

# LUST Closure Request Report

Pacific Pride Cardlock Facility

4180 Portland Road NE

Salem, Oregon 97301

ODEQ LUST: 24-25-0732

ACC Project Number: 10044-008.00

Prepared for:

Jassi Akkal

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Hillsboro, OR 97124

December 5, 2025

Prepared by:



**An Employee Owned Company**

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## **1.0 INTRODUCTION**

ACC Environmental Consultants (ACC) was contracted by Jassi Akkal to review completed environmental assessment reports for the Pacific Pride cardlock fueling facility located at 4180 Portland Road NE in Salem, Oregon (the Site). UST decommissioning and site assessment compliance sampling was completed in October 2025 in order to assess subsurface conditions under the USTs and fuel dispensers. A Soil Sampling Support Letter detailing compliance soil sampling associated with UST decommissioning is attached in Appendix A.

## **2.0 SITE BACKGROUND**

According to information available for review on the DEQ LUST database, the Site has several historically documented petroleum releases. Applicable regulatory background documents are summarized below.

### **2.1 LUST 24-92-4217**

In November 1992, a leak was detected at the diesel sump pump located at the south end of the diesel UST. The line was repaired, and approximately 15 cubic yards (CY) of petroleum-contaminated soil (PCS) was removed by remedial excavation. Confirmation soil samples confirmed that PCS was still present, and an additional 10 CY was removed on November 18, 1992.

On November 20, 1992, an additional release was detected at a flange in the product line. 31 tons of PCS was excavated to a depth of 14 feet below ground surface (bgs) and removed from the Site. The excavated area was subsequently backfilled with pea gravel.

A subsurface investigation was completed in February 1993 to further assess the vertical and lateral extents of remaining PCS. Three borings were drilled to total depths of 51.5 feet bgs, and completed as 2-inch monitoring wells (MW01 through MW03), screened from 40 to 50 feet bgs. Groundwater was present in the wells at approximately 45 feet bgs. PCS was not observed during drilling activities, and soil samples collected from the borings at depths of 10 feet bgs and 45 feet bgs did not contain concentrations of petroleum hydrocarbons above laboratory reporting limits (MRLs). The lateral extent of PCS appeared to be primarily confined to the vicinity of the tank vault.

Monitoring wells MW01 through MW03 were sampled quarterly from March 1993 to December 1993. All groundwater samples from every event did not have detected concentrations of analytes above MRLs, and it was concluded that groundwater had not been impacted from the petroleum releases.

In November 1993, an additional release was detected from a product line near the top of the USTs. 20 tons of PCS was excavated, and two soil samples collected from the extents of the remedial excavation did not contain concentrations of petroleum hydrocarbons above MRLs.

In July 1995, a diesel product line reportedly lost pressure and automatically shut down. An exploratory boring was drilled under the release point within the UST vault fill material to characterize the release and collect soil samples. Diesel-range petroleum hydrocarbons (DRPH) were detected at concentrations of 20,000 mg/kg and 4,400 mg/kg at depths of 3.5 and 6.5 feet bgs, respectively. Groundwater was not encountered to a maximum explored depth of 13.5 feet bgs. PCS was concluded to rapidly attenuate with depth, and based on the small amount of diesel product released, that vertical and lateral migration would be minimal. An estimated 10 to 15 cubic yards of PCS was estimated to be left-in-place.

In September 2001, Oregon Department of Environmental Quality (DEQ) issued a No Further Action determination for the Site, stating that while contaminated soil remains at the Site which exceeds cleanup levels in place in 2001, removal of the PCS would endanger current infrastructure at the Site, and the PCS does not currently represent a risk to human health, safety, welfare, or the environment. DEQ states that if site conditions were to change (i.e. land use change), further evaluation of the remaining contamination would be required at that time.

## **2.2 LUST 24-06-1001**

A baseline environmental investigation was conducted at the Site in April 2006. The assessment included the installation of six borings (KGP01 through KGP06) for collection of soil and groundwater samples. The borings were located adjacent to the UST nest and the fuel dispenser and advanced up to 40 feet bgs. Shallow groundwater (3-12 feet bgs) was encountered in four of the borings located near the UST nest.

Just one soil sample collected south adjacent to the dispenser island contained detectable petroleum hydrocarbons at concentrations above MRLs. Minor concentrations of residual-range organics (RRO) and polycyclic aromatic hydrocarbons (PAHs) were detected at concentrations below applicable regulatory levels. A groundwater sample collected west adjacent to the UST pit (KGP03) contained detected concentrations of gasoline-range petroleum hydrocarbons (GRPH) (112 µg/L), DRPH (610 µg/L), benzene (44.6 µg/L), ethylbenzene (0.589 µg/L), and naphthalene (6.59 µg/L).

Two additional borings were advanced in October 2007 (KGP07, KGP08) to depths of 51.5 feet bgs near the dispenser islands. Soil collected from KGP07 at a depth of 2.5 feet, located south adjacent to the fuel dispensers, contained minor concentrations of DPRH and RRO. Groundwater was encountered at 46-47 feet bgs and samples were collected from both borings. Similar concentrations of DRPH (1,440 µg/L), RRO (1,580 µg/L), lead, and several PAHs were detected in both water samples.

Monitoring wells MW01 through MW03 (installed in 1993) were sampled quarterly from February 2007 to November 2007. DRPH and ORPH were detected in MW01 during each sampling event. DRPH concentrations ranged from 398 µg/L to 2,210 µg/L and RRO concentrations ranged from 820 µg/L to 5,170 µg/L. MW02 and MW03 did not contain detectable concentrations of analytes.

A risk-based site evaluation, including a conceptual site model (CSM), was completed in June 2008. The report and CSM included groundwater and land use at the Site, as well as an evaluation of potential receptors and exposure pathways for remaining soil and groundwater contamination. The Site is zoned for commercial use only, and water use at the Site is supplied from the municipal system, but two nearby domestic wells were discovered and sampled for petroleum impacts. Impacts to the nearby domestic water supply wells were not detected.

Multiple exposure pathways were deemed to be complete or potentially complete:

Soil:

- *Soil Ingestion, Dermal Contact, and Inhalation (RBC<sub>ss</sub>)*
- *Volatilization to Outdoor Air (RBC<sub>so</sub>)*
- *Vapor Intrusion into Buildings (RBC<sub>si</sub>)*
- *Leaching to Groundwater (RBC<sub>sw</sub>)*

Groundwater

- *Vapor Intrusion into Buildings (RBC<sub>wi</sub>)*
- *Volatilization to Outdoor Air (RBC<sub>wo</sub>)*
- *Ingestion and Inhalation from Tapwater (RBC<sub>tw</sub>)*
- *Groundwater in Excavation (RBC<sub>we</sub>)*

DEQ stated that although exposure pathways were complete for potential receptors at the Site, contaminated soil and groundwater did not represent an unacceptable risk to human health, safety, welfare, or the environment with the conditions known to exist at the time of the determination.

DEQ issued risk-based regulatory closure for the Site, but listed the following restrictions as part of the risk-based closure determination:

- Restricts use of groundwater at property
- Restricts use of the property for residential purposes
- Requires removal of contaminated soil near KHA01 (south adjacent to UST nest) when obstructions to removal no longer are present

### **2.3 Phase II Subsurface Investigation (December 2024)**

In December 2024, ACC Environmental completed a subsurface environmental assessment at the Site as part of due diligence proceedings. Seven borings (ACC-1 through ACC-7) were advanced to 20 feet bgs using a direct-push drilling rig. The borings were located adjacent to the UST nest and the fueling

islands. Field screening indicated petroleum contamination was only encountered at boring location ACC-2, located south adjacent to the UST nest where PCS had been historically documented to exist (KHA01). Groundwater was not encountered in any of the borings.

GRPH and DPRH were detected at concentrations of 235 mg/kg and 76.7 mg/kg, respectively, in sample ACC-2-13. GRPH, DRPH, and ORPH were not detected above their respective MRL in any of the remaining soil samples. Benzene was not detected at concentrations above MRLs in any of the soil samples. Ethylbenzene and 1,2,4-Trimethylbenzene were detected at concentrations above their respective MRLs in samples ACC-2-9.5 and ACC-2-13, and toluene, total xylenes, naphthalene, isopropylbenzene, and 1,3,5-Trimethylbenzene were also detected at concentrations above their respective MRLs in sample ACC-2-13. All detected concentrations were well below applicable DEQ RBC concentrations.

ACC concluded that the detected concentrations were well below applicable DEQ RCs, and the soil appeared to be historically documented PCS that was left-in-place at the conclusion of remedial efforts made in 1995. Based on the results of this investigation, ACC stated that no evidence of additional releases of petroleum to the subsurface since the last environmental assessment was found. No additional investigation or remedial actions were recommended.

### **3.0 2025 UST SYSTEM DECOMMISSIONING**

In October 2025, Peak Environmental (Peak), an Oregon-licensed UST service provider, was contracted to complete UST decommissioning activities at the Site. Peak subcontracted Terracon to complete soil sampling and reporting.

One 5,000-gallon diesel UST, one 5,000-gallon gasoline UST, one 8,000-gallon gasoline UST, and one 10,000-gallon gasoline UST, as well as four associated dispensers, and product piping were decommissioned by removal. The UST excavation area was excavated to a depth of approximately 11 feet below ground surface (bgs). The remaining portion of the fueling system (including product piping and fueling) were excavated to depths of approximately 2 to 4 feet bgs. Terracon collected 27 compliance soil samples, and no groundwater was present during field activities.

Gasoline-range organics (GRO) were detected in multiple soil samples collected in the UST pit and under two of the four fuel dispensers. Quantitative analysis of the soil samples identified GRO at concentrations ranging from 24.2 milligrams per kilogram (mg/kg) to 2,720 mg/kg, which exceeds applicable DEQ RBCs for *Leaching to Groundwater* for occupational receptors (130 mg/kg).

Diesel-range organics (DRO) were also detected in multiple soil samples collected in the UST pit, under three of the four fuel dispensers, and under two sections of product piping. Residual (oil)-range organics (RRO) were detected in soil sample PIPE-03. Quantitative analysis of the soil samples identified DRO in soil samples at concentrations ranging from 2,040 mg/kg to 16,200 mg/kg, which

exceeds applicable DEQ RBCs for *Soil Ingestion, Dermal Contact, and Inhalation* for occupational (14,000 mg/kg) and construction worker (4,600 mg/kg) receptors.

Concentrations of ethylbenzene, total xylenes, and naphthalene were also detected in multiple soil samples. Multiple concentrations exceeded for *Leaching to Groundwater (RBC<sub>sw</sub>)* for occupational receptors.

## 4.0 DISCUSSION AND RECOMMENDATIONS

Petroleum-impacted soil and groundwater have been previously documented to exist at the Site. A risk-based closure determination issued by DEQ in 2010 allowed the continued presence of residual PCS near the UST pit, but explicitly states that the PCS is required to be removed from the subsurface when access to the soil becomes available.

During UST decommissioning compliance soil sampling in October 2025, additional PCS was detected under two fuel dispensers at concentrations exceeding applicable RBCs for construction worker receptors. Recent environmental assessments did not detect PCS in the vicinity of the fuel dispensers, but soil assessment borings were located several feet away from the dispensers due to subsurface conflicts, and soil directly under the dispensers was not historically accessible for sample collection. It is reported that no sumps or spill buckets were located under the dispensers, and localized PCS is likely sourced from minor drips or leaks from the dispenser. PCS was previously documented to exist southeast adjacent to the fuel dispenser island in 2007, and was likely sourced from the fuel dispensers. Based on the lack of BTEX in the soil samples collected from the under the fuel dispensers, the releases appear to be historically sourced.

A release was reported to DEQ (LUST 24-25-0732) in October 2025 upon discovery of PCS near the USTs and under the dispensers. However, it appears that this existing PCS was previously documented and adequately characterized under LUST 24-06-1001.

ACC makes the following recommendations:

- Submit this professional opinion letter to the DEQ, requesting administrative closure of LUST 24-25-0732. The PCS detected in October 2025 appears to be historical in nature based on the previous documentation of existing conditions. The soil was permitted to remain at the Site as it was deemed to not represent environmental or health risks to human or ecological receptors. Indications of additional petroleum releases since the 2010 NFA determination were not detected based on the lack of significant BTEX/volatiles in soil samples collected in October 2025. Soil under the dispensers was not previously accessible for sampling. LUST 24-06-1001 should be updated with current site assessment reports and any subsequent remedial action reports.
- Complete a remedial excavation to remove historically documented PCS near the UST pit, as required in the NFA letter written by DEQ in March 2010. During this remedial excavation,



remedial soil removal should also be completed in the vicinity of the fuel dispensers. Confirmation soil sampling and reporting should be completed, and a memo be submitted to DEQ for documentation of remedial actions.

## 5.0 QUALIFICATIONS

ACC's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. ACC makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that ACC does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report.

Findings and conclusions resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this monitoring. Subsurface conditions may vary from those encountered at specific sampling locations or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations and findings are based solely upon data obtained at the time and within the scope of these services.

This report is intended for the sole use of **Jassi Akkal**. This report may not be used or relied upon by any other party without the written consent of ACC Environmental Consultants. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

The conclusions presented in this report are, in part, based upon subsurface sampling performed at selected locations and depths. There may be conditions between borings or samples that differ significantly from those presented in this report and which cannot be predicted by this study.

**Signature:**

Report Prepared By:



Chris Daschel, RG  
Project Geologist



EXP 5/1/2026

**APPENDIX A**  
**2025 TERRACON SOIL SAMPLING**  
**LETTER**



700 NE 55th Ave  
Portland, OR 97213-3150  
P 503-659-3281  
F 503-659-1287  
**Terracon.com**

November 11, 2025

Peak Environmental  
7202 NE Highway 99 Ste 106-182  
Vancouver, Washington 98665

Attn: David Borys  
P: (360) 719-0682  
E: DavidB@peakenvironmentalllc.com

Re: Confirmation Soil Sampling Support Transmittal Letter  
Portland Road Fueling Station  
4180 Portland Road NE  
Salem, Marion County, Oregon 97301  
Terracon Project No. 82257277

Dear Mr. Borys:

Terracon is pleased to submit this Confirmation Soil Sampling Support Transmittal Letter summarizing findings from confirmation soil sampling completed in support of the underground storage tank (UST) decommissioning performed by the Peak Environmental (client) at the above-reference site. The work was performed in accordance with Terracon Proposal No. P82257277 and Agreement for Services, dated October 14, 2025. Our scope of services included the completion of the following tasks:

- Confirmation Soil Sampling
- Preparation of this Transmittal Letter

This Transmittal Letter presents the results of the UST system decommissioning confirmation soil sampling conducted in October 2025.

### **Project Information & Background**

The site is located at 4180 Portland Road NE, in Salem, Marion County, Oregon 97301. Based on information obtained from the client as well as readily available information obtained from the Department of Environmental Quality (DEQ), the site is equipped with one 5,000-gallon diesel UST, one 5,000-gallon gasoline UST, one 8,000-gallon gasoline UST, and one 10,000-gallon gasoline UST, as well as a vehicle fueling canopy with four associated dispensers.

## Confirmation Soil Sampling Support Transmittal Letter

Portland Road Fueling Station ■ Salem, Oregon

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Terracon understands that the client is an Oregon-licensed UST service provided and decommissioned the USTs by removal. Terracon completed confirmation soil sampling on behalf of the client.

A site diagram, showing the general layout of the fueling system, is included as Exhibit 1.

### Field Services

On October 18, 2025, Terracon mobilized to the site to collect confirmation soil samples following the decommissioning by removal of the USTs and associated fueling system. The UST excavation area was excavated to a depth of approximately 11 feet below ground surface (bgs). The remaining portion of the fueling system (including product piping and fueling) were excavated to depths of approximately 2 to 4 feet bgs.

Terracon collected 27 soil samples following decommissioning activities performed by the client. Specifically, soil samples TANK-01 through TANK-12 were collected from the former UST excavation area. SUMP-01 was collected from underneath the former sump location adjoining the UST excavation area. TERM-01, TERM-02, TERM-05, and TERM-06 were collected from beneath the former fuel dispensers. PIPE-01 through PIPE-10 were collected from beneath the underground piping, which connected the USTs to the dispenser islands via two separate pipe runs. Locations and total number of confirmation soil samples were collected in accordance with Oregon Administrative Rules (OAR) 340-160-0180 UST Site Assessment Requirements.

Additionally, one composite soil sample was collected from a stockpile of soil from the UST excavation area with no observed impacts. The limits of the UST and fueling system decommissioning area, the UST excavation area, and locations of the confirmation soil samples are shown on Exhibit 1.

After packing the samples in laboratory-provided containers, Terracon recorded the sample time on each container label in permanent ink and placed the filled containers in ice-filled coolers for transport under Chain-of-Custody protocols to Apex Laboratories (Apex) in Tigard, Oregon, an Oregon-accredited laboratory for analytical testing.

### Laboratory Analysis

Each soil sample was initially analyzed for Hydrocarbon Identification ([HCID] by Northwest Method NWTPH-HCID) in accordance with Oregon Administrative Regulation (OAR) 340-150-0180. Based on the initial findings, at the request of the client, the soil samples with detected concentrations of Gasoline-range organics (GRO) and/or Diesel-range organics (DRO) were qualitatively analyzed for GRO, DRO, and/or RRO by Northwest Method NWTPH-Gx and NWTPH-Dx and/or benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEX+N) by Environmental Protection Agency (EPA) Method 8260B.

## Confirmation Soil Sampling Support Transmittal Letter

Portland Road Fueling Station ■ Salem, Oregon

November 11, 2025 ■ Project No. 82257277



Detected soil concentrations were compared to the Oregon Department of Environmental Quality (DEQ) Risk-Based Concentrations (RBCs) presented in the attached Table 1. The following pathways and receptors were determined to be applicable for the current site use:

- *Soil Ingestion, Dermal Contact, and Inhalation* for occupational, construction worker, and excavation worker receptors
- *Soil Volatilization to Outdoor Air* for occupational receptors
- *Soil Leaching to Groundwater* for occupational receptors

In addition, the sample results were compared to the DEQ-established Clean Fill Values (CFVs) for potential disposal characterization purposes. Soil that does not exhibit physical characteristics of contamination (such as staining or chemical- or petroleum-like odor) and does not contain concentrations of constituents of concern greater than DEQ CFVs can be managed as clean fill. Soil that displays physical characteristics of contamination or that contains constituents of concern at concentrations greater than DEQ CFVs must be managed as solid waste and disposed of at a RCRA Subtitle D landfill or other DEQ-approved facility.

Data packages were checked for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering holding times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate recovery, and detection limits. Based on a review of the laboratory report, it is Terracon's opinion that the overall dataset is useable as qualified for the purposes of this scope of services.

## Analytical Results

Laboratory analysis of confirmation soil samples collected at the site report the following concentrations of constituents of concern:

Gasoline-range organics (GRO) were detected in soil samples TANK-04, TANK-05, TANK-08, TANK-11, TERM-01, and TERM-06. Quantitative analysis of the soil samples identified GRO at concentrations ranging from 24.2 milligrams per kilogram (mg/kg) to 2,720 mg/kg, which exceeds applicable DEQ RBCs for *Leaching to Groundwater* for occupational receptors (130 mg/kg) and/or its CFV (31 mg/kg).

Diesel-range organics (DRO) were detected in soil samples TANK-04, TANK-05, TANK-08, TANK-11, TERM-01, TERM-05, TERM-06, PIPE-02, and PIPE-03. Residual (oil)-range organics (RRO) were detected in soil sample PIPE-03. Quantitative analysis of the soil samples identified DRO in soil samples TANK-08, TERM-01, TERM-05, and TERM-06 at concentrations ranging from 2,040 mg/kg to 16,200 mg/kg, which exceeds applicable DEQ RBCs for *Soil Ingestion, Dermal Contact, and Inhalation* for occupational (14,000 mg/kg) and construction worker (4,600 mg/kg) receptors, and/or its CFV (1,100 mg/kg).

## Confirmation Soil Sampling Support Transmittal Letter

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GRO, DRO, and/or RRO were not detected in the remaining soil samples at concentrations greater than laboratory reporting limits.

Ethylbenzene was detected in soil samples TANK-05, TANK-08, TANK-11, and TERM-06 at concentrations ranging from 0.328 mg/kg to 1.42 mg/kg, which exceeds applicable DEQ RBCs for *Leaching to Groundwater* for occupational receptors (0.90 mg/kg) and/or its CFV (0.22 mg/kg). Xylenes were detected in soil sample TERM-6 at a concentration of 5.58 mg/kg, which exceeds its CFV. Naphthalene was detected in soil samples TANK-04, TANK-05, TANK-11, and TERM-01 at concentrations ranging from 0.346 mg/kg to 20.5 mg/kg, which exceeds applicable DEQ RBC for *Leaching to Groundwater* for occupational receptors (0.34 mg/kg) and its CFV (0.077 mg/kg).

Concentrations of GRO, DRO, and RRO, toluene, ethylbenzene, and xylenes were reported in at least one of the remaining soil samples; however, the reported concentrations are below their respective DEQ RBCs and/or CFVs.

The soil analytical data is summarized in Table 1.

### Standard of Care

Terracon's services appeared to be performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of third parties supplying information used in the preparation of this letter. These services were performed in accordance with the scope of work agreed with you, our client, as reflected in our limited scope of services and executed agreement for services.

Certain indicators of subsurface impacts may be inaccessible, nondetectable, or not present during these services, and we cannot represent that the site contains no hazardous substances, petroleum products, or other latent conditions beyond those identified during this scope of services. Subsurface conditions are subject to spatial and temporal variability.

**Confirmation Soil Sampling Support Transmittal Letter**

Portland Road Fueling Station ■ Salem, Oregon

November 11, 2025 ■ Project No. 82257277



**Reliance**

This Confirmation Soil Sampling Support Transmittal Letter has been prepared for the exclusive use and reliance of Peak Environmental. Use or reliance by any other party is prohibited without the written authorization of Peak Environmental and Terracon. Reliance on the letter by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the report and Agreement for Services. The limitation of liability defined in the Agreement is the aggregate limit of Terracon’s liability to the client and all relying parties.

Terracon appreciates the opportunity to provide soil conformation support services to Peak Environmental. Should you have questions or require additional information, please do not hesitate to contact our office.

Sincerely,

**Terracon Consultants, Inc.**

A handwritten signature in black ink, appearing to read 'Trevor M. Farrell'.

Trevor M. Farrell, R.G.  
Senior Staff Geologist

A handwritten signature in black ink, appearing to read 'Matt Wheaton'.

Matt Wheaton, R.G.  
Senior Principal

- Attachments: Exhibit 1 – Site Diagram  
Table 1 – Soil Analytical Result Summary  
Laboratory Analytical Report and Chain-of-Custody

**Table 1**  
**Soil Analytical Results Summary**  
**Portland Road Fueling Station**  
**4180 Portland Road NE**  
**Salem, Marion County, Oregon 97301**  
**Terracon Project No. 82257277**

*All analytical results are reported in milligrams per kilogram (mg/kg)*

Sample ID	Sample Date	TPH			TPH			BTEX+N					
		GRO	DRO	RRO	GRO	DRO	RRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	Naphthalene	
TANK-01	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TANK-02	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TANK-03	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TANK-04	10/16/2025	DET <sup>F-09</sup>	DET <sup>F-13</sup>	ND	709	260 <sup>F-13</sup>	< 44.2	< 0.0270	< 0.135	0.125	< 0.202	13.5	
TANK-05	10/16/2025	DET	DET <sup>F-09</sup>	ND <sup>F-13</sup>	2,720	465 <sup>F-13</sup>	< 43.2	< 0.0571	< 0.285	0.328	< 0.428	9.57	
TANK-06	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TANK-07	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TANK-08	10/16/2025	DET <sup>F-09</sup>	DET	ND	1,230	9,640	< 829	< 0.0566 +	0.308	0.387	0.990	< 2.01 +	
TANK-09	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TANK-10	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TANK-11	10/16/2025	DET <sup>F-09</sup>	DET	ND	2,340	335	< 44.5	< 0.0581 +	< 0.291	1.42	< 0.436	20.5	
TANK-12	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SUMP-01	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
STOCK-01	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TERM-01	10/16/2025	DET <sup>F-09</sup>	DET	ND	24.2	5,460	< 434	< 0.0136	< 0.0680	0.0442	0.141	0.346	
TERM-02	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TERM-05	10/16/2025	ND	DET <sup>F-11</sup>	ND	166	2,046 <sup>F-13</sup>	< 175	N/A	N/A	N/A	N/A	N/A	N/A
TERM-06	10/16/2025	DET <sup>F-09</sup>	DET	ND	1,500	16,200 <sup>F-13</sup>	< 422	< 0.0543 +	< 0.272	0.609	5.58	< 0.459 + <sup>R-02</sup>	
PIPE-01	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-02	10/16/2025	ND	DET <sup>F-11</sup>	ND	< 5.78	747 <sup>F-13</sup>	< 149	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-03	10/16/2025	ND	DET <sup>F-11</sup>	DET <sup>F-16</sup>	< 6.27	355 <sup>F-11, F-15</sup>	358 <sup>F-16</sup>	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-04	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-05	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-06	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-07	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-08	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-09	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PIPE-10	10/16/2025	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>DEQ Risk-Based Concentrations</b>													
Occ, RBCss	20,000	14,000	....	20,000	14,000	....	37	88,000	150	25,000	23		
Cons, RBCss	9,700	4,600	....	9,700	4,600	....	380	28,000	1,700	20,000	580		
Exc, RBCss	>Max	>Max	....	>Max	>Max	....	11,000	770,000	49,000	560,000	16,000		
Occ, RBCso	69,000	>Max	....	69,000	>Max	....	50	>Csat	160	>Csat	83		
Occ, RBCsw	130	>Max	....	130	>Max	....	0.10	490	0.90	100	0.34		
CFV/OBM	31	1,100	....	31	1,100	....	0.023	23	0.22	1.4	0.077		

**Notes :**

- DEQ = Oregon Department of Environmental Quality
- RBC = Risk Based Concentration
- GRO = TPH in the Gasoline Range Organics - Analyzed by Northwest Method NWTPH-HCID and/or NWTPH-GX
- DRO = TPH in the Diesel Range Organics - Analyzed by Northwest Method NWTPH-HCID and/or NWTPM-DX
- RRO = TPH in the Residual-Oil Range Organics - Analyzed by Northwest Method NWTPH-HCID and/or NWTPM-DX
- BTEX+N = Benzene, Toluene, Ethylbenzene, Xylenes, and Naphthalene - Analyzed by EPA Method 8260D
- Bold = Detected in Sample**
- ND = Not Detected
- N/A = Not Analyzed
- F-09 = Results in the Gasoline Range are impacted by the overlap of a heavier fuel hydrocarbon product
- F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component
- F-13 = The chromatographic pattern does not resemble the fuel standard used for quantitation
- F-15 = Results for diesel are estimated due to overlap from the reported oil result
- F-16 = Results for oil are estimated due to overlap from the reported diesel result
- R-02 = The reporting limit for this analyte has been raised to account for the interference from coeluting organic compounds present in the sample
- + = Method detection limit exceeds one or more DEQ RBC and/or CFV/OBM

**Oregon DEQ Soil Exposure Pathways**

- Occ. = Occupational receptor
- Cons. = Construction Worker receptor
- Exc. = Excavation Worker receptor
- RBCss = Soil Ingestion, Dermal Contact, and Inhalation
- RBCso = Volatilization to Outdoor Air
- RBCsw = Leaching to Groundwater
- CFV/OBM = DEQ Clean Fill Values and Oregon Background Levels for Metals for the Portland Basin

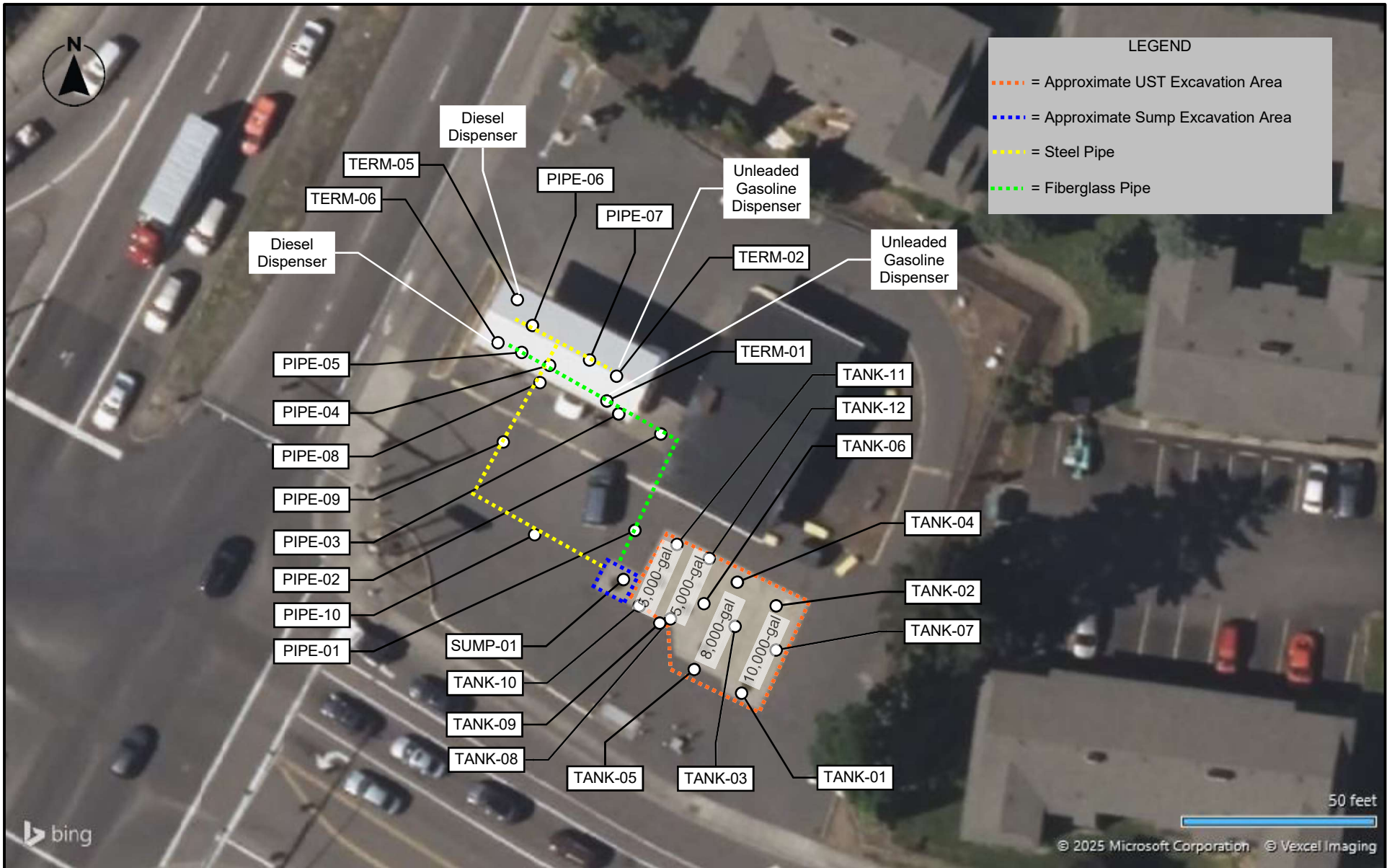


DIAGRAM IS FOR GENERAL LOCATION ONLY,  
AND IS NOT INTENDED FOR CONSTRUCTION  
PURPOSES

<b>Project:</b>	82257277
<b>Scale:</b>	AS SHOWN
<b>Client:</b>	Peak Environmental, LLC
<b>Date:</b>	November 2025

**terracon**

700 NE 55th Ave  
Portland, OR 97213-3150

**SITE DIAGRAM**

Salem UST Support  
4180 Portland Road NE  
Marion County, OR

Exhibit	1
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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Wednesday, November 5, 2025

Trevor Farrell
Terracon Consultants Inc.
700 NE 55th Ave
Portland, OR 97213

RE: A5J1585 - Portland Road Fueling Station - 82257277

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A5J1585, which was received by the laboratory on 10/16/2025 at 5:40:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Table with 2 columns: Cooler #, Temperature (degC). Row 1: Cooler #1, 1.4 degC. Row 2: Cooler #2, 0.1 degC. Includes header 'Cooler Receipt Information' and a note about acceptable receipt temperature.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report. All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

Handwritten signature of Darwin Thomas

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Darwin Thomas, Business Development Director



ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b><u>Terracon Consultants Inc.</u></b> 700 NE 55th Ave Portland, OR 97213	Project: <b><u>Portland Road Fueling Station</u></b> Project Number: 82257277 Project Manager: Trevor Farrell	<b>Report ID:</b> A5J1585 - 11 05 25 1335
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**ANALYTICAL REPORT FOR SAMPLES**

**SAMPLE INFORMATION**

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TANK-01	A5J1585-01	Soil	10/16/25 08:41	10/16/25 17:40
TANK-02	A5J1585-02	Soil	10/16/25 08:49	10/16/25 17:40
TANK-03	A5J1585-03	Soil	10/16/25 08:55	10/16/25 17:40
TANK-04	A5J1585-04	Soil	10/16/25 09:01	10/16/25 17:40
TANK-05	A5J1585-05	Soil	10/16/25 09:12	10/16/25 17:40
TANK-06	A5J1585-06	Soil	10/16/25 09:19	10/16/25 17:40
TANK-07	A5J1585-07	Soil	10/16/25 09:28	10/16/25 17:40
TANK-08	A5J1585-08	Soil	10/16/25 09:37	10/16/25 17:40
TANK-09	A5J1585-09	Soil	10/16/25 09:43	10/16/25 17:40
TANK-10	A5J1585-10	Soil	10/16/25 10:18	10/16/25 17:40
TANK-11	A5J1585-11	Soil	10/16/25 10:25	10/16/25 17:40
TANK-12	A5J1585-12	Soil	10/16/25 10:36	10/16/25 17:40
SUMP-01	A5J1585-13	Soil	10/16/25 11:11	10/16/25 17:40
STOCK-01	A5J1585-14	Soil	10/16/25 11:30	10/16/25 17:40
TERM-01	A5J1585-15	Soil	10/16/25 11:50	10/16/25 17:40
TERM-02	A5J1585-16	Soil	10/16/25 11:55	10/16/25 17:40
TERM-05	A5J1585-17	Soil	10/16/25 13:05	10/16/25 17:40
TERM-06	A5J1585-18	Soil	10/16/25 13:20	10/16/25 17:40
PIPE-01	A5J1585-19	Soil	10/16/25 14:05	10/16/25 17:40
PIPE-02	A5J1585-20	Soil	10/16/25 14:15	10/16/25 17:40
PIPE-03	A5J1585-21	Soil	10/16/25 14:25	10/16/25 17:40
PIPE-04	A5J1585-22	Soil	10/16/25 14:33	10/16/25 17:40
PIPE-05	A5J1585-23	Soil	10/16/25 14:44	10/16/25 17:40
PIPE-06	A5J1585-24	Soil	10/16/25 14:47	10/16/25 17:40
PIPE-07	A5J1585-25	Soil	10/16/25 14:52	10/16/25 17:40
PIPE-08	A5J1585-26	Soil	10/16/25 15:05	10/16/25 17:40
PIPE-09	A5J1585-27	Soil	10/16/25 15:21	10/16/25 17:40
PIPE-10	A5J1585-28	Soil	10/16/25 15:33	10/16/25 17:40

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TANK-01 (A5J1585-01)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	25.2	mg/kg dry	1	10/17/25 21:51	NWTPH-HCID	
Diesel Range Organics	ND	---	63.0	mg/kg dry	1	10/17/25 21:51	NWTPH-HCID	
Oil Range Organics	ND	---	126	mg/kg dry	1	10/17/25 21:51	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/17/25 21:51</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/17/25 21:51</i>	<i>NWTPH-HCID</i>
<b>TANK-02 (A5J1585-02)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	25.1	mg/kg dry	1	10/17/25 22:32	NWTPH-HCID	
Diesel Range Organics	ND	---	62.8	mg/kg dry	1	10/17/25 22:32	NWTPH-HCID	
Oil Range Organics	ND	---	126	mg/kg dry	1	10/17/25 22:32	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/17/25 22:32</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/17/25 22:32</i>	<i>NWTPH-HCID</i>
<b>TANK-03 (A5J1585-03)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	24.9	mg/kg dry	1	10/17/25 22:52	NWTPH-HCID	
Diesel Range Organics	ND	---	62.2	mg/kg dry	1	10/17/25 22:52	NWTPH-HCID	
Oil Range Organics	ND	---	124	mg/kg dry	1	10/17/25 22:52	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/17/25 22:52</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>117 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/17/25 22:52</i>	<i>NWTPH-HCID</i>
<b>TANK-04 (A5J1585-04)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>DET</b>	---	24.7	mg/kg dry	1	10/17/25 23:13	NWTPH-HCID	F-09
Diesel Range Organics	<b>DET</b>	---	61.8	mg/kg dry	1	10/17/25 23:13	NWTPH-HCID	F-13
Oil Range Organics	ND	---	124	mg/kg dry	1	10/17/25 23:13	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 88 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/17/25 23:13</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/17/25 23:13</i>	<i>NWTPH-HCID</i>
<b>TANK-05 (A5J1585-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>DET</b>	---	23.6	mg/kg dry	1	10/17/25 23:33	NWTPH-HCID	
Diesel Range Organics	<b>DET</b>	---	59.0	mg/kg dry	1	10/17/25 23:33	NWTPH-HCID	F-09
Oil Range Organics	ND	---	118	mg/kg dry	1	10/17/25 23:33	NWTPH-HCID	F-13
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 88 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/17/25 23:33</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/17/25 23:33</i>	<i>NWTPH-HCID</i>

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TANK-06 (A5J1585-06)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	22.4	mg/kg dry	1	10/17/25 23:54	NWTPH-HCID	
Diesel Range Organics	ND	---	56.0	mg/kg dry	1	10/17/25 23:54	NWTPH-HCID	
Oil Range Organics	ND	---	112	mg/kg dry	1	10/17/25 23:54	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/17/25 23:54</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>112 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/17/25 23:54</i>	<i>NWTPH-HCID</i>
<b>TANK-07 (A5J1585-07)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	23.0	mg/kg dry	1	10/18/25 00:15	NWTPH-HCID	
Diesel Range Organics	ND	---	57.4	mg/kg dry	1	10/18/25 00:15	NWTPH-HCID	
Oil Range Organics	ND	---	115	mg/kg dry	1	10/18/25 00:15	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 00:15</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 00:15</i>	<i>NWTPH-HCID</i>
<b>TANK-08 (A5J1585-08)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>DET</b>	---	22.5	mg/kg dry	1	10/18/25 00:35	NWTPH-HCID	F-09
Diesel Range Organics	<b>DET</b>	---	56.2	mg/kg dry	1	10/18/25 00:35	NWTPH-HCID	
Oil Range Organics	ND	---	112	mg/kg dry	1	10/18/25 00:35	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 129 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 00:35</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>129 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 00:35</i>	<i>NWTPH-HCID</i>
<b>TANK-09 (A5J1585-09)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	24.9	mg/kg dry	1	10/18/25 00:55	NWTPH-HCID	
Diesel Range Organics	ND	---	62.2	mg/kg dry	1	10/18/25 00:55	NWTPH-HCID	
Oil Range Organics	ND	---	124	mg/kg dry	1	10/18/25 00:55	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 00:55</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 00:55</i>	<i>NWTPH-HCID</i>
<b>TANK-10 (A5J1585-10)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	25.5	mg/kg dry	1	10/18/25 01:16	NWTPH-HCID	
Diesel Range Organics	ND	---	63.7	mg/kg dry	1	10/18/25 01:16	NWTPH-HCID	
Oil Range Organics	ND	---	127	mg/kg dry	1	10/18/25 01:16	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 91 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 01:16</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 01:16</i>	<i>NWTPH-HCID</i>

Apex Laboratories

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Darwin Thomas, Business Development Director



ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TANK-11 (A5J1585-11)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>DET</b>	---	24.2	mg/kg dry	1	10/18/25 01:37	NWTPH-HCID	F-09
Diesel Range Organics	<b>DET</b>	---	60.4	mg/kg dry	1	10/18/25 01:37	NWTPH-HCID	
Oil Range Organics	<b>ND</b>	---	121	mg/kg dry	1	10/18/25 01:37	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 01:37</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>108 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 01:37</i>	<i>NWTPH-HCID</i>
<b>TANK-12 (A5J1585-12)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>ND</b>	---	23.5	mg/kg dry	1	10/18/25 01:57	NWTPH-HCID	
Diesel Range Organics	<b>ND</b>	---	58.8	mg/kg dry	1	10/18/25 01:57	NWTPH-HCID	
Oil Range Organics	<b>ND</b>	---	118	mg/kg dry	1	10/18/25 01:57	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 01:57</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>110 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 01:57</i>	<i>NWTPH-HCID</i>
<b>SUMP-01 (A5J1585-13)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>ND</b>	---	23.4	mg/kg dry	1	10/18/25 02:18	NWTPH-HCID	
Diesel Range Organics	<b>ND</b>	---	58.5	mg/kg dry	1	10/18/25 02:18	NWTPH-HCID	
Oil Range Organics	<b>ND</b>	---	117	mg/kg dry	1	10/18/25 02:18	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 87 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 02:18</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 02:18</i>	<i>NWTPH-HCID</i>
<b>STOCK-01 (A5J1585-14)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>ND</b>	---	21.0	mg/kg dry	1	10/18/25 02:38	NWTPH-HCID	
Diesel Range Organics	<b>ND</b>	---	52.4	mg/kg dry	1	10/18/25 02:38	NWTPH-HCID	
Oil Range Organics	<b>ND</b>	---	105	mg/kg dry	1	10/18/25 02:38	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 02:38</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 02:38</i>	<i>NWTPH-HCID</i>
<b>TERM-01 (A5J1585-15)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>DET</b>	---	24.0	mg/kg dry	1	10/18/25 02:59	NWTPH-HCID	F-09
Diesel Range Organics	<b>DET</b>	---	60.1	mg/kg dry	1	10/18/25 02:59	NWTPH-HCID	
Oil Range Organics	<b>ND</b>	---	120	mg/kg dry	1	10/18/25 02:59	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 149 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 02:59</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 02:59</i>	<i>NWTPH-HCID</i>

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TERM-02 (A5J1585-16)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	23.2	mg/kg dry	1	10/18/25 03:19	NWTPH-HCID	
Diesel Range Organics	ND	---	58.1	mg/kg dry	1	10/18/25 03:19	NWTPH-HCID	
Oil Range Organics	ND	---	116	mg/kg dry	1	10/18/25 03:19	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 03:19</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 03:19</i>	<i>NWTPH-HCID</i>
<b>TERM-05 (A5J1585-17)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J0654</b>		
Gasoline Range Organics	ND	---	24.2	mg/kg dry	1	10/18/25 03:40	NWTPH-HCID	
Diesel Range Organics	<b>DET</b>	---	60.5	mg/kg dry	1	10/18/25 03:40	NWTPH-HCID	F-11
Oil Range Organics	ND	---	121	mg/kg dry	1	10/18/25 03:40	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 03:40</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 03:40</i>	<i>NWTPH-HCID</i>
<b>TERM-06 (A5J1585-18)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J0654</b>		
Gasoline Range Organics	<b>DET</b>	---	22.4	mg/kg dry	1	10/18/25 04:21	NWTPH-HCID	F-09
Diesel Range Organics	<b>DET</b>	---	55.9	mg/kg dry	1	10/18/25 04:21	NWTPH-HCID	
Oil Range Organics	ND	---	112	mg/kg dry	1	10/18/25 04:21	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 125 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 04:21</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>107 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 04:21</i>	<i>NWTPH-HCID</i>
<b>PIPE-01 (A5J1585-19)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	23.1	mg/kg dry	1	10/18/25 07:51	NWTPH-HCID	
Diesel Range Organics	ND	---	57.8	mg/kg dry	1	10/18/25 07:51	NWTPH-HCID	
Oil Range Organics	ND	---	116	mg/kg dry	1	10/18/25 07:51	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 07:51</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 07:51</i>	<i>NWTPH-HCID</i>
<b>PIPE-02 (A5J1585-20)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	21.9	mg/kg dry	1	10/18/25 08:14	NWTPH-HCID	
Diesel Range Organics	<b>DET</b>	---	54.7	mg/kg dry	1	10/18/25 08:14	NWTPH-HCID	F-11
Oil Range Organics	ND	---	109	mg/kg dry	1	10/18/25 08:14	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 08:14</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>115 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 08:14</i>	<i>NWTPH-HCID</i>

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

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503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>PIPE-03 (A5J1585-21)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	21.9	mg/kg dry	1	10/18/25 08:38	NWTPH-HCID	
Diesel Range Organics	<b>DET</b>	---	54.8	mg/kg dry	1	10/18/25 08:38	NWTPH-HCID	F-11
Oil Range Organics	<b>DET</b>	---	110	mg/kg dry	1	10/18/25 08:38	NWTPH-HCID	F-16
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 08:38</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>124 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 08:38</i>	<i>NWTPH-HCID</i>
<b>PIPE-04 (A5J1585-22)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	23.4	mg/kg dry	1	10/18/25 05:04	NWTPH-HCID	
Diesel Range Organics	ND	---	58.5	mg/kg dry	1	10/18/25 05:04	NWTPH-HCID	
Oil Range Organics	ND	---	117	mg/kg dry	1	10/18/25 05:04	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 87 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 05:04</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 05:04</i>	<i>NWTPH-HCID</i>
<b>PIPE-05 (A5J1585-23)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	24.5	mg/kg dry	1	10/18/25 05:28	NWTPH-HCID	
Diesel Range Organics	ND	---	61.3	mg/kg dry	1	10/18/25 05:28	NWTPH-HCID	
Oil Range Organics	ND	---	123	mg/kg dry	1	10/18/25 05:28	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 05:28</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>119 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 05:28</i>	<i>NWTPH-HCID</i>
<b>PIPE-06 (A5J1585-24)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	25.2	mg/kg dry	1	10/18/25 05:52	NWTPH-HCID	
Diesel Range Organics	ND	---	63.0	mg/kg dry	1	10/18/25 05:52	NWTPH-HCID	
Oil Range Organics	ND	---	126	mg/kg dry	1	10/18/25 05:52	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 05:52</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>116 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 05:52</i>	<i>NWTPH-HCID</i>
<b>PIPE-07 (A5J1585-25)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	21.8	mg/kg dry	1	10/18/25 06:15	NWTPH-HCID	
Diesel Range Organics	ND	---	54.5	mg/kg dry	1	10/18/25 06:15	NWTPH-HCID	
Oil Range Organics	ND	---	109	mg/kg dry	1	10/18/25 06:15	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 131 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 06:15</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>142 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 06:15</i>	<i>NWTPH-HCID</i>

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Darwin Thomas, Business Development Director



ANALYTICAL REPORT

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503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>PIPE-08 (A5J1585-26)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	24.5	mg/kg dry	1	10/18/25 06:39	NWTPH-HCID	
Diesel Range Organics	ND	---	61.2	mg/kg dry	1	10/18/25 06:39	NWTPH-HCID	
Oil Range Organics	ND	---	122	mg/kg dry	1	10/18/25 06:39	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 06:39</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 06:39</i>	<i>NWTPH-HCID</i>
<b>PIPE-09 (A5J1585-27)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	24.1	mg/kg dry	1	10/18/25 07:03	NWTPH-HCID	
Diesel Range Organics	ND	---	60.3	mg/kg dry	1	10/18/25 07:03	NWTPH-HCID	
Oil Range Organics	ND	---	121	mg/kg dry	1	10/18/25 07:03	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 07:03</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 07:03</i>	<i>NWTPH-HCID</i>
<b>PIPE-10 (A5J1585-28)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0639</b>		
Gasoline Range Organics	ND	---	21.8	mg/kg dry	1	10/18/25 07:27	NWTPH-HCID	
Diesel Range Organics	ND	---	54.6	mg/kg dry	1	10/18/25 07:27	NWTPH-HCID	
Oil Range Organics	ND	---	109	mg/kg dry	1	10/18/25 07:27	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/18/25 07:27</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>126 %</i>		<i>50-150 %</i>		<i>1</i>	<i>10/18/25 07:27</i>	<i>NWTPH-HCID</i>

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Darwin Thomas, Business Development Director



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<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TANK-04 (A5J1585-04)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J1038</b>		
Diesel	<b>260</b>	---	22.1	mg/kg dry	1	10/29/25 22:29	NWTPH-Dx	<b>F-13</b>
Oil	ND	---	44.2	mg/kg dry	1	10/29/25 22:29	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/29/25 22:29</i>	<i>NWTPH-Dx</i>
<b>TANK-05 (A5J1585-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J1038</b>		
Diesel	<b>465</b>	---	21.6	mg/kg dry	1	10/29/25 23:12	NWTPH-Dx	<b>F-13</b>
Oil	ND	---	43.2	mg/kg dry	1	10/29/25 23:12	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 85 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/29/25 23:12</i>	<i>NWTPH-Dx</i>
<b>TANK-08 (A5J1585-08RE1)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J1038</b>		
Diesel	<b>9640</b>	---	414	mg/kg dry	20	10/30/25 09:14	NWTPH-Dx	
Oil	ND	---	829	mg/kg dry	20	10/30/25 09:14	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: %</i>		<i>Limits: 50-150 %</i>		<i>20</i>	<i>10/30/25 09:14</i>	<i>NWTPH-Dx</i>
<b>TANK-11 (A5J1585-11)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J1038</b>		
Diesel	<b>335</b>	---	22.3	mg/kg dry	1	10/29/25 23:55	NWTPH-Dx	
Oil	ND	---	44.5	mg/kg dry	1	10/29/25 23:55	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 84 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>10/29/25 23:55</i>	<i>NWTPH-Dx</i>
<b>TERM-01 (A5J1585-15RE1)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J1038</b>		
Diesel	<b>5460</b>	---	217	mg/kg dry	10	10/30/25 09:38	NWTPH-Dx	
Oil	ND	---	434	mg/kg dry	10	10/30/25 09:38	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 129 %</i>		<i>Limits: 50-150 %</i>		<i>10</i>	<i>10/30/25 09:38</i>	<i>NWTPH-Dx</i>
<b>TERM-05 (A5J1585-17)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J1038</b>		
Diesel	<b>2040</b>	---	87.4	mg/kg dry	4	10/30/25 00:39	NWTPH-Dx	<b>F-11</b>
Oil	ND	---	175	mg/kg dry	4	10/30/25 00:39	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>4</i>	<i>10/30/25 00:39</i>	<i>NWTPH-Dx</i>
<b>TERM-06 (A5J1585-18)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J1038</b>		
Diesel	<b>16200</b>	---	211	mg/kg dry	10	10/30/25 01:00	NWTPH-Dx	<b>F-11</b>
Oil	ND	---	422	mg/kg dry	10	10/30/25 01:00	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 138 %</i>		<i>Limits: 50-150 %</i>		<i>10</i>	<i>10/30/25 01:00</i>	<i>NWTPH-Dx</i>

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**ANALYTICAL SAMPLE RESULTS**

**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes	
<b>PIPE-02 (A5J1585-20)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J1038</b>			
Diesel	747	---	74.7	mg/kg dry	4	10/30/25 01:43	NWTPH-Dx	F-11	
Oil	ND	---	149	mg/kg dry	4	10/30/25 01:43	NWTPH-Dx		
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>4</i>	<i>10/30/25 01:43</i>	<i>NWTPH-Dx</i>	<i>S-05</i>
<b>PIPE-03 (A5J1585-21RE1)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J1038</b>			
Diesel	355	---	39.3	mg/kg dry	2	10/30/25 10:50	NWTPH-Dx	F-11, F-15	
Oil	358	---	78.7	mg/kg dry	2	10/30/25 10:50	NWTPH-Dx	F-16	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 78 %</i>		<i>Limits: 50-150 %</i>		<i>2</i>	<i>10/30/25 10:50</i>	<i>NWTPH-Dx</i>	

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TANK-04 (A5J1585-04RE1)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0912</b>			
<b>Gasoline Range Organics</b>	<b>709</b>	---	13.5	mg/kg dry	100	10/27/25 16:33	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 99 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/27/25 16:33</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>107 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/27/25 16:33</i>	<i>NWTPH-Gx (MS)</i>	
<b>TANK-05 (A5J1585-05RE1)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0912</b>			
<b>Gasoline Range Organics</b>	<b>2720</b>	---	28.5	mg/kg dry	200	10/27/25 17:44	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 88 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/27/25 17:44</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>95 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/27/25 17:44</i>	<i>NWTPH-Gx (MS)</i>	
<b>TANK-08 (A5J1585-08RE1)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0912</b>			
<b>Gasoline Range Organics</b>	<b>1230</b>	---	28.3	mg/kg dry	200	10/27/25 18:31	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 95 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/27/25 18:31</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>94 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/27/25 18:31</i>	<i>NWTPH-Gx (MS)</i>	
<b>TANK-11 (A5J1585-11RE1)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0912</b>			
<b>Gasoline Range Organics</b>	<b>2340</b>	---	29.1	mg/kg dry	200	10/27/25 17:20	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 89 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/27/25 17:20</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/27/25 17:20</i>	<i>NWTPH-Gx (MS)</i>	
<b>TERM-01 (A5J1585-15)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>			
<b>Gasoline Range Organics</b>	<b>24.2</b>	---	6.80	mg/kg dry	50	10/24/25 16:27	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 103 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/24/25 16:27</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>91 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/24/25 16:27</i>	<i>NWTPH-Gx (MS)</i>	
<b>TERM-05 (A5J1585-17RE1)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0912</b>			
<b>Gasoline Range Organics</b>	<b>166</b>	---	14.1	mg/kg dry	100	10/27/25 16:57	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 98 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/27/25 16:57</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>99 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/27/25 16:57</i>	<i>NWTPH-Gx (MS)</i>	
<b>TERM-06 (A5J1585-18RE1)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0912</b>			
<b>Gasoline Range Organics</b>	<b>1500</b>	---	27.2	mg/kg dry	200	10/27/25 18:07	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 91 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/27/25 18:07</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>93 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/27/25 18:07</i>	<i>NWTPH-Gx (MS)</i>	
<b>PIPE-02 (A5J1585-20)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>			

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

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Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>PIPE-02 (A5J1585-20)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J0855</b>		
Gasoline Range Organics	ND	---	5.78	mg/kg dry	50	10/24/25 16:54	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 99 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/24/25 16:54</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>91 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/24/25 16:54</i>	<i>NWTPH-Gx (MS)</i>	
<b>PIPE-03 (A5J1585-21)</b>			<b>Matrix: Soil</b>			<b>Batch: 25J0855</b>		
Gasoline Range Organics	ND	---	6.27	mg/kg dry	50	10/24/25 17:22	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 103 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/24/25 17:22</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>94 %</i>	<i>50-150 %</i>	<i>1</i>	<i>10/24/25 17:22</i>	<i>NWTPH-Gx (MS)</i>	

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Darwin Thomas, Business Development Director



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**ANALYTICAL SAMPLE RESULTS**

**BTEX+N Compounds by EPA 8260D**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TANK-04 (A5J1585-04)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>		
Benzene	ND	---	0.0270	mg/kg dry	100	10/24/25 20:06	5035A/8260D	
Toluene	ND	---	0.135	mg/kg dry	100	10/24/25 20:06	5035A/8260D	
<b>Ethylbenzene</b>	<b>0.125</b>	---	0.0674	mg/kg dry	100	10/24/25 20:06	5035A/8260D	
Xylenes, total	ND	---	0.202	mg/kg dry	100	10/24/25 20:06	5035A/8260D	
<b>Naphthalene</b>	<b>13.5</b>	---	0.270	mg/kg dry	100	10/24/25 20:06	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 109 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>10/24/25 20:06</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>10/24/25 20:06</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>110 %</i>	<i>79-120 %</i>	<i>1</i>	<i>10/24/25 20:06</i>	<i>5035A/8260D</i>	
<b>TANK-05 (A5J1585-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>		
Benzene	ND	---	0.0571	mg/kg dry	200	10/24/25 21:28	5035A/8260D	
Toluene	ND	---	0.285	mg/kg dry	200	10/24/25 21:28	5035A/8260D	
<b>Ethylbenzene</b>	<b>0.328</b>	---	0.143	mg/kg dry	200	10/24/25 21:28	5035A/8260D	
Xylenes, total	ND	---	0.428	mg/kg dry	200	10/24/25 21:28	5035A/8260D	
<b>Naphthalene</b>	<b>9.57</b>	---	0.571	mg/kg dry	200	10/24/25 21:28	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 112 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>10/24/25 21:28</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>97 %</i>	<i>80-120 %</i>	<i>1</i>	<i>10/24/25 21:28</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>108 %</i>	<i>79-120 %</i>	<i>1</i>	<i>10/24/25 21:28</i>	<i>5035A/8260D</i>	
<b>TANK-08 (A5J1585-08)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>		
Benzene	ND	---	0.0566	mg/kg dry	200	10/24/25 22:22	5035A/8260D	
<b>Toluene</b>	<b>0.308</b>	---	0.283	mg/kg dry	200	10/24/25 22:22	5035A/8260D	
<b>Ethylbenzene</b>	<b>0.387</b>	---	0.141	mg/kg dry	200	10/24/25 22:22	5035A/8260D	
<b>Xylenes, total</b>	<b>0.990</b>	---	0.424	mg/kg dry	200	10/24/25 22:22	5035A/8260D	
Naphthalene	ND	---	2.01	mg/kg dry	200	10/24/25 22:22	5035A/8260D	R-02
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 110 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>10/24/25 22:22</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>97 %</i>	<i>80-120 %</i>	<i>1</i>	<i>10/24/25 22:22</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>108 %</i>	<i>79-120 %</i>	<i>1</i>	<i>10/24/25 22:22</i>	<i>5035A/8260D</i>	
<b>TANK-11 (A5J1585-11)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>		
Benzene	ND	---	0.0581	mg/kg dry	200	10/24/25 21:00	5035A/8260D	
Toluene	ND	---	0.291	mg/kg dry	200	10/24/25 21:00	5035A/8260D	
<b>Ethylbenzene</b>	<b>1.42</b>	---	0.145	mg/kg dry	200	10/24/25 21:00	5035A/8260D	
Xylenes, total	ND	---	0.436	mg/kg dry	200	10/24/25 21:00	5035A/8260D	

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ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

**BTEX+N Compounds by EPA 8260D**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>TANK-11 (A5J1585-11)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>			
<b>Naphthalene</b>	<b>20.5</b>	---	0.581	mg/kg dry	200	10/24/25 21:00	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 112 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>10/24/25 21:00</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>97 %</i>	<i>80-120 %</i>	<i>1</i>	<i>10/24/25 21:00</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>106 %</i>	<i>79-120 %</i>	<i>1</i>	<i>10/24/25 21:00</i>	<i>5035A/8260D</i>	
<b>TERM-01 (A5J1585-15)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>			
Benzene	ND	---	0.0136	mg/kg dry	50	10/24/25 16:27	5035A/8260D	
Toluene	ND	---	0.0680	mg/kg dry	50	10/24/25 16:27	5035A/8260D	
<b>Ethylbenzene</b>	<b>0.0442</b>	---	0.0340	mg/kg dry	50	10/24/25 16:27	5035A/8260D	
<b>Xylenes, total</b>	<b>0.141</b>	---	0.102	mg/kg dry	50	10/24/25 16:27	5035A/8260D	
<b>Naphthalene</b>	<b>0.346</b>	---	0.136	mg/kg dry	50	10/24/25 16:27	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 100 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>10/24/25 16:27</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>99 %</i>	<i>80-120 %</i>	<i>1</i>	<i>10/24/25 16:27</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>102 %</i>	<i>79-120 %</i>	<i>1</i>	<i>10/24/25 16:27</i>	<i>5035A/8260D</i>	
<b>TERM-06 (A5J1585-18)</b>			<b>Matrix: Soil</b>		<b>Batch: 25J0855</b>			
Benzene	ND	---	0.0543	mg/kg dry	200	10/24/25 22:50	5035A/8260D	
Toluene	ND	---	0.272	mg/kg dry	200	10/24/25 22:50	5035A/8260D	
<b>Ethylbenzene</b>	<b>0.609</b>	---	0.136	mg/kg dry	200	10/24/25 22:50	5035A/8260D	
<b>Xylenes, total</b>	<b>5.58</b>	---	0.408	mg/kg dry	200	10/24/25 22:50	5035A/8260D	
Naphthalene	ND	---	4.59	mg/kg dry	200	10/24/25 22:50	5035A/8260D	R-02
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 111 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>10/24/25 22:50</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>10/24/25 22:50</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>107 %</i>	<i>79-120 %</i>	<i>1</i>	<i>10/24/25 22:50</i>	<i>5035A/8260D</i>	

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ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**ANALYTICAL SAMPLE RESULTS**

Percent Dry Weight									
Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes	
<b>TANK-01 (A5J1585-01)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	77.4	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-02 (A5J1585-02)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	77.7	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-03 (A5J1585-03)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	78.9	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-04 (A5J1585-04)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	78.9	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-05 (A5J1585-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	79.2	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-06 (A5J1585-06)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	84.4	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-07 (A5J1585-07)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	81.4	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-08 (A5J1585-08)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	82.8	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-09 (A5J1585-09)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	75.1	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-10 (A5J1585-10)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	75.0	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-11 (A5J1585-11)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	78.6	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TANK-12 (A5J1585-12)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	81.5	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>SUMP-01 (A5J1585-13)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			

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 503-718-2323  
 ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
---	--	---

**ANALYTICAL SAMPLE RESULTS**

Percent Dry Weight									
Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes	
<b>SUMP-01 (A5J1585-13)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	81.3	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>STOCK-01 (A5J1585-14)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	91.3	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TERM-01 (A5J1585-15)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	77.1	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TERM-02 (A5J1585-16)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	78.8	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TERM-05 (A5J1585-17)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	81.4	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>TERM-06 (A5J1585-18)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	82.2	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-01 (A5J1585-19)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	80.9	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-02 (A5J1585-20)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	90.6	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-03 (A5J1585-21)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	88.8	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-04 (A5J1585-22)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	81.0	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-05 (A5J1585-23)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	78.1	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-06 (A5J1585-24)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	77.9	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-07 (A5J1585-25)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			

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**ANALYTICAL SAMPLE RESULTS**

Percent Dry Weight									
Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes	
<b>PIPE-07 (A5J1585-25)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	87.8	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-08 (A5J1585-26)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	78.3	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-09 (A5J1585-27)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	81.3	---	1.00	%	1	10/18/25 14:28	EPA 8000D		
<b>PIPE-10 (A5J1585-28)</b>				<b>Matrix: Soil</b>		<b>Batch: 25J0644</b>			
% Solids	87.6	---	1.00	%	1	10/18/25 14:28	EPA 8000D		

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J0639 - NWTPH-HCID (Soil)</b>						<b>Soil</b>						
<b>Blank (25J0639-BLK1)</b>			Prepared: 10/17/25 09:47 Analyzed: 10/17/25 13:21									
<u>NWTPH-HCID</u>												
Gasoline Range Organics	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	100	mg/kg wet	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>105 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>Duplicate (25J0639-DUP1)</b>			Prepared: 10/17/25 09:47 Analyzed: 10/17/25 15:25									
<u>QC Source Sample: Non-SDG (A5J1549-01)</u>												
Gasoline Range Organics	ND	---	25.6	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	64.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	128	mg/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>120 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>Duplicate (25J0639-DUP2)</b>			Prepared: 10/17/25 09:47 Analyzed: 10/17/25 16:13									
<u>QC Source Sample: Non-SDG (A5J1549-02)</u>												
Gasoline Range Organics	ND	---	25.9	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	64.8	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	130	mg/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>113 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>Batch 25J0654 - NWTPH-HCID (Soil)</b>						<b>Soil</b>						
<b>Blank (25J0654-BLK1)</b>			Prepared: 10/17/25 13:52 Analyzed: 10/17/25 21:30									
<u>NWTPH-HCID</u>												
Gasoline Range Organics	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	100	mg/kg wet	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>107 %</i>		<i>50-150 %</i>		<i>"</i>						

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J0654 - NWTPH-HCID (Soil)</b>						<b>Soil</b>						
<b>Duplicate (25J0654-DUP1)</b>						Prepared: 10/17/25 13:52 Analyzed: 10/17/25 22:11						
<b>QC Source Sample: TANK-01 (A5J1585-01)</b>												
<b>NWTPH-HCID</b>												
Gasoline Range Organics	ND	---	24.7	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	61.8	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	124	mg/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 88 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>"</i>						

<b>Duplicate (25J0654-DUP2)</b>						Prepared: 10/17/25 13:52 Analyzed: 10/18/25 05:02						
<b>QC Source Sample: TERM-06 (A5J1585-18)</b>												
<b>NWTPH-HCID</b>												
Gasoline Range Organics	<b>DET</b>	---	23.1	mg/kg dry	1	---	ND	---	---	---	30%	F-09
Diesel Range Organics	<b>DET</b>	---	57.7	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	115	mg/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 127 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>50-150 %</i>		<i>"</i>						

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J1038 - EPA 3546 (Fuels)</b>						<b>Soil</b>						
<b>Blank (25J1038-BLK1)</b>						Prepared: 10/29/25 14:20 Analyzed: 10/29/25 21:46						
<u>NWTPH-Dx</u>												
Diesel	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<b>LCS (25J1038-BS1)</b>						Prepared: 10/29/25 14:20 Analyzed: 10/29/25 22:08						
<u>NWTPH-Dx</u>												
Diesel	102	---	20.0	mg/kg wet	1	125	---	82	38-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<b>Duplicate (25J1038-DUP1)</b>						Prepared: 10/29/25 14:20 Analyzed: 10/29/25 22:51						
<u>QC Source Sample: TANK-04 (A5J1585-04)</u>												
<u>NWTPH-Dx</u>												
Diesel	316	---	22.3	mg/kg dry	1	---	260	---	---	19	30%	F-13
Oil	ND	---	44.6	mg/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 88 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<b>Duplicate (25J1038-DUP3)</b>						Prepared: 10/29/25 14:20 Analyzed: 10/30/25 11:38						
<u>QC Source Sample: PIPE-03 (A5J1585-21RE1)</u>												
<u>NWTPH-Dx</u>												
Diesel	353	---	38.3	mg/kg dry	2	---	355	---	---	0.6	30%	F-11, F-15
Oil	363	---	76.5	mg/kg dry	2	---	358	---	---	1	30%	F-16
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 70 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 2x</i>						

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J0855 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (25J0855-BLK1)</b>			Prepared: 10/24/25 09:00 Analyzed: 10/24/25 11:54									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	5.00	mg/kg wet	50	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>88 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>LCS (25J0855-BS2)</b>						Prepared: 10/24/25 09:00 Analyzed: 10/24/25 11:26						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	22.5	---	5.00	mg/kg wet	50	25.0	---	90	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>86 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>Duplicate (25J0855-DUP1)</b>						Prepared: 10/16/25 12:00 Analyzed: 10/24/25 19:38						
<u>QC Source Sample: Non-SDG (A5J1574-01)</u>												
Gasoline Range Organics	392	---	16.2	mg/kg dry	100	---	538	---	---	31	30%	Q-17
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>85 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>Duplicate (25J0855-DUP2)</b>						Prepared: 10/16/25 09:12 Analyzed: 10/24/25 21:55						
<u>QC Source Sample: TANK-05 (A5J1585-05)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	2150	---	28.5	mg/kg dry	200	---	2150	---	---	0.2	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 88 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>82 %</i>		<i>50-150 %</i>		<i>"</i>						

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J0912 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (25J0912-BLK1)</b>						Prepared: 10/27/25 09:00 Analyzed: 10/27/25 11:53						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	5.00	mg/kg wet	50	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>99 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>LCS (25J0912-BS2)</b>						Prepared: 10/27/25 09:00 Analyzed: 10/27/25 11:29						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	25.3	---	5.00	mg/kg wet	50	25.0	---	101	80-120%	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>99 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>Duplicate (25J0912-DUP1)</b>						Prepared: 10/23/25 08:45 Analyzed: 10/27/25 12:39						
<u>QC Source Sample: Non-SDG (A5J1770-01)</u>												
Gasoline Range Organics	ND	---	5.91	mg/kg dry	50	---	ND	---	---	---	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>Duplicate (25J0912-DUP2)</b>						Prepared: 10/23/25 09:10 Analyzed: 10/27/25 14:13						
<u>QC Source Sample: Non-SDG (A5J1770-04)</u>												
Gasoline Range Organics	ND	---	5.89	mg/kg dry	50	---	ND	---	---	---	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>"</i>						

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**BTEX+N Compounds by EPA 8260D**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J0855 - EPA 5035A</b>												
<b>Soil</b>												
<b>Blank (25J0855-BLK1)</b>												
Prepared: 10/24/25 09:00 Analyzed: 10/24/25 11:54												
<u>5035A/8260D</u>												
Benzene	ND	---	0.0100	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	---	0.0750	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.100	mg/kg wet	50	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>104 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>LCS (25J0855-BS1)</b>												
Prepared: 10/24/25 09:00 Analyzed: 10/24/25 10:59												
<u>5035A/8260D</u>												
Benzene	1.10	---	0.0100	mg/kg wet	50	1.00	---	110	80-120%	---	---	
Toluene	0.998	---	0.0500	mg/kg wet	50	1.00	---	100	80-120%	---	---	
Ethylbenzene	0.998	---	0.0250	mg/kg wet	50	1.00	---	100	80-120%	---	---	
Xylenes, total	2.99	---	0.0750	mg/kg wet	50	3.00	---	100	80-120%	---	---	
Naphthalene	1.05	---	0.100	mg/kg wet	50	1.00	---	105	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 111 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>104 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>Duplicate (25J0855-DUP1)</b>												
Prepared: 10/16/25 12:00 Analyzed: 10/24/25 19:38												
<u>QC Source Sample: Non-SDG (A5J1574-01)</u>												
Benzene	ND	---	0.0325	mg/kg dry	100	---	ND	---	---	---	30%	
Toluene	ND	---	0.162	mg/kg dry	100	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0812	mg/kg dry	100	---	ND	---	---	---	30%	
Xylenes, total	ND	---	0.244	mg/kg dry	100	---	ND	---	---	---	30%	
Naphthalene	<b>0.361</b>	---	0.325	mg/kg dry	100	---	0.645	---	---	<b>57</b>	<b>30%</b>	Q-17
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>107 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>Duplicate (25J0855-DUP2)</b>												
Prepared: 10/16/25 09:12 Analyzed: 10/24/25 21:55												

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ANALYTICAL REPORT

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ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**BTEX+N Compounds by EPA 8260D**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J0855 - EPA 5035A</b>						<b>Soil</b>						
<b>Duplicate (25J0855-DUP2)</b>			Prepared: 10/16/25 09:12 Analyzed: 10/24/25 21:55									
<b>QC Source Sample: TANK-05 (A5J1585-05)</b>												
<b>5035A/8260D</b>												
Benzene	ND	---	0.0571	mg/kg dry	200	---	ND	---	---	---	30%	
Toluene	ND	---	0.285	mg/kg dry	200	---	ND	---	---	---	30%	
Ethylbenzene	<b>0.331</b>	---	0.143	mg/kg dry	200	---	0.328	---	---	0.9	30%	
Xylenes, total	ND	---	0.428	mg/kg dry	200	---	ND	---	---	---	30%	
Naphthalene	<b>9.26</b>	---	0.571	mg/kg dry	200	---	9.57	---	---	3	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>109 %</i>		<i>79-120 %</i>		<i>"</i>						

<b>Matrix Spike (25J0855-MS1)</b>			Prepared: 10/16/25 14:25 Analyzed: 10/24/25 17:49									
<b>QC Source Sample: PIPE-03 (A5J1585-21)</b>												
<b>5035A/8260D</b>												
Benzene	1.42	---	0.0125	mg/kg dry	50	1.25	ND	113	77-121%	---	---	
Toluene	1.35	---	0.0627	mg/kg dry	50	1.25	ND	108	77-121%	---	---	
Ethylbenzene	1.35	---	0.0314	mg/kg dry	50	1.25	ND	107	76-122%	---	---	
Xylenes, total	4.11	---	0.0941	mg/kg dry	50	3.76	ND	109	78-124%	---	---	
Naphthalene	1.34	---	0.125	mg/kg dry	50	1.25	ND	106	62-129%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>79-120 %</i>		<i>"</i>						

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 25J0644 - Dry Weight Prep (EPA 8000D)</b>							<b>Soil</b>					
<b>Duplicate (25J0644-DUP1)</b>			Prepared: 10/17/25 10:34 Analyzed: 10/18/25 14:28									
<u>QC Source Sample: Non-SDG (A5J1562-01)</u>												
% Solids	84.3	---	1.00	%	1	---	84.1	---	---	0.2	10%	
<b>Duplicate (25J0644-DUP2)</b>			Prepared: 10/17/25 10:34 Analyzed: 10/18/25 14:28									
<u>QC Source Sample: TANK-01 (A5J1585-01)</u>												
<u>EPA 8000D</u>												
% Solids	77.3	---	1.00	%	1	---	77.4	---	---	0.2	10%	
<b>Duplicate (25J0644-DUP3)</b>			Prepared: 10/17/25 10:34 Analyzed: 10/18/25 14:28									
<u>QC Source Sample: Non-SDG (A5J1545-01)</u>												
% Solids	90.1	---	1.00	%	1	---	90.4	---	---	0.3	10%	
<b>Duplicate (25J0644-DUP4)</b>			Prepared: 10/17/25 10:34 Analyzed: 10/18/25 14:28									
<u>QC Source Sample: PIPE-10 (A5J1585-28)</u>												
<u>EPA 8000D</u>												
% Solids	84.6	---	1.00	%	1	---	87.6	---	---	3	10%	
<b>Duplicate (25J0644-DUP5)</b>			Prepared: 10/17/25 18:12 Analyzed: 10/18/25 14:28									
<u>QC Source Sample: Non-SDG (A5J1614-01)</u>												
% Solids	84.2	---	1.00	%	1	---	84.5	---	---	0.4	10%	
<b>Duplicate (25J0644-DUP6)</b>			Prepared: 10/17/25 18:12 Analyzed: 10/18/25 14:28									
<u>QC Source Sample: Non-SDG (A5J1630-05)</u>												
% Solids	77.4	---	1.00	%	1	---	76.4	---	---	1	10%	
<b>Duplicate (25J0644-DUP7)</b>			Prepared: 10/17/25 18:12 Analyzed: 10/18/25 14:28									
<u>QC Source Sample: Non-SDG (A5J1615-01)</u>												
% Solids	86.5	---	1.00	%	1	---	86.9	---	---	0.4	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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**SAMPLE PREPARATION INFORMATION**

**Hydrocarbon Identification Screen by NWTPH-HCID**

Prep: NWTPH-HCID (Soil)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 25J0639</u>							
A5J1585-19	Soil	NWTPH-HCID	10/16/25 14:05	10/17/25 09:47	10.7g/10mL	10g/10mL	0.94
A5J1585-20	Soil	NWTPH-HCID	10/16/25 14:15	10/17/25 09:47	10.09g/10mL	10g/10mL	0.99
A5J1585-21	Soil	NWTPH-HCID	10/16/25 14:25	10/17/25 09:47	10.27g/10mL	10g/10mL	0.97
A5J1585-22	Soil	NWTPH-HCID	10/16/25 14:33	10/17/25 09:47	10.55g/10mL	10g/10mL	0.95
A5J1585-23	Soil	NWTPH-HCID	10/16/25 14:44	10/17/25 09:47	10.43g/10mL	10g/10mL	0.96
A5J1585-24	Soil	NWTPH-HCID	10/16/25 14:47	10/17/25 09:47	10.18g/10mL	10g/10mL	0.98
A5J1585-25	Soil	NWTPH-HCID	10/16/25 14:52	10/17/25 09:47	10.45g/10mL	10g/10mL	0.96
A5J1585-26	Soil	NWTPH-HCID	10/16/25 15:05	10/17/25 09:47	10.44g/10mL	10g/10mL	0.96
A5J1585-27	Soil	NWTPH-HCID	10/16/25 15:21	10/17/25 09:47	10.21g/10mL	10g/10mL	0.98
A5J1585-28	Soil	NWTPH-HCID	10/16/25 15:33	10/17/25 09:47	10.45g/10mL	10g/10mL	0.96
<u>Batch: 25J0654</u>							
A5J1585-01	Soil	NWTPH-HCID	10/16/25 08:41	10/17/25 13:52	10.25g/10mL	10g/10mL	0.98
A5J1585-02	Soil	NWTPH-HCID	10/16/25 08:49	10/17/25 13:52	10.25g/10mL	10g/10mL	0.98
A5J1585-03	Soil	NWTPH-HCID	10/16/25 08:55	10/17/25 13:52	10.19g/10mL	10g/10mL	0.98
A5J1585-04	Soil	NWTPH-HCID	10/16/25 09:01	10/17/25 13:52	10.25g/10mL	10g/10mL	0.98
A5J1585-05	Soil	NWTPH-HCID	10/16/25 09:12	10/17/25 13:52	10.7g/10mL	10g/10mL	0.94
A5J1585-06	Soil	NWTPH-HCID	10/16/25 09:19	10/17/25 13:52	10.58g/10mL	10g/10mL	0.95
A5J1585-07	Soil	NWTPH-HCID	10/16/25 09:28	10/17/25 13:52	10.7g/10mL	10g/10mL	0.94
A5J1585-08	Soil	NWTPH-HCID	10/16/25 09:37	10/17/25 13:52	10.74g/10mL	10g/10mL	0.93
A5J1585-09	Soil	NWTPH-HCID	10/16/25 09:43	10/17/25 13:52	10.71g/10mL	10g/10mL	0.93
A5J1585-10	Soil	NWTPH-HCID	10/16/25 10:18	10/17/25 13:52	10.46g/10mL	10g/10mL	0.96
A5J1585-11	Soil	NWTPH-HCID	10/16/25 10:25	10/17/25 13:52	10.52g/10mL	10g/10mL	0.95
A5J1585-12	Soil	NWTPH-HCID	10/16/25 10:36	10/17/25 13:52	10.44g/10mL	10g/10mL	0.96
A5J1585-13	Soil	NWTPH-HCID	10/16/25 11:11	10/17/25 13:52	10.5g/10mL	10g/10mL	0.95
A5J1585-14	Soil	NWTPH-HCID	10/16/25 11:30	10/17/25 13:52	10.45g/10mL	10g/10mL	0.96
A5J1585-15	Soil	NWTPH-HCID	10/16/25 11:50	10/17/25 13:52	10.8g/10mL	10g/10mL	0.93
A5J1585-16	Soil	NWTPH-HCID	10/16/25 11:55	10/17/25 13:52	10.91g/10mL	10g/10mL	0.92
A5J1585-17	Soil	NWTPH-HCID	10/16/25 13:05	10/17/25 13:52	10.15g/10mL	10g/10mL	0.99
A5J1585-18	Soil	NWTPH-HCID	10/16/25 13:20	10/17/25 13:52	10.88g/10mL	10g/10mL	0.92

**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Prep: EPA 3546 (Fuels)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 25J1038</u>							
A5J1585-04	Soil	NWTPH-Dx	10/16/25 09:01	10/29/25 14:20	11.48g/5mL	10g/5mL	0.87

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**SAMPLE PREPARATION INFORMATION**

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A5J1585-05	Soil	NWTPH-Dx	10/16/25 09:12	10/29/25 14:20	11.69g/5mL	10g/5mL	0.86
A5J1585-08RE1	Soil	NWTPH-Dx	10/16/25 09:37	10/29/25 14:20	11.66g/5mL	10g/5mL	0.86
A5J1585-11	Soil	NWTPH-Dx	10/16/25 10:25	10/29/25 14:20	11.42g/5mL	10g/5mL	0.88
A5J1585-15RE1	Soil	NWTPH-Dx	10/16/25 11:50	10/29/25 14:20	11.95g/5mL	10g/5mL	0.84
A5J1585-17	Soil	NWTPH-Dx	10/16/25 13:05	10/29/25 14:20	11.25g/5mL	10g/5mL	0.89
A5J1585-18	Soil	NWTPH-Dx	10/16/25 13:20	10/29/25 14:20	11.54g/5mL	10g/5mL	0.87
A5J1585-20	Soil	NWTPH-Dx	10/16/25 14:15	10/29/25 14:20	11.83g/5mL	10g/5mL	0.85
A5J1585-21RE1	Soil	NWTPH-Dx	10/16/25 14:25	10/29/25 14:20	11.45g/5mL	10g/5mL	0.87

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 25J0855</u>							
A5J1585-15	Soil	NWTPH-Gx (MS)	10/16/25 11:50	10/16/25 11:50	6.1g/5mL	5g/5mL	0.82
A5J1585-20	Soil	NWTPH-Gx (MS)	10/16/25 14:15	10/16/25 14:15	5.25g/5mL	5g/5mL	0.95
A5J1585-21	Soil	NWTPH-Gx (MS)	10/16/25 14:25	10/16/25 14:25	4.99g/5mL	5g/5mL	1.00
<u>Batch: 25J0912</u>							
A5J1585-04RE1	Soil	NWTPH-Gx (MS)	10/16/25 09:01	10/16/25 09:01	5.86g/5mL	5g/5mL	0.85
A5J1585-05RE1	Soil	NWTPH-Gx (MS)	10/16/25 09:12	10/16/25 09:12	5.43g/5mL	5g/5mL	0.92
A5J1585-08RE1	Soil	NWTPH-Gx (MS)	10/16/25 09:37	10/16/25 09:37	5.01g/5mL	5g/5mL	1.00
A5J1585-11RE1	Soil	NWTPH-Gx (MS)	10/16/25 10:25	10/16/25 10:25	5.38g/5mL	5g/5mL	0.93
A5J1585-17RE1	Soil	NWTPH-Gx (MS)	10/16/25 13:05	10/16/25 13:05	5.21g/5mL	5g/5mL	0.96
A5J1585-18RE1	Soil	NWTPH-Gx (MS)	10/16/25 13:20	10/16/25 13:20	5.33g/5mL	5g/5mL	0.94

BTEX+N Compounds by EPA 8260D

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 25J0855</u>							
A5J1585-04	Soil	5035A/8260D	10/16/25 09:01	10/16/25 09:01	5.86g/5mL	5g/5mL	0.85
A5J1585-05	Soil	5035A/8260D	10/16/25 09:12	10/16/25 09:12	5.43g/5mL	5g/5mL	0.92
A5J1585-08	Soil	5035A/8260D	10/16/25 09:37	10/16/25 09:37	5.01g/5mL	5g/5mL	1.00
A5J1585-11	Soil	5035A/8260D	10/16/25 10:25	10/16/25 10:25	5.38g/5mL	5g/5mL	0.93
A5J1585-15	Soil	5035A/8260D	10/16/25 11:50	10/16/25 11:50	6.1g/5mL	5g/5mL	0.82
A5J1585-18	Soil	5035A/8260D	10/16/25 13:20	10/16/25 13:20	5.33g/5mL	5g/5mL	0.94

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**SAMPLE PREPARATION INFORMATION**

Percent Dry Weight

Prep: Dry Weight Prep (EPA 8000D)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 25J0644</u>							
A5J1585-01	Soil	EPA 8000D	10/16/25 08:41	10/17/25 10:34	1g	1g	1.00
A5J1585-02	Soil	EPA 8000D	10/16/25 08:49	10/17/25 10:34	1g	1g	1.00
A5J1585-03	Soil	EPA 8000D	10/16/25 08:55	10/17/25 10:34	1g	1g	1.00
A5J1585-04	Soil	EPA 8000D	10/16/25 09:01	10/17/25 10:34	1g	1g	1.00
A5J1585-05	Soil	EPA 8000D	10/16/25 09:12	10/17/25 10:34	1g	1g	1.00
A5J1585-06	Soil	EPA 8000D	10/16/25 09:19	10/17/25 10:34	1g	1g	1.00
A5J1585-07	Soil	EPA 8000D	10/16/25 09:28	10/17/25 10:34	1g	1g	1.00
A5J1585-08	Soil	EPA 8000D	10/16/25 09:37	10/17/25 10:34	1g	1g	1.00
A5J1585-09	Soil	EPA 8000D	10/16/25 09:43	10/17/25 10:34	1g	1g	1.00
A5J1585-10	Soil	EPA 8000D	10/16/25 10:18	10/17/25 10:34	1g	1g	1.00
A5J1585-11	Soil	EPA 8000D	10/16/25 10:25	10/17/25 10:34	1g	1g	1.00
A5J1585-12	Soil	EPA 8000D	10/16/25 10:36	10/17/25 10:34	1g	1g	1.00
A5J1585-13	Soil	EPA 8000D	10/16/25 11:11	10/17/25 10:34	1g	1g	1.00
A5J1585-14	Soil	EPA 8000D	10/16/25 11:30	10/17/25 10:34	1g	1g	1.00
A5J1585-15	Soil	EPA 8000D	10/16/25 11:50	10/17/25 10:34	1g	1g	1.00
A5J1585-16	Soil	EPA 8000D	10/16/25 11:55	10/17/25 10:34	1g	1g	1.00
A5J1585-17	Soil	EPA 8000D	10/16/25 13:05	10/17/25 10:34	1g	1g	1.00
A5J1585-18	Soil	EPA 8000D	10/16/25 13:20	10/17/25 10:34	1g	1g	1.00
A5J1585-19	Soil	EPA 8000D	10/16/25 14:05	10/17/25 10:34	1g	1g	1.00
A5J1585-20	Soil	EPA 8000D	10/16/25 14:15	10/17/25 10:34	1g	1g	1.00
A5J1585-21	Soil	EPA 8000D	10/16/25 14:25	10/17/25 10:34	1g	1g	1.00
A5J1585-22	Soil	EPA 8000D	10/16/25 14:33	10/17/25 10:34	1g	1g	1.00
A5J1585-23	Soil	EPA 8000D	10/16/25 14:44	10/17/25 10:34	1g	1g	1.00
A5J1585-24	Soil	EPA 8000D	10/16/25 14:47	10/17/25 10:34	1g	1g	1.00
A5J1585-25	Soil	EPA 8000D	10/16/25 14:52	10/17/25 10:34	1g	1g	1.00
A5J1585-26	Soil	EPA 8000D	10/16/25 15:05	10/17/25 10:34	1g	1g	1.00
A5J1585-27	Soil	EPA 8000D	10/16/25 15:21	10/17/25 10:34	1g	1g	1.00
A5J1585-28	Soil	EPA 8000D	10/16/25 15:33	10/17/25 10:34	1g	1g	1.00

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

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Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

**Terracon Consultants Inc.**

700 NE 55th Ave  
Portland, OR 97213

Project: **Portland Road Fueling Station**

Project Number: **82257277**

Project Manager: **Trevor Farrell**

**Report ID:**

**A5J1585 - 11 05 25 1335**

**QUALIFIER DEFINITIONS**

**Client Sample and Quality Control (QC) Sample Qualifier Definitions:**

**Apex Laboratories**

- F-09** Results in the Gasoline Range are impacted by the overlap of a heavier fuel hydrocarbon product.
- F-11** The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
- F-13** The chromatographic pattern does not resemble the fuel standard used for quantitation
- F-15** Results for diesel are estimated due to overlap from the reported oil result.
- F-16** Results for oil are estimated due to overlap from the reported diesel result.
- Q-17** RPD between original and duplicate sample, or spike duplicates, is outside of established control limits.
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- S-01** Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
- S-05** Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

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Darwin Thomas, Business Development Director



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---	--	---

**REPORTING NOTES AND CONVENTIONS:**

**Abbreviations:**

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

**Detection Limits: Limit of Detection (LOD)**

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).  
If no value is listed ('----'), then the data has not been evaluated below the Reporting Limit.

**Reporting Limits: Limit of Quantitation (LOQ)**

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

**Reporting and Detection Limits: Default Limits**

Default Reporting and Detection Limits are based on 100% dry weight with the minimum dilution for the analysis. Reporting and Detection Limits are raised due to moisture content, additional dilutions required for analysis, matrix interferences and in other cases, as necessary.

**Reporting Conventions:**

Basis: Results for soil samples are generally reported on a 100% dry weight basis.  
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

- " dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")  
See Percent Solids section for details of dry weight analysis.
- " wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
- " " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

**QC Source:**

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.  
Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

**Miscellaneous Notes:**

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " \*\*\* " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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---	--	---

**REPORTING NOTES AND CONVENTIONS (Cont.):**

**Blanks:**

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL). Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

- For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
- For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

- Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

**Preparation Notes:**

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

**Sampling and Preservation Notes:**

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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---	--	---

**Decanted Samples:**

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses. In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

---

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---

Darwin Thomas, Business Development Director



ANALYTICAL REPORT

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Table with 3 columns: Client (Terracon Consultants Inc.), Project (Portland Road Fueling Station), and Report ID (A5J1585 - 11 05 25 1335).

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Table header with columns: Matrix, Analysis, TNI\_ID, Analyte, TNI\_ID, Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Handwritten signature of Darwin Thomas

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---	--	---

**APEX LABS**  
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

**CHAIN OF CUSTODY**

Company: **Terracon** Project Mgr: **Trevor Farrell** Project Name: **Portland Road Fueling Station** Project #: **822-57277**

Address: **700 NE 55th Ave, Portland, OR** Phone: **503-659-3281** Email: **trevor.farrell@terracon.com** PO #

Sampled by: \_\_\_\_\_

Site Location: State OR County Marion

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWT PH-CD	NWT PH-DX	NWT PH-GX	8260D BTEX	8260D RDM VOCs	8260D Halo VOCs	8260D VOCs Full List	8270E PAHs	8270E Semi-Voils Full List	8082A PCBs	8081B Pesticides	RCRA Metals (9)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Ti, V, Zn, TCIP	TCIP Metals (8)	TOTAL DISS. TCIP	Frozen Archive	Hold Sample	
																							ANALYSIS REQUEST
1 PIPE-03	10/16/25	1425	S	3	X																		
2 PIPE-04		1433			X																		
3 PIPE-05		1444			X																		
4 PIPE-06		1447			X																		
5 PIPE-07		1452			X																		
6 PIPE-08		1505			X																		
7 PIPE-09		1521			X																		
8 PIPE-10		1537			X																		
9																							
10																							

Normal Turn Around Time (TAT) = 10 Business Days →

**\*\*\* RUSH - Request → Indicate Date Needed: 10/21/25**

\*\*\*Rush TAT requests may incur additional cost

For TAT calculations, samples received after 3pm will be considered received the next business day.  
Data will be reported by 6pm. Samples with <72 hrs of hold time may be surcharged.

**SAMPLES ARE HELD FOR 30 DAYS**

RELINQUISHED BY: Signature:  Date: 10/16/25 Printed Name: <b>Erik Johnson</b> Time: 1740 Company: <b>Terracon</b>	RECEIVED BY: Signature:  Date: 10/16/25 Printed Name: _____ Time: 1740 Company: <b>Apex</b>
--	--

**SPECIAL INSTRUCTIONS:**  
C.C. results: erik.johnson@terracon.com  
Hold sample for:  
• NWT PH-GX  
• NWT PH-DX  
• BTEX  
• MTBE, Napthalene, 3,3'-dipropylbenzene,  
• 1,1'-propylbenzene, 1,2,4-Trinitrobenzene,  
• 1,3,5-Trinitrobenzene, EDC, EDB,  
• PAHs (6020)

Form Y-02 R-02

Apex Laboratories

Darwin Thomas, Business Development Director

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503-718-2323  
ORELAP ID: OR100062

<b>Terracon Consultants Inc.</b> 700 NE 55th Ave Portland, OR 97213	Project: <b>Portland Road Fueling Station</b> Project Number: <b>82257277</b> Project Manager: <b>Trevor Farrell</b>	<b>Report ID:</b> <b>A5J1585 - 11 05 25 1335</b>
---	--	---

**APEX LABS COOLER RECEIPT FORM** on 10/16

**Client:** Terracon Element WO#: ~~A5~~ A5J1585

**Project/Project #:** Portland Road Fueling Station

**Delivery Info:**  
 Date/time received: 10/16/25 @ 1740 By: KRS  
 Delivered by: Apex  Client  ESS  FedEx  UPS  Radio  Morgan  SDS  Evergreen  Other   
 From USDA Regulated Origin? Yes  No

**Cooler Inspection** Date/time inspected: 10/16/25 @ 1740 By: KRS  
 Chain of Custody included? Yes  No   
 Signed/dated by client? Yes  No   
 Contains USDA Reg. Soils? Yes  No  Unsure (email RegSoils)

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>1.4</u>	<u>0.1</u>					
Custody seals? (Y/N)	<u>N</u>	<u>→</u>					
Received on ice? (Y/N)	<u>Y</u>	<u>→</u>					
Temp. blanks? (Y/N)	<u>Y</u>	<u>→</u>					
Ice type: (Gel/Real/Other)	<u>Real</u>	<u>→</u>					
Condition (In/Out):	<u>In</u>	<u>→</u>					

Cooler out of temp? (Y/N)  Possible reason why: \_\_\_\_\_  
 Green dots applied to out of temperature samples? Yes  No   
 Out of temperature samples form initiated? Yes  No   
**Sample Inspection:** Date/time inspected: 10/16/25 @ 1802 By: JS  
 All samples intact? Yes  No  Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 Bottle labels/COCs agree? Yes  No  Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 COC/container discrepancies form initiated? Yes  No   
 Containers/volumes received appropriate for analysis? Yes  No  Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 Do VOA vials have visible headspace? Yes  No  NA   
 Comments: \_\_\_\_\_  
 Water samples: pH checked: Yes  No  NA  pH appropriate? Yes  No  NA  pH ID: \_\_\_\_\_  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_

Labeled by: JS Witness: Jaws-DAM  
WVLS-JS Cooler Inspected by: JS

Form Y-003 R-02

Apex Laboratories

Darwin Thomas, Business Development Director

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**APPENDIX B**  
**LUST 24-92-4217 HISTORICAL**  
**DOCUMENTS**

**INITIAL SITE CHARACTERIZATION REPORT  
TRUAX HARRIS ENERGY COMPANY  
4180 PORTLAND ROAD NE  
SALEM, OREGON**

**DEQ FILE NO. 24-92-4217**

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A Report Prepared For:

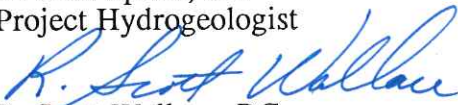
Mr. Rob Forrest  
Truax Harris Energy Company  
P.O. Box 607  
Wilsonville, Oregon 97070

**INITIAL SITE CHARACTERIZATION REPORT  
TRUAX HARRIS ENERGY COMPANY  
4180 PORTLAND ROAD NE  
SALEM, OREGON**

Kleinfelder Project Number 60-5023-01

Prepared By:

  
T. Alan Sprott, RG  
Project Hydrogeologist

  
R. Scott Wallace, RG  
Project Manager

KLEINFELDER, INC.  
15050 S.W. Koll Parkway, Suite L  
Beaverton, Oregon 97006  
(503) 644-9447

July 8, 1993



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### PLATES

1. Site Location Map
2. Schematic Site Map
3. Monitoring Well Location Map
4. Site Ground Water Potentiometric Surface Map, March 1993

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1. Hydrocarbon Identification-Soil
2. Volatile Organic Compounds-Ground Water
3. Polynuclear Aromatic Hydrocarbons-Ground Water
4. Ground Water Elevation Data, March 1993

### APPENDICES

- A. Site Exploration Methods
- B. Boring and Monitoring Well Logs
- C. Laboratory Analytical Reports
- D. Soil Disposal Weight Ticket
- E. Application for Authorization to Use



## 1.0 EXECUTIVE SUMMARY

In November 1992, C & K Petroleum Equipment Company (C & K) responded to a call from Truax Harris Energy Company to check a diesel product line. Line testing identified a leak near a diesel sub pump. A petroleum release was subsequently reported to the Department of Environmental Quality (DEQ)-Willamette Valley Region by C & K. Petroleum contaminated soils (PCS) were excavated around the release area and removed to the extent practicable. Approximately 31 tons of excavated PCS were subsequently transported to an off-site facility for disposal (Appendix D). These activities were documented in a Kleinfelder report titled Underground Storage Tank Release Notification, dated February 10, 1993.

1992  
diesel

Additional site characterization work was performed in February 1993 to further assess the lateral and vertical extent of remaining PCS, and their potential impact to near-surface ground water. Three ground water monitoring wells were installed on February 5, 1993. The maximum depth of the well borings was 50.5 feet below ground surface (bgs). Field indications of hydrocarbon impacts to soil or ground water were not observed. Hydrocarbon identification analyses indicated that petroleum compounds were not detected above method detection limits in soil samples collected from each of the borings.

Following monitoring well installation, ground water was measured and found to be approximately 45 feet bgs. The potentiometric surface at the site is thought to be nearly horizontal, however, a slight gradient (flow direction) trending from northwest to southeast across the site was interpreted based upon March 1993 ground water elevation data.

NO PHT  
BTB

Volatile organic compounds and polynuclear aromatic hydrocarbons were not detected in ground water samples collected from wells MW01, MW02, and MW03.

In order to further assess the effectiveness of remedial activities conducted to date, Kleinfelder recommends quarterly sampling and analysis of ground water from the existing monitoring wells for a period of one year. Laboratory analyses of petroleum-related compounds would be as specified in (Oregon Administrative Rules [OAR] 340-122-242).

This report serves as the Initial Site Characterization Report required by OAR 340-122-230, and the Investigation for Soil and Ground Water Cleanup required by OAR 340-122-240.

## 2.0 INTRODUCTION

Kleinfelder was retained by Truax Harris Energy Company (Truax) to observe and document activities related to a petroleum release at a Truax facility located at 4180 Portland Road N.E., in Salem, Oregon (Plate 1). The facility operates as an ARCO service station. Upon discovery of PCS, remediation, sampling and characterization activities were conducted in accordance with DEQ protocols for initial abatement measures and site characterization (OAR 340-122-225 through 340-122-235). These activities were summarized in previous Kleinfelder report, Underground Storage Tank Release Notification, dated January 5, 1993.

In order to assess the vertical and lateral extent of remaining PCS, additional site characterization activities including installation of soil borings and monitoring wells, soil sampling, and ground water sampling were performed. This report presents the results of this additional site characterization work, and includes recommendations to address on-site ground water issues.



### 3.0 BACKGROUND

The site is located in a commercially zoned area west of Interstate 5 in the northern part of Salem, Oregon (Plate 1). The site lies within Section 12, Township 7 South, Range 3 West, Willamette Meridian. The site is located approximately two miles east of the Willamette River and encompasses approximately 1/2-acre.

Tertiary and Quaternary undifferentiated valley fill sediments underlie the site. Tertiary non-marine and marine rocks are present beneath the valley fill sediments in the northern part of the Willamette Valley (Oregon Department of Geology and Mineral Industries, 1969).

The site operates as a retail vehicle fueling facility equipped with four USTs. Products dispersed include regular, unleaded and super unleaded gasoline, and diesel fuel.

On November 2, 1992, C & K repaired a leaking diesel line fitting adjacent to the diesel UST (Plate 2). Approximately 31 tons of PCS were excavated when the fitting was repaired and stockpiled on-site. This material was transported to the Roosevelt Regional Landfill in Roosevelt, Washington for disposal on December 10, 1992.

PCS  
31 TONS  
TRANSPORTED  
DOWNTOWN

### 4.0 SCOPE OF WORK

Kleinfelder's scope of work for this portion of the project was to characterize soil and ground water conditions underlying the site. The soil and ground water data was then evaluated against the UST cleanup rules for leaking petroleum UST systems. Assessment methodology, conclusions, and recommendations are summarized in this report.

### 5.0 SITE CHARACTERIZATION

#### 5.1 Soil Borings

A total of three borings were drilled at the site on February 5, 1993. The purpose of the borings was to observe and document on-site subsurface conditions and collect soil samples for laboratory analyses. Boring locations were selected to augment existing laboratory data regarding the distribution of hydrocarbon compounds in subsurface soils (Plate 3).

The borings were drilled using truck-mounted hollow-stem auger drilling equipment. The borings were each advanced to depths of 51.5 feet bgs. Subsurface conditions were observed and recorded on boring logs by a Kleinfelder geologist. The logs are presented in Appendix B on Plates B-2 through B-4. A key to soil symbols and terms is provided on Plate B-1.

#### 5.2 Monitoring Well Installation

The three borings were completed as ground water monitoring wells on February 5, 1993, to facilitate collection of ground water samples. The wells were installed in accordance with the DEQ Ground-water Monitoring Well Drilling, Construction, and Decommissioning guidance document, dated August 24, 1992. Well locations are illustrated on Plate 3.

Each well was screened (perforated) from 40 to 50 feet bgs. Monitoring wells were developed on March 4, 1993, using procedures outlined in Appendix A.

Monitoring well surface elevations were surveyed on February 25, 1993, by a registered land surveyor (Thomas Wright, Inc., of Tigard, Oregon). On March 11, 1993, ground water



elevations were measured (Table 4) and the wells sampled. Wells were purged and sampled according to protocols outlined in Appendix A. Samples were submitted for laboratory analyses using chain-of-custody documentation to Analytical Technologies, Inc. of Durham, Oregon.

Monitoring well construction details are included for reference on Plates B-2 through B-4 in Appendix B.

### 5.3 Laboratory Analyses

A total of three soil samples were analyzed for gasoline, diesel and heavy oil (C28-C40) in accordance with Total Petroleum Hydrocarbon Identification Analysis by Oregon method TPH-HCID.

Three ground water samples were analyzed for one or more of the following target compounds in accordance with the corresponding analytical method.

- o Purgeable aromatics (benzene, ethylbenzene, toluene, xylenes) (EPA Method 8020).
- o Polynuclear aromatic hydrocarbons (PNA's) (EPA Method 8310).

Laboratory reports and chain-of-custody documents are included in Appendix C. Laboratory analytical results for soil and ground water are summarized in Tables 1 through 3.

### 5.4 Findings

#### 5.4.1 Soil

In general, subsurface soils consisted of surficial fill, sandy clay, and sandy silt to approximately 35 to 40 feet. Below 40 feet the soil profile consisted of sand and sandy gravel to the maximum depth of the boreholes (51.5 feet, bgs).

The following summarizes the analytical results, field screening, and observed conditions associated with each well boring. Refer to Plate 3 for monitoring well locations and Appendix B for soil boring logs and monitoring well construction details.

- o **Well boring MW01:** The soil profile consisted of gravel fill, underlain by sandy clay, sandy silt, and silty sand to 36 feet. Sand was encountered from 36 to 49 feet. Sandy gravel was encountered from 49 to 51.5 feet bgs. Ground water was encountered at approximately 46 feet bgs. PID readings above background levels were not recorded. Soil staining or unusual odors were not observed. A soil sample collected from 10 feet bgs was submitted for HCID analyses. HCID results for this sample were non-detect for hydrocarbon compounds.
- o **Well boring MW02:** The soil profile consisted of gravel, clay and sand fill, underlain by sandy silt and silty sand to 41 feet bgs. Sand was encountered from 41 to 43.5 feet bgs. Sandy gravel was encountered from 43.5 to 51.5 feet bgs. Ground water was encountered at approximately 45 feet bgs. PID readings above background levels were not recorded. Soil staining or unusual odors were not observed. A soil sample collected at 6 feet bgs was submitted for HCID analyses. HCID results for this sample were non-detect for hydrocarbon compounds.

*New  
Advisory  
Change  
Review of  
Soil Sample*



- o **Well boring MW03:** The soil profile consisted of gravel fill, underlain by silty clay, clayey silt, and silty sand to 41 feet bgs. Sand and gravelly sand was encountered from 41 to 51.5 feet bgs. Ground water was encountered at approximately 45 feet bgs. PID readings above background levels were not recorded. Soil staining or unusual odors were not observed. A soil sample collected at 10 feet bgs was submitted for HCID analyses. HCID results for this sample were non-detect for hydrocarbon compounds.

#### 5.4.2 Ground Water

Plate 4 illustrates an interpretation of ground water contours based on March 11, 1993 elevation data. This data is summarized on Table 4. The ground water potentiometric surface is nearly horizontal, however, the data reflects a very slight gradient (flow direction) from northwest to southeast across the site. Free product was not observed in any of the monitoring wells during the March 11, 1993 sampling event.

Analytical results for ground water samples are summarized on Tables 2 through 4. Field observations and laboratory analytical data for each well are summarized below.

- o **MW01:** The ground water elevation on March 11, 1993 was 131.74 feet above mean sea level (MSL). Free product and/or hydrocarbon odors were not observed. A ground water sample was collected and analyzed for benzene, toluene, ethylbenzene, xylenes, and polynuclear aromatic hydrocarbons (PNAs). None of these compounds were detected above their respective method detection limits.
- o **MW02:** The ground water elevation on March 11, 1993 was 131.78 feet MSL. Free product and/or hydrocarbon odors were not observed. A ground water sample was collected and analyzed for benzene, toluene, ethylbenzene, and xylenes. None of these compounds were detected above their respective method detection limits.
- o **MW03:** The ground water elevation on March 11, 1993 was 131.75 feet MSL. Free product and/or hydrocarbon odors were not observed. A ground water sample was collected and analyzed for benzene, toluene, ethylbenzene, and xylenes. None of these compounds were detected above their respective method detection limits.

## 6.0 CONCLUSIONS

Three soil borings were drilled to provide additional soil data on the lateral and vertical distribution of PCS in the vicinity of a petroleum hydrocarbon release which was discovered in November, 1992. Field observations and subsequent laboratory analyses did not indicate the presence of PCS in the areas explored during this investigation. Based on work conducted to-date, it appears that PCS were primarily located in the vicinity of the tank vault and did not extend laterally beyond this area.

Static ground water was encountered approximately 45 feet bgs across the site. The ground water potentiometric surface appears to be nearly horizontal, however, March 1993 elevation data reflects a gentle northwest-southeast trending ground water flow direction. Water samples collected from wells MW01, MW02 and MW03 on March, 1993 did not contain detectable concentrations of hydrocarbon compounds.

The excavation and off-site disposal of approximately 31 tons of PCS in November 1992, appears to have effectively removed impacted soils from the site. To-date, ground water does not appear to have been adversely impacted from the November 1992 release.



## 7.0 RECOMMENDATIONS

In order to assess the effectiveness of remedial activities (PCS excavation and removal) conducted to date, Kleinfelder recommends quarterly sampling and analysis of ground water from the existing monitoring wells for a period of one year. Laboratory analysis of petroleum-related compounds would be as specified in OAR 340-122-242.

## 8.0 LIMITATIONS

Kleinfelder has performed this work in accordance with the generally accepted standards of care that exist in the state of Oregon at the time of this assessment. Judgements leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface and historical conditions applicable to the study area. More extensive studies including historical review, additional site exploration, soil and ground water sampling, and chemical analyses may be used to supplement the information presented by this assessment. Kleinfelder should be notified for additional consultation if Truax Harris Energy Company wishes to reduce uncertainties beyond the level associated with this assessment. Our assessment of the property may also change as new data becomes available during additional site exploration, remediation, or development.

Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings, and opinions can be considered valid only as of the date of the report.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on and off-site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than Truax Harris Energy Company who wish to use this report shall notify Kleinfelder of such intended use by executing the "Application for Authorization to Use" which follows this document as an Appendix. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the clients or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

No warranty, express or implied, is made.

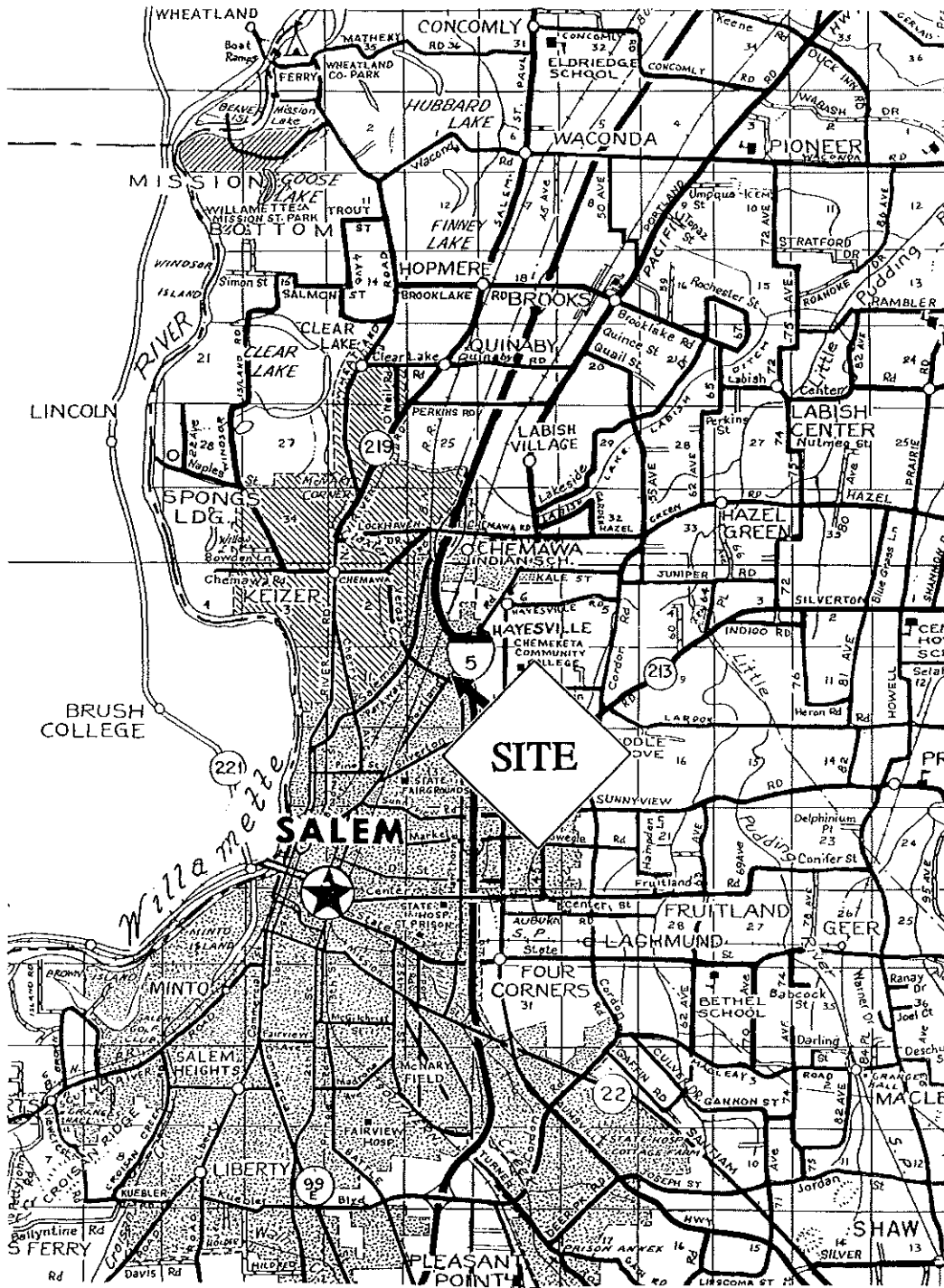
## 9.0 REFERENCES

- o Kleinfelder Inc., January 5, 1993. Underground Storage Tank Release Notification and Proposed Site Assessment Activities, ARCO Service Station, 4180 Portland Road NE, Salem, Oregon. Report prepared for Truax Harris Energy Company.
- o Oregon Department of Environmental Quality, August 1992. Ground water monitoring well drilling, construction and decommissioning guidance document.
- o Oregon Department of Geology and Mineral Industries, 1969. Mineral and Water Resources of Oregon. Bulletin 64. Portland, Oregon.



- o OAR 340-122-205 through 360, October 1992. Oregon Administrative Rules for Underground Storage Tanks, UST Cleanup Manual. Portland, Oregon.





REFERENCE: PITTMON MARION COUNTY MAP  
SCALE 1 INCH = 2 MILES

**KLEINFELDER**

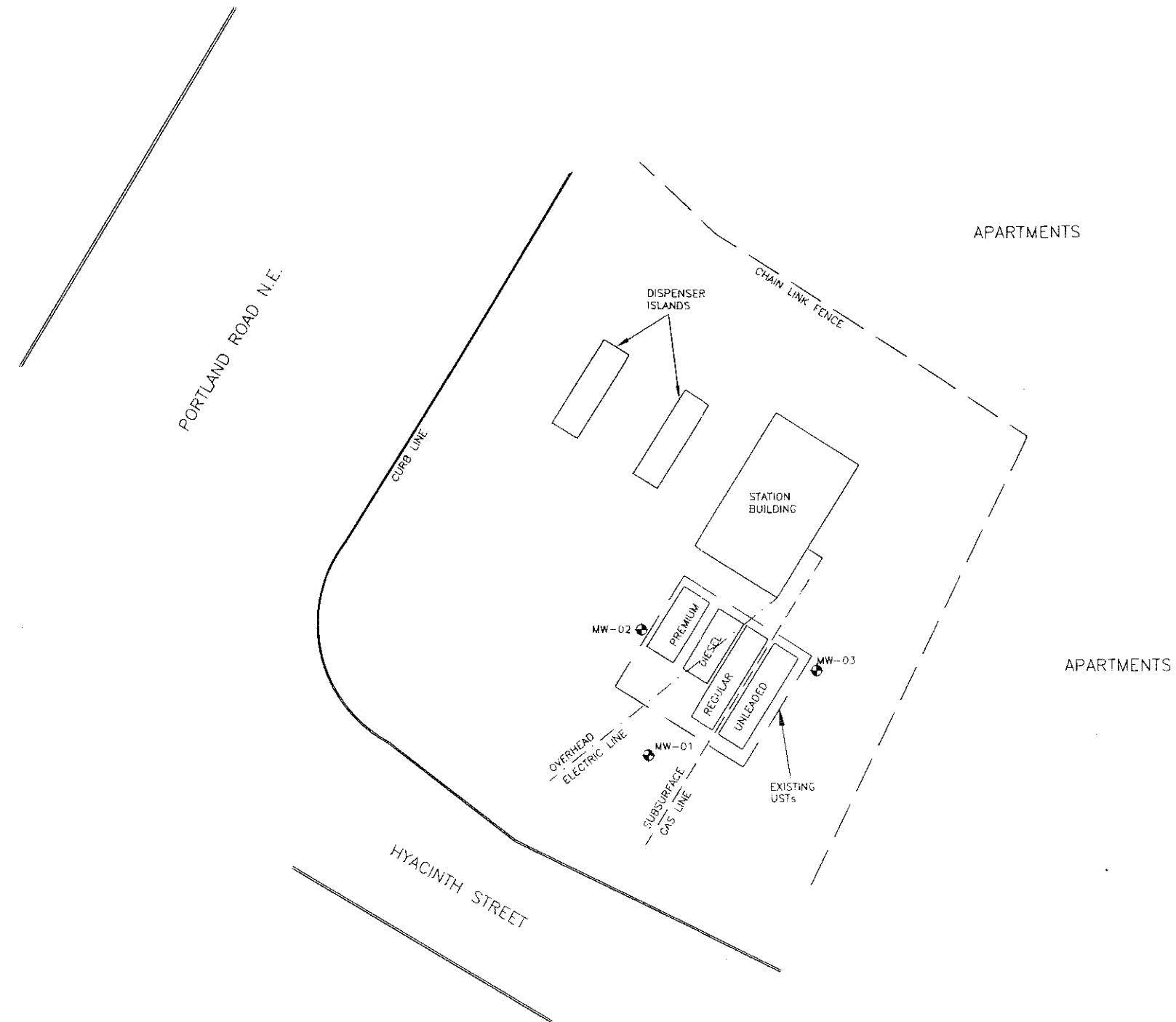
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502301P1.DRW

SITE LOCATION MAP, TRUAX HARRIS ENERGY COMPANY  
4180 PORTLAND ROAD NE  
SALEM, OREGON

Project # 60-5023-01


PLATE 1




REV.	DATE	DESCRIPTION	DWN.

DESIGNED BY \_\_\_\_\_  
 DRAWN \_\_\_\_\_  
 CHECKED \_\_\_\_\_  
 APPROVED \_\_\_\_\_  
 ENG. MGR. \_\_\_\_\_  
 DATE \_\_\_\_\_

CUSTOMER \_\_\_\_\_  
 LOCATION \_\_\_\_\_

  
**TRUAX HARRIS ENERGY COMPANY**  
 25115 SW PARKWAY  
 WILSONVILLE, OR 97070

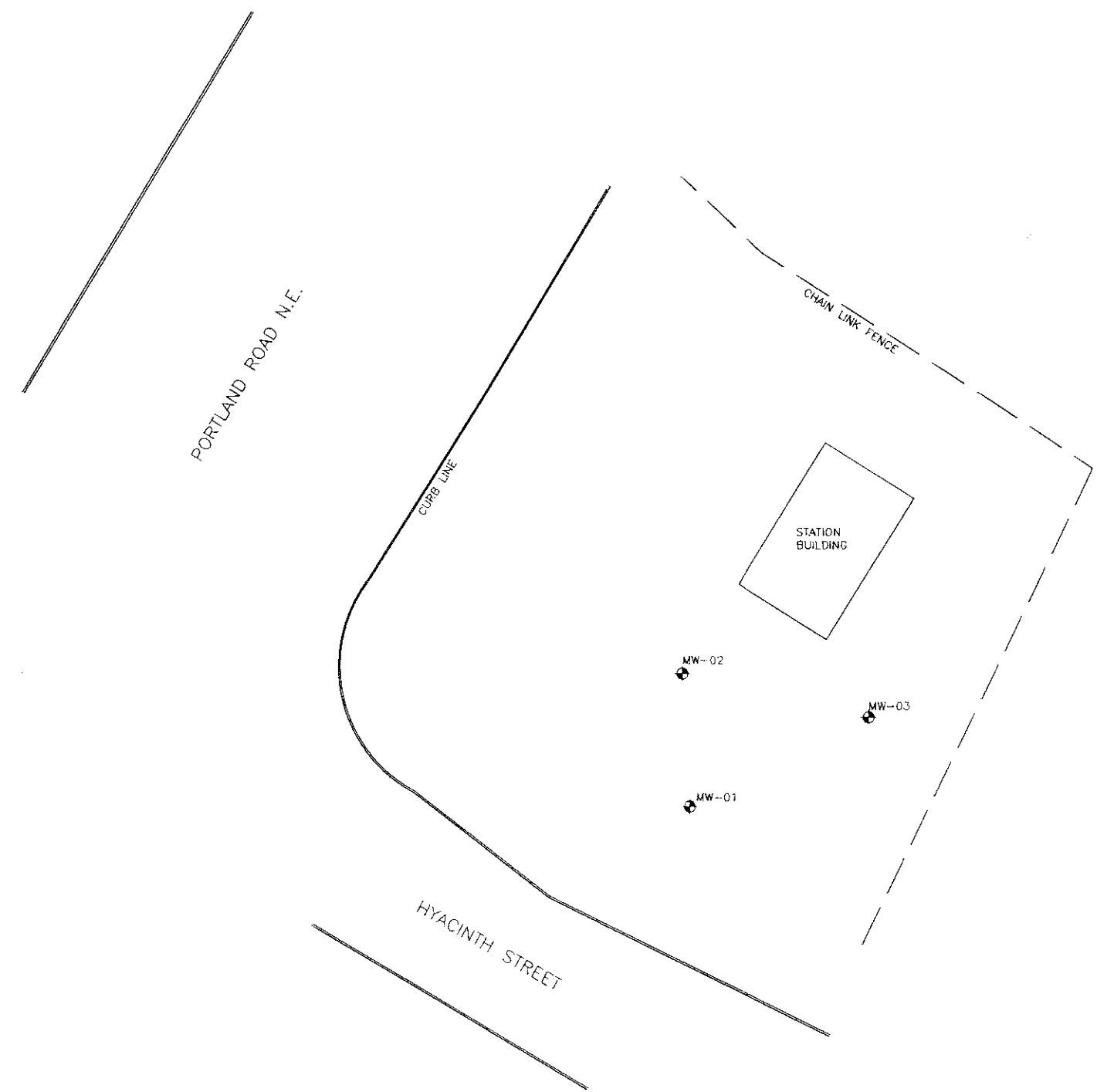
 **KLEINFELDER**  
 10260 S.W. GREENBERG ROAD, SUITE 400  
 PORTLAND, OR 97223  
 (503) 293-8463

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DESCRIPTION  
**SCHEMATIC SITE MAP**  
 4180 PORTLAND RD. N.E. SALEM, OREGON

PROJ. NO. 60-5023-01 FILED AS /TRUAX/1264-1 DRAWING NO. \_\_\_\_\_

PLATE  
**2**  
 SHEET OF



EXPLANATION

 MONITORING WELL LOCATION  
MW-03

REV.	DATE	DESCRIPTION	DWN.

DESIGNED BY \_\_\_\_\_

DRAWN \_\_\_\_\_

CHECKED \_\_\_\_\_


APPROVED \_\_\_\_\_

ENG. MGR. \_\_\_\_\_

DATE \_\_\_\_\_

CUSTOMER \_\_\_\_\_

LOCATION \_\_\_\_\_



**TRUAX HARRIS ENERGY COMPANY**  
25115 SW PARKWAY  
WILSONVILLE, OR 97070



**KLEINFELDER**  
10260 S.W. GREENBERG ROAD, SUITE 400  
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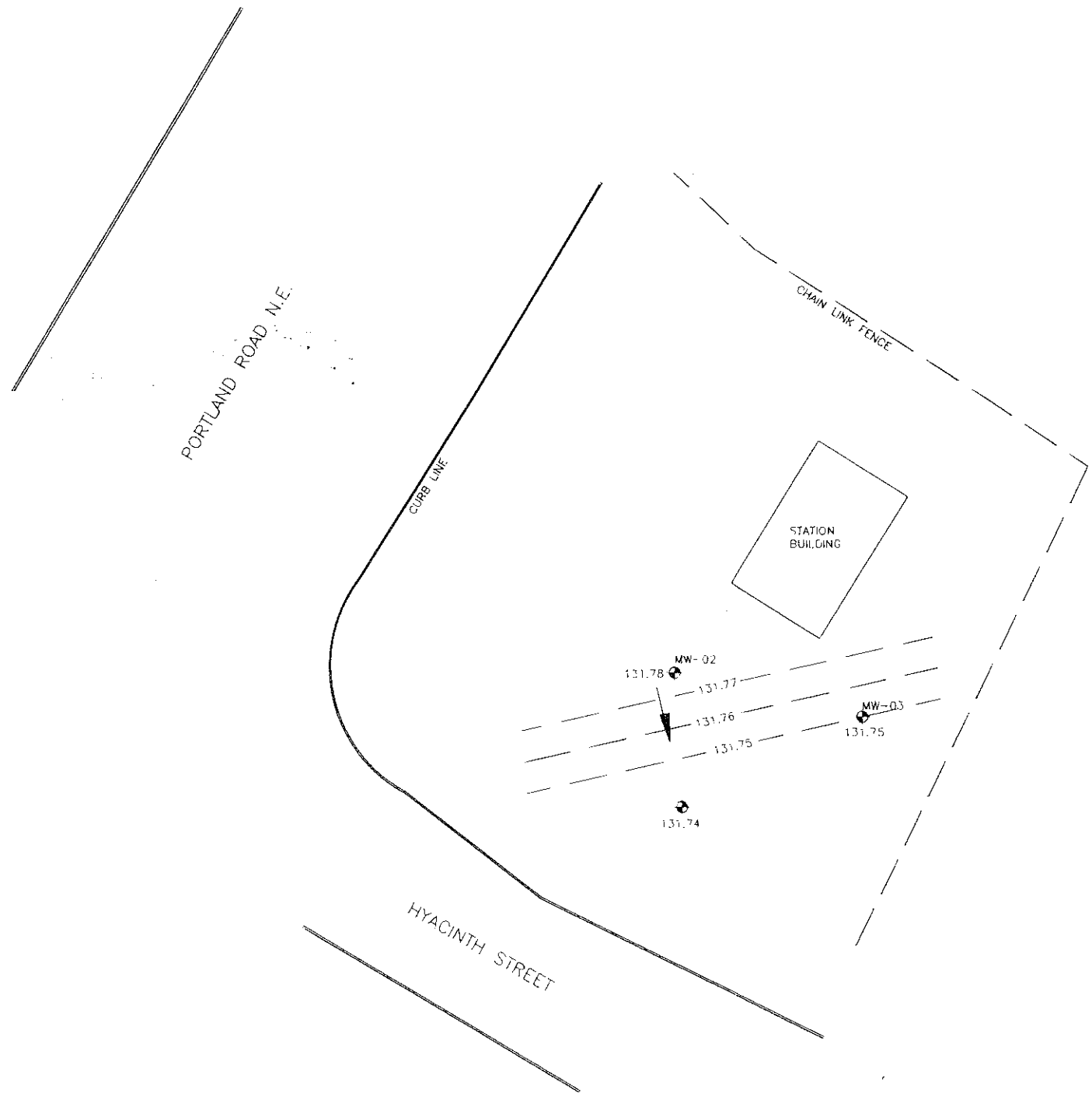
DESCRIPTION

MONITORING WELL LOCATION MAP




4180 PORTLAND RD, N.E. SALEM, OREGON

PROJ. NO.	FILED AS	DRAWING NO.
60-5023-01	/TRUAX/1264-1	

PLATE  
**3**  
SHEET  
OF



**EXPLANATION**

-  MONITORING WELL WITH GROUNDWATER ELEVATION
-  POTENTIOMETRIC SURFACE CONTOUR ELEVATION
-  ESTIMATED DIRECTION OF GROUNDWATER FLOW

ELEVATIONS REFERENCED TO MEAN SEA LEVEL

1264-1

REV.	DATE	DESCRIPTION	DWN.

DESIGNED BY \_\_\_\_\_  
 DRAWN \_\_\_\_\_  
 CHECKED \_\_\_\_\_  
 APPROVED \_\_\_\_\_  
 ENG. MOR. \_\_\_\_\_  
 DATE \_\_\_\_\_

CUSTOMER \_\_\_\_\_  
 LOCATION \_\_\_\_\_

TRUAX HARRIS ENERGY COMPANY  
 25115 SW PARKWAY  
 WILSONVILLE, OR 97070



**KLEINFELDER**  
 10260 S.W. GREENBERG ROAD, SUITE 400  
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DESCRIPTION

DESCRIPTION  
 SITE GROUNDWATER POTENTIOMETRIC SURFACE MAP MARCH 1993  
 4180 PORTLAND RD. N.E. SALEM, OREGON

PLATE  
 4  
 SHEET  
 01

PROJ. NO. 60-5023-01	FILED AS TRUAX/1264-1	DRAWING NO.
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**TABLE 1  
 HYDROCARBON IDENTIFICATION ANALYSIS (1), SOILS  
 TRUAX HARRIS ENERGY COMPANY  
 4180 PORTLAND ROAD NE  
 SALEM, OREGON**

<b>SAMPLE NUMBER</b>	<b>MW01-10</b>	<b>MW02-6</b>	<b>MW03-10</b>
<b>SAMPLE DATE</b>	2-5-93	2-5-93	2-5-93
<b>SAMPLE DEPTH (feet)</b>	10	6	10
<b>(UNITS: mg/Kg, milligrams/kilogram)</b>			
<b>GASOLINE CONCENTRATION</b>	<20	<20	<20
<b>DIESEL CONCENTRATION</b>	<50	<50	<50
<b>HEAVY OIL (C28-C40)</b>	NO	NO	NO

(1) Oregon Test Method OTPH-HCID.  
 < Concentration less than concentration listed (non-detect).  
 NO Analyte not observed.

ATI# 302525  
 502301T1.WK1

**TABLE 2  
VOLATILE ORGANIC COMPOUNDS (1), GROUND WATER  
TRUAX HARRIS ENERGY COMPANY  
4180 PORTLAND ROAD NE  
SALEM, OREGON**

MONITORING WELL/LOCATION	MW01	MW02	MW03
SAMPLE NUMBER	71853	71854	71855
SAMPLE DATE	3-11-93	3-11-93	3-11-93
(UNITS: ug/L, micrograms per liter)			
BENZENE	<0.5	<0.5	<0.5
TOLUENE	<0.5	<0.5	<0.5
ETHYLBENZENE	<0.5	<0.5	<0.5
TOTAL XYLENES	<0.5	<0.5	<0.5

(1) EPA Method 8020(M).

< Concentration less than concentration listed (non - detect).

ATI #303540  
502301T2.WK1

TABLE 3  
 POLYNUCLEAR AROMATIC HYDROCARBONS (1), GROUND WATER  
 TRUAX HARRIS ENERGY COMPANY  
 4180 PORTLAND ROAD NE  
 SALEM, OREGON

MONITORING WELL/LOCATION	MW03	
SAMPLE NUMBER	71853	CLEANUP
SAMPLE DATE	3-11-93	LEVELS (2)
(UNITS: ug/l, micrograms per liter)		
NAPHTHALENE	<0.5	28
ACENAPHTHYLENE	<1.0	NP
ACENAPHTHENE	<0.5	420
FLOURENE	<0.1	280
PHENANTHRENE	<0.05	NP
ANTHRACENE	<0.05	2100
FLUORANTHENE	<0.1	280
PYRENE	<0.1	210
BENZO (A) ANTHRACENE	<0.1	0.1
CHRYSENE	<0.1	0.2
BENZO (B) FLUORANTHENE	<0.1	0.2
BENZO (K) FLUORANTHENE	<0.1	0.2
BENZO (A) PYRENE	<0.1	0.2
DIBENZO (A,H) ANTHRACENE	<0.2	0.3
BENZO (G,H,I) PERYLENE	<0.1	NP
INDENO (1,2,3-CD) PYRENE	<0.1	0.4

(1) EPA Method 8310.

(2) Numeric ground water cleanup levels, OAR 340-122-242.

< Concentration less than detection limit listed (non-detect)

NP Numeric ground water cleanup level not provided in OAR 340-122-242 (4).

ATI# 303539

502301T3.WK1

TABLE 4  
 MONITORING WELL DATA SUMMARY  
 GROUND WATER ELEVATIONS, MARCH 11, 1993  
 TRUAX HARRIS ENERGY COMPANY  
 4180 PORTLAND ROAD NE  
 SALEM, OREGON

MONITORING WELL NUMBER	SCREENED INTERVAL (1)	WELL DIAMETER	TOTAL DEPTH OF WELL (1)	DEPTH TO PRODUCT (1)	DEPTH TO WATER (1)	APPARENT PRODUCT THICKNESS (FT)	TOP OF CASING ELEVATION (2)	GROUND-WATER ELEVATION (3)
MW01	40-50	2 INCH	50	-	44.09	0.00	175.83	131.74
MW02	40-50	2 INCH	50	-	44.20	0.00	175.98	131.78
MW03	40-50	2 INCH	50	-	44.83	0.00	176.58	131.75

- (1) Depth in feet, measured from top of PVC well casing.
- (2) Elevation in feet, surveyed to top of PVC.
- (3) Elevation in feet, above mean sea level.

## APPENDIX A SITE EXPLORATION METHODS

### SOIL BORING AND SAMPLING OPERATIONS

A Kleinfelder licensed soil matrix supervisor was present during the soil boring and sampling operations. The supervisor obtained samples of subsurface materials, maintained a continuous log of the borings, and documented information concerning site conditions.

All down-hole drilling and sampling equipment was steam-cleaned prior to drilling each boring. Between each sample interval within the borings, the sampling equipment was cleaned with a trisodium phosphate wash and a distilled water rinse.

The supervisors duties included inspecting soil samples and drill cuttings for evidence of contamination, indicated by noticeable odor, visible staining, or discoloration on the soil sampler and in the soil sample. A portion of each soil sample was placed into a plastic zip-lock bag and the collected vapors drawn through the PID for qualitative screening of volatile organic emissions. The vapor reading was noted as the field screening result.

### HOLLOW STEM AUGERS

Hollow-stem auger borings were sampled at five-foot intervals using an 18-inch long, two-inch ID split-spoon sampler. The split-spoon sampler was driven in front of the lead auger at selected intervals using a 140 pound hammer allowed to free fall 30 inches. The number of blows required to drive the sampler each 6-inch interval were recorded on the boring logs. The soils were visually classified in the field according to the Unified Soil Classification System.

Materials were screened in the field using a PID. Samples were collected for laboratory analysis at selected intervals by transferring soil from the sampler into eight ounce jars prepared by the laboratory. The samples were submitted for analysis, under chain-of-custody, to ATI of Durham, Oregon. Samples were selected for analysis based on visual observations and the results of field screening.

### GROUND WATER MONITORING WELL CONSTRUCTION

Ground water monitoring wells were completed in the following manner:

The well casing materials consisted of 2-inch-diameter, flush-threaded, schedule 40 PVC pipe.

The screened interval of the well casing was perforated with 0.020-inch factory-cut slots.

The filter pack for the well will consisted of clean, #8/12 Silica Sand.

The annular seal of the well will consisted of granulated bentonite, which was hydrated with potable water.

All PVC casing materials were steam-cleaned prior to installation.



The bottom of the well casing was sealed with a threaded sediment cup. Blank (non-slotted) riser casing was used to extend the well from the top of the screened interval to ground surface.

Well construction was accomplished by lowering the casing, into the completed boring, through the inside of the hollow-stem augers. The augers were withdrawn from the boring about three feet, and the resulting annular space around the well screen backfilled with sand (poured through the top of the hollow-stem augers). This process was repeated until the filter pack was installed to about two feet above the top of the screened interval. The augers were completely withdrawn from the boring, and the annular space around the blank riser backfilled with approximately three feet of granulated bentonite. The remaining blank riser was backfilled to within one foot of the ground surface with concrete.

The well casing was sealed at the ground surface with a watertight expansion cap. After installation, the expansion cap was secured with a padlock.

The monitoring wells were completed above surface grade and fitted with a tamper-resistant steel cover which will be grouted in place with concrete.

A reference point was marked on the top of the PVC well casing for consistent ground water depth measurements.

The well was developed after installation by swab surging and water/sediment removal with an air lift tool.

### WATER LEVEL MEASUREMENTS

The elevation of each monitoring well casing was surveyed relative to mean sea level by a registered land surveyor. The static water level was measured in each monitoring well using an interface probe.

### MONITOR WELL SAMPLING

Kleinfelder personnel sampled ground water monitoring wells in accordance with the following protocol:

The height of the water column within the well was calculated by subtracting the depth to water from the total depth of the well. The volume of this water column was calculated using the relationship  $V = 3.142r^2h$ . Where V is the volume of water in cubic feet, r is the radius of the well in feet and h is the height of the water column in feet.

A minimum of three casing volumes of water were removed from the well using an air lift tool or disposable bailer. Temperature, pH, and specific conductivity were monitored during the well purge. Standards of known pH and specific conductance were used to calibrate the field meter prior to use.

The contract laboratory prepared sample containers to conform with EPA-recommended preservation techniques for the analytes of concern.



The ground water sample was collected with a disposable bailer and clean, unused rope. Sample containers were open only as long as necessary to collect the samples.

Sample containers were labeled with a sample number, date, time, and sampler's name and stored in an ice chest containing frozen "blue ice." Chain-of-custody procedures documented sample handling.



# UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION	MAJOR DIVISIONS		LTR	DESCRIPTION		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	G W	Well-graded gravels or gravel sand mixtures, little or no fines.	FINE GRAINED SOILS	SILTS AND CLAYS LL < 50	M L	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.		
		G P	Poorly-graded gravels or gravel sand mixture, little or no fines.			C L	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
		G M	Silty gravels, gravel-sand-silt mixtures.			O L	Organic silts and organic silt-clays of low plasticity.		
		G C	Clayey gravels, gravel-sand-clay mixtures.						
	SAND AND SANDY SOILS	S W	Well-graded sands or gravelly sands, little or no fines.		SILTS AND CLAYS LL > 50	M H	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts.		
		S P	Poorly-graded sands or gravelly sands, little or no fines.			C H	Inorganic clays of high plasticity, fat clays.		
		S M	Silty sands, sand, and silt mixtures.			O H	Organic clays of medium to high plasticity.		
		S C	Clayey sands, and clay mixtures.						
					HIGHLY ORGANIC SOILS		P I	Peat and other highly organic soils.	

General Vicinity of Soil Contact (Contact Between Sample Intervals)

Soil Contact Noted During Drilling

Standard penetration split spoon sample

Modified California (Porter) sample

Shelby tube sample

Water level observed during drilling

Stabilized water level

NFWE No free water encountered

NOSC No odor, scent, or fluid cut

OVA Organic Vapor Analyzer

PID Total organic vapors (parts per million by volume) measured by a photoionization device

Blank casing

Screened casing

Cement grout

Bentonite

Sand pack or gravel pack

### Percent Soil Content

Trace 0 - 10%

Little 10 - 20%

Some 20 - 30%

Sandy }  
Silty } 30 - 50%  
Clayey }

**NOTES:** Blow counts represent the number of blows of a 140-pound hammer falling 30 inches required to drive a sampler through the last 12 inches of an 18-inch penetration.

The lines separating strata on the logs represent approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.

References to plasticity of cohesive soils are based on qualitative field observations and not on quantitative field or laboratory tests. Qualitative soil plasticity is noted solely to aid in stratigraphic correlation and is not intended for geotechnical characterization of soils.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	PID (ppmv)		INTERVAL	NUMBER		
0							AS	2" asphalt.
							FILL	FILL, sandy gravel, brown, moist, loose.
							CL	SANDY CLAY, brown. 2.5-3.5 feet, dark gray, organic odor. Brown at 3.5 feet.
5			0	8 12 24		MW01-5	ML	SANDY SILT, with clay, brown. Black mottling, as isolated 1/4" diameter zones, no odor.
10			0	8 10 12		MW01-10		
15			0	18 20 26		MW01-15	SM	SILTY SAND, light brown, moist, medium dense.  Very consistent.
20			0	14 15 15		MW01-20		SILTY SAND, light brown, fine, moist, medium dense.  Very consistent.
25								

LOGGED BY: GF  
DATE DRILLED: 2-5-93  
CASING TYPE: PVC  
Comments:

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 51.5  
DIAMETER OF BORING: 8"

DRILLING METHOD: Hollow Stem Auger  
SCREEN SIZE: 0.02"  
CASING SIZE: 2"



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50231B2.DRW

**LOG OF GROUNDWATER WELL, MW-01**  
TRUAX HARRIS ENERGY COMPANY  
ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON

Project # 60-5023-01

**PLATE B-2**

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABO-RATORY	PID (ppmv)		INTERVAL	NUMBER		
25			0	13 13 21		MW01-25		
30			0	22 30 40		MW01-30		Grades to dense. Moist to very moist.
35			0	13 18 24		MW01-35	CL	SILTY CLAY, light brown, very moist, firm,
40			0	20 28 40		MW01-40	SP	SAND, dark brown, moist, medium dense.
45			0	42 28 28		MW01-45		SAND, dark brown, very moist, medium dense.
50						GP	SANDY GRAVEL, dark brown, wet, dense.	

LOGGED BY: **GF**  
 DATE DRILLED: **2-5-93**  
 CASING TYPE: **PVC**  
 Comments:

SURFACE ELEVATION (feet): **175.98**  
 TOTAL DEPTH (feet): **51.5**  
 DIAMETER OF BORING: **8"**

DRILLING METHOD: **Hollow Stem Auger**  
 SCREEN SIZE: **0.02"**  
 CASING SIZE: **2"**



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50251B2A.DRW

**LOG OF GROUNDWATER WELL, MW-01**  
 TRUAX HARRIS ENERGY COMPANY  
 ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON

Project # 60-5023-01

**PLATE B-2A**

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	PID (ppmv)		INTERVAL	NUMBER		
50			0	38 38 50/4"		MW01-50	GM	Boring terminated at 51.5 feet.,
55								
60								
65								
70								
75								

LOGGED BY: **GF**  
 DATE DRILLED: **2-5-93**  
 CASING TYPE: **PVC**  
 Comments:

SURFACE ELEVATION (feet): **175.98**  
 TOTAL DEPTH (feet): **51.5**  
 DIAMETER OF BORING: **8"**

DRILLING METHOD: **Hollow Stem Auger**  
 SCREEN SIZE: **0.02"**  
 CASING SIZE: **2"**



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**LOG OF GROUNDWATER WELL, MW-01**  
 TRUAX HARRIS ENERGY COMPANY  
 ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON

Project # 60-5023-01

**PLATE B-2B**

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	PID (ppmv)		INTERVAL	NUMBER		
0							AS	3" asphalt.
			0				FILL	FILL, sandy gravel, brown, moist.  FILL, sandy clay, brown. Gray, no odor. FILL, sand, dark brown.
5			0	6 10 10		MW02-6	ML	SANDY SILT, brown with red-brown mottling, moist, 5 firm.
10			0	4 4 4		MW02-9	SM	SILTY SAND, light brown, moist, loose.
15			0	5 8 12		MW02-13		Very consistent.
20			0	8 8 12		MW02-17		Very consistent, no stain, no odor.
25			0	10 18 18		MW02-23		SILTY SAND, light brown, moist, medium dense.

LOGGED BY: GF  
 DATE DRILLED: 2-5-93  
 CASING TYPE: PVC  
 Comments: Hand auger to 6 feet.

SURFACE ELEVATION (feet): 176.34  
 TOTAL DEPTH (feet): 51.5  
 DIAMETER OF BORING: 8".

DRILLING METHOD: Hollow Stem Auger  
 SCREEN SIZE: 0.02"  
 CASING SIZE: 2"



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50231B3.DRW

**LOG OF GROUNDWATER WELL, MW-02**  
 TRUAX HARRIS ENERGY COMPANY  
 ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON

Project # 60-5023-01

PLATE B-3

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABO-RATORY	PID (ppmv)		INTERVAL	NUMBER		
25								
							ML	SANDY SILT, light brown, moist.
30			0	8 13 16		MW02-30		Grade to a clayey silt, trace fine sand, light brown, moist.
35			0	4 12 15		MW02-35		Brown.
40			0	16 20 24		MW02-40	SP	SANDY SILT, light brown, moist, firm.
								SAND, brown, fine to medium, moist, medium dense.
45			0	20 50/4"		MW02-45	GP/GM	SANDY GRAVEL, with silt, dark brown, moist, very dense. Wet.
50								

LOGGED BY: GF  
DATE DRILLED: 2-5-93  
CASING TYPE: PVC  
Comments:

SURFACE ELEVATION (feet): 176.34  
TOTAL DEPTH (feet): 51.5  
DIAMETER OF BORING: 8"

DRILLING METHOD: Hollow Stem Auger  
SCREEN SIZE: 0.02"  
CASING SIZE: 2"



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**LOG OF GROUNDWATER WELL, MW-02**  
TRUAX HARRIS ENERGY COMPANY  
ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON

Project # 60-5023-01

**PLATE B-3A**

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABO-RATORY	PID (ppmv)		INTERVAL	NUMBER		
50			0	20 50/6"		MW02-50	GP/GM	Boring terminated at 51.5 feet.
55								
60								
65								
70								
75								

LOGGED BY: GF  
 DATE DRILLED: 2-5-93  
 CASING TYPE: PVC  
 Comments:

SURFACE ELEVATION (feet): 176.34  
 TOTAL DEPTH (feet): 51.5  
 DIAMETER OF BORING: 8"

DRILLING METHOD: Hollow Stem Auger  
 SCREEN SIZE: 0.02"  
 CASING SIZE: 2"



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**LOG OF GROUNDWATER WELL, MW-02**  
 TRUAX HARRIS ENERGY COMPANY  
 ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON

Project # 60-5023-01

**PLATE B-3B**

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	PID (ppmv)		INTERVAL	NUMBER		
0							AS	2" asphalt.
							FILL	FILL, sandy gravel, brown, moist. Very moist, (perched landscape water) at 1.5 feet.
							CL	SILTY CLAY, brown, moist, firm.
5			0	4 6 8		MW03-5	ML	CLAYEY SILT, brown, moist, firm.
10			0	4 6 8		MW03-10	SM/SC	SILTY SAND, with clay, brown, moist, medium dense.
15			0	4 8 10		MW03-15	SM	SILTY SAND, trace gravel, brown, moist, medium dense.
20			0	10 10 10		MW03-20		As above, no gravel, light brown.  SILTY SAND, light brown, medium dense.  Very consistent.
25								

LOGGED BY: **GF**      SURFACE ELEVATION (feet): **176.78**      DRILLING METHOD: **Hollow Stem Auger**  
 DATE DRILLED: **2-5-93**      TOTAL DEPTH (feet): **51.5**      SCREEN SIZE: **0.02"**  
 CASING TYPE: **PVC**      DIAMETER OF BORING: **8"**      CASING SIZE: **2"**  
 Comments: **Park Street right of way.**



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**LOG OF GROUNDWATER WELL, MW-03**  
 TRUAX HARRIS ENERGY COMPANY  
 ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON

Project # 60-5023-01

**PLATE B-4**

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	SAMPLE		U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	PID (ppmv)		INTERVAL	NUMBER		
25			0	10 12 14		MW03-25		As above.
30			0	7 12 15		MW03-30	ML	SANDY SILT, trace clay, brown, moist, firm.  CLAYEY SILT, trace sand, brown, moist, firm.
35			0	10 14 16		MW03-35		
40			0	14 20 25		MW03-40		As above.
45			0	25 30 39		MW03-45	SP	SAND, dark brown, moist, medium dense.  GRAVELLY SAND, dark brown, wet.

LOGGED BY: GF  
DATE DRILLED: 2-5-93  
CASING TYPE: PVC  
Comments:

SURFACE ELEVATION (feet): 176.78  
TOTAL DEPTH (feet): 51.5  
DIAMETER OF BORING: 8"

DRILLING METHOD: Hollow Stem Auger  
SCREEN SIZE: 0.02"  
CASING SIZE: 2"



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**LOG OF GROUNDWATER WELL, MW-03**  
TRUAX HARRIS ENERGY COMPANY  
ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON


Project # 60-5023-01

**PLATE B-4A**

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/6 inches	INTERVAL	SAMPLE	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	PID (ppmv)			NUMBER		
50			0	38 50/5"		MW03-50	SP	As above.
55								Boring terminated at 51.5 feet.
60								
65								
70								
75								

LOGGED BY: **GF**      SURFACE ELEVATION (feet): **176.78**      DRILLING METHOD: **Hollow Stem Auger**  
 DATE DRILLED: **2-5-93**      TOTAL DEPTH (feet): **51.5**      SCREEN SIZE: **0.02"**  
 CASING TYPE: **PVC**      DIAMETER OF BORING: **8"**      CASING SIZE: **2"**  
 Comments:

 Copyright 1993 Kleinfelder, Inc.      50251B4B.DRW	<b>LOG OF GROUNDWATER WELL, MW-03</b> TRUAX HARRIS ENERGY COMPANY ARCO STATION, 4180 PORTLAND ROAD NE, SALEM, OREGON	
	Project #      60-5023-01	<b>PLATE B-4B</b>

NOTE: Logs are to be used only for the designated purposes and in context with the attached report.



**KLEINFELDER**

*An employee owned company*

**TRANSMITTAL**

Date: June 14, 2001

File: 60-5023-01

**TO:**

Ms. Virginia Esmond  
Underground Storage Tanks Program  
Oregon Department of Environmental Quality  
Western Region – Salem Office  
750 Front Street NE, Suite 120  
Salem, Oregon 97301

**Subject:**

**Letter Report  
Summary of Environmental Data  
Truax Harris Energy, LLC  
North Salem Arco  
4180 Portland Road NE  
Salem, Oregon  
DEQ File No. 24-92-4217**

**We are sending the following:**

One copy of the above-referenced report.

**Remarks:**

If you have any questions, please contact our office at (503) 644-9447.

Thank you.

**By:**

Lon R. Yandell, R.G.  
Senior Project Manager

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JUN 15 2001

DEQ-SALEM OFFICE



**KLEINFELDER**

*An employee owned company*

June 14, 2001  
Kleinfelder Project Number 60-5023-01

Ms. Virginia Esmond  
Underground Storage Tanks Program  
Oregon Department of Environmental Quality  
Western Region – Salem Office  
750 Front Street NE, Suite 120  
Salem, Oregon 97301

**Subject: Letter Report  
Summary of Environmental Data  
Truax Harris Energy, LLC  
North Salem Arco  
4180 Portland Road NE  
Salem, Oregon  
DEQ File No. 24-92-4217**

Dear Ms. Esmond:

This letter report summarizes the investigations, findings, and recommendations related to four petroleum releases at the Truax Harris Energy, LLC, (Truax) property located at 4180 Portland Road NE in Salem, Oregon (Figure 1). This letter report was prepared at the request of the Oregon Department of Environmental Quality (DEQ) and is intended to provide the necessary information for closure of the site following Soil Matrix Pocket Closure guidelines. The information provided was summarized from previous reports prepared by Kleinfelder, Inc., (Kleinfelder) and C and K Petroleum Equipment Company (C & K) whose data was included in Kleinfelder's reports. References are provided below.

The site has been operated by Truax as a Pacific Pride Cardlock since 1995 (formerly ARCO service station). The service station is equipped with four underground storage tanks (USTs) containing regular gasoline, unleaded gasoline, super unleaded gasoline, and diesel fuel.

The contaminants of concern are petroleum hydrocarbons released into the soil as the result of leaking regular gasoline and diesel product lines. The site is listed on the DEQ Leaking Underground Storage Tank (LUST) list as site number 24-92-4217.

## RELEASE INFORMATION AND SITE CHARACTERIZATION

The following sections summarize the history of petroleum releases at the site, field investigations, and the analytical data collected during evaluation of the nature and extent of impacts to soil at the site.

### NOVEMBER 1992 DIESEL PRODUCT LINE INCIDENT

On November 2, 1992, C & K Petroleum Equipment Company (C & K) responded to a call from Truax to check a diesel product line which was apparently losing pressure when not in use. Line testing identified a leak near the diesel sub-pump at the south end of the diesel UST (Figure 2). C & K subsequently reported the petroleum release to the DEQ – Willamette Valley Region. On November 4, 1992, DEQ issued LUST# 24-92-4217. C & K repaired the line, excavated approximately 20 to 30 yards of petroleum contaminated soil (PCS) around the release area to a depth of approximately 11 feet below the ground surface (bgs), and collected four soil samples for laboratory analysis on November 4, 1992.

Soil analytical results from a soil sample (1094-BD) collected beneath the tanks prior to soil excavation indicated gasoline-range petroleum hydrocarbons were present at a concentration of 1,800 milligrams/kilogram (parts per million (ppm)). The concentration of diesel in this sample could not be determined due to matrix interference. Following excavation, three confirmation soil samples were collected from the sidewalls and base of the excavation. Gasoline (87 ppm) and diesel (670 ppm) were detected in the sample (1094 – BOE) collected from the bottom of the excavation. The soil sample collected from the south sidewall of the excavation (1094-SSE) was submitted for hydrocarbon identification by DEQ Method TPH-HCID. Gasoline was not detected. Diesel was detected and was quantified by DEQ Method TPH-D at a concentration of 43 ppm. TPH-HCID analysis of a soil sample collected from the north sidewall of the excavation did not detect petroleum hydrocarbons.

The excavation was overexcavated on November 18, 1992 and approximately 10 yards of additional soil were removed.

On November 20, 1992, a second leak was detected at a flange and was subsequently repaired and the area backfilled.

A total of approximately 31 tons of excavated PCS were temporarily stored on-site. On November 20, 1992, C & K backfilled the product line excavation with 3/8-inch pea gravel, and

repaired concrete and asphalt surfaces. The PCS were transported to an off-site facility for disposal on December 10, 1992.

Groundwater was not encountered in the excavation to a depth of approximately 14 feet bgs.

#### **ADDITIONAL SITE CHARACTERIZATION OF NOVEMBER 1992 DIESEL PRODUCT LINE INCIDENT**

On February 5, 1993, Kleinfelder performed additional site characterization work to further assess the lateral and vertical extent of remaining PCS, and potential impacts to groundwater. The additional site characterization activities included soil boring, monitoring well installation, and soil sampling.

Kleinfelder collected soil samples from three borings MW01, MW02, and MW03 (Figure 2). The borings were converted into the monitoring wells on the day of drilling. Groundwater was encountered in the borings at approximately 45 feet bgs.

Soil samples SB01-10, MW02-6, and MW03-10 were collected from the borings at depths of 10 feet, 6 feet, and 10 feet bgs (the approximate depth of the bottom of the USTs), respectively, to evaluate the lateral extent of impacts to soil. The soil samples were submitted to an analytical laboratory for total hydrocarbon identification (TPH-HCID) analysis. No analyte was present in the soil samples at a concentration greater than the laboratory's detection limit. Therefore, the data suggested the lateral extent of impacted soil was limited and appeared to be primarily confined to the vicinity of the tank vault.

Soil samples SB01-45, MW02-45, and MW03-45, were collected from the borings at the approximate soil/groundwater interface to evaluate the vertical extent of impacted soil and the potential for impact to groundwater. The soil samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020M. No BTEX compounds were detected in the samples above the detection limit of 0.025 ppm.

#### **1993 GROUNDWATER MONITORING PROGRAM**

Groundwater monitoring was conducted quarterly for four consecutive events from March through December 1993 to evaluate potential impacts to groundwater.

On March 11, 1993, Kleinfelder conducted the first quarter groundwater monitoring event at the site. The groundwater monitoring included measuring the groundwater elevation in three wells installed at the site in February 1993, and collecting groundwater samples. Three groundwater samples were submitted to the analytical laboratory for BTEX analysis by EPA Method 8020.

One groundwater sample was analyzed for polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8310. In addition, the groundwater was monitored for free product.

The first groundwater monitoring event data indicated that the groundwater potentiometric surface was nearly horizontal, with a slight gradient towards the south. The groundwater elevations ranged from 131.74 to 131.78 feet above mean sea level (MSL). No free product was observed in any of the monitoring wells, and no analyte was present in groundwater samples at a concentration greater than the laboratory's detection limit.

Kleinfelder continued to monitor groundwater quality quarterly through December 1993. The groundwater samples were analyzed for BTEX only. The groundwater monitoring data for all monitoring events were consistent with the March 1993 groundwater monitoring data. The groundwater flow direction at the site was generally from north to south indicating the monitoring well network was well suited to monitor potential impacts to groundwater. In addition, no free product was observed in any of the wells, and no analyte was present in groundwater samples at the concentration greater than the laboratory's detection limit for all sampling events.

#### **NOVEMBER 1993 REGULAR GASOLINE PRODUCT LINE INCIDENT**

On November 11, 1993, C & K reportedly responded to a call from the station operator to check a regular gasoline product line which was apparently losing pressure. C & K identified a leak near the top of the UST and repaired the line on November 22, 1993. The leak was reported to Mr. Jim Glass of DEQ. Approximately 15 cubic yards of PCS were excavated from the trench near the area where the line was repaired, and the PCS was temporarily stored on-site.

On November 23, 1993, Kleinfelder personnel was present on-site to collect soil samples to evaluate the residual concentrations of petroleum hydrocarbons in the soil. Sample S01-11233 was collected from soils representing the residual gasoline impacted PCS remaining in the trench. Sample S02-11233 was collected from the stockpile material for disposal characterization purposes. The samples were analyzed for total petroleum hydrocarbons as gasoline by DEQ Method TPH-G. Petroleum hydrocarbons were not detected in sample S01-11233. Gasoline was detected at a concentration of 30 ppm in the soil sample collected from the stockpile. The analytical data suggested only a small volume of gasoline was released, and the impacted soils were adequately removed.

On November 30, 1993, C & K backfilled the product line excavation, and repaired concrete and asphalt surfaces. On December 15, 1993, the PCS were transported to an off-site facility for

disposal. A description of the release and associated soil removal and sampling activities is presented in the "UST Release Report", dated March 21, 1994.

#### **DISCONTINUING THE 1993 GROUNDWATER MONITORING PROGRAM**

The groundwater monitoring program was discontinued in January 1994. Based on the analytical results for four consecutive sampling events, Kleinfelder reported to the DEQ that the groundwater beneath the site had not been impacted by the petroleum hydrocarbons from the product line leak incidents. The notice to DEQ to discontinue groundwater monitoring was presented in the "UST Release Report", dated March 21, 1994.

#### **JULY 1995 DIESEL PRODUCT LINE INCIDENT**

On July 25, 1995, PEMCO responded to a call from the station operator to check a diesel product line which apparently lost pressure and automatically shut down. Line testing identified a leak near the UST vault. The product line was repaired, pressure tested, and the system brought back on-line on July 27, 1995. On July 27, 1995, Kleinfelder drilled an exploratory boring and collected soil samples to characterize the release. Two samples were collected beneath the line-leak within UST vault fill material at the depths of 3.5 and 6.5 feet bgs. Samples were analyzed for total petroleum hydrocarbons as diesel by DEQ Method TPH-D. The diesel concentrations detected were 20,000 ppm (sample KH01-3.5, collected at 3.5 feet bgs) and 4,400 ppm (sample KHA01-6.5, collected at 6.5 feet bgs). Groundwater was not encountered to the explored depth of approximately 14 feet bgs.

The piping trench was backfilled, and the asphalt and concrete surfaces were repaired.

The analytical data suggested the diesel concentrations attenuated rapidly with depth. Based on the small volume of product believed to be released into the tank backfill materials prior to automatic shut down of the system, Kleinfelder anticipated the lateral migration of diesel would be minimal. The vertical extent of significantly impacted soil appeared to be limited to the depth of the interface of the backfill material and the native fine-grained soils at approximately 13 feet bgs. Therefore, assuming the affected area was approximately 5 feet by 5 feet by 13 feet deep, Kleinfelder estimated approximately 10 to 15 cubic yards of impacted soil remained in a pocket below the product line.

#### **CONCLUSIONS AND RECOMMENDATIONS**

A total of four relatively minor leaks have been reported at the site associated with the product lines. The leaks were detected on: November 2, 1992; November 20, 1992; November 11, 1993;

and July 25, 1995. Approximately 31 cubic yards of PCS were excavated and properly disposed in November 1992. Approximately 15 cubic yards of PCS were excavated and properly disposed in November 1993. Due to the limited volume of product assumed to have been released and the location of the release in the vicinity of pressurized product lines and USTs, no soil was excavated following the July 25, 1995 release.

Confirmation samples collected following the excavation of PCS in November 1992 and November 1993 suggest residual concentrations of impacted soil were either not detected or were detected below Soil Matrix Level 3 Cleanup Levels.

Soil samples collected following the July 25, 1995 pipe leak suggested the concentrations of diesel attenuated rapidly with depth. Due to automatic shut off of the system as a result of the July 25, 1995 release, Kleinfelder assumes only a small volume of diesel was released. Based on an assumed impacted area of 5 feet by 5 feet by 13 feet deep, Kleinfelder estimates a small pocket of approximately 10 to 15 cubic yards of PCS remains in this area.

Four quarters of groundwater monitoring conducted in 1993 indicate: 1) the first water-bearing zone beneath the site is relatively deep (approximately 45 feet bgs), 2) the groundwater gradient at the site is relatively flat, and 3) no BTEX compounds were detected during any quarter at concentrations above the laboratory reporting limit of 0.5 parts per billion suggesting groundwater at the site has not been impacted.

Based on the data presented in this letter report and the information presented in the reports submitted to DEQ and referenced below, the site appears to qualify for No Further Action status under the Soil Matrix pocket closure guidelines. Therefore, on behalf of Truax, Kleinfelder requests DEQ issue a No Further Action determination for the site.

Kleinfelder recommends that if the USTs are removed or the residual impacted soils become otherwise accessible, the impacted soils should be removed and properly disposed. Following PCS removal, Kleinfelder recommends confirmation samples be collected and appropriately analyzed to confirm the impacted soils have been adequately remediated.

## REFERENCES

Kleinfelder, Inc., 1993. Underground Storage Tank Release Notification and Proposed Site Assessment Activities, ARCO Service Station, 4180 Portland Road NE, Salem, Oregon, DEQ LUST # 24-92-4217, File No. 60-5023-01, January 5.

Kleinfelder, Inc., 1993. Initial Site Characterization Report, Truax Harris Energy Company, 4180 Portland Road NE, Salem, Oregon, DEQ LUST # 24-92-4217, File No. 60-5023-01, July 8.

Kleinfelder, Inc., 1993. Second Quarter 1993 Groundwater Monitoring Report, Truax Harris Energy Company, 4180 Portland Road NE, Salem, Oregon, DEQ LUST # 24-92-4217, File No. 60-5023-01, July 14.

Kleinfelder, Inc., 1993. Third Quarter Groundwater Monitoring Report, Truax Harris Energy Company, 4180 Portland Road NE, Salem, Oregon, DEQ LUST # 24-92-4217, File No. 60-5023-01, November 8.

Kleinfelder, Inc., 1994. Forth Quarter Groundwater Monitoring Report, Truax Harris Energy Company, 4180 Portland Road NE, Salem, Oregon, DEQ LUST # 24-92-4217, File No. 60-5023-01, January 7.

Kleinfelder, Inc., 1994. UST Release Report, ARCO Service Station, 4180 Portland Road NE, Salem, Oregon, DEQ LUST # 24-92-4217, File No. 60-5023-01, March 21.

Kleinfelder, Inc., 1995. Underground Storage Tank 20-day Release Report, Pacific Pride Cardlock Facility, 4180 Portland Road NE, Salem, Oregon, DEQ LUST # 24-92-4217, File No. 60-5023-01, August 14.

## LIMITATIONS

Kleinfelder has performed the work described in this report in accordance with the generally accepted standards of care that exist in the state of Oregon at the time the work was performed. Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface and historical conditions applicable to the study area. More extensive studies including historical review, additional site exploration, soil and groundwater sampling, and chemical analyses may be used to supplement the information contained in this report. Kleinfelder should be notified for additional consultation if Truax Harris Energy, LLC, wishes to reduce uncertainties beyond the level associated with this work. Our assessment of the property may also change as new data becomes available during additional site exploration, remediation, or development.

Since site conditions beyond our control could change at any time after the completion of this report, our observations, findings, and opinions can be considered valid only as of the date of this report.

This report may be used only by Truax Harris Energy, LLC, and the DEQ, and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on and off-site) or other factors may change, and additional work may be required with the passage of time. Any party other than Truax Harris Energy, LLC, and the DEQ, who wishes to use this report shall notify Kleinfelder of such intended use by executing the "Application for Authorization to Use" which is attached to this document. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

No warranty, expressed or implied, is made.

## CLOSING

Kleinfelder appreciates your assistance on this project. Should you require additional information or have any questions regarding this report, please contact this office at your convenience.

Very truly yours,

**KLEINFELDER, INC.**



Lon R. Yandell, R.G.  
Senior Project Manager



Peter L. Stroud, C.E.G.  
Environmental Group Leader

cc: Mr. Larry Duckett, Truax Harris Energy, LLC

Attachments: Table 1 Summary of Soil Sample Chemical Analytical Results  
 Table 2 Summary of Quarter Groundwater Monitoring Chemical Analytical Results  
 Figure 1 Vicinity Map  
 Figure 2 Site Plan  
 Application for Authorization to Use

**TABLE 1**  
**SUMMARY OF SOIL SAMPLE CHEMICAL ANALYTICAL RESULTS**  
**AT THE TRUAX HARRIS ENERGY LLC FACILITY, SALEM, OREGON**

Sample ID	Date	Location	Depth (feet)	TPH – HCID Gasoline (mg/kg)	TPH – HCID Diesel (mg/kg)	TPH – HCID Motor oil (mg/kg)	TPH – Gasoline (mg/kg)	TPH - Diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)
1094 - BD	11/4/92	Near the diesel sub pump, before digging	11	Detected	Detected	ND	1,800	-	NA	NA	NA	NA
1094 - BOE	11/4/92	Near the diesel sub pump, bottom of the excavation	11	Detected	Detected	ND	87	670	NA	NA	NA	NA
1094 - SSE	11/4/92	Near the diesel sub pump, south side of the excavation	11	ND	ND	ND	NA	43	NA	NA	NA	NA
1094 - NSE	11/4/92	Near the diesel sub pump, north side of the excavation	11	ND	ND	ND	NA	NA	NA	NA	NA	NA
MW01-10	2/5/93	To the south of USTs	10	ND	ND	NO	NA	NA	NA	NA	NA	NA
MW02-6	2/5/93	To the west of USTs	6	ND	ND	NO	NA	NA	NA	NA	NA	NA
MW03-10	2/5/93	To the east of USTs	10	ND	ND	NO	NA	NA	NA	NA	NA	NA
MW01-45	2/5/93	To the south of USTs	45	NA	NA	NA	NA	NA	ND	ND	ND	ND
MW02-45	2/5/93	To the west of USTs	45	NA	NA	NA	NA	NA	ND	ND	ND	ND
MW03-45	2/5/93	To the east of USTs	45	NA	NA	NA	NA	NA	ND	ND	ND	ND
S01-11233	11/23/93	Excavation trench beneath the regular gasoline line	N/A	NA	NA	NA	ND	NA	NA	NA	NA	NA
S02-11233	11/23/93	The soil stockpile	N/A	NA	NA	NA	30	NA	NA	NA	NA	NA
KHA 01-3.5	7/28/95	Beneath the line-leak, within diesel UST vault fill material	3.5	NA	NA	NA	NA	20,000	NA	NA	NA	NA
KHA01-6.5	7/28/95	Beneath the line-leak, within diesel UST vault fill material	6.5	NA	NA	NA	NA	4,400	NA	NA	NA	NA
<b>DEQ Soil Matrix Level 3 Soil Cleanup Standards:</b>				<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>130</b>	<b>1000</b>	<b>?</b>	<b>?</b>	<b>?</b>	<b>?</b>

**TABLE 1 (CONTINUED)**  
**SUMMARY OF SOIL SAMPLE CHEMICAL ANALYTICAL RESULTS**  
**AT THE TRUAX HARRIS ENERGY LLC FACILITY, SALEM, OREGON**

Legend:

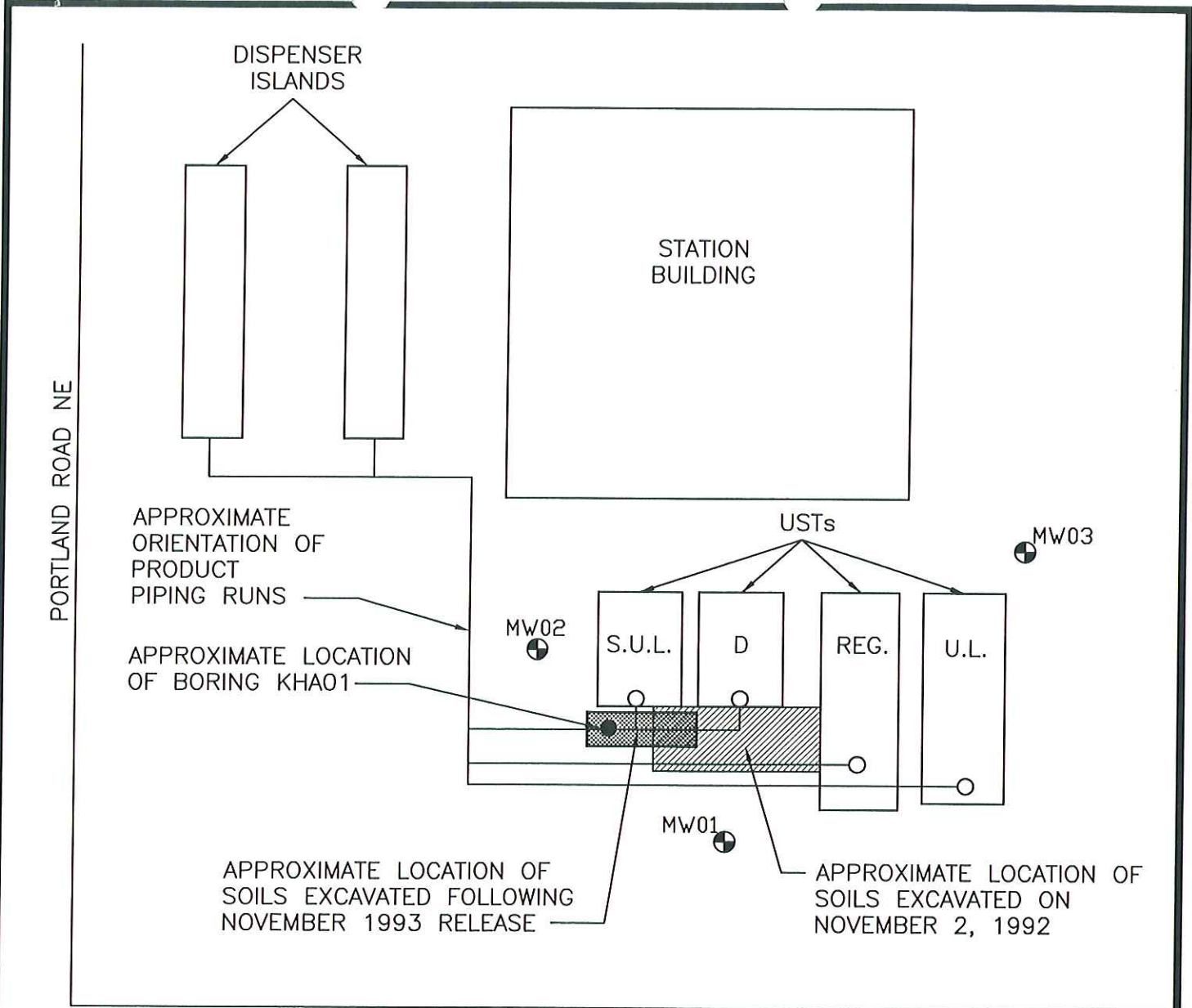
TPH	= Total petroleum hydrocarbons
HCID	= Petroleum hydrocarbon identification
ND	= Detected at a concentration less than the given analytical detection limit
mg/kg	= Milligrams per kilogram
NA	= Not analyzed
N/A	= Not applicable
NO	= No analyte observed
-	= Unable to calculate surrogate recovery due to matrix interference
DEQ	= Oregon Department of Environmental Quality
<b>Bold</b>	= Concentration above DEQ Matrix Level III soil cleanup standards

**TABLE 2**  
**SUMMARY OF QUARTERLY GROUNDWATER MONITORING**  
**CHEMICAL ANALYTICAL RESULTS**  
**AT THE TRUAX HARRIS ENERGY LLC FACILITY, SALEM, OREGON**

Sample ID	Location	Date	Groundwater Elevation (feet MSL)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	PAHs (mg/L)
MW01	To the south of USTs	3/11/93	131.74	ND	ND	ND	ND	ND
MW02	To the west of the USTs	3/11/93	131.78	ND	ND	ND	ND	ND
MW03	To the east of the USTs	3/11/93	131.75	ND	ND	ND	ND	ND
MW01	To the south of USTs	6/15/93	133.43	ND	ND	ND	ND	NA
MW02	To the west of the USTs	6/15/93	133.40	ND	ND	ND	ND	NA
MW03	To the east of the USTs	6/15/93	133.42	ND	ND	ND	ND	NA
MW01	To the south of USTs	9/15/93	132.25	ND	ND	ND	ND	NA
MW02	To the west of the USTs	9/15/93	132.25	ND	ND	ND	ND	NA
MW03	To the east of the USTs	9/15/93	132.28	ND	ND	ND	ND	NA
MW01	To the south of USTs	12/17/93	131.45	ND	ND	ND	ND	NA
MW02	To the west of the USTs	12/17/93	131.45	ND	ND	ND	ND	NA
MW03	To the east of the USTs	12/17/93	131.46	ND	ND	ND	ND	NA
<b>DEQ Numeric Groundwater Cleanup Level:</b>				<b>5</b>	<b>1000</b>	<b>700</b>	<b>10,000</b>	<b>*</b>

Legend:

- PAHs = Polynuclear aromatic hydrocarbons
- ND = Detected at a concentration less than the given analytical detection limit
- NA = Not Analysed
- mg/L = Milligrams per liter
- \* = Cleanup standards vary for different compounds
- DEQ = Oregon Department of Environmental Quality



**LEGEND**

MW03 APPROXIMATE SOIL BORING/MONITORING WELL LOCATION



SITE PLAN  
 SALEM ARCO, 4180 PORTLAND ROAD NE  
 TRUAX HARRIS ENERGY, L.L.C.  
 SALEM, OREGON



# Oregon

John A. Kitzhaber, M.D., Governor

## Department of Environmental Quality

Western Region - Salem Office

750 Front St. NE, Ste. 120

Salem, OR 97301-1039

(503) 378-8240

(503) 378-3684 TTY

September 12, 2001

Larry Duckett  
Truax Harris Energy Co.  
PO Box 607  
Wilsonville, OR 97070-0607

Re: USTC # 24-92-4217  
North Salem ARCO  
4180 Portland Road NE  
Salem, OR 97303  
Marion County  
Soil Matrix/Pocket Closure — No Further Action

Dear Mr. Forrest:

The Western Region Salem Office of the Department of Environmental Quality (Department or DEQ) has reviewed your file for closure. This review included the following reports: **Initial Site Characterization Report**, submitted by Kleinfelder Environmental on July 8, 1993; **Second Quarter Groundwater Monitoring Report**, submitted by Kleinfelder Environmental on July 14, 1993; **Third Quarter Groundwater Monitoring Report**, submitted by Kleinfelder Environmental on November 15, 1993; **Fourth Quarter Groundwater Monitoring Report**, submitted by Kleinfelder Environmental on January 14, 1994; **Underground Storage Tank 20-day Release Report Pacific Pride Cardlock Facility**, submitted by Kleinfelder Environmental on August 14, 1995; and the **Letter Report Summary of Environmental Data**, submitted by Kleinfelder Environmental on June 15, 2001. The following information was found during that review:

### Release #1: Diesel Product-Line Release

- 1) In November 1992, C&K Petroleum Equipment Company (C&K) responded to a call from Truax Harris Energy Company to check a diesel product line. Line testing identified a leak near a diesel sump pump at the south end of the diesel UST. The line was repaired and approximately 15 cubic yards of impacted soils were excavated and stockpiled on-site. The quantity of product released was unknown. Analytical results showed that total petroleum hydrocarbons in the carbon range resembled both gasoline and diesel. Concentrations were reported at 1700 mg/kg for gasoline and 970 mg/kg for diesel. Stockpiled soils were transported to the Roosevelt Regional Landfill in Roosevelt, Washington, on December 8, 1992.



- 2) On November 18, 1992, the excavation was over-excavated and approximately 10 yards of additional soil were removed.

**Release #2: Flange Leak**

- 3) On November 20, 1992, a second leak was detected at a flange and was subsequently repaired and the area backfilled. A total of 31 tons of excavated petroleum-contaminated soil (PCS) were temporarily stored on site. The product-line excavation was backfilled with 3/8-inch pea gravel, and the asphalt surfaces were repaired. The PCS was transported to an off-site facility for disposal on December 10, 1992.
- 4) Groundwater was not encountered in the excavation to a depth of approximately 14 feet below ground surface (bgs).
- 5) On February 5, 1993, Kleinfelder performed additional site characterization work to further assess the lateral and vertical extent of remaining PCS. Three borings were drilled at the site. Each boring was advanced to a depth of 51.5 feet bgs. The three borings were completed as groundwater monitoring wells. Each well was screened from 40 to 50 feet bgs. Monitoring wells were developed on March 4, 1993. Groundwater was encountered in the borings at approximately 45 feet bgs.
- 6) Soil samples were collected from the borings at depths of 10 feet, 6 feet, and 10 feet bgs (approximately the depth of the bottom of the USTs) to evaluate the lateral extent of impacts to soil. The soil samples were submitted to an analytical laboratory for total hydrocarbon identification (TPH-HCID) analysis. No analyte was present in the soil samples at a concentration greater than the laboratory's detection limit. Therefore, the data suggested the lateral extent of impact soil was limited and appeared to be primarily confined to the vicinity of the tank vault.
- 7) Soil samples were collected from the borings at the approximate soil/groundwater interface to evaluate the vertical extent of impacted soil and the potential for impact to groundwater. The soil samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020M. No BTEX compounds were detected in the samples above the detection limit of 0.025 ppm.

**Groundwater monitoring was conducted quarterly for four consecutive events from March through December 1993.**

- 8) On March 11, 1993, groundwater elevations were measured and the wells were purged and sampled.

Well Boring	Soil TPH-HCID Results February 5, 1993	Depth of Soil Sample February 5, 1993	Depth of Groundwater March 11, 1993
MW01	ND	10 feet bgs	46 feet bgs
MW02	ND	6 feet bgs	45 feet bgs
MW03	ND	10 feet bgs	45 feet bgs

A water sample taken from monitoring well MW01 was analyzed for benzene, toluene, ethylbenzene, xylenes, and polynuclear aromatic hydrocarbons (PNAs). None of these compounds were detected above their respective method detection limits.

A water sample taken from MW02 was analyzed for benzene, toluene, ethylbenzene, and xylenes. None of these compounds were detected above their respective method detection limits.

A water sample taken from MW03 was analyzed for benzene, toluene, ethylbenzene, and xylenes. None of these compounds were detected above their respective method detection limits.

- 9) Static groundwater was encountered at approximately 45 feet bgs across the site. The groundwater potentiometric surface appeared to be nearly horizontal. However, on March 11, 1993, elevation data reflects a gentle northwest-southeast tending groundwater flow direction.
- 10) On July 26, 1993, the Department received the Second Quarter Groundwater Monitoring Report. Groundwater samples were collected from each of the groundwater monitoring wells. The wells were purged with five well volumes of water before the groundwater samples were taken. Each sample was analyzed for BTEX by EPA Method 8020. The analytical results showed non-detect for all constituents. The groundwater flow direction appeared to be from north to south.
- 11) On November 15, 1993, the Department received the Third Quarter Groundwater Monitoring Report. Groundwater samples were collected from each of the groundwater monitoring wells. The wells were purged with five well volumes of water before the groundwater samples were taken. Each sample was analyzed for BTEX by EPA Method 8020. The analytical results showed non-detect for all constituents. The groundwater flow direction appeared to be from east to west.

- 12) On November 23, 1993, the Department received notification of a UST line leak at this site. The site was currently being tracked under LUST number 24-92-4217, so the decision was made to not assign another release number.
- 13) On January 12, 1994, the Department received the Fourth Quarter Groundwater Monitoring Report. Groundwater samples were collected from each of the groundwater monitoring wells. The wells were purged with five well volumes of water before the groundwater samples were taken. Each sample was analyzed for BTEX by EPA Method 8020. The analytical results showed non-detect for all constituents. On December 17, 1993, the groundwater elevations for wells MW01, MW02, and MW03 were recorded as 131.43 feet, 131.45 feet, and 131.46 feet above mean sea level elevation, respectively. Since there was little or no variation in groundwater elevations, no groundwater flow direction was inferred.

#### **Release #3: November 1993 Regular Gasoline Product-Line Release**

- 14) On March 21, 1994, the Department received an **Underground Storage Tank Release Report**. On November 11, 1993, a line leak was identified near the top of the UST; the quantity of the product released was not identified. The line was repaired by C&K on November 22, 1993. A Kleinfelder personnel was on site on November 23, 1993, and collected two soils samples from the trench and stockpiled soils. The soil samples were analyzed for TPH-G. Petroleum hydrocarbons in the gasoline range were not detected above the method detection limit in the sample collected from the trench and the product line. Petroleum hydrocarbons in the gasoline range were detected at a concentration of 30 mg/kg in the sample collected from the stockpiled soils. Twenty tons (15 cubic yards) of petroleum-contaminated soils were transported to the Oregon Hydrocarbon facility in Portland, Oregon, for disposal on December 15, 1993.
- 15) The groundwater-monitoring program was discontinued in January 1994. Based on the analytical results for four consecutive sampling events. Kleinfelder reported to the DEQ that the groundwater beneath the site had not been impacted by the petroleum hydrocarbons from the product-line leak incidents.

#### **Release #4: July 1995 Diesel Product-Line Release**

- 16) On July 25, 1995, a diesel product line reportedly lost pressure and automatically shut down. Kleinfelder personnel were on site on July 27, 1995, to drill an exploratory boring and collect soil samples to characterize the release. Two samples were collected beneath the line-leak within the UST-vault fill material. Samples were analyzed as diesel (TPH-D). Diesel-range hydrocarbons were detected in samples collected 3.5 and 6.5 feet below surface grade. The concentrations were 20,000 mg/kg and 4,400 mg/kg, respectively. Groundwater was not encountered to the depths explored during drilling (13.5 feet bgs).

- 17) The analytical data suggested the diesel concentrations attenuated rapidly with depth. Based on the small volume of product believed to have been released into the tank backfill materials prior to the system automatically shutting down, Kleinfelder anticipated that the lateral migration of diesel would be minimal. The vertical extent of significantly impacted soil appeared to be limited to the depth of the interface of the backfill material and the native fine-grained soils at approximately 13 feet bgs. Therefore, assuming the affected area was approximately 5 feet by 5 feet by 13 feet deep, Kleinfelder estimated approximately 10 to 15 cubic yards of impacted soil remained in a pocket below the product line.

In summary, four relatively minor leaks were reported. The leaks were detected on November 2, 1992; November 20, 1992; November 11, 1993, and July 25, 1995. Approximately 31 cubic yards of PCS were excavated and properly disposed of in November 1992. Approximately 15 cubic yards of PCS were excavated and properly disposed of in November 1993. Due to the limited volume of product assumed to have been released and the location of the release in proximity to the pressurized product lines and USTs, no soil was excavated following the July 25, 1995 release.

Four quarters of groundwater monitoring conducted in 1993 indicate: 1) the first water-bearing zone beneath the site is relatively deep (approximately 45 feet bgs); 2) the groundwater gradient at the site is relatively flat; and 3) no BTEX compounds were detected during any quarter at concentrations above the laboratory reporting limit of 0.5 parts-per-billion suggesting groundwater at the site has not been impacted.

A pocket of contamination still exists on this property which exceeds currently required cleanup levels for this site. However, the DEQ approves leaving this pocket of contamination in place, pursuant to Oregon Administrative Rules (OAR) 340-122-0355(4), since the removal of this contamination would endanger structures on the property or be prohibitively expensive, and because the contamination does not threaten human health, safety, welfare, or the environment.

DEQ's approval to leave a pocket of contamination is based on the site conditions described in the report as they exist today. Should conditions such as land use change, allowing access to the contamination, you would be responsible for further evaluation of the remaining contamination and any cleanup necessary at that time, pursuant to Oregon Administrative Rules (OAR) 340-122-0205 through 340-122-0260. You are also responsible for notifying any potential purchaser of the property about this remaining pocket of contamination.

The DEQ has determined that the site appears to be cleaned up in accordance with OAR 340-122-0305 through -0360, and that **no further action** is required at this time.


Larry Duckett  
September 12, 2001  
Page 6 of 6

DEQ's determination will not be applicable if new or undisclosed facts show that the cleanup does not comply with the referenced rules. DEQ's determination also does not apply to any conditions at the site other than the release of the petroleum product specifically addressed in your reports.

Please note that pursuant to OAR 340-122-0360(2), a copy of your reports must be retained until ten (10) years after the first transfer of the property.

If you have any further questions, please feel free to contact me in Salem at (503) 378-8240 or by fax at (503) 373-7944.

Sincerely,

  
Virginia A. Esmond  
Environmental Specialist  
Western Region Salem Office

VAE:gad  
x:\vae\NORTHSALEMARCONFA.doc

cc: Merlyn L. Hough, DEQ WR-Eugene

Kleinfelder, Inc.  
15050 SW Koll Parkway, Suite L  
Beaverton, OR 97006-6028

**APPENDIX C**  
**LUST 24-06-1001 HISTORICAL**  
**DOCUMENTS**



# Oregon

Theodore Kulongoski, Governor

## Department of Environmental Quality

Western Region Eugene Office  
165 East 7<sup>th</sup> Avenue, Suite 100  
Eugene, OR 97401  
(541) 686-7838  
FAX (541) 686-7551

March 8, 2010

Larry Duckett  
Truax Harris Energy LLC  
3077 NW St. Helens Rd.  
Portland, Oregon 97210

Re: **Risk-Based Closure: *No Further Action***  
Truax Harris Energy #302  
4180 Portland Rd. NE, Salem  
USTC #24-06-1001

Dear Mr. Duckett:

The Department of Environmental Quality (DEQ) received a document entitled Risk-Based Evaluation Report for the above-referenced underground storage tank cleanup (USTC) site in July 2008. In addition, a site characterization and groundwater monitoring report was provided to the DEQ on July 24, 2008. The reports were submitted on your behalf by Kleinfelder, Inc.

DEQ has determined that the investigation, cleanup, and risk evaluation of the petroleum release meet the requirements for site closure pursuant to Risk-based Cleanups, and that *no further action* is required at this time. This determination is a result of our evaluation and judgment based on the regulations and facts as we now understand them, including the following.

### Site Background

The site has been operated as a cardlock fuel facility (Pacific Pride) since 1995. Previously the facility was utilized by an ARCO service station, which was operational when a petroleum release was identified in 1992. This release, identified as DEQ file USTC #24-92-4217 and closed in 2001, was from a leak at the south end of the diesel UST<sup>1</sup> from the piping. Additional releases from the UST system were identified, including a second from the diesel product line in November 1992, the gasoline product line in November 1993, and a third diesel line release in July 1995.

Observations during boring installations at the site identified silt and fine sand up to 45 feet bgs<sup>2</sup>. Groundwater was encountered in boreholes during 2006 assessment activities at approximately 3 to 12 feet bgs, and has been recorded in site monitoring wells at depths of 42 to 45 feet bgs. Groundwater flow direction has generally been recorded to the east, but has also been measured to the south and southeast.

<sup>1</sup> UST: underground storage tank

<sup>2</sup> bgs: below ground surface

### UST Records

According to DEQ UST Facility #7160 records, the facility is currently operated by Petrocard, and the USTs listed in Table 1 are currently or were previously located at the subject property. With the exception of Tank #1, the USTs were installed at the property in May 1968. The 10,000-gallon UST was installed in 1984.

Number	Permit Number	Size	Product	Status
1	JDFE	10,000-gallon	Gasoline	In use
2	JDFE	8,000-gallon	Gasoline	In use
3	JDFG	5,000-gallon	Diesel	In use
4	JDFH	5,000-gallon	Gasoline	In use
5	AEJFK	350-gallon	Used Oil	Filled 12/22/1988

*Table 1: UST Facility Records*

### Previous Site Investigation

As part of the previous releases identified at the site, soil samples were collected and three monitoring wells were installed. During 1992 and 1993, 40 cubic yards of petroleum-contaminated soil were excavated from the southwest corner of the UST cavity and disposed of at a landfill. In 1995, an additional release was discovered within the UST system, and soil boring KHA01 was installed at the southwest corner of the UST nest. A soil sample obtained from 3.5 feet bgs contained diesel at 20,000 ppm. The USTC site, #24-92-4217, was issued a letter of “no further action” on September 12, 2001, with the pocket of contamination remaining at the referenced location.

### Site Characterization

A baseline environmental assessment was performed by Kleinfelder on behalf of Truax Harris Energy in April 2006. The assessment included the installation of six borings (KGP01 through KGP06) for the collection of soil and groundwater samples. The borings were advanced to depths of up to 40 feet bgs adjacent to the UST nest and dispenser islands. Soil samples were collected from each boring at depths of 5 to 40 feet bgs. Water was encountered in four borings at 3 to 12 feet bgs, and samples were collected of the shallow groundwater encountered in the borings.

The soil sample obtained from KGP06 contained concentrations of petroleum compounds. The remaining borings did not measure concentrations of the analyzed compounds above laboratory detection limits. In soil from KGP06 at 3 feet bgs, lube oil was detected at 111 ppm<sup>3</sup> as were several PAHs<sup>4</sup>, including benzo(a)anthracene at 0.0127 ppm, benzo(a)pyrene at 0.0113 ppm, chrysene at 0.012 ppm, and pyrene at 0.028 ppm.

A water sample collected from borehole KGP03 measured gasoline at 112 ppb<sup>5</sup>, diesel at 610 ppb, benzene at 44.6 ppb, ethylbenzene at 0.589 ppb, and naphthalene at 6.59 ppb.

<sup>3</sup> ppm: parts per million, or milligrams per kilogram (mg/kg)

<sup>4</sup> PAHs: polycyclic aromatic hydrocarbons

<sup>5</sup> ppb: parts per billion, or micrograms per liter (µg/L)

Additional site characterization activities were completed in October 2007. Two borings (KGP07 and KGP08) were advanced near the dispenser islands to 51.5 feet bgs. Soil samples were obtained from 20 feet bgs. Groundwater was encountered at 46 and 47 feet bgs and samples were collected from each borehole.

Soil from 2.5 feet bgs at KGP07 contained diesel at 180 ppm and lube oil at 67.1 ppm. Groundwater samples from each boring contained significant petroleum contamination, with diesel at 1,440 ppb, lube oil at 1,580 ppb, and lead at 120 ppb in KGP07, with similar concentrations detected in the water sample from KGP08. Several PAHs were also measured in KGP07, including benzo(a)pyrene at 0.0771 ppb, naphthalene at 0.121 ppb, and pyrene at 0.595 ppb. Gasoline-range hydrocarbons and RBDM<sup>6</sup> VOCs<sup>7</sup> were below laboratory detection levels in each water sample.

### Groundwater Monitoring

Compliance groundwater monitoring was initiated in February 2007 utilizing wells still present from the previous investigation in 1993. Water samples were collected on a quarterly basis from the monitoring wells KMW01, KMW02, and KMW03. The last sampling event for all the wells occurred on November 2, 2007. Water samples obtained from the wells contained several PAHs, and in KMW01 diesel was measured at 1,360 ppb and lube oil was 2,520 ppb. Gasoline- and diesel-range hydrocarbons as well as BTEX constituents were measured below laboratory detection levels in the final monitoring event for KMW02 and KMW03. Table 2 presents the four quarters of groundwater sampling results for KMW01 for the specified compounds.

Sample Point	Sample Date	TPH-D <sup>8</sup>	TPH-O
KMW01	2/13/2007	655	1,200
	5/03/2007	398	820
	8/29/2007	2,210	5,170
	11/02/2007	1,360	2,520

Table 2: Compliance Groundwater Monitoring Results in ppb

### Risk-Based Site Evaluation

Based on the results of the site assessment activities, Kleinfelder submitted a risk-based proposal for closure and a Conceptual Site Model (CSM) in a report dated June 30, 2008. The report and CSM included water and land use at the site, as well as an evaluation of the potential exposure pathways for remaining soil and groundwater contamination.

### Water Use

The site and adjacent properties are served by a municipal water supply for the City of Salem. Drinking water is supplied by surface water intake from the North Santiam River approximately 17

<sup>6</sup> RBDM: Risk-Based Decision Making, referring to the gasoline-related VOCs required under the 2003 DEQ guidance entitled *Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites*

<sup>7</sup> VOCs: volatile organic compounds

<sup>8</sup> TPH-D and TPH-O: total petroleum hydrocarbons for diesel-range and oil-range hydrocarbons

miles east of the city. According to the Oregon Water Resources Department (OWRD), there is no prohibition to the installation of wells for domestic purposes in Salem.

Kleinfelder conducted a search in 2008 for well records within one-quarter mile of the site using the OWRD well database. The records for four wells were found in the search area, the nearest well located approximately 350 feet north of the site. These wells were reportedly used for domestic and irrigation purposes. The wells, constructed in the 1920's through the 1960's, are located outside of the area with known impacts from the site. Two domestic wells were identified within one-quarter mile of the site during a door-to-door survey conducted in April 2009.

### Land Use

Based on zoning for the City of Salem, the site is designated Retail Commercial (CR)<sup>9</sup> and will likely remain under this zoning in the future. North and east of the site, CR and Multi-Family Residential (RM2) zoning exists. This zoning is also present south of the site in addition to Single-Family Residential (RS). West of the site, CR and Commercial Office (CO) zoning is present. All of these zoning designations allow some form of residential land use. Based on the current zoning and land use, it is reasonably likely that urban residential and commercial uses would be utilized at the site and adjacent properties

The potential for human health impacts from contamination proposed to remain at the site was evaluated. Urban residential, occupational, construction, and excavation workers were considered appropriate receptors for the site based on the current land use and zoning allowances as well as known site conditions. Each of the exposure pathways were evaluated for the applicable receptors using DEQ's September 22, 2003, *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* guidance document.

### Contamination in Soil

- The *Surface Soil Ingestion, Dermal Contact, and Inhalation* exposure pathway was determined to be complete. The remaining contamination in soil is found at depths that may be encountered by excavation or construction workers. Constituents of Potential Concern (CoPC) in soil were measured below the generic and site-specific RBCs<sup>10</sup> for an excavation or construction worker exposure.

Diesel-range hydrocarbons were detected in soil sample KHA01 at 20,000 ppm during previous site investigation activities in 1995. This concentration exceeds the urban residential RBC for this compound of 8,300 ppm. This sample was collected from 3.5 feet bgs, a depth considered to possibly be encountered by an urban residential dweller. Therefore, this pathway is complete for a future urban residential or current occupational receptor.

- The *Volatilization to Outdoor Air* exposure pathway was determined to be complete. The CoPC

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<sup>9</sup> Retail Commercial (CR): This zone is designated by the City of Salem Community Development Department for retail, service, office, and commercial activities. Single-family housing is permitted in this zone.

<sup>10</sup> RBCs: risk-based concentrations

concentrations in soil were below the generic and site-specific RBCs for occupational use of the property.

- The *Vapor Intrusion into Buildings* exposure pathway was determined to be complete for current occupational and potential future urban residential receptors. The most recent sample results identified CoPC concentrations in soil that are below the generic and site-specific RBCs for this exposure pathway under occupational use of the subject property.
- The *Leaching to Groundwater* exposure pathway was determined to be complete, as groundwater is used near the site as a source of drinking water. Two domestic wells located on properties adjacent to the site were tested in April 2009. Water samples did not contain gasoline- or diesel-range hydrocarbons or RBDM VOCs above laboratory detection levels.

Site-specific RBCs for applicable receptors and exposure pathways to lube-oil contamination in soil were calculated using analytical data from soil sample KGP07 (from 2.5 feet bgs) collected in October 2007 and were determined as presented in Table 3.

KGP07 lube oil concentration in soil	<i>Volatilization to Outdoor Air</i> – Urban Residential	<i>Vapor Intrusion to Indoor Air</i> – Urban Residential	<i>Ingestion, Inhalation, Dermal Contact</i> – Construction Worker	<i>Ingestion, Inhalation, Dermal Contact</i> – Excavation Worker
67.1 ppm	10,000 ppm	77,000 ppm	25,000 ppm	>MAX <sup>11</sup>

Table 3: Site-Specific RBC calculations for TPH in soil

Soil samples collected above the groundwater fluctuation zone indicated that petroleum compounds are below applicable generic and site-specific RBCs for the site.

### Contamination in Groundwater

- The *Vapor Intrusion into Buildings* exposure pathway was determined to be complete for current occupational use at the site. The most recent sample results identified CoPC concentrations in groundwater that are below the generic and site-specific RBCs for this exposure pathway under occupational use of the subject property.
- The *Volatilization to Outdoor Air* exposure pathway was determined to be complete for occupational receptors. The most recent sample results indicated CoPC concentrations in groundwater were below the generic and site-specific RBCs for this exposure pathway under occupational use of the subject property.
- The *Groundwater Ingestion* exposure pathway was determined to be complete, as groundwater is utilized near the site as a source of drinking water. Two domestic wells located adjacent to the site were sampled and did not contain petroleum contaminants.

<sup>11</sup> >MAX: the concentration calculated is greater than 100,000 ppm

- The *Groundwater in Excavation* exposure pathway was determined to be complete. The most recent groundwater concentrations were measured below the generic and site-specific RBCs for this exposure pathway.

Groundwater concentrations detected during the most recent sampling event were compared to the applicable generic and site-specific RBCs. During the November 2007 groundwater monitoring event, lube oil-range hydrocarbons were detected at 2,520 ppb in the sample from KMW01 and at 5,170 ppb in the sample collected in August 2007. The site-specific RBCs calculated for heavy oil in groundwater exceed the solubility limit. A concentration higher than the solubility limit is indicative of free-phase petroleum. Free product was not present in the collected water samples.

Concentrations of CoPCs in the final sampling events for site monitoring wells were detected below the applicable generic and site-specific RBCs for the applicable exposure pathways and receptors to remaining groundwater contamination.

#### Ecological Risk Assessment

Based on the detected concentrations and urban location of the site, the DEQ has determined it is reasonably likely that ecological receptors are not at risk as a result of this release. A complete ecological risk assessment was not required by DEQ.

#### Public Comment

As part of the public participation process, DEQ sent letters to the adjacent property owners on December 16, 2008 that outlined the investigation and cleanup completed at the site. Comments on the proposed "no further action" were to be submitted by January 16, 2009.

DEQ was contacted by the property owner of 3182 Hyacinth Street NE. The owner advised DEQ that a domestic well was present at this residence, and requested that the well be sampled for petroleum contamination. DEQ then requested a door-to-door survey for domestic wells, which was conducted by Kleinfelder. On April 23, 2009, the domestic well and a well at 4115 Hawthorne Avenue NE were sampled. No impacts from petroleum were identified in either well water sample. Following receipt of these sample results, no comments objecting to site closure were submitted to DEQ.

#### Regulatory Site Closure

All elements for site closure pursuant to Risk-Based Cleanups have been met based on the current land and groundwater use at the subject property. Contamination does remain in soil and groundwater at the site. DEQ approves leaving this contamination in place because it does not present an unacceptable risk to human health, safety, welfare, or the environment with the conditions described in this letter.

DEQ requires that as part of closure, current and future property owners must adhere to the following restrictions as a component of the conditional closure determination for this site:

- Restricts use of groundwater at the property;
- Restricts use of the property for residential purposes;
- Requires removal of contaminated soil near KHA01 when obstructions (buildings, USTs, etc.) are no longer present.

An Easement and Equitable Servitudes, which documents the restrictions listed above, was recorded with the property deed on January 12, 2010. A copy of the document is attached to this letter.

DEQ's determination will not be applicable if new or undisclosed facts show that the investigation or cleanup does not comply with the referenced rules. DEQ's review of the referenced report(s) in no way transfers any of the cleanup and compliance responsibility to the State of Oregon or its employees. DEQ's determination also does not apply to any other conditions at the site, other than the release of the petroleum products specifically addressed in your reports.

Your efforts to comply with regulations to ensure that this property has been adequately investigated have been appreciated. Please keep a copy of your reports until ten (10) years after the first transfer of the property as required under Oregon rule.

If you have any questions regarding this matter, please feel free to contact me in Eugene at (541) 687-7325.

Sincerely,



Cathy Rodda  
Natural Resource Specialist



Greg Aitken, RG  
Regional Tanks Program Manager

CJR:gad  
Truax 302 Salem final NFA.doc

Encl: Deed Restriction

cc: Reid Kenner, Kleinfelder (electronic copy)  
Greg Aitken, DEQ (electronic copy)  
Kristopher R. Byrd, Water Resources Department, North Mall Office Building, 725 Summer Street NE, Suite A, Salem, Oregon 97301-1266

---

*Space above this line for Recorder's use.*

*After recording, return to:*

Attention: Cathy Rodda  
Oregon DEQ, Eugene Office  
165 East 7<sup>th</sup> Avenue, Suite 100  
Eugene, Oregon 97401

### **EASEMENT AND EQUITABLE SERVITUDES**

This grant of Easement and acceptance of Equitable Servitudes is made October 6, 2009, between Harris Oil Company ("Grantor") and the Oregon Department of Environmental Quality ("DEQ" or "Grantee").

### **RECITALS**

A. The Grantor is the owner of certain real property located at 4180 Portland Road NE in Salem, Oregon, Marion County Map Tax Lot Number 073W12AC00500A1 (the "Property"). The legal description of the Property is set out in Exhibit A to this Easement and Equitable Servitudes. This site is referenced under the file name Truax Harris Energy #302, USTC #24-06-1001, in the files of DEQ's Underground Storage Tank Program at DEQ's Western Region office located at 750 Front Street NE, Suite 120, Salem, Oregon, and telephone (503) 378-8240. Interested parties may contact the Western Region office to review a detailed description of the residual risks present at the Property.

B. Environmental investigations were performed at the Property (UST facility). Those investigations revealed groundwater contamination at the Property that exceeds levels considered safe for human consumption.

C. On October 5, 2009, DEQ entered into this agreement under which the Grantor has agreed to implement the institutional controls set forth within this Easement.

D. The provisions of this Easement and Equitable Servitudes are intended to further the implementation of the purpose of the selected action by recording the institutional and engineering controls required by DEQ to insure that current and future use of the Property protects human health and the environment from the contaminated the soil and groundwater that remains beneath the Property.

## 1. DEFINITIONS

1.1 "DEQ" means the Oregon Department of Environmental Quality, and its employees, agents, and authorized representatives. "DEQ" also means any successor or assign of DEQ under the laws of Oregon, including but not limited to any entity or instrumentality of the State of Oregon authorized to perform any of the functions or to exercise any of the powers currently performed or exercised by DEQ.

1.2 "Owner" means any person or entity, including Grantor, who at any time owns, occupies, or acquires any right, title, or interest in or to any portion of the Property or a vendee's interest of record to any portion of the Property, including any successor, heir, assign or holder of title or a vendee's interest of record to any portion of the Property, excluding any entity or person who holds such interest solely for the security for the payment of an obligation and does not possess or control use of the Property.

1.3 "Property" means 4180 Portland Road in Salem, Oregon, Marion County Map Tax Lot Number 073W12AC00500A1 as described in Exhibit A to this Easement and Equitable Servitudes.

## 2. GENERAL DECLARATION

Grantor grants to DEQ an Easement for access and accepts the Equitable Servitudes described in this instrument and, in so doing, declares that the Property described in Exhibit A to this Easement and Equitable Servitudes, is now subject to and shall in future be conveyed, transferred, leased, encumbered, occupied, built upon, or otherwise used or improved, in whole or in part, subject to this Easement and Equitable Servitudes. Each condition and restriction set forth in this Easement and Equitable Servitudes touches and concerns the Property and the Equitable Servitudes granted in Paragraph 3 and Easement granted in Paragraph 4 below, shall run with the land for all purposes, shall be binding upon all current and future owners of the Property as set forth in this Easement and Equitable Servitudes, and shall inure to the benefit of the State of Oregon. Grantor further conveys to DEQ the perpetual right to enforce the conditions and restrictions set forth in this Easement and Equitable Servitudes.

### 3. EQUITABLE SERVITUDES (RESTRICTIONS ON USE)

3.1 **Groundwater Use Restrictions.** Owner shall not extract through wells or by other means or use the groundwater in either the shallow or deep aquifers at the Property for any purpose. This prohibition shall not apply to extraction of groundwater associated with temporary dewatering activities related to construction or development of the Property, or to the installation of sewer or utilities at the Property.

3.2 **Use of the Property.** Owner shall not occupy or allow other parties to occupy the Property unless the controls listed in this Paragraph 3 are maintained. Prior to any additional development or redevelopment of the Property that might encounter contaminated soil or groundwater (as shown in Exhibit B), the Owner must implement a health and safety to prevent direct contact, ingestion, or inhalation for the protection of excavation and construction workers. Further, contaminated soil near boring KHA01 (as shown in Exhibit B) shall be removed when obstructions (buildings, USTs, etc.) are no longer present. This work will require the implementation of a site-specific health and safety plan as well as management and disposal of contaminated soil in accordance with DEQ regulations and policies.

3.3 **Notice of Transfer.** Owner shall notify DEQ at least ten (10) days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of Owner's interest in or occupancy of the Property. This provision does not apply to the grant or conveyance of a security interest in the Property.

3.4 **Zoning Changes.** Owner shall notify DEQ no less than thirty (30) days before Owner's petitioning for or filing of any document initiating a rezoning of the Property that would change the base zone of the Property under the Marion County zoning code or any successor code. As of the date of this Easement and Equitable Servitudes, the base zone of the property is commercial (County Property Class 201 *Commercial Improved*, City Zone CR *Retail Commercial*).

3.5 **Cost Recovery.** Owner shall pay DEQ's costs for review and oversight of implementation of and compliance with the provisions in this Easement and Equitable Servitudes. This Easement and Equitable Servitudes shall constitute the binding agreement by the Owner and DEQ to reimburse DEQ for all such eligible review and oversight costs. DEQ will establish a cost recovery account for tracking and invoicing DEQ project costs. DEQ will provide the Owner with a monthly statement and direct labor summary. DEQ costs will include direct and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the State of Oregon and DEQ allocable to DEQ oversight of this Easement and Equitable Servitudes and not charged as direct site-

specific costs. Indirect charges are based on actual costs and are applied as a percentage of direct personal services costs.

#### **4. EASEMENT (RIGHT OF ENTRY)**

During reasonable hours and subject to reasonable security requirements, DEQ shall have the right to enter upon and inspect any portion of the Property to determine whether the requirements of this Easement and Equitable Servitudes have been or are being complied with. DEQ shall have the right, privilege, and license to enter upon the Property at any time to abate, mitigate, or cure at the expense of the owner the violation of any condition or restriction contained in this Easement and Equitable Servitudes, provided DEQ first gives written notice of the violation to Owner describing what is necessary to correct the violation and Owner fails to cure the violation within the time specified in such notice. Any such entry by DEQ shall not be deemed a trespass, and DEQ shall not be subject to liability to Owner for such entry and any action taken to abate, mitigate, or cure a violation.

#### **5. RELEASE OF RESTRICTIONS**

5.1 Owner may petition the DEQ for release of any or all of the conditions or restrictions contained in this Easement and Equitable Servitudes by submitting such petition to the DEQ in writing with evidence that the circumstances on the Property intended to be addressed in such condition or restriction no longer exists, or has been remediated to a condition no longer subject to the DEQ's regulations or jurisdiction, or that no unacceptable risk to human health or the environment continues to exist on the Property. The decision to release any or all of the conditions or restrictions in this Easement and Equitable Servitudes shall be within the sole discretion of DEQ.

5.2 Upon a determination pursuant to Paragraph 5.1 above, DEQ shall, as appropriate, execute and deliver to Owner of the Property a release of specific conditions or restrictions, or a release of this Easement and Equitable Servitudes in its entirety.

5.3 Any release of this Easement and Equitable Servitudes may be made either with respect to the entire Property, or at Owner's option, with respect to any portion of the Property that is designated as a separate legal/tax lot.

#### **6. GENERAL PROVISIONS**

6.1 Each condition and restriction contained in this Easement and Equitable Servitudes shall be recited in any deed conveying the Property or any portion of the Property, and shall run with the land so burdened until such time as any condition or restriction is removed by

written certification from DEQ, recorded in the Deed Records of the county in which the property is located, certifying that the condition or restriction is no longer required in order to protect human health or the environment.

6.2 Upon the recording of this Easement and Equitable Servitudes, all future Owners, as defined in Paragraph 1.2 above, shall be conclusively deemed to have consented and agreed to every condition and restriction contained in this Easement and Equitable Servitudes, whether or not any reference to this Easement and Equitable Servitudes is contained in an instrument by which such person or entity acquired an interest in the Property.

6.3 Upon any violation of any condition or restriction contained in this Easement and Equitable Servitudes, DEQ in addition to the remedies described in Paragraph 4 above may seek any other available legal or equitable remedy to enforce this Easement and Equitable Servitudes.

IN WITNESS WHEREOF, Grantor and Grantee have executed this Easement and Equitable Servitudes as of the date and year first set forth above.

GRANTOR: Harris Oil

By: [Signature] Date: 10/5/09  
Brian Harris, for and on behalf of Harris Oil Company

STATE OF OREGON )  
 ) ss  
County of Multnomah )

The foregoing instrument is acknowledged before me this 5<sup>th</sup> day of October, 2009, by Brian Harris, for and on behalf of Grantor.



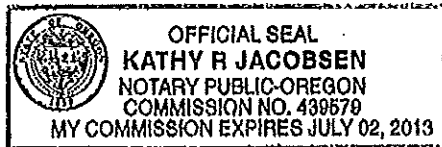
[Signature]  
NOTARY PUBLIC FOR OREGON  
My commission expires: July 4, 2013

GRANTEE: State of Oregon, Department of Environmental Quality

By: [Signature] Date: 11/13/09  
Greg Aitken, Regional Tanks Program Manager

STATE OF OREGON )  
 ) ss  
County of Lane )

The foregoing instrument is acknowledged before me this 13 day of November 2009, by Greg Aitken, of Oregon DEQ, for and on its behalf.



[Signature]  
NOTARY PUBLIC FOR OREGON  
My commission expires: July 02, 2013

EXHIBIT A

PROPERTY DESCRIPTION

Address: 4180 Portland Road in Salem, Oregon,  
Parcel Number: Marion County Map Tax Lot Number 073W12AC00500A1  
Public Land Survey: Map places the site SW ¼ of the NE ¼ Section 12, Township 7 South,  
Range 3 West. For the purposes of this document, the site location will be as defined in the legal  
property description below.

Legal Description:

That portion of FORKNER'S ACRES, According to Plat thereof recorded in Volume 16,  
of Plats Page 7, records of Marion County, Oregon, described as follows:

Beginning at the S.E. Corner of Lot 8, said FORKNER'S ACRES, said S.E. Corner,  
lying North 83° 00' 00" West 345 feet from the initial point of said Plat; thence  
North 22° 35' 30" East 164.20 feet; thence North 63° 58' 38" West 140.00 feet  
to the Easterly margin of Pacific Highway ( U.S. 99E), said Easterly margin being  
concentric with and 40 feet Easterly of Northbound Lane Centerline as shown  
on Oregon Highway Department drawing No. 6B-23-21 on file at the Highway Bldg., in  
Salem, Oregon; thence Southerly along said Easterly margin 135 feet to the Northeasterly  
line of Hyacinth Street (formerly Park Lane); thence South 11° 46' 30" East along said  
Northeasterly line 38.39 feet to a point on the South line of Lot 19, said Forkner's  
Acres lying North 56° 46' 30" West 47.00 feet from the Southeast corner thereof;  
thence South 56° 46' 30" East along said Northeasterly line and said South line  
of Lot 19 to said Southeast corner; thence South 69° 07' 24" East along said North-  
easterly line 81.18 feet to the point of beginning.

Situs location: 4180 Portland Road, N.E., Salem, Oregon

EXHIBIT B

Site Maps

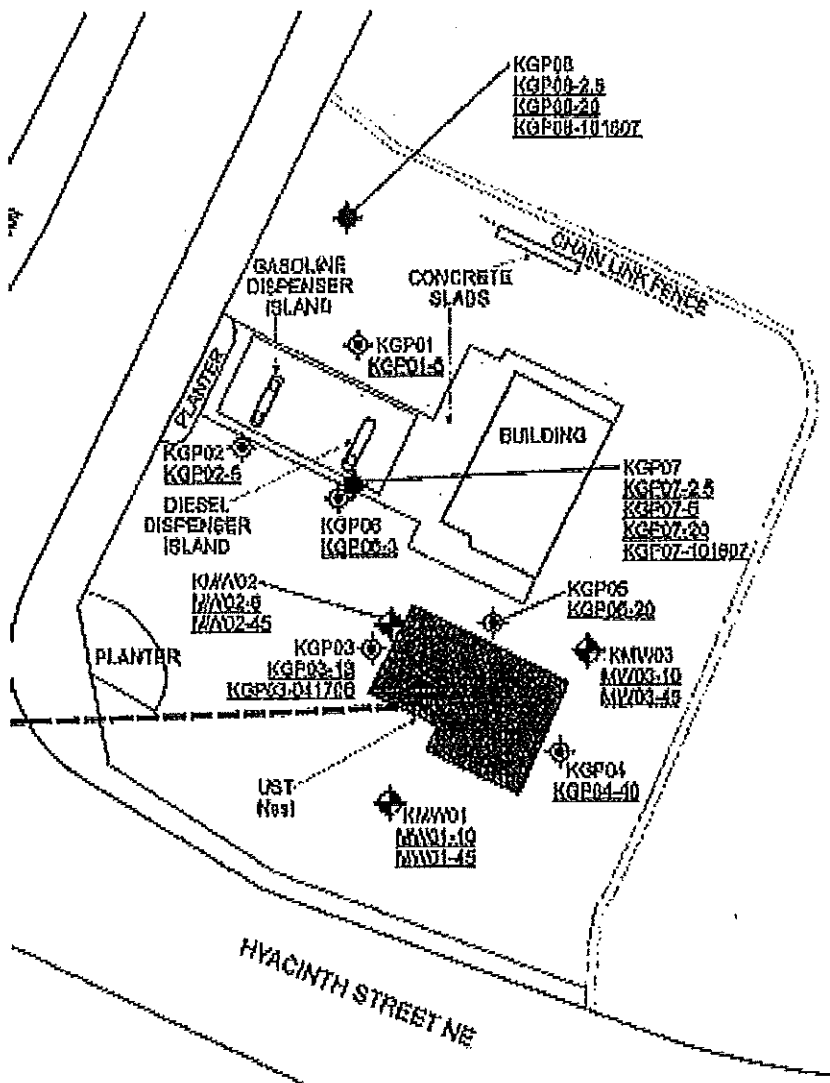
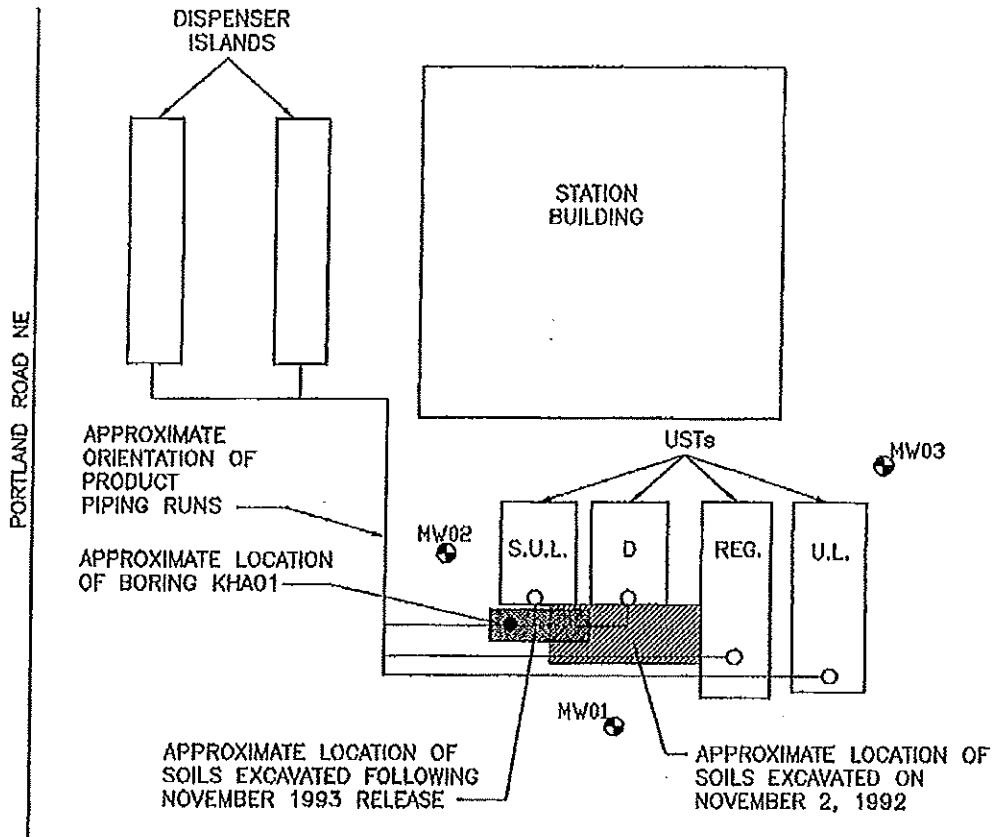


EXHIBIT B

Site Maps (continued)



## 1.0 INTRODUCTION

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This Risk-Based Evaluation (RBE) Report was prepared for the Truax Harris Energy, LLC, (Truax) Portland Road Cardlock site located at 4180 Portland Road NE in Salem, Oregon (Figure 1). Petroleum hydrocarbon-impacted soil and groundwater were discovered during baseline environmental assessment activities at the site in April 2006, and the release was reported to the Oregon Department of Environmental Quality (DEQ) (Kleinfelder, 2006). The DEQ issued Leaking Underground Storage Tank (LUST) File Number 24-06-1001 for this site.

The DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (RBDM) guidance document (DEQ, 2003) provides the framework for this report. The data presented in this RBE Report were used to evaluate the suitability for requesting site closure and a No Further Action (NFA) determination from the DEQ.

This generic RBE summarizes the existing data regarding the petroleum hydrocarbon impacts that have occurred to soil and groundwater from the release(s) at the site. A conceptual site model (CSM) is presented in this report, which describes potentially complete exposure pathways and receptors for impacted soil and groundwater at the site. Petroleum hydrocarbon constituents of potential concern (COPCs) were assessed to evaluate constituents of concern (COCs) in soil and groundwater at the site. This report also addresses corrective action measures taken and proposed, if any.

The findings of the previous environmental investigations related to the petroleum hydrocarbon release(s) at the site are incorporated into this report to the extent that they assist in describing the site conditions. The reader is directed to previous reports if a more comprehensive discussion of previous site assessments or more detailed data are desired.

## 2.0 SITE DESCRIPTION

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The site is located in the northeast corner of the intersection of Portland Road NE and Hyacinth Street NE in Salem, Oregon (Figure 2). The site is situated in the southwest quarter of the northeast quarter of Section 12, Township 7 South, Range 3 West, Willamette Meridian (U.S. Geological Survey, 1969). The site is bordered to the north by an apartment building; to the south by Hyacinth Street NE, across from which are a gas station (Kayo Oil Company) and a commercial property; to the east by an apartment building; and to the west by Portland Road NE, across from which are commercial properties. A Pacific Pride cardlock fueling facility currently occupies the site.

Claggett Creek is the nearest surface water body located approximately 800 feet south of the site. The site is essentially level, and topography in the vicinity slopes gently to the south-southeast, toward Claggett Creek. The site is approximately 175 feet above mean sea level (U.S. Geological Survey, 1969).

The current site features include a vacant building (former service station building), two fuel dispenser islands (one for gasoline and the other for diesel), and four active and permitted underground storage tanks (USTs). The building is located in the central portion of the site. The dispenser islands are located under a canopy west of the building. The USTs are located in a nest south of the building and include one 10,000-gallon unleaded gasoline tank; one 8,000-gallon midgrade gasoline tank; one 5,000-gallon premium gasoline tank; and one 5,000-gallon diesel tank. The ground surface is paved with asphalt or concrete, except for the southwest corner of the site and west of the dispenser islands which are landscaped. Figure 2 illustrates the site layout and adjacent properties.

### **3.0 GEOLOGY AND HYDROGEOLOGY**

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The site is situated in the northern Willamette Valley physiographic province of Oregon. The surface geology of the site and the vicinity has been mapped as upper Pleistocene-aged Terrace Deposits. The Terrace Deposits generally consist of unconsolidated to semi-consolidated cobbles, gravel, sand, silt, and clay of variable thicknesses. The Terrace Deposits are underlain by lower to middle Pleistocene-aged Sand and Gravel Deposits. The Sand and Gravel Deposits are underlain by Miocene-aged Columbia River Basalt Group (CRBG) (O'Conner and others, 2001).

The Terrace Deposits are usually not an important source of groundwater. This is because many of these deposits are located above the valley floor, above the regional water table, and are only a few feet thick. In locations where this lithologic unit is thicker, the lower portion may be saturated and more permeable due to less weathering, although the clay-rich weathering profile at the surface generally restricts groundwater infiltration (O'Conner and others, 2001). The Sand and Gravel Deposits are thick and widespread, generally saturated, and are a principal source of groundwater within the Willamette Valley. A review of local water well logs obtained from the Oregon Water Resources Department (WRD) indicates that domestic water wells in the vicinity of the site draw water mostly from sand and gravel occurring at depths more than 40 feet below the ground surface (bgs). The CRBG is of regional extent. The permeable, fractured interflow zones of the CRBG, occurring at depths greater than 100 feet bgs, form the principal groundwater aquifer in the region (Gannett and Caldwell, 1998).

Native soils encountered during drilling activities at the site generally consisted of silt and fine sand in various proportions below subgrade to approximately 45 feet bgs. The silt and sand unit is underlain by sandy gravel to the maximum explored depth of 51.5 feet bgs. Depths to groundwater, as measured in the site monitoring wells, fluctuate seasonally from approximately 42.60 to 45.81 feet bgs. Based on this, the vadose zone at the site is considered to extend from the ground surface to approximately 44 feet bgs. Groundwater elevations in the monitoring wells have indicated that the shallow groundwater beneath the site consistently flows south-southeast.

## **4.0 BENEFICIAL LAND AND WATER USE SURVEYS**

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Beneficial land and water use surveys are used to assist in developing a conceptual site model (CSM). The surveys evaluate the current and reasonably likely future land and water uses at the site and in the vicinity. The land use survey establishes a listing of potential receptors and the water use survey establishes a listing of potential exposure pathways.

The findings of the beneficial land and water use surveys are described in the following subsections. Surface water; public water supply; and groundwater resources, supply, and usage are described under the beneficial water use survey.

### **4.1 BENEFICIAL LAND USE SURVEY**

Information regarding the current and reasonably anticipated future land uses at the site and in the vicinity was obtained from the City of Salem website. According to the May 2008 City of Salem, Community Development Department Zoning Map, the site and adjacent properties on the north and east are zoned as Retail Commercial (CR). The CR zone provides areas for retail, service, office and commercial activities, accessory uses, and, with conditional use approval, other compatible uses. The CR zone permits one single-family dwelling, other than a manufactured home, per lot. Zoning districts within an approximately 0.25-mile radius of the site include:

- The CR and Multifamily Residential 2 (RM2) zoning districts are located north of the site. A cemetery is also located north of the site.
- The CR, RM2, and Single Family Residential (RS) zoning districts are located south of the site, across Hyacinth Street NE.
- The RM2 zoning district is located east of the site, across Fir-Rest Way NE.
- The CR and Commercial Office (CO) zoning districts are located west of the site, across Portland Road NE. The CO zone permits both single-family and multifamily dwellings.

The site is currently used for commercial purposes and it is anticipated that the site will continue to be used for commercial purposes in the future. Although secondary residential use is permitted, the very small size of the lot would essentially prohibit this conditional use at ground level and/or at the rear of the site for future residential redevelopment of the site. There is, however, a potential that the site could contain a

residential apartment over a commercial building if future redevelopment occurs. Residential apartment buildings are present adjacent to the north and east boundaries of the site.

According to the City of Salem, Community Development Department, the current land use zoning at the site and in the vicinity will not be changed in the foreseeable future. Land zonings for the site and the vicinity are shown in Figure 3. The first tier property locations, owners, and their mailing addresses are shown in Figure 4.

Based on the findings of the beneficial land use survey, both urban residential and occupational receptors appear to be potentially applicable for the site.

#### **4.2 BENEFICIAL WATER USE SURVEY**

Beneficial water use (surface water and groundwater) was evaluated within a 0.25-mile radius of the site. A 0.25-mile search radius appeared to be suitable to evaluate potential receptors of impacted groundwater from the site since the existing onsite monitoring well data indicate that the impacted groundwater plume is relatively stable and does not appear to have migrated significantly offsite.

##### **4.2.1 Surface Water**

Claggett Creek is the nearest surface water body located approximately 800 feet south (downgradient with respect to the generally southerly flow of the shallow groundwater beneath the site) of the site (U.S. Geological Survey, 1969). The beneficial uses of Claggett Creek water are not known. Based on the groundwater monitoring results, the impacted groundwater at the site does not appear to have migrated significantly offsite and is highly unlikely to impact Claggett Creek water.

##### **4.2.2 Public Water Supply**

The City of Salem, Public Works Department manages the drinking water supply for the City of Salem. The City's drinking water is supplied by an intake on the North Santiam River. The intake is located on Geren Island near the City of Stayton, about 17 miles east of Salem. In addition, the City operates an Aquifer Storage and Recovery (ASR) system. The ASR wells are located in Woodmansee Park in southeast Salem.

Mr. Douglas Woodcock, of the WRD, was contacted for information regarding groundwater use restrictions in NE Salem where the site is located. According to Mr. Woodcock, the site and the vicinity have no groundwater use restrictions. A resident in

this area can drill a domestic well or an irrigation well to water up to 0.5 acre of lawn and garden without a permit from the WRD.

#### **4.2.3 Water Well Survey**

A search of water well records maintained by the WRD was conducted via the WRD internet site (WRD, 2008). The purpose of the search was to evaluate potential water wells drilled within a 0.25-mile radius of the site. Monitoring wells and geotechnical holes were not included in the evaluation since these types of wells or borings are not used for beneficial purposes as defined by the DEQ. In addition, abandoned water wells, and water well records that did not contain adequate information, such as well address or quarter-quarter information to ascertain the location of a well within a particular quarter, were not included in the evaluation. The 0.25-mile search radius included the entire northeast (NE) quarter and the northeast and northwest quarters of the southeast quarter (NE-SE and NW-SE) of Section 12, Township 7 South, and Range 3 West.

Four water well records (Mari-16949, Mari-16961, Mari-16974, and Mari-16979) were identified within a 0.25-mile radius of the site. A copy of the WRD well records is provided in Appendix A. A brief description of the wells is given below.

WRD Well Number Mari-16949 was listed as located in Section 12, Township 7 South, and Range 3 West. The quarter-quarter information was not provided in the well record. The street address of the well is 3380 Hyacinth Street NE, Salem, Oregon 97301. The well is located approximately 900 feet east (crossgradient with respect to the consistently southerly flow of the shallow groundwater beneath the site) of the site. The documented use of the well was domestic. In 1969, the well was constructed to 89 feet bgs, cased from the ground surface to 89 feet bgs, sealed with bentonite from the ground surface to 36 feet bgs, and was not perforated or screened.

WRD Well Number Mari-16961 was listed as located in the northwest quarter of the northeast quarter (NW-NE) of Section 12, Township 7 South, and Range 3 West. The street address of the well is 4285 Portland Road NE, Salem, Oregon 97301. The well is located approximately 350 feet north (upgradient) of the site. The documented use of the well was irrigation. In 1927, the well was constructed to 68 feet bgs and cased from the ground surface to 68 feet bgs. Information regarding seal, perforation, or screen was not provided in the well record.

WRD Well Number Mari-16974 was listed as located in Section 12, Township 7 South, and Range 3 West. The quarter-quarter information was not provided in the well record. The street address of the well is 2190 Hyacinth Street NE, Salem, Oregon 97301. The well is located approximately 1,000 feet northwest (upgradient) of the site. The documented use of the well was industrial. In 1963, the well was constructed to 65 feet bgs, cased from the ground surface to 65 feet bgs, sealed with cement from the ground surface to 20 feet bgs, and was not perforated or screened.

WRD Well Number Mari-16979 was listed as located in the northeast quarter of the northeast quarter (NE-NE) of Section 12, Township 7 South, and Range 3 West. The street address of the well is 2605 Ward Drive NE, Salem, Oregon 97301. The well is located approximately 0.25 miles northeast (crossgradient) of the site. The documented uses of the well were domestic and irrigation. In 1937, the well was constructed to 64 feet bgs, cased from the ground surface to 64 feet bgs, sealed with cement from the ground surface to 8 feet bgs, and was not perforated or screened.

It appears that the above water wells are not likely to be affected by the petroleum hydrocarbon-impacted groundwater from the site given their locations (crossgradient to upgradient) and distances (approximately 350 feet to 0.25 mile), the well constructions, and likelihood that the impacted groundwater plume has not migrated significantly offsite.

#### **4.2.4 Results of Beneficial Water Use Survey**

The results of the beneficial water use survey indicated that there are no known beneficial uses of surface water within a 0.25-mile radius of the site. Based on the groundwater monitoring results, the impacted groundwater plume at the site does not appear to have migrated significantly offsite and is unlikely to impact Claggett Creek, which is located approximately 800 feet south of the site.

Based on our search of well records from the WRD, four beneficial use water wells (Mari-16949, Mari-16961, Mari-16974, and Mari-16979) are potentially located within a 0.25-mile radius of the site. It appears that these wells are not likely to be affected by the impacted groundwater from the site as explained in Section 4.2.3. Publicly supplied water is readily available to all businesses and residences in the City of Salem. Future use of the shallow, water-bearing zone at the site and in the immediate vicinity is unlikely due to the readily available public water supply and the developed nature of the area.

## 5.0 UTILITY EVALUATION

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A subsurface utility survey was conducted for the site and the immediate vicinity to evaluate: 1) the potential for excavation and construction workers to encounter impacted soil and/or groundwater in a utility corridor, and/or 2) the potential for petroleum hydrocarbon contaminants to preferentially migrate along a utility corridor. The City of Salem, Public Works Department provided maps showing the piping diameters and approximate locations of subsurface water, storm sewer, and sanitary sewer pipes in the site vicinity. The City of Salem owns these utilities. Except for a sanitary sewer pipe, information regarding the burial depths of the above utility pipes was not available. Utilities such as cable, telephone, fiber optics, natural gas, and power were not evaluated since these types of utilities are typically not buried deeper than 3 feet bgs. Electric lines are overhead at the site and in the site vicinity. The subsurface utilities in the site vicinity are shown in Figure 5.

A 12-inch diameter water pipe is buried beneath the southbound lane of Portland Road NE. An 8-inch diameter water pipe is buried beneath the westbound lane of Hyacinth Street NE and is connected to the water pipe buried beneath Portland Road NE outside the mapped area in Figure 5.

A 12-inch diameter storm sewer pipe is buried beneath the southbound lane of Portland Road NE and slopes to the south.

An 8-inch diameter sanitary sewer pipe is buried approximately 9 feet bgs beneath the eastbound lane of Hyacinth Street NE and slopes to the west.

There are lateral water, storm sewer, and sanitary sewer pipes buried beneath the site and the site vicinity. These lateral pipes are connected to their respective main pipes described above. For example, a 2-inch diameter lateral water pipe runs from the vacant, former station building in the center of the site to the main water pipe buried beneath Hyacinth Street NE. Information regarding the burial depths of these lateral pipes was not available. However, the burial depths of the lateral pipes are expected to be equal to or less than the burial depths of their respective mains.

Depths to the shallow groundwater, as measured in the site monitoring wells, have fluctuated seasonally from approximately 42.60 to 45.81 feet bgs and the shallow groundwater beneath the site flows consistently toward the south-southeast.

Based on the depth to shallow groundwater, there does not appear to be a potential for construction and excavation workers to encounter impacted groundwater along utility

lines buried beneath the site and the immediate vicinity. The burial depth of the sanitary sewer pipe (approximately 9 feet bgs) is much shallower than the depth of the most shallow, seasonal, groundwater level encountered at the site. Information regarding the burial depths of the above water and storm sewer pipes was not available. However, the burial depths of these water and storm sewer pipes are not expected to be more than 3-5 feet bgs.

Petroleum hydrocarbon-impacted perched water was encountered at approximately 3 to 12 feet bgs in the immediate vicinity of the UST nest and fuel dispenser islands during site characterization activities in April 2006 (described in Section 6.2). Consequently, there appears to be a potential for construction and excavation workers to encounter impacted perched water along lateral utility lines and product lines buried beneath the site.

Petroleum hydrocarbon impacts to soil have been detected at the site. Therefore, there appears to be a potential for construction and excavation workers to encounter impacted soil along lateral utility lines buried beneath the site.

## **6.0 PREVIOUS SITE ENVIRONMENTAL ACTIVITIES**

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The site has been operated as a Pacific Pride Cardlock facility since 1995. Prior to 1995, the site was operated as an ARCO service station. Previous site environmental activities are summarized in the following sections. If a more detailed, comprehensive discussion is desired, see the specific report cited.

### **6.1 ENVIRONMENTAL ACTIVITIES - NOVEMBER 1992 TO JULY 1995**

Environmental activities conducted at the site during the period from November 1992 to July 1995 are summarized from *Letter Report, Summary of Environmental Data* (Kleinfelder, 2001).

#### **6.1.1 Diesel Product-Line Release & Soil Remediation - November 1992**

In November 1992, line testing identified a leak near a diesel submersible pump at the south end of the diesel UST (Figure 6). The release was reported to the DEQ and LUST File Number 24-92-4217 was issued for this site. The line was repaired and approximately 15 cubic yards of petroleum-contaminated soil (PCS) were excavated to a depth of 11 feet bgs from the release area (see Figure 6 for an approximate extent of the excavated soil). The PCS was stockpiled onsite.

Confirmation soil samples were collected following soil removal activities. Gasoline-range petroleum hydrocarbons (gasoline) (87 milligrams per kilogram (mg/Kg)) and diesel-range petroleum hydrocarbons (diesel) (670 mg/Kg) were detected in a confirmation soil sample collected at 11 feet bgs from the excavation floor. Diesel (43 mg/Kg) was detected in a confirmation soil sample collected at 11 feet bgs from the south sidewall of the excavation. A summary of soil analytical results is provided in Table 1.

Based on the results of the confirmation soil samples, the excavation was over-excavated to 14 feet bgs and approximately 10 cubic yards of additional PCS were removed and stockpiled onsite. Groundwater was not encountered in the excavation to a depth of approximately 14 feet bgs.

In December 1992, a total of approximately 31 tons of stockpiled PCS was transported to the Roosevelt Regional Landfill in Roosevelt, Washington for disposal.

### **6.1.2 Monitoring Well Installation - February 1993**

In February 1993, three groundwater monitoring wells (KMW01, KMW02, and KMW03) were installed at the site. Soil samples were collected from each monitoring well boring to further evaluate the magnitude and extent of impacts to soil. The purpose of the monitoring wells was to evaluate potential impacts to groundwater and to monitor seasonal changes in groundwater flow direction and contaminant concentrations, if present. Groundwater was encountered at approximately 45 feet bgs during drilling activities. The monitoring wells were located near the USTs as shown in Figure 2. A summary of soil analytical results is provided in Table 1. The soil analytical results are shown on Figure 6.

Gasoline; diesel; and benzene, toluene, ethylbenzene, and total xylenes (BTEX) were not detected at or above the laboratory method reporting limits (non-detect) in soil samples collected at 6-10 feet bgs (the approximate depth of the bottom of the USTs) and 45 feet bgs (the approximate soil/groundwater interface) from monitoring well borings KMW01 through KMW03.

### **6.1.3 Gasoline Product-Line Release & Soil Remediation - November 1993**

In November 1993, a gasoline product-line leak was identified near the super unleaded gasoline UST and repaired. Approximately 15 cubic yards of PCS were excavated from a trench near the area where the line was repaired (see Figure 6 for an approximate extent of the excavated soil). The PCS was stockpiled onsite.

Gasoline (30 mg/Kg) was detected in a soil sample collected from the stockpiled PCS. Gasoline was non-detect in a confirmation soil sample collected from the trench following soil removal activities. This suggested that only a small volume of gasoline had been released, and the impacted soil had been adequately removed. In December 1993, approximately 20 tons of stockpiled PCS were transported to the Oregon Hydrocarbon facility in Portland, Oregon for disposal.

### **6.1.4 Groundwater Monitoring - March through December 1993**

Four consecutive quarters of compliance groundwater monitoring were conducted from March through December 1993. No free product was detected in any of the monitoring wells. Groundwater samples collected from all monitoring wells during the March 1993 initial monitoring event were analyzed for BTEX constituents and polynuclear aromatic

hydrocarbons (PAHs). Groundwater samples collected from all monitoring wells during the subsequent monitoring events were analyzed for BTEX constituents only.

Groundwater elevations in the monitoring wells have indicated that the shallow groundwater beneath the site generally flows toward the south-southeast with relatively flat hydraulic gradients. Petroleum hydrocarbon constituent concentrations were non-detect in groundwater samples collected from the monitoring wells. This indicated that the groundwater beneath the site had not been impacted by the petroleum hydrocarbons from the product line release incidents.

### **6.1.5 Diesel Product-Line Release & Soil Characterization - July 1995**

In July 1995, a diesel product line reportedly lost pressure and automatically shut down. Line testing identified a leak near the UST nest. The product line was repaired, pressure tested, and the system brought back online. Kleinfelder drilled an exploratory boring (KHA01) to characterize the release (see Figure 6 for the boring location). Two soil samples were collected at 3.5 feet bgs and 6.5 feet bgs beneath the line-leak within the UST-nest backfill material. Groundwater was not encountered during drilling activities. A summary of soil analytical results is provided in Table 1. The soil analytical results are shown on Figure 6.

Diesel was detected at concentrations of 20,000 mg/Kg and 4,400 mg/Kg in the soil samples collected at 3.5 feet bgs and 6.5 feet bgs, respectively.

The analytical data suggested the diesel concentrations attenuated rapidly with depth. Based on the small volume of diesel believed to have been released into the UST-nest backfill material prior to automatic shutdown of the system, Kleinfelder anticipated the lateral migration of diesel would be minimal. The vertical extent of significantly impacted soil appeared to be limited to depth of the interface of the backfill material and native fine-grained soils at approximately 13 feet bgs. Kleinfelder estimated approximately 10 to 15 cubic yards of PCS remained in a pocket in the immediate vicinity of boring KHA01. The residual PCS could not be excavated due to the proximity to pressurized product lines and USTs.

The site received a NFA determination from the DEQ on September 12, 2001. The NFA determination was based upon the following:

- "A pocket of contamination still exists on this property which exceeds currently required cleanup levels [Soil Matrix Level 3] for this site. However, the DEQ

approves leaving this pocket of contamination in place, pursuant to Oregon Administrative Rules (OAR) 340-122-0355(4), since the removal of this contamination would endanger structures on the property or be prohibitively expensive, and because the contamination does not threaten human health, safety, welfare, or the environment.”

## **6.2. BASELINE ENVIRONMENTAL ASSESSMENT- APRIL 2006**

In April 2006, a baseline environmental assessment (BEA) was conducted, which included advancing six soil borings (KGP01 through KGP06) at the site (Kleinfelder, 2006). The purpose of the BEA was to evaluate petroleum hydrocarbon impacts to soil and groundwater at the site and establish baseline concentrations, if detected, prior to a potential transfer of property ownership. The borings were located in the immediate vicinity of the USTs and fuel dispenser islands as shown on Figure 6. Depths of the borings ranged from 4 to 40 feet bgs. Soil samples were collected from all borings for potential laboratory analysis. Groundwater was not encountered during drilling. However, perched water was encountered in four (borings KGP01, KGP02, KGP03, and KGP06) of the six borings at approximately 3 to 12 feet bgs. A grab perched water sample was collected from boring KGP03 for laboratory analysis. Summaries of soil analytical results are provided in Tables 1 and 2. A summary of grab perched water analytical results is provided in Table 3. The soil and grab perched water analytical results are shown on Figure 6.

Gasoline, diesel, lube oil-range petroleum hydrocarbons (lube oil), and BTEX constituents were non-detect in soil samples collected between 5 and 40 feet bgs from borings KGP01 through KGP05. Lube oil (111 mg/Kg); benz(a)anthracene (0.0127 mg/Kg); benzo(a)pyrene (0.0133 mg/Kg); benzo(b)fluoranthene (0.016 mg/Kg); benzo(g,h,i)perylene (0.01 mg/Kg); chrysene (0.012 mg/Kg); fluoranthene (0.0287 mg/Kg); phenanthrene (0.0113 mg/Kg); and pyrene (0.028 mg/Kg) were detected in a soil sample collected at 3 feet bgs from boring KGP06.

Gasoline (112 micrograms per liter ( $\mu\text{g/L}$ )); diesel (610  $\mu\text{g/L}$ ); benzene (44.6  $\mu\text{g/L}$ ); ethylbenzene (0.589  $\mu\text{g/L}$ ); and naphthalene (6.59  $\mu\text{g/L}$ ) were detected in the grab perched water sample collected from boring KGP03.

The results of the assessment indicated that, in addition to impacts to soil, perched water at the site had been impacted by petroleum hydrocarbons. The release was reported to the DEQ. The DEQ issued LUST File Number 24-06-1001 for this site on June 9, 2006.

Perched water was encountered in four of the six borings advanced in the immediate vicinity of the UST nest and fuel dispenser islands in April 2006. As described in Section 6.3, perched water was not encountered in borings KGP07 (located in the immediate vicinity of boring KGP06) and KGP08 (located in the northwest corner of the site) advanced in October 2007 (see Figure 6 for the boring locations). This suggests that the perched water is localized and/or seasonal. It appears that perched water is contained in relatively more permeable backfill material, underlain by fine-grained and relatively less permeable native soils, associated with the UST nest and fuel dispenser islands.

### **6.3 SUPPLEMENTAL SITE CHARACTERIZATION – OCTOBER 2007**

In October 2007, supplemental site characterization (SSC) activities were conducted, which included advancing two soil borings (KGP07 and KGP08) at the site (Kleinfelder, 2008). The purpose of the SSC was to evaluate the magnitude and extent of potential petroleum hydrocarbon impacts to soil and groundwater in the vicinity of the dispenser islands. Boring KGP07 was located approximately 3 feet south of the diesel dispenser island, in the immediate vicinity of the BEA boring KGP06. Boring KGP08 was located approximately 40 feet north of the dispenser islands, in the northwest corner of the site. The boring locations are shown in Figure 6. Each boring was advanced to a depth of 51.5 feet bgs. Groundwater was encountered between approximately 46 and 47 feet bgs during drilling activities. Soil and grab groundwater samples were collected from both the borings for laboratory analysis. Summaries of soil analytical results are provided in Tables 1 and 2. A summary of grab groundwater analytical results is provided in Table 4. The soil and grab groundwater analytical results are shown on Figure 6.

Gasoline, diesel, lube oil, volatile organic compounds (VOCs) listed in Appendix A of the DEQ's RBDM guidance document (DEQ, 2003), and PAHs were non-detect in soil samples collected at 20 feet bgs from borings KGP07 and KGP08. Diesel and lube oil

were non-detect in a soil sample collected at 5 feet bgs from boring KGP07. Diesel (180 mg/Kg) and lube oil (67.1 mg/Kg) were detected in a soil sample collected at 2.5 feet bgs from boring KGP07. Only benzo(g,h,i)perylene (0.00733 mg/Kg) was detected in a soil sample collected at 2.5 feet bgs from boring KGP08.

The following constituents were detected in a grab groundwater sample collected from boring KGP07: diesel (1,440 µg/L); lube oil (1,580 µg/L); dissolved lead (120 µg/L); acenaphthene (0.286 µg/L); anthracene (0.0991 µg/L); benz(a)anthracene (0.0991 µg/L); benzo(a)pyrene (0.0771 µg/L); benzo(b)fluoranthene (0.0881 µg/L); benzo(g,h,i)perylene (0.0771 µg/L); chrysene (0.132 µg/L); fluoranthene (0.485 µg/L); fluorene (0.231 µg/L); naphthalene (0.121 µg/L); phenanthrene (0.529 µg/L); and pyrene (0.595 µg/L). Gasoline and RBDM VOCs were non-detect in the grab groundwater sample collected from boring KGP07. The following constituents were detected in a grab groundwater sample collected from boring KGP08: diesel (722 µg/L); lube oil (866 µg/L); and dissolved lead (120 µg/L). Gasoline, RBDM VOCs, and PAHs were non-detect in the grab groundwater sample collected from boring KGP08.

The results of the assessment indicated that relatively low concentrations of diesel, lube oil, and related constituents were present in surface soil and groundwater in the vicinity of the fuel dispenser islands. Low concentrations of petroleum hydrocarbons were detected in the grab groundwater sample collected from boring KGP08, which is located upgradient of the dispenser islands and UST nest (potential contaminant source areas) with respect to the consistently southerly flow of the shallow groundwater beneath the site. It is important to note that constituent concentrations detected in grab groundwater samples are typically biased high due to presence of suspended sediments. This indicates that boring KGP08 has delineated the upgradient extent of the impacted groundwater plume at the site.

Impacts to subsurface (greater than 3 feet bgs) soils in borings KGP07 and KGP08 were not detected. Depths to groundwater, as measured in the site monitoring wells, are more than 40 feet bgs. This indicates impacts to surface soil detected in borings KGP07 and KGP08 have not extended to groundwater, suggesting that impacts to groundwater detected in borings KGP07 and KGP08 (and in monitoring wells as described in Section 6.4) are not related to the fuel dispenser islands. It appears the impacts to groundwater beneath the site are related to the July 1995 diesel release described in Section 6.1.5. Groundwater beneath the site had not been impacted prior

to July 1995 based on the results of the quarterly groundwater monitoring conducted from March through December 1993 (see Section 6.1.4). The diesel-impacted soil related to the July 1995 release could not be excavated due to reasons described in Section 6.1.5. It is likely the diesel impacts to soil leached to groundwater over time.

#### **6.4 QUARTERLY GROUNDWATER MONITORING – FEBRUARY THROUGH NOVEMBER 2007**

Quarterly groundwater monitoring was initiated in February 2007 as required by the DEQ, utilizing the existing groundwater monitoring wells (KMW01 through KMW03) which were installed in February 1993 (Section 6.1.2). Groundwater monitoring consisted of evaluating: 1) groundwater elevations and flow direction, 2) potential presence of free product, and 3) groundwater quality based on analysis of groundwater samples collected from each monitoring well.

Free product was not detected in the monitoring wells. Groundwater samples collected from all monitoring wells during each monitoring event were analyzed for diesel, lube oil, BTEX constituents, and PAHs. Groundwater samples collected from all monitoring wells during the initial monitoring event were also analyzed for gasoline. Summaries of monitoring well groundwater analytical results are provided in Tables 5 and 6.

Depths to groundwater, as measured in the monitoring wells, have fluctuated seasonally from approximately 42.60 to 45.81 feet bgs. Groundwater elevations in the monitoring wells have indicated that shallow groundwater beneath the site flows consistently toward the south-southeast with relatively flat hydraulic gradients that average approximately 0.003 feet per foot (ft/ft). Based on the groundwater flow direction, the monitoring well network appears to be appropriately situated for the purposes intended. Monitoring well KMW02 is located upgradient, and monitoring well KMW01 is located downgradient, of the contaminant source area (i.e., diesel product-line release near the UST nest as shown in Figure 6 and discussed in Section 6.3). Monitoring well KMW03 is located crossgradient of the contaminant source area. In general, groundwater samples collected from monitoring well KMW01 had the highest concentrations of petroleum hydrocarbon-related constituents. Well KMW01 is located approximately 20 feet downgradient of the contaminant source area. Therefore, petroleum hydrocarbon-related constituent concentrations detected in well KMW01 groundwater samples are considered representative of the worst-case groundwater conditions at the site. Concentrations of diesel, lube oil, and related constituents in well KMW01 groundwater appear to remain relatively low and stable.

The following petroleum hydrocarbon-related constituents were detected in monitoring well groundwater samples collected during the past four consecutive quarters of monitoring: diesel; lube oil; acenaphthene; anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; chrysene; dibenz(a,h)anthracene; fluoranthene; indeno(1,2,3-cd)pyrene; naphthalene; phenanthrene; and pyrene.

TABLE 1  
SUMMARY OF SOIL ANALYTICAL RESULTS - TPH & RBDM VOCs  
RISK-BASED EVALUATION REPORT  
TRUAX HARRIS ENERGY, LLC  
PORTLAND ROAD CARDLOCK  
4180 PORTLAND ROAD NE  
SALEM, OREGON  
KLEINFELDER PROJECT NO. 72172  
DEQ LUST FILE NO. 24-06-1001

Sample Number	Boring Number/ Sample Location	Sample Date	Sample Depth (feet bgs)	TPH-HCID* [1]	TPH			RBDM VOCs												
					Gasoline [2] mg/Kg	Diesel [3] mg/Kg	Lube Oil [3] mg/Kg	Benzene [4] mg/Kg	Toluene [4] mg/Kg	Ethyl- benzene [4] mg/Kg	Total Xylenes [4] mg/Kg	1,2,4- Trimethyl- benzene [4] mg/Kg	1,3,5- Trimethyl- benzene [4] mg/Kg	Methyl tert- butyl ether (MTBE) [4] mg/Kg	1,2-Dibromo- ethane (EDB) [4] mg/Kg	1,2-Dichloro- ethane (EDC) [4] mg/Kg	Isopropyl- benzene [4] mg/Kg	n-Propyl- benzene [4] mg/Kg	Naphtha- lene [4] mg/Kg	
<b>Diesel Product-Line Release - November 1992</b>																				
1094-BOE	Excavation Floor	11/04/1992	11	Gasoline, Diesel	87	670	-	-	-	-	-	-	-	-	-	-	-	-	-	
1094-SSE	Excavation South Sidewall	11/04/1992	11	ND	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	
1094-NSE	Excavation North Sidewall	11/04/1992	11	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Monitoring Well Borings - February 1993</b>																				
MW01-10	Monitoring Well Boring KMW01	02/05/1993	10	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW01-45	Monitoring Well Boring KMW01	02/05/1993	45	-	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	-	-	
MW02-6	Monitoring Well Boring KMW02	02/05/1993	6	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW02-45	Monitoring Well Boring KMW02	02/05/1993	45	-	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	-	-	
MW03-10	Monitoring Well Boring KMW03	02/05/1993	10	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW03-45	Monitoring Well Boring KMW03	02/05/1993	45	-	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	-	-	
<b>Gasoline Product-Line Release - November 1993</b>																				
S01-11233	Excavation Trench	11/23/1993	N/A	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Diesel Product-Line Release - July 1995</b>																				
KHA01-3.5	Soil Boring KHA01	07/28/1995	3.5	-	-	20,000	-	-	-	-	-	-	-	-	-	-	-	-	-	
KHA01-6.5	Soil Boring KHA01	07/28/1995	6.5	-	-	4,400	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Baseline Environmental Assessment - April 2006</b>																				
KGP01-5	Soil Boring KGP01	04/14/2006	5	-	<3.29	<19.8	<65.9	<0.0329	<0.132	<0.132	<0.395	-	-	-	-	-	-	-	-	
KGP02-5	Soil Boring KGP02	04/14/2006	5	-	<3.37	<20.2	<67.5	<0.0337	<0.135	<0.135	<0.405	-	-	-	-	-	-	-	-	
KGP03-13	Soil Boring KGP03	04/17/2006	13	-	<3.38	<20.3	<67.7	<0.0338	<0.135	<0.135	<0.406	-	-	-	-	-	-	-	-	
KGP04-40	Soil Boring KGP04	04/17/2006	40	-	<3.02	<18.1	<60.4	<0.0302	<0.121	<0.121	<0.362	-	-	-	-	-	-	-	-	
KGP05-20	Soil Boring KGP05	04/17/2006	20	-	<3.32	<19.9	<66.4	<0.0332	<0.133	<0.133	<0.398	-	-	-	-	-	-	-	-	
KGP06-3	Soil Boring KGP06	04/14/2006	3	-	<3.11	<18.6	111	<0.0311	<0.124	<0.124	<0.373	-	-	-	-	-	-	-	-	
<b>Supplemental Site Characterization - October 2007</b>																				
KGP07-2.5	Soil Boring KGP07	10/16/2007	2.5	-	<3.31	180	67.1	<0.010	<0.010	<0.010	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
KGP07-5	Soil Boring KGP07	10/16/2007	5	-	-	<20.2	<67.4	-	-	-	-	-	-	-	-	-	-	-	-	
KGP07-20	Soil Boring KGP07	10/16/2007	20	-	<3.12	<18.8	<62.5	<0.010	<0.010	<0.010	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
KGP08-2.5	Soil Boring KGP08	10/16/2007	2.5	-	<3.17	<19.0	<63.5	<0.010	<0.010	<0.010	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
KGP08-20	Soil Boring KGP08	10/16/2007	20	-	<3.23	<19.4	<64.7	<0.010	<0.010	<0.010	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
<b>DEQ GENERIC RISK-BASED CONCENTRATIONS (RBCs) (DEQ, 2003 &amp; 2007)</b>																				
Urban Residential Soil Ingestion, Dermal Contact, and Inhalation					1,500	9,300	10,000**	21	11,000+	8,100+	1,600+	97	97	650	0.45	9.9	4,500+	420+	67	
Occupational Soil Ingestion, Dermal Contact, and Inhalation					22,000	70,000	77,000**	34	77,000+	74,000+	24,000+	1,500+	1,500+	1,000	0.68	15	51,000+	4,900+	770+	
Construction Worker Soil Ingestion, Dermal Contact, and Inhalation					13,000	23,000	25,000**	340	24,000+	28,000+	19,000+	1,400+	1,400+	10,000+	8.1	180	24,000+	2,300+	710+	
Excavation Worker Soil Ingestion, Dermal Contact, and Inhalation					>100,000**	>100,000**	>100,000**	9,400+	>100,000**	>100,000**	>100,000**	40,000+	40,000+	>100,000**	230	5,000+	>100,000**	65,000+	20,000+	
Urban Residential Vapor Intrusion into Buildings					140	>100,000**	>100,000**	0.15	538+	327+	110	70	12	8.8	0.018	0.071	335+	140	290	
Occupational Vapor Intrusion into Buildings					>100,000**	>100,000**	>100,000**	1.2	538+	327+	358+	840	140	70	0.14	0.56	335+	198+	312+	
Urban Residential Volatilization to Outdoor Air					4,500	>100,000**	>100,000**	18	>100,000**	327+	358+	200	200	540	0.25	5.4	335+	198+	240	
Occupational Volatilization to Outdoor Air					80,000	>100,000**	>100,000**	48	>100,000**	>100,000**	358+	790	211+	1,400	0.65	14	335+	198+	312+	

1. By DEQ Method TPH-HCID  
2. By Northwest Method NWTPH-Gx  
3. By Northwest Method NWTPH-Dx  
4. By EPA Method 8021B or 8260B

TPH Total Petroleum Hydrocarbons  
HCID Hydrocarbon Identification  
RBDM Risk-Based Decision Making  
VOCs Volatile Organic Compounds  
N/A Not applicable  
ND Not detected at or above laboratory method reporting limit  
\* Performed for gasoline, diesel, and motor oil; only detected constituents are listed.  
<3.29 Not detected at or above the laboratory method reporting limit listed.  
- Not analyzed  
bgs Below the ground surface  
mg/Kg Milligrams per kilogram  
\*\* Calculated site-specific RBC

+ This soil RBC exceeds the limit of three-phase equilibrium partitioning. Soil concentrations in excess of the value listed indicate that free product might be present (DEQ, 2003 & 2007). Free product was not detected at the site.

\*\* "The constituent RBC is greater than the maximum amount that would be present if all of the initial air space is filled with petroleum product. The Department believes it is highly unlikely that such concentrations will ever be encountered" (DEQ, 2003 & 2007).

TABLE 2  
SUMMARY OF SOIL ANALYTICAL RESULTS - PAHs  
RISK-BASED EVALUATION REPORT  
TRUAX HARRIS ENERGY, LLC  
PORTLAND ROAD CARDLOCK  
4180 PORTLAND ROAD NE  
SALEM, OREGON  
KLEINFELDER PROJECT NO. 72172  
DEQ LUST FILE NO. 24-06-1001

Boring Number	Sample Number	Sample Date	Sample Depth (feet bgs)	Polynuclear Aromatic Hydrocarbons (PAHs)								
				Benzo(a)-anthracene [1] mg/Kg	Benzo(a)pyrene [1] mg/Kg	Benzo(b)-fluoranthene [1] mg/Kg	Benzo (g,h,i)-perylene [1] mg/Kg	Chrysene [1] mg/Kg	Fluoranthene [1] mg/Kg	Phenanthrene [1] mg/Kg	Pyrene [1] mg/Kg	Other PAHs [1] mg/Kg
<b>Baseline Environmental Assessment - April 2006</b>												
KGP06	KGP06-3	04/14/2006	3	0.0127	0.0133	0.016	0.01	0.012	0.0287	0.0113	0.028	<0.00667
<b>Supplemental Site Characterization - October 2007</b>												
KGP07	KGP07-2.5	10/16/2007	2.5	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667
KGP07	KGP07-20	10/16/2007	20	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667
KGP08	KGP08-2.5	10/16/2007	2.5	<0.00667	<0.00667	<0.00667	0.00733	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667
KGP08	KGP08-20	10/16/2007	20	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667	<0.00667
<b>DEQ GENERIC RISK-BASED CONCENTRATIONS (RBCs) (DEQ, 2003 &amp; 2007)</b>												
Urban Residential Soil Ingestion, Dermal Contact, and Inhalation				0.31	0.031	0.31	NE	31+	4,600+	NE	3,400+	Variable
Occupational Soil Ingestion, Dermal Contact, and Inhalation				2.7	0.27	2.7	NE	270+	29,000+	NE	21,000+	Variable
Construction Worker Soil Ingestion, Dermal Contact, and Inhalation				21+	2.1	21+	NE	2,100+	8,900+	NE	6,700+	Variable
Excavation Worker Soil Ingestion, Dermal Contact, and Inhalation				590+	59+	590+	NE	59,000+	>100,000++	NE	>100,000++	Variable
Urban Residential Vapor Intrusion into Buildings				NV	NV	NV	NE	NV	NV	NE	NV	Variable
Occupational Vapor Intrusion into Buildings				NV	NV	NV	NE	NV	NV	NE	NV	Variable
Urban Residential Volatilization to Outdoor Air				NV	NV	NV	NE	NV	NV	NE	NV	Variable
Occupational Volatilization to Outdoor Air				NV	NV	NV	NE	NV	NV	NE	NV	Variable

1. By EPA Method 8270SIM

NE Cleanup level not established by DEQ (2003 & 2007).  
NV "This chemical is considered nonvolatile for the purposes of the exposure calculations" (DEQ, 2003 & 2007).  
bgs Below the ground surface  
mg/Kg Milligrams per kilogram  
<0.00667 Not detected at or above the laboratory method reporting limit listed.

\* This soil RBC exceeds the limit of three-phase equilibrium partitioning. Soil concentrations in excess of the value listed indicate that free product might be present (DEQ, 2003 & 2007). Free product was not detected at the site.

++ "The constituent RBC is greater than the maximum amount that would be present if all of the initial air space is filled with petroleum product. The Department believes it is highly unlikely that such concentrations will ever be encountered" (DEQ, 2003 & 2007).

TABLE 3  
SUMMARY OF GRAB PERCHED WATER ANALYTICAL RESULTS - TPH, RBDM VOCs, & PAHs  
RISK-BASED EVALUATION REPORT  
TRUAX HARRIS ENERGY, LLC  
PORTLAND ROAD CARDLOCK  
4180 PORTLAND ROAD NE  
SALEM, OREGON  
KLEINFELDER PROJECT NO. 72172  
DEQ LUST FILE NO. 24-06-1001

Boring Number	Sample Number	Sample Date	TPH			RBDM VOCs					PAHs		
			Gasoline [1] (µg/L)	Diesel [2] (µg/L)	Lube Oil [2] (µg/L)	Benzene [3] (µg/L)	Toluene [3] (µg/L)	Ethylbenzene [3] (µg/L)	Total Xylenes [3] (µg/L)	Naphthalene [3] (µg/L)	Other RBDM VOCs [3] (µg/L)	Naphthalene [4] (µg/L)	Other PAHs [4] (µg/L)
<b>Baseline Environmental Assessment - April 2006</b>													
KGP03	KGP03-041706	04/17/2006	112	610	<883	44.6	<0.500	0.589	<1.50	6.59	<1.0	1.9	<0.250
<b>DEQ GENERIC RISK-BASED CONCENTRATIONS (RBCs) (DEQ, 2003 &amp; 2007)</b>													
Urban Residential Vapor Intrusion into Buildings			162,000+	6,800+	60,000+*	340	526,000+	169,000+	59,000	29,000	Variable	29,000	Variable
Occupational Vapor Intrusion into Buildings			162,000+	6,800+	60,000+*	2,700	526,000+	169,000+	175,000+	31,000+	Variable	31,000+	Variable
Urban Residential Volatilization to Outdoor Air			162,000+	6,800+	60,000+*	5,100	526,000+	169,000+	175,000+	31,000+	Variable	31,000+	Variable
Occupational Volatilization to Outdoor Air			162,000+	6,800+	60,000+*	13,000	>10 <sup>6</sup> ++	169,000+	175,000+	31,000+	Variable	31,000+	Variable
Groundwater in Excavation			12,000	9,700+	60,000+*	1,700	200,000	110,000	22,000	680	Variable	680	Variable

1. By Northwest Method NWTPH-Gx
2. By Northwest Method NWTPH-Dx
3. By EPA Method 8260B
4. By EPA Method 8270SIM

TPH Total Petroleum Hydrocarbons  
RBDM Risk-Based Decision Making  
VOCs Volatile Organic Compounds  
PAHs Polynuclear Aromatic Hydrocarbons  
µg/L Micrograms per liter  
<883 Not detected at or above the laboratory method reporting limit listed.

- + This Groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of the value listed indicate that free product may be present (DEQ, 2003 & 2007). Free product was not detected at the site.
- ++ "The constituent RBC is greater than the maximum amount that would be present if all of of the initial air space is filled with petroleum product. The Department believes it is highly unlikely that such concentrations will ever be encountered" (DEQ, 2003 & 2007).
- \* Calculated site-specific RBC. Typically, solubility of lube oil in water is between 40 and 80 milligrams per liter (mg/L). An average of 60 mg/L was assumed for our purpose.

TABLE 4  
SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - TPH, RBDM VOCs, LEAD, & PAHs  
RISK-BASED EVALUATION REPORT  
TRUAX HARRIS ENERGY, LLC  
PORTLAND ROAD CARDLOCK  
4180 PORTLAND ROAD NE  
SALEM, OREGON  
KLEINFELDER PROJECT NO. 72172  
DEQ LUST FILE NO. 24-06-1001

Boring Number	Sample Number	Sample Date	TPH			RBDM VOCs					Lead	PAHs														
			Gasoline [1] (µg/L)	Diesel [2] (µg/L)	Lube Oil [2] (µg/L)	Benzene [3] (µg/L)	Toluene [3] (µg/L)	Ethylbenzene [3] (µg/L)	Total Xylenes [3] (µg/L)	Other RBDM VOCs [3] (µg/L)	Dissolved Lead [4] (µg/L)	Acenaphthene [5] (µg/L)	Anthracene [5] (µg/L)	Benzo(a)-anthracene [5] (µg/L)	Benzo(a)-pyrene [5] (µg/L)	Benzo(b)-fluoranthene [5] (µg/L)	Benzo(g,h,i)-perylene [5] (µg/L)	Chrysene [5] (µg/L)	Fluoranthene [5] (µg/L)	Fluorene [5] (µg/L)	Naphthalene [5] (µg/L)	Phenanthrene [5] (µg/L)	Pyrene [5] (µg/L)	Other PAHs [5] (µg/L)		
Supplemental Site Characterization - October 2007																										
KGP07	KGP07-101607	10/16/2007	<100	1,440	1,580	<0.400	<1.0	<1.0	<3.0	<1.0	120	0.286	0.0991	0.0991	0.0771	0.0881	0.0771	0.132	0.485	0.231	0.121	0.529	0.595	<0.0551		
KGP08	KGP08-101607	10/16/2007	<100	722	866	<0.400	<1.0	<1.0	<3.0	<1.0	120	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839	<0.0839		
DEQ GENERIC RISK-BASED CONCENTRATIONS (RBCs) (DEQ, 2003 & 2007)																										
Urban Residential Vapor Intrusion into Buildings			162,000*	6,800*	60,000*	340	526,000*	169,000*	69,000	87	NV	4,240*	>10**	NV	NV	NV	NE	NV	NV	1,980*	29,000	NE	NV	NV		
Occupational Vapor Intrusion into Buildings			162,000*	6,800*	60,000*	2,700	526,000*	169,000*	175,000*	690	NV	>10**	>10**	NV	NV	NV	NE	NV	NV	>10**	31,000*	NE	NV	NV		
Urban Residential Volatilization to Outdoor Air			162,000*	6,800*	60,000*	5,100	526,000*	169,000*	175,000*	360	NV	4,240*	>10**	NV	NV	NV	NE	NV	NV	1,980*	31,000*	NE	NV	NV		
Occupational Volatilization to Outdoor Air			162,000*	6,800*	60,000*	13,000	>10**	169,000*	175,000*	960	NV	>10**	>10**	NV	NV	NV	NE	NV	NV	>10**	31,000*	NE	NV	NV		

1. By Northwest Method NWTPH-Gx
2. By Northwest Method NWTPH-Dx
3. By EPA Method 8260B
4. By EPA Method 6020
5. By EPA Method 8270SIM

TPH Total Petroleum Hydrocarbons  
RBDM Risk-Based Decision Making  
VOCs Volatile Organic Compounds  
PAHs Polynuclear Aromatic Hydrocarbons  
NV "This chemical is considered nonvolatile for the purposes of the exposure calculations" (DEQ, 2003 & 2007).  
NE Cleanup level not established by DEQ (2003 & 2007)  
µg/L Micrograms per liter  
<100 Not detected at or above the laboratory method reporting limit listed.

- + This Groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of the value listed indicate that free product may be present (DEQ, 2003 & 2007). Free product was not detected at the site.
- \*\* "The constituent RBC is greater than the maximum amount that would be present if all of the initial air space is filled with petroleum product. The Department believes it is highly unlikely that such concentrations will ever be encountered" (DEQ, 2003 & 2007).
- \* Calculated site-specific RBC. Typically, solubility of lube oil in water is between 40 and 60 milligrams per liter (mg/L). An average of 60 mg/L was assumed for our purpose.

TABLE 5  
 MONITORING WELL DATA SUMMARY AND GROUNDWATER ANALYTICAL RESULTS - TPH & BTEX  
 RISK-BASED EVALUATION REPORT  
 TRUAX HARRIS ENERGY, LLC  
 PORTLAND ROAD CARDLOCK  
 4180 PORTLAND ROAD NE  
 SALEM, OREGON  
 KLEINFELDER PROJECT NO. 72172  
 DEQ LUST FILE NO. 24-06-1001

Well Identification (Elevation) [1] (Screen Interval) [2] (Well Diameter) [3]	Sample Number	Sample Date	Depth to Product [2]	Depth to Groundwater [2]	Groundwater Elevation [4]	Product Thickness [5]	TPH			BTEX			
							Gasoline [6] (µg/L)	Diesel [7] (µg/L)	Lube Oil [7] (µg/L)	Benzene [8] (µg/L)	Toluene [8] (µg/L)	Ethylbenzene [8] (µg/L)	Total Xylenes [8] (µg/L)
KMW01 176.11* 40-50 2	KMW01-021307	02/13/2007	-	43.26	132.72	0.00	<100	655	1,200	<0.400	<0.500	<0.500	<1.50
	KMW01-050307	05/03/2007	-	42.90	133.08	0.00	-	398	820	-	-	-	-
	KMW01-082907	08/29/2007	-	44.55	131.43	0.00	-	2,210	5,170	<0.300	<0.500	<0.500	<1.50
	KMW01-110207	11/02/2007	-	45.15	130.96	0.00	-	1,360	2,520	<0.300	<0.500	<0.500	<1.50
KMW02 176.34 40-50 2	KMW02-021307	02/13/2007	-	43.42	132.92	0.00	<100	279	<500	<0.400	<0.500	<0.500	<1.50
	KMW02-050307	05/03/2007	-	42.60	133.74	0.00	-	<244	1,300	-	-	-	-
	KMW02-082907	08/29/2007	-	44.64	131.70	0.00	-	<247	<494	<0.300	<0.500	<0.500	<1.50
	KMW02-110207	11/02/2007	-	45.21	131.13	0.00	-	<243	<486	<0.300	<0.500	<0.500	<1.50
KMW03 176.78 40-50 2	KMW03-021307	02/13/2007	-	44.00	132.78	0.00	<100	<250	<500	<0.400	<0.500	<0.500	<1.50
	KMW03-050307	05/03/2007	-	43.60	133.18	0.00	-	<250	<500	-	-	-	-
	KMW03-082907	08/29/2007	-	45.26	131.52	0.00	-	<244	<487	<0.300	<0.500	<0.500	<1.50
	KMW03-110207	11/02/2007	-	45.81	130.97	0.00	-	<251	<503	<0.300	<0.500	<0.500	<1.50
<b>DEQ GENERIC RISK-BASED CONCENTRATIONS (RBCs) (DEQ, 2003 &amp; 2007)</b>													
Urban Residential Vapor Intrusion into Buildings							162,000+	6,800+	60,000+**	340	526,000+	169,000+	59,000
Occupational Vapor Intrusion into Buildings							162,000+	6,800+	60,000+**	2,700	526,000+	169,000+	175,000+
Urban Residential Volatilization to Outdoor Air							162,000+	6,800+	60,000+**	5,100	526,000+	169,000+	175,000+
Occupational Volatilization to Outdoor Air							162,000+	6,800+	60,000+**	13,000	>10 <sup>8</sup> ++	169,000+	175,000+

1. Top of PVC well casing elevation, in feet, surveyed above mean sea level.
2. Depth, in feet, measured from top of PVC well casing.
3. Well casing diameter, in inches.
4. Above mean sea level, in feet, corrected for floating product, if applicable.
5. Non-aqueous phase floating product thickness in feet.
6. By Northwest Method NWTPH-Gx
7. By Northwest Method NWTPH-Dx
8. By EPA Method 8021B

TPH Total Petroleum Hydrocarbons  
 BTEX Benzene, Toluene, Ethylbenzene, and Total Xylenes  
 µg/L Micrograms per liter  
 <100 Not detected at or above the laboratory method reporting limit listed.  
 - Not encountered/Not analyzed  
 \* New elevation surveyed on November 2, 2007. Previous elevation was 175.98 feet. Well monument was destroyed, and replaced with a new one. The new elevation is with respect to the current top of PVC well casing.

+ This Groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of the value listed indicate that free product may be present (DEQ, 2003 & 2007). Free product was not detected at the site.  
 ++ "The constituent RBC is greater than the maximum amount that would be present if all of the initial air space is filled with petroleum product. The Department believes it is highly unlikely that such concentrations will ever be encountered" (DEQ, 2003 & 2007).  
 \*\* Calculated site-specific RBC. Typically, solubility of lube oil in water is between 40 and 80 milligrams per liter (mg/L). An average of 60 mg/L was assumed for our purpose.

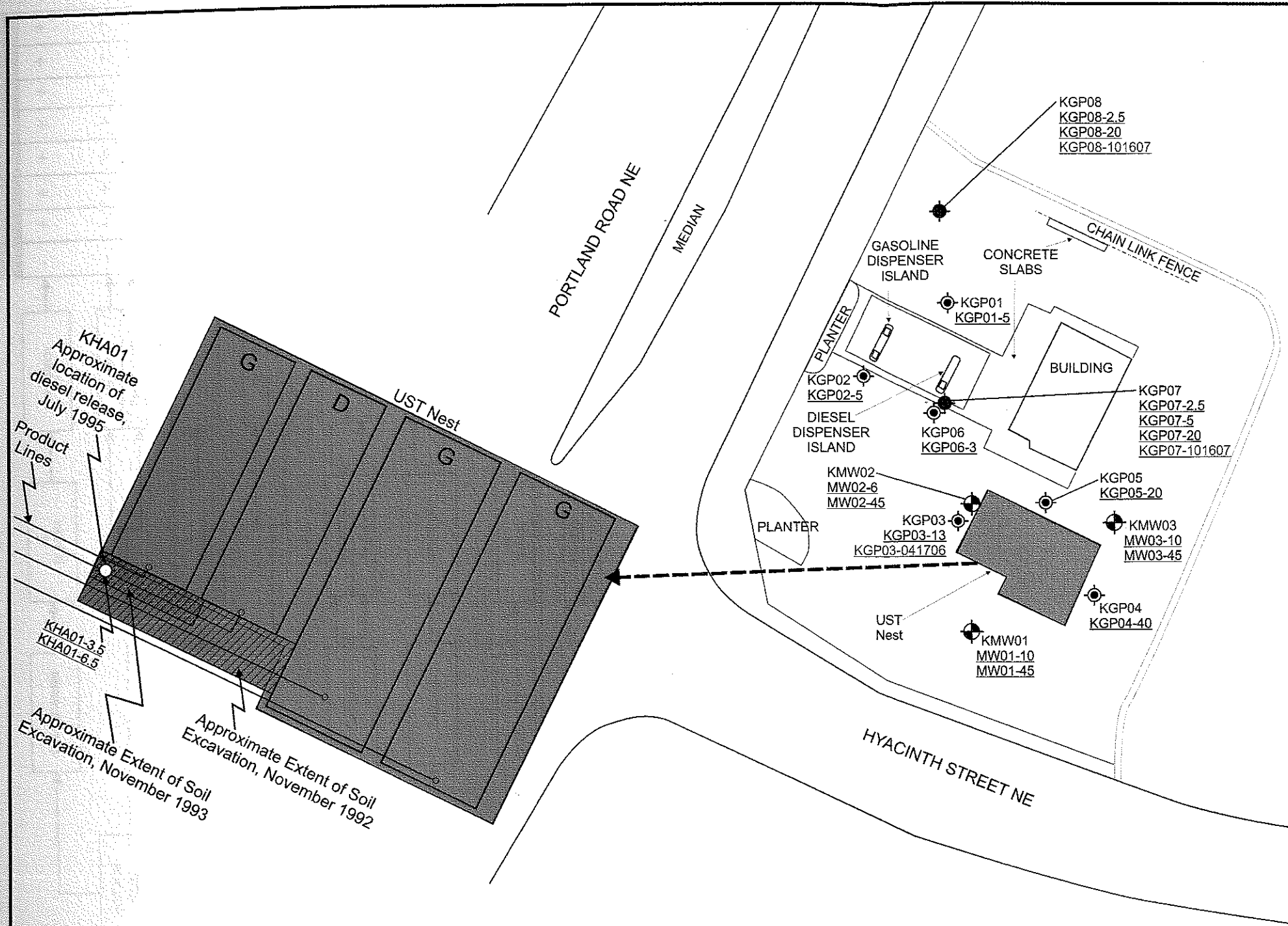
TABLE 6  
SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - PAHs  
RISK-BASED EVALUATION REPORT  
TRUAX HARRIS ENERGY, LLC  
PORTLAND ROAD CARDLOCK  
4180 PORTLAND ROAD  
SALEM, OR 97303  
DEQ LUST FILE NO.:24-06-1001  
KLEINFELDER PROJECT NO. 72172

Well Identification	Sample Number	Sample Date	Polynuclear Aromatic Hydrocarbons (PAHs)															
			Acenaphthene [1] (µg/L)	Acenaphthylene [1] (µg/L)	Anthracene [1] (µg/L)	Benz(a)-anthracene [1] (µg/L)	Benzo(a)-pyrene [1] (µg/L)	Benzo(b)-fluoranthene [1] (µg/L)	Benzo(g,h,i)-perylene [1] (µg/L)	Benzo(k)-fluoranthene [1] (µg/L)	Chrysene [1] (µg/L)	Dibenz(a,h)-anthracene [1] (µg/L)	Fluoranthene [1] (µg/L)	Fluorene [1] (µg/L)	Indeno(1,2,3-cd)-pyrene [1] (µg/L)	Naphthalene [1] (µg/L)	Phenanthrene [1] (µg/L)	Pyrene [1] (µg/L)
KMW01	KMW01-021307	02/13/2007	<0.0853	<0.0853	<0.0853	<0.0853	<0.0853	<0.0853	<0.0853	0.119	<0.0853	<0.0853	<0.0853	<0.0853	<0.0853	<0.0853	0.0853	0.0853
	KMW01-050307	05/03/2007	<0.0880	<0.0880	<0.0880	<0.0880	<0.0880	<0.0880	0.123	0.211	<0.0880	<0.0880	<0.0880	0.106	<0.0880	<0.0880	<0.0880	0.141
	KMW01-082907	08/29/2007	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.05	<0.0500
	KMW01-110207	11/02/2007	<0.0500	<0.0500	0.058	<0.0500	0.058	0.0677	0.232	<0.0500	0.106	0.116	<0.0500	<0.0500	0.164	<0.0500	0.087	0.184
KMW02	KMW02-021307	02/13/2007	0.292	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	<0.0769	0.215	<0.0769	0.138
	KMW02-050307	05/03/2007	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911	<0.0911
	KMW02-082907	08/29/2007	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
	KMW02-110207	11/02/2007	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
KMW03	KMW03-021307	02/13/2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	KMW03-050307	05/03/2007	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899	<0.0899
	KMW03-082907	08/29/2007	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
	KMW03-110207	11/02/2007	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.0686	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
<b>DEQ GENERIC RISK-BASED CONCENTRATIONS (RBCs) (DEQ, 2003 &amp; 2007)</b>																		
Urban Residential Vapor Intrusion into Buildings			4,240+	NE	>10 <sup>6</sup> ++	NV	NV	NV	NE	NV	NV	NV	NV	1,980+	NV	29,000	NE	NV
Occupational Vapor Intrusion into Buildings			>10 <sup>6</sup> ++	NE	>10 <sup>6</sup> ++	NV	NV	NV	NE	NV	NV	NV	NV	>10 <sup>6</sup> ++	NV	31,000+	NE	NV
Urban Residential Volatilization to Outdoor Air			4,240+	NE	>10 <sup>6</sup> ++	NV	NV	NV	NE	NV	NV	NV	NV	1,980+	NV	31,000+	NE	NV
Occupational Volatilization to Outdoor Air			>10 <sup>6</sup> ++	NE	>10 <sup>6</sup> ++	NV	NV	NV	NE	NV	NV	NV	NV	>10 <sup>6</sup> ++	NV	31,000+	NE	NV

1. By EPA Method 8270SIM

µg/L Micrograms per liter  
<0.0853 Not detected at or above the laboratory method reporting limit listed.  
NE Cleanup level not established by DEQ (2003 & 2007).  
NV "This chemical is considered nonvolatile for the purposes of the exposure calculations" (DEQ, 2003 & 2007).  
- Not analyzed

+ This Groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of the value listed indicate that free product may be present (DEQ, 2003 & 2007). Free product was not detected at the site.  
++ "The constituent RBC is greater than the maximum amount that would be present if all of the initial air space is filled with petroleum product. The Department believes it is highly unlikely that such concentrations will ever be encountered" (DEQ, 2003 & 2007).



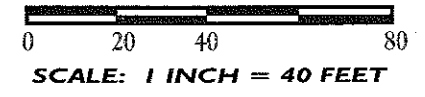
**SOIL SAMPLES**

- KHA01-3.5**  
Diesel = 20,000 mg/Kg
- KHA01-6.5**  
Diesel = 4,400 mg/Kg
- MW01-10**  
TPH = ND
- MW01-45**  
BTEX = ND
- MW02-6**  
TPH = ND
- MW02-45**  
BTEX = ND
- MW03-10**  
TPH = ND
- MW03-45**  
BTEX = ND
- KGP01-5**  
Gasoline = ND  
Diesel = ND  
Lube Oil = ND  
BTEX = ND
- KGP02-5**  
Gasoline = ND  
Diesel = ND  
Lube Oil = ND  
BTEX = ND
- KGP03-13**  
Gasoline = ND  
Diesel = ND  
Lube Oil = ND  
BTEX = ND
- KGP04-40**  
Gasoline = ND  
Diesel = ND  
Lube Oil = ND  
BTEX = ND
- KGP05-20**  
Gasoline = ND  
Diesel = ND  
Lube Oil = ND  
BTEX = ND
- KGP06-3**  
Gasoline = ND  
Diesel = ND  
Lube Oil = ND  
BTEX = ND
- KGP07-2.5**  
Diesel = 180 mg/Kg  
Lube Oil = 67.1 mg/Kg  
Gasoline, RBDM VOCs, & PAHs = ND
- KGP07-5**  
Diesel & Lube Oil = ND
- KGP07-20**  
Gasoline, Diesel, Lube Oil, RBDM VOCs, & PAHs = ND
- KGP08-2.5**  
Benzo(g,h,i)perylene = 0.00733 mg/Kg  
Gasoline, Diesel, Lube Oil, & RBDM VOCs = ND
- KGP08-20**  
Gasoline, Diesel, Lube Oil, RBDM VOCs, & PAHs = ND
- GRAB PERCHED WATER SAMPLE**  
**KGP03-041706**  
Gasoline = 112 µg/L  
Diesel = 610 µg/L  
Lube Oil = ND  
Benzene = 44.6 µg/L  
Ethylbenzene = 0.589 µg/L  
Naphthalene = 6.59 µg/L  
Other RBDM VOCs = ND  
PAHs = ND
- GRAB GROUNDWATER SAMPLES**  
**KGP07-101607**  
Diesel = 1,440 µg/L  
Lube Oil = 1,580 µg/L  
Acenaphthene = 0.286 µg/L  
Anthracene = 0.0991 µg/L  
Benz(a)anthracene = 0.0991 µg/L  
Benzo(a)pyrene = 0.0771 µg/L  
Benzo(b)fluoranthene = 0.0881 µg/L  
Benzo(g,h,i)perylene = 0.0771 µg/L  
Chrysene = 0.132 µg/L  
Fluoranthene = 0.485 µg/L  
Fluorene = 0.231 µg/L  
Naphthalene = 0.121 µg/L  
Phenanthrene = 0.529 µg/L  
Pyrene = 0.595 µg/L  
Dissolved Lead = 120 µg/L  
Gasoline & RBDM VOCs = ND
- KGP08-101607**  
Diesel = 722 µg/L  
Lube Oil = 866 µg/L  
Dissolved Lead = 120 µg/L  
Gasoline, RBDM VOCs, & PAHs = ND

**LEGEND**

- KMW01 Existing Monitoring Well Location (February 1993)
- KHA01 Boring Location (July 1995)
- KGP06 BEA Boring Location (April 2006)
- KGP07 Boring Location (October 2007)
- UST Underground Storage Tank
- G Gasoline
- D Diesel

- KGP07-2.5** Soil sample collected at 2.5 feet bgs from boring KGP07
- KGP07-101607** Grab Groundwater sample collected on 10/16/2007 from boring KGP07
- TPH Total Petroleum Hydrocarbons
- BTEX Benzene, Toluene, Ethylbenzene, and Total Xylenes
- RBDM Risk-Based Decision Making
- VOCs Volatile Organic Compounds
- PAHs Polynuclear Aromatic Hydrocarbons
- mg/Kg Milligrams per kilogram
- µg/L Micrograms per liter
- ND Not detected at or above laboratory method reporting limits (non-detect)



PROJECT NO.	72172	<b>MONITORING WELL AND SOIL BORING LOCATIONS</b>	SCALE:
DRAWN:	05/08		1" = 40'
DRAWN BY:	TLK		FIGURE:
CHECKED BY:	RAK		<b>6</b>
FILE NAME:	72172F6.cdr	PORTLAND ROAD CARDLOCK 4180 PORTLAND ROAD NE SALEM, OREGON	

**APPENDIX D**  
**DECEMBER 2024 PHASE II**  
**INVESTIGATION REPORT**

# Subsurface Investigation Report

Pacific Pride Cardlock Facility  
4180 Portland Road NE  
Salem, Oregon 97301  
ACC Project Number: 10044-008.00

Prepared for:  
Ed Staub & Sons  
Attn: Robert Casper  
1301 Esplande Avenue  
Klamath Falls, OR 97601

January 6, 2025

Prepared by:



**An Employee Owned Company**

ACC Environmental Consultants  
3925 NE 72<sup>nd</sup> Avenue, Suite 103  
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## 1.0 INTRODUCTION

ACC Environmental Consultants (ACC) was contracted by Ed Staub & Sons (ES&S) to perform a subsurface investigation at the Pacific Pride cardlock fueling facility located at 4180 Portland Road NE in Salem, Oregon (the Site). The subsurface investigation was completed on December 20, 2024 in order to assess subsurface conditions around the current USTs and fuel dispensers. Current site features are depicted on **Figure 1**.

## 2.0 SITE BACKGROUND

According to information available for review on the DEQ LUST database, the Site has several historically documented petroleum releases. Applicable regulatory background documents are summarized below, and applicable documents are attached in **Appendix A**.

### 2.1 LUST 24-92-4217

In November 1992, a leak was detected at the diesel sump pump located at the south end of the diesel UST. The line was repaired, and approximately 15 cubic yards (CY) of petroleum-contaminated soil (PCS) was removed by remedial excavation. Confirmation soil samples confirmed that PCS was still present, and an additional 10 CY was removed on November 18, 1992.

On November 20, 1992, an additional release was detected at a flange in the product line. 31 tons of PCS was excavated to a depth of 14 feet below ground surface (bgs) and removed from the Site. The excavated area was subsequently backfilled with pea gravel.

A subsurface investigation was completed in February 1993 to further assess the vertical and lateral extents of remaining PCS. Three borings were drilled to total depths of 51.5 feet bgs, and completed as 2-inch monitoring wells (MW01 through MW03), screened from 40 to 50 feet bgs. Groundwater was present in the wells at approximately 45 feet bgs. PCS was not observed during drilling activities, and soil samples collected from the borings at depths of 10 feet bgs and 45 feet bgs did not contain concentrations of petroleum hydrocarbons above laboratory reporting limits (MRLs). The lateral extent of PCS appeared to be primarily confined to the vicinity of the tank vault.

Monitoring wells MW01 through MW03 were sampled quarterly from March 1993 to December 1993. All groundwater samples from every event did not have detected concentrations of analytes above MRLs, and it was concluded that groundwater had not been impacted from the petroleum releases.

In November 1993, an additional release was detected from a product line near the top of the USTs. 20 tons of PCS was excavated, and two soil samples collected from the extents of the remedial excavation did not contain concentrations of petroleum hydrocarbons above MRLs.

In July 1995, a diesel product line reportedly lost pressure and automatically shut down. An exploratory boring was drilled under the release point within the UST vault fill material to characterize the release and collect soil samples. Diesel-range petroleum hydrocarbons (DRPH) were detected at concentrations of 20,000 mg/kg and 4,400 mg/kg at depths of 3.5 and 6.5 feet bgs, respectively. Groundwater was not encountered to a maximum explored depth of 13.5 feet bgs. PCS was concluded to rapidly attenuate with depth, and based on the small amount of diesel product released, that vertical and lateral migration would be minimal. An estimated 10 to 15 cubic yards of PCS was estimated to be left-in-place.

In September 2001, Oregon Department of Environmental Quality (DEQ) issued a No Further Action determination for the Site, stating that while contaminated soil remains at the Site which exceeds cleanup levels in place in 2001, removal of the PCS would endanger current infrastructure at the Site, and the PCS does not currently represent a risk to human health, safety, welfare, or the environment. DEQ states that if site conditions were to change (i.e. land use change), further evaluation of the remaining contamination would be required at that time.

## **3.0 SUBSURFACE INVESTIGATION**

A discussion of the field work performed at the Site is provided below.

### ***3.1 Pre-Field Investigation Activities***

#### **3.1.1 Permits**

No permits were required for the safe completion of field activities for this scope of work.

#### **3.1.2 Health and Safety Plan**

ACC prepared a Site-specific health and safety plan (HASP) to govern health and safety protocols used during this investigation. Work was performed using Occupational Safety and Health Administration (OSHA) Level D work attire consisting of hard hats, safety glasses, protective gloves, high visibility safety vest, and protective boots.

#### **3.1.3 Underground Utility Locates**

Prior to the commencement of subsurface activities, a public utility notification was requested through the Oregon One Call service. In addition, a private locating company (Advanced Underground Utility Locating) was contracted to locate private utility lines and fueling infrastructure, and clear boring locations of potential underground conflicts.

### **3.2 Temporary Borings**

Anderson Environmental Contractors, LLC (AEC) was subcontracted to perform the drilling services. A total of seven (7) borings (ACC-1 through ACC-7) were advanced at the Site on December 20, 2024. Each boring was advanced using a GeoProbe® 7720DT track-mounted direct-push drill rig. Borings were drilled at locations around the current USTs and fuel dispenser island. Boring locations are shown on **Figure 1**.

Each boring was advanced in five-foot intervals to a maximum completion depth of 20 feet bgs. Continuous soil samples were collected using a five-foot long “macro” core tube sampler equipped with new, clear polyethylene liners. All soil cores were inspected for lithologic composition, presence of water, and field screened for the presence of petroleum hydrocarbons (stain, odor, and organic vapors with a PID). Boring logs detailing the lithology, field screening results, and sample depths are included as **Appendix B**. Groundwater was not encountered in any of the borings to the maximum explored depth of 20 feet bgs.

Selected soil samples were submitted to the laboratory boring based on sampling objectives (i.e., depth, soil type) and field screening results. The selected soil samples were removed from the polyethylene tubing using a new pair of disposable gloves and placed directly into labeled laboratory prepared jars and sealed with Teflon-lined lids. Soil samples were placed into laboratory supplied containers (utilizing 5035A field preservation) and immediately placed in an ice filled cooler along with chain-of-custody documentation for delivery to APEX Laboratories in Tigard, Oregon.

All drilling and sampling tools were decontaminated between boring locations using an Alconox® and water mixture and rinsed with clean water.

### **3.3 Field Screening**

Field screening consisted of volatile organic vapor measurements using a PID, sheen testing, visual observations (staining, etc.), and olfactory observations. A portion of each soil sample was placed in a sealable plastic bag. The tip of the PID was inserted into the plastic bag in the airspace above the soil sample and the PID measurement was recorded. The PID was calibrated before use at the site to a test gas standard consisting of 100 ppmv isobutylene. Sheen testing consisted of placing a small portion of soil in clear water and observing the water for the presence of hydrocarbon sheen.

### **3.4 Laboratory Analysis**

A total of eight soil samples samples were collected for laboratory analysis. Soil samples were analyzed for the following suite of parameters:

- Gasoline-range petroleum hydrocarbons (GRPH) by Northwest Method NWTPH-Gx.

- DRPH and oil-range petroleum hydrocarbons (ORPH) by Northwest Method NWTPH-Dx.
- Benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEX+N) and Risk-Based Volatile Organic Compounds (RBDM VOCs) by EPA Method 8260D.
- Soil samples utilized EPA Method 5035A for the preservation of volatiles.

## **4.0 INVESTIGATION RESULTS**

This section provides a description of subsurface conditions and a discussion of the field screening and laboratory results.

### **4.1 Subsurface Conditions**

With the exception of landscaping near the site building, the entire Site is paved with asphalt, and concrete is present above the USTs and under the fuel canopy. A thin layer of crushed gravel and sand is present under the asphalt to an approximate depth of 1 foot bgs.

Subsurface soils consisted of predominantly fine-grained brown silt and sand to the maximum explored depth of 20 feet bgs, with increased sand content observed below approximately 10 feet bgs. Groundwater was not encountered in any of the borings.

### **4.2 Field Screening Results**

Based on field screening procedures, indications of petroleum contamination were observed at soil boring ACC-2, located southwest adjacent to the USTs. Grey soil staining, elevated PID responses, and petroleum odor and sheen were detected between depths of 9.5 and 13 feet bgs. Indications of petroleum contamination were not observed in any other soil borings. Field screening results are included on boring logs attached in **Appendix B**.

### **4.3 Analytical Results**

The laboratory results were compared to DEQ risk-based concentrations (RBCs) for occupational, construction, and excavation workers. The RBCs for construction and excavation workers assume higher exposure to potential contaminants over a shorter duration including direct handling of the soil and groundwater, and inhalation of any vapors in the soil and groundwater. Occupational receptor exposure concentrations are lower, but a longer time of exposure is assumed. Consumption of groundwater is assumed to not be occurring. The Site is used for commercial purposes, and no potable water wells are present. The Site and surrounding area obtain water from the City of Salem municipal system.

The following sections describe the results of the laboratory analytical testing. The complete laboratory reports and chain-of-custody documentation are included in **Appendix C**.

#### **4.3.1 Soil Analytical Results**

Soil analytical results are reported as milligrams per kilogram (mg/kg) and are summarized in **Table 1** and **Figure 2**.

GRPH and DPRH were detected at concentrations of 235 mg/kg and 76.7 mg/kg, respectively, in sample ACC-2-13. GRPH, DRPH, and ORPH were not detected above their respective MRL in any of the remaining soil samples.

Benzene was not detected at concentrations above MRLs in any of the soil samples. Ethylbenzene and 1,2,4-Trimethylbenzene were detected at concentrations above their respective MRLs in samples ACC-2-9.5 and ACC-2-13, and toluene, total xylenes, naphthalene, isopropylbenzene, and 1,3,5-Trimethylbenzene were also detected at concentrations above their respective MRLs in sample ACC-2-13.

All detected concentrations were well below applicable DEQ RBC concentrations.

## **5.0 DISCUSSION AND RECOMMENDATIONS**

Field screening and laboratory analytical results indicate the presence of petroleum hydrocarbons southwest adjacent to the current USTs. However, the detected concentrations are far below applicable DEQ RBCs, and the soil appears to be historically documented PCS that was left-in-place at the conclusion of remedial efforts made in 1995. The Site was issued regulatory closure in 2001.

Based on the results of this investigation, no evidence of additional releases of petroleum to the subsurface since the documented releases in the 1990s was found. No additional investigation or remedial actions appear necessary at this time.

## 6.0 QUALIFICATIONS

ACC's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. ACC makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that ACC does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report.

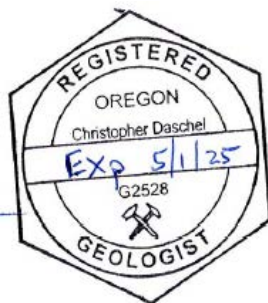
Findings and conclusions resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this monitoring. Subsurface conditions may vary from those encountered at specific sampling locations or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations and findings are based solely upon data obtained at the time and within the scope of these services.

This report is intended for the sole use of **Ed Staub & Sons**. This report may not be used or relied upon by any other party without the written consent of ACC Environmental Consultants. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

The conclusions presented in this report are, in part, based upon subsurface sampling performed at selected locations and depths. There may be conditions between borings or samples that differ significantly from those presented in this report and which cannot be predicted by this study.

**Signature:**

Report Prepared By:





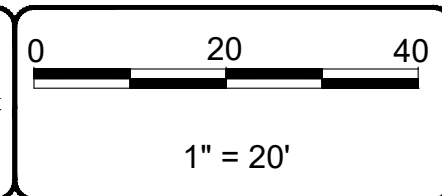
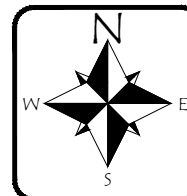
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Chris Daschel, RG  
Project Geologist



**Legend**

- ACC1  Boring Locations
-  Area Outlines





DATE: 12-20-24  
 DWN: SS  
 CHK: SS  
 APPROVED: CD  
 PRJ. MGR: CD  
 PROJECT NO:  
 10044-008.00

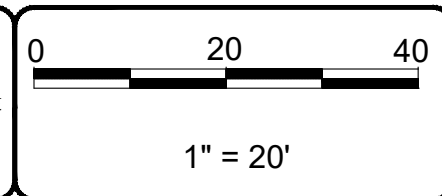
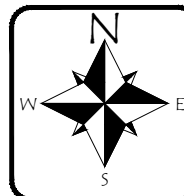
FIGURE 1  
 SITE MAP  
 PACIFIC PRIDE CARDLOCK  
 4180 PORTLAND ROAD NE, SALEM, OREGON



Sample Identification	Sample Depth (feet bgs)	Sample Date	Soil Analytical Results in mg/kg											
			GRPH	DRPH	ORPH	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Naphthalene	Isopropylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Remaining VOCs
ACC-1-17	17.0	12/20/24	<5.52	<20.9	<41.7	<0.0110	<0.0552	<0.0276	<0.0828	<0.110	<0.0552	<0.0552	<0.0552	ND
ACC-2-9.5	9.5.0	12/20/24	<7.21	<23.6	<47.1	<0.0144	<0.0721	<b>0.0433</b>	<0.108	<0.144	<0.0721	<b>0.732</b>	<0.0721	ND
ACC-2-13	13.0	12/20/24	<b>235</b>	<b>76.7</b>	<43.2	<0.0112	<b>0.146</b>	<b>0.769</b>	<b>6.02</b>	<b>1.05</b>	<b>0.278</b>	<b>13.4</b>	<b>4.23</b>	ND
ACC-3-13	13.0	12/20/24	<5.75	<21.6	<43.1	<0.0115	<0.0575	<0.0287	<0.0862	<0.115	<0.0575	<0.0575	<0.0575	ND
ACC-4-12	12.0	12/20/24	<6.20	<23.6	<47.1	<0.0124	<0.0620	<0.0310	<0.0931	<0.124	<0.0620	<0.0620	<0.0620	ND
ACC-5-12	12.0	12/20/24	<6.34	<23.0	<45.9	<0.0127	<0.0634	<0.0317	<0.0951	<0.127	<0.0634	<0.0634	<0.0634	ND
ACC-6-13	13.0	12/20/24	<5.88	<21.7	<43.5	<0.0118	<0.0588	<0.0294	<0.0882	<0.118	<0.0588	<0.0588	<0.0588	ND
ACC-7-13	13.0	12/20/24	<6.36	<22.8	<45.7	<0.0127	<0.0636	<0.0318	<0.0953	<0.127	<0.0636	<0.0636	<0.0636	ND

**Legend**

- ACC1  Boring Locations
-  Area Outlines



DATE: 12-20-24  
 DWN: SS  
 CHK: SS  
 APPROVED: CD  
 PRJ. MGR: CD  
 PROJECT NO: 10044-008.00

FIGURE 2  
 SOIL ANALYTICAL RESULTS  
 PACIFIC PRIDE CARDLOCK  
 4180 PORTLAND ROAD NE, SALEM, OREGON



**Table 1**  
Soil Analytical Results  
Pacific Pride Cardlock  
4180 Portland Road NE, Salem, OR 97301

Sample Identification	Sample Depth (feet bgs)	Sample Date	Soil Analytical Results in mg/kg											
			GRPH	DRPH	ORPH	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Naphthalene	Isopropylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Remaining VOCs
ACC-1-17	17.0	12/20/24	<5.52	<20.9	<41.7	<0.0110	<0.0552	<0.0276	<0.0828	<0.110	<0.0552	<0.0552	<0.0552	ND
ACC-2-9.5	9.5.0	12/20/24	<7.21	<23.6	<47.1	<0.0144	<0.0721	<b>0.0433</b>	<0.108	<0.144	<0.0721	<b>0.732</b>	<0.0721	ND
ACC-2-13	13.0	12/20/24	<b>235</b>	<b>76.7</b>	<43.2	<0.0112	<b>0.146</b>	<b>0.769</b>	<b>6.02</b>	<b>1.05</b>	<b>0.278</b>	<b>13.4</b>	<b>4.23</b>	ND
ACC-3-13	13.0	12/20/24	<5.75	<21.6	<43.1	<0.0115	<0.0575	<0.0287	<0.0862	<0.115	<0.0575	<0.0575	<0.0575	ND
ACC-4-12	12.0	12/20/24	<6.20	<23.6	<47.1	<0.0124	<0.0620	<0.0310	<0.0931	<0.124	<0.0620	<0.0620	<0.0620	ND
ACC-5-12	12.0	12/20/24	<6.34	<23.0	<45.9	<0.0127	<0.0634	<0.0317	<0.0951	<0.127	<0.0634	<0.0634	<0.0634	ND
ACC-6-13	13.0	12/20/24	<5.88	<21.7	<43.5	<0.0118	<0.0588	<0.0294	<0.0882	<0.118	<0.0588	<0.0588	<0.0588	ND
ACC-7-13	13.0	12/20/24	<6.36	<22.8	<45.7	<0.0127	<0.0636	<0.0318	<0.0953	<0.127	<0.0636	<0.0636	<0.0636	ND
<b>Applicable DEQ Risk-Based Concentrations<sup>1</sup></b>														
<b>Volatilization to Outdoor Air (RBC<sub>so</sub>)</b>														
Occupational			69,000	>Max	>Max	50	>Csat	160	>Csat	83	-	>Csat	>Csat	-
<b>Soil Ingestion, Dermal Contact, and Inhalation (RBC<sub>ss</sub>)</b>														
Occupational Worker			20,000	14,000	36,000	37	88,000	150	25,000	23	-	6,900	6,900	-
Construction Worker			9,700	4,600	11,000	380	28,000	1,700	20,000	580	-	2,900	2,900	-
Excavation Worker			>Max	>Max	>Max	11,000	770,000	49,000	560,000	16,000	-	81,000	81,000	-

**NOTES:**

bgs = below ground surface

Chemical analyses performed by APEX Laboratories of Tigard, Oregon.

Gasoline-Range Total Petroleum Hydrocarbons (GRPH) analyzed by Northwest Method NWTPH-Gx.

Diesel-Range & Oil-Range Total Petroleum Hydrocarbons (DRPH) analyzed by Northwest Method NWTPH-Dx.

BTEX + VOCs analyzed by EPA Method 8260D.

<sup>1</sup>Oregon Department of Environmental Quality (DEQ). Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites (June 2023 update)

mg/kg = milligrams per kilogram (parts per million)

Bold indicates analyte detection.

"<6.09" indicates the analyte was not detected above the laboratory reporting limit.

>Csat = this soil RBC exceeds the limit of three-phase equilibrium partitioning.

>Max = this constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Therefore, this substance is deemed to not pose risks in this scenario.

- = Risk-Based Concentration (RBC) not established

**APPENDIX B**  
**BORING LOGS**

# GUIDE TO BOREHOLE LOGS\*\*

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES
<b>COARSE GRAINED SOILS</b> <small>(more than 1/2 of soil &gt;No. 200 sieve size)</small>	<b>GRAVELS</b> <small>more than 50% coarse fraction &gt; no.4 sieve</small>	GW	Well-graded gravels or gravel-sand mixtures, little to no fines.
		GP	Poorly-graded gravels or gravel-sand mixtures, little to no fines.
		GM	Silty gravels, gravel-sand-silt mixtures.
		GC	Clayey gravels or gravel-sand-clay mixtures
	<b>SANDS</b> <small>less than 50% coarse fraction &gt; no.4 sieve</small>	SW	Well-sorted sands or gravelly sands, little to no fines.
		SP	Poorly-sorted sands or gravelly sands, little to no fines.
		SM	Silty sands, sand-silt mixtures.
		SC	Clayey sands, sand-clay mixtures.
<b>FINED GRAINED SOILS</b> <small>(more than 1/2 of soil &lt; No. 200 sieve size)</small>	<b>SILTS &amp; CLAYS</b> <small>Liquid Limit* less than 50%</small>	ML	Inorganic silts and very fine sands, silty or clayey fine sands or clayey silts with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy or silty clays, lean clays.
		OL	Organic silts and organic silty clays of low plasticity.
	<b>SILTS &amp; CLAYS</b> <small>Liquid Limit* greater than 50%</small>	MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
		OH	Organic clays of medium to high plasticity, organic silty clay, organic silts.
<b>HIGHLY ORGANIC SOILS</b>		Pt	Peat or other highly organic soils.
		Conc	Concrete
		Fill	Fill
		Asph	Asphalt

\* Liquid Limit represents the moisture content (in percent) of a soil at which point the soil no longer behaves like a plastic and starts to behave like a liquid.

## BORING LOG SYMBOLS

- SAMPLE LOCATION
- SAMPLE INTERVAL
- SAMPLE RECOVERY
- GROUNDWATER, FIRST OBSERVED

SAMPLE TYPES:

- SS - Split Spoon
- G - Grab
- ST - Shelby Tube
- GS - Geoprobe Sampler

SHEEN TYPES:

- NS - No Sheen observed
- SS - Slight Sheen observed (Spotty coverage of sheen pan, no iridescence)
- MS - Moderate Sheen (full coverage of sheen pan, no iridescence) pan, iridescent)
- HS - Heavy Sheen (full coverage of sheen

PERCENTAGES:

- Trace - Particles are present but estimated to be less than 5% Few - 5 to 10%
- Little - 15 to 25%
- Some - 30 to 45%
- Mostly - 50 to 100%

SAMPLE PLASTICITY (FINE-GRAINED SOILS):

- Nonplastic - Cannot be rolled at any moisture content
- Low - Barely rolled, lump cannot be formed when drier than plastic limit
- Medium - Easily rolled, lump crumbles when drier than plastic limit
- High - Easily rolled yet takes considerable time to reach the plastic limit, molded shape can be formed without crumbling when drier than the plastic limit

PARTICLE SIZE RANGE (COARSE-GRAINED SOILS):

- Gravel - Fine, Coarse
- Sand - Fine, Medium, Coarse

SAMPLE MOISTURE:

- Dry - No moisture, dry to touch
- Moist - Damp but no visible moisture
- Wet - Visible free water

\*\*Based on Unified Soil Classification System and ASTM Standard D2487 and D2488



WELL/BORING NUMBER ACC-1

LOCATION MAP



PROJECT NAME: ES&S Portland Road Phase II  
 PROJECT NUMBER: 10044-008.00  
 PROJECT LOCATION: Salem, Oregon  
 LOGGED BY: S. Shoemaker  
 REVIEWED BY: C. Daschel  
 DATE: 12-20-24

DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<b>Asphalt at surface (0 to 0.3 feet)</b>	0				0.0			
<b>SAND (SP):</b> trace silt, fine to coarse, brown, no odor, no sheen, moist.					0.0			
<b>SILT (ML):</b> trace sand, brown, low plasticity, fine sand, no odor, no sheen, moist.	5				0.0			
<b>SANDY SILT (ML):</b> brown, fine sand, non-plastic, no odor, no sheen, moist.	10			ACC-1-17	0.0			
<b>NOTE:</b> No groundwater encountered in boring	15				0.0			
BOTTOM OF BORING AT 20' bgs. Boring was backfilled with bentonite and a concrete patch at the surface.	20				0.0			
	25				0.0			
	30				0.0			
	35				0.0			

DRILLING CONTRACTOR: AEC  
 DRILLING METHOD: GeoProbe  
 BOREHOLE DIAMETER: 2.25"  
 SAMPLING METHOD: Continuous  
 START CARD NUMBER:

CASING ELEVATION: N/A  
 GROUND SURFACE ELEVATION:  
 COORDINATES:  
 COORDINATES:

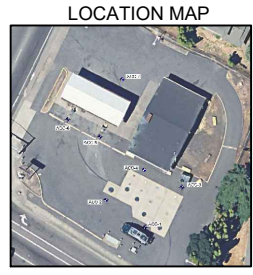


An Employee Owned Company

WELL/BORING NUMBER

ACC-2

PROJECT NAME: ES&S Portland Road Phase II  
 PROJECT NUMBER: 10044-008  
 PROJECT LOCATION: Salem, Oregon  
 LOGGED BY: S. Shoemaker  
 REVIEWED BY: C. Daschel  
 DATE: 12-20-24



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	P/D	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<b>Asphalt at surface (0 to 0.3 feet)</b>	0							
<b>SILT (ML):</b> trace sand, brown, fine, low plasticity, no sheen, dry to moist.	0.3 - 9.5				1.2			
	9.5 - 11.0			ACC-2-9.5	1.9			
<b>SANDY SILT (ML):</b> gray staining 9-11', fine, non plastic, petroleum sheen observed, strong weathered petroleum odor, moist. Becomes brown at 11' (no staining), no odor or sheen at 15'.	11.0 - 15.0				1.1			
	15.0 - 16.5			ACC-2-13	7.9			
<b>SANDY SILT (ML):</b> brown, fine, non plastic, no sheen, no odor, moist.	16.5 - 20.0				0.7			
<b>NOTE:</b> No groundwater encountered in boring	20.0 - 20.3				0.3			
	20.3 - 20.6				0.1			
	20.6 - 20.9				0.0			
<b>BOTTOM OF BORING AT 20' bgs.</b> Boring was backfilled with bentonite and a concrete patch at the surface.	20.9 - 35.0							

DRILLING CONTRACTOR: AEC  
 DRILLING METHOD: GeoProbe  
 BOREHOLE DIAMETER: 2.25"  
 SAMPLING METHOD: Continuous  
 START CARD NUMBER:

CASING ELEVATION: N/A  
 GROUND SURFACE ELEVATION:  
 COORDINATES:  
 COORDINATES:

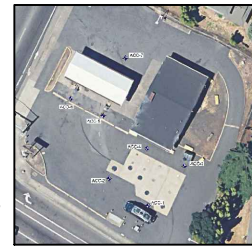


An Employee Owned Company

WELL/BORING NUMBER ACC-3

PROJECT NAME: ES&S Portland Road, Phase II  
 PROJECT NUMBER: 10044-008.00  
 PROJECT LOCATION: Salem, Oregon  
 LOGGED BY: S. Shoemaker  
 REVIEWED BY: C. Daschel  
 DATE: 12-20-24

LOCATION MAP



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<b>Asphalt at surface (0 to 3 feet).</b>	0							
<b>SANDY GRAVEL (GP):</b> brown, fine to coarse, no odor, no sheen, moist					0.1			
<b>SILT (ML):</b> trace sand, fine, brown, low plasticity, no odor, no sheen, moist.	5				0.0			
<b>SANDY SILT (ML):</b> fine, brown, non plastic, no odor, no sheen, moist.	10			ACC-3-13	0.2			
<b>NOTE:</b> No groundwater encountered in boring					0.0			
<b>BOTTOM OF BORING AT 20' bgs.</b> Boring was backfilled with bentonite and a concrete patch at the surface.	20							

DRILLING CONTRACTOR: AEC  
 DRILLING METHOD: GeoProbe  
 BOREHOLE DIAMETER: 2.25"  
 SAMPLING METHOD: Continuous  
 START CARD NUMBER:

CASING ELEVATION: N/A  
 GROUND SURFACE ELEVATION:  
 COORDINATES:  
 COORDINATES:

# A·C·C ENVIRONMENTAL CONSULTANTS

An Employee Owned Company

WELL/BORING NUMBER ACC-4

PROJECT NAME: ES&S Portland Road, Phase II  
 PROJECT NUMBER: 10044-008.00  
 PROJECT LOCATION Salem, Oregon  
 LOGGED BY: S. Shoemaker  
 REVIEWED BY: C. Daschel  
 DATE: 12-20-24

LOCATION MAP



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<b>ASPHALT at surface (0 to 0.3')</b>	0							
<b>SANDY GRAVEL (GP):</b> brown, fine to coarse, no odor, no sheen, dry to moist.					0.0			
<b>SILT (ML):</b> trace sand, brown, fine sand, no odor, no sheen, moist.					0.0			
	5				0.0			
	10			ACC-4-12	0.0			
<b>SANDY SILT (ML):</b> brown, fine, no odor, no sheen, moist.					0.0			
<b>NOTE:</b> No groundwater encountered in boring					0.0			
BOTTOM OF BORING AT 20' bgs. Boring was backfilled with bentonite and a concrete patch at the surface.	20							

DRILLING CONTRACTOR: AEC  
 DRILLING METHOD: GeoProbe  
 BOREHOLE DIAMETER: 2.25"  
 SAMPLING METHOD: Continuous  
 START CARD NUMBER:

CASING ELEVATION: N/A  
 GROUND SURFACE ELEVATION:  
 COORDINATES:  
 COORDINATES:



WELL/BORING NUMBER ACC-5

LOCATION MAP



PROJECT NAME: ES&S Portland Road Phase II  
 PROJECT NUMBER: 10044-008.00  
 PROJECT LOCATION: Salem, Oregon  
 LOGGED BY: S. Shoemaker  
 REVIEWED BY: C. Daschel  
 DATE: 12-20-24

DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<b>ASPHALT at surface (0 to 0.3 feet)</b>	0							
<b>BENTONITE fill</b> under concrete.								
<b>SILT (ML):</b> brown, low to medium plasticity no odor, no sheen, moist.	5				0.0		0.0	
<b>SANDY SILT (ML):</b> brown, non plastic, fine, no odor, no sheen, moist.	10			ACC-5-12	0.0		0.1	
<b>NOTE:</b> No groundwater encountered in boring	15				0.0		0.0	
BOTTOM OF BORING AT 20' bgs. Boring was backfilled with bentonite and a concrete patch at the surface.	20				0.0		0.0	
	25							
	30							
	35							

DRILLING CONTRACTOR: AEC  
 DRILLING METHOD: GeoProbe  
 BOREHOLE DIAMETER: 2.25"  
 SAMPLING METHOD: Continuous  
 START CARD NUMBER:

CASING ELEVATION: N/A  
 GROUND SURFACE ELEVATION:  
 COORDINATES:  
 COORDINATES:



An Employee Owned Company

WELL/BORING NUMBER ACC-6

PROJECT NAME: ES&S Portland Road Phase II  
 PROJECT NUMBER: 10044-008.00  
 PROJECT LOCATION: KSalem, Oregon  
 LOGGED BY: S. Shoemaker  
 REVIEWED BY: C. Daschel  
 DATE: 12-20-24



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLEWELL CONSTRUCTION DETAILS
<b>Asphalt at surface (0 to 0.5 feet)</b>	0							
<b>SANDY GRAVEL (GP):</b> brown, fine sand, angular gravel, no odor, no sheen, moist.					0.0			
<b>SILT with SAND (ML):</b> brown, fine, no odor, no sheen, moist.					0.0			
	5				0.0			
<b>SANDY SILT (ML):</b> brown, fine, no odor, no sheen, moist.	10			ACC-6-13	0.0			
<b>NOTE:</b> No groundwater encountered in boring					0.0			
BOTTOM OF BORING AT 20' bgs. Boring was backfilled with bentonite and a concrete patch at the surface.	20							
	25							
	30							
	35							

DRILLING CONTRACTOR: AEC  
 DRILLING METHOD: GeoProbe  
 BOREHOLE DIAMETER: 2.25"  
 SAMPLING METHOD: Continuous  
 START CARD NUMBER:

CASING ELEVATION: N/A  
 GROUND SURFACE ELEVATION:  
 COORDINATES:  
 COORDINATES:



WELL/BORING NUMBER **ACC-7**

LOCATION MAP



PROJECT NAME: ES&S Portland Road Phase II  
 PROJECT NUMBER: 10044-008.00  
 PROJECT LOCATION: Salem, Oregon  
 LOGGED BY: S. Shoemaker  
 REVIEWED BY: C. Daschel  
 DATE: 12-20-24

DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<b>Asphalt at surface (0 to 0.2 feet)</b>	0							
<b>SANDY GRAVEL (GP):</b> fine to coarse sand brown, no odor, no sheen, moist.					0.0			
<b>SILT (ML):</b> trace sand, fine, low plasticity, brown, no odor, no sheen, moist.					0.0			
<b>SANDY SILT (ML):</b> fine, brown, no odor, no sheen, moist	10			ACC-7-13	0.0			
<b>NOTE:</b> No groundwater encountered in boring					0.0			
BOTTOM OF BORING AT 20' bgs. Boring was backfilled with bentonite and a concrete patch at the surface.	20				0.0			
					0.0			
					0.0			
					0.0			
					0.0			
					0.0			
					0.0			
					0.0			
					0.0			
					0.0			
					0.0			

DRILLING CONTRACTOR: AEC  
 DRILLING METHOD: GeoProbe  
 BOREHOLE DIAMETER: 2.25"  
 SAMPLING METHOD: Continuous  
 START CARD NUMBER:

CASING ELEVATION: N/A  
 GROUND SURFACE ELEVATION:  
 COORDINATES:  
 COORDINATES:

**APPENDIX C**  
**LABORATORY REPORT AND CHAIN-OF-CUSTODY**  
**DOCUMENTATION**



ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

Tuesday, December 31, 2024

Chris Daschel  
ACC Environmental Consultants, Inc.  
3925 NE 72nd Ave. Suite 103  
Vancouver, WA 98661

RE: A4L1628 - ESS Salem Phase II - 10044-008.00

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4L1628, which was received by the laboratory on 12/20/2024 at 4:41:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: [mipoquiz@apex-labs.com](mailto:mipoquiz@apex-labs.com), or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information	
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>	
(See Cooler Receipt Form for details)	
<u>Default Cooler</u>	<u>1.8 degC</u>

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report. All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<u>ACC Environmental Consultants, Inc.</u> 3925 NE 72nd Ave. Suite 103 Vancouver, WA 98661	Project: <u>ESS Salem Phase II</u> Project Number: 10044-008.00 Project Manager: Chris Daschel	<b>Report ID:</b> A4L1628 - 12 31 24 1514
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ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ACC-1-17	A4L1628-01	Soil	12/20/24 10:10	12/20/24 16:41
ACC-2-9.5	A4L1628-02	Soil	12/20/24 11:05	12/20/24 16:41
ACC-2-13	A4L1628-03	Soil	12/20/24 11:15	12/20/24 16:41
ACC-3-13	A4L1628-04	Soil	12/20/24 11:49	12/20/24 16:41
ACC-4-12	A4L1628-05	Soil	12/20/24 12:20	12/20/24 16:41
ACC-5-12	A4L1628-06	Soil	12/20/24 13:10	12/20/24 16:41
ACC-6-13	A4L1628-07	Soil	12/20/24 14:15	12/20/24 16:41
ACC-7-13	A4L1628-08	Soil	12/20/24 14:58	12/20/24 16:41

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Michele Poquiz For Cameron O'Brien, Project Manager



ANALYTICAL REPORT

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**ANALYTICAL SAMPLE RESULTS**

**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-1-17 (A4L1628-01)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0988</b>		<b>CONT</b>
Diesel	ND	---	20.9	mg/kg dry	1	12/27/24 23:07	NWTPH-Dx	
Oil	ND	---	41.7	mg/kg dry	1	12/27/24 23:07	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/27/24 23:07</i>	<i>NWTPH-Dx</i>
<b>ACC-2-9.5 (A4L1628-02)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0988</b>		<b>CONT</b>
Diesel	ND	---	23.6	mg/kg dry	1	12/27/24 23:28	NWTPH-Dx	
Oil	ND	---	47.1	mg/kg dry	1	12/27/24 23:28	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 72 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/27/24 23:28</i>	<i>NWTPH-Dx</i>
<b>ACC-2-13 (A4L1628-03)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0988</b>		<b>CONT</b>
<b>Diesel</b>	<b>76.7</b>	---	21.6	mg/kg dry	1	12/28/24 01:34	NWTPH-Dx	<b>F-13</b>
Oil	ND	---	43.2	mg/kg dry	1	12/28/24 01:34	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 71 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/28/24 01:34</i>	<i>NWTPH-Dx</i>
<b>ACC-3-13 (A4L1628-04)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0988</b>		<b>CONT</b>
Diesel	ND	---	21.6	mg/kg dry	1	12/27/24 23:49	NWTPH-Dx	
Oil	ND	---	43.1	mg/kg dry	1	12/27/24 23:49	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 76 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/27/24 23:49</i>	<i>NWTPH-Dx</i>
<b>ACC-4-12 (A4L1628-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0988</b>		<b>CONT</b>
Diesel	ND	---	23.6	mg/kg dry	1	12/28/24 00:10	NWTPH-Dx	
Oil	ND	---	47.1	mg/kg dry	1	12/28/24 00:10	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 74 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/28/24 00:10</i>	<i>NWTPH-Dx</i>
<b>ACC-5-12 (A4L1628-06)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0988</b>		<b>CONT</b>
Diesel	ND	---	23.0	mg/kg dry	1	12/28/24 00:31	NWTPH-Dx	
Oil	ND	---	45.9	mg/kg dry	1	12/28/24 00:31	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/28/24 00:31</i>	<i>NWTPH-Dx</i>
<b>ACC-6-13 (A4L1628-07)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0988</b>		<b>CONT</b>
Diesel	ND	---	21.7	mg/kg dry	1	12/28/24 00:52	NWTPH-Dx	
Oil	ND	---	43.5	mg/kg dry	1	12/28/24 00:52	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/28/24 00:52</i>	<i>NWTPH-Dx</i>

Apex Laboratories

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

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Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>ACC Environmental Consultants, Inc.</b> 3925 NE 72nd Ave. Suite 103 Vancouver, WA 98661	Project: <b>ESS Salem Phase II</b> Project Number: <b>10044-008.00</b> Project Manager: <b>Chris Daschel</b>	<b>Report ID:</b> <b>A4L1628 - 12 31 24 1514</b>
--	--	---

**ANALYTICAL SAMPLE RESULTS**

**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-7-13 (A4L1628-08)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0848</b>		<b>CONT</b>
Diesel	ND	---	22.8	mg/kg dry	1	12/24/24 03:29	NWTPH-Dx	
Oil	ND	---	45.7	mg/kg dry	1	12/24/24 03:29	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 71 %</i>		<i>Limits: 50-150 %</i>	<i>1</i>	<i>12/24/24 03:29</i>	<i>NWTPH-Dx</i>	

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Michele Poquiz For Cameron O'Brien, Project Manager



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**ANALYTICAL SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-1-17 (A4L1628-01)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Gasoline Range Organics	ND	---	5.52	mg/kg dry	50	12/24/24 06:18	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>101 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 06:18</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>97 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 06:18</i>	<i>NWTPH-Gx (MS)</i>	
<b>ACC-2-9.5 (A4L1628-02)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Gasoline Range Organics	ND	---	7.21	mg/kg dry	50	12/24/24 06:45	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>104 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 06:45</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>97 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 06:45</i>	<i>NWTPH-Gx (MS)</i>	
<b>ACC-2-13 (A4L1628-03)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Gasoline Range Organics	<b>235</b>	---	5.59	mg/kg dry	50	12/24/24 07:13	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>109 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 07:13</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>97 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 07:13</i>	<i>NWTPH-Gx (MS)</i>	
<b>ACC-3-13 (A4L1628-04RE1)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0901</b>		
Gasoline Range Organics	ND	---	5.75	mg/kg dry	50	12/25/24 10:14	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>107 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/25/24 10:14</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>102 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/25/24 10:14</i>	<i>NWTPH-Gx (MS)</i>	
<b>ACC-4-12 (A4L1628-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Gasoline Range Organics	ND	---	6.20	mg/kg dry	50	12/24/24 08:08	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>105 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 08:08</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>97 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 08:08</i>	<i>NWTPH-Gx (MS)</i>	
<b>ACC-5-12 (A4L1628-06)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Gasoline Range Organics	ND	---	6.34	mg/kg dry	50	12/24/24 08:35	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>106 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 08:35</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 08:35</i>	<i>NWTPH-Gx (MS)</i>	
<b>ACC-6-13 (A4L1628-07)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Gasoline Range Organics	ND	---	5.88	mg/kg dry	50	12/24/24 09:03	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>104 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 09:03</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 09:03</i>	<i>NWTPH-Gx (MS)</i>	

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>ACC Environmental Consultants, Inc.</b> 3925 NE 72nd Ave. Suite 103 Vancouver, WA 98661	Project: <b>ESS Salem Phase II</b> Project Number: <b>10044-008.00</b> Project Manager: <b>Chris Daschel</b>	<b>Report ID:</b> <b>A4L1628 - 12 31 24 1514</b>
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**ANALYTICAL SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-7-13 (A4L1628-08)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Gasoline Range Organics	ND	---	6.36	mg/kg dry	50	12/24/24 09:30	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>104 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 09:30</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>	<i>50-150 %</i>	<i>1</i>	<i>12/24/24 09:30</i>	<i>NWTPH-Gx (MS)</i>	

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**ANALYTICAL SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-1-17 (A4L1628-01)</b>			<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>			
Benzene	ND	---	0.0110	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
Toluene	ND	---	0.0552	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
Ethylbenzene	ND	---	0.0276	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
Xylenes, total	ND	---	0.0828	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	0.0552	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
Naphthalene	ND	---	0.110	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0552	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0276	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
Isopropylbenzene	ND	---	0.0552	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	0.0552	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	0.0552	mg/kg dry	50	12/24/24 06:18	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>12/24/24 06:18</i>	<i>5035A/8260D</i>
<i>Toluene-d8 (Surr)</i>				<i>96 %</i>		<i>80-120 %</i>		<i>1</i>
<i>4-Bromofluorobenzene (Surr)</i>				<i>99 %</i>		<i>79-120 %</i>		<i>1</i>
<b>ACC-2-9.5 (A4L1628-02)</b>			<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>			
Benzene	ND	---	0.0144	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
Toluene	ND	---	0.0721	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
<b>Ethylbenzene</b>	<b>0.0433</b>	---	0.0361	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
Xylenes, total	ND	---	0.108	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	0.0721	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
Naphthalene	ND	---	0.144	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0721	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0361	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
Isopropylbenzene	ND	---	0.0721	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
<b>1,2,4-Trimethylbenzene</b>	<b>0.732</b>	---	0.0721	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	0.0721	mg/kg dry	50	12/24/24 06:45	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>12/24/24 06:45</i>	<i>5035A/8260D</i>
<i>Toluene-d8 (Surr)</i>				<i>95 %</i>		<i>80-120 %</i>		<i>1</i>
<i>4-Bromofluorobenzene (Surr)</i>				<i>98 %</i>		<i>79-120 %</i>		<i>1</i>
<b>ACC-2-13 (A4L1628-03)</b>			<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>			
Benzene	ND	---	0.0112	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
<b>Toluene</b>	<b>0.146</b>	---	0.0559	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
<b>Ethylbenzene</b>	<b>0.769</b>	---	0.0280	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
<b>Xylenes, total</b>	<b>6.02</b>	---	0.0839	mg/kg dry	50	12/24/24 07:13	5035A/8260D	

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Michele Poquiz For Cameron O'Brien, Project Manager



ANALYTICAL REPORT

**Apex Laboratories, LLC**

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<b>ACC Environmental Consultants, Inc.</b> 3925 NE 72nd Ave. Suite 103 Vancouver, WA 98661	Project: <b>ESS Salem Phase II</b> Project Number: <b>10044-008.00</b> Project Manager: <b>Chris Daschel</b>	<b>Report ID:</b> <b>A4L1628 - 12 31 24 1514</b>
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**ANALYTICAL SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-2-13 (A4L1628-03)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Methyl tert-butyl ether (MTBE)	ND	---	0.0559	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
<b>Naphthalene</b>	<b>1.05</b>	---	0.112	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0559	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0280	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
<b>Isopropylbenzene</b>	<b>0.278</b>	---	0.0559	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
<b>1,3,5-Trimethylbenzene</b>	<b>4.23</b>	---	0.0559	mg/kg dry	50	12/24/24 07:13	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 103 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/24/24 07:13</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>94 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/24/24 07:13</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>99 %</i>	<i>79-120 %</i>	<i>1</i>	<i>12/24/24 07:13</i>	<i>5035A/8260D</i>	
<b>ACC-2-13 (A4L1628-03RE3)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L1029</b>		
<b>1,2,4-Trimethylbenzene</b>	<b>13.4</b>	---	0.559	mg/kg dry	500	12/30/24 22:22	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 107 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/30/24 22:22</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>94 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/30/24 22:22</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>99 %</i>	<i>79-120 %</i>	<i>1</i>	<i>12/30/24 22:22</i>	<i>5035A/8260D</i>	
<b>ACC-3-13 (A4L1628-04RE1)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0901</b>		
Benzene	ND	---	0.0115	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
Toluene	ND	---	0.0575	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
Ethylbenzene	ND	---	0.0287	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
Xylenes, total	ND	---	0.0862	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	0.0575	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
Naphthalene	ND	---	0.115	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0575	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0287	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
Isopropylbenzene	ND	---	0.0575	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	0.0575	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	0.0575	mg/kg dry	50	12/25/24 10:14	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 109 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/25/24 10:14</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/25/24 10:14</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>97 %</i>	<i>79-120 %</i>	<i>1</i>	<i>12/25/24 10:14</i>	<i>5035A/8260D</i>	
<b>ACC-4-12 (A4L1628-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Benzene	ND	---	0.0124	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
Toluene	ND	---	0.0620	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
Ethylbenzene	ND	---	0.0310	mg/kg dry	50	12/24/24 08:08	5035A/8260D	

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**ANALYTICAL SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-4-12 (A4L1628-05)</b>			<b>Matrix: Soil</b>			<b>Batch: 24L0865</b>		
Xylenes, total	ND	---	0.0931	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	0.0620	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
Naphthalene	ND	---	0.124	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0620	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0310	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
Isopropylbenzene	ND	---	0.0620	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	0.0620	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	0.0620	mg/kg dry	50	12/24/24 08:08	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 103 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/24/24 08:08</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>94 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/24/24 08:08</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>99 %</i>	<i>79-120 %</i>	<i>1</i>	<i>12/24/24 08:08</i>	<i>5035A/8260D</i>	

<b>ACC-5-12 (A4L1628-06)</b>			<b>Matrix: Soil</b>			<b>Batch: 24L0865</b>		
Benzene	ND	---	0.0127	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
Toluene	ND	---	0.0634	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
Ethylbenzene	ND	---	0.0317	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
Xylenes, total	ND	---	0.0951	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	0.0634	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
Naphthalene	ND	---	0.127	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0634	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0317	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
Isopropylbenzene	ND	---	0.0634	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	0.0634	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	0.0634	mg/kg dry	50	12/24/24 08:35	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 104 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/24/24 08:35</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>95 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/24/24 08:35</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>99 %</i>	<i>79-120 %</i>	<i>1</i>	<i>12/24/24 08:35</i>	<i>5035A/8260D</i>	

<b>ACC-6-13 (A4L1628-07)</b>			<b>Matrix: Soil</b>			<b>Batch: 24L0865</b>		
Benzene	ND	---	0.0118	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
Toluene	ND	---	0.0588	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
Ethylbenzene	ND	---	0.0294	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
Xylenes, total	ND	---	0.0882	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	0.0588	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
Naphthalene	ND	---	0.118	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0588	mg/kg dry	50	12/24/24 09:03	5035A/8260D	

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**ANALYTICAL SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-6-13 (A4L1628-07)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
1,2-Dichloroethane (EDC)	ND	---	0.0294	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
Isopropylbenzene	ND	---	0.0588	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	0.0588	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	0.0588	mg/kg dry	50	12/24/24 09:03	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 104 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/24/24 09:03</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>95 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/24/24 09:03</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>99 %</i>	<i>79-120 %</i>	<i>1</i>	<i>12/24/24 09:03</i>	<i>5035A/8260D</i>	
<b>ACC-7-13 (A4L1628-08)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0865</b>		
Benzene	ND	---	0.0127	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
Toluene	ND	---	0.0636	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
Ethylbenzene	ND	---	0.0318	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
Xylenes, total	ND	---	0.0953	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	0.0636	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
Naphthalene	ND	---	0.127	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	0.0636	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0318	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
Isopropylbenzene	ND	---	0.0636	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	0.0636	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	0.0636	mg/kg dry	50	12/24/24 09:30	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 104 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/24/24 09:30</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/24/24 09:30</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>96 %</i>	<i>79-120 %</i>	<i>1</i>	<i>12/24/24 09:30</i>	<i>5035A/8260D</i>	

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ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>ACC Environmental Consultants, Inc.</b> 3925 NE 72nd Ave. Suite 103 Vancouver, WA 98661	Project: <b>ESS Salem Phase II</b> Project Number: <b>10044-008.00</b> Project Manager: <b>Chris Daschel</b>	<b>Report ID:</b> <b>A4L1628 - 12 31 24 1514</b>
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**ANALYTICAL SAMPLE RESULTS**

**Percent Dry Weight**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>ACC-1-17 (A4L1628-01)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	83.8	---	1.00	%	1	12/26/24 07:49	EPA 8000D	
<b>ACC-2-9.5 (A4L1628-02)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	74.5	---	1.00	%	1	12/26/24 07:49	EPA 8000D	
<b>ACC-2-13 (A4L1628-03)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	81.3	---	1.00	%	1	12/26/24 07:49	EPA 8000D	
<b>ACC-3-13 (A4L1628-04)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	81.7	---	1.00	%	1	12/26/24 07:49	EPA 8000D	
<b>ACC-4-12 (A4L1628-05)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	76.2	---	1.00	%	1	12/26/24 07:49	EPA 8000D	
<b>ACC-5-12 (A4L1628-06)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	75.2	---	1.00	%	1	12/26/24 07:49	EPA 8000D	
<b>ACC-6-13 (A4L1628-07)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	80.3	---	1.00	%	1	12/26/24 07:49	EPA 8000D	
<b>ACC-7-13 (A4L1628-08)</b>				<b>Matrix: Soil</b>		<b>Batch: 24L0890</b>		<b>CONT</b>
% Solids	78.6	---	1.00	%	1	12/26/24 07:49	EPA 8000D	

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L0848 - EPA 3546 (Fuels)</b>						<b>Soil</b>						
<b>Blank (24L0848-BLK1)</b>		Prepared: 12/23/24 10:40 Analyzed: 12/23/24 21:04										
<u>NWTPH-Dx</u>												
Diesel	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	---
Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	---
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 83 % Limits: 50-150 % Dilution: 1x</i>										

<b>LCS (24L0848-BS1)</b>		Prepared: 12/23/24 10:40 Analyzed: 12/23/24 21:24										
<u>NWTPH-Dx</u>												
Diesel	111	---	20.0	mg/kg wet	1	125	---	89	38 - 132%	---	---	---
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 86 % Limits: 50-150 % Dilution: 1x</i>										

*No Client related Batch QC samples analyzed for this batch. See notes page for more information.*

<b>Batch 24L0988 - EPA 3546 (Fuels)</b>						<b>Soil</b>						
<b>Blank (24L0988-BLK1)</b>		Prepared: 12/27/24 11:16 Analyzed: 12/27/24 17:51										
<u>NWTPH-Dx</u>												
Diesel	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	---
Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	---
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 92 % Limits: 50-150 % Dilution: 1x</i>										

<b>LCS (24L0988-BS1)</b>		Prepared: 12/27/24 11:16 Analyzed: 12/27/24 18:12										
<u>NWTPH-Dx</u>												
Diesel	144	---	20.0	mg/kg wet	1	125	---	115	38 - 132%	---	---	---
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 107 % Limits: 50-150 % Dilution: 1x</i>										

<b>Duplicate (24L0988-DUP2)</b>						<b>CONT</b>						
<b>QC Source Sample: ACC-6-13 (A4L1628-07)</b>												
<u>NWTPH-Dx</u>												
Diesel	ND	---	21.5	mg/kg dry	1	---	ND	---	---	---	30%	---
Oil	ND	---	43.1	mg/kg dry	1	---	ND	---	---	---	30%	---
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 90 % Limits: 50-150 % Dilution: 1x</i>										

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L0865 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (24L0865-BLK1)</b>		Prepared: 12/23/24 08:00 Analyzed: 12/24/24 01:44										
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	5.00	mg/kg wet	50	---	---	---	---	---	---	---
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 99 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		99 %		50-150 %		"						
<b>LCS (24L0865-BS2)</b>		Prepared: 12/23/24 08:00 Analyzed: 12/24/24 01:16										
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	23.6	---	5.00	mg/kg wet	50	25.0	---	94	80 - 120%	---	---	---
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 103 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		97 %		50-150 %		"						

*No Client related Batch QC samples analyzed for this batch. See notes page for more information.*

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L0901 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (24L0901-BLK1)</b>		Prepared: 12/24/24 13:22 Analyzed: 12/25/24 05:13										
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	5.00	mg/kg wet	50	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>101 %</i>		<i>50-150 %</i>		"						
<b>LCS (24L0901-BS2)</b>		Prepared: 12/24/24 13:22 Analyzed: 12/25/24 04:46										
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	21.4	---	5.00	mg/kg wet	50	25.0	---	85	80 - 120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>99 %</i>		<i>50-150 %</i>		"						

*No Client related Batch QC samples analyzed for this batch. See notes page for more information.*

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L0865 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (24L0865-BLK1)</b>		Prepared: 12/23/24 08:00 Analyzed: 12/24/24 01:44										
<u>5035A/8260D</u>												
Benzene	ND	---	0.0100	mg/kg wet	50	---	---	---	---	---	---	---
Toluene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	---
Xylenes, total	ND	---	0.0750	mg/kg wet	50	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
Naphthalene	ND	---	0.100	mg/kg wet	50	---	---	---	---	---	---	---
1,2-Dibromoethane (EDB)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,2-Dichloroethane (EDC)	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	---
Isopropylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,3,5-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>LCS (24L0865-BS1)</b>		Prepared: 12/23/24 08:00 Analyzed: 12/24/24 00:49										
<u>5035A/8260D</u>												
Benzene	1.05	---	0.0100	mg/kg wet	50	1.00	---	105	80 - 120%	---	---	---
Toluene	0.985	---	0.0500	mg/kg wet	50	1.00	---	98	80 - 120%	---	---	---
Ethylbenzene	1.04	---	0.0250	mg/kg wet	50	1.00	---	104	80 - 120%	---	---	---
Xylenes, total	3.15	---	0.0750	mg/kg wet	50	3.00	---	105	80 - 120%	---	---	---
Methyl tert-butyl ether (MTBE)	1.05	---	0.0500	mg/kg wet	50	1.00	---	105	80 - 120%	---	---	---
Naphthalene	0.928	---	0.100	mg/kg wet	50	1.00	---	93	80 - 120%	---	---	---
1,2-Dibromoethane (EDB)	1.11	---	0.0500	mg/kg wet	50	1.00	---	111	80 - 120%	---	---	---
1,2-Dichloroethane (EDC)	1.05	---	0.0250	mg/kg wet	50	1.00	---	105	80 - 120%	---	---	---
Isopropylbenzene	1.05	---	0.0500	mg/kg wet	50	1.00	---	105	80 - 120%	---	---	---
1,2,4-Trimethylbenzene	1.07	---	0.0500	mg/kg wet	50	1.00	---	107	80 - 120%	---	---	---
1,3,5-Trimethylbenzene	1.05	---	0.0500	mg/kg wet	50	1.00	---	105	80 - 120%	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>Matrix Spike (24L0865-MS1)</b>		Prepared: 12/20/24 14:58 Analyzed: 12/24/24 09:57										

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L0865 - EPA 5035A</b>						<b>Soil</b>						
<b>Matrix Spike (24L0865-MS1)</b>		Prepared: 12/20/24 14:58 Analyzed: 12/24/24 09:57										
<b>QC Source Sample: ACC-7-13 (A4L1628-08)</b>												
<b>5035A/8260D</b>												
Benzene	1.29	---	0.0127	mg/kg dry	50	1.27	ND	102	77 - 121%	---	---	
Toluene	1.19	---	0.0636	mg/kg dry	50	1.27	ND	94	77 - 121%	---	---	
Ethylbenzene	1.26	---	0.0318	mg/kg dry	50	1.27	ND	99	76 - 122%	---	---	
Xylenes, total	3.79	---	0.0953	mg/kg dry	50	3.81	ND	99	78 - 124%	---	---	
Methyl tert-butyl ether (MTBE)	1.26	---	0.0636	mg/kg dry	50	1.27	ND	99	73 - 125%	---	---	
Naphthalene	1.07	---	0.127	mg/kg dry	50	1.27	ND	85	62 - 129%	---	---	
1,2-Dibromoethane (EDB)	1.34	---	0.0636	mg/kg dry	50	1.27	ND	106	78 - 122%	---	---	
1,2-Dichloroethane (EDC)	1.26	---	0.0318	mg/kg dry	50	1.27	ND	99	73 - 128%	---	---	
Isopropylbenzene	1.27	---	0.0636	mg/kg dry	50	1.27	ND	100	68 - 134%	---	---	
1,2,4-Trimethylbenzene	1.28	---	0.0636	mg/kg dry	50	1.27	ND	100	75 - 123%	---	---	
1,3,5-Trimethylbenzene	1.27	---	0.0636	mg/kg dry	50	1.27	ND	100	73 - 124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>79-120 %</i>		<i>"</i>						

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L0901 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (24L0901-BLK1)</b>		Prepared: 12/24/24 13:22 Analyzed: 12/25/24 05:13										
<u>5035A/8260D</u>												
Benzene	0.0120	---	0.0100	mg/kg wet	50	---	---	---	---	---	---	B
Toluene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	---	0.0750	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.100	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 106 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>LCS (24L0901-BS1)</b>		Prepared: 12/24/24 13:22 Analyzed: 12/25/24 03:51										
<u>5035A/8260D</u>												
Benzene	1.03	---	0.0100	mg/kg wet	50	1.00	---	103	80 - 120%	---	---	B
Toluene	0.958	---	0.0500	mg/kg wet	50	1.00	---	96	80 - 120%	---	---	
Ethylbenzene	1.00	---	0.0250	mg/kg wet	50	1.00	---	100	80 - 120%	---	---	
Xylenes, total	2.99	---	0.0750	mg/kg wet	50	3.00	---	100	80 - 120%	---	---	
Methyl tert-butyl ether (MTBE)	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80 - 120%	---	---	
Naphthalene	0.868	---	0.100	mg/kg wet	50	1.00	---	87	80 - 120%	---	---	
1,2-Dibromoethane (EDB)	1.10	---	0.0500	mg/kg wet	50	1.00	---	110	80 - 120%	---	---	
1,2-Dichloroethane (EDC)	1.03	---	0.0250	mg/kg wet	50	1.00	---	103	80 - 120%	---	---	
Isopropylbenzene	0.972	---	0.0500	mg/kg wet	50	1.00	---	97	80 - 120%	---	---	
1,2,4-Trimethylbenzene	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80 - 120%	---	---	
1,3,5-Trimethylbenzene	1.02	---	0.0500	mg/kg wet	50	1.00	---	102	80 - 120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>79-120 %</i>		<i>"</i>						

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ORELAP ID: OR100062

<b>ACC Environmental Consultants, Inc.</b> 3925 NE 72nd Ave. Suite 103 Vancouver, WA 98661	Project: <b>ESS Salem Phase II</b> Project Number: <b>10044-008.00</b> Project Manager: <b>Chris Daschel</b>	<b>Report ID:</b> <b>A4L1628 - 12 31 24 1514</b>
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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
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*No Client related Batch QC samples analyzed for this batch. See notes page for more information.*

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Michele Poquiz For Cameron O'Brien, Project Manager



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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L0991 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (24L0991-BLK1)</b>		Prepared: 12/27/24 11:56 Analyzed: 12/27/24 17:32										
<u>5035A/8260D</u>												
Benzene	ND	---	0.0100	mg/kg wet	50	---	---	---	---	---	---	---
Toluene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	---
Xylenes, total	ND	---	0.0750	mg/kg wet	50	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
Naphthalene	ND	---	0.100	mg/kg wet	50	---	---	---	---	---	---	---
1,2-Dibromoethane (EDB)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,2-Dichloroethane (EDC)	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	---
Isopropylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,3,5-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 119 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>105 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>LCS (24L0991-BS1)</b>		Prepared: 12/27/24 11:56 Analyzed: 12/27/24 16:34										
<u>5035A/8260D</u>												
Benzene	1.09	---	0.0100	mg/kg wet	50	1.00	---	109	80 - 120%	---	---	---
Toluene	0.912	---	0.0500	mg/kg wet	50	1.00	---	91	80 - 120%	---	---	---
Ethylbenzene	0.961	---	0.0250	mg/kg wet	50	1.00	---	96	80 - 120%	---	---	---
Xylenes, total	2.87	---	0.0750	mg/kg wet	50	3.00	---	96	80 - 120%	---	---	---
Methyl tert-butyl ether (MTBE)	0.967	---	0.0500	mg/kg wet	50	1.00	---	97	80 - 120%	---	---	---
Naphthalene	0.974	---	0.100	mg/kg wet	50	1.00	---	97	80 - 120%	---	---	---
1,2-Dibromoethane (EDB)	1.03	---	0.0500	mg/kg wet	50	1.00	---	103	80 - 120%	---	---	---
1,2-Dichloroethane (EDC)	0.874	---	0.0250	mg/kg wet	50	1.00	---	87	80 - 120%	---	---	---
Isopropylbenzene	0.999	---	0.0500	mg/kg wet	50	1.00	---	100	80 - 120%	---	---	---
1,2,4-Trimethylbenzene	0.985	---	0.0500	mg/kg wet	50	1.00	---	99	80 - 120%	---	---	---
1,3,5-Trimethylbenzene	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80 - 120%	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 119 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>79-120 %</i>		<i>"</i>						

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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
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*No Client related Batch QC samples analyzed for this batch. See notes page for more information.*

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Michele Poquiz For Cameron O'Brien, Project Manager



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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 24L1029 - EPA 5035A</b>						<b>Soil</b>						
<b>Blank (24L1029-BLK1)</b>		Prepared: 12/30/24 10:00 Analyzed: 12/30/24 12:19										
<u>5035A/8260D</u>												
Benzene	ND	---	0.0100	mg/kg wet	50	---	---	---	---	---	---	---
Toluene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	---
Xylenes, total	ND	---	0.0750	mg/kg wet	50	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
Naphthalene	ND	---	0.100	mg/kg wet	50	---	---	---	---	---	---	---
1,2-Dibromoethane (EDB)	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,2-Dichloroethane (EDC)	ND	---	0.0250	mg/kg wet	50	---	---	---	---	---	---	---
Isopropylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
1,3,5-Trimethylbenzene	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>79-120 %</i>		<i>"</i>						
<hr/>												
<b>LCS (24L1029-BS1)</b>		Prepared: 12/30/24 10:00 Analyzed: 12/30/24 11:25										
<u>5035A/8260D</u>												
Benzene	1.04	---	0.0100	mg/kg wet	50	1.00	---	104	80 - 120%	---	---	---
Toluene	0.947	---	0.0500	mg/kg wet	50	1.00	---	95	80 - 120%	---	---	---
Ethylbenzene	0.992	---	0.0250	mg/kg wet	50	1.00	---	99	80 - 120%	---	---	---
Xylenes, total	2.98	---	0.0750	mg/kg wet	50	3.00	---	99	80 - 120%	---	---	---
Methyl tert-butyl ether (MTBE)	1.04	---	0.0500	mg/kg wet	50	1.00	---	104	80 - 120%	---	---	---
Naphthalene	0.908	---	0.100	mg/kg wet	50	1.00	---	91	80 - 120%	---	---	---
1,2-Dibromoethane (EDB)	1.10	---	0.0500	mg/kg wet	50	1.00	---	110	80 - 120%	---	---	---
1,2-Dichloroethane (EDC)	1.02	---	0.0250	mg/kg wet	50	1.00	---	102	80 - 120%	---	---	---
Isopropylbenzene	0.983	---	0.0500	mg/kg wet	50	1.00	---	98	80 - 120%	---	---	---
1,2,4-Trimethylbenzene	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80 - 120%	---	---	---
1,3,5-Trimethylbenzene	1.02	---	0.0500	mg/kg wet	50	1.00	---	102	80 - 120%	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>79-120 %</i>		<i>"</i>						

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--	--	---

**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Selected Volatile Organic Compounds by EPA 5035A/8260D**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
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*No Client related Batch QC samples analyzed for this batch. See notes page for more information.*

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Michele Poquiz For Cameron O'Brien, Project Manager



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**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Percent Dry Weight**

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
<b>Batch 24L0890 - Dry Weight Prep (EPA 8000D)</b>						<b>Soil</b>							
<b>Duplicate (24L0890-DUP9)</b>		Prepared: 12/24/24 10:03 Analyzed: 12/26/24 07:49						<b>CONT</b>					
<b>QC Source Sample: ACC-1-17 (A4L1628-01)</b>													
<b>EPA 8000D</b>													
% Solids	80.9	---	1.00	%	1	---	83.8	---	---	4	10%		

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**SAMPLE PREPARATION INFORMATION**

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0848</u>							
A4L1628-08	Soil	NWTPH-Dx	12/20/24 14:58	12/23/24 10:40	11.15g/5mL	10g/5mL	0.90
<u>Batch: 24L0988</u>							
A4L1628-01	Soil	NWTPH-Dx	12/20/24 10:10	12/27/24 11:16	11.44g/5mL	10g/5mL	0.87
A4L1628-02	Soil	NWTPH-Dx	12/20/24 11:05	12/27/24 11:16	11.4g/5mL	10g/5mL	0.88
A4L1628-03	Soil	NWTPH-Dx	12/20/24 11:15	12/27/24 11:16	11.38g/5mL	10g/5mL	0.88
A4L1628-04	Soil	NWTPH-Dx	12/20/24 11:49	12/27/24 11:16	11.35g/5mL	10g/5mL	0.88
A4L1628-05	Soil	NWTPH-Dx	12/20/24 12:20	12/27/24 11:16	11.14g/5mL	10g/5mL	0.90
A4L1628-06	Soil	NWTPH-Dx	12/20/24 13:10	12/27/24 11:16	11.59g/5mL	10g/5mL	0.86
A4L1628-07	Soil	NWTPH-Dx	12/20/24 14:15	12/27/24 11:16	11.46g/5mL	10g/5mL	0.87

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0865</u>							
A4L1628-01	Soil	NWTPH-Gx (MS)	12/20/24 10:10	12/20/24 10:10	6.55g/5mL	5g/5mL	0.76
A4L1628-02	Soil	NWTPH-Gx (MS)	12/20/24 11:05	12/20/24 11:05	6.11g/5mL	5g/5mL	0.82
A4L1628-03	Soil	NWTPH-Gx (MS)	12/20/24 11:15	12/20/24 11:15	6.91g/5mL	5g/5mL	0.72
A4L1628-05	Soil	NWTPH-Gx (MS)	12/20/24 12:20	12/20/24 12:20	7.07g/5mL	5g/5mL	0.71
A4L1628-06	Soil	NWTPH-Gx (MS)	12/20/24 13:10	12/20/24 13:10	7.1g/5mL	5g/5mL	0.70
A4L1628-07	Soil	NWTPH-Gx (MS)	12/20/24 14:15	12/20/24 14:15	6.69g/5mL	5g/5mL	0.75
A4L1628-08	Soil	NWTPH-Gx (MS)	12/20/24 14:58	12/20/24 14:58	6.37g/5mL	5g/5mL	0.79
<u>Batch: 24L0901</u>							
A4L1628-04RE1	Soil	NWTPH-Gx (MS)	12/20/24 11:49	12/20/24 11:49	6.62g/5mL	5g/5mL	0.76

Selected Volatile Organic Compounds by EPA 5035A/8260D

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0865</u>							
A4L1628-01	Soil	5035A/8260D	12/20/24 10:10	12/20/24 10:10	6.55g/5mL	5g/5mL	0.76
A4L1628-02	Soil	5035A/8260D	12/20/24 11:05	12/20/24 11:05	6.11g/5mL	5g/5mL	0.82
A4L1628-03	Soil	5035A/8260D	12/20/24 11:15	12/20/24 11:15	6.91g/5mL	5g/5mL	0.72
A4L1628-05	Soil	5035A/8260D	12/20/24 12:20	12/20/24 12:20	7.07g/5mL	5g/5mL	0.71
A4L1628-06	Soil	5035A/8260D	12/20/24 13:10	12/20/24 13:10	7.1g/5mL	5g/5mL	0.70

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**SAMPLE PREPARATION INFORMATION**

Selected Volatile Organic Compounds by EPA 5035A/8260D

<u>Prep: EPA 5035A</u>					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
A4L1628-07	Soil	5035A/8260D	12/20/24 14:15	12/20/24 14:15	6.69g/5mL	5g/5mL	0.75
A4L1628-08	Soil	5035A/8260D	12/20/24 14:58	12/20/24 14:58	6.37g/5mL	5g/5mL	0.79
<u>Batch: 24L0901</u>							
A4L1628-04RE1	Soil	5035A/8260D	12/20/24 11:49	12/20/24 11:49	6.62g/5mL	5g/5mL	0.76
<u>Batch: 24L1029</u>							
A4L1628-03RE3	Soil	5035A/8260D	12/20/24 11:15	12/20/24 11:15	6.91g/5mL	5g/5mL	0.72

Percent Dry Weight

<u>Prep: Dry Weight Prep (EPA 8000D)</u>					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 24L0890</u>							
A4L1628-01	Soil	EPA 8000D	12/20/24 10:10	12/24/24 10:03	1g	1g	1.00
A4L1628-02	Soil	EPA 8000D	12/20/24 11:05	12/24/24 10:03	1g	1g	1.00
A4L1628-03	Soil	EPA 8000D	12/20/24 11:15	12/24/24 10:03	1g	1g	1.00
A4L1628-04	Soil	EPA 8000D	12/20/24 11:49	12/24/24 10:03	1g	1g	1.00
A4L1628-05	Soil	EPA 8000D	12/20/24 12:20	12/24/24 10:03	1g	1g	1.00
A4L1628-06	Soil	EPA 8000D	12/20/24 13:10	12/24/24 10:03	1g	1g	1.00
A4L1628-07	Soil	EPA 8000D	12/20/24 14:15	12/24/24 10:03	1g	1g	1.00
A4L1628-08	Soil	EPA 8000D	12/20/24 14:58	12/24/24 10:03	1g	1g	1.00

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ANALYTICAL REPORT

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Table with 3 columns: Client (ACC Environmental Consultants, Inc.), Project (ESS Salem Phase II), and Report ID (A4L1628 - 12 31 24 1514).

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- B Analyte detected in an associated blank at a level above the MRL.
CONT The Sample Container provided for this analysis was not provided by Apex Laboratories...
F-13 The chromatographic pattern does not resemble the fuel standard used for quantitation

Apex Laboratories

Michele Poquiz signature

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<b>ACC Environmental Consultants, Inc.</b> 3925 NE 72nd Ave. Suite 103 Vancouver, WA 98661	Project: <b>ESS Salem Phase II</b> Project Number: <b>10044-008.00</b> Project Manager: <b>Chris Daschel</b>	<b>Report ID:</b> <b>A4L1628 - 12 31 24 1514</b>
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**REPORTING NOTES AND CONVENTIONS:**

**Abbreviations:**

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported.
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

**Detection Limits: Limit of Detection (LOD)**

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).  
If no value is listed ('----'), then the data has not been evaluated below the Reporting Limit.

**Reporting Limits: Limit of Quantitation (LOQ)**

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

**Reporting Conventions:**

- Basis: Results for soil samples are generally reported on a 100% dry weight basis.  
The Result Basis is listed following the units as "dry", "wet", or "" (blank) designation.
  - "dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")  
See Percent Solids section for details of dry weight analysis.
  - "wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
  - "" Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

**QC Source:**

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.  
  
Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) are not included in this report. Please request a Full QC report if this data is required.

**Miscellaneous Notes:**

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " \*\*\* " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

**Blanks:**

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).  
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.  
-For Blank hits falling between 1/2 the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.  
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

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Michele Poquiz For Cameron O'Brien, Project Manager



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**REPORTING NOTES AND CONVENTIONS (Cont.):**

**Blanks (Cont.):**

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.  
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

**Preparation Notes:**

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

**Sampling and Preservation Notes:**

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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**Decanted Samples:**

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses. In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

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**LABORATORY ACCREDITATION INFORMATION**

**ORELAP Certification ID: OR100062 (Primary Accreditation)**  
**EPA ID: OR01039**

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

**Apex Laboratories**

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
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All reported analytes are included in Apex Laboratories' current ORELAP scope.

**Secondary Accreditations**

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

**Subcontract Laboratory Accreditations**

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

**Field Testing Parameters**

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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**APEX LABS**  
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

Lab # **A4L1628** of \_\_\_\_\_ COC \_\_\_\_\_

**CHAIN OF CUSTODY**

Company: <b>ACC</b>	Project Mgr: <b>Chris Daschel</b>	Project Name: <b>ESS Salem Phase II</b>	Project #: <b>10044-008.00</b>
Address: <b>3925 NE 72nd Ave Vancouver</b>	Phone: <b>503-933-9920</b>	Email: <b>cdaschel@accenv.com</b>	PO #: <b>10044-008.00</b>
Sampled by: <b>Scott Shoemaker</b>			
Site Location: <b>OR WA CA</b>			
AK ID: _____			

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	ANALYSIS REQUEST												
						NWTPH-HCID	NWTPH-DX	NWTPH-GX	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pest	R CRA Metals (8)	Priority Metals (13)	AL, SP, AS, BA, BE, CB, CD, CE, CH, CO, CU, FE, PB, SE, AG, NA, TI, MN, MO, NI, K, Sr, Ag, Na, TL, V, Zn
ACC-1-17		12/24/10	Soil	4			X	X										
ACC-2-9-5		1105	"	4			X	X										
ACC-2-13		1115	"	4			X	X										
ACC-3-7-3		1149	"	4			X	X										
ACC-4-12		1220	"	4			X	X										
ACC-5-12		1310	"	4			X	X										
ACC-6-13		1448	"	4			X	X										
ACC-7-13		1448	"	4			X	X										

Normal Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day    2 Day    3 Day    4 DAY    5 DAY    Other: **ACC**

**SPECIAL INSTRUCTIONS:**  
*extract and hold ACC-2-9-5 and ACC-2-13 for possible PAH analysis*

<b>RELINQUISHED BY:</b> Signature: <i>[Signature]</i> Date: <b>12/24/14</b> Printed Name: <b>Scott Shoemaker</b> Company: <b>ACC</b>	<b>RECEIVED BY:</b> Signature: <i>[Signature]</i> Date: <b>12/20/24</b> Printed Name: <b>Eric Raju</b> Company: <b>APEX LABS</b>
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*Michele Poquiz*

Michele Poquiz For Cameron O'Brien, Project Manager

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**APEX LABS COOLER RECEIPT FORM**

Client: ACC Element WO#: A4L1628  
 Project/Project #: ESS Salem Phase II 10044-008.00

**Delivery Info:**

Date/time received: 12/20/24 @ 1641 By: EST  
 Delivered by: Apex  Client  ESS  FedEx  UPS  Radio  Morgan  SDS  Evergreen  Other   
 From USDA Regulated Origin? Yes  No

**Cooler Inspection** Date/time inspected: 12/20/24 @ 1641 By: EST  
 Chain of Custody included? Yes  No   
 Signed/dated by client? Yes  No   
 Contains USDA Reg. Soils? Yes  No  Unsure (email RegSoils)

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>1.8</u>						
Custody seals? (Y/N)	<u>N</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition (In/Out):	<u>In</u>						

Cooler out of temp? (Y/N) N Possible reason why: \_\_\_\_\_  
 Green dots applied to out of temperature samples? Yes  No   
 Out of temperature samples form initiated? Yes  No

**Sample Inspection:** Date/time inspected: 12/20/24 @ 17:21 By: SKM  
 All samples intact? Yes  No  Comments: \_\_\_\_\_

Bottle labels/COCs agree? Yes  No  Comments: \_\_\_\_\_

COC/container discrepancies form initiated? Yes  No

Containers/volumes received appropriate for analysis? Yes  No  Comments: \_\_\_\_\_

Do VOA vials have visible headspace? Yes  No  NA

Comments: \_\_\_\_\_

Water samples: pH checked: Yes  No  NA  pH appropriate? Yes  No  NA  pH ID: \_\_\_\_\_

Comments: \_\_\_\_\_

Labeled by: SKM Witness: MXW Cooler Inspected by: EST

Form Y-003 R-02

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Michele Poquiz For Cameron O'Brien, Project Manager