

902092DV 902098

SAMPLE CHAIN OF CUSTODY ME 02-07-19

AT3 1/CT3 1/C01

Page # 1 of 1

Report To LYNN GREEN

Company ENVIRON-NW

Address 40 SE 24TH AVE UNIT A

City, State, ZIP PORTLAND, OR 97214

Phone 503-452-5516 Email lyngreen@environ-nw.com

SAMPLERS (*signature*)

PROJECT NAME 1209-17001-02

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
- ☒ Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	PBDM VOCs EPA 8260B	TOTAL LEAD EPA 6010B	DISSOLVED LEAD EPA 6010B		Notes
EB01-SW1-8	01A-D	2-6-19	1040	SOIL	4			/					/	/			1 40mL VIAL BROKE
EB02-SW1-7.75	02 A-E	"	11:30	SOIL	5			/					/	/			
EB07-SW1-8.5	03 T	"	1555	SOIL	5			/					/	/			
EB01-GW-9	04	"	1115	WATER	5			/					/		/		250 POLY FIELD FILTERED
EB02-GW-7.75	05	"	1226	WATER	5			/					/		/		"
EB07-GW-9.5	06	"	1625	WATER	5			/					/		/		"

ANALYSES REQUESTED

Samples received at 1 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	EVAN BRUCEMAN	ENW	2-6-19	1900
Received by:	DO VO	FEDEX	2-7-19	9:30
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 22, 2019

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

Dear Mr Green:

Included are the results from the testing of material submitted on February 19, 2019 from the 1209-17001-02, F&BI 902251 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone
ENW0222R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 19, 2019 by Friedman & Bruya, Inc. from the Evren Northwest 1209-17001-02, F&BI 902251 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
902251 -01	EB04-SWI-8.5
902251 -02	EB05-SWI-6
902251 -03	EB06-SWI-6
902251 -04	EB04-GW-9
902251 -05	EB05-GW-7
902251 -06	EB06-GW-7.75

All quality control requirements were acceptable.

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251
Date Extracted: 02/19/19
Date Analyzed: 02/19/19

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
EB04-SWI-8.5 902251-01	<5	75
EB05-SWI-6 902251-02	<5	71
EB06-SWI-6 902251-03	<5	75
Method Blank 09-330 MB	<5	104

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251
Date Extracted: 02/19/19
Date Analyzed: 02/19/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
EB04-GW-9 902251-04	<100	96
EB05-GW-7 902251-05	<100	96
EB06-GW-7.75 902251-06	<100	97
Method Blank 09-328 MB	<100	97

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB04-GW-9	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-04
Date Analyzed:	02/20/19	Data File:	902251-04.039
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB05-GW-7	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-05
Date Analyzed:	02/20/19	Data File:	902251-05.042
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB06-GW-7.75	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-06
Date Analyzed:	02/20/19	Data File:	902251-06.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	I9-112 mb
Date Analyzed:	02/20/19	Data File:	I9-112 mb.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB04-SWI-8.5	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-01
Date Analyzed:	02/20/19	Data File:	902251-01.049
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	9.46

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB05-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-02
Date Analyzed:	02/20/19	Data File:	902251-02.052
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	8.53

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB06-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-03
Date Analyzed:	02/20/19	Data File:	902251-03.053
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	8.73

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	I9-113 mb
Date Analyzed:	02/20/19	Data File:	I9-113 mb.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB04-SWI-8.5	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-01
Date Analyzed:	02/19/19	Data File:	021914.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB05-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-02
Date Analyzed:	02/19/19	Data File:	021915.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB06-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-03
Date Analyzed:	02/19/19	Data File:	021916.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	09-0289 mb
Date Analyzed:	02/19/19	Data File:	021907.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB04-GW-9	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-04
Date Analyzed:	02/19/19	Data File:	021914.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB05-GW-7	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-05
Date Analyzed:	02/19/19	Data File:	021915.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB06-GW-7.75	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-06
Date Analyzed:	02/19/19	Data File:	021916.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	09-0206 mb
Date Analyzed:	02/19/19	Data File:	021908.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 902249-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 902251-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	98	69-134

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	93	97	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	101	80-120

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	6.81	91	91	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	102	80-120

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	77	79	17-134	3
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	91	92	22-124	1
Benzene	mg/kg (ppm)	2.5	<0.03	85	86	26-114	1
Toluene	mg/kg (ppm)	2.5	<0.05	88	91	34-112	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	101	106	32-126	5
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	88	90	34-115	2
m,p-Xylene	mg/kg (ppm)	5	<0.1	88	91	25-125	3
o-Xylene	mg/kg (ppm)	2.5	<0.05	86	88	27-126	2
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	86	89	34-123	3
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	92	94	31-120	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	93	95	24-130	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	96	97	35-116	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	85	85	24-139	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	83	72-122
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	73-111
Benzene	mg/kg (ppm)	2.5	95	72-106
Toluene	mg/kg (ppm)	2.5	97	74-111
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	111	77-117
Ethylbenzene	mg/kg (ppm)	2.5	96	75-112
m,p-Xylene	mg/kg (ppm)	5	96	77-115
o-Xylene	mg/kg (ppm)	2.5	92	76-115
Isopropylbenzene	mg/kg (ppm)	2.5	92	76-120
n-Propylbenzene	mg/kg (ppm)	2.5	98	77-115
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	101	77-121
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	77-119
Naphthalene	mg/kg (ppm)	2.5	89	73-122

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	97	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	104	69-133
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Toluene	ug/L (ppb)	50	<1	90	76-122
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	96	69-134
Ethylbenzene	ug/L (ppb)	50	<1	92	69-135
m,p-Xylene	ug/L (ppb)	100	<2	94	69-135
o-Xylene	ug/L (ppb)	50	<1	94	60-140
Isopropylbenzene	ug/L (ppb)	50	<1	94	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	93	58-144
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	93	66-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	91	59-146
Naphthalene	ug/L (ppb)	50	<1	94	44-164

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	95	99	64-147	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	101	103	73-132	2
Benzene	ug/L (ppb)	50	92	96	69-134	4
Toluene	ug/L (ppb)	50	103	98	72-122	5
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	94	97	82-125	3
Ethylbenzene	ug/L (ppb)	50	95	96	77-124	1
m,p-Xylene	ug/L (ppb)	100	96	99	83-125	3
o-Xylene	ug/L (ppb)	50	96	96	81-121	0
Isopropylbenzene	ug/L (ppb)	50	99	97	85-117	2
n-Propylbenzene	ug/L (ppb)	50	99	93	74-126	6
1,3,5-Trimethylbenzene	ug/L (ppb)	50	98	92	78-123	6
1,2,4-Trimethylbenzene	ug/L (ppb)	50	96	91	79-122	5
Naphthalene	ug/L (ppb)	50	100	99	64-133	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

902251

SAMPLE CHAIN OF CUSTODY

ME 02/19/19 VA1/CI2

Page # ____ of ____

Report To Lynn Green
Company Evren-NW.
Address 40 SE 24th Ave.
City, State, ZIP Portland OR 97214
Phone 503 452-5561 Email lynng@evren-nw.com

SAMPLERS (signature)

PROJECT NAME: 1209-17001-02

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	RSDM VOCs EPA 8260B	Total Lead EPA 6010B	Dissolved Lead 6010B			Notes
						ANALYSES REQUESTED												
EB04-SWI-8.5	01 A-E	02/13/19	12:55	S	5			X					X	X				
EB05-SWI-6	02		12:10	S	5			X					X	X				
EB06-SWI-6	03		11:45	S	5			X					X	X				
EB04-GW-9	04		13:47	W	5			X					X		X			250 mL Poly Field filtered
EB05-GW-7	05		13:55	W	5			X					X		X			
EB06-GW-7.75	06		14:35	W	5			X					X		X			

Temps received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Dan Sayko	ENW	02/18/19	19:00
Received by:	Nhan Phan	FCBI	2/19/19	0910
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

April 17, 2019

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

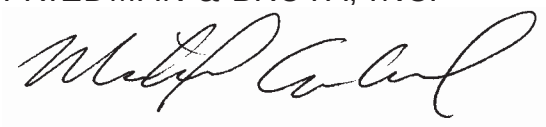
Dear Mr Green:

Included are the results from the testing of material submitted on April 11, 2019 from the 1209-17001-02, F&BI 904225 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone
ENW0417R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 11, 2019 by Friedman & Bruya, Inc. from the Evren Northwest 1209-17001-02, F&BI 904225 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
904225 -01	EB08-SWI-5.5
904225 -02	EB08-GW-6.5

Lead in the 6020A matrix spike and matrix spike duplicate failed the acceptance criteria. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 04/17/19
Date Received: 04/11/19
Project: 1209-17001-02, F&BI 904225
Date Extracted: 04/11/19
Date Analyzed: 04/11/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
EB08-GW-6.5 904225-02	<100	89
Method Blank 09-536 MB	<100	94

Date of Report: 04/17/19
Date Received: 04/11/19
Project: 1209-17001-02, F&BI 904225
Date Extracted: 04/11/19
Date Analyzed: 04/11/19

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
EB08-SWI-5.5 904225-01	<0.02	<0.02	<0.02	<0.06	<5	73
Method Blank 09-537 MB	<0.02	<0.02	<0.02	<0.06	<5	75

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB08-GW-6.5	Client:	Evren Northwest
Date Received:	04/11/19	Project:	1209-17001-02, F&BI 904225
Date Extracted:	04/12/19	Lab ID:	904225-02
Date Analyzed:	04/12/19	Data File:	904225-02.158
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1209-17001-02, F&BI 904225
Date Extracted:	04/12/19	Lab ID:	I9-250 mb
Date Analyzed:	04/12/19	Data File:	I9-250 mb.145
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB08-GW-6.5	Client:	Evren Northwest
Date Received:	04/11/19	Project:	1209-17001-02, F&BI 904225
Date Extracted:	04/11/19	Lab ID:	904225-02
Date Analyzed:	04/11/19	Data File:	041145.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1209-17001-02, F&BI 904225
Date Extracted:	04/11/19	Lab ID:	09-742 mb
Date Analyzed:	04/11/19	Data File:	041115.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Date of Report: 04/17/19
Date Received: 04/11/19
Project: 1209-17001-02, F&BI 904225

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	93	83	69-134	11

Date of Report: 04/17/19
Date Received: 04/11/19
Project: 1209-17001-02, F&BI 904225

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 904210-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	73	66-121
Toluene	mg/kg (ppm)	0.5	81	72-128
Ethylbenzene	mg/kg (ppm)	0.5	78	69-132
Xylenes	mg/kg (ppm)	1.5	86	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 04/17/19
Date Received: 04/11/19
Project: 1209-17001-02, F&BI 904225

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

Laboratory Code: 904124-09 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<5	72 vo	73 vo	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	98	80-120

Date of Report: 04/17/19
Date Received: 04/11/19
Project: 1209-17001-02, F&BI 904225

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

Laboratory Code: 904199-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	94	68-125
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	100	70-119
Benzene	ug/L (ppb)	50	<0.35	98	75-114
Toluene	ug/L (ppb)	50	<1	94	73-117
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	104	79-120
Ethylbenzene	ug/L (ppb)	50	<1	100	66-124
m,p-Xylene	ug/L (ppb)	100	<2	104	63-128
o-Xylene	ug/L (ppb)	50	<1	99	64-129
Isopropylbenzene	ug/L (ppb)	50	<1	106	74-122
n-Propylbenzene	ug/L (ppb)	50	<1	103	65-129
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	107	60-138
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	106	59-136
Naphthalene	ug/L (ppb)	50	<1	103	60-145

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	98	95	70-122	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	101	99	78-114	2
Benzene	ug/L (ppb)	50	100	99	75-116	1
Toluene	ug/L (ppb)	50	96	94	79-115	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	106	105	82-118	1
Ethylbenzene	ug/L (ppb)	50	102	99	83-111	3
m,p-Xylene	ug/L (ppb)	100	105	104	84-112	1
o-Xylene	ug/L (ppb)	50	101	99	81-117	2
Isopropylbenzene	ug/L (ppb)	50	108	106	81-122	2
n-Propylbenzene	ug/L (ppb)	50	106	103	81-115	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	109	107	83-117	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	109	106	81-121	3
Naphthalene	ug/L (ppb)	50	108	104	72-131	4

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

904225

SAMPLE CHAIN OF CUSTODY

ME 04-11-19

Page # 1 of 1

UW2/CT

Report To Lynn Green
Company EVREN NORTHWEST
Address PO Box 14489
City, State, ZIP Portland OR 97293
Phone 503 452-5561 Email lynn@evrennw.com

SAMPLERS (signature)

PROJECT NAME: 1209-17001-02

PO #

REMARKS: # 250mL poly is field filtered ~~On Hold~~

INVOICE TO

TURNAROUND TIME
☒ Standard Turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Archive Samples
☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	BTEX	RBDM VOCs	Dissolved Pb		Notes
EB08-SW I-5.5	01 A-E	04/09/19	09:57	S	5			X					X				
EB08-GW-6.5	02 A-E	" "	10:30	W	5			X						X	X		

Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Dan Sayko	ENW	04/9/19	19:00
Received by:	Khan Phan	FEBI	4/11/19	1020
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

ENVIRONMENTAL
Analytical Service, Inc.

Thursday, February 14, 2019

Sample Delivery Group (SDG 219056
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: 1209-17001-02
PO Number: None Given
Client Project Number 1209-17001-02
Sample Event Date: 2/5/19

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 Gross Street
San Luis Obispo
CA
93401-7587
805 781 3585
Fax 805 541 4550

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Report

Project Name:

1209-17001-02

EAS SDG Number: **219056**

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: 2/5/19
Received Date: 2/7/2019
Report Date: 2/14/2019

Project Number: 1209-17001-02
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: 219056
Client: Lynn Green
Evren Northwest Inc.

Project Number: 17403
Received: 2/7/2019

SAMPLE DESCRIPTION AND ANALYSIS REQUESTED

Client Sample ID	EAS Lab No.	Analysis Requested	Date Sampled
SG02-190205-5	219056 1	EPA TO-15 RBDM VO, GRO, IPA	2/5/2019
SG06-190205-5	219056 2	EPA TO-15 RBDM VO, GRO, IPA	2/5/2019
SG03-190205-4	219056 3	EPA TO-15 RBDM VO, GRO, IPA	2/5/2019
SG01-190205-5	219056 4	EPA TO-15 RBDM VO, GRO, IPA	2/5/2019
SG04-190205-5	219056 5	EPA TO-15 RBDM VO, GRO, IPA	2/5/2019
SG05-190205-5	219056 6	EPA TO-15 RBDM VO, GRO, IPA	2/5/2019

Project Sample Media

SDG Number: 219056

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
219056	1	SG02-190205-5	687	010219B	619	700	1.13
219056	2	SG06-190205-5	878	010219B	741	741	1.00
219056	3	SG03-190205-4	714	010219B	656	702	1.07
219056	4	SG01-190205-5	665	010219B	616	702	1.14
219056	5	SG04-190205-5	699	010219B	592	704	1.19
219056	6	SG05-190205-5	882	010219B	617	702	1.14

Laboratory Case Narrative

EAS SDG Number: 219056 **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: 2/14/2019

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

ENVIRONMENTAL
Analytical Service, Inc.

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

CHAIN OF CUSTODY RECORD

Project Number | Project Name: 1209-17001-02 | Quote Number:

REPORT TO:

Company EVREN NORTHWEST
Address 40 SE 24th UNIT A
City/State/Zip PORTLAND, OR 97214
Phone 503-452-5561 (FAX)
ATTENTION LYNN GREEN

MATRIX LEGEND
A - Ambient Air, Low Level
I - Indoor Air
S - Source Air, High Level
G - Gas/Product

SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	CANISTER NUMBER	COMP	GRAB	MATRIX A	MATRIX I	MATRIX S	MATRIX G	INITIAL PRESSURE	FINAL PRESSURE	EAS LABORATORY ID	ANALYTICAL TESTS: RBDM VOCs by TO-15	ANALYTICAL TESTS: GRO	ANALYTICAL TESTS: IPA	REMARKS
SG02-190205-5	2/05/19	1232	687		X			X		30	10	219056-01	X	X	X	
SG06-190205-5		1243	878		X			X		30	10	-02	X	X	X	
SG03-190205-4		1305	714		X			X		30	10	-03	X	X	X	
SG01-190205-5		1428	665		X			X		29	9	-04	X	X	X	
SG04-190205-5		1416	699		X			X		26	8	-05	X	X	X	
SG05-190205-5	↓	1602	882		X			X		26	7	-06	X	X	X	

COMMENTS

BILLING INFORMATION

Company
Address
City/State/Zip
ATTENTION BARBARA ROLAND (broland@evren-nw.com)
Purchase Order/Billing Reference

SAMPLED BY: Bart Lamy Date 02/06/19 Time 1000

Relinquished By:	Date	Time	Received by:	Date	Time
Relinquished By:	Date	Time	Received by:	Date	Time
Relinquished By:	Date	Time	Received by:	Date	Time
			Received for lab by:	Date	Time
				2/7/19	13:00

Quality Control Report

EAS SDG Number 219056

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

A method blank is a laboratory generated sample which assesses the degree to which laboratory operations and procedures cause a false positive. In the method blank, compounds should be present below the reporting limit (RL). Compounds present above the RL are flagged with a "B" in the Analytical Reports in that batch 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: B02089

File Name: B02089D.D
Description: METHOD BLANK
Canister:
QC_Batch: 020819-MA1

Date Sampled:
Date Analyzed: 02/08/19
Can Dilution Factor: 1.00
Air Volume: 500 ml

Time:
Time: 13:58

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	0.80	2.30	ND	1.97	5.64	ND	
1634-04-4	Methyl tert butyl ether	0.80	1.47	ND	2.88	5.30	ND	
107-06-2	1,2-Dichloroethane	0.40	1.82	ND	1.62	7.38	ND	
71-43-2	Benzene	0.80	2.03	ND	2.55	6.49	ND	
108-88-3	Toluene	0.80	2.09	ND	3.01	7.86	ND	
106-93-4	1,2-Dibromoethane	0.40	0.97	ND	3.07	7.44	ND	
100-41-4	Ethylbenzene	0.80	2.11	ND	3.47	9.17	ND	
1330-20-7	m,p-Xylenes	0.80	2.12	ND	3.47	9.20	ND	
95-47-6	o-Xylene	0.80	2.06	ND	3.47	8.96	ND	
103-65-1	n-Propylbenzene	0.80	1.20	ND	3.93	5.90	ND	
98-82-8	Isopropylbenzene	0.80	1.22	ND	3.93	5.98	ND	
108-67-8	1,3,5-Trimethylbenzene	0.80	2.06	ND	3.93	10.14	ND	
95-63-6	1,2,4-Trimethylbenzene	0.80	2.03	ND	3.93	9.98	ND	
91-20-3	Naphthalene	0.40	0.75	ND	2.10	3.94	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	121	70	130	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B02119

File Name: B02119D.D
Description: METHOD BLANK
Canister:
QC_Batch: 021119-MA1

Date Sampled:
Date Analyzed: 02/11/19
Can Dilution Factor: 1.00
Air Volume: 500 ml

Time:
Time: 13:35

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	0.80	2.30	ND	1.97	5.64	ND	
1634-04-4	Methyl tert butyl ether	0.80	1.47	ND	2.88	5.30	ND	
107-06-2	1,2-Dichloroethane	0.40	1.82	ND	1.62	7.38	ND	
71-43-2	Benzene	0.80	2.03	ND	2.55	6.49	ND	
108-88-3	Toluene	0.80	2.09	ND	3.01	7.86	ND	
106-93-4	1,2-Dibromoethane	0.40	0.97	ND	3.07	7.44	ND	
100-41-4	Ethylbenzene	0.80	2.11	ND	3.47	9.17	ND	
1330-20-7	m,p-Xylenes	0.80	2.12	ND	3.47	9.20	ND	
95-47-6	o-Xylene	0.80	2.06	ND	3.47	8.96	ND	
103-65-1	n-Propylbenzene	0.80	1.20	ND	3.93	5.90	ND	
98-82-8	Isopropylbenzene	0.80	1.22	ND	3.93	5.98	ND	
108-67-8	1,3,5-Trimethylbenzene	0.80	2.06	ND	3.93	10.14	ND	
95-63-6	1,2,4-Trimethylbenzene	0.80	2.03	ND	3.93	9.98	ND	
91-20-3	Naphthalene	0.40	0.75	ND	2.10	3.94	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	120	70	130	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: 020809

File Name: B02089D.D
Description: METHOD BLANK
Canister:
QC_Batch: 020819-MA1

Date Sampled:
Time:
Date Analyzed: 02/08/19
Time: 13:58
Can Dilution Factor: 1.00
Air Volume: 125 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	48.0	144.0	ND	186.9	590.2	ND	

METHOD BLANK REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

Analytical Method: TO-15

SDG: LABQC
Laboratory ID: B02119

File Name: B02119D.D
Description: METHOD BLANK
Canister:
QC_Batch: 021119-MA1

Date Sampled:
Date Analyzed: 02/11/19
Can Dilution Factor: 1.00
Air Volume: 125 ml

Time:
Time: 13:35

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	48.0	144.0	ND	186.9	590.2	ND	

QUALITY CONTROL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

Laboratory Control Spike and Spike Duplicate Report

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

QC_Batch: 020819-MA1
Date: 02/08/19

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	120		115		70	130	4	25	
75-35-4	1,1-Dichloroethene	108		101		70	130	6	25	
75-09-2	Dichloromethane	111		108		70	130	3	25	
75-34-3	1,1-Dichloroethane	109		106		70	130	3	25	
67-66-3	Chloroform	99		104		70	130	4	25	
71-55-6	1,1,1-Trichloroethane	95		97		70	130	3	25	
107-06-2	1,2-Dichloroethane	87		100		70	130	14	25	
71-43-2	Benzene	95		99		70	130	3	25	
56-23-5	Carbon tetrachloride	124		124		70	130	0	25	
79-01-6	Trichloroethene	104		112		70	130	7	25	
108-88-3	Toluene	98		101		70	130	3	25	
127-18-4	Tetrachloroethene	100		104		70	130	4	25	
100-41-4	Ethylbenzene	115		100		70	130	14	25	
1330-20-7	m,p-Xylenes	108		93		70	130	16	25	
95-47-6	o-Xylene	104		94		70	130	10	25	
108-67-8	1,3,5-Trimethylbenzene	74		83		70	130	11	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: 021119-MA1
Date: 02/11/19

CAS#	Compound	LCS Recovery %	Flag	LCD Recovery %	Flag	Spike Limit LCL %	Spike Limit UCL %	Duplicate %	Duplicate Limit %	Flag
75-01-4	Vinyl chloride	125		117		70	130	7	25	
75-35-4	1,1-Dichloroethene	108		103		70	130	5	25	
75-09-2	Dichloromethane	120		110		70	130	8	25	
75-34-3	1,1-Dichloroethane	111		102		70	130	9	25	
67-66-3	Chloroform	104		100		70	130	3	25	
71-55-6	1,1,1-Trichloroethane	89		99		70	130	11	25	
107-06-2	1,2-Dichloroethane	92		91		70	130	1	25	
71-43-2	Benzene	98		101		70	130	3	25	
56-23-5	Carbon tetrachloride	87		89		70	130	1	25	
79-01-6	Trichloroethene	100		105		70	130	4	25	
108-88-3	Toluene	99		101		70	130	2	25	
127-18-4	Tetrachloroethene	97		105		70	130	7	25	
100-41-4	Ethylbenzene	107		96		70	130	10	25	
1330-20-7	m,p-Xylenes	103		92		70	130	11	25	
95-47-6	o-Xylene	97		111		70	130	14	25	
108-67-8	1,3,5-Trimethylbenzene	100		114		70	130	12	25	

LCS - Laboratory Control Spike
LCD - Laboratory Control Duplicate

Flag - Q indicated out of Limits

Analytical Reports

EAS SDG Number 219056

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 are listed in the method descriptions, and the QC modifications are in the QC Criteria table 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.

DETECTION LIMITS

MDL: The MDL is initially determined from the standard deviation of seven replicate measurements, but the value in the report is set from a MDL verification sample run at a level near the calculated MDL.

RL: The reporting limit (RL) is usually the lowest concentration standard on the calibration curve, and represents the lowest concentration that can be measured that will meet all of the QC Criteria for the method.

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. The not detect flag is either a "ND" or a "U". If the "U" flag is selected, the MDL for the compound is reported in the Amount column instead of "ND". Other flags are listed below:

B - This compound was detected in the batch method blank above the reporting limit.

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

J - The amount reported is estimated because it was below the RL and above the MDL

F - Higher detection limits because of matrix interference

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. It is different from the ppb unit used to report water or soil data, which is a mass ratio.

UG/M3 OR MG/M3: Micrograms (or milligrams) per cubic meter is a mass/volume ratio and does depend on temperature and pressure of the source at time of sample collection. 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: 219056

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

File Name:	1905601A.D	**Date Sampled:**	02/05/19	**Time:**	12:32
Description:	SG02-190205-5	**Date Analyzed:**	02/08/19	**Time:**	21:02
Canister:	687	**Can Dilution Factor:**	1.13		
QC_Batch:	020819-MA1	**Air Volume:**	125 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	0.90	2.59	4.96	2.22	6.37	12.19	
1634-04-4	Methyl tert butyl ether	0.90	1.66	ND	3.26	5.99	ND	
107-06-2	1,2-Dichloroethane	0.45	2.06	ND	1.83	8.34	ND	
71-43-2	Benzene	0.90	2.30	2.00	2.89	7.33	6.40	J
108-88-3	Toluene	0.90	2.36	1.84	3.40	8.88	6.91	J
106-93-4	1,2-Dibromoethane	0.45	1.09	ND	3.47	8.40	ND	
100-41-4	Ethylbenzene	0.90	2.39	ND	3.92	10.36	ND	
1330-20-7	m,p-Xylenes	0.90	2.40	ND	3.92	10.40	ND	
95-47-6	o-Xylene	0.90	2.33	ND	3.92	10.13	ND	
103-65-1	n-Propylbenzene	0.90	1.36	ND	4.44	6.66	ND	
98-82-8	Isopropylbenzene	0.90	1.37	ND	4.44	6.75	ND	
108-67-8	1,3,5-Trimethylbenzene	0.90	2.33	ND	4.44	11.46	ND	
95-63-6	1,2,4-Trimethylbenzene	0.90	2.30	ND	4.44	11.28	ND	
91-20-3	Naphthalene	0.45	0.85	ND	2.37	4.45	ND	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	120	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

SDG: 219056
Analytical Method: TO-15 **Laboratory ID:** 01

File Name: 1905601A.D **Date Sampled:** 02/05/19 **Time:** 12:32
Description: SG02-190205-5 **Date Analyzed:** 02/08/19 **Time:** 21:02
Canister: 687 **Can Dilution Factor:** 1.13
QC_Batch: 020819-MA1 **Air Volume:** 125 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	54.2	162.7	ND	211.2	666.9	ND	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219056

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

File Name:	1905602A.D	**Date Sampled:**	02/05/19	**Time:**	12:43
Description:	SG06-190205-5	**Date Analyzed:**	02/08/19	**Time:**	21:36
Canister:	878	**Can Dilution Factor:**	1.00		
QC_Batch:	020819-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	3.23	3.19	8.11	10.32	
108-88-3	Toluene	1.00	2.61	2.15	3.76	9.83	8.10	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	1.50	4.34	11.50	6.51	J
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	126	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

SDG: 219056
Analytical Method: TO-15 **Laboratory ID:** 02

File Name: 1905602A.D **Date Sampled:** 02/05/19 **Time:** 12:43
Description: SG06-190205-5 **Date Analyzed:** 02/08/19 **Time:** 21:36
Canister: 878 **Can Dilution Factor:** 1.00
QC_Batch: 020819-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: 219056

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

File Name:	1905603A.D	**Date Sampled:**	02/05/19	**Time:**	13:05
Description:	SG03-190205-4	**Date Analyzed:**	02/11/19	**Time:**	14:15
Canister:	714	**Can Dilution Factor:**	1.07		
QC_Batch:	021119-MA1	**Air Volume:**	125 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	0.86	2.46	1.60	2.10	6.04	3.92	J
1634-04-4	Methyl tert butyl ether	0.86	1.58	ND	3.08	5.67	ND	
107-06-2	1,2-Dichloroethane	0.43	1.95	ND	1.73	7.90	ND	
71-43-2	Benzene	0.86	2.17	1.65	2.73	6.94	5.26	J
108-88-3	Toluene	0.86	2.23	1.77	3.22	8.41	6.66	J
106-93-4	1,2-Dibromoethane	0.43	1.04	ND	3.29	7.96	ND	
100-41-4	Ethylbenzene	0.86	2.26	ND	3.72	9.81	ND	
1330-20-7	m,p-Xylenes	0.86	2.27	ND	3.72	9.85	ND	
95-47-6	o-Xylene	0.86	2.21	ND	3.72	9.59	ND	
103-65-1	n-Propylbenzene	0.86	1.28	ND	4.21	6.31	ND	
98-82-8	Isopropylbenzene	0.86	1.30	ND	4.21	6.39	ND	
108-67-8	1,3,5-Trimethylbenzene	0.86	2.21	ND	4.21	10.85	ND	
95-63-6	1,2,4-Trimethylbenzene	0.86	2.17	1.75	4.21	10.68	8.59	J
91-20-3	Naphthalene	0.43	0.80	1.89	2.24	4.22	9.89	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	124	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

SDG: 219056
Analytical Method: TO-15 **Laboratory ID:** 03

File Name: 1905603A.D **Date Sampled:** 02/05/19 **Time:** 13:05
Description: SG03-190205-4 **Date Analyzed:** 02/11/19 **Time:** 14:15
Canister: 714 **Can Dilution Factor:** 1.07
QC_Batch: 021119-MA1 **Air Volume:** 125 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	51.4	154.1	84.2	200.0	631.5	399.7	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219056

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

File Name:	1905604A.D	**Date Sampled:**	02/05/19	**Time:**	14:28
Description:	SG01-190205-5	**Date Analyzed:**	02/11/19	**Time:**	14:50
Canister:	665	**Can Dilution Factor:**	1.14		
QC_Batch:	021119-MA1	**Air Volume:**	125 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	0.91	2.62	3,249.52	2.24	6.43	7,983.59	
1634-04-4	Methyl tert butyl ether	0.91	1.68	ND	3.28	6.04	ND	
107-06-2	1,2-Dichloroethane	0.46	2.08	ND	1.85	8.42	ND	
71-43-2	Benzene	0.91	2.32	2.63	2.91	7.40	8.40	
108-88-3	Toluene	0.91	2.38	1.63	3.43	8.96	6.13	J
106-93-4	1,2-Dibromoethane	0.46	1.10	ND	3.50	8.48	ND	
100-41-4	Ethylbenzene	0.91	2.41	ND	3.96	10.45	ND	
1330-20-7	m,p-Xylenes	0.91	2.42	ND	3.96	10.49	ND	
95-47-6	o-Xylene	0.91	2.35	ND	3.96	10.22	ND	
103-65-1	n-Propylbenzene	0.91	1.37	ND	4.48	6.72	ND	
98-82-8	Isopropylbenzene	0.91	1.39	ND	4.48	6.81	ND	
108-67-8	1,3,5-Trimethylbenzene	0.91	2.35	ND	4.48	11.56	ND	
95-63-6	1,2,4-Trimethylbenzene	0.91	2.32	ND	4.48	11.38	ND	
91-20-3	Naphthalene	0.46	0.86	1.30	2.39	4.49	6.83	

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	124	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

SDG: 219056

Analytical Method: TO-15

Laboratory ID: 04

File Name: 1905604A.D
Description: SG01-190205-5
Canister: 665
QC_Batch: 021119-MA1

Date Sampled: 02/05/19 Time: 14:28
Date Analyzed: 02/11/19 Time: 14:50
Can Dilution Factor: 1.14
Air Volume: 125 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	54.7	164.2	63.6	213.0	672.8	302.6	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219056

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

File Name:	1905605A.D	**Date Sampled:**	02/05/19	**Time:**	14:16
Description:	SG04-190205-5	**Date Analyzed:**	02/11/19	**Time:**	15:25
Canister:	669	**Can Dilution Factor:**	1.19		
QC_Batch:	021119-MA1	**Air Volume:**	125 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	0.95	2.73	290.77	2.34	6.71	714.38	
1634-04-4	Methyl tert butyl ether	0.95	1.75	ND	3.43	6.31	ND	
107-06-2	1,2-Dichloroethane	0.48	2.17	ND	1.93	8.78	ND	
71-43-2	Benzene	0.95	2.42	2.62	3.04	7.72	8.35	
108-88-3	Toluene	0.95	2.48	2.00	3.58	9.35	7.53	J
106-93-4	1,2-Dibromoethane	0.48	1.15	ND	3.66	8.85	ND	
100-41-4	Ethylbenzene	0.95	2.51	ND	4.13	10.91	ND	
1330-20-7	m,p-Xylenes	0.95	2.52	ND	4.13	10.95	ND	
95-47-6	o-Xylene	0.95	2.46	ND	4.13	10.66	ND	
103-65-1	n-Propylbenzene	0.95	1.43	ND	4.68	7.02	ND	
98-82-8	Isopropylbenzene	0.95	1.45	ND	4.68	7.11	ND	
108-67-8	1,3,5-Trimethylbenzene	0.95	2.46	ND	4.68	12.07	ND	
95-63-6	1,2,4-Trimethylbenzene	0.95	2.42	ND	4.68	11.88	ND	
91-20-3	Naphthalene	0.48	0.89	0.79	2.49	4.69	4.12	J

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	126	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

SDG: 219056
Analytical Method: TO-15 **Laboratory ID:** 05

File Name: 1905605A.D **Date Sampled:** 02/05/19 **Time:** 14:16
Description: SG04-190205-5 **Date Analyzed:** 02/11/19 **Time:** 15:25
Canister: 699 **Can Dilution Factor:** 1.19
QC_Batch: 021119-MA1 **Air Volume:** 125 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	57.1	171.4	71.8	222.4	702.3	344.1	J

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified Full Scan GC/MS

SDG: 219056

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

File Name:	1905606A.D	**Date Sampled:**	02/05/19	**Time:**	16:02
Description:	SG05-190205-5	**Date Analyzed:**	02/11/19	**Time:**	16:01
Canister:	882	**Can Dilution Factor:**	1.14		
QC_Batch:	021119-MA1	**Air Volume:**	125 ml		

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
67-63-0	2-propanol	0.91	2.62	1,561.32	2.24	6.43	3,835.93	
1634-04-4	Methyl tert butyl ether	0.91	1.68	ND	3.28	6.04	ND	
107-06-2	1,2-Dichloroethane	0.46	2.08	ND	1.85	8.42	ND	
71-43-2	Benzene	0.91	2.32	2.27	2.91	7.40	7.24	J
108-88-3	Toluene	0.91	2.38	3.40	3.43	8.96	12.81	
106-93-4	1,2-Dibromoethane	0.46	1.10	ND	3.50	8.48	ND	
100-41-4	Ethylbenzene	0.91	2.41	ND	3.96	10.45	ND	
1330-20-7	m,p-Xylenes	0.91	2.42	ND	3.96	10.49	ND	
95-47-6	o-Xylene	0.91	2.35	ND	3.96	10.22	ND	
103-65-1	n-Propylbenzene	0.91	1.37	ND	4.48	6.72	ND	
98-82-8	Isopropylbenzene	0.91	1.39	ND	4.48	6.81	ND	
108-67-8	1,3,5-Trimethylbenzene	0.91	2.35	ND	4.48	11.56	ND	
95-63-6	1,2,4-Trimethylbenzene	0.91	2.32	ND	4.48	11.38	ND	
91-20-3	Naphthalene	0.46	0.86	0.84	2.39	4.49	4.40	J

	Surrogate Recovery	% Rec.	QC Limits LCL	UCL	Flag
2037-26-5	Toluene-d8	118	70	130	

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Modified TPH Ranges

Analytical Method: TO-15

SDG: 219056
Laboratory ID: 06

File Name: 1905606A.D
Description: SG05-190205-5
Canister: 882
QC_Batch: 021119-MA1

Date Sampled: 02/05/19 **Time:** 16:02
Date Analyzed: 02/11/19 **Time:** 16:01
Can Dilution Factor: 1.14
Air Volume: 125 ml

CAS#	Compound	MDL PPBV	RL PPBV	Amount PPBV	MDL UG/M3	RL UG/M3	Amount UG/M3	Flag
	TPH as Gasoline	54.7	164.2	50.9	213.0	672.8	243.3	J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 22, 2019

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

Dear Mr Green:

Included are the results from the testing of material submitted on February 19, 2019 from the 1209-17001-02, F&BI 902251 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone
ENW0222R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 19, 2019 by Friedman & Bruya, Inc. from the Evren Northwest 1209-17001-02, F&BI 902251 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
902251 -01	EB04-SWI-8.5
902251 -02	EB05-SWI-6
902251 -03	EB06-SWI-6
902251 -04	EB04-GW-9
902251 -05	EB05-GW-7
902251 -06	EB06-GW-7.75

All quality control requirements were acceptable.

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251
Date Extracted: 02/19/19
Date Analyzed: 02/19/19

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
EB04-SWI-8.5 902251-01	<5	75
EB05-SWI-6 902251-02	<5	71
EB06-SWI-6 902251-03	<5	75
Method Blank 09-330 MB	<5	104

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251
Date Extracted: 02/19/19
Date Analyzed: 02/19/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
EB04-GW-9 902251-04	<100	96
EB05-GW-7 902251-05	<100	96
EB06-GW-7.75 902251-06	<100	97
Method Blank 09-328 MB	<100	97

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB04-GW-9	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-04
Date Analyzed:	02/20/19	Data File:	902251-04.039
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB05-GW-7	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-05
Date Analyzed:	02/20/19	Data File:	902251-05.042
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	EB06-GW-7.75	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-06
Date Analyzed:	02/20/19	Data File:	902251-06.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	I9-112 mb
Date Analyzed:	02/20/19	Data File:	I9-112 mb.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB04-SWI-8.5	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-01
Date Analyzed:	02/20/19	Data File:	902251-01.049
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	9.46

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB05-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-02
Date Analyzed:	02/20/19	Data File:	902251-02.052
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	8.53

Analysis For Total Metals By EPA Method 6020B

Client ID:	EB06-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	902251-03
Date Analyzed:	02/20/19	Data File:	902251-03.053
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	8.73

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/20/19	Lab ID:	I9-113 mb
Date Analyzed:	02/20/19	Data File:	I9-113 mb.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB04-SWI-8.5	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-01
Date Analyzed:	02/19/19	Data File:	021914.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB05-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-02
Date Analyzed:	02/19/19	Data File:	021915.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB06-SWI-6	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-03
Date Analyzed:	02/19/19	Data File:	021916.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	09-0289 mb
Date Analyzed:	02/19/19	Data File:	021907.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Isopropylbenzene	<0.05
n-Propylbenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
Naphthalene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB04-GW-9	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-04
Date Analyzed:	02/19/19	Data File:	021914.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB05-GW-7	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-05
Date Analyzed:	02/19/19	Data File:	021915.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB06-GW-7.75	Client:	Evren Northwest
Date Received:	02/19/19	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	902251-06
Date Analyzed:	02/19/19	Data File:	021916.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1209-17001-02, F&BI 902251
Date Extracted:	02/19/19	Lab ID:	09-0206 mb
Date Analyzed:	02/19/19	Data File:	021908.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Isopropylbenzene	<1
n-Propylbenzene	<1
1,3,5-Trimethylbenzene	<1
1,2,4-Trimethylbenzene	<1
Naphthalene	<1

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 902249-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 902251-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	98	69-134

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	93	97	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	101	80-120

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	6.81	91	91	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	102	80-120

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	77	79	17-134	3
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	91	92	22-124	1
Benzene	mg/kg (ppm)	2.5	<0.03	85	86	26-114	1
Toluene	mg/kg (ppm)	2.5	<0.05	88	91	34-112	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	101	106	32-126	5
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	88	90	34-115	2
m,p-Xylene	mg/kg (ppm)	5	<0.1	88	91	25-125	3
o-Xylene	mg/kg (ppm)	2.5	<0.05	86	88	27-126	2
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	86	89	34-123	3
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	92	94	31-120	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	93	95	24-130	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	96	97	35-116	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	85	85	24-139	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	83	72-122
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	73-111
Benzene	mg/kg (ppm)	2.5	95	72-106
Toluene	mg/kg (ppm)	2.5	97	74-111
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	111	77-117
Ethylbenzene	mg/kg (ppm)	2.5	96	75-112
m,p-Xylene	mg/kg (ppm)	5	96	77-115
o-Xylene	mg/kg (ppm)	2.5	92	76-115
Isopropylbenzene	mg/kg (ppm)	2.5	92	76-120
n-Propylbenzene	mg/kg (ppm)	2.5	98	77-115
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	101	77-121
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	77-119
Naphthalene	mg/kg (ppm)	2.5	89	73-122

Date of Report: 02/22/19
Date Received: 02/19/19
Project: 1209-17001-02, F&BI 902251

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

Laboratory Code: 902251-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	97	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	104	69-133
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Toluene	ug/L (ppb)	50	<1	90	76-122
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	96	69-134
Ethylbenzene	ug/L (ppb)	50	<1	92	69-135
m,p-Xylene	ug/L (ppb)	100	<2	94	69-135
o-Xylene	ug/L (ppb)	50	<1	94	60-140
Isopropylbenzene	ug/L (ppb)	50	<1	94	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	93	58-144
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	93	66-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	91	59-146
Naphthalene	ug/L (ppb)	50	<1	94	44-164

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	95	99	64-147	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	101	103	73-132	2
Benzene	ug/L (ppb)	50	92	96	69-134	4
Toluene	ug/L (ppb)	50	103	98	72-122	5
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	94	97	82-125	3
Ethylbenzene	ug/L (ppb)	50	95	96	77-124	1
m,p-Xylene	ug/L (ppb)	100	96	99	83-125	3
o-Xylene	ug/L (ppb)	50	96	96	81-121	0
Isopropylbenzene	ug/L (ppb)	50	99	97	85-117	2
n-Propylbenzene	ug/L (ppb)	50	99	93	74-126	6
1,3,5-Trimethylbenzene	ug/L (ppb)	50	98	92	78-123	6
1,2,4-Trimethylbenzene	ug/L (ppb)	50	96	91	79-122	5
Naphthalene	ug/L (ppb)	50	100	99	64-133	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

902251

SAMPLE CHAIN OF CUSTODY

ME 02/19/19 VA1/CI2

Page # ____ of ____

Report To Lynn Green
Company Evren-NW.
Address 40 SE 24th Ave.
City, State, ZIP Portland OR 97214
Phone 503 452-5561 Email lynng@evren-nw.com

SAMPLERS (signature)

PROJECT NAME: 1209-17001-02

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	RSDM VOCs EPA 8260B	Total Lead EPA 6010B	Dissolved Lead 6010B			Notes
						ANALYSES REQUESTED												
EB04-SWI-8.5	01 A-E	02/13/19	12:55	S	5			X					X	X				
EB05-SWI-6	02		12:10	S	5			X					X	X				
EB06-SWI-6	03		11:45	S	5			X					X	X				
EB04-GW-9	04		13:47	W	5			X					X		X			250 mL Poly Field filtered
EB05-GW-7	05		13:55	W	5			X					X		X			
EB06-GW-7.75	06		14:35	W	5			X					X		X			

Temps received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Dan Sayko	ENW	02/18/19	19:00
Received by:	Nhan Phan	FCBI	2/19/19	0910
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

Appendix E

ODEQ Soil Matrix Cleanup Scoresheet

Soil Matrix Scoresheet

Depth to Ground Water < 25 feet (10) 25 – 50 feet (7) 51 – 100 feet (4) > 100 feet (1)	10
Mean Annual Precipitation > 45 inches (10) 20 – 45 inches (5) < 20 inches (1)	5
Native Soil Types Coarse sands, gravels (10) Silts, fine sands (5) Clays (1)	5
Sensitivity of uppermost Aquifer Sole Source (10) Current Potable (7) Future Potable (4) Non-potable (1)	7
Potential Receptors Many, near (10) Medium (5) Few, far (1)	10
TOTAL SCORE =	**37**

Matrix Score	Cleanup level in ppm TPH	
	Gasoline	Diesel
Level 1: > 40 pts.	**40**	**100**
Level 2: 25 - 40 pts.	80	500
Level 3: < 25 pts.	130	1000