April 22, 2022

Erika Malone
City of Seattle, Office of Housing
700 5th Avenue, Suite 5700
Seattle, Washington 98104

RE: Preliminary Phase II Subsurface Investigation
Ferdinand Street Vacant Lot Northwest, Site 9
4865 Martin Luther King Jr. Way South and 3112 South Ferdinand Street
Seattle, Washington 98108
RGI Project No. 2021-552-15

Dear Ms. Malone:

The Riley Group, Inc. (RGI) is pleased to present our Preliminary Phase II Subsurface Investigation (Phase II) for the above-referenced Ferdinand Street Vacant Lot Northwest, Site 9 located at 4865 Martin Luther King Jr. Way South and 3112 South Ferdinand Street in Seattle, Washington (hereafter referred to as the Property, Figure 1). Authorization for this project was provided by Ms. Laurie Olson of the City of Seattle on March 2, 2022.

PROJECT BACKGROUND

RGI completed, on behalf of the City of Seattle, Office of Housing, a Phase I Environmental Site Assessment (ESA) on September 30, 2021 (RGI project number 2021-552-7). Based on our Phase I ESA findings, the following recognized environmental conditions (RECs) were identified:

- **Potentially Abandoned Heating Oil Underground Storage Tank (UST):** The former residence on the Property parcel number 175670-0120 (3112 South Ferdinand Street) was historically heated by heating oil. Records indicate that the heating oil was stored in an UST located on the southeast exterior of that residence. No records could be found regarding any removal or decommissioning of the UST. While some subsurface sampling of the Property was conducted by CDM Smith in 2013, no sampling was done in the vicinity of the historical heating oil UST location or down-gradient of the UST. The potential of an abandoned heating oil UST was considered a REC.
- **West-Adjoining Abandoned UST:** ERIS and city records indicate that a 500-gallon-capacity UST was reported as abandoned in-place in 2003. "Diesel" is listed as the fuel, but heating oil was also likely. No known soil or groundwater testing has been done for that property and soil and groundwater conditions at the off-Property UST are unknown. The 2013 CDM Smith Phase II of the Property did not have any soil or groundwater testing along the western portion of the Property. Based on the reportedly abandoned in-place UST, distance from the Property (directly west-adjoining), and hydraulic position relative to the Property (up-gradient), the west-adjoining abandoned UST was considered a REC.

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Based on our Phase I ESA findings, the following BER was identified:

- **Property Fill of Unknown Origin:** The 2013 CDM Smith DRAFT Phase II investigation identified up to 12 feet of fill in areas of the Property, which contained debris, concrete, brick, pipe, wire, and wood throughout the Property. CDM Smith indicated that the soils may not be suitable for disposal at a clean landfill if excavated for redevelopment. Based on the 2013 Phase II description of fills encountered, unknown origin of the Property fills, and conclusions of CDM Smith, RGI considered the Property fill soils to be a BER.

RGI recommended a geophysical survey be performed in an effort to locate any abandoned, decommissioned, or former UST locations at the Property and that a Phase II be performed to evaluate the Property soil and shallow groundwater quality in regards to the above-referenced RECs.

At the request of the City of Seattle, Office of Housing (hereafter referred to as the Client), RGI has prepared this Phase II report to evaluate the above summarized potential environmental concerns.

SCOPE OF WORK

The scope of work for this project was performed in accordance with our proposal, dated March 1, 2022 and included the following:

- Performed public and private utility locating in an attempt to identify the location(s) of buried utility lines servicing the building on the Property.
- Performed a geophysical survey of the Property in an attempt to locate any existing abandoned or decommissioned-in-place UST(s).
- Relied on information developed for the Phase I ESA of the Property as well as information developed during the geophysical survey in order to determine test pit location placement in relation to areas of potential contamination.
- Excavated six test pits (TP1 through TP6) throughout the Property, to a maximum depth of 15 feet below ground surface (bgs).
- Submitted select soil and groundwater samples for laboratory analysis of potential contaminants of concern.
- Compared analytical results to the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels (CULs) for Unrestricted Land Use and MTCA Method A CULs for Groundwater (WAC 173-340). In instances where no MTCA Method A CULs were published for particular analytes, MTCA Method B CULs were utilized.
- Prepared this report presenting our findings, observations, conclusions, and recommendations.

SUBSURFACE INVESTIGATION AND SAMPLING

Private and Public Utility Locate

At least 48 hours prior to commencing our subsurface investigation, RGI contacted One-Call to locate known public underground utilities near, or on, the Property. Public underground utilities located included electric, natural gas, telecommunications, water, sewer, and cable.

RGI also retained a private utility locator to locate private water, natural gas, electric, and other metallic underground utility conduits potentially located in the proposed test pit locations.

Geophysical Survey

RGI supervised a contractor to perform the geophysical survey in an attempt to locate any existing abandoned or decommissioned-in-place UST(s), any remaining product or vent piping, or other underground metallic anomalies. The geophysical survey utilized electromagnetic (EM) and ground-penetrating radar (GPR) units to traverse the Property on approximately 5- to 10-foot-line spacing.

The geophysical survey uncovered the presence of one geophysical anomaly along the south-central portion of the Property. The anomaly measured approximately 6 feet long by 3.5 feet wide and was situated at a depth of approximately 1.5 feet below the ground surface. The anomaly also showed a metallic signature with the EM equipment. While the feature did not display a parabolic shape typical of heating oil USTs, such a signature does not always determine the presence of a tank as the UST could potentially have caved in or may be a non-standard shape. No other anomalies suggestive of USTs were identified during the geophysical survey including along the southeast corner of the Property where previous reports had indicated the presence of such features.

Subsurface Investigation

On March 30, 2022, six test pits (TP1 through TP6) were excavated to depths ranging from approximately 5 to 15 feet bgs depending on subsurface material density encountered. Test pits were advanced using a backhoe. Test pit locations are shown on Figures 2 and 3 and described below.

Test pit TP1 was placed along the middle-southern portion of the Property on the inferred down-gradient (eastern) side of the geophysical anomaly identified earlier. Test pit TP2 was installed on the southeast corner of the Property where previous reports had suggested a historical heating oil UST had been present. TP3 was excavated at the southwest portion of the Property adjacent to the western adjoining residence. TP4 was placed along the central-east portion of the Property in the approximate area of a former residence while TP5 was installed along the western Property boundary, proximal to the back of the western adjacent residence. Finally, TP6 was excavated at the northern portion of the Property.

Subsurface Conditions

Soil conditions encountered were described using the Unified Soil Classification System (USCS). Shallow soils encountered between the ground surface and between 5 to 10 feet in depth consisted of fill soils including brown and black silt, silty sand, with occasional gravels as well as debris including metal piping (potential fence posts), hoses, plastic bags, bricks, and concrete debris. Materials below the fill generally included brown/black silty sands and gravels with several locations encountering dense, blue/grey glacial till at the maximum extent of the excavations. Test pits TP4 and TP5 displayed slow infiltration of groundwater at the base of those excavations at depths of approximately 8 to 9 feet bgs. Those test pits were also within a topographic depression within the Property allowing for access to deeper materials. No recoverable groundwater was observed in the remaining test pits. Test pit logs are included in Appendix A.

Soil Sampling

Test pits were dug to approximately three feet in width and examined as depth increased. Discrete soil samples from test pits were generally collected at approximately 3- to 5-foot intervals, inspected, and field screened for the presence of volatile organic compounds (VOCs) and/or total petroleum hydrocarbons (TPH) using a portable gas photoionization detector (PID) and water sheen test. Soil samples were collected directly from the backhoe bucket and transferred to laboratory provided glassware. No elevated PID readings, odors, sheens, or discolorations were observed at any of the test pit locations. PID field screening results are given in Table 1.

Groundwater Grab Sampling

Groundwater grab samples were collected from two test pit locations (TP4 and TP5). Groundwater was not encountered at the remaining test pit locations. The groundwater samples were collected from the base of the excavation using a peristaltic pump and disposable plastic tubing under low-flow conditions. Groundwater was encountered at approximately 8 to 9 feet bgs at those locations within the lower elevation area of the Property.

Shallow groundwater grab samples collected from the test pits may not be representative of groundwater conditions or quality. To obtain samples that are definitively representative of shallow groundwater, the installation, development, and sampling of shallow groundwater from permanent monitoring wells would need to be installed at the Property. The objective of this investigation was to determine if groundwater had been impacted by the potential contaminants of concern. Groundwater sampling satisfied these project objectives and provided useful information regarding subsurface conditions at the Property.

Sampling Protocols

All samples were collected in accordance with our standard operating and decontamination procedures. Samples were placed in preconditioned, sterilized containers provided by an Ecology-accredited analytical laboratory. If soil samples were collected for analysis of VOCs, they were collected using the Environmental Protection Agency's Method 5035 sampling method. The samples were placed in a chilled cooler throughout the field program, with all subsequent transportation and transfer accomplished in strict accordance with RGI's chain-of-custody procedures. Analytical test certificates, including quality control, data, and chain-of-custody documentation for all samples submitted to the analytical testing laboratory by RGI as part of this Phase II are included in Appendix B. All soil sample locations were backfilled with excavated material.

REGULATORY FRAMEWORK

Washington's hazardous waste cleanup law, the Model Toxics Control Act (Chapter 70.105D RCW), mandates the necessity for site cleanups to protect human health and the environment. The MTCA Cleanup Regulation (Chapter 173-340 WAC) defines the approach for establishing cleanup requirements for individual sites, including the establishment of cleanup standards and selection of cleanup actions.

The MTCA Cleanup Regulation provides three options for establishing generic and site-specific cleanup levels for soil and groundwater. Method A cleanup levels have been adopted for specific purposes and are intended to provide conservative cleanup levels for sites undergoing routine site characterization or cleanup actions or those sites with relatively few hazardous substances. Method B and C cleanup levels are set using a site risk assessment, which focus on the use of "reasonable maximum exposure" assumptions based on site-specific characteristics and toxicity of the contaminants of concern.

For purposes of comparison, analytical laboratory data for this project are compared to the *MTCA Method A Soil CULs for Unrestricted Land Uses* and *MTCA Methods A CULs for Groundwater* (except in instances where no MTCA Method A CULs were published for particular analytes, MTCA Method B CULs were utilized), summarized in the attached Tables 1 and 2.

ANALYTICAL LABORATORY ANALYSIS

Soil and groundwater grab samples were submitted to Friedman & Bruya, Inc. (FBI), an Ecology-accredited, third-party analytical laboratory for the requested analyses.

Select soil and groundwater grab samples were submitted for laboratory analysis. The samples were analyzed for one or more of the following contaminants of concern:

- Hydrocarbon identification (HCID) using qualitative Northwest Method NWTPH-HCID (eight discrete soil samples and two groundwater samples).
- VOCs using EPA Test Method 8206 (seven discrete soil samples and two groundwater samples).
- MTCA Five Metals using EPA Test Method 6020A/1613E (six discrete soil samples).

ANALYTICAL RESULTS

Analytical results and field screening data, summarized in the attached Tables 1 and 2 and Figures 2 and 3, are discussed below. Copies of the analytical laboratory reports and associated sample chain-of-custody forms are included in Appendix B.

Soil Analytical Results

Soils sampled from each of the test pits at a depth of five feet bgs contained concentrations of arsenic and/or lead (the exception being no lead being detected at TP4-5 and TP5-5), however the reported concentrations are below (i.e. compliant with) the MTCA Method A cleanup limits for those analytes.

Total chromium concentrations in soil samples from the five foot depth in each of the test pits were reported between 8.86 mg/kg to 20.2 mg/kg. The detection of 20.2 mg/kg at TP6-5 is above the MTCA Method A CUL of 19 mg/kg for chromium VI but below the MTCA Method A CUL of 2,000 mg/kg for total chromium. In an effort to determine the species of chromium present, soil sample TP6-5 was further analyzed for hexavalent chromium (i.e. chromium VI, the more hazardous species). The results of laboratory testing revealed no detections of hexavalent chromium indicating that the concentration of total chromium in the sample was compliant with the applicable MTCA Method A CUL.

Analytical lab results for the remaining soil samples tested indicate concentrations for selected analyses were not detected above laboratory analytical detection limits (i.e., non-detect).

Groundwater Analytical Results

Groundwater sampled from TP4 contained a concentration of chloroform at 1.4 µg/L. That concentration is at (i.e. compliant with) the applicable MTCA Method B cleanup level.

Analytical lab results for the remaining groundwater samples indicate concentrations for selected analyses were not detected above the laboratory analytical detection limits (ND).

CONCLUSIONS & RECOMMENDATIONS

Based on our findings to-date, RGI concludes and/or recommends the following:

- Contamination above MTCA Method A or applicable Method B CULs was not encountered in the soil and groundwater samples analyzed at the Property.
- Acknowledging the discovery of the geophysical anomaly on the southern portion of the Property, prior to redevelopment, such should be uncovered and removed. If the anomaly is discovered to be a UST, the UST should be properly decommissioned and removed in accordance with the applicable city, county, and/or state requirement. Following its removal, a UST Site Assessment should be performed in accordance with the Ecology *Guidance for Site Checks and Site Assessment for Underground Storage Tanks*.

PROJECT LIMITATIONS

This report is the property of the City of Seattle, Office of Housing, and their authorized representatives or affiliates and was prepared in a manner consistent with the level of skill and care ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. This report is intended for specific application to the Ferdinand Street Vacant Lot Northwest, Site 9 Property located at 4865 Martin Luther King Jr. Way South and 3112 South Ferdinand Street, Seattle, King County, Washington. No warranty or guarantee, expressed or implied, is made.

The analyses and recommendations presented in this report are based upon data obtained from our review of available information at the time of preparing this report, test borings drilled on the Property, or other noted data sources. The findings and conclusions of this study are based upon the results of laboratory testing of selected samples obtained from separated test pit locations and conditions may vary between those localities or at other locations, depths, media, or date. Conditional changes may occur through time by natural or human-made process on this or adjacent properties. Additional changes may occur in legislative standards, which may or may not be applicable to this report. These changes, beyond RGI's control, may render this report invalid, partially or wholly. If variations appear evident, RGI should be requested to reevaluate the recommendations in this report.

Please contact the undersigned at (425) 415-0551 should you have any questions or need additional information.

Sincerely,
THE RILEY GROUP, INC.

Eric Zuern
Project Geologist

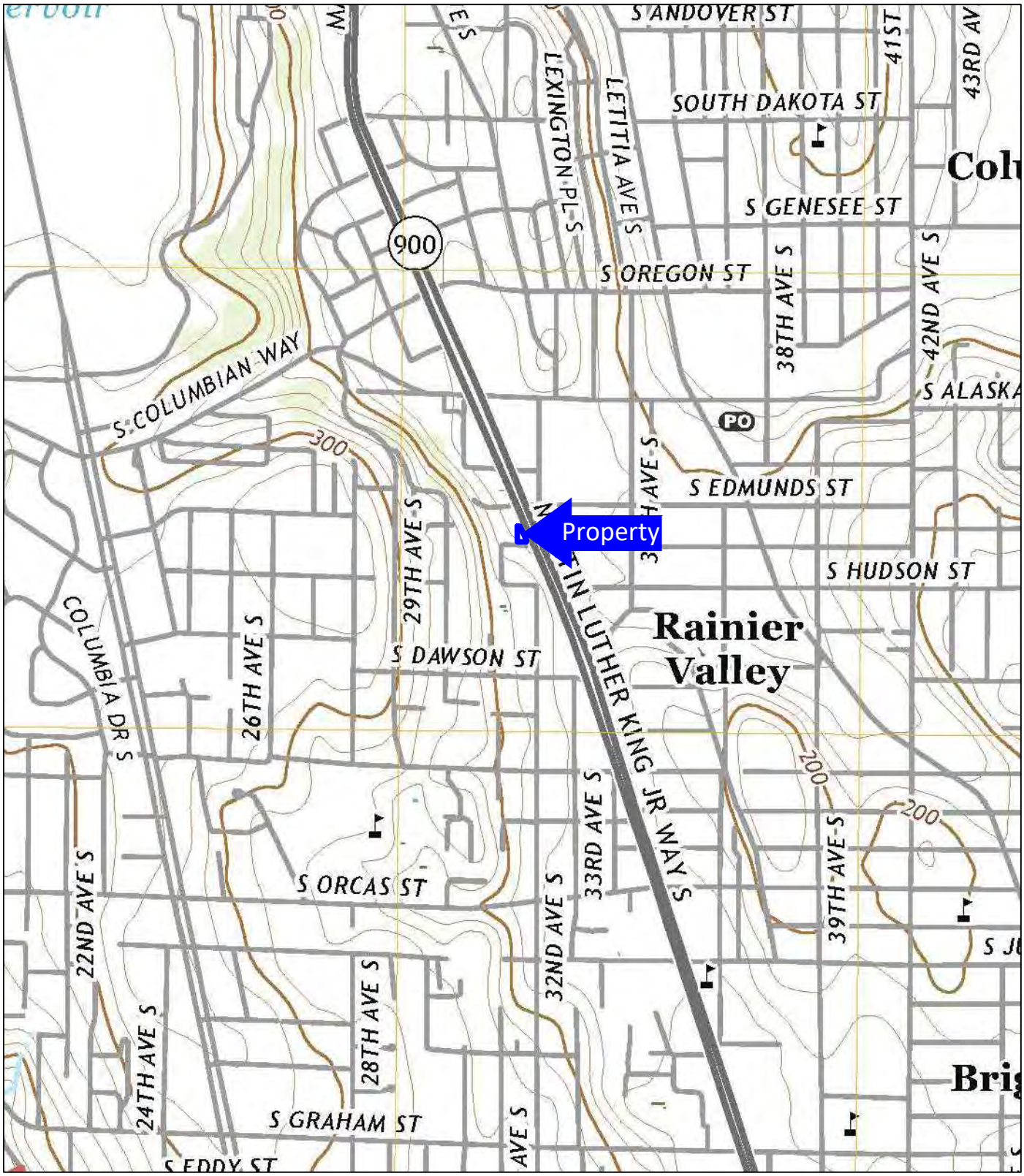
Megan Poysnick, LG
Senior Environmental Manager

Attachments:
Figure 1, Property Vicinity Map
Figure 2, Property Representation with Soil Analytical Data
Figure 3, Property Representation with Groundwater Analytical Data

Table 1, Summary of Soil Sample Analytical Laboratory Results
Table 2, Summary of Groundwater Grab Sample Analytical Laboratory Results

Appendix A, Test Pit Logs
Appendix B, Analytical Laboratory Reports and Chains of Custody

Distribution: *Ms. Erika Malone, City of Seattle, Office of Housing (PDF)*



USGS, 2020, Seattle South, Washington
7.5-Minute Quadrangle

Approximate Scale: 1"=1000'

0 500 1000 2000

N

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Ferdinand Street Vacant Lot Northwest - Site 9		Figure 1
RGI Project Number: 2021-552-15	Property Vicinity Map	Date Drawn: 04/2022
Address: 4865 Martin Luther King, Jr. Way S. & 3112 S. Ferdinand St., Seattle, WA 98108		

TP6

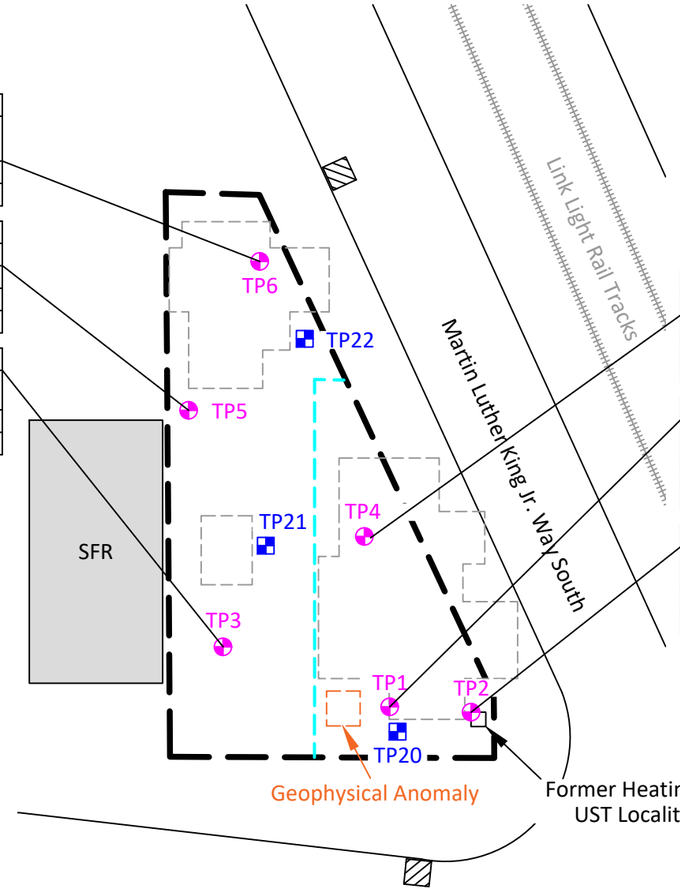
Date	Depth	BTEX	HCID			Naph.	Other VOCs	Total Metals					CrVI
			Gas	DSL	Oil			As	Cd	Cr	Pb	Hg	
03/30/22	5	ND	----	----	----	ND	ND	**4.43**	ND	**20.2**	**48.8**	ND	ND
03/30/22	10	ND	ND	ND	ND	ND	ND	----	----	----	----	----	----

TP5

Date	Depth	BTEX	HCID			Naph.	Other VOCs	Total Metals				
			Gas	DSL	Oil			As	Cd	Cr	Pb	Hg
03/30/22	5	----	----	----	----	----	----	**2.73**	ND	**13.8**	ND	ND
03/30/22	9	ND	ND	ND	ND	ND	ND	----	----	----	----	----

TP3

Date	Depth	HCID			Other VOCs	Total Metals				
		Gas	DSL	Oil		As	Cd	Cr	Pb	Hg
03/30/22	5	ND	ND	ND	ND	**3.7**	ND	**8.86**	**9.64**	ND



TP4

Date	Depth	BTEX	HCID			Naph.	Other VOCs	Total Metals				
			Gas	DSL	Oil			As	Cd	Cr	Pb	Hg
03/30/22	5	----	----	----	----	----	----	**2.79**	ND	**11.8**	ND	ND
03/30/22	8	ND	ND	ND	ND	ND	ND	----	----	----	----	----

TP1

Date	Depth	BTEX	HCID			Naph.	Other VOCs	Total Metals				
			Gas	DSL	Oil			As	Cd	Cr	Pb	Hg
03/30/22	5	ND	ND	ND	ND	ND	ND	**6.39**	ND	**14.8**	**165**	ND
03/30/22	10	----	ND	ND	ND	----	----	----	----	----	----	----

TP2

Date	Depth	BTEX	HCID			Naph.	Other VOCs	Total Metals				
			Gas	DSL	Oil			As	Cd	Cr	Pb	Hg
03/30/22	5	----	ND	ND	ND	----	----	**5.43**	ND	**11.8**	**49.3**	ND
03/30/22	10	ND	ND	ND	ND	ND	ND	----	----	----	----	----

= Soil Analytical Results in mg/kg;

Depth = Feet below ground surface
Gas = Gasoline total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
DSL/Oil = Diesel/oil
HCID = Hydrocarbon identification
VOCs = Volatile organic compounds
Naph. = Naphthalene
As, Cd, Cr, Pb, Hg, = Total arsenic, cadmium, chromium, lead, mercury
CrVI = Hexavalent chromium
ND = Not detected above laboratory detection limits
BSL = Below screening limits
Bold results indicate concentrations above laboratory detection limits
Bold and highlighted results (if any) indicate concentrations above MTCA Soil Cleanup Levels

* = Historically mapped approximate locality not encountered during RGI Geophysical Survey
= Former buildings
= Test pit by RGI, 03/30/22
= Test pit by CDM Smith, 2013
= Stormwater catch basin
SFR = Single-family residence
= Property boundary

Approximate Scale: 1"=30'
0 15 30 60
N

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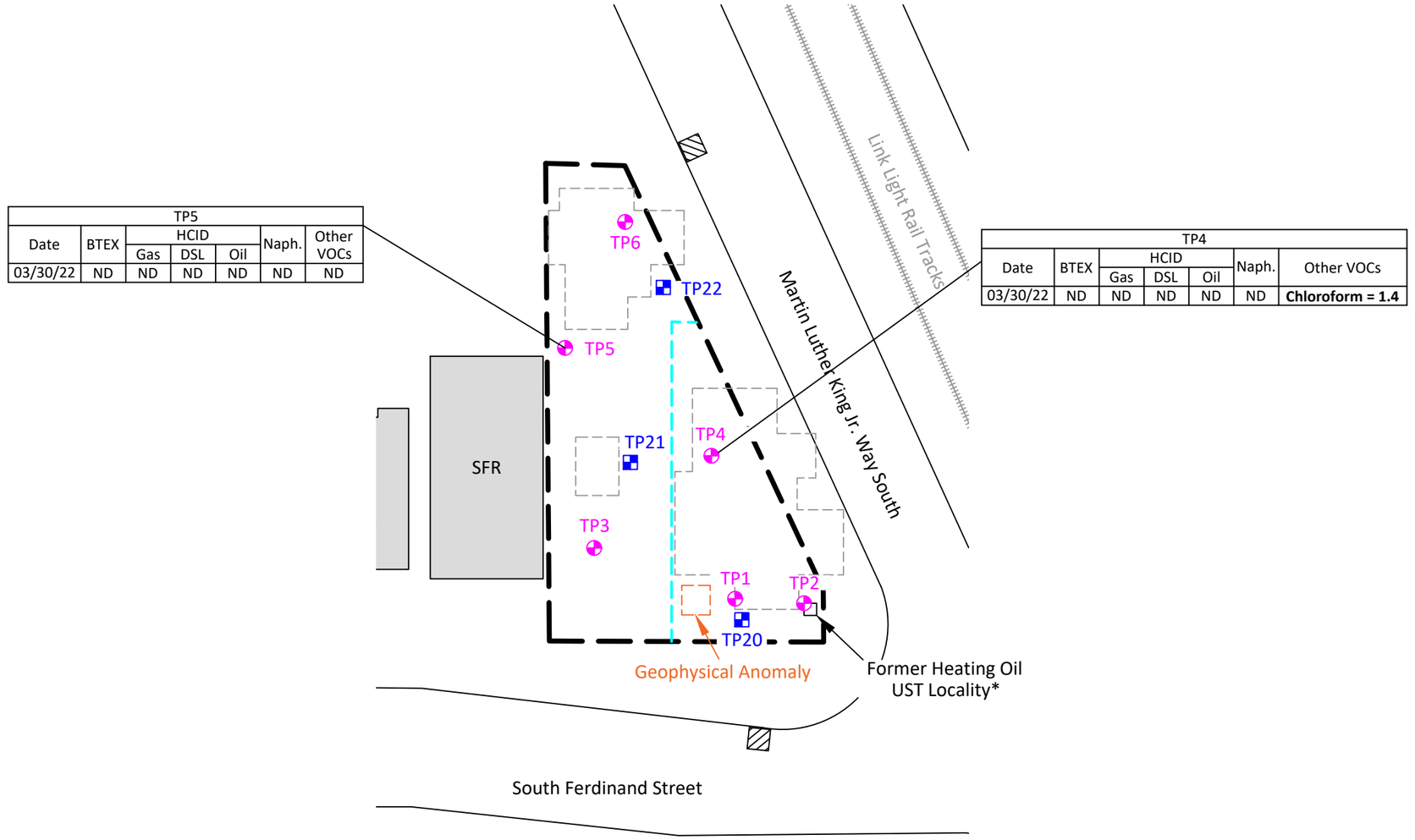
Ferdinand Street Vacant Lot Northwest - Site 9 | Figure 2

RGI Project Number: 2021-552-15

Property Representation with Soil Analytical Data

Date Drawn: 04/2022

Address: 4865 Martin Luther King, Jr. Way S. & 3112 S. Ferdinand St., Seattle, WA 98108



= Groundwater Analytical Results in ug/L;

Depth = Feet below ground surface
Gas = Gasoline total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
DSL/Oil = Diesel/oil
HCID = Hydrocarbon identification
VOCs = Volatile organic compounds
Naph. = Naphthalene
As, Cd, Cr, Pb, Hg, = Total arsenic, cadmium, chromium, lead, mercury,
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* = Historically mapped approximate locality not encountered during RGI Geophysical Survey
= Former buildings
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Approximate Scale: 1"=30'
0 15 30 60
N

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Ferdinand Street Vacant Lot Northwest - Site 9 | Figure 3
RGI Project Number: 2021-552-15 | Property Representation with Groundwater Analytical Data | Date Drawn: 04/2022
Address: 4865 Martin Luther King, Jr. Way S. & 3112 S. Ferdinand St., Seattle, WA 98108

Table 1. Summary of Soil Sample Analytical Laboratory Results
Ferdinand Street Vacant Lot Northwest - Site 9
4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108
The Riley Group, Inc. Project No. 2021-552-15

Sample Number	Sample Depth	Sample Date	PID	BTEX				HCID			PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC	1,1-DCE	Other VOCs	Naph.	Total Metals					CrVI
				B	T	E	X	Gasoline	Diesel	Heavy Oil									As	Cd	Cr	Pb	Hg	
TP1-5	5	03/30/22	0.5	ND<0.03	ND<0.05	ND<0.05	ND<0.15	ND<20	ND<50	ND<250	ND<0.025	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	ND<0.05	**6.39**	ND<1	**14.8**	**165**	ND<1	----
TP1-10	10	03/30/22	0.10	----	----	----	----	ND<20	ND<50	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----	----
TP1-14	14	03/30/22	0.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
TP2-5	5	03/30/22	0.0	----	----	----	----	ND<20	ND<50	ND<250	----	----	----	----	----	----	----	----	**5.43**	ND<1	**11.8**	**49.3**	ND<1	----
TP2-10	10	03/30/22	0.0	ND<0.03	ND<0.05	ND<0.05	ND<0.15	ND<20	ND<50	ND<250	ND<0.025	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	ND<0.05	----	----	----	----	----	----
TP2-14	14	03/30/22	0.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
TP3-5	5	03/30/22	0.0	ND<0.03	ND<0.05	ND<0.05	ND<0.15	ND<20	ND<50	ND<250	ND<0.025	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	ND<0.05	**3.7**	ND<1	**8.86**	**9.64**	ND<1	----
TP4-5	5	03/30/22	0.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**2.79**	ND<1	**11.8**	ND<5	ND<1	----
TP4-8	8	03/30/22	0.5	ND<0.03	ND<0.05	ND<0.05	ND<0.15	ND<20	ND<50	ND<250	ND<0.025	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	ND<0.05	----	----	----	----	----	----
TP5-5	5	03/30/22	0.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**2.73**	ND<1	**13.8**	ND<5	ND<1	----
TP5-9	9	03/30/22	0.4	ND<0.03	ND<0.05	ND<0.05	ND<0.15	ND<20	ND<50	ND<250	ND<0.025	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	ND<0.05	----	----	----	----	----	----
TP6-5	5	03/30/22	0.3	ND<0.03	ND<0.05	ND<0.05	ND<0.15	----	----	----	ND<0.025	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	ND<0.05	**4.43**	ND<1	**20.2**	**48.8**	ND<1	ND
TP6-10	10	03/30/22	0.5	ND<0.03	ND<0.05	ND<0.05	ND<0.15	ND<20	ND<50	ND<250	ND<0.025	ND<0.02	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND	ND<0.05	----	----	----	----	----	----
TP6-15	15	03/30/22	0.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses				**0.03**	**7**	**6**	**9**	**100/30[1]**	**2,000**		**0.05**	**0.03**	**----**	**----**	**----**	**----**	**Analyte Specific**	**5**	**20**	**2**	**19/2,000[2]**	**250**	**2**	**19**
MTCA Method B Soil Cleanup Levels for Unrestricted Land Uses[3]				**---**	**---**	**---**	**---**	**---**	**---**	**---**	**----**	**----**	**160**	**1,600**	**0.67[4]**	**4,000**	**----**	**---**	**---**	**---**	**---**	**---**	**---**	

Notes:

All results and detection limits are given in milligrams per kilogram (mg/kg); equivalent to parts per million (ppm).

Sample Depth = Soil sample depth interval in feet below ground surface (bgs).

PID = Photoionization detector.

BTEX (benzene, toluene, ethylbenzene, and xylenes) determined using EPA Test Method 8021B or 8260D.

Gasoline, Diesel, and Oil HCID (hydrocarbon identification) determined using Northwest Test Method NWTPH-HCID.

PCE (tetrachloroethene), TCE (trichloroethene), cis-1,2-DCE (cis-1,2-dichloroethene), trans-1,2-DCE (trans-1,2-dichloroethene), VC (vinyl chloride), 1,1-DCE (1,1-dichloroethene), and other VOCs (volatile organic compounds) determined using EPA Test Method 8260D.

Total Metals (As = arsenic, Cd = cadmium, Cr = chromium, Pb = lead, Hg = mercury) determined using EPA Method 6020B.

ND = Not detected at a concentration above the analytical detection limit.

---- = Not analyzed or not applicable.

CrVI = Hexavalent chromium determined using EPA Method 7196

Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses (WAC 173-340-900, Table 740-1). MTCA Method B Soil Screening Levels from Ecology's Cleanup Level and Risk Calculation (CLARC) database.

[1] The higher cleanup level is allowed if no benzene is present in the gasoline mixture and the total concentration of toluene, ethylbenzene and xylenes is less than 1% of the gasoline mixture.

[2] The higher cleanup level is allowed if no hexavalent chromium (CrVI) is present in the sample.

[3] No MTCA Method A Cleanup Level has been established. Therefore, the MTCA Method B Non-Carcinogenic Standard Formula Value is listed for reference.

[4] No MTCA Method A Cleanup Level has been established. Therefore, the MTCA Method B Carcinogenic Standard Formula Value is listed for reference.

Bold results indicate concentrations (if any) above laboratory detection limits.

Bold and yellow highlighted results indicate concentrations (if any) that exceed MTCA Method A or B Soil Cleanup Levels.

Table 2. Summary of Groundwater Grab Sample Analytical Laboratory Results
Ferdinand Street Vacant Lot Northwest - Site 9
4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108
The Riley Group, Inc. Project No.2021-552-15

Sample Number	Sample Date	BTEX				HCID			PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC	1,1-DCE	Other VOCs
		B	T	E	X	Gasoline	Diesel	Heavy Oil							
TP4	03/30/22	ND<0.35	ND<1	ND<1	ND<3	ND<200	ND<500	ND<500	ND<1	ND<0.5	ND<1	ND<1	ND<0.02	ND<1	**Chloroform = 1.4**
TP5	03/30/22	ND<0.35	ND<1	ND<1	ND<3	ND<200	ND<500	ND<500	ND<1	ND<0.5	ND<1	ND<1	ND<0.02	ND<1	----
MTCA Method A Cleanup Levels for Ground Water		**5**	**1,000**	**700**	**1,000**	**800/1,000[1]**	**500**	**500**	**5**	**5**	**----**	**----**	**0.2**	**----**	**----**
MTCA Method B Cleanup Levels for Ground Water[2]		**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**16**	**160**	**----**	**400**	**1.4**

Notes:

Samples collected by RGI field staff using a peristaltic pump under low-flow conditions.

Unless otherwise noted, all analytical results are given in micrograms per liter (ug/L), equivalent to parts per billion (ppb).

BTEX (benzene, toluene, ethylbenzene, and xylenes) determined using EPA Test Method 8021B or 8260D.

HCID (hydrocarbon identification) determined using Northwest Test Method NWTPH-HCID.

PCE (tetrachloroethene), TCE (trichloroethene), cis-1,2-DCE (cis-1,2-dichloreothene), trans-1,2-DCE (trans-1,2-dichloroethene), VC (vinyl chloride), 1,1-DCE (1,1-dichloroethene), and other VOCs (volatile organic compounds) determined using EPA Method 8260D.

ND = Not detected at a concentration above the analytical detection limit.

---- = Not analyzed or not applicable.

Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Cleanup Levels for Ground Water (WAC 173-340-900, Table 720-1). MTCA Method B Standard Formula Values for Ground Water from Ecology's Cleanup Level and Risk Calculation (CLARC) database.

[1] The higher cleanup level is applicable if no benzene is detected in groundwater.

[2] No MTCA Method A Cleanup Level has been established. Therefore, the MTCA Method B Standard Formula Value is listed for reference.

Bold results indicate concentrations (if any) above laboratory detection limits.

Bold and yellow highlighted results indicate concentrations (if any) that exceed MTCA Method A or B Cleanup Levels for Ground Water.

Project Name: **Ferdinand Street Vacant Lot Northwest - Site 9**	Test Pit No.: TP1
Project Number: **2021-552-15**	**Sheet 1 of 1**
Client: **City of Seattle, Office of Housing**	

Date(s) Excavated: **03/30/22**	Logged By **JD/SK**	Surface Conditions: **Grass**
Excavation Method: **Excavation**	Bucket Size: **n/a**	Total Depth of Excavation: **14 feet bgs**
Excavator Type: **Mini-Excavator**	Excavating Contractor: **Kelly's Excavation**	Approximate Surface Elevation **n/a**
Groundwater Level: **Not Encountered**	Sampling Method(s) **Continuous**	Compaction Method **n/a**
Test Pit Backfill: **Excavated Material**	Location **4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108**	

Elevation (feet)	Depth (feet)	PID Reading, ppm	Sample Type	Sample ID	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0				GP		Brown, topsoil, large clasts, bricks, pipes, various debris	
					SM		silty SAND with gravel, brick, metal posts/pipes, various debris, moist, no odor, no sheen	
	5	0.5		TP1-5				
					SM		silty SAND with gravel, some clay, moist, no odor, no sheen	
	10	0.1		TP1-10				
					SM		Reddish Brown, silty SAND with gravel, moist, no odor, no sheen	
		0.0		TP1-14			Test pit refusal 14 feet bgs	
	15							

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **Ferdinand Street Vacant Lot Northwest - Site 9**	Test Pit No.: TP2
Project Number: **2021-552-15**	**Sheet 1 of 1**
Client: **City of Seattle, Office of Housing**	

Date(s) Excavated: **03/30/22**	Logged By **JD/SK**	Surface Conditions: **Grass**
Excavation Method: **Excavation**	Bucket Size: **n/a**	Total Depth of Excavation: **14 feet bgs**
Excavator Type: **Mini-Excavator**	Excavating Contractor: **Kelly's Excavation**	Approximate Surface Elevation **n/a**
Groundwater Level: **Not Encountered**	Sampling Method(s) **Continuous**	Compaction Method **n/a**
Test Pit Backfill: **Excavated Material**	Location **4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108**	

Elevation (feet)	Depth (feet)	PID Reading, ppm	Sample Type	Sample ID	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0				SM		Brown, silty SAND with gravel, various debris: brick, pipes, no odor, no sheen, moist	
	5	0.0		TP2-5				
					SM		Black, silty SAND with gravel, no odor, no sheen, moist	
	10	0.0		TP2-10				
					SM		Black, silty SAND with gravel, bluish gray till, no odor, no sheen, moist	
		0.0		TP2-14				
	15						Test pit refusal 14 feet bgs	

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **Ferdinand Street Vacant Lot Northwest - Site 9**	Test Pit No.: TP3
Project Number: **2021-552-15**	**Sheet 1 of 1**
Client: **City of Seattle, Office of Housing**	

Date(s) Excavated: **03/30/22**	Logged By **JD/SK**	Surface Conditions: **Grass**
Excavation Method: **Excavation**	Bucket Size: **n/a**	Total Depth of Excavation: **5 feet bgs**
Excavator Type: **Mini-Excavator**	Excavating Contractor: **Kelly's Excavation**	Approximate Surface Elevation **n/a**
Groundwater Level: **Not Encountered**	Sampling Method(s) **Continuous**	Compaction Method **n/a**
Test Pit Backfill: **Excavated Material**	Location **4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108**	

Elevation (feet)	Depth (feet)	PID Reading, ppm	Sample Type	Sample ID	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0				SM		Brown/red, silty SAND with gravel, no odor, no sheen	
	5	0.0		TP3-5	SM		Test pit refusal 5' feet bgs	
	10							
	15							

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **Ferdinand Street Vacant Lot Northwest - Site 9**	Test Pit No.: TP4
Project Number: **2021-552-15**	**Sheet 1 of 1**
Client: **City of Seattle, Office of Housing**	

Date(s) Excavated: **03/30/22**	Logged By **JD/SK**	Surface Conditions: **Grass**
Excavation Method: **Excavation**	Bucket Size: **n/a**	Total Depth of Excavation: **8 feet bgs**
Excavator Type: **Mini-Excavator**	Excavating Contractor: **Kelly's Excavation**	Approximate Surface Elevation **n/a**
Groundwater Level: **8'**	Sampling Method(s) **Continuous**	Compaction Method **n/a**
Test Pit Backfill: **Excavated Material**	Location **4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108**	

Elevation (feet)	Depth (feet)	PID Reading, ppm	Sample Type	Sample ID	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0				GP		Brown/black, silty SAND with gravel, various debris: bricks, concrete, pipes, moist, no odor, no sheen	
	5	0.1		TP4-5				
					SM		Blue/gray, silty SAND, shale-like at 8', moist, no odor, no sheen, slight water infiltration	
		0.5		TP4-8				
	10						Test pit refusal 8 feet bgs	
	15							

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

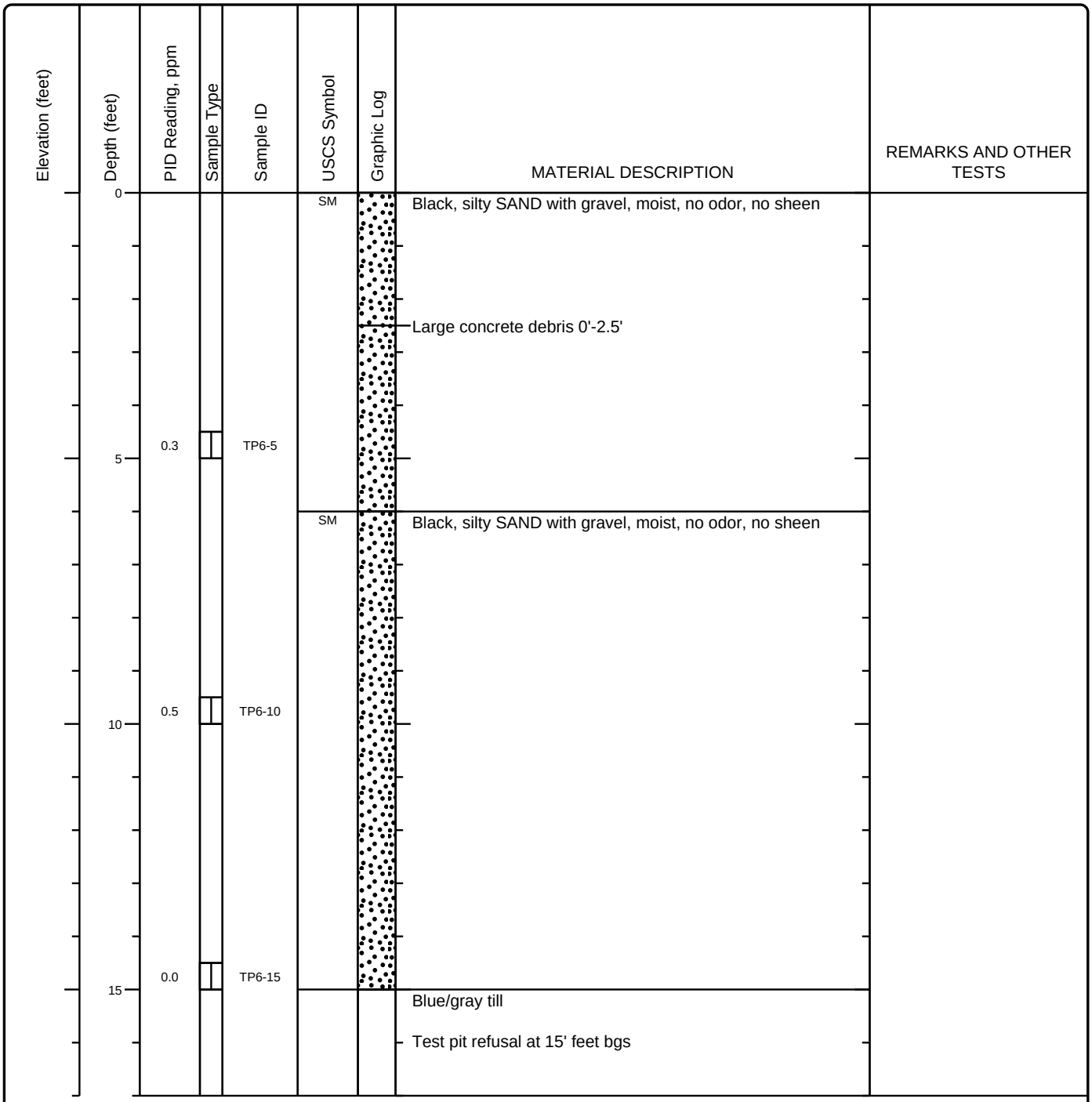
Project Name: **Ferdinand Street Vacant Lot Northwest - Site 9** Project Number: **2021-552-15** Client: **City of Seattle, Office of Housing**	Test Pit No.: TP5 **Sheet 1 of 1**

Date(s) Excavated: **03/30/22**	Logged By **JD/SK**	Surface Conditions: **Grass**
Excavation Method: **Excavation**	Bucket Size: **n/a**	Total Depth of Excavation: **9 feet bgs**
Excavator Type: **Mini-Excavator**	Excavating Contractor: **Kelly's Excavation**	Approximate Surface Elevation **n/a**
Groundwater Level: **8'**	Sampling Method(s) **Continuous**	Compaction Method **n/a**
Test Pit Backfill: **Excavated Material**	Location **4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108**	

Elevation (feet)	Depth (feet)	PID Reading, ppm	Sample Type	Sample ID	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0				SM		Brown, silty SAND with gravel, moist, no odor, no sheen	
					SM		Rusty-orange, blue-gray, till at 5 ', oxidized	
	5	0.4		TP5-5				
					SM		Brown, silty SAND with gravel, moist, no odor, no sheen, water infiltrating from sidewalls	
		0.4		TP5-9				
							Blue/gray, hard till, moist, no odor, no sheen	
	10						Test pit refusal 9 feet bgs	
	15							

Project Name: **Ferdinand Street Vacant Lot Northwest - Site 9** Project Number: **2021-552-15** Client: **City of Seattle, Office of Housing**	Test Pit No.: TP6 **Sheet 1 of 1**

Date(s) Excavated: **03/30/22**	Logged By **JD/SK**	Surface Conditions: **Grass**
Excavation Method: **Excavation**	Bucket Size: **n/a**	Total Depth of Excavation: **15 feet bgs**
Excavator Type: **Mini-Excavator**	Excavating Contractor: **Kelly's Excavation**	Approximate Surface Elevation **n/a**
Groundwater Level: **Not Encountered**	Sampling Method(s) **Continuous**	Compaction Method **n/a**
Test Pit Backfill: **Excavated Material**	Location **4865 MLK Jr. Way South and 3112 S Ferdinand Street, Seattle, Washington 98108**	



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **Ferdinand Street Vacant Lot Northwest - Site 9**
Project Number: **2021-552-15**
Client: **City of Seattle, Office of Housing**

Key to Logs

Sheet 1 of 1

1 Elevation (feet)	2 Depth (feet)	3 PID Reading, ppm	4 Sample Type	5 Sample ID	6 USCS Symbol	7 Graphic Log	8 MATERIAL DESCRIPTION	9 REMARKS AND OTHER TESTS

COLUMN DESCRIPTIONS

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 PID Reading, ppm: The reading from a photo-ionization detector, in parts per million.
4 Sample Type: Type of soil sample collected at the depth interval shown.
5 Sample ID: Sample identification number.
6 USCS Symbol: USCS symbol of the subsurface material.
7 Graphic Log: Graphic depiction of the subsurface material encountered.
8 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS


Poorly graded GRAVEL (GP)


Silty SAND (SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS


Auger sampler


Bulk Sample


3-inch-OD California w/ brass rings


CME Sampler


Continuous


Grab Sample


2.5-inch-OD Modified California w/ brass liners


Pitcher Sample


2-inch-OD unlined split spoon (SPT)


Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS


Water level (at time of drilling, ATD)


Water level (after waiting, AW)


Minor change in material properties within a stratum

Inferred/gradational contact between strata

Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 21, 2022

Eric Zuern, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Mr Zuern:

Included are the additional results from the testing of material submitted on March 31, 2022 from the Site 9 2021-552-15 PRP4, F&BI 203571 project. There is 1 page included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRG0421R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2022 by Friedman & Bruya, Inc. from the The Riley Group Site 9 2021-552-15 PRP4, F&BI 203571 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
203571 -01	TP1-5
203571 -02	TP1-10
203571 -03	TP1-14
203571 -04	TP2-5
203571 -05	TP2-10
203571 -06	TP2-14
203571 -07	TP3-5
203571 -08	TP4-5
203571 -09	TP4-8
203571 -10	TP4
203571 -11	TP5-5
203571 -12	TP5-9
203571 -13	TP5
203571 -14	TP6-5
203571 -15	TP6-10
203571 -16	TP6-15

Sample TP6-5 was sent to Fremont Analytical for hexavalent chromium analysis. The report is enclosed.

SAMPLE CHAIN OF CUSTODY 03.31.22 [redacted]

Page # B13 VS-A4 of 2 A13 E03 VW1

Report To: Eric Zwem 203571 [redacted]
Company: Riley Group Inc.
Address: 17522 Bothell Way NE
City, State, ZIP: Bothell WA 98011
Phone: 425-415-0551 ext. 334 Email: ezwem@riley-group.com

SAMPLERS (signature)	
PROJECT NAME: Site 9	PO#: 2021-552-PRP4 please change to -15 sil report
REMARKS	INVOICE TO: RGI
Project specific RLs? - Yes / No	

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCA-5 metals				Notes
TP1-5	01 A-E	3-30-22	9:05	Soil	5				X	X			X				● per EZ
TP1-10	02	↓	9:20	↓	5				●								4/5/22 ME
TP1-14	03		9:25		5												
TP2-5	04		10:00		5				●				X				
TP2-10	05		10:10		5				X	X							
TP2-14	06		10:30		5												
TP3-5	07		11:05		5				X	X			X				
TP4-5	08		11:35		5								X				
TP4-8	09		11:50		5				X	X							~~Samples received at 5 °C~~
TP4	10 A-F		1:00	Water	6				X	X							

Friedman & Bruya, Inc.
Ph. (206) 285-8282
NP

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Eric Zwem	RGI	3/31/22	
Received by:	[signature]	Nolan Christenson	FedEx	3/31/22	11:05
Relinquished by:					
Received by:	[signature]	Tokala Christensen	F&B	3/31/22	12:29

SAMPLE CHAIN OF CUSTODY 03.31.22

203571

US-MW/BI31 E03 AI3 V01

Page # 2 of 2

Report To Eric Zuern

Company RGI

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*) [redacted]

PROJECT NAME: Site 9

PO #: 2021-552 PRPY (please change to -15 on report)

REMARKS: Project specific RLs? - Yes / No

INVOICE TO: RGI

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCA-5 metals	CAL			Notes
TP5-5	11 A-E	3-30-22	12:15	Soil	5								X				(X) per EZ
TP5-9	12		12:30	↓	5				X	X							4/12/22 ME
TP5	13 A-F		1:25	Water	6				X	X							
TP6-5	14 A-E		2:00	Soil	5					X			X	(X)			
TP6-10	15		2:15		5				X	X							
TP6-15	16	↓	2:30	↓	5												
														Samples received at 5 °C			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Eric Zuern	RGI	3/31/22	
Received by:	Nolan Christensen	FedEx	3/31/22	11:05
Relinquished by:				
Received by:	Tokala Christensen	F+B	3/31/22	12:29

Friedman & Bruya, Inc.
Ph. (206) 285-8282

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 203571
Work Order Number: 2204197

April 20, 2022

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 4/13/2022 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *04/20/2022*

CLIENT: Friedman & Bruya
Project: 203571
Work Order: 2204197

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2204197-001	TP6-5	03/30/2022 2:00 PM	04/13/2022 2:11 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2204197**
Date: **4/20/2022**

CLIENT: Friedman & Bruya
Project: 203571

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2204197**
Date Reported: **4/20/2022**

Client: Friedman & Bruya
Project: 203571
Lab ID: 2204197-001
Client Sample ID: **TP6-5**

Collection Date: 3/30/2022 2:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R74847		Analyst: MCH
Percent Moisture	22.8	0.500		wt%	1	4/19/2022 2:30:15 PM
Hexavalent Chromium by EPA Method 7196				Batch ID: 36115		Analyst: TN
Chromium, Hexavalent	ND	0.613		mg/Kg-dry	1	4/15/2022 3:48:00 PM

Work Order: 2204197
CLIENT: Friedman & Bruya
Project: 203571

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **MB-36115** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/15/2022** RunNo: **74786**
Client ID: **MBLKS** Batch ID: **36115** Analysis Date: **4/15/2022** SeqNo: **1534590**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-36115** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/15/2022** RunNo: **74786**
Client ID: **LCSS** Batch ID: **36115** Analysis Date: **4/15/2022** SeqNo: **1534591**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.48	0.500	2.500	0	99.0	80	121				

Sample ID: **2204147-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/15/2022** RunNo: **74786**
Client ID: **BATCH** Batch ID: **36115** Analysis Date: **4/15/2022** SeqNo: **1534593**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.599						0		30	

Sample ID: **2204147-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/15/2022** RunNo: **74786**
Client ID: **BATCH** Batch ID: **36115** Analysis Date: **4/15/2022** SeqNo: **1534594**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1.95	0.578	2.890	0	67.5	19.5	157				

Sample ID: **2204147-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/15/2022** RunNo: **74786**
Client ID: **BATCH** Batch ID: **36115** Analysis Date: **4/15/2022** SeqNo: **1534595**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1.74	0.572	2.858	0	60.9	19.5	157	1.950	11.3	30	

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2204197
Logged by:	Matt Langston	Date Received:	4/13/2022 2:11:00 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present ☐
2.	How was the sample delivered?	Client				

Log In

3.	Coolers are present?	Yes	☑	No	☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes	☑	No	☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No	☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes	☑	No	☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes	☑	No	☐	
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐	
10.	Are samples properly preserved?	Yes	☑	No	☐	
11.	Was preservative added to bottles?	Yes	☐	No	☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes	☐	No	☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No	☐	
14.	Does paperwork match bottle labels?	Yes	☑	No	☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐	
16.	Is it clear what analyses were requested?	Yes	☑	No	☐	
17.	Were all holding times able to be met?	Yes	☑	No	☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	0.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2204197

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
203571	C-136

REMARKS

Please Email Results

TURNAROUND TIME

☒ Standard TAT

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	Cr VI							Notes
TP6-5		3/30/12	1400	soil	1				X							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	4/13/12	08 11
Received by:	Justine Pogue	Justine Pogue	FAJ	4/13/12	14:11
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 12, 2022

Eric Zuern, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Mr Zuern:

Included is the amended report from the testing of material submitted on March 31, 2022 from the Site 9 2021-552-15 PRP4, F&BI 203571 project. The "ZZZ" notations have been removed from the report.

We apologize for the inconvenience and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRG0408R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 8, 2022

Eric Zuern, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

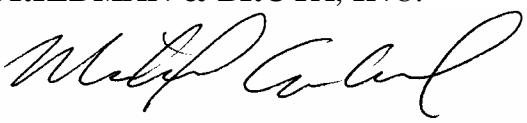
Dear Mr Zuern:

Included are the results from the testing of material submitted on March 31, 2022 from the Site 9 2021-552-15 PRP4, F&BI 203571 project. There are 30 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG0408R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2022 by Friedman & Bruya, Inc. from the The Riley Group Site 9 2021-552-15 PRP4, F&BI 203571 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
203571 -01	TP1-5
203571 -02	TP1-10
203571 -03	TP1-14
203571 -04	TP2-5
203571 -05	TP2-10
203571 -06	TP2-14
203571 -07	TP3-5
203571 -08	TP4-5
203571 -09	TP4-8
203571 -10	TP4
203571 -11	TP5-5
203571 -12	TP5-9
203571 -13	TP5
203571 -14	TP6-5
203571 -15	TP6-10
203571 -16	TP6-15

The 8260D calibration standard failed the acceptance criteria for dichlorodifluoromethane in several samples. The data were flagged accordingly.

Several 8260D soil compounds did not pass the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

The 8260D laboratory control sample exceeded the acceptance criteria for 1,1-dichloroethane. The compound was not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 04/08/22
Date Received: 03/31/22
Project: Site 9 2021-552-15 PRP4, F&BI 203571
Date Extracted: 04/01/22 and 04/07/22
Date Analyzed: 04/01/22 and 04/07/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
TP1-5 203571-01	ND	ND	ND	108
TP1-10 203571-02	ND	ND	ND	94
TP2-5 203571-04	ND	ND	ND	94
TP2-10 203571-05	ND	ND	ND	108
TP3-5 203571-07	ND	ND	ND	105
TP4-8 203571-09	ND	ND	ND	103
TP5-9 203571-12	ND	ND	ND	115
TP6-10 203571-15	ND	ND	ND	110
Method Blank 02-771 MB	ND	ND	ND	105
Method Blank 02-850 mb	ND	ND	ND	94

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 04/08/22
Date Received: 03/31/22
Project: Site 9 2021-552-15 PRP4, F&BI 203571
Date Extracted: 04/01/22
Date Analyzed: 04/01/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
TP4 203571-10	ND	ND	ND	ip
TP5 203571-13	ND	ND	ND	87
Method Blank 02-772 MB2	ND	ND	ND	121

ND - Material not detected at or above 0.2 mg/L gas, 0.5 mg/L diesel and 0.5 mg/L heavy oil.

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP1-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-01
Date Analyzed:	04/01/22	Data File:	203571-01.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.39
Cadmium	<1
Chromium	14.8
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP1-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-01 x5
Date Analyzed:	04/04/22	Data File:	203571-01 x5.065
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	165

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP2-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-04
Date Analyzed:	04/01/22	Data File:	203571-04.103
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.43
Cadmium	<1
Lead	49.3
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP2-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-04 x5
Date Analyzed:	04/04/22	Data File:	203571-04 x5.066
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	11.8

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP3-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-07
Date Analyzed:	04/01/22	Data File:	203571-07.104
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.70
Cadmium	<1
Chromium	8.86
Lead	9.64
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP4-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-08
Date Analyzed:	04/01/22	Data File:	203571-08.105
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.79
Cadmium	<1
Chromium	11.8
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP5-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-11
Date Analyzed:	04/01/22	Data File:	203571-11.106
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.73
Cadmium	<1
Chromium	13.8
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP6-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-14
Date Analyzed:	04/01/22	Data File:	203571-14.107
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.43
Cadmium	<1
Chromium	20.2
Lead	48.8
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	The Riley Group
Date Received:	NA	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	I2-259 mb
Date Analyzed:	04/01/22	Data File:	I2-259 mb.042
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	TP1-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	203571-01
Date Analyzed:	04/01/22	Data File:	040110.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	90	109
Toluene-d8	91	89	112
4-Bromofluorobenzene	103	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	TP2-10	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	203571-05
Date Analyzed:	04/04/22	Data File:	040416.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	90	109
Toluene-d8	92	89	112
4-Bromofluorobenzene	103	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 ca	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	TP3-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	203571-07
Date Analyzed:	04/01/22	Data File:	040112.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	91	89	112
4-Bromofluorobenzene	106	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	TP4-8	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	203571-09
Date Analyzed:	04/01/22	Data File:	040113.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	90	109
Toluene-d8	90	89	112
4-Bromofluorobenzene	105	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	TP5-9	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	203571-12
Date Analyzed:	04/01/22	Data File:	040114.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	90	109
Toluene-d8	90	89	112
4-Bromofluorobenzene	102	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	TP6-5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	203571-14
Date Analyzed:	04/04/22	Data File:	040417.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	93	89	112
4-Bromofluorobenzene	106	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 ca	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	TP6-10	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	203571-15
Date Analyzed:	04/01/22	Data File:	040116.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	90	109
Toluene-d8	94	89	112
4-Bromofluorobenzene	103	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	02-712 mb
Date Analyzed:	03/31/22	Data File:	033105.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	103	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TP4	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-10
Date Analyzed:	04/01/22	Data File:	040125.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	100	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	1.4	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TP5	Client:	The Riley Group
Date Received:	03/31/22	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	04/01/22	Lab ID:	203571-13
Date Analyzed:	04/01/22	Data File:	040126.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	85	117
Toluene-d8	100	88	112
4-Bromofluorobenzene	102	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	Site 9 2021-552-15 PRP4
Date Extracted:	03/31/22	Lab ID:	02-715 mb
Date Analyzed:	04/01/22	Data File:	040107.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	100	90	111

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

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

Laboratory Code: 203549-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<1	80	77	75-125	4
Cadmium	mg/kg (ppm)	10	<1	102	102	75-125	0
Chromium	mg/kg (ppm)	50	11.4	87	83	75-125	5
Lead	mg/kg (ppm)	50	<1	87	87	75-125	0
Mercury	mg/kg (ppm	5	<1	82	75	75-125	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	84	80-120
Cadmium	mg/kg (ppm)	10	108	80-120
Chromium	mg/kg (ppm)	50	104	80-120
Lead	mg/kg (ppm)	50	100	80-120
Mercury	mg/kg (ppm)	5	104	80-120

Date of Report: 04/08/22
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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 203530-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	21	18	10-142	15
Chloromethane	mg/kg (ppm)	1	<0.5	57	54	10-126	5
Vinyl chloride	mg/kg (ppm)	1	<0.05	67	60	10-138	11
Bromomethane	mg/kg (ppm)	1	<0.5	72	62	10-163	15
Chloroethane	mg/kg (ppm)	1	<0.5	72	66	10-176	9
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	62	54	10-176	14
Acetone	mg/kg (ppm)	5	<5	129	129	10-163	0
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	71	62	10-160	14
Hexane	mg/kg (ppm)	1	0.70	43 b	52 b	10-137	19 b
Methylene chloride	mg/kg (ppm)	1	<0.5	90	82	10-156	9
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	101	100	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	85	81	14-137	5
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	88	87	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	107	102	10-158	5
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	89	84	25-135	6
Chloroform	mg/kg (ppm)	1	<0.05	84	81	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	5	<1	107	106	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	85	83	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	83	78	10-156	6
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	82	76	17-140	8
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	76	68	9-164	11
Benzene	mg/kg (ppm)	1	0.27	74 b	74 b	29-129	0 b
Trichloroethene	mg/kg (ppm)	1	<0.02	82	78	21-139	5
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	96	97	30-135	1
Bromodichloromethane	mg/kg (ppm)	1	<0.05	85	85	23-155	0
Dibromomethane	mg/kg (ppm)	1	<0.05	88	87	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	107	105	24-155	2
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	89	88	28-144	1
Toluene	mg/kg (ppm)	1	0.15	73	71	35-130	3
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	92	88	26-149	4
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	176	196	10-205	11
2-Hexanone	mg/kg (ppm)	5	<0.5	103	101	15-166	2
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	86	84	31-137	2
Tetrachloroethene	mg/kg (ppm)	1	<0.025	69	63	20-133	9
Dibromochloromethane	mg/kg (ppm)	1	<0.05	72	71	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	87	84	28-142	4
Chlorobenzene	mg/kg (ppm)	1	<0.05	80	77	32-129	4
Ethylbenzene	mg/kg (ppm)	1	5.1	10 b	78 b	32-137	155 b
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	75	74	31-143	1
m,p-Xylene	mg/kg (ppm)	2	19	0 vo	82	34-136	nm
o-Xylene	mg/kg (ppm)	1	8.9	0 vo	83	33-134	nm
Styrene	mg/kg (ppm)	1	<0.05	97	95	35-137	2
Isopropylbenzene	mg/kg (ppm)	1	1.8	55 b	71 b	31-142	25 b
Bromoform	mg/kg (ppm)	1	<0.05	71	67	21-156	6
n-Propylbenzene	mg/kg (ppm)	1	5.8	18 b	102 b	23-146	140 b
Bromobenzene	mg/kg (ppm)	1	<0.05	76	72	34-130	5
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	7.6	0 vo	102	18-149	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	192 vo	171 vo	28-140	12
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	82	78	25-144	5
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	292 vo	151 vo	31-134	64 vo
4-Chlorotoluene	mg/kg (ppm)	1	0.81	66 b	74 b	31-136	11 b
tert-Butylbenzene	mg/kg (ppm)	1	0.046	68	63	30-137	8
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	31	0 vo	146	10-182	nm
sec-Butylbenzene	mg/kg (ppm)	1	3.2	35 b	77 b	23-145	75 b
p-Isopropyltoluene	mg/kg (ppm)	1	2.5	40 b	72 b	21-149	57 b
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	72	69	30-131	4
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	72	67	29-129	7
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	77	74	31-132	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	117	125	11-161	7
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	75	69	22-142	8
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	82	66	10-142	22 vo
Naphthalene	mg/kg (ppm)	1	3.0	54 b	87 b	14-157	47 b
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	84	81	20-144	4

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	38	10-146
Chloromethane	mg/kg (ppm)	1	62	27-133
Vinyl chloride	mg/kg (ppm)	1	78	22-139
Bromomethane	mg/kg (ppm)	1	73	38-114
Chloroethane	mg/kg (ppm)	1	79	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	83	10-196
Acetone	mg/kg (ppm)	5	120	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	83	47-128
Hexane	mg/kg (ppm)	1	101	43-142
Methylene chloride	mg/kg (ppm)	1	98	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	111	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	99	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	102	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	127	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	95	72-127
Chloroform	mg/kg (ppm)	1	90	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	104	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	95	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	101	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	94	69-128
Carbon tetrachloride	mg/kg (ppm)	1	99	60-139
Benzene	mg/kg (ppm)	1	92	71-118
Trichloroethene	mg/kg (ppm)	1	94	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	98	72-127
Bromodichloromethane	mg/kg (ppm)	1	94	57-126
Dibromomethane	mg/kg (ppm)	1	97	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	109	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	102	67-122
Toluene	mg/kg (ppm)	1	94	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	103	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	96	64-115
2-Hexanone	mg/kg (ppm)	5	107	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	95	72-130
Tetrachloroethene	mg/kg (ppm)	1	93	72-114
Dibromochloromethane	mg/kg (ppm)	1	93	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	98	74-132
Chlorobenzene	mg/kg (ppm)	1	93	76-111
Ethylbenzene	mg/kg (ppm)	1	95	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	95	64-121
m,p-Xylene	mg/kg (ppm)	2	96	78-122
o-Xylene	mg/kg (ppm)	1	96	77-124
Styrene	mg/kg (ppm)	1	95	74-126
Isopropylbenzene	mg/kg (ppm)	1	97	76-127
Bromoform	mg/kg (ppm)	1	88	56-132
n-Propylbenzene	mg/kg (ppm)	1	98	74-124
Bromobenzene	mg/kg (ppm)	1	95	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	98	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	98	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	96	61-137
2-Chlorotoluene	mg/kg (ppm)	1	96	74-121
4-Chlorotoluene	mg/kg (ppm)	1	96	75-122
tert-Butylbenzene	mg/kg (ppm)	1	99	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	97	76-125
sec-Butylbenzene	mg/kg (ppm)	1	98	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	98	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	95	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	95	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	97	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	100	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	98	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	98	50-153
Naphthalene	mg/kg (ppm)	1	98	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	96	63-138

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

Laboratory Code: 204002-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	91	50-150
Chloromethane	ug/L (ppb)	10	<10	92	50-150
Vinyl chloride	ug/L (ppb)	10	0.14	103	16-176
Bromomethane	ug/L (ppb)	10	<5	105	10-193
Chloroethane	ug/L (ppb)	10	<1	99	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	94	50-150
Acetone	ug/L (ppb)	50	<50	95	15-179
1,1-Dichloroethene	ug/L (ppb)	10	<1	94	50-150
Hexane	ug/L (ppb)	10	<5	97	49-161
Methylene chloride	ug/L (ppb)	10	<5	92	40-143
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	101	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	89	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	92	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	126	10-335
cis-1,2-Dichloroethene	ug/L (ppb)	10	1.4	90	50-150
Chloroform	ug/L (ppb)	10	<1	93	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	108	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	88	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	105	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	94	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	115	50-150
Benzene	ug/L (ppb)	10	<0.35	92	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	89	43-133
1,2-Dichloropropane	ug/L (ppb)	10	<1	95	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	97	50-150
Dibromomethane	ug/L (ppb)	10	<1	95	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	116	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	105	48-145
Toluene	ug/L (ppb)	10	<1	93	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	114	37-152
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	99	50-150
2-Hexanone	ug/L (ppb)	50	<10	112	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	100	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	90	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	108	33-164
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	103	50-150
Chlorobenzene	ug/L (ppb)	10	<1	98	50-150
Ethylbenzene	ug/L (ppb)	10	<1	95	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	113	50-150
m,p-Xylene	ug/L (ppb)	20	<2	96	50-150
o-Xylene	ug/L (ppb)	10	<1	95	50-150
Styrene	ug/L (ppb)	10	<1	98	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	98	50-150
Bromoform	ug/L (ppb)	10	<5	114	23-161
n-Propylbenzene	ug/L (ppb)	10	<1	97	50-150
Bromobenzene	ug/L (ppb)	10	<1	99	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	96	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	102	10-235
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	98	33-151
2-Chlorotoluene	ug/L (ppb)	10	<1	97	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	99	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	96	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	97	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	98	46-139
p-Isopropyltoluene	ug/L (ppb)	10	<1	97	46-140
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	99	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	99	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	99	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	116	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	94	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	95	42-150
Naphthalene	ug/L (ppb)	10	<1	93	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	93	44-155

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	87	85	70-130	2
Chloromethane	ug/L (ppb)	10	91	86	70-130	6
Vinyl chloride	ug/L (ppb)	10	105	103	70-130	2
Bromomethane	ug/L (ppb)	10	103	105	28-182	2
Chloroethane	ug/L (ppb)	10	101	99	70-130	2
Trichlorofluoromethane	ug/L (ppb)	10	100	96	70-130	4
Acetone	ug/L (ppb)	50	94	94	42-155	0
1,1-Dichloroethene	ug/L (ppb)	10	93	92	70-130	1
Hexane	ug/L (ppb)	10	95	91	50-161	4
Methylene chloride	ug/L (ppb)	10	97	90	29-192	7
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	101	100	70-130	1
trans-1,2-Dichloroethene	ug/L (ppb)	10	90	88	70-130	2
1,1-Dichloroethane	ug/L (ppb)	10	92	91	70-130	1
2,2-Dichloropropane	ug/L (ppb)	10	134 vo	131 vo	70-130	2
cis-1,2-Dichloroethene	ug/L (ppb)	10	92	91	70-130	1
Chloroform	ug/L (ppb)	10	92	90	70-130	2
2-Butanone (MEK)	ug/L (ppb)	50	84	98	50-157	15
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	87	86	70-130	1
1,1,1-Trichloroethane	ug/L (ppb)	10	106	105	70-130	1
1,1-Dichloropropene	ug/L (ppb)	10	91	91	70-130	0
Carbon tetrachloride	ug/L (ppb)	10	113	113	70-130	0
Benzene	ug/L (ppb)	10	92	90	70-130	2
Trichloroethene	ug/L (ppb)	10	88	87	70-130	1
1,2-Dichloropropane	ug/L (ppb)	10	90	91	70-130	1
Bromodichloromethane	ug/L (ppb)	10	96	97	70-130	1
Dibromomethane	ug/L (ppb)	10	91	93	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	105	108	70-130	3
cis-1,3-Dichloropropene	ug/L (ppb)	10	101	107	70-130	6
Toluene	ug/L (ppb)	10	88	89	70-130	1
trans-1,3-Dichloropropene	ug/L (ppb)	10	110	114	70-130	4
1,1,2-Trichloroethane	ug/L (ppb)	10	96	98	70-130	2
2-Hexanone	ug/L (ppb)	50	100	103	69-130	3
1,3-Dichloropropane	ug/L (ppb)	10	90	94	70-130	4
Tetrachloroethene	ug/L (ppb)	10	89	89	70-130	0
Dibromochloromethane	ug/L (ppb)	10	106	106	63-142	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	99	99	70-130	0
Chlorobenzene	ug/L (ppb)	10	93	95	70-130	2
Ethylbenzene	ug/L (ppb)	10	92	92	70-130	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	112	112	70-130	0
m,p-Xylene	ug/L (ppb)	20	92	92	70-130	0
o-Xylene	ug/L (ppb)	10	92	93	70-130	1
Styrene	ug/L (ppb)	10	94	93	70-130	1
Isopropylbenzene	ug/L (ppb)	10	94	96	70-130	2
Bromoform	ug/L (ppb)	10	111	110	50-157	1
n-Propylbenzene	ug/L (ppb)	10	93	94	70-130	1
Bromobenzene	ug/L (ppb)	10	95	94	70-130	1
1,3,5-Trimethylbenzene	ug/L (ppb)	10	93	92	52-150	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	96	96	70-130	0
1,2,3-Trichloropropane	ug/L (ppb)	10	90	94	70-130	4
2-Chlorotoluene	ug/L (ppb)	10	96	93	70-130	3
4-Chlorotoluene	ug/L (ppb)	10	93	92	70-130	1
tert-Butylbenzene	ug/L (ppb)	10	94	94	70-130	0
1,2,4-Trimethylbenzene	ug/L (ppb)	10	93	94	70-130	1
sec-Butylbenzene	ug/L (ppb)	10	96	95	70-130	1
p-Isopropyltoluene	ug/L (ppb)	10	96	95	70-130	1
1,3-Dichlorobenzene	ug/L (ppb)	10	95	93	70-130	2
1,4-Dichlorobenzene	ug/L (ppb)	10	95	93	70-130	2
1,2-Dichlorobenzene	ug/L (ppb)	10	96	95	70-130	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	109	107	70-130	2
1,2,4-Trichlorobenzene	ug/L (ppb)	10	93	93	70-130	0
Hexachlorobutadiene	ug/L (ppb)	10	92	92	70-130	0
Naphthalene	ug/L (ppb)	10	90	91	70-130	1
1,2,3-Trichlorobenzene	ug/L (ppb)	10	91	90	69-143	1

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SAMPLE CHAIN OF CUSTODY 03.31.22

203571 [redacted]

Page # BI3 VS-A4 of 2 AI3 E03 VW1

Report To Eric Zuem
Company Riley Group Inc.
Address 17522 Bothell Way NE
City, State, ZIP Bothell WA 98011
Phone 425-415-0551 ext. 334 Email ezuem@riley-group.com

SAMPLERS (signature)	
[redacted]	
PROJECT NAME	PO #
Site 9	2021-552-PRP4 please change to ~15 oil report
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	RGI

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCA-5 metals				Notes
TP1-5	01 A-E	~~[illegible]~~ 3-30-22	9:05	Soil	5				X	X			X				● per EZ
TP1-10	02		9:20		5				●								4/5/22 ME
TP1-14	03		9:25		5												
TP2-5	04		10:00		5				●				X				
TP2-10	05		10:10		5				X	X							
TP2-14	06		10:30		5												
TP3-5	07		11:05		5				X	X			X				
TP4-5	08		11:35		5								X				
TP4-8	09		11:50		5				X	X							
TP4	10 A-F		1:00	Water	6				X	X							

~~Samples received at~~ 5 °C

Friedman & Bruya, Inc.
Ph. (206) 285-8282

NP

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Eric Zuem	RGI	3/31/22	
Received by:	[signature]	Nolan Christensen	FedEx	3/31/22	11:05
Relinquished by:					
Received by:	[signature]	Tokala Christensen	F+B	3/31/22	12:29

SAMPLE CHAIN OF CUSTODY 03.31.22

203571

US-HM/BI31 E03 AI3 V01

Page # 2 of 2

Report To Eric Zuern

Company RGI

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME: Site 9

PO # PRP4: 2021-352 please change to -15 on report

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: RGF

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCA-5 metals				Notes
TP5-5	11 A-E	3-30-22	12:15	Soil	5								X				
TP5-9	12		12:30		5				X	X							
TP5	13 A-F		1:25	Water	6				X	X							
TP6-5	14 A-E		2:00	Soil	5					X			X				
TP6-10	15		2:15		5				X	X							
TP6-15	16		2:30		5												

ANALYSES REQUESTED

Samples received at 5 °C

Friedman & Bruya, Inc.
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Eric Zuern	RGI	3/31/22	
Received by:		Nolan Christensen	FedEx	3/31/22	11:05
Relinquished by:					
Received by:		Tokala Christensen	F+B	3/31/22	12:29