MAUL FOSTER ALONGI
3140 NE Broadway | Portland, OR 97232 | 971 544-2139 | www.maulfoster.com

December 20, 2024
Project No. M3084.01.001

Don Duddles
3750 Mainline Dr NE
Salem, Oregon, 97301

Re: Phase II Environmental Site Assessment Data Summary Report for the Property located at 3650 – 3750 Mainline Drive NE, Salem, Oregon.

Dear Don Duddles:

On your behalf, Maul Foster & Alongi, Inc. (MFA) prepared this Phase II environmental site assessment (ESA) data summary report to present the results of soil sampling activities conducted by Oregon Geotechnical Explorations Inc. (OGE) at the property located at 3650 - 3750 Mainline Drive NE in Salem, Oregon (the Property) (see Figure 1). This Phase II ESA was completed to address the recognized environmental condition (REC) identified in the January 2024 Phase I ESA conducted for the Property by Alpha Environmental Services, Inc. (Alpha 2024). MFA did not scope, plan, execute, or oversee the Phase II ESA field investigation and data collection; as such, MFA cannot guarantee the accuracy or quality of the Phase II ESA information provided by you and OGE.

Background

The approximately 3.09-acre Property is located on Marion County tax lots 073W12B004300, 073W12B004400, and 073W12B004399 (Marion County 2024). The Property is bounded on the west by Mainline Drive NE and Dr Martin Luther King Jr Parkway, with residential development across the parkway, to the north and south by commercial and light industrial properties, and to the east by a railway and protected area. The nearest surface water body is Claggett Creek which flows to the north and directly abuts the north corner of the Property. The relatively level Property slopes gradually to the north towards Claggett Creek and is surrounded by higher elevation areas to the west (fill associated with Mainline Drive NE and Dr Martin Luther King Jr Parkway) and to the east (fill associated with the Oregon Electric railroad and right-of-way). Based on the topography of the Property and location relative to Claggett Creek, shallow groundwater on the Property is anticipated to flow north towards Claggett Creek.

The Property is zoned general industrial and is currently occupied by Discount Towing and Recovery, a Resource Conservation and Recovery Act (RCRA)-designated small quantity generator. The Property has historically been used as a metal fabrication shop, truck repair shop, followed by a paving company and landscaping company. Since the early 2010s, the Property has been used as a wrecking yard. Currently, the Property contains three warehouse structures and associated asphalt-paved areas that were constructed in the 1970s and 1980s. There are no underground storage tanks or aboveground storage tanks currently present on the Property. Access to the asphalt-surfaced Property parking and yard storage areas is provided from Mainline Drive NE to the west; the remainder of the property consists of undeveloped land used as yard storage (Alpha 2024). Surface water on the warehouse structures collects in downspouts which run underground with unknown outlet locations. Surface water from the paved areas on the Property is collected in catch basins and

according to Don Duddles discharges via a pipe to Claggett Creek, and the remaining surface water is absorbed into soil on the Property (Alpha 2024). Potable water is supplied by the City of Salem and there are no on-site wells.

Purpose

According to the Phase I ESA prepared by Alpha, the historical property usage as a metal fabrication shop, truck repair shop, and wrecking yard represents high environmental risk and a REC. The Phase I ESA identified former and current non-compliant status with the Oregon Department of Environmental Quality (DEQ) regarding hazardous waste or hazardous substances on the Property which have not been resolved and represent a REC. Alpha recommended sampling soil and groundwater at the Property and analyzing for petroleum products and metals.

This Phase II ESA was completed by OGE to address the RECs identified in the Phase I ESA conducted for the Property. Chemical data from the assessment activities were screened against DEQ risk-based concentrations (RBCs) to assess whether the Property poses an unacceptable risk to human health for current and likely future receptors. Chemicals of potential concern (COPCs) for this Phase II ESA included gasoline-, diesel-, and oil-range petroleum hydrocarbons and metals.

Field Methods

Field investigation activities were completed by OGE on May 22, 2024, and consisted of drilling eight borings and collecting subsurface soil samples from each boring to assess COPC impacts to soil. All information on field methods in this section was provided by OGE (OGE 2024).

Prior to performing subsurface work, OGE contacted the one-call utility notification center to identify underground public utilities in the locations where drilling activities were anticipated. Based on findings of the one-call utility notification, drilling on the western portion of the Property was not performed.

OGE, a licensed driller in Oregon, used a direct-push drilling rig to complete the eight borings, designated GP-1 through GP-8, at the locations shown on Figure 2. The borings were advanced to depths of 10 and 12.5 feet below ground surface (bgs). Continuous soil core was collected at each boring using 5-foot-long sample tubes with liners. Depth to water was observed between 3.9 feet bgs at GP-5 and 8.3 feet bgs at GP-1. Information on borehole completion and soil descriptions are provided on Table 1.

During drilling, OGE observed the soil cores for field indicators of petroleum hydrocarbons (e.g., petroleum-like odors and staining). Staining was not observed in any boring. At GP-2 and GP-3, strong petroleum-like odors were observed from 0 to 8 feet bgs. One soil sample at each boring was collected for laboratory analysis. The following soil samples were collected:

- Soil sample GP-1 collected from approximately 5 to 10 feet bgs.
- Soil sample GP-2 collected at approximately 12.5 feet bgs.
- Soil sample GP-3 collected at approximately 10 feet bgs.
- Soil sample GP-4 collected from approximately 5 to 10 feet bgs.
- Soil sample GP-5 collected from approximately 5 to 10 feet bgs.
- Soil sample GP-6 collected from approximately 5 to 10 feet bgs.
- Soil sample GP-7 collected from approximately 5 to 10 feet bgs.

- Soil sample GP-8 collected from approximately 5 to 10 feet bgs.

The soil samples were collected into sample jars using hand tools decontaminated between locations. The samples were placed in a cooler with frozen gel packs and delivered to Apex Laboratories, LLC (Apex), in Tigard, Oregon, under standard chain-of-custody protocols. Following soil sample collection, the borings were backfilled with bentonite chips. Excess soil core and wash water were land-applied.

Analytical Methods

Soil samples were submitted to Apex, an analytical laboratory accredited by DEQ and the National Environmental Laboratory Accreditation Program. All soil samples were analyzed by the following methods:

- Hydrocarbon identification (HCID) by Northwest Total Petroleum Hydrocarbons (NWTPH)-HCID.
- Total RCRA metals by U.S. Environmental Protection Agency (EPA) Method 6020B.

The two samples from GP-2 and GP-3 had diesel or oil detections by the NWTPH-HCID method and were subsequently analyzed for diesel- and oil-range petroleum hydrocarbons by the NWTPH-Dx method.

The analytical laboratory report is included as Attachment A. Sample analytical data and the laboratory's internal quality assurance and quality control data were reviewed by an MFA chemist independent of the analytical laboratory generating the data report. A data validation memorandum summarizing data evaluation procedures, data usability, and deviations from specific laboratory methods is provided in Attachment B. All data, with the appropriate data qualifiers assigned, are considered acceptable for their intended use.

Results

Analytical results are shown on Table 2 following the report, including comparison to DEQ RBCs and background metals concentrations. Background metals for the South Willamette Valley are shown on the table for reference only and are not used for screening. Metals results were only screened to DEQ RBCs if results were above the associated background metals concentrations. The following DEQ RBC screening criteria were used:

- Soil, Ingestion, Dermal Contact, and Inhalation—occupational, construction worker, and excavation worker receptors
- Soil, Leaching to Groundwater—occupational receptor

As shown on the table, the soil samples had no applicable RBC exceedances for the COPCs at the Property.

Sincerely,

Maul Foster & Alongi, Inc.

EXPIRES: 6/1/2025
This digital seal certifies the signatory and document content.

David Weatherby, RG
Principal Geologist

Fiona Bellows
Project Chemist

Attachments

References

Limitations

Figures

Tables

A—Laboratory Report

B—Data Validation Memorandum

cc: Shane Schuster, eXp Realty

References

Alpha. 2024. *Phase I Environmental Site Assessment Report.* Prepared for Don Duddles, Discount Towing & Recovery. Alpha Environmental Services, Inc.: Beaverton, OR. January 29.

Marion County. 2024. "Assessor's Property Records." Marion County Oregon. Accessed December 16, 2024. https://mcasr.co.marion.or.us/PropertySearch.aspx

OGE. 2024. Terry Jacques, Oregon Geotechnical Explorations Inc. *Info request for Phase II ESA report.* Email to David Weatherby, RG, Maul Foster & Alongi, Inc. December 12.

Limitations

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Figures

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Notes
U.S. Geological Survey 7.5-minute topographic quadrangle (2020): Salem West.
Township 7 south, range 3 west, section 12.

Data Source
Property boundary obtained from Marion County.

Legend

Property Boundary

Figure 1
Property Location

3650-3750 Mainline Drive NE
Salem, OR

0 2,000
Feet

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Path: X:\O_MFA_Projects\M3084\01\001\Pro\M3084_01_001.aprx\Fig 1 Property Location
Print Date: 12/19/2024
Reviewed By:
Produced By: glaravata
Project: M3084.01.001

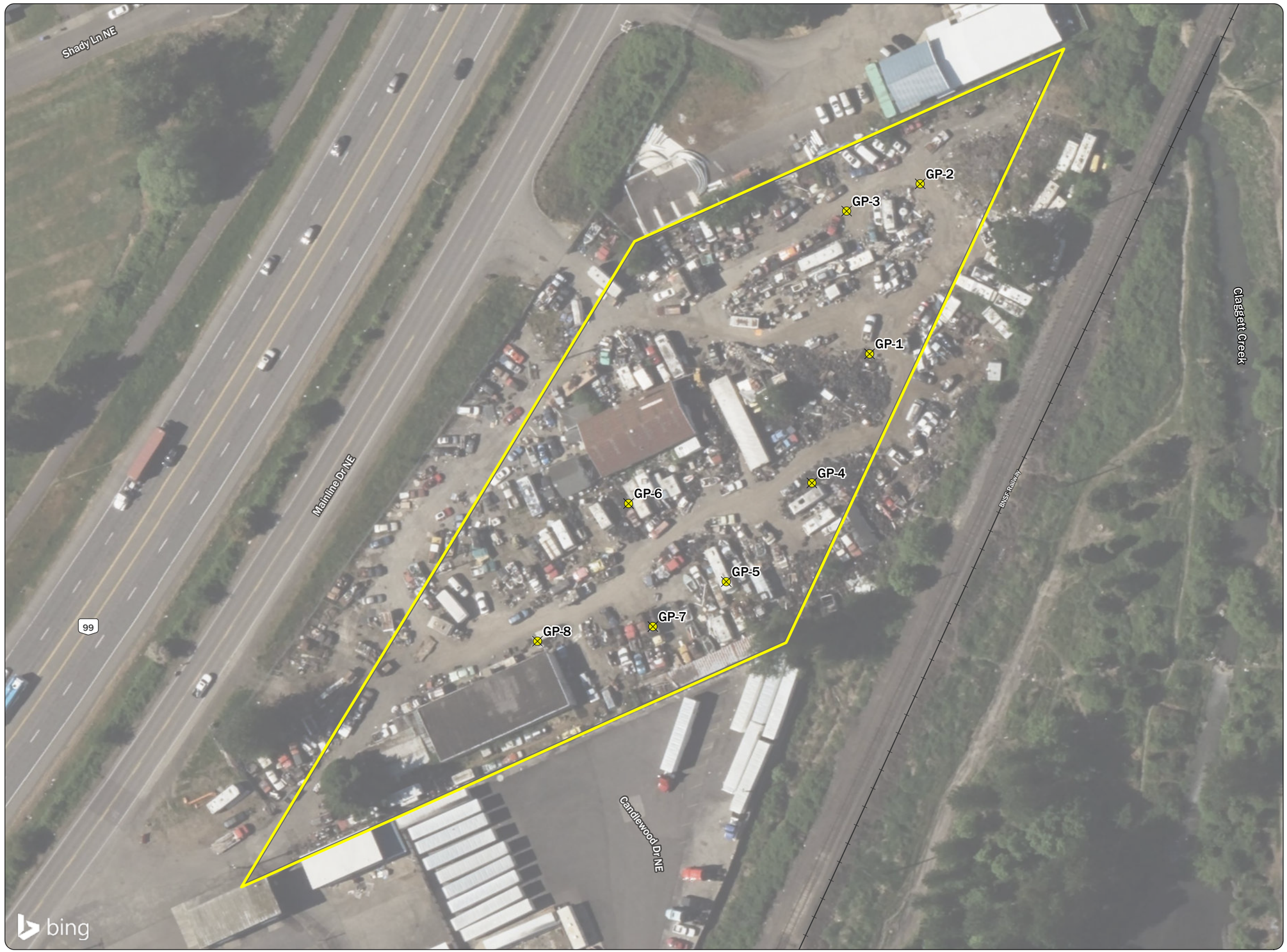

Figure 2
Sample Locations

3650-3750 Mainline Drive NE
Salem, OR

Legend

- Soil Boring (OGE 2024)
- Property Boundary

Notes
Soil boring locations are approximate.
OGE = Oregon Geotechnical Explorations Inc.

0 60
Feet

Data Sources
Aerial photograph (2024) obtained from Bing; tax lot data obtained from Marion County.

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Print Date: 12/19/2024
Reviewed By:
Produced By: gjaravata
Project: M3084.01.001

Tables

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Table 1
Borehole Information and Soil Descriptions
Phase II Environmental Site Assessment
3650 – 3750 Mainline Drive NE, Salem, Oregon

Driller:	Oregon Geotechnical Explorations Inc. / Terry Jacques		
Equipment:	Geoprobe 6622		
Start/End Date:	05/22/2024		
Sampling Method:	MacroCore MC5		
Borehole Abandonment Details:	Backfilled with 3/8" Baroid Plug bentonite chips		
Borehole ID:	GP-1	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	10	Sample Time:	9:00
Water Level (ft bgs):	8.3	Sample Depth (ft bgs):	5-10
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, no odor/staining.		
2 to 8	Dry black clayey loam, no odor/staining.		
8 to 10	Wet brown sandy silt, no odor/staining.		
Borehole ID:	GP-2	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	12.5	Sample Time:	9:30
Water Level (ft bgs):	6.3	Sample Depth (ft bgs):	12.5
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, strong petroleum odor.		
2 to 8	Moist/wet black clayey loam, strong petroleum odor.		
8 to 12.5	Wet brown sandy silt, little to no petroleum odor.		
Borehole ID:	GP-3	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	10	Sample Time:	9:45
Water Level (ft bgs):	Dry	Sample Depth (ft bgs):	10
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, strong petroleum odor.		
2 to 8	Dry black clayey loam, strong petroleum odor.		
8 to 10	Wet brown sandy silt, little to no petroleum odor. Borehole caved at 8.9 ft bgs.		
Borehole ID:	GP-4	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	10	Sample Time:	10:15
Water Level (ft bgs):	Dry	Sample Depth (ft bgs):	5-10
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, no odor/staining.		
2 to 8	Moist/wet black clayey loam, no odor/staining.		
8 to 10	Wet brown sandy silt, no odor/staining. Borehole caved at 4.0 ft bgs.		

Table 1
Borehole Information and Soil Descriptions
Phase II Environmental Site Assessment
3650 – 3750 Mainline Drive NE, Salem, Oregon

Driller:	Oregon Geotechnical Explorations Inc. / Terry Jacques		
Equipment:	Geoprobe 6622		
Start/End Date:	05/22/2024		
Sampling Method:	MacroCore MC5		
Borehole Abandonment Details:	Backfilled with 3/8" Baroid Plug bentonite chips		
Borehole ID:	GP-5	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	10	Sample Time:	10:30
Water Level (ft bgs):	3.9	Sample Depth (ft bgs):	5-10
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, no odor/staining.		
2 to 8	Moist/wet black clayey loam, no odor/staining.		
8 to 10	Wet brown sandy silt, no odor/staining.		
Borehole ID:	GP-6	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	10	Sample Time:	11:00
Water Level (ft bgs):	4.7	Sample Depth (ft bgs):	5-10
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, no odor/staining.		
2 to 8	Moist/wet black clayey loam, no odor/staining		
8 to 10	Wet brown sandy silt, no odor/staining.		
Borehole ID:	GP-7	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	10	Sample Time:	11:15
Water Level (ft bgs):	4.5	Sample Depth (ft bgs):	5-10
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, no odor/staining.		
2 to 8	Moist/wet black clayey loam, no odor/staining.		
8 to 10	Wet brown sandy silt, no odor/staining.		
Borehole ID:	GP-8	Sample Date:	05/22/2024
Borehole Depth (ft bgs):	10	Sample Time:	11:30
Water Level (ft bgs):	5.0	Sample Depth (ft bgs):	5-10
Depth (ft bgs)	Soil Description		
0 to 2	Dry gravel/brown silt, no odor/staining.		
2 to 8	Moist/wet black clayey loam, no odor/staining.		
8 to 10	Wet brown sandy silt, no odor/staining.		

Notes

Water levels measured using an electronic water level indicator.

ft bgs = feet below ground surface.

ID = identification.

Table 2
Soil Analytical Results
Phase II Environmental Site Assessment
3650 – 3750 Mainline Drive NE, Salem, Oregon

Location:	RBC, Soil Ingestion, Dermal Contact, and Inhalation [1]			RBC, Soil, Leaching to Groundwater[1]	DEQ Background Metals[2]	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7	GP-8
Sample Date:	Occupational	Construction Worker	Excavation Worker	Occupational	South Willamette Valley	05/22/2024	05/22/2024	05/22/2024	05/22/2024	05/22/2024	05/22/2024	05/22/2024	05/22/2024
Sample Depth (ft bgs):						5-10	12.5	10	5-10	5-10	5-10	5-10	5-10
Hydrocarbon Identification (detect/non-detect)													
Gasoline	NV	NV	NV	NV	NV	ND	ND	ND	ND	ND	ND	ND	ND
Diesel	NV	NV	NV	NV	NV	ND	DETECT	ND	ND	ND	ND	ND	ND
Oil	NV	NV	NV	NV	NV	ND	DETECT	DETECT	ND	ND	ND	ND	ND
TPH (mg/kg)													
Diesel-range hydrocarbons	14,000	4,600	NV	NV	NV	--	132 U	47.0 U	--	--	--	--	--
Oil-range hydrocarbons	14,000[a]	4,600[a]	NV	NV	NV	--	812 J	357	--	--	--	--	--
Metals (mg/kg)													
Arsenic	1.9	15	420	NV	18	1.96	2.30	1.84	1.44 U	4.11	3.85	2.95	2.00
Barium	220,000	69,000	NV	NV	730	238	167	74.1	89.8	308	145	210	207
Cadmium	1,100	350	9,700	NV	1.6	0.291 U	0.315 U	1.54	0.289 U	0.276 U	0.548	0.345 U	0.372 U
Chromium	NV	530,000[b]	NV	NV	100	24.5	24.7	10.5	17.2	26.0	22.9	31.9	30.0
Lead	800	800	800	30	28	9.66	10.1	28.1	6.18	14.2	9.68	16.2	10.5
Mercury	350	110	2,900	NV	0.070	0.116 U	0.126 U	0.110 U	0.115 U	0.11 U	0.158 U	0.138 U	0.149 U
Selenium	NV	NV	NV	NV	0.68	1.46 U	1.57 U	1.37 U	1.44 U	1.38 U	3.32	4.02	3.16
Silver	5,800	1,800	49,000	NV	0.33	0.291 U	0.315 U	0.275 U	0.289 U	0.276 U	0.395 U	0.345 U	0.372 U

Notes

DEQ Background metals values are shown for reference only and are not shaded for exceedances. Metals results below background metals values were not considered RBC exceedances.

Detected results were compared with DEQ RBC screening criteria; non-detect results (U) were not compared with screening criteria. There were no exceedances.

-- = not analyzed.

DEQ = Oregon Department of Environmental Quality.

ft bgs = feet below ground surface.

J = result is estimated.

mg/kg = milligrams per kilogram.

ND = non-detect.

NV = no value.

RBC = risk-based concentration.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the method reporting limit.

[a]Value is for generic diesel/heating oil, since generic oil-range hydrocarbons values are not available.

[b]Screening value for trivalent chromium.

References

[1]DEQ. 2023. Table: Risk-Based Concentrations for Individual Chemicals. Oregon Department of Environmental Quality, Environmental Cleanup Program. August.

[2]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil*. Table 4. Oregon Department of Environmental Quality. March.

Attachment A

Laboratory Report

MAUL FOSTER ALONGI

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

ANALYTICAL REPORT

Tuesday, June 4, 2024

Terry Jacques
Oregon GeoTech
6740 Brooklake Road NE
Salem, OR 97305

RE: A4E1502 - Soil Testing - 24072

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 A4E1502, which was received by the laboratory on 5/22/2024 at 1:07:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: cobrien@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		
Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.		
(See Cooler Receipt Form for details)		
Default Cooler	4.3	degC

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

Cameron O'Brien, Project Manager

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.

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

ANALYTICAL REPORT

Oregon GeoTech	Project: Soil Testing	
6740 Brooklake Road NE	Project Number: 24072	Report ID:
Salem, OR 97305	Project Manager: Terry Jacques	A4E1502 - 06 04 24 1225

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GP-1	A4E1502-01	Soil	05/22/24 09:00	05/22/24 13:07
GP-2	A4E1502-02	Soil	05/22/24 09:30	05/22/24 13:07
GP-3	A4E1502-03	Soil	05/22/24 09:45	05/22/24 13:07
GP-4	A4E1502-04	Soil	05/22/24 10:15	05/22/24 13:07
GP-5	A4E1502-05	Soil	05/22/24 10:30	05/22/24 13:07
GP-6	A4E1502-06	Soil	05/22/24 11:00	05/22/24 13:07
GP-7	A4E1502-07	Soil	05/22/24 11:15	05/22/24 13:07
GP-8	A4E1502-08	Soil	05/22/24 11:30	05/22/24 13:07

Apex Laboratories

Cameron O'Brien, Project Manager

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.

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

ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GP-1 (A4E1502-01)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	28.2	mg/kg dry	1	05/23/24 16:04	NWTPH-HCID	
Diesel Range Organics	ND	---	70.5	mg/kg dry	1	05/23/24 16:04	NWTPH-HCID	
Oil Range Organics	ND	---	141	mg/kg dry	1	05/23/24 16:04	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*86 %*	*Limits: 50-150 %*	*1*	*05/23/24 16:04*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*96 %*	*50-150 %*	*1*	*05/23/24 16:04*	*NWTPH-HCID*	
GP-2 (A4E1502-02)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	28.1	mg/kg dry	1	05/23/24 23:29	NWTPH-HCID	
Diesel Range Organics	**DET**	---	70.3	mg/kg dry	1	05/23/24 23:29	NWTPH-HCID	F-13
Oil Range Organics	**DET**	---	141	mg/kg dry	1	05/23/24 23:29	NWTPH-HCID	F-13
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*96 %*	*Limits: 50-150 %*	*1*	*05/23/24 23:29*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*94 %*	*50-150 %*	*1*	*05/23/24 23:29*	*NWTPH-HCID*	
GP-3 (A4E1502-03)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	25.1	mg/kg dry	1	05/24/24 00:16	NWTPH-HCID	
Diesel Range Organics	ND	---	62.8	mg/kg dry	1	05/24/24 00:16	NWTPH-HCID	
Oil Range Organics	**DET**	---	126	mg/kg dry	1	05/24/24 00:16	NWTPH-HCID	F-03
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*95 %*	*Limits: 50-150 %*	*1*	*05/24/24 00:16*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*93 %*	*50-150 %*	*1*	*05/24/24 00:16*	*NWTPH-HCID*	
GP-4 (A4E1502-04)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	27.8	mg/kg dry	1	05/23/24 21:33	NWTPH-HCID	
Diesel Range Organics	ND	---	69.5	mg/kg dry	1	05/23/24 21:33	NWTPH-HCID	
Oil Range Organics	ND	---	139	mg/kg dry	1	05/23/24 21:33	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*94 %*	*Limits: 50-150 %*	*1*	*05/23/24 21:33*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*95 %*	*50-150 %*	*1*	*05/23/24 21:33*	*NWTPH-HCID*	
GP-5 (A4E1502-05)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	27.0	mg/kg dry	1	05/23/24 16:52	NWTPH-HCID	
Diesel Range Organics	ND	---	67.5	mg/kg dry	1	05/23/24 16:52	NWTPH-HCID	
Oil Range Organics	ND	---	135	mg/kg dry	1	05/23/24 16:52	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*88 %*	*Limits: 50-150 %*	*1*	*05/23/24 16:52*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*95 %*	*50-150 %*	*1*	*05/23/24 16:52*	*NWTPH-HCID*	
GP-6 (A4E1502-06)				**Matrix: Soil**		**Batch: 24E0826**		

Apex Laboratories

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.

Cameron O'Brien, Project Manager

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

ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GP-6 (A4E1502-06)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	37.6	mg/kg dry	1	05/23/24 17:15	NWTPH-HCID	
Diesel Range Organics	ND	---	94.0	mg/kg dry	1	05/23/24 17:15	NWTPH-HCID	
Oil Range Organics	ND	---	188	mg/kg dry	1	05/23/24 17:15	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*104 %*	*Limits: 50-150 %*	*1*	*05/23/24 17:15*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*110 %*	*50-150 %*	*1*	*05/23/24 17:15*	*NWTPH-HCID*	
GP-7 (A4E1502-07)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	31.7	mg/kg dry	1	05/23/24 17:38	NWTPH-HCID	
Diesel Range Organics	ND	---	79.3	mg/kg dry	1	05/23/24 17:38	NWTPH-HCID	
Oil Range Organics	ND	---	159	mg/kg dry	1	05/23/24 17:38	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*85 %*	*Limits: 50-150 %*	*1*	*05/23/24 17:38*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*91 %*	*50-150 %*	*1*	*05/23/24 17:38*	*NWTPH-HCID*	
GP-8 (A4E1502-08)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	32.6	mg/kg dry	1	05/23/24 18:02	NWTPH-HCID	
Diesel Range Organics	ND	---	81.6	mg/kg dry	1	05/23/24 18:02	NWTPH-HCID	
Oil Range Organics	ND	---	163	mg/kg dry	1	05/23/24 18:02	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*107 %*	*Limits: 50-150 %*	*1*	*05/23/24 18:02*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*104 %*	*50-150 %*	*1*	*05/23/24 18:02*	*NWTPH-HCID*	

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Cameron O'Brien, Project Manager

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

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
GP-2 (A4E1502-02RE1)				**Matrix: Soil**		**Batch: 24E1006**		
Diesel	ND	---	132	mg/kg dry	5	05/30/24 09:39	NWTPH-Dx	
Oil	**812**	---	264	mg/kg dry	5	05/30/24 09:39	NWTPH-Dx	**Q-42**
Surrogate: o-Terphenyl (Surr)		*Recovery: 65 %*		*Limits: 50-150 %*	*5*	*05/30/24 09:39*	*NWTPH-Dx*	*S-05*
GP-3 (A4E1502-03RE1)				**Matrix: Soil**		**Batch: 24E1006**		
Diesel	ND	---	47.0	mg/kg dry	2	05/30/24 10:58	NWTPH-Dx	
Oil	**357**	---	94.1	mg/kg dry	2	05/30/24 10:58	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 93 %*		*Limits: 50-150 %*	*2*	*05/30/24 10:58*	*NWTPH-Dx*	*S-05*

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ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GP-1 (A4E1502-01)				**Matrix: Soil**				
Batch: 24E0848								
Arsenic	**1.96**	---	1.46	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
Barium	**238**	---	1.46	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
Cadmium	ND	---	0.291	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
Chromium	**24.5**	---	1.46	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
Lead	**9.66**	---	0.291	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
Mercury	ND	---	0.116	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
Selenium	ND	---	1.46	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
Silver	ND	---	0.291	mg/kg dry	10	05/23/24 18:39	EPA 6020B	
GP-2 (A4E1502-02)				**Matrix: Soil**				
Batch: 24E0848								
Arsenic	**2.30**	---	1.57	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
Barium	**167**	---	1.57	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
Cadmium	ND	---	0.315	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
Chromium	**24.7**	---	1.57	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
Lead	**10.1**	---	0.315	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
Mercury	ND	---	0.126	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
Selenium	ND	---	1.57	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
Silver	ND	---	0.315	mg/kg dry	10	05/23/24 18:45	EPA 6020B	
GP-3 (A4E1502-03)				**Matrix: Soil**				
Batch: 24E0848								
Arsenic	**1.84**	---	1.37	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
Barium	**74.1**	---	1.37	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
Cadmium	**1.54**	---	0.275	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
Chromium	**10.5**	---	1.37	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
Lead	**28.1**	---	0.275	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
Mercury	ND	---	0.110	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
Selenium	ND	---	1.37	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
Silver	ND	---	0.275	mg/kg dry	10	05/23/24 18:52	EPA 6020B	
GP-4 (A4E1502-04)				**Matrix: Soil**				
Batch: 24E0848								
Arsenic	ND	---	1.44	mg/kg dry	10	05/23/24 18:58	EPA 6020B	
Barium	**89.8**	---	1.44	mg/kg dry	10	05/23/24 18:58	EPA 6020B	

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ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GP-4 (A4E1502-04)				**Matrix: Soil**				
Cadmium	ND	---	0.289	mg/kg dry	10	05/23/24 18:58	EPA 6020B	
Chromium	**17.2**	---	1.44	mg/kg dry	10	05/23/24 18:58	EPA 6020B	
Lead	**6.18**	---	0.289	mg/kg dry	10	05/23/24 18:58	EPA 6020B	
Mercury	ND	---	0.115	mg/kg dry	10	05/23/24 18:58	EPA 6020B	
Selenium	ND	---	1.44	mg/kg dry	10	05/23/24 18:58	EPA 6020B	
Silver	ND	---	0.289	mg/kg dry	10	05/23/24 18:58	EPA 6020B	
GP-5 (A4E1502-05)				**Matrix: Soil**				
Batch: 24E0848								
Arsenic	**4.11**	---	1.38	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
Barium	**308**	---	1.38	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
Cadmium	ND	---	0.276	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
Chromium	**26.0**	---	1.38	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
Lead	**14.2**	---	0.276	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
Mercury	ND	---	0.110	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
Selenium	ND	---	1.38	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
Silver	ND	---	0.276	mg/kg dry	10	05/23/24 19:04	EPA 6020B	
GP-6 (A4E1502-06)				**Matrix: Soil**				
Batch: 24E0977								
Arsenic	**3.85**	---	1.98	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
Barium	**145**	---	1.98	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
Cadmium	**0.548**	---	0.395	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
Chromium	**22.9**	---	1.98	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
Lead	**9.68**	---	0.395	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
Mercury	ND	---	0.158	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
Selenium	**3.32**	---	1.98	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
Silver	ND	---	0.395	mg/kg dry	10	05/29/24 14:18	EPA 6020B	
GP-7 (A4E1502-07)				**Matrix: Soil**				
Batch: 24E0977								
Arsenic	**2.95**	---	1.73	mg/kg dry	10	05/29/24 14:30	EPA 6020B	
Barium	**210**	---	1.73	mg/kg dry	10	05/29/24 14:30	EPA 6020B	
Cadmium	ND	---	0.345	mg/kg dry	10	05/29/24 14:30	EPA 6020B	
Chromium	**31.9**	---	1.73	mg/kg dry	10	05/29/24 14:30	EPA 6020B	
Lead	**16.2**	---	0.345	mg/kg dry	10	05/29/24 14:30	EPA 6020B	

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ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GP-7 (A4E1502-07)				**Matrix: Soil**				
Mercury	ND	---	0.138	mg/kg dry	10	05/29/24 14:30	EPA 6020B	
Selenium	**4.02**	---	1.73	mg/kg dry	10	05/29/24 14:30	EPA 6020B	
Silver	ND	---	0.345	mg/kg dry	10	05/29/24 14:30	EPA 6020B	
GP-8 (A4E1502-08)				**Matrix: Soil**				
Batch: 24E0977								
Arsenic	**2.00**	---	1.86	mg/kg dry	10	05/29/24 14:41	EPA 6020B	
Barium	**207**	---	1.86	mg/kg dry	10	05/29/24 14:41	EPA 6020B	
Cadmium	ND	---	0.372	mg/kg dry	10	05/29/24 14:41	EPA 6020B	
Chromium	**30.0**	---	1.86	mg/kg dry	10	05/29/24 14:41	EPA 6020B	
Lead	**10.5**	---	0.372	mg/kg dry	10	05/29/24 14:41	EPA 6020B	
Mercury	ND	---	0.149	mg/kg dry	10	05/29/24 14:41	EPA 6020B	
Selenium	**3.16**	---	1.86	mg/kg dry	10	05/29/24 14:41	EPA 6020B	
Silver	ND	---	0.372	mg/kg dry	10	05/29/24 14:41	EPA 6020B	

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ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GP-1 (A4E1502-01)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.7**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
GP-2 (A4E1502-02)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**68.1**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
GP-3 (A4E1502-03)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**75.5**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
GP-4 (A4E1502-04)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.6**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
GP-5 (A4E1502-05)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**72.7**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
GP-6 (A4E1502-06)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**52.5**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
GP-7 (A4E1502-07)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**61.1**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
GP-8 (A4E1502-08)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**58.1**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	

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ANALYTICAL REPORT

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6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

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
Batch 24E0826 - EPA 3546 (Fuels)							Soil					
Blank (24E0826-BLK1)		Prepared: 05/23/24 06:29		Analyzed: 05/23/24 15:41								
NWTPH-HCID												
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	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery:*	*88 %*	*Limits:*	*50-150 %*		*Dilution:*	*1x*				
4-Bromofluorobenzene (Surr)			*89 %*		*50-150 %*			*"*				
Duplicate (24E0826-DUP1)		Prepared: 05/23/24 06:29		Analyzed: 05/23/24 16:28								
QC Source Sample: GP-1 (A4E1502-01)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	28.1	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	70.2	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	140	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)		*Recovery:*	*91 %*	*Limits:*	*50-150 %*		*Dilution:*	*1x*				
4-Bromofluorobenzene (Surr)			*95 %*		*50-150 %*			*"*				

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ANALYTICAL REPORT

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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
Batch 24E1006 - EPA 3546 (Fuels)							**Soil**					
Blank (24E1006-BLK1)		Prepared: 05/29/24 07:46 Analyzed: 05/29/24 20:03										
NWTPH-Dx												
Diesel	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 74 %*	*Limits: 50-150 %*		*Dilution: 1x*							
LCS (24E1006-BS1)		Prepared: 05/29/24 07:46 Analyzed: 05/29/24 20:24										
NWTPH-Dx												
Diesel	110	---	20.0	mg/kg wet	1	125	---	88	38 - 132%	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 71 %*	*Limits: 50-150 %*		*Dilution: 1x*							
Duplicate (24E1006-DUP3)		Prepared: 05/29/24 07:46 Analyzed: 05/30/24 10:17										
QC Source Sample: GP-2 (A4E1502-02RE1)												
NWTPH-Dx												
Diesel	ND	---	129	mg/kg dry	5	---	ND	---	---	---	30%	
Oil	**513**	---	258	mg/kg dry	5	---	812	---	---	**45**	**30%**	Q-17
Surr: o-Terphenyl (Surr)		*Recovery: 96 %*	*Limits: 50-150 %*		*Dilution: 5x*							S-05

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ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0848 - EPA 3051A							**Soil**					
Blank (24E0848-BLK1)		Prepared: 05/23/24 10:16 Analyzed: 05/23/24 16:08										
EPA 6020B												
Arsenic	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	---	0.0800	mg/kg wet	10	---	---	---	---	---	---	
Selenium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Silver	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (24E0848-BS1)		Prepared: 05/23/24 10:16 Analyzed: 05/23/24 16:14										
EPA 6020B												
Arsenic	50.5	---	1.00	mg/kg wet	10	50.0	---	101	80 - 120%	---	---	
Barium	51.2	---	1.00	mg/kg wet	10	50.0	---	102	80 - 120%	---	---	
Cadmium	51.6	---	0.200	mg/kg wet	10	50.0	---	103	80 - 120%	---	---	
Chromium	54.4	---	1.00	mg/kg wet	10	50.0	---	109	80 - 120%	---	---	
Lead	48.0	---	0.200	mg/kg wet	10	50.0	---	96	80 - 120%	---	---	
Mercury	0.983	---	0.0800	mg/kg wet	10	1.00	---	98	80 - 120%	---	---	
Selenium	25.8	---	1.00	mg/kg wet	10	25.0	---	103	80 - 120%	---	---	
Silver	26.4	---	0.200	mg/kg wet	10	25.0	---	106	80 - 120%	---	---	

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

Apex Laboratories

Cameron O'Brien, Project Manager

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

ANALYTICAL REPORT

Oregon GeoTech	Project: Soil Testing	
6740 Brooklake Road NE	Project Number: 24072	Report ID:
Salem, OR 97305	Project Manager: Terry Jacques	A4E1502 - 06 04 24 1225

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0977 - EPA 3051A							Soil					
Blank (24E0977-BLK1)		Prepared: 05/28/24 11:31 Analyzed: 05/29/24 13:56										
EPA 6020B												
Arsenic	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	---	0.0800	mg/kg wet	10	---	---	---	---	---	---	
Selenium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Silver	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (24E0977-BS1)		Prepared: 05/28/24 11:31 Analyzed: 05/29/24 14:13										
EPA 6020B												
Arsenic	54.0	---	1.00	mg/kg wet	10	50.0	---	108	80 - 120%	---	---	
Barium	55.8	---	1.00	mg/kg wet	10	50.0	---	112	80 - 120%	---	---	
Cadmium	55.0	---	0.200	mg/kg wet	10	50.0	---	110	80 - 120%	---	---	
Chromium	54.5	---	1.00	mg/kg wet	10	50.0	---	109	80 - 120%	---	---	
Lead	58.8	---	0.200	mg/kg wet	10	50.0	---	118	80 - 120%	---	---	
Mercury	1.09	---	0.0800	mg/kg wet	10	1.00	---	109	80 - 120%	---	---	
Selenium	27.0	---	1.00	mg/kg wet	10	25.0	---	108	80 - 120%	---	---	
Silver	28.9	---	0.200	mg/kg wet	10	25.0	---	116	80 - 120%	---	---	
Duplicate (24E0977-DUP1)		Prepared: 05/28/24 11:31 Analyzed: 05/29/24 14:24										
QC Source Sample: GP-6 (A4E1502-06)												
EPA 6020B												
Arsenic	**3.90**	---	2.09	mg/kg dry	10	---	3.85	---	---	1	20%	
Barium	**156**	---	2.09	mg/kg dry	10	---	145	---	---	8	20%	
Cadmium	**0.519**	---	0.419	mg/kg dry	10	---	0.548	---	---	6	20%	
Chromium	**23.1**	---	2.09	mg/kg dry	10	---	22.9	---	---	0.5	20%	
Lead	**11.0**	---	0.419	mg/kg dry	10	---	9.68	---	---	13	20%	
Mercury	ND	---	0.168	mg/kg dry	10	---	ND	---	---	---	20%	
Selenium	**3.78**	---	2.09	mg/kg dry	10	---	3.32	---	---	13	20%	
Silver	ND	---	0.419	mg/kg dry	10	---	0.239	---	---	***	20%	
Matrix Spike (24E0977-MS1)		Prepared: 05/28/24 11:31 Analyzed: 05/29/24 14:35										

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ORELAP ID: OR100062

ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0977 - EPA 3051A							**Soil**					
Matrix Spike (24E0977-MS1)		Prepared: 05/28/24 11:31		Analyzed: 05/29/24 14:35								
QC Source Sample: GP-7 (A4E1502-07)												
EPA 6020B												
Arsenic	76.8	---	1.70	mg/kg dry	10	85.1	2.95	87	75 - 125%	---	---	
Barium	287	---	1.70	mg/kg dry	10	85.1	210	91	75 - 125%	---	---	
Cadmium	78.1	---	0.340	mg/kg dry	10	85.1	0.213	91	75 - 125%	---	---	
Chromium	117	---	1.70	mg/kg dry	10	85.1	31.9	100	75 - 125%	---	---	
Lead	87.2	---	0.340	mg/kg dry	10	85.1	16.2	83	75 - 125%	---	---	
Mercury	1.66	---	0.136	mg/kg dry	10	1.70	ND	97	75 - 125%	---	---	
Selenium	46.2	---	1.70	mg/kg dry	10	42.6	4.02	99	75 - 125%	---	---	
Silver	45.1	---	0.340	mg/kg dry	10	42.6	0.245	105	75 - 125%	---	---	

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ANALYTICAL REPORT

Oregon GeoTech	Project: Soil Testing	
6740 Brooklake Road NE	Project Number: 24072	Report ID:
Salem, OR 97305	Project Manager: Terry Jacques	A4E1502 - 06 04 24 1225

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
Batch 24E0838 - Total Solids (Dry Weight) - 2022								Soil				
Duplicate (24E0838-DUP1)		Prepared: 05/23/24 08:53		Analyzed: 05/24/24 07:37								
QC Source Sample: GP-1 (A4E1502-01)												
EPA 8000D												
% Solids	**72.9**	---	1.00	%	1	---	70.7	---	---	3	10%	
Duplicate (24E0838-DUP2)		Prepared: 05/23/24 08:53		Analyzed: 05/24/24 07:37								
QC Source Sample: GP-2 (A4E1502-02)												
EPA 8000D												
% Solids	**66.0**	---	1.00	%	1	---	68.1	---	---	3	10%	
Duplicate (24E0838-DUP3)		Prepared: 05/23/24 08:53		Analyzed: 05/24/24 07:37								
QC Source Sample: GP-3 (A4E1502-03)												
EPA 8000D												
% Solids	**85.6**	---	1.00	%	1	---	75.5	---	---	**12**	**10%**	
Duplicate (24E0838-DUP4)		Prepared: 05/23/24 08:53		Analyzed: 05/24/24 07:37								
QC Source Sample: GP-4 (A4E1502-04)												
EPA 8000D												
% Solids	**71.1**	---	1.00	%	1	---	70.6	---	---	0.7	10%	
Duplicate (24E0838-DUP5)		Prepared: 05/23/24 08:53		Analyzed: 05/24/24 07:37								
QC Source Sample: GP-5 (A4E1502-05)												
EPA 8000D												
% Solids	**73.1**	---	1.00	%	1	---	72.7	---	---	0.6	10%	
Duplicate (24E0838-DUP7)		Prepared: 05/23/24 08:53		Analyzed: 05/24/24 07:37								
QC Source Sample: GP-7 (A4E1502-07)												
EPA 8000D												
% Solids	**63.4**	---	1.00	%	1	---	61.1	---	---	4	10%	

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ANALYTICAL REPORT

Oregon GeoTech	Project: Soil Testing	
6740 Brooklake Road NE	Project Number: 24072	Report ID:
Salem, OR 97305	Project Manager: Terry Jacques	A4E1502 - 06 04 24 1225

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0826							
A4E1502-01	Soil	NWTPH-HCID	05/22/24 09:00	05/23/24 06:29	10.04g/10mL	10g/10mL	1.00
A4E1502-02	Soil	NWTPH-HCID	05/22/24 09:30	05/23/24 06:29	10.44g/10mL	10g/10mL	0.96
A4E1502-03	Soil	NWTPH-HCID	05/22/24 09:45	05/23/24 06:29	10.54g/10mL	10g/10mL	0.95
A4E1502-04	Soil	NWTPH-HCID	05/22/24 10:15	05/23/24 06:29	10.19g/10mL	10g/10mL	0.98
A4E1502-05	Soil	NWTPH-HCID	05/22/24 10:30	05/23/24 06:29	10.19g/10mL	10g/10mL	0.98
A4E1502-06	Soil	NWTPH-HCID	05/22/24 11:00	05/23/24 06:29	10.14g/10mL	10g/10mL	0.99
A4E1502-07	Soil	NWTPH-HCID	05/22/24 11:15	05/23/24 06:29	10.32g/10mL	10g/10mL	0.97
A4E1502-08	Soil	NWTPH-HCID	05/22/24 11:30	05/23/24 06:29	10.54g/10mL	10g/10mL	0.95

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
Batch: 24E1006							
A4E1502-02RE1	Soil	NWTPH-Dx	05/22/24 09:30	05/29/24 07:46	11.11g/5mL	10g/5mL	0.90
A4E1502-03RE1	Soil	NWTPH-Dx	05/22/24 09:45	05/29/24 07:46	11.26g/5mL	10g/5mL	0.89

Total Metals by EPA 6020B (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0848							
A4E1502-01	Soil	EPA 6020B	05/22/24 09:00	05/23/24 10:16	0.486g/50mL	0.5g/50mL	1.03
A4E1502-02	Soil	EPA 6020B	05/22/24 09:30	05/23/24 10:16	0.466g/50mL	0.5g/50mL	1.07
A4E1502-03	Soil	EPA 6020B	05/22/24 09:45	05/23/24 10:16	0.482g/50mL	0.5g/50mL	1.04
A4E1502-04	Soil	EPA 6020B	05/22/24 10:15	05/23/24 10:16	0.491g/50mL	0.5g/50mL	1.02
A4E1502-05	Soil	EPA 6020B	05/22/24 10:30	05/23/24 10:16	0.499g/50mL	0.5g/50mL	1.00
Batch: 24E0977							
A4E1502-06	Soil	EPA 6020B	05/22/24 11:00	05/28/24 11:31	0.482g/50mL	0.5g/50mL	1.04
A4E1502-07	Soil	EPA 6020B	05/22/24 11:15	05/28/24 11:31	0.474g/50mL	0.5g/50mL	1.05
A4E1502-08	Soil	EPA 6020B	05/22/24 11:30	05/28/24 11:31	0.462g/50mL	0.5g/50mL	1.08

Percent Dry Weight

Prep: Total Solids (Dry Weight) - 2022

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

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ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight) - 2022

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0838							
A4E1502-01	Soil	EPA 8000D	05/22/24 09:00	05/23/24 08:53			NA
A4E1502-02	Soil	EPA 8000D	05/22/24 09:30	05/23/24 08:53			NA
A4E1502-03	Soil	EPA 8000D	05/22/24 09:45	05/23/24 08:53			NA
A4E1502-04	Soil	EPA 8000D	05/22/24 10:15	05/23/24 08:53			NA
A4E1502-05	Soil	EPA 8000D	05/22/24 10:30	05/23/24 08:53			NA
A4E1502-06	Soil	EPA 8000D	05/22/24 11:00	05/23/24 08:53			NA
A4E1502-07	Soil	EPA 8000D	05/22/24 11:15	05/23/24 08:53			NA
A4E1502-08	Soil	EPA 8000D	05/22/24 11:30	05/23/24 08:53			NA

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QUALIFIER DEFINITIONS

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

Apex Laboratories

F-03	The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
F-13	The chromatographic pattern does not resemble the fuel standard used for quantitation
Q-17	RPD between original and duplicate sample, or spike duplicates, is outside of established control limits.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

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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 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.

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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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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

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 provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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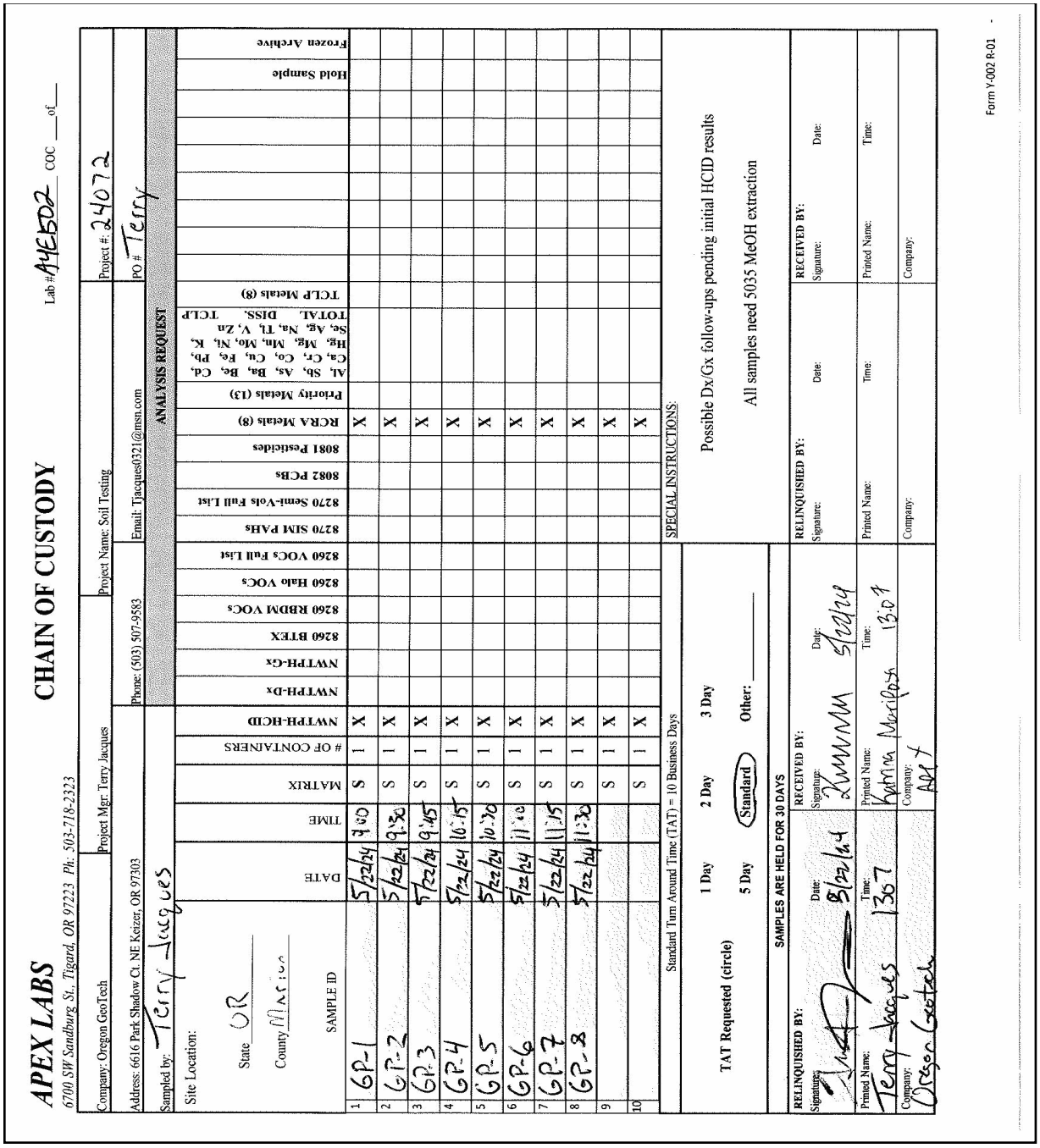

APEX LABS — CHAIN OF CUSTODY — Lab # A4E1502 — COC ___ of ___

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

Company: Oregon GeoTech | Project Mgr: Terry Jacques | Project Name: Soil Testing | Project #: 24072

Address: 6616 Park Shadow Ct. NE Keizer, OR 97303 | Phone: (503) 507-9583 | Email: Tjacques0321@msn.com | PO # Terry

Sampled by: Terry Jacques

Site Location: State OR County Marion

ANALYSIS REQUEST

	SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	Hold Sample	Frozen Archive
1	GP-1	5/22/24	9:00	S	1	X											X				
2	GP-2	5/22/24	9:30	S	1	X											X				
3	GP-3	5/22/24	9:45	S	1	X											X				
4	GP-4	5/22/24	10:15	S	1	X											X				
5	GP-5	5/22/24	10:30	S	1	X											X				
6	GP-6	5/22/24	11:00	S	1	X											X				
7	GP-7	5/22/24	11:15	S	1	X											X				
8	GP-8	5/22/24	11:30	S	1	X											X				
9				S	1	X											X				
10				S	1	X											X				

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day | 2 Day | 3 Day | 5 Day | Standard | Other: _____

SPECIAL INSTRUCTIONS:

Possible Dx/Gx follow-ups pending initial HCID results

All samples need 5035 MeOH extraction

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Date: 5/22/24 — RECEIVED BY: Signature: Date: 5/22/24

Printed Name: Terry Jacques Time: 1357 — Printed Name: Karina Mariscal Time: 13:01

Company: Oregon GeoTech — Company: APEX

RELINQUISHED BY: Signature: Date: — RECEIVED BY: Signature: Date:

Printed Name: Time: — Printed Name: Time:

Company: — Company:

Form Y-002 R-01

Apex Laboratories

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.

Cameron O'Brien, Project Manager

Apex Laboratories, LLC
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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Oregon GeoTech	Project: **Soil Testing**	
6740 Brooklake Road NE	Project Number: **24072**	**Report ID:**
Salem, OR 97305	Project Manager: **Terry Jacques**	**A4E1502 - 06 04 24 1225**

APEX LABS COOLER RECEIPT FORM

Client: Oregon GeoTech Element WO#: A4E1502

Project/Project #: Soil Testing / 24072

Delivery Info:

Date/time received: 5/22/24 @ 13:09 By: KAM

Delivered by: Apex__Client X ESS__FedEx__UPS__Radio__Morgan__SDS__Evergreen__Other__ (KAM 5/22)

From USDA Regulated Origin? Yes _____ No X

Cooler Inspection Date/time inspected: 5/22/24 @ 13:09 By: KAM

Chain of Custody included? Yes X No _____

Signed/dated by client? Yes X No _____

Contains USDA Reg. Soils? Yes _____ No X Unsure (email RegSoils) _____

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	4.3						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	N						
Ice type: (Gel/Real/Other)	Gel						
Condition (In/Out):	In						

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: 5/22/24 @ 16:52 By: KAM

All samples intact? Yes X No ___ Comments: _____

Bottle labels/COCs agree? Yes X No ___ Comments: _____

COC/container discrepancies form initiated? Yes ___ No X

Containers/volumes received appropriate for analysis? Yes X No ___ Comments: _____

Do VOA vials have visible headspace? Yes ___ No ___ NA X

Comments _____

Water samples: pH checked: Yes___No___NA X pH appropriate? Yes___No___NA X pH ID:_____

Comments: _____

Labeled by: KAM Witness: [signature] Cooler Inspected by: KAM

Form Y-003 R-02

Apex Laboratories

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.

Cameron O'Brien, Project Manager

Attachment B

Data Validation Memorandum

MAUL
FOSTER
ALONGI

Data Validation Memorandum

Project No. M3084.01.001 | December 17, 2024 | Don Duddles

Maul Foster & Alongi, Inc. (MFA), conducted an independent Stage 2A review of the quality of analytical results for soil samples collected on May 22, 2024, at the property located at 3650–3750 Mainline Drive NE in Salem, Oregon.

Apex Laboratories, LLC (Apex), performed the analyses. MFA reviewed Apex report number A4E1502. The analyses performed and the samples analyzed are listed in the following tables. Not all analyses were performed on all samples.

Analysis	Reference
Diesel- and oil-range hydrocarbons	NWTPH-Dx
Hydrocarbon identification	NWTPH-HCID
Percent dry weight	EPA 8000D
Total metals	EPA 6020B

Notes
EPA = U.S. Environmental Protection Agency.
HCID = hydrocarbon identification.
NWTPH = Northwest Total Petroleum Hydrocarbons.

Samples Analyzed	
Report A4E1502	
GP-1	GP-5
GP-2	GP-6
GP-3	GP-7
GP-4	GP-8

Data Validation Procedures

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020a, 2020b) and appropriate laboratory- and method-specific guidelines (Apex 2023, EPA 1986).

Data validation procedures were modified, as appropriate, to accommodate quality control requirements for methods that EPA data review guidelines do not specifically address (e.g., Northwest Total Petroleum Hydrocarbons [NWTPH]-Hydrocarbon Identification [HCID]).

EPA Method 8000D percent solids results reported by the laboratory for dry-weight correction were reviewed for completeness but were not included in Stage 2A data validation.

Based on the data quality assurance/quality control review described herein, the data, with the appropriate final data qualifiers assigned, are considered acceptable for their intended use. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, and data qualifiers assigned by the reviewer during validation.

Final data qualifiers:

- J = result is estimated.
- U = result is non-detect at the method reporting limit (MRL).

General Qualifications

Total Petroleum Hydrocarbons

Method NWTPH-HCID is a qualitative analysis. Hydrocarbon identification results in report A4E1502 are reported by Apex as either detect or non-detect. Quantitative NWTPH-Dx follow-up analyses for detected results are included in the report.

In report A4E1502, all detected NWTPH-HCID diesel and oil results for samples GP-2 and GP-3 were flagged by the laboratory due to chromatographic patterns that did not resemble the fuel standard used for quantitation or due to individual analyte peaks in the quantitation range that are not representative of the reported fuel pattern. NWTPH-HCID is a qualitative analysis; thus, qualifications by the reviewer were not necessary.

Sample Conditions

Sample Custody

Sample custody was appropriately documented on the chain-of-custody form accompanying the report.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

Reporting Limits

The laboratory evaluated results to MRLs. Samples that required dilutions because of high analyte concentrations, matrix interferences, and/or dilutions necessary for preparation and/or analysis were reported with raised MRLs.

Blank Results

Method Blanks

Laboratory method blanks are used to evaluate whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies, in accordance with laboratory- and method-specific requirements.

All laboratory method blank results were non-detect to MRLs.

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate the adequacy of the field equipment decontamination process when decontaminated sampling equipment is used to collect samples.

No equipment rinsate blanks were submitted for analysis. The reviewer was unable to evaluate field samples for possible contamination from sampling equipment.

Laboratory Control Sample and Laboratory Control Sample Duplicate Results

Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) results are used to evaluate laboratory precision and accuracy. No LCSD were reported. All LCS were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

All LCS results were within acceptance limits for percent recovery.

Laboratory Duplicate Results

Laboratory duplicate results are used to evaluate laboratory precision and sample homogeneity. Apex did not report non-project-related laboratory duplicates for EPA Method 6020B batch 24E0848; batch quality was accepted based on the LCS results. All remaining laboratory duplicate samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

Laboratory duplicate results greater than five times the MRL were evaluated using laboratory relative percent difference (RPD) control limits. A secondary criterion was used when laboratory duplicate results were non-detect or less than five times the MRL. Results meet the secondary criterion if the absolute difference of the laboratory duplicate sample result and the parent sample result, or the MRL for non-detects, is equal to or less than the MRL value of the parent sample.

According to report A4E1502, the NWTPH-Dx batch 24E1006 laboratory duplicate prepared with sample GP-2 had an oil-range hydrocarbons RPD of 45 percent. Results were within five times the MRL and did not pass secondary criterion. The reviewer qualified the associated sample result, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
A4E1502	GP-2	Oil-range hydrocarbons	812	812 J

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.

All remaining laboratory duplicate results met the acceptance criteria.

Matrix Spike and Matrix Spike Duplicate Results

Matrix spike (MS) and matrix spike duplicate (MSD) results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and target analyte recovery. No MSD samples were reported. All MS samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

All MS results were within acceptance limits for percent recovery.

Surrogate Results

Surrogate results are used to evaluate laboratory performance of target organic compounds for individual samples.

All surrogate results were within percent recovery acceptance limits.

Field Duplicate Results

Field duplicate results are used to evaluate field precision and sample homogeneity. No field duplicate samples were submitted for analysis.

Data Package

The data package was reviewed for transcription errors, omissions, and anomalies.

The reviewer confirmed that Apex performed NWTPH-Dx follow-up analyses on samples GP-2 and GP-3 based on NWTPH-HCID detected results.

No additional issues were found.

References

Apex. 2023. *Quality Systems Manual.* Rev. 11. Apex Laboratories, LLC: Tigard, OR. June 20.

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* EPA publication SW-846. 3rd ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), VI phase III (2019), VII phase I (2019), and VII phase II (2020).

EPA. 2020a. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* EPA 542-R-20-006. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

EPA. 2020b. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA 540-R-20-005. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.