Limited Scope Phase II Environmental Site Assessment Oregon Museum of Science and Industry SE Caruthers Parcel

Portland, Oregon

November 25, 2024

Prepared for
Oregon Museum of Science and Industry
1945 SE Water Avenue
Portland, OR 97214

Prepared by

16520 SW Upper Boones Ferry Road, Suite 100
Tigard, OR 97224
(503) 641-3478 | www.gri.com

I EXECUTIVE SUMMARY

GRI, as a contractor to the Oregon Museum of Science and Industry (OMSI), conducted a *Limited Scope Phase II Environmental Site Assessment* (ESA) at the SE Caruthers Parcel (no situs address), Portland, Oregon, in conformance with ASTM International E1903-19. The subject property, tax lot number 1S1E03DD-00203, is approximately 0.2 acres. The site is currently structurally undeveloped.

A Phase I ESA completed previously by GRI described environmental and regulatory issues at and near the site, which was part of an industrial sawmill complex from the late 19th through mid-20th centuries. Based on the results of the Phase I ESA and upon discussion with OMSI personnel, a *Limited Scope Phase II ESA* was initiated to evaluate the potential for soil impacts from past industrial land use activities at the subject property. The following summarizes our findings and conclusions from the environmental sampling program conducted at the site. We recommend you read this report in its entirety.

- GRI collected two shallow composite soil samples from two hand-auger explorations at the subject property at depths of 10 inches and 18 inches. Both samples were submitted to the analytical laboratory for chemical analysis.

- Groundwater was not encountered during site exploration activities.

- Low levels of arsenic, barium, chromium, and lead were detected at concentrations less than natural background levels for the Portland Basin. Toluene was detected at a concentration less than the clean fill screening level (CFSL) and risk-based concentration (RBC). No other constituents were detected above the laboratory quantitation limits.

- No soil samples analyzed for this ESA exceeded the Oregon Department of Environmental Quality (DEQ) CFSL or RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario for the analyzed constituents.

- The material sampled and evaluated for this ESA generally appears to meet clean fill standards. The site explorations were confined to the upper 10 inches to 18 inches in the upper portion of the site, away from the Willamette River.

- Future site redevelopment goals will likely require additional soil and sediment sampling to more adequately define the lateral and vertical extent of possible residual contamination at the site to identify regulatory requirements, evaluate soil handling and disposal options, and determine appropriate safeguards for human

health and safety. DEQ coordination may be required for redevelopment activities based on nearby active regulatory sites.

- Site access for machine-drilled borings will be challenging based on the steep slope from the upland area down to the Willamette River. There may be obstacles such as rip-rap boulders or other obstructions limiting site access; dense vegetation cover prohibited a direct evaluation of the ground surface at most of the site. Sampling below the ordinary high water mark elevation adjacent to the Willamette River will require multi-agency permitting and coordination.

- Groundwater at the site, which is a former industrial facility with numerous industrial and regulatory sites nearby, is likely not suitable for beneficial use. Groundwater sampling and analysis may be required as part of future site redevelopment activities to inform handling and disposal options, depending on future site dewatering needs during construction.

- Unanticipated contaminated soil pockets could be encountered during project site redevelopment. Based on future site redevelopment goals, a Contaminated Media Management Plan may be warranted to establish procedures that would be followed in the event that unanticipated contaminated soil and/or groundwater are discovered during construction.

- Based on past land use and our knowledge of other sites in the area, wood waste capable of generating potentially harmful levels of soil gas may underlie portions of the site. Wood waste, if present, is likely at a depth greater than the maximum depth explored for this ESA. Future site redevelopment should include a project-specific soil vapor building intrusion evaluation. Structural development plans at the site should be evaluated for potential methane gas intrusion. Structural development may require mitigation measures such as vapor barrier(s), soil gas monitoring, venting systems, or other mitigation efforts to reduce accumulation of methane gas to less than hazardous levels.

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FIGURES

Figure 1: Vicinity Map

Figure 2: Site Plan

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Appendix A: Analytical Laboratory Report: Apex Laboratory

Appendix B: Geoprofessional Business Association Guidance Document

1 INTRODUCTION

As requested, GRI conducted a Limited Scope Phase II Environmental Site Assessment (ESA) at the subject property, which includes one parcel totaling approximately 0.20 acres, further identified as tax lot number 1S1E03DD-00203, in Portland, Multnomah County, Oregon (Vicinity Map, Figure 1).

A Phase I ESA completed previously by GRI detailed environmental and regulatory issues at and near the site, including identifying the historical use of the site as part of the Inman-Poulsen Lumber Company (IPLC) from the late 1800s to the mid-1900s (GRI, 2024). Based on the initial Phase I ESA results, GRI's experience in the area, and discussions with Oregon Museum of Science and Industry (OMSI) personnel, a Limited Scope Phase II ESA was initiated to evaluate the potential for near-surface soil impacts from past industrial land use activities at and near the subject property. The following summarizes our findings and conclusions from the environmental sampling program conducted at the site.

1.1 Purpose of Assessment

Based on discussions with OMSI personnel about future potential redevelopment options, a Limited Scope Phase II ESA was recommended to evaluate the potential implications of past industrial land use activities at the subject property. Under certain conditions, chemicals and fuels can persist in soil for many years and constitute an exposure hazard, depending on the future land use of the subject property. In addition, the decomposition of subsurface organic material deposited by previous land use can result in the generation of harmful soil gas, which can migrate through site soils and potentially accumulate in structures, resulting in potentially dangerous conditions (Oregon Department of Environmental Quality, 2010). Soils that contain elevated levels of heavy metals, industrial chemicals such as polychlorinated biphenyls (PCBs), and residual fuel and petroleum byproducts exceeding Oregon Department of Environmental Quality (DEQ) risk-based concentrations (RBCs) may need to be capped or removed to prevent human exposure. Impacted soils that exceed DEQ clean fill screening levels (CFSLs) may require special handling and potential off-site disposal upon site redevelopment.

The purpose of this Limited Scope Phase II ESA is to assess potential residual impacts at the site from past industrial practices, provide an initial evaluation of limited areas of near-surface soil for handling and disposal purposes by comparing soil sample laboratory analytical values to DEQ CFSLs, and evaluate limited areas of the site soil with respect to applicable DEQ RBCs for potential future site users. This Phase II ESA report includes our findings, conclusions, and recommendations for potential additional site assessment and characterization work.

This ESA is limited in scope and is not intended to provide comprehensive site characterization or detailed mitigation options.

1.2 Terms and Conditions

This Limited Scope Phase II ESA was conducted in general accordance with ASTM International (ASTM) E1903-19 (*Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*) to evaluate known releases or likely release areas and/or assess the presence or likely presence of hazardous substances in selected areas of the project.

This report is based on our preliminary understanding of site environmental conditions, our experience with similar projects, and a review of the information compiled during the Phase I ESA.

1.3 Limitations

This report documents work that was performed in accordance with the generally accepted professional standards at the time and location in which the services were provided. The scope of work was limited to the specific project, location, and activities described within this report. In the performance of an assessment of this type, specific information is obtained at specific locations at specific times. Judgments leading to conclusions are generally made with an incomplete knowledge of the subsurface and historical conditions applicable to the project area. A more extensive assessment, including additional historical review, site exploration, soil and groundwater sampling, and chemical analyses, may be used to supplement the information presented by this assessment. Our assessment of the property may also change as new data become available during additional site exploration 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 this report. This report may be used only by the project team (hereinafter called the "User") within a reasonable time from its issuance. Land use, on- and off-site conditions, and other factors may change over time, and additional work may be required with the passage of time.

Any party other than the User who wishes to use this report shall notify GRI in writing. Based on the intended use of the report, GRI may require additional work to be performed and an updated report to be issued. Non-compliance with any of these requirements will release GRI from any liability resulting from the use of this report by any unauthorized party.

By virtue of contract conditions, GRI performed certain services for this project in general accordance with ASTM E1903-19. Because such standards are, of necessity, based on a wide array of significant assumptions, GRI exercised professional judgment to

accommodate the unique site, project, and client involved. Any questions in this respect should be addressed to GRI.

The findings and conclusions presented in this report are based on our interpretation of the information obtained through the assessment procedures described in this report. No other warranty or representation, either expressed or implied, is included or intended in this report.

2 SITE DESCRIPTION AND PHYSICAL SETTING

2.1 Site Description

The subject property is located in Township 1S, Range 1E, Section 3, and includes one tax lot (1S1E03DD-00203) totaling approximately 0.20 acres. The paved riverside Eastbank Esplanade multi-use pathway is located adjacent to the eastern portion of the subject property and the Willamette River is adjacent to the west. The majority of the parcel includes a densely vegetated, moderately to steeply sloping riverbank that descends to the Willamette River.

The subject property is currently zoned Central Employment (EX). The surrounding neighborhood is primarily industrial and commercial.

2.2 Physical Setting, Site Geology, and Previous Site Geotechnical Investigation

According to a review of the U.S. Geological Survey (2020) topographic map of the Portland Quadrangle, Oregon, and Google Earth, the Subject Property slopes to the west toward the Willamette River and ranges in elevation from about 40 feet at the edge of the Eastbank Esplanade to 15 feet at the Willamette River (North American Vertical Datum of 1988).

Published geologic mapping indicates the site is mapped as artificial fill, with adjacent areas mapped as fine- to coarse-grained flood deposits (clay, silt, sand, and gravel) associated with the "Missoula flood" glacial lake outburst flood events of the late Pleistocene (Wells et al., 2020). GRI's previous experience in the vicinity of the project site aligns with this understanding of the general geologic conditions.

2.3 Land Use and Regulatory History

The subject property, which was originally part of the eastern portion of the Willamette River, was filled in over the late 19th and early- to mid-20th centuries during riverfront "reclamation" activities and was part of the IPLC industrial sawmill facility. The parcel is structurally undeveloped. Along the western portion of the subject property is a paved multi-use pathway, beyond which is a sloped and heavily vegetated riverbank area that leads to the Willamette River.

The available regulatory information indicates the Subject Property is adjacent to the southern portion of the DEQ Environmental Cleanup Site Information (ECSI) Site 0151: PGE-Station L. The available information indicates that the primary focus of ECSI Site 0151 was residual PCB contamination at the current OMSI site and adjacent in-water sediments.

Several additional regulatory sites are in the vicinity of the subject property. These include leaking underground storage tank and ECSI sites, as well as documented spills into and near the Willamette River. Additional information regarding nearby regulatory sites is presented in GRI's Phase I ESA (GRI, 2024).

3 ENVIRONMENTAL SAMPLING

As a preliminary effort to evaluate shallow soil at the subject property for residual contamination resulting from past site and nearby industrial activities, a two shallow hand-augered borings were advanced at the locations shown on the Site Plan (Figure 2). Soil samples were collected from the borings and transported to Apex Laboratory in Tigard, Oregon, for analysis. Laboratory sample results were subsequently compared to applicable regulatory concentration thresholds, including the DEQ CFSL and RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario.

3.1 Sampling Methodology

Prior to conducting the subsurface explorations, potential exploration locations were marked in the field and assessed for possible conflicts with underground utilities. The Oregon Utility Notification Center was notified prior to drilling. A private utility locating service was also used to enhance the publicly identified utility locations.

On April 17, 2024, GRI obtained soil samples from two hand-augered borings (HA-1 and HA-2) advanced at the locations shown on Figure 2. Boring HA-1 extended to a depth of 10 inches and boring HA-2 extended to a depth of 18 inches. The soil material for laboratory analysis was composited from the ground surface to the bottom of the boring. Upon completion, the borings were backfilled with the cuttings not retained for laboratory analysis.

An experienced environmental representative from GRI recorded soil descriptions for each exploration. The samples were field scanned for the presence of volatile organic compounds using a portable photo-ionization detector (PID) and screened for the presence of chemical odor, staining, or sheen. Non-disposable equipment was washed and rinsed between sample locations, while fresh disposable equipment was used at each sample location. Significant amounts of surface or subsurface litter were not observed at the sample locations. Subsurface material descriptions and field PID readings are included in Table 3-1, below.

Table 3-1: SUMMARY OF SUBSURFACE MATERIALS

Exploration ID	Sample ID	Sample Depth, feet	PID, ppm	Material Description
HA-1	HA-1	0 – 0.9	0.0	Sandy SILT, trace subangular to angular gravel, brown, medium stiff, moist, contains organics, no odor, no sheen (FILL)
HA-2	HA-2	0 – 1.5	10	**0-1.0'** Sandy SILT, brown, moist, loose, contains leaf litter and roots (FILL) **1.0-1.5'** SILT, some sand and subangular to angular gravel, brown, moist, medium stiff, no odor, no sheen (FILL)

Abbreviations: ID = identification; PID = photo-ionization detector; ppm = parts per million

Clean, laboratory-supplied sample containers were filled with soil and sealed with airtight, Teflon-lined caps. Sample containers were labeled, recorded on a chain-of-custody form, placed in a cooler with ice, and later transported to Apex Laboratories in Tigard, Oregon, for chemical analysis. Summary tables of analytical results are provided in Section 4.1, below. Laboratory analytical results are included in Appendix A.

3.2 Laboratory Analytical Methods

Soil samples were analyzed for northwest total petroleum hydrocarbons (NWTPH)-diesel and -oil; PCBs by Environmental Protection Agency (EPA) method 8082A; polycyclic aromatic hydrocarbons (PAHs) using EPA method 8270E SIM; and arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver by EPA method 6020B. The soil sample from boring HA-2 was also analyzed for NWTPH-Gasoline and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8260D.

4 ANALYTICAL RESULTS

4.1 Soil Sample Analytical Results

Samples were field screened for obvious signs of contamination using visual and olfactory evaluation methods. No indications of residual contamination such as staining, sheen, or odor were noted in the borings. The material from both borings was screened using a PID. Sample material from HA-1 showed a PID reading of 0.0 parts per million (ppm), while sample material from HA-2 showed a 10 ppm PID reading. The explorations encountered fill material typically comprising silt to sandy silt with trace to some angular gravel; the material was interpreted as fill. General descriptions of the materials encountered are provided in Table 3-1.

No PCBs, PAHs, diesel, or oil were detected above laboratory detection limits in the sample. Toluene was detected at 0.0646 milligrams per kilogram (mg/kg) in sample HA-2; no other BTEX constituents were detected above laboratory detection limits. Arsenic, barium,

chromium, and lead were present in HA-1 and HA-2 at levels consistent with published background concentrations for the Portland Basin (DEQ, 2013); no other metals were detected above the respective laboratory method detection limits. No sample analytical results exceeded the DEQ CFSL or RBC for the excavation worker – soil ingestion, dermal contact, and inhalation exposure pathway scenario.

A copy of the Apex Analytical Laboratory report and corresponding chain-of-custody documentation are included in Appendix A. Summary tables of the analytical results are presented below.

Table 4-1: PETROLEUM DETECTED IN SOIL

Analyte	HA-1, mg/kg	HA-2, mg/kg	CFSL, mg/kg	RBC,[(a)] mg/kg
Diesel	ND	ND	1,100	>Max
Oil	ND	ND	1,100	>Max
Gasoline	NA	ND	31	>Max

Abbreviations: mg/kg = milligrams per kilogram; CFSL = clean fill screening level; RBC = risk-based concentration; ND = not detected; >Max = The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Therefore, this substance is deemed not to pose risks in this scenario; NA = not analyzed

Note:

[(a)]RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario

Table 4-2: PCBs DETECTED IN SOIL

Analyte	HA-1, mg/kg	HA-2, mg/kg	CFSL, mg/kg	RBC,[(a)] mg/kg
Aroclor 1016	ND	ND	1.1	NE
Aroclor 1221	ND	ND	0.0048	NE
Aroclor 1232	ND	ND	0.0048	NE
Aroclor 1242	ND	ND	0.041	NE
Aroclor 1248	ND	ND	0.0073	NE
Aroclor 1254	ND	ND	0.041	NE
Aroclor 1260	ND	ND	0.24	NE

Abbreviations: mg/kg = milligrams per kilogram; CFSL = clean fill screening level; RBC = risk-based concentration; ND = not detected; NE = not established

Note:

[(a)]RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario

Table 4-3: PAHs DETECTED IN SOIL

Analyte	HA 1, mg/kg	HA-2, mg/kg	CFSL, mg/kg	RBC,[(a)] mg/kg
Acenaphthene	ND	ND	0.25	590,000
Acenaphthylene	ND	ND	120	NE
Anthracene	ND	ND	6.8	>Max
Benz(a)anthracene	ND	ND	0.73	4,800
Benzo(a)pyrene	ND	ND	0.11	490
Benzo(k)fluoranthene	ND	ND	11	49,000
Benzo(g,h,i)perylene	ND	ND	25	NE
Chrysene	ND	ND	3.1	490,000
Dibenz(a,h)anthracene	ND	ND	0.11	490
Fluoranthene	ND	ND	10	280,000
Fluorene	ND	ND	3.7	390,000
Indeno(1,2,3-cd)pyrene	ND	ND	1.1	4,900
1-Methylnaphthalene	ND	ND	0.36	NE
2-Methylnaphthalene	ND	ND	11	NE
Naphthalene	ND	ND	0.077	16,000
Phenanthrene	ND	ND	5.5	NE
Pyrene	ND	ND	10	210,000
Dibenzofuran	ND	ND	0.002	NE

Abbreviations: mg/kg = milligrams per kilogram; CFSL = clean fill screening level; RBC = risk-based concentration; >Max = The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Therefore, this substance is deemed not to pose risks in this scenario; ND = not detected; NE = not established

Note:

[(a)]RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario

Table 4-4: METALS DETECTED IN SOIL

Analyte	HA-1, mg/kg	HA-2, mg/kg	CFSL, mg/kg	RBC,[(a)] mg/kg
Arsenic	**3.34**	**2.33**	8.8	420
Barium	**172**	**258** (Q-42)	790	>Max
Cadmium	ND	ND	0.63	9,700
Chromium	**13.2**	**7.92**	76	1,400
Lead	**14.1**	**13.2** (Q-42)	28	800
Mercury	ND	ND	0.23	2,900
Selenium	ND	ND	0.71	NE
Silver	ND	ND	0.82	49,000

Abbreviations: mg/kg = milligrams per kilogram; CFSL = clean fill screening level; RBC = risk-based concentration; >Max = The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Therefore, this substance is deemed not to pose risks in this scenario; ND = not detected; Q-42 = Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits; NE = not established

Notes:

[(a)]RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario

Bold: Concentration detected

Table 4-5: BTEX DETECTED IN SOIL

Analyte	HA-2, mg/kg	CFSL, mg/kg	RBC,[1] mg/kg
Benzene	ND	0.023	11,000
Ethylbenzene	ND	0.22	49,000
Toluene	**0.0646**	23	770,000
Xylenes	ND	1.4	560,000

Abbreviations: mg/kg = milligrams per kilogram; CFSL = clean fill screening level; RBC = risk-based concentration; ND = not detected

Notes:

[(a)]RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario

Bold: Concentration detected

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

GRI conducted a Limited Scope Phase II ESA at the subject property, which includes one parcel totaling approximately 0.20 acres, further identified as tax lot number 1S1E03DD-00203, in Portland, Multnomah County, Oregon, in substantial conformance with ASTM E1903-19. A summary of the findings is provided below:

- GRI collected two shallow composite soil samples from two hand-augered borings at the subject property at depths of 10 inches and 18 inches. Both samples were submitted to the analytical laboratory for chemical analysis.
- Groundwater was not encountered during site exploration activities.
- Low levels of arsenic, barium, chromium, and lead were detected at concentrations less than natural background levels for the Portland Basin. Toluene was detected at a concentration less than the CFSL and RBC. No other constituents were detected above the laboratory quantitation limits.
- No soil samples analyzed for this ESA exceeded the DEQ CFSL or RBC for the excavation worker – soil ingestion, inhalation, and dermal contact exposure pathway scenario for the analyzed constituents.

5.2 Recommendations

Based on the findings of this investigation, GRI recommends the following:

- The material samples evaluated for this ESA generally appear to meet clean fill standards. The site explorations were confined to the upper 10 inches to 18 inches in the upper/upland portion of the site, away from the Willamette River.
- Future site redevelopment goals will likely require additional soil and sediment sampling to more adequately define the lateral and vertical extent of possible residual contamination at the site to identify regulatory requirements, evaluate soil handling and disposal options, and determine appropriate safeguards for human health and safety. DEQ coordination may be required for redevelopment activities based on nearby active regulatory sites.
- Site access for machine-drilled borings will be challenging based on the steep slope from the upland area down to the Willamette River. There may be obstacles such as rip-rap boulders or other obstructions limiting site access; dense vegetation cover prohibited a direct evaluation of the ground surface at most of the site. Sampling below the ordinary high water mark elevation adjacent to the Willamette River will require multi-agency permitting and coordination.

- Groundwater at the site, which is a former industrial facility with numerous industrial and regulatory sites nearby, is likely not suitable for beneficial use. Groundwater sampling and analysis will likely be required as part of future site redevelopment activities to inform handling and disposal options, depending on future site dewatering needs during construction.

- Unanticipated contaminated soil pockets could be encountered during project site redevelopment. Based on future site redevelopment goals, a Contaminated Media Management Plan may be warranted to establish procedures that would be followed in the event that unanticipated contaminated soil and/or groundwater are discovered during construction.

- Based on past land use and our knowledge of other sites in the area, wood waste capable of generating potentially harmful levels of soil gas may underlie portions of the site. Wood waste, if present, is likely at a depth greater than the maximum depth explored for this ESA. Future site redevelopment should include a project-specific soil vapor building intrusion evaluation. Structural development plans at the site should be evaluated for potential methane gas intrusion. Structural development may require mitigation measures such as vapor barrier(s), soil gas monitoring, venting systems, or other mitigation efforts to reduce accumulation of methane gas to less than hazardous levels.

We have included as Appendix B the Geoprofessional Business Association guidance document "Important Information about This Geoenvironmental Report" to assist you and others in understanding the use and limitations of this report. We recommend you read this document.

We appreciate the opportunity to be of service to you. Please contact the undersigned if you have any questions regarding this report or require further assistance.

Submitted for GRI,

RENEWS: 02/2025

George A. Freitag, CEG
Principal

Gregory D. Martin, CEG
Senior Geologist

This document has been submitted electronically.

6 REFERENCES

Oregon Department of Environmental Quality (DEQ), 2010, Guidance for assessing and remediating vapor intrusion in buildings.

DEQ, 2013, Development of Oregon background metals concentrations in soil, Technical Report.

GRI, 2024, Phase I Environmental Site Assessment, OMSI SE Caruthers Parcel, dated July 24, 2024.

U.S. Geological Survey, 2020, Portland Quadrangle, Oregon-Washington 7.5-Minute Topographic Map, 1:24,000 scale.

Wells, R.E, Haugerud, R.A., Niem, A.R., Niem, W.A., Ma, L., Evarts, R.C., O'Connor, J.E., Madin, I.P., Sherrod, D.R., Beeson, M.H., et al., 2020, Geologic map of the greater Portland metropolitan area and surrounding region, Oregon and Washington: U.S. Geological Survey, Scientific Investigations Map 3443.

LEGEND:

SE CARUTHERS PARCEL

N

0 600 1,200

1 INCH = 600 FEET

GRI

OMSI
SE CARUTHERS PARCEL

VICINITY MAP

NOV. 2024 JOB NO. 6909-C FIG. 1

LEGEND:

SE CARUTHERS PARCEL

N

0 100 200

1 INCH = 100 FEET

GRI

OMSI
SE CARUTHERS PARCEL

SITE PLAN

NOV. 2024 JOB NO. 6909-C FIG. 2

APPENDIX A

Analytical Laboratory Report: Apex Laboratory

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

ANALYTICAL REPORT

Tuesday, July 2, 2024

Greg Martin
GRI
16520 SW Upper Boones Ferry Rd, Ste 100
Tigard, OR 97224

RE: A4D1379 - 6909-C - 6909-C

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 A4D1379, which was received by the laboratory on 4/18/2024 at 2:31:00PM.

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.

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 1.3 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

Darwin Thomas, Business Development Director

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

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HA-1	A4D1379-01	Soil	04/17/24 10:47	04/18/24 14:31
HA-2	A4D1379-02	Soil	04/17/24 10:19	04/18/24 14:31

Apex Laboratories

Darwin Thomas, Business Development Director

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

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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
HA-1 (A4D1379-01)				**Matrix: Soil**		**Batch: 24D0773**		
Diesel	ND	---	22.5	mg/kg dry	1	04/22/24 23:16	NWTPH-Dx	
Oil	ND	---	45.1	mg/kg dry	1	04/22/24 23:16	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 85 %*		*Limits: 50-150 %*	*1*	*04/22/24 23:16*	*NWTPH-Dx*	
HA-2 (A4D1379-02)				**Matrix: Soil**		**Batch: 24D0773**		
Diesel	ND	---	22.1	mg/kg dry	1	04/22/24 23:39	NWTPH-Dx	
Oil	ND	---	44.2	mg/kg dry	1	04/22/24 23:39	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 96 %*		*Limits: 50-150 %*	*1*	*04/22/24 23:39*	*NWTPH-Dx*	

Apex Laboratories

Darwin Thomas, Business Development Director

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

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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
HA-2 (A4D1379-02)				**Matrix: Soil**		**Batch: 24D0954**		
Gasoline Range Organics	ND	---	5.48	mg/kg dry	50	04/25/24 13:32	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		*Recovery:*	*104 %*	*Limits:* *50-150 %*	*1*	*04/25/24 13:32*	*NWTPH-Gx (MS)*	
1,4-Difluorobenzene (Sur)			*100 %*	*50-150 %*	*1*	*04/25/24 13:32*	*NWTPH-Gx (MS)*	

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16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
HA-2 (A4D1379-02)				**Matrix: Soil**		**Batch: 24D0954**		
Benzene	ND	---	0.0110	mg/kg dry	50	04/25/24 13:32	5035A/8260D	
Toluene	**0.0646**	---	0.0548	mg/kg dry	50	04/25/24 13:32	5035A/8260D	
Ethylbenzene	ND	---	0.0274	mg/kg dry	50	04/25/24 13:32	5035A/8260D	
Xylenes, total	ND	---	0.0821	mg/kg dry	50	04/25/24 13:32	5035A/8260D	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*100 %*	*Limits: 80-120 %*	*1*	*04/25/24 13:32*	*5035A/8260D*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*04/25/24 13:32*	*5035A/8260D*	
4-Bromofluorobenzene (Surr)			*101 %*	*79-120 %*	*1*	*04/25/24 13:32*	*5035A/8260D*	

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ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
HA-1 (A4D1379-01)				**Matrix: Soil**		**Batch: 24D0823**		**C-07**
Aroclor 1016	ND	---	0.0114	mg/kg dry	1	04/23/24 16:35	EPA 8082A	
Aroclor 1221	ND	---	0.0114	mg/kg dry	1	04/23/24 16:35	EPA 8082A	
Aroclor 1232	ND	---	0.0114	mg/kg dry	1	04/23/24 16:35	EPA 8082A	
Aroclor 1242	ND	---	0.0114	mg/kg dry	1	04/23/24 16:35	EPA 8082A	
Aroclor 1248	ND	---	0.0114	mg/kg dry	1	04/23/24 16:35	EPA 8082A	
Aroclor 1254	ND	---	0.0114	mg/kg dry	1	04/23/24 16:35	EPA 8082A	
Aroclor 1260	ND	---	0.0114	mg/kg dry	1	04/23/24 16:35	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 87 %*		*Limits: 60-125 %*	*1*	*04/23/24 16:35*	*EPA 8082A*	
HA-2 (A4D1379-02)				**Matrix: Soil**		**Batch: 24D0823**		**C-07**
Aroclor 1016	ND	---	0.0111	mg/kg dry	1	04/23/24 17:11	EPA 8082A	
Aroclor 1221	ND	---	0.0111	mg/kg dry	1	04/23/24 17:11	EPA 8082A	
Aroclor 1232	ND	---	0.0111	mg/kg dry	1	04/23/24 17:11	EPA 8082A	
Aroclor 1242	ND	---	0.0111	mg/kg dry	1	04/23/24 17:11	EPA 8082A	
Aroclor 1248	ND	---	0.0111	mg/kg dry	1	04/23/24 17:11	EPA 8082A	
Aroclor 1254	ND	---	0.0111	mg/kg dry	1	04/23/24 17:11	EPA 8082A	
Aroclor 1260	ND	---	0.0111	mg/kg dry	1	04/23/24 17:11	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 90 %*		*Limits: 60-125 %*	*1*	*04/23/24 17:11*	*EPA 8082A*	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
HA-1 (A4D1379-01)				**Matrix: Soil**		**Batch: 24D1133**		
Acenaphthene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Acenaphthylene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Anthracene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Benzo(a)pyrene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Benzo(b)fluoranthene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Benzo(k)fluoranthene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Chrysene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Dibenz(a,h)anthracene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Fluoranthene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Fluorene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
1-Methylnaphthalene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Naphthalene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Phenanthrene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Pyrene	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	Q-37
Dibenzofuran	ND	---	0.0108	mg/kg dry	1	04/30/24 16:37	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*77 %*	*Limits: 44-120 %*	*1*	*04/30/24 16:37*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*70 %*	*54-127 %*	*1*	*04/30/24 16:37*	*EPA 8270E SIM*	
HA-2 (A4D1379-02)				**Matrix: Soil**		**Batch: 24D1133**		
Acenaphthene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Acenaphthylene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Anthracene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Chrysene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	

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ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
HA-2 (A4D1379-02)				**Matrix: Soil**		**Batch: 24D1133**		
Fluoranthene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Fluorene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Naphthalene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Phenanthrene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Pyrene	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Dibenzofuran	ND	---	0.0109	mg/kg dry	1	04/30/24 18:44	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*74 %*	*Limits: 44-120 %*	*1*	*04/30/24 18:44*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*66 %*	*54-127 %*	*1*	*04/30/24 18:44*	*EPA 8270E SIM*	

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Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
HA-1 (A4D1379-01)				**Matrix: Soil**				
Batch: 24D1040								
Arsenic	**3.34**	---	1.36	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
Barium	**172**	---	1.36	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
Cadmium	ND	---	0.273	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
Chromium	**13.2**	---	1.36	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
Lead	**14.1**	---	0.273	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
Mercury	ND	---	0.109	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
Selenium	ND	---	1.36	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
Silver	ND	---	0.273	mg/kg dry	10	04/30/24 03:28	EPA 6020B	
HA-2 (A4D1379-02)				**Matrix: Soil**				
Batch: 24D1084								
Arsenic	**2.33**	---	1.36	mg/kg dry	10	04/30/24 05:47	EPA 6020B	
Barium	**258**	---	1.36	mg/kg dry	10	04/30/24 05:47	EPA 6020B	**Q-42**
Cadmium	ND	---	0.272	mg/kg dry	10	04/30/24 05:47	EPA 6020B	
Chromium	**7.92**	---	1.36	mg/kg dry	10	04/30/24 05:47	EPA 6020B	
Lead	**13.2**	---	0.272	mg/kg dry	10	04/30/24 05:47	EPA 6020B	**Q-42**
Mercury	ND	---	0.109	mg/kg dry	10	04/30/24 05:47	EPA 6020B	
Selenium	ND	---	1.36	mg/kg dry	10	04/30/24 05:47	EPA 6020B	
Silver	ND	---	0.272	mg/kg dry	10	04/30/24 05:47	EPA 6020B	

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ANALYTICAL REPORT

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Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
HA-1 (A4D1379-01)				**Matrix: Soil**		**Batch: 24D0745**		
% Solids	**77.9**	---	1.00	%	1	04/22/24 07:00	EPA 8000D	
HA-2 (A4D1379-02)				**Matrix: Soil**		**Batch: 24D0745**		
% Solids	**80.4**	---	1.00	%	1	04/22/24 07:00	EPA 8000D	

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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 24D0773 - EPA 3546 (Fuels)									Soil			
Blank (24D0773-BLK2)			Prepared: 04/22/24 04:29		Analyzed: 04/22/24 19:20							
NWTPH-Dx												
Diesel	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 90 %*		*Limits: 50-150 %*				*Dilution: 1x*			
LCS (24D0773-BS2)			Prepared: 04/22/24 04:29		Analyzed: 04/22/24 19:44							
NWTPH-Dx												
Diesel	131	---	20.0	mg/kg wet	1	125	---	104	38-132%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*		*Limits: 50-150 %*				*Dilution: 1x*			
Duplicate (24D0773-DUP2)			Prepared: 04/22/24 12:35		Analyzed: 04/23/24 00:26							
QC Source Sample: Non-SDG (A4D1422-09)												
Diesel	ND	---	19.9	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	ND	---	39.9	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 109 %*		*Limits: 50-150 %*				*Dilution: 1x*			
Duplicate (24D0773-DUP3)			Prepared: 04/22/24 04:29		Analyzed: 04/22/24 20:31							
QC Source Sample: Non-SDG (A4D1430-01RE1)												
Diesel	ND	---	22.4	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	ND	---	44.7	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 86 %*		*Limits: 50-150 %*				*Dilution: 1x*			

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GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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
Batch 24D0954 - EPA 5035A								Soil				
Blank (24D0954-BLK1)			Prepared: 04/25/24 10:38 Analyzed: 04/25/24 12:40									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	5.00	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 101 %*	*Limits: 50-150 %*		*Dilution: 1x*							
1,4-Difluorobenzene (Sur)		*99 %*	*50-150 %*		*"*							
LCS (24D0954-BS2)			Prepared: 04/25/24 10:38 Analyzed: 04/25/24 12:15									
NWTPH-Gx (MS)												
Gasoline Range Organics	25.0	---	5.00	mg/kg wet	50	25.0	---	100	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 98 %*	*Limits: 50-150 %*		*Dilution: 1x*							
1,4-Difluorobenzene (Sur)		*100 %*	*50-150 %*		*"*							
Duplicate (24D0954-DUP1)			Prepared: 04/24/24 13:30 Analyzed: 04/25/24 21:41									V-15
QC Source Sample: Non-SDG (A4D1512-05)												
Gasoline Range Organics	**272**	---	6.22	mg/kg dry	50	---	295	---	---	8	30%	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 104 %*	*Limits: 50-150 %*		*Dilution: 1x*							
1,4-Difluorobenzene (Sur)		*97 %*	*50-150 %*		*"*							
Duplicate (24D0954-DUP2)			Prepared: 04/24/24 13:30 Analyzed: 04/25/24 22:33									V-15
QC Source Sample: Non-SDG (A4D1512-06)												
Gasoline Range Organics	**1900**	---	122	mg/kg dry	1000	---	1830	---	---	4	30%	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 98 %*	*Limits: 50-150 %*		*Dilution: 1x*							
1,4-Difluorobenzene (Sur)		*96 %*	*50-150 %*		*"*							

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ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24D0954 - EPA 5035A							**Soil**					
Blank (24D0954-BLK1)			Prepared: 04/25/24 10:38 Analyzed: 04/25/24 12:40									
5035A/8260D												
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	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery:*	*101 %*	*Limits:*	*80-120 %*		*Dilution:*	*1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*102 %*		*79-120 %*			*"*				
LCS (24D0954-BS1)			Prepared: 04/25/24 10:38 Analyzed: 04/25/24 11:49									
5035A/8260D												
Benzene	1.01	---	0.0100	mg/kg wet	50	1.00	---	101	80-120%	---	---	
Toluene	0.990	---	0.0500	mg/kg wet	50	1.00	---	99	80-120%	---	---	
Ethylbenzene	1.02	---	0.0250	mg/kg wet	50	1.00	---	102	80-120%	---	---	
Xylenes, total	3.09	---	0.0750	mg/kg wet	50	3.00	---	103	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery:*	*102 %*	*Limits:*	*80-120 %*		*Dilution:*	*1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*101 %*		*79-120 %*			*"*				
Duplicate (24D0954-DUP1)			Prepared: 04/24/24 13:30 Analyzed: 04/25/24 21:41									**V-15**
QC Source Sample: Non-SDG (A4D1512-05)												
Benzene	**0.0236**	---	0.0124	mg/kg dry	50	---	0.0249	---	---	5	30%	
Toluene	**1.57**	---	0.0622	mg/kg dry	50	---	1.65	---	---	5	30%	
Ethylbenzene	**1.01**	---	0.0311	mg/kg dry	50	---	1.06	---	---	5	30%	
Xylenes, total	**13.0**	---	0.0933	mg/kg dry	50	---	13.8	---	---	6	30%	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery:*	*104 %*	*Limits:*	*80-120 %*		*Dilution:*	*1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*102 %*		*79-120 %*			*"*				
Duplicate (24D0954-DUP2)			Prepared: 04/24/24 13:30 Analyzed: 04/25/24 22:33									**V-15**
QC Source Sample: Non-SDG (A4D1512-06)												
Benzene	ND	---	0.244	mg/kg dry	1000	---	ND	---	---	---	30%	
Toluene	**1.78**	---	1.22	mg/kg dry	1000	---	1.77	---	---	0.7	30%	

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

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24D0954 - EPA 5035A							**Soil**					
Duplicate (24D0954-DUP2)			Prepared: 04/24/24 13:30 Analyzed: 04/25/24 22:33									**V-15**
QC Source Sample: Non-SDG (A4D1512-06)												
Ethylbenzene	**5.19**	---	0.609	mg/kg dry	1000	---	5.13	---	---	1	30%	
Xylenes, total	**57.1**	---	1.83	mg/kg dry	1000	---	55.7	---	---	2	30%	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery:*	*104 %*	*Limits:*	*80-120 %*		*Dilution:*	*1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*104 %*		*79-120 %*			*"*				
Matrix Spike (24D0954-MS1)			Prepared: 04/22/24 15:00 Analyzed: 04/25/24 18:41									
QC Source Sample: Non-SDG (A4D1453-05)												
5035A/8260D												
Benzene	1.66	---	0.0154	mg/kg dry	50	1.54	ND	108	77-121%	---	---	
Toluene	1.65	---	0.0771	mg/kg dry	50	1.54	ND	107	77-121%	---	---	
Ethylbenzene	1.69	---	0.0386	mg/kg dry	50	1.54	ND	110	76-122%	---	---	
Xylenes, total	5.13	---	0.116	mg/kg dry	50	4.63	ND	111	78-124%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery:*	*100 %*	*Limits:*	*80-120 %*		*Dilution:*	*1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*100 %*		*79-120 %*			*"*				

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24D0823 - EPA 3546							**Soil**					
Blank (24D0823-BLK1)			Prepared: 04/23/24 04:12		Analyzed: 04/23/24 16:00							**C-07**
EPA 8082A												
Aroclor 1016	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Aroclor 1232	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Aroclor 1242	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Aroclor 1248	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Aroclor 1254	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Aroclor 1260	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 102 %*		*Limits: 60-125 %*			*Dilution: 1x*				
LCS (24D0823-BS1)			Prepared: 04/23/24 04:12		Analyzed: 04/23/24 16:18							**C-07**
EPA 8082A												
Aroclor 1016	0.203	---	0.0100	mg/kg wet	1	0.250	---	81	47-134%	---	---	
Aroclor 1260	0.222	---	0.0100	mg/kg wet	1	0.250	---	89	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 99 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Duplicate (24D0823-DUP1)			Prepared: 04/23/24 04:12		Analyzed: 04/23/24 17:11							**C-07**
QC Source Sample: Non-SDG (A4D1186-01)												
Aroclor 1016	ND	---	0.00932	mg/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1221	ND	---	0.00932	mg/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1232	ND	---	0.00932	mg/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1242	ND	---	0.00932	mg/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1248	ND	---	0.00932	mg/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1254	ND	---	0.00932	mg/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1260	ND	---	0.00932	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 99 %*		*Limits: 60-125 %*			*Dilution: 1x*				
Matrix Spike (24D0823-MS1)			Prepared: 04/23/24 04:12		Analyzed: 04/23/24 23:05							**C-07**
QC Source Sample: Non-SDG (A4D1396-05)												
EPA 8082A												
Aroclor 1016	0.200	---	0.0100	mg/kg dry	1	0.250	ND	80	47-134%	---	---	
Aroclor 1260	0.479	---	0.0100	mg/kg dry	1	0.250	0.297	73	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 99 %*		*Limits: 60-125 %*			*Dilution: 1x*				

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

ANALYTICAL REPORT

GRI	Project: 6909-C	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: 6909-C	Report ID:
Tigard, OR 97224	Project Manager: Greg Martin	A4D1379 - 07 02 24 0713

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24D0823 - EPA 3546							**Soil**					

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ANALYTICAL REPORT

GRI	Project: 6909-C	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: 6909-C	Report ID:
Tigard, OR 97224	Project Manager: Greg Martin	A4D1379 - 07 02 24 0713

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24D1133 - EPA 3546							Soil					
Blank (24D1133-BLK1)			Prepared: 04/30/24 10:11 Analyzed: 04/30/24 15:47									
EPA 8270E SIM												
Acenaphthene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0100	mg/kg wet	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-120 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*79 %*	*54-127 %*				*"*				
LCS (24D1133-BS1)			Prepared: 04/30/24 10:11 Analyzed: 04/30/24 16:12									
EPA 8270E SIM												
Acenaphthene	0.725	---	0.0100	mg/kg wet	1	0.800	---	91	40-123%	---	---	
Acenaphthylene	0.720	---	0.0100	mg/kg wet	1	0.800	---	90	32-132%	---	---	
Anthracene	0.707	---	0.0100	mg/kg wet	1	0.800	---	88	47-123%	---	---	
Benz(a)anthracene	0.694	---	0.0100	mg/kg wet	1	0.800	---	87	49-126%	---	---	
Benzo(a)pyrene	0.740	---	0.0100	mg/kg wet	1	0.800	---	92	45-129%	---	---	
Benzo(b)fluoranthene	0.716	---	0.0100	mg/kg wet	1	0.800	---	90	45-132%	---	---	
Benzo(k)fluoranthene	0.749	---	0.0100	mg/kg wet	1	0.800	---	94	47-132%	---	---	
Benzo(g,h,i)perylene	0.638	---	0.0100	mg/kg wet	1	0.800	---	80	43-134%	---	---	
Chrysene	0.771	---	0.0100	mg/kg wet	1	0.800	---	96	50-124%	---	---	

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

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24D1133 - EPA 3546							Soil					
LCS (24D1133-BS1)			Prepared: 04/30/24 10:11		Analyzed: 04/30/24 16:12							
Dibenz(a,h)anthracene	0.739	---	0.0100	mg/kg wet	1	0.800	---	92	45-134%	---	---	
Fluoranthene	0.775	---	0.0100	mg/kg wet	1	0.800	---	97	50-127%	---	---	
Fluorene	0.699	---	0.0100	mg/kg wet	1	0.800	---	87	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	0.706	---	0.0100	mg/kg wet	1	0.800	---	88	45-133%	---	---	
1-Methylnaphthalene	0.685	---	0.0100	mg/kg wet	1	0.800	---	86	40-120%	---	---	
2-Methylnaphthalene	0.700	---	0.0100	mg/kg wet	1	0.800	---	87	38-122%	---	---	
Naphthalene	0.718	---	0.0100	mg/kg wet	1	0.800	---	90	35-123%	---	---	
Phenanthrene	0.707	---	0.0100	mg/kg wet	1	0.800	---	88	50-121%	---	---	
Pyrene	0.790	---	0.0100	mg/kg wet	1	0.800	---	99	47-127%	---	---	
Dibenzofuran	0.706	---	0.0100	mg/kg wet	1	0.800	---	88	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 92 %*		*Limits: 44-120 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*79 %*		*54-127 %*				*"*			
Duplicate (24D1133-DUP1)			Prepared: 04/30/24 10:11		Analyzed: 04/30/24 17:03							
QC Source Sample: HA-1 (A4D1379-01)												
EPA 8270E SIM												
Acenaphthene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Anthracene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Benz(a)anthracene	**0.0139**	---	0.0115	mg/kg dry	1	---	ND	---	---		**30%**	Q-05
Benzo(a)pyrene	**0.0127**	---	0.0115	mg/kg dry	1	---	ND	---	---		**30%**	Q-05
Benzo(b)fluoranthene	**0.0157**	---	0.0115	mg/kg dry	1	---	ND	---	---		**30%**	Q-05
Benzo(k)fluoranthene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	**30%**	Q-05
Chrysene	**0.0125**	---	0.0115	mg/kg dry	1	---	ND	---	---		**30%**	Q-05
Dibenz(a,h)anthracene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Fluoranthene	**0.0272**	---	0.0115	mg/kg dry	1	---	ND	---	---		**30%**	Q-05
Fluorene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	**30%**	Q-05
1-Methylnaphthalene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Phenanthrene	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	**30%**	Q-05
Pyrene	**0.0259**	---	0.0115	mg/kg dry	1	---	ND	---	---		**30%**	Q-05

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ANALYTICAL REPORT

GRI	Project: 6909-C	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: 6909-C	Report ID:
Tigard, OR 97224	Project Manager: Greg Martin	A4D1379 - 07 02 24 0713

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24D1133 - EPA 3546							Soil					
Duplicate (24D1133-DUP1)			Prepared: 04/30/24 10:11		Analyzed: 04/30/24 17:03							
QC Source Sample: HA-1 (A4D1379-01)												
Dibenzofuran	ND	---	0.0115	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*		*Limits: 44-120 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*66 %*		*54-127 %*			*"*				
Matrix Spike (24D1133-MS1)			Prepared: 04/30/24 10:11		Analyzed: 04/30/24 17:53							
QC Source Sample: Non-SDG (A4D1531-09)												
EPA 8270E SIM												
Acenaphthene	0.714	---	0.0106	mg/kg dry	1	0.845	ND	85	40-123%	---	---	
Acenaphthylene	0.706	---	0.0106	mg/kg dry	1	0.845	ND	84	32-132%	---	---	
Anthracene	0.688	---	0.0106	mg/kg dry	1	0.845	ND	81	47-123%	---	---	
Benz(a)anthracene	0.680	---	0.0106	mg/kg dry	1	0.845	ND	81	49-126%	---	---	
Benzo(a)pyrene	0.711	---	0.0106	mg/kg dry	1	0.845	ND	84	45-129%	---	---	
Benzo(b)fluoranthene	0.680	---	0.0106	mg/kg dry	1	0.845	ND	81	45-132%	---	---	
Benzo(k)fluoranthene	0.718	---	0.0106	mg/kg dry	1	0.845	ND	85	47-132%	---	---	
Benzo(g,h,i)perylene	0.609	---	0.0106	mg/kg dry	1	0.845	ND	72	43-134%	---	---	
Chrysene	0.747	---	0.0106	mg/kg dry	1	0.845	ND	88	50-124%	---	---	
Dibenz(a,h)anthracene	0.736	---	0.0106	mg/kg dry	1	0.845	ND	87	45-134%	---	---	
Fluoranthene	0.762	---	0.0106	mg/kg dry	1	0.845	ND	90	50-127%	---	---	
Fluorene	0.692	---	0.0106	mg/kg dry	1	0.845	ND	82	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	0.680	---	0.0106	mg/kg dry	1	0.845	ND	80	45-133%	---	---	
1-Methylnaphthalene	0.677	---	0.0106	mg/kg dry	1	0.845	ND	80	40-120%	---	---	
2-Methylnaphthalene	0.689	---	0.0106	mg/kg dry	1	0.845	ND	82	38-122%	---	---	
Naphthalene	0.706	---	0.0106	mg/kg dry	1	0.845	ND	84	35-123%	---	---	
Phenanthrene	0.683	---	0.0106	mg/kg dry	1	0.845	ND	81	50-121%	---	---	
Pyrene	0.768	---	0.0106	mg/kg dry	1	0.845	ND	91	47-127%	---	---	
Dibenzofuran	0.683	---	0.0106	mg/kg dry	1	0.845	ND	81	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*		*Limits: 44-120 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*73 %*		*54-127 %*			*"*				

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Darwin Thomas, Business Development Director

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

ANALYTICAL REPORT

GRI	Project: 6909-C	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: 6909-C	Report ID:
Tigard, OR 97224	Project Manager: Greg Martin	A4D1379 - 07 02 24 0713

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 24D1040 - EPA 3051A							Soil					
Blank (24D1040-BLK1)			Prepared: 04/29/24 10:04 Analyzed: 04/30/24 01:45									
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 (24D1040-BS1)			Prepared: 04/29/24 10:04 Analyzed: 04/30/24 01:51									
EPA 6020B												
Arsenic	47.3	---	1.00	mg/kg wet	10	50.0	---	95	80-120%	---	---	
Barium	50.3	---	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Cadmium	50.7	---	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Chromium	50.4	---	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Lead	51.0	---	0.200	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Mercury	1.02	---	0.0800	mg/kg wet	10	1.00	---	102	80-120%	---	---	
Selenium	25.0	---	1.00	mg/kg wet	10	25.0	---	100	80-120%	---	---	
Silver	25.5	---	0.200	mg/kg wet	10	25.0	---	102	80-120%	---	---	
Duplicate (24D1040-DUP1)			Prepared: 04/29/24 10:04 Analyzed: 04/30/24 02:03									
QC Source Sample: Non-SDG (A4D1356-04)												
Arsenic	**3.79**	---	1.21	mg/kg dry	10	---	4.40	---	---	15	20%	
Barium	**80.6**	---	1.21	mg/kg dry	10	---	74.7	---	---	8	20%	
Cadmium	ND	---	0.243	mg/kg dry	10	---	ND	---	---	---	20%	
Chromium	**87.9**	---	1.21	mg/kg dry	10	---	110	---	---	**23**	**20%**	Q-04
Lead	**5.99**	---	0.243	mg/kg dry	10	---	5.78	---	---	4	20%	
Mercury	ND	---	0.0971	mg/kg dry	10	---	0.0682	---	---	***	20%	
Selenium	ND	---	1.21	mg/kg dry	10	---	ND	---	---	---	20%	
Silver	ND	---	0.243	mg/kg dry	10	---	ND	---	---	---	20%	
Matrix Spike (24D1040-MS1)			Prepared: 04/29/24 10:04 Analyzed: 04/30/24 02:15									

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ORELAP ID: OR100062

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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 24D1040 - EPA 3051A							**Soil**					
Matrix Spike (24D1040-MS1)			Prepared: 04/29/24 10:04		Analyzed: 04/30/24 02:15							
QC Source Sample: Non-SDG (A4D1356-06)												
EPA 6020B												
Arsenic	56.7	---	1.23	mg/kg dry	10	61.6	4.96	84	75-125%	---	---	
Barium	145	---	1.23	mg/kg dry	10	61.6	85.4	97	75-125%	---	---	
Cadmium	61.6	---	0.246	mg/kg dry	10	61.6	ND	100	75-125%	---	---	
Chromium	152	---	1.23	mg/kg dry	10	61.6	92.5	97	75-125%	---	---	
Lead	64.3	---	0.246	mg/kg dry	10	61.6	6.58	94	75-125%	---	---	
Mercury	1.24	---	0.0985	mg/kg dry	10	1.23	0.0589	96	75-125%	---	---	
Selenium	25.8	---	1.23	mg/kg dry	10	30.8	ND	84	75-125%	---	---	
Silver	30.8	---	0.246	mg/kg dry	10	30.8	ND	100	75-125%	---	---	

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ANALYTICAL REPORT

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16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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 24D1084 - EPA 3051A							**Soil**					
Blank (24D1084-BLK1)			Prepared: 04/29/24 11:31 Analyzed: 04/30/24 05:29									
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 (24D1084-BS1)			Prepared: 04/29/24 11:31 Analyzed: 04/30/24 05:41									
EPA 6020B												
Arsenic	47.7	---	1.00	mg/kg wet	10	50.0	---	95	80-120%	---	---	
Barium	50.7	---	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Cadmium	49.3	---	0.200	mg/kg wet	10	50.0	---	99	80-120%	---	---	
Chromium	51.5	---	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Lead	51.7	---	0.200	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Mercury	1.04	---	0.0800	mg/kg wet	10	1.00	---	104	80-120%	---	---	
Selenium	24.6	---	1.00	mg/kg wet	10	25.0	---	98	80-120%	---	---	
Silver	26.4	---	0.200	mg/kg wet	10	25.0	---	106	80-120%	---	---	
Duplicate (24D1084-DUP1)			Prepared: 04/29/24 11:31 Analyzed: 04/30/24 05:53									
QC Source Sample: HA-2 (A4D1379-02)												
EPA 6020B												
Arsenic	**1.80**	---	1.31	mg/kg dry	10	---	2.33	---	---	**25**	**20%**	Q-05
Barium	**181**	---	1.31	mg/kg dry	10	---	258	---	---	**35**	**20%**	Q-04
Cadmium	ND	---	0.262	mg/kg dry	10	---	ND	---	---	---	20%	
Chromium	**8.63**	---	1.31	mg/kg dry	10	---	7.92	---	---	9	20%	
Lead	**9.18**	---	0.262	mg/kg dry	10	---	13.2	---	---	**36**	**20%**	Q-04
Mercury	ND	---	0.105	mg/kg dry	10	---	ND	---	---	---	20%	
Selenium	ND	---	1.31	mg/kg dry	10	---	ND	---	---	---	20%	
Silver	ND	---	0.262	mg/kg dry	10	---	ND	---	---	---	20%	
Matrix Spike (24D1084-MS1)			Prepared: 04/29/24 11:31 Analyzed: 04/30/24 05:59									

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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 24D1084 - EPA 3051A							**Soil**					
Matrix Spike (24D1084-MS1)			Prepared: 04/29/24 11:31		Analyzed: 04/30/24 05:59							
QC Source Sample: HA-2 (A4D1379-02)												
EPA 6020B												
Arsenic	60.7	---	1.29	mg/kg dry	10	64.3	2.33	91	75-125%	---	---	
Barium	255	---	1.29	mg/kg dry	10	64.3	258	**-4**	**75-125%**	---	---	Q-04
Cadmium	61.7	---	0.257	mg/kg dry	10	64.3	ND	96	75-125%	---	---	
Chromium	74.0	---	1.29	mg/kg dry	10	64.3	7.92	103	75-125%	---	---	
Lead	74.0	---	0.257	mg/kg dry	10	64.3	13.2	95	75-125%	---	---	
Mercury	1.19	---	0.103	mg/kg dry	10	1.29	ND	92	75-125%	---	---	
Selenium	29.9	---	1.29	mg/kg dry	10	32.1	ND	93	75-125%	---	---	
Silver	31.1	---	0.257	mg/kg dry	10	32.1	ND	97	75-125%	---	---	

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ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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 24D0745 - Total Solids (Dry Weight) - 2022								Soil				
Duplicate (24D0745-DUP1)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-01)												
% Solids	**66.2**	---	1.00	%	1	---	63.2	---	---	5	10%	
Duplicate (24D0745-DUP2)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-02)												
% Solids	**52.2**	---	1.00	%	1	---	53.2	---	---	2	10%	
Duplicate (24D0745-DUP3)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-03)												
% Solids	**58.6**	---	1.00	%	1	---	59.0	---	---	0.7	10%	
Duplicate (24D0745-DUP4)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-04)												
% Solids	**57.2**	---	1.00	%	1	---	58.6	---	---	2	10%	
Duplicate (24D0745-DUP5)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-05)												
% Solids	**60.7**	---	1.00	%	1	---	60.0	---	---	1	10%	
Duplicate (24D0745-DUP6)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-06)												
% Solids	**90.5**	---	1.00	%	1	---	88.7	---	---	2	10%	
Duplicate (24D0745-DUP7)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-07)												
% Solids	**77.6**	---	1.00	%	1	---	77.8	---	---	0.3	10%	
Duplicate (24D0745-DUP8)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-08)												
% Solids	**69.0**	---	1.00	%	1	---	66.7	---	---	3	10%	

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ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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 24D0745 - Total Solids (Dry Weight) - 2022							**Soil**					
Duplicate (24D0745-DUP9)			Prepared: 04/19/24 10:06		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A3L1277-09)												
% Solids	**65.3**	---	1.00	%	1	---	65.7	---	---	0.6	10%	
Duplicate (24D0745-DUPA)			Prepared: 04/19/24 18:33		Analyzed: 04/22/24 07:00							
QC Source Sample: Non-SDG (A4D1432-02)												
% Solids	**91.5**	---	1.00	%	1	---	91.2	---	---	0.4	10%	

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

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ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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
Batch: 24D0773							
A4D1379-01	Soil	NWTPH-Dx	04/17/24 10:47	04/22/24 12:37	11.39g/5mL	10g/5mL	0.88
A4D1379-02	Soil	NWTPH-Dx	04/17/24 10:19	04/22/24 12:37	11.27g/5mL	10g/5mL	0.89

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
Batch: 24D0954							
A4D1379-02	Soil	NWTPH-Gx (MS)	04/17/24 10:19	04/17/24 10:19	7.31g/5mL	5g/5mL	0.68

BTEX Compounds by EPA 8260D

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24D0954							
A4D1379-02	Soil	5035A/8260D	04/17/24 10:19	04/17/24 10:19	7.31g/5mL	5g/5mL	0.68

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24D0823							
A4D1379-01	Soil	EPA 8082A	04/17/24 10:47	04/23/24 04:12	11.24g/5mL	10g/5mL	0.89
A4D1379-02	Soil	EPA 8082A	04/17/24 10:19	04/23/24 04:12	11.18g/5mL	10g/5mL	0.89

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24D1133							
A4D1379-01	Soil	EPA 8270E SIM	04/17/24 10:47	04/30/24 10:11	11.85g/5mL	10g/5mL	0.84
A4D1379-02	Soil	EPA 8270E SIM	04/17/24 10:19	04/30/24 10:11	11.42g/5mL	10g/5mL	0.88

Total Metals by EPA 6020B (ICPMS)

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ANALYTICAL REPORT

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

SAMPLE PREPARATION INFORMATION

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: 24D1040							
A4D1379-01	Soil	EPA 6020B	04/17/24 10:47	04/29/24 10:04	0.471g/50mL	0.5g/50mL	1.06
Batch: 24D1084							
A4D1379-02	Soil	EPA 6020B	04/17/24 10:19	04/29/24 11:31	0.457g/50mL	0.5g/50mL	1.09

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: 24D0745							
A4D1379-01	Soil	EPA 8000D	04/17/24 10:47	04/19/24 10:06			NA
A4D1379-02	Soil	EPA 8000D	04/17/24 10:19	04/19/24 10:06			NA

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Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

QUALIFIER DEFINITIONS

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

Apex Laboratories

C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-37	Sample results are less than the Reporting Level (MDL and/or MRL) and Duplicate results exceed this level. See QC Section of the report for Duplicate results. Sample may be non-homogenous, or results may bracket the reporting level.
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.)
V-15	Sample aliquot was subsampled from the sample container in the laboratory. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

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ANALYTICAL REPORT

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16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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'.

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).

Apex Laboratories

Darwin Thomas, Business Development Director

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

GRI	Project: **6909-C**	
16520 SW Upper Boones Ferry Rd, Ste 100	Project Number: **6909-C**	**Report ID:**
Tigard, OR 97224	Project Manager: **Greg Martin**	**A4D1379 - 07 02 24 0713**

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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ANALYTICAL REPORT

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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.

Apex Laboratories

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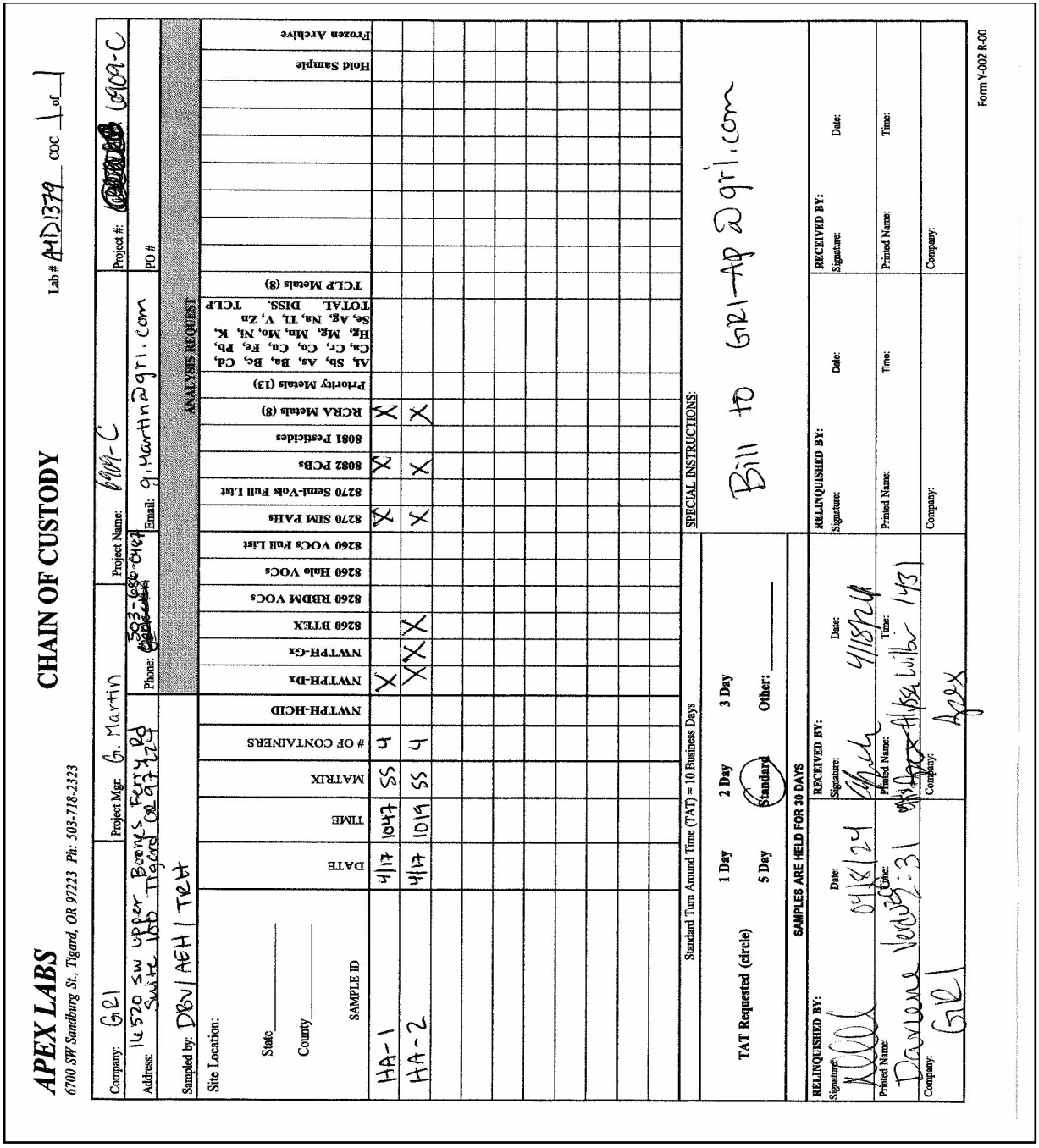

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A4D1379 COC 1 of 1

Company: GRI | Project Mgr: G. Martin | Project Name: 6909-C | Project #: (6909-C)
Address: 16520 SW Upper Boones Ferry Rd Suite 100 Tigard OR 97224 | Phone: 503-639-0469 | Email: g.martin@gri.com | PO #
Sampled by: DBV/AEH/TEH
Site Location: State ____ County ____

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
HA-1	4/17	1047	SS	4		X						X		X		X					
HA-2	4/17	1019	SS	4		X	X	X				X		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:
Bill to GRI-AP@gri.com

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature:	Date:	RECEIVED BY: Signature:	Date:	RELINQUISHED BY: Signature:	Date:	RECEIVED BY: Signature:	Date:
Printed Name:	Time:	Printed Name:	Time:	Printed Name:	Time:	Printed Name:	Time:
Company: GRI		Company: APEX		Company:		Company:	

Form Y-002 R-00

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APEX LABS COOLER RECEIPT FORM

Client: GRI Element WO#: A4D1379

Project/Project #: 6909-C

Delivery Info:

Date/time received: 4/18/24 @ 1431 By: AAW

Delivered by: Apex__Client__ESS__FedEx__UPS__Radio__Morgan__SDS__Evergreen__Other__

From USDA Regulated Origin? Yes _____ No X

Cooler Inspection Date/time inspected: 4/18/24 @ 1430 By: AAW

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)	1.3						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Real						
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: 4/18/24 @ 15:04 By: DKM

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: DKM Witness: JS Cooler Inspected by: DKM

Form Y-003 R-02

Apex Laboratories

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Darwin Thomas, Business Development Director

APPENDIX B

Geoprofessional Business Association Guidance Document

Important Information about This

Geoenvironmental Report

Geoenvironmental studies are commissioned to gain information about environmental conditions on and beneath the surface of a site. The more comprehensive the study, the more reliable the assessment is likely to be. But remember: Any such assessment is to a greater or lesser extent based on professional opinions about conditions that cannot be seen or tested. Accordingly, no matter how many data are developed, risks created by unanticipated conditions will always remain. *Have realistic expectations.* Work with your geoenvironmental consultant to manage known and unknown risks. Part of that process should already have been accomplished, through the risk allocation provisions you and your geoenvironmental professional discussed and included in your contract's general terms and conditions. This document is intended to explain some of the concepts that may be included in your agreement, and to pass along information and suggestions to help you manage your risk.

Beware of Change; Keep Your Geoenvironmental Professional Advised

The design of a geoenvironmental study considers a variety of factors that are subject to change. Changes can undermine the applicability of a report's findings, conclusions, and recommendations. *Advise your geoenvironmental professional about any changes you become aware of.* Geoenvironmental professionals cannot accept responsibility or liability for problems that occur because a report fails to consider conditions that did not exist when the study was designed. Ask your geoenvironmental professional about the types of changes you should be particularly alert to. Some of the most common include:

- modification of the proposed development or ownership group,
- sale or other property transfer,
- replacement of or additions to the financing entity,
- amendment of existing regulations or introduction of new ones, or
- changes in the use or condition of adjacent property.

Should you become aware of any change, *do not rely on a geoenvironmental report.* Advise your geoenvironmental professional immediately; follow the professional's advice.

Recognize the Impact of Time

A geoenvironmental professional's findings, recommendations, and conclusions cannot remain valid indefinitely. The more time that passes, the more likely it is that important latent changes will occur. *Do not rely on a geoenvironmental report if too much time has elapsed since it was completed.* Ask your environmental professional to define "too much time." In the case of Phase I Environmental Site Assessments (ESAs), for example, more than 180 days after submission is generally considered "too much."

Prepare To Deal with Unanticipated Conditions

The findings, recommendations, and conclusions of a Phase I ESA report typically are based on a review of historical information, interviews, a site "walkover," and other forms of noninvasive research. When site subsurface conditions are not sampled in any way, the risk of unanticipated conditions is higher than it would otherwise be.

While borings, installation of monitoring wells, and similar invasive test methods can help reduce the risk of unanticipated conditions, *do not overvalue the effectiveness of testing.* Testing provides information about actual conditions only at the precise locations where samples are taken, and only when they are taken. Your geoenvironmental

professional has applied that specific information to develop a general opinion about environmental conditions. *Actual conditions in areas not sampled may differ (sometimes sharply) from those predicted in a report.* For example, a site may contain an unregistered underground storage tank that shows no surface trace of its existence. *Even conditions in areas that were tested can change*, sometimes suddenly, due to any number of events, not the least of which include occurrences at adjacent sites. Recognize, too, that *even some conditions in tested areas may go undiscovered,* because the tests or analytical methods used were designed to detect only those conditions assumed to exist.

Manage your risks by retaining your geoenvironmental professional to work with you as the project proceeds. Establish a contingency fund or other means to enable your geoenvironmental professional to respond rapidly, in order to limit the impact of unforeseen conditions. And to help prevent any misunderstanding, identify those empowered to authorize changes and the administrative procedures that should be followed.

Do Not Permit Any Other Party To Rely on the Report

Geoenvironmental professionals design their studies and prepare their reports to meet the specific needs of the clients who retain them, in light of the risk management methods that the client and geoenvironmental professional agree to, and the statutory, regulatory, or other requirements that apply. The study designed for a developer may differ sharply from one designed for a lender, insurer, public agency...or even another developer. *Unless the report specifically states otherwise, it was developed for you and only you.* Do not unilaterally permit any other party to rely on it. The report and the study underlying it may not be adequate for another party's needs, and you could be held liable for shortcomings your geoenvironmental professional was powerless to prevent or anticipate. Inform your geoenvironmental professional when you know or expect that someone else—a third-party—will want to use or rely on the report. *Do not permit third-party use or reliance until you first confer with the geoenvironmental professional who prepared the report.* Additional testing, analysis, or study may be required and, in any event, appropriate terms and conditions should be agreed to so both you and your geoenvironmental professional are protected from third-party risks. *Any party who relies on a geoenvironmental report without the express written permission of the professional who prepared it and the client for whom it was prepared may be solely liable for any problems that arise.*

Avoid Misinterpretation of the Report

Design professionals and other parties may want to rely on the report in developing plans and specifications. They need to be advised, in writing, that their needs may not have been considered when the study's scope was developed, and, even if their needs were considered, they might misinterpret geoenvironmental findings, conclusions, and recommendations. *Commission your geoenvironmental professional to explain pertinent elements of the report to others who are permitted to rely on it, and to review any plans, specifications or other instruments of professional service that incorporate any of the report's findings, conclusions, or recommendations.* Your geoenvironmental professional has the best understanding of the issues involved, including the fundamental assumptions that underpinned the study's scope.

Give Contractors Access to the Report

Reduce the risk of delays, claims, and disputes by giving contractors access to the full report, *providing that it is accompanied by a letter of transmittal that can protect you* by making it unquestionably clear that: 1) the study was not conducted and the report was not prepared for purposes of bid development, and 2) the findings, conclusions, and recommendations included in the report are based on a variety of opinions, inferences, and assumptions and are subject to interpretation. Use the letter to also advise contractors to consult with your geoenvironmental professional to obtain clarifications, interpretations, and guidance (a fee may be required for this service), and that—in any event—they should conduct additional studies to obtain the specific type and extent of information each prefers for preparing a bid or cost estimate. Providing access to the full report, with the appropriate caveats, helps prevent formation of adversarial attitudes and claims of concealed or differing conditions. If a contractor elects to ignore the warnings and advice in the letter of transmittal, it would do so at its own risk. Your geoenvironmental professional should be able to help you prepare an effective letter.

Do Not Separate Documentation from the Report

Geoenvironmental reports often include supplemental documentation, such as maps and copies of regulatory files, permits, registrations, citations, and correspondence with regulatory agencies. If subsurface explorations were performed, the report may contain final boring logs and copies of laboratory data. If remediation activities occurred on site, the report may include: copies of daily field reports; waste manifests; and information about the disturbance of subsurface materials, the type and thickness of any fill placed on site, and fill placement practices, among other types of documentation. *Do not separate supplemental documentation from the report. Do not, and do not permit any other party to redraw or modify any of the supplemental documentation for incorporation into other professionals' instruments of service.*

Understand the Role of Standards

Unless they are incorporated into statutes or regulations, standard practices and standard guides developed by the American Society for Testing and Materials (ASTM) and other recognized standards-developing organizations (SDOs) are little more than aspirational methods agreed to by a consensus of a committee. The committees that develop standards may not comprise those best-qualified to establish methods and, no matter what, no standard method can possibly consider the infinite client- and project-specific variables that fly in the face of the theoretical "standard conditions" to which standard practices and standard guides apply. In fact, these variables can be so pronounced that geoenvironmental professionals who comply with every directive of an ASTM or other standard procedure could run afoul of local custom and practice, thus violating the standard of care. Accordingly, when geoenvironmental professionals indicate in their reports that they have performed a service "in general compliance" with one standard or another, it means they have applied professional judgement in creating and implementing a scope of service designed for the specific client and project involved, and which follows some of the general precepts laid out in the referenced standard. To the extent that a report indicates "general compliance" with a standard, you may wish to speak with your geoenvironmental professional to learn more about what was and was not done. *Do not assume a given standard was followed to the letter.* Research indicates that that seldom is the case.

Realize That Recommendations May Not Be Final

The technical recommendations included in a geoenvironmental report are based on assumptions about actual conditions, and so are preliminary or tentative. Final recommendations can be prepared only by observing actual conditions as they are exposed. For that reason, you should retain the geoenvironmental professional of record to observe construction and/or remediation activities on site, to permit rapid response to unanticipated conditions. *The geoenvironmental professional who prepared the report cannot assume responsibility or liability for the report's recommendations if that professional is not retained to observe relevant site operations.*

Understand That Geotechnical Issues Have Not Been Addressed

Unless geotechnical engineering was specifically included in the scope of professional service, a report is not likely to relate any findings, conclusions, or recommendations about the suitability of subsurface materials for construction purposes, especially when site remediation has been accomplished through the removal, replacement, encapsulation, or chemical treatment of on-site soils. The equipment, techniques, and testing used by geotechnical engineers differ markedly from those used by geoenvironmental professionals; their education, training, and experience are also significantly different. If you plan to build on the subject site, but have not yet had a geotechnical engineering study conducted, your geoenvironmental professional should be able to provide guidance about the next steps you should take. The same firm may provide the services you need.

Read Responsibility Provisions Closely

Geoenvironmental studies cannot be exact; they are based on professional judgement and opinion. Nonetheless, some clients, contractors, and others assume geoenvironmental reports are or certainly should be unerringly precise. Such assumptions have created unrealistic expectations that have led to wholly unwarranted claims and disputes. To help prevent such problems, geoenvironmental professionals have developed a number of report provisions and contract terms that explain who is responsible for what, and how risks are to be allocated. Some people mistake these for "exculpatory clauses," that is, provisions whose purpose is to transfer one party's rightful responsibilities and liabilities to someone else. Read the responsibility provisions included in a report and in the contract you and your geoenvironmental professional agreed to. *Responsibility provisions are not "boilerplate."* They are important.

Rely on Your Geoenvironmental Professional for Additional Assistance

Membership in the Geoprofessional Business Association exposes geoenvironmental professionals to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a geoenvironmental project. Confer with your GBA-member geoenvironmental professional for more information.

GEOPROFESSIONAL BUSINESS ASSOCIATION

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org